CO-OP Refinery Complex — 24 Stations at 15.3 Feet apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-802 Feb 2, 2018

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.6875	0.6875	0.6875	0.5625	0.5625	0.375	0.375	0.25	0.25	0.25	0.25	0.250	0.250
Station	Ref												
1	7.305	7.659	7.305	7.272	6.918	6.672	6.397	6.561	6.640	6.837	5.577	5.616	6.758
2	31.635	32.620	31.635	31.327	31.406	32.027	32.302	32.309	31.994	32.703	32.821	32.427	31.876
3	14.116	13.604	14.116	15.540	16.012	16.436	16.239	16.325	16.207	16.561	17.073	17.388	17.939
4	4.785	4.234	4.785	5.264	5.540	6.908	8.129	8.884	9.317	9.947	10.695	11.404	10.537
5	18.525	17.462	18.525	19.004	18.768	18.956	18.601	18.884	19.238	20.616	20.656	20.262	19.514
6	24.076	24.391	24.076	24.438	24.871	25.688	26.554	26.994	27.545	28.333	26.915	27.230	29.317
7	25.730	25.651	25.730	26.170	25.894	25.924	24.822	24.474	24.159	25.301	25.774	25.537	24.947
8	17.108	17.856	17.108	17.233	17.469	18.129	17.775	17.348	16.640	16.837	16.010	15.695	15.459
9	28.328	28.328	28.328	28.532	28.650	29.034	28.877	29.041	28.963	28.963	28.963	29.593	29.317
10	35.061	34.588	35.061	35.500	35.579	36.515	36.790	36.443	37.939	39.278	38.884	39.317	38.726
11	6.242	6.320	6.242	6.524	6.485	6.751	6.712	7.112	7.112	7.112	6.797	7.191	9.435
Door Sheet													
13	23.840	23.368	23.840	24.438	24.792	24.861	24.113	24.199	23.884	24.750	24.317	23.884	23.805
14	16.950	16.714	16.950	17.233	17.626	18.326	19.349	20.144	21.719	22.900	24.199	24.671	24.711
15	9.627	8.761	9.627	9.989	12.075	12.853	12.499	12.821	13.490	14.671	16.167	16.640	17.230
16	17.344	16.990	17.344	17.745	17.548	18.405	19.192	19.317	19.159	19.435	19.553	18.608	18.963
17	13.840	14.155	13.840	12.312	11.209	10.885	9.782	9.750	9.396	9.356	9.278	8.884	7.939
18	7.305	7.620	7.305	7.312	6.682	6.712	6.318	6.207	5.931	6.522	7.270	6.837	6.955
19	18.958	17.462	18.958	19.241	19.910	20.531	20.767	21.719	22.230	22.112	22.467	22.270	21.915
20	38.998	38.643	38.998	39.123	38.689	39.349	39.507	39.474	39.278	39.278	40.026	40.577	41.876
21	6.753	6.478	6.753	7.154	6.997	6.436	6.279	6.404	6.089	6.128	7.230	6.876	7.112
22	38.801	39.509	38.801	38.689	38.886	39.468	39.586	39.829	39.199	39.199	38.844	38.569	38.372
23	10.100	9.982	10.100	10.461	10.461	10.806	10.845	11.049	10.734	10.734	11.246	11.994	11.679
24	31.045	30.612	31.045	31.327	31.012	31.751	31.672	31.089	31.325	31.482	31.482	31.679	32.900

CO-OP Refinery Complex — 24 Stations at 15.3 Feet apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-802 Feb 2, 2018
Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1	0.000	-0.354	0.000	0.032	0.387	0.632	0.908	0.744	0.665	0.468	1.728	1.688	0.547
2	0.000	-0.984	0.000	0.308	0.229	-0.391	-0.667	-0.674	-0.359	-1.067	-1.186	-0.792	-0.241
3	0.000	0.512	0.000	-1.424	-1.897	-2.320	-2.124	-2.209	-2.091	-2.445	-2.957	-3.272	-3.823
4	0.000	0.551	0.000	-0.479	-0.755	-2.124	-3.344	-4.099	-4.532	-5.162	-5.910	-6.619	-5.752
5	0.000	1.063	0.000	-0.479	-0.243	-0.431	-0.076	-0.359	-0.713	-2.091	-2.130	-1.737	-0.989
6	0.000	-0.315	0.000	-0.361	-0.794	-1.612	-2.478	-2.918	-3.469	-4.256	-2.839	-3.154	-5.241
7	0.000	0.079	0.000	-0.440	-0.164	-0.194	0.908	1.255	1.570	0.429	-0.044	0.192	0.783
8	0.000	-0.748	0.000	-0.125	-0.361	-1.021	-0.667	-0.241	0.468	0.271	1.098	1.413	1.649
9	0.000	0.000	0.000	-0.204	-0.322	-0.706	-0.549	-0.713	-0.634	-0.634	-0.634	-1.264	-0.989
10	0.000	0.472	0.000	-0.440	-0.519	-1.454	-1.730	-1.382	-2.878	-4.217	-3.823	-4.256	-3.666
11	0.000	-0.079	0.000	-0.282	-0.243	-0.509	-0.470	-0.871	-0.871	-0.871	-0.556	-0.949	-3.193
12	0.000												
13	0.000	0.472	0.000	-0.597	-0.952	-1.021	-0.273	-0.359	-0.044	-0.910	-0.477	-0.044	0.035
14	0.000	0.236	0.000	-0.282	-0.676	-1.375	-2.399	-3.193	-4.768	-5.949	-7.249	-7.721	-7.760
15	0.000	0.866	0.000	-0.361	-2.448	-3.226	-2.872	-3.193	-3.863	-5.044	-6.540	-7.012	-7.603
16	0.000	0.354	0.000	-0.401	-0.204	-1.061	-1.848	-1.973	-1.815	-2.091	-2.209	-1.264	-1.619
17	0.000	-0.315	0.000	1.529	2.631	2.955	4.058	4.090	4.444	4.484	4.563	4.956	5.901
18	0.000	-0.315	0.000	-0.007	0.623	0.593	0.987	1.098	1.374	0.783	0.035	0.468	0.350
19	0.000	1.496	0.000	-0.282	-0.952	-1.572	-1.809	-2.760	-3.272	-3.154	-3.508	-3.312	-2.957
20	0.000	0.354	0.000	-0.125	0.308	-0.352	-0.509	-0.477	-0.280	-0.280	-1.028	-1.579	-2.878
21	0.000	0.276	0.000	-0.401	-0.243	0.317	0.475	0.350	0.665	0.625	-0.477	-0.123	-0.359
22	0.000	-0.709	0.000	0.111	-0.086	-0.667	-0.785	-1.028	-0.398	-0.398	-0.044	0.232	0.429
23	0.000	0.118	0.000	-0.361	-0.361	-0.706	-0.746	-0.949	-0.634	-0.634	-1.146	-1.894	-1.579
24	0.000	0.433	0.000	-0.282	0.032	-0.706	-0.627	-0.044	-0.280	-0.438	-0.438	-0.634	-1.855

Maximum INWARD Offset : -7.760

Maximum OUTWARD Offset : 5.901

CO-OP Refinery Complex — 24 Stations at 15.3 Feet apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-802 Feb 2, 2018

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1 & 13	0	0.118	0.000	-0.565	-0.565	-0.389	0.635	0.385	0.621	-0.442	1.251	1.645	0.582
2 & 14	0	-0.748	0.000	0.026	-0.447	-1.767	-3.066	-3.867	-5.127	-7.017	-8.434	-8.513	-8.001
3 & 15	0	1.378	0.000	-1.785	-4.344	-5.546	-4.995	-5.403	-5.954	-7.489	-9.497	-10.284	-11.426
4 & 16	0	0.906	0.000	-0.880	-0.959	-3.184	-5.192	-6.072	-6.347	-7.253	-8.119	-7.883	-7.371
5 & 17	0	0.748	0.000	1.049	2.388	2.525	3.981	3.731	3.731	2.393	2.432	3.219	4.912
6 & 18	0	-0.630	0.000	-0.368	-0.171	-1.019	-1.491	-1.820	-2.095	-3.473	-2.804	-2.686	-4.891
7 & 19	0	1.575	0.000	-0.722	-1.116	-1.767	-0.901	-1.505	-1.702	-2.725	-3.552	-3.119	-2.174
8 & 20	0	-0.394	0.000	-0.250	-0.053	-1.373	-1.176	-0.718	0.188	-0.009	0.070	-0.166	-1.229
9 & 21	0	0.276	0.000	-0.604	-0.565	-0.389	-0.074	-0.363	0.031	-0.009	-1.111	-1.387	-1.347
10 & 22	0	-0.236	0.000	-0.329	-0.604	-2.121	-2.515	-2.410	-3.277	-4.615	-3.867	-4.025	-3.237
11 & 23	0	0.039	0.000	-0.644	-0.604	-1.216	-1.216	-1.820	-1.505	-1.505	-1.702	-2.844	-4.773

Opposing Offsets – Calculated Internal Diameter – Feet

Course	0	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1 & 13	116.885	116.895	116.885	116.838	116.838	116.853	116.938	116.917	116.937	116.848	116.989	117.022	116.934
2 & 14	116.885	116.823	116.885	116.887	116.848	116.738	116.630	116.563	116.458	116.300	116.182	116.176	116.218
3 & 15	116.885	117.000	116.885	116.736	116.523	116.423	116.469	116.435	116.389	116.261	116.094	116.028	115.933
4 & 16	116.885	116.961	116.885	116.812	116.805	116.620	116.453	116.379	116.356	116.281	116.209	116.228	116.271
5 & 17	116.885	116.948	116.885	116.973	117.084	117.096	117.217	117.196	117.196	117.085	117.088	117.153	117.295
6 & 18	116.885	116.833	116.885	116.855	116.871	116.800	116.761	116.734	116.711	116.596	116.652	116.661	116.478
7 & 19	116.885	117.016	116.885	116.825	116.792	116.738	116.810	116.760	116.743	116.658	116.589	116.625	116.704
8 & 20	116.885	116.852	116.885	116.864	116.881	116.771	116.787	116.825	116.901	116.884	116.891	116.871	116.783
9 & 21	116.885	116.908	116.885	116.835	116.838	116.853	116.879	116.855	116.888	116.884	116.793	116.770	116.773
10 & 22	116.885	116.866	116.885	116.858	116.835	116.708	116.676	116.684	116.612	116.501	116.563	116.550	116.615
11 & 23	116.885	116.888	116.885	116.832	116.835	116.784	116.784	116.734	116.760	116.760	116.743	116.648	116.487

CO-OP Refinery Complex — 24 Stations at 15.3 Feet apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-802 Feb 2, 2018

Tank Dimensions

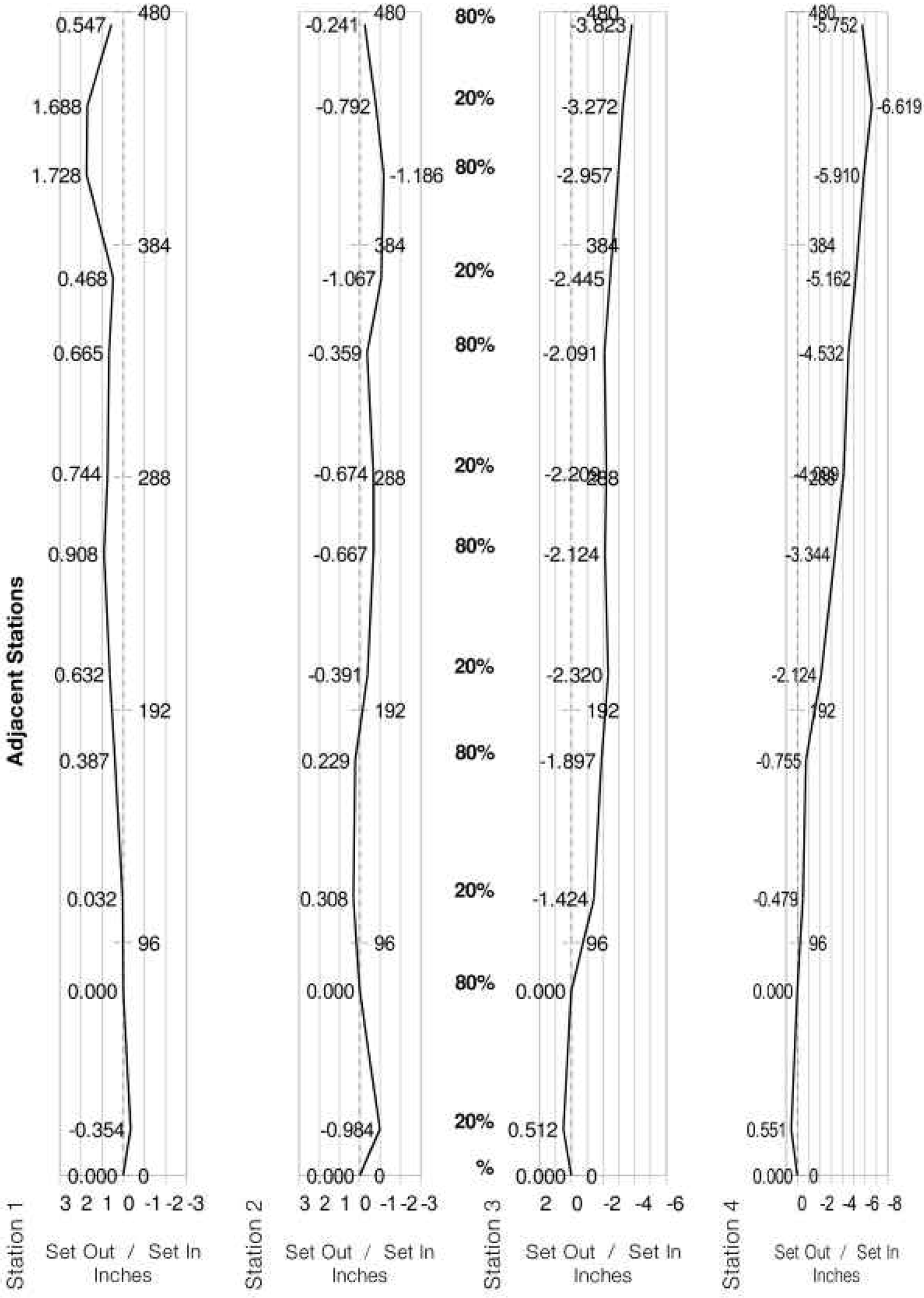
Reference Circumference (external)	112.034 Metres
Reference Circumference (external)	367.566 Feet
Reference Diameter (Internal)	116.885 Feet

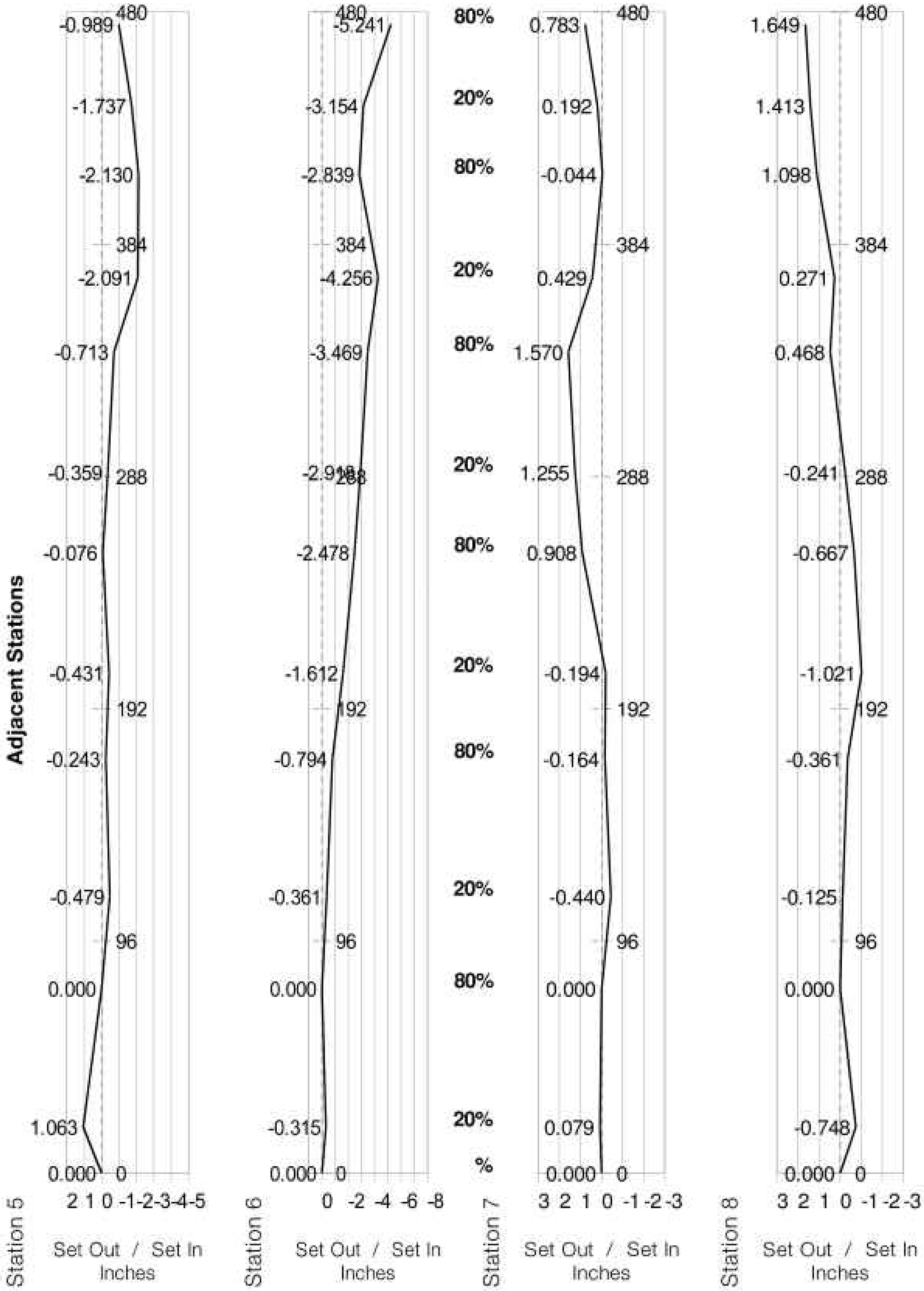
Opposing Stations – Internal Offsets

Maximum Tank SET IN (inch)	-11.426
Maximum Tank SET OUT (inch)	4.912

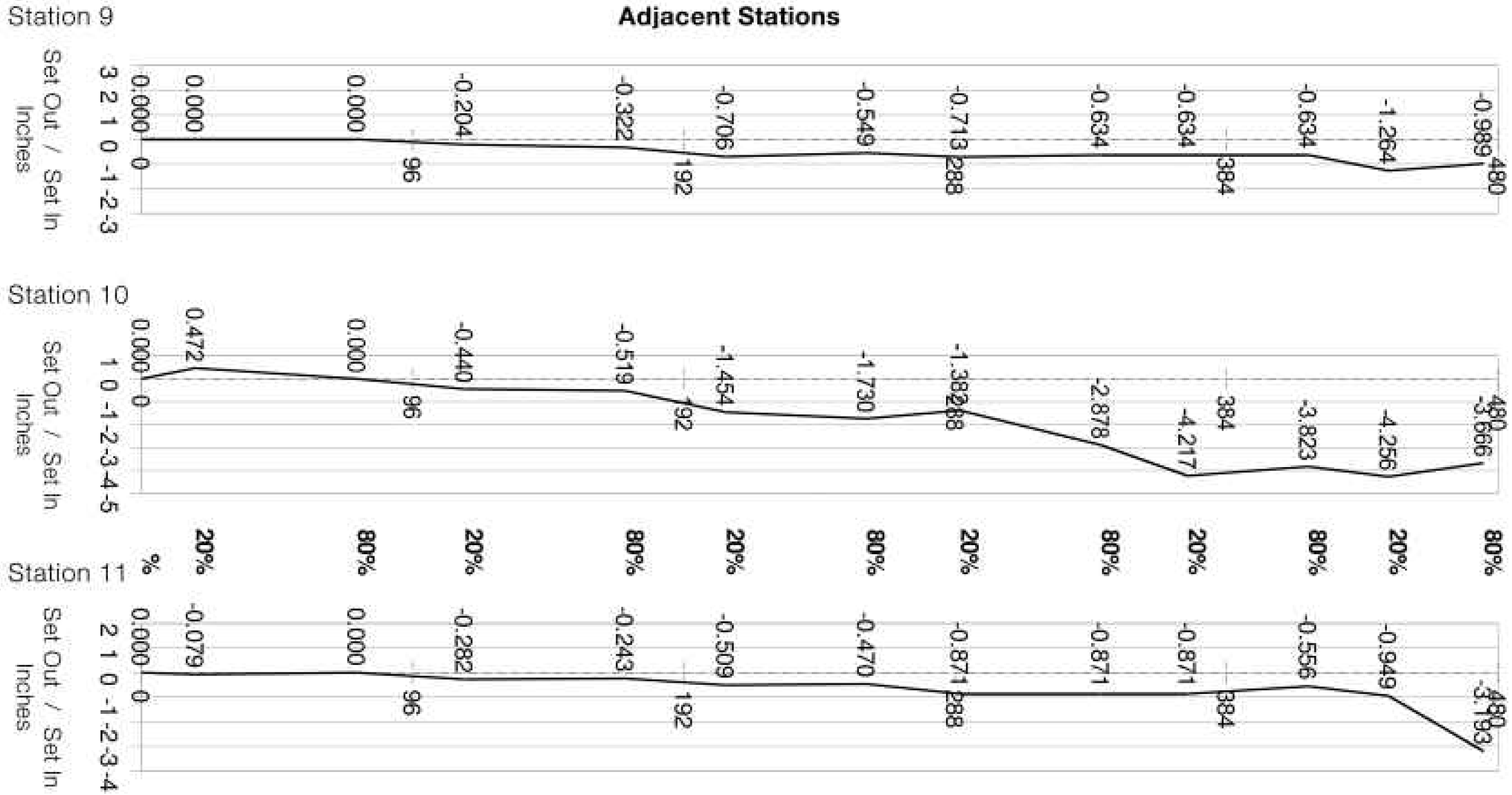
Opposing Stations – Internal Diameter

Minimum Diameter (ft)	115.933
Maximum Diameter (ft)	117.295


Adjacent Stations
Station 1
Station 2
Station 3
Station 4
Set Out / Set In
Inches
480
384
288
192
96
0
80%
20%
0.547
1.688
1.728
0.468
0.665
0.744
0.908
0.632
0.387
0.032
0.000
-0.354
-0.241
-0.792
-1.186
-1.067
-0.359
-0.674
-0.667
-0.391
0.229
0.308
-0.984
-3.823
-3.272
-2.957
-2.445
-2.091
-2.209
-2.124
-2.320
-1.897
-1.424
0.512
-5.752
-6.619
-5.910
-5.162
-4.532
-4.289
-3.344
-2.124
-0.755
-0.479
0.551
3 2 1 0 -1 -2 -3
2 0 -2 -4 -6
0 -2 -4 -6 -8


Adjacent Stations
Station 5
-0.989
480
-1.737
-2.130
384
-2.091
-0.713
-0.359
288
-0.076
-0.431
192
-0.243
-0.479
96
0.000
1.063
0.000
0
2 1 0 -1 -2 -3 -4 -5
Set Out / Set In
Inches
Station 6
480
-5.241
-3.154
-2.839
384
-4.256
-3.469
-2.918
288
-2.478
-1.612
192
-0.794
-0.361
96
0.000
-0.315
0.000
0
0 -2 -4 -6 -8
Set Out / Set In
Inches
80%
20%
80%
20%
80%
20%
80%
20%
80%
%
Station 7
0.783
480
0.192
-0.044
384
0.429
1.570
1.255
288
0.908
-0.194
192
-0.164
-0.440
96
0.000
0.079
0.000
0
3 2 1 0 -1 -2 -3
Set Out / Set In
Inches
Station 8
1.649
480
1.413
1.098
384
0.271
0.468
-0.241
288
-0.667
-1.021
192
-0.361
-0.125
96
0.000
-0.748
0.000
0
3 2 1 0 -1 -2 -3
Set Out / Set In
Inches

Station 9



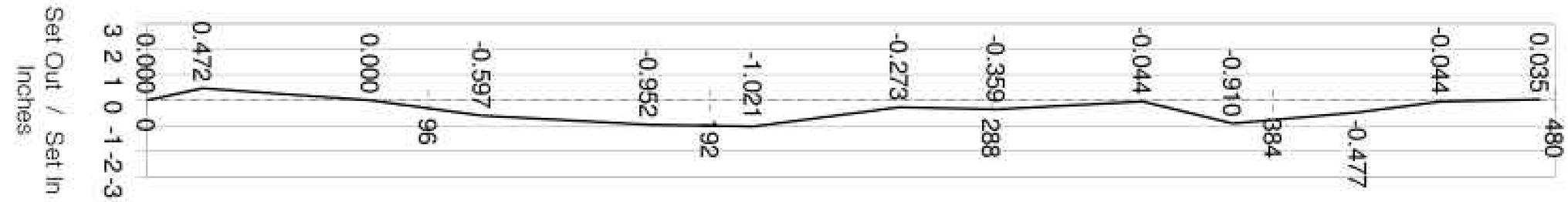
Station 10

Station 11

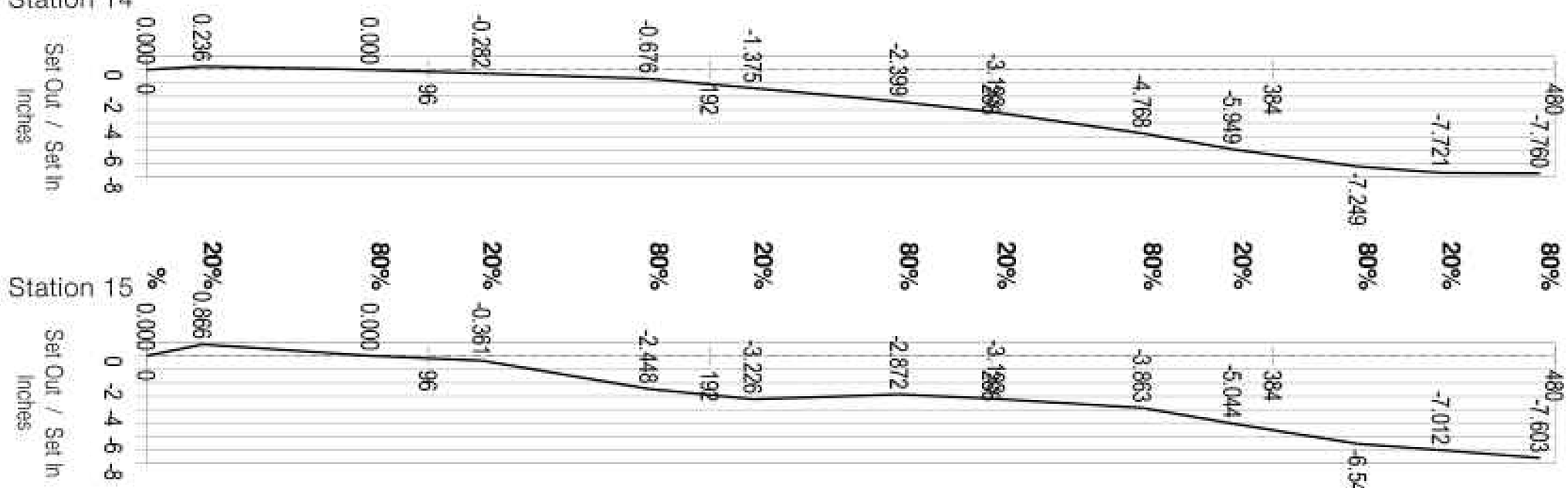
Station 12 – Not Applicable (Door Sheet)

Adjacent Stations

Station 13

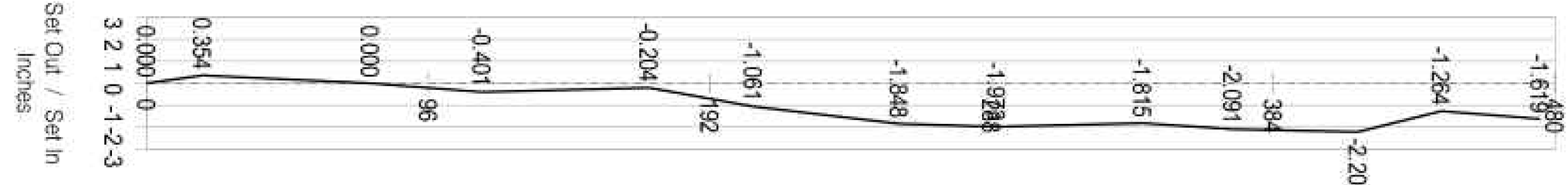


Station 14

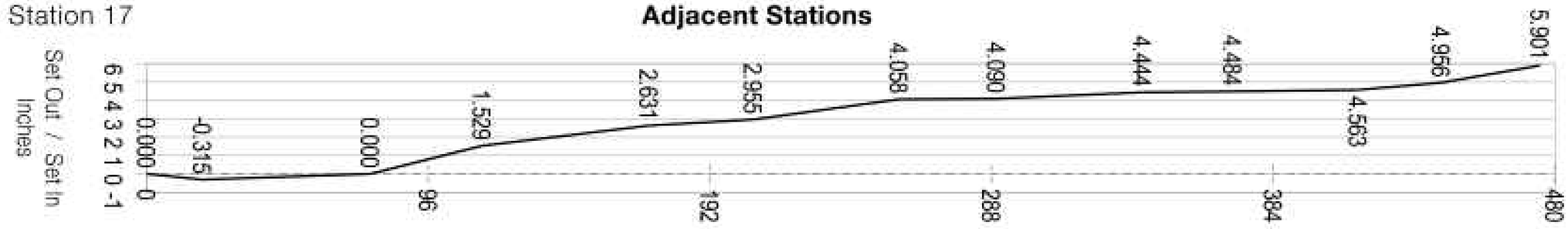


Station 15

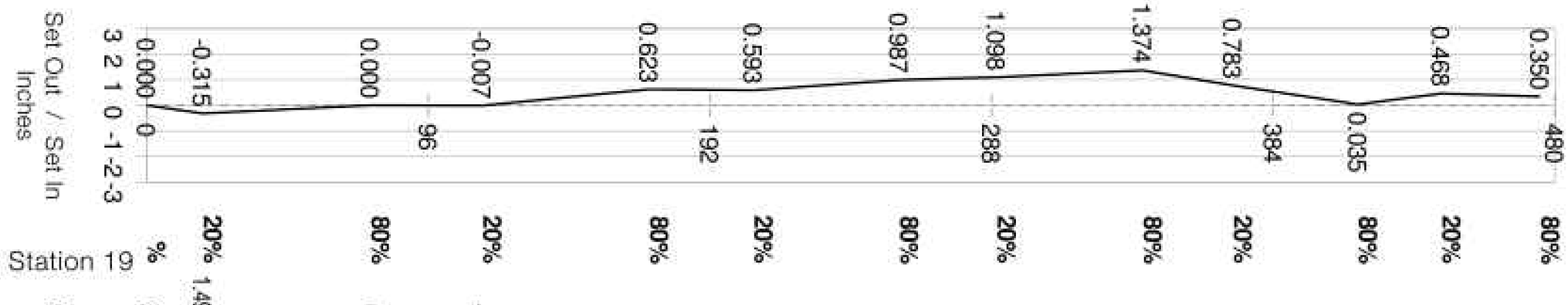
Station 16



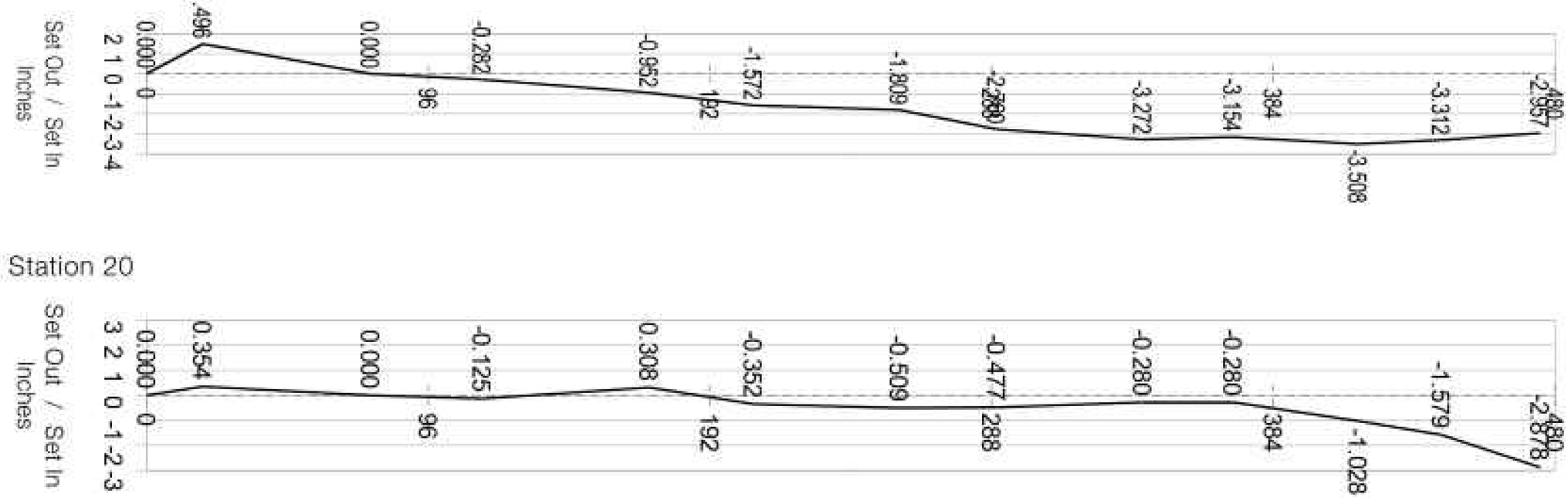
Station 17



Station 18



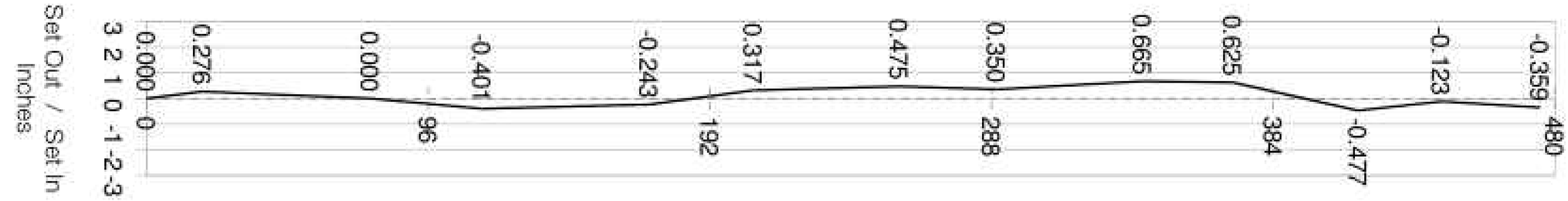
Station 19



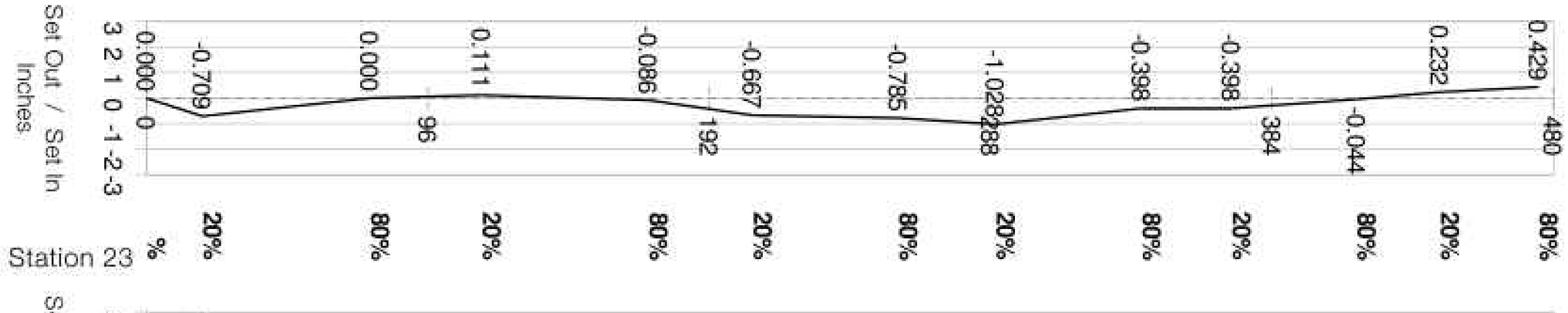
Station 20

Adjacent Stations

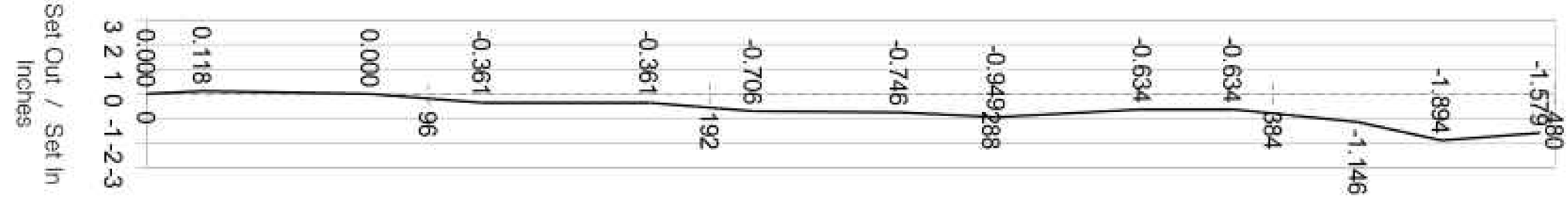
Station 21



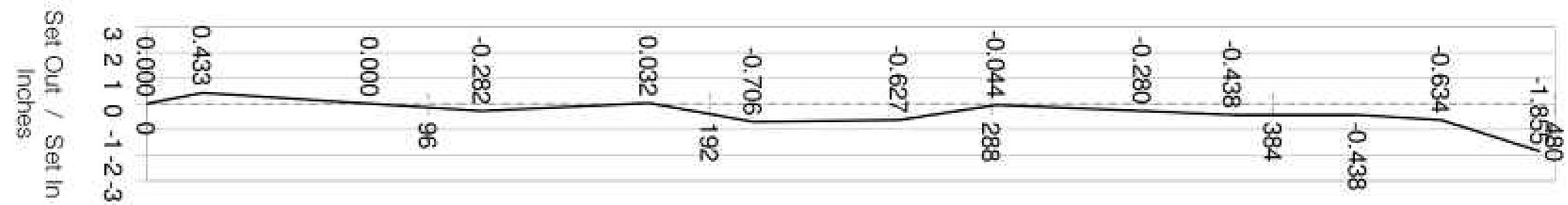
Station 22



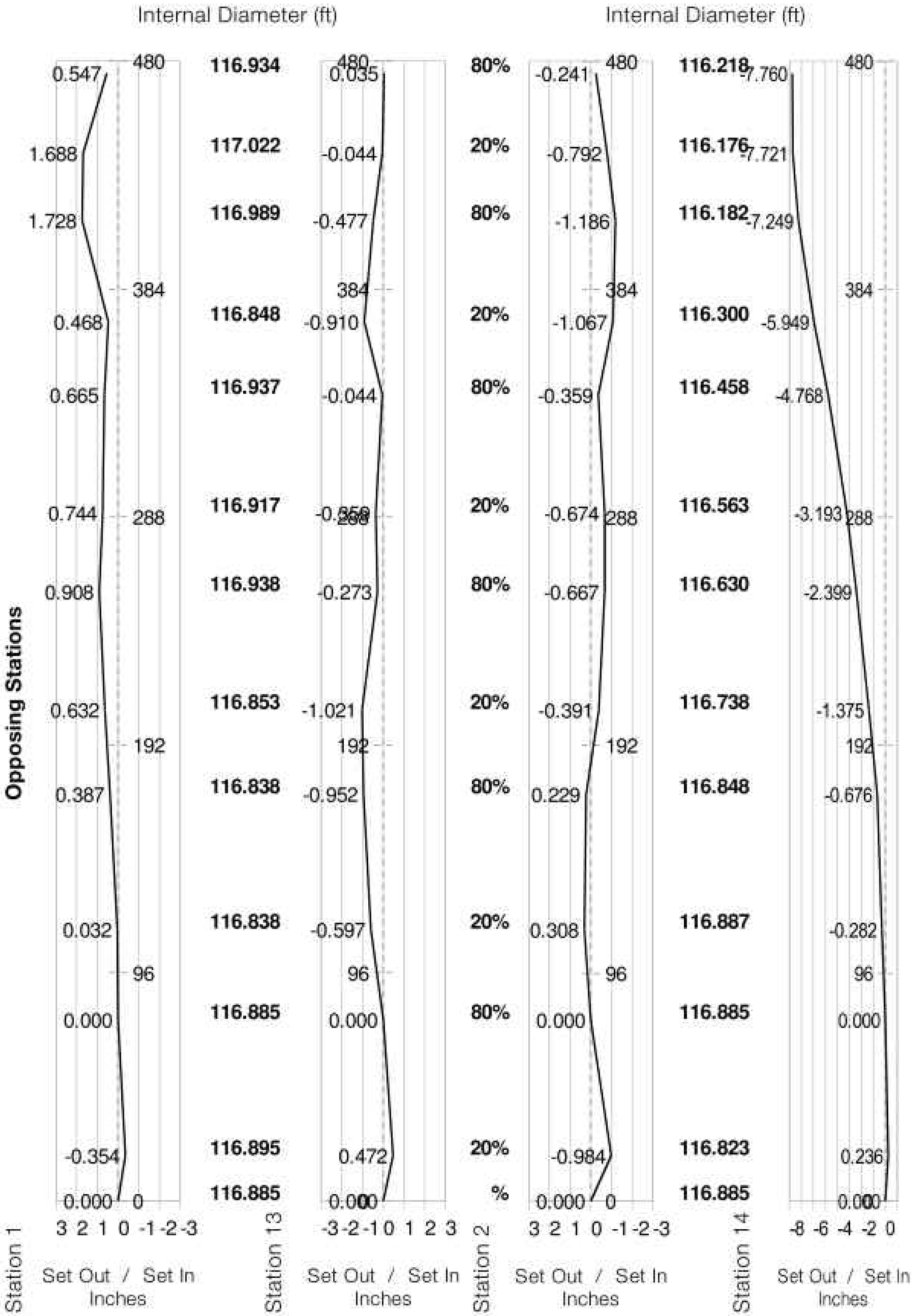
Station 23

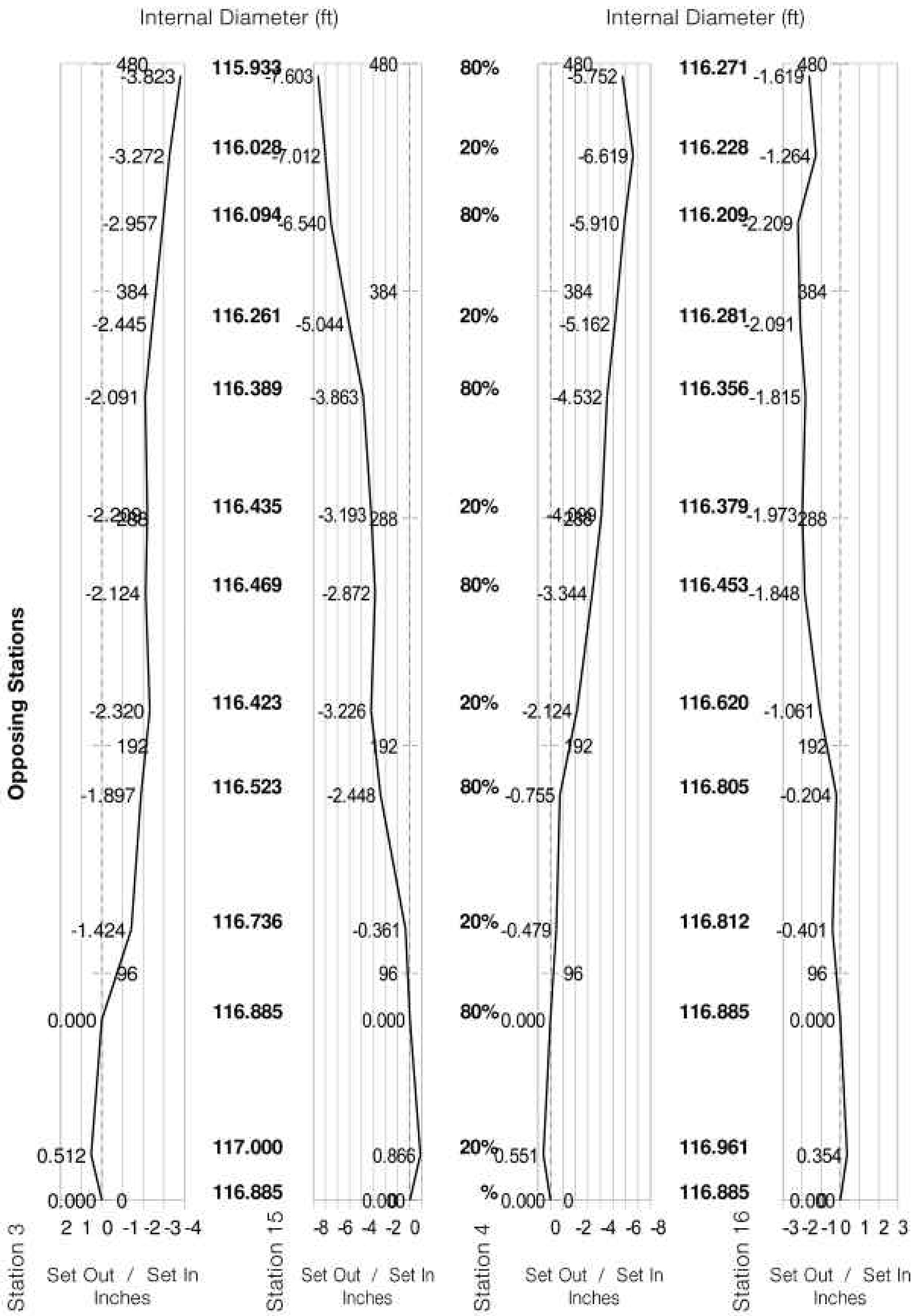


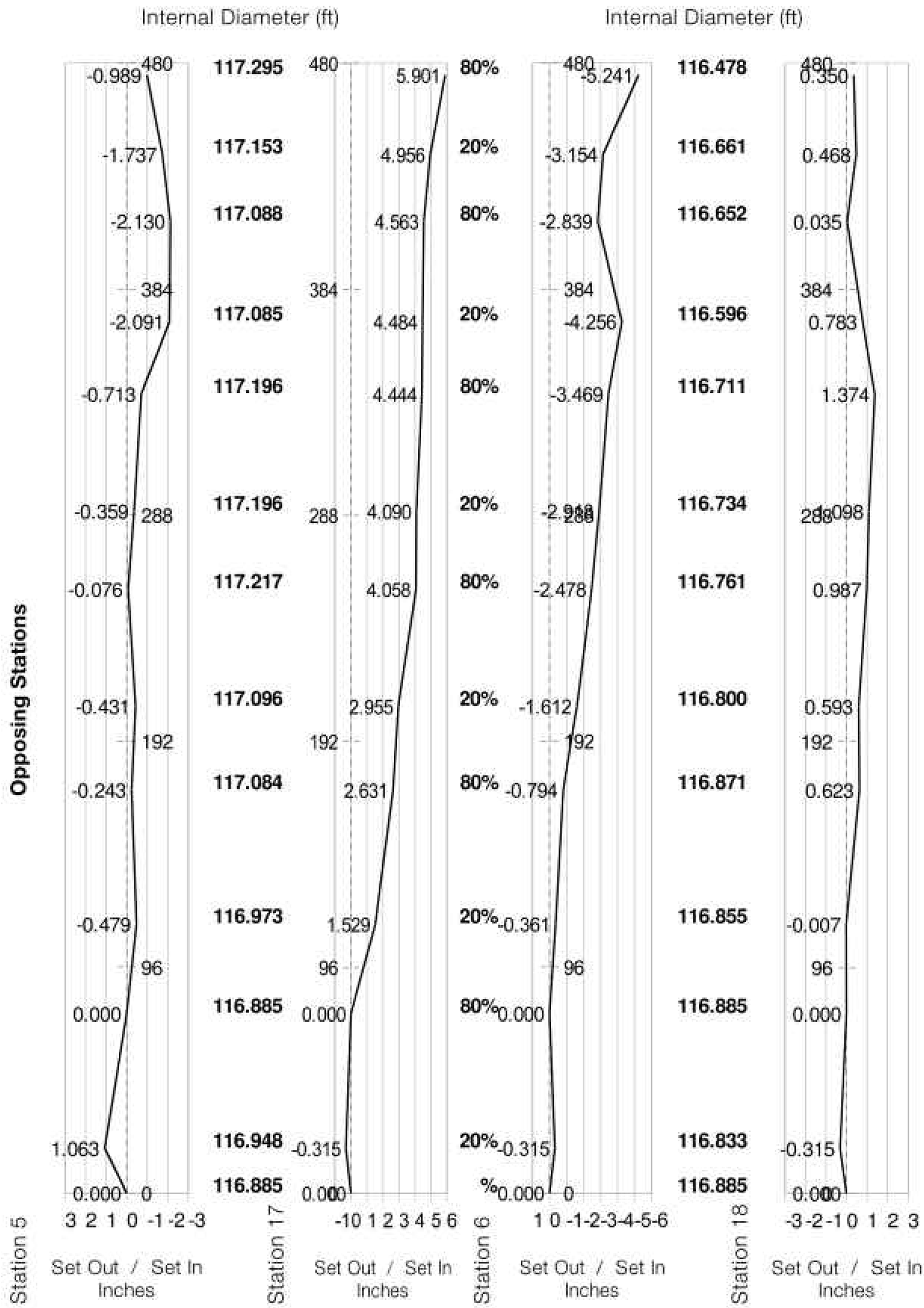
Station 24

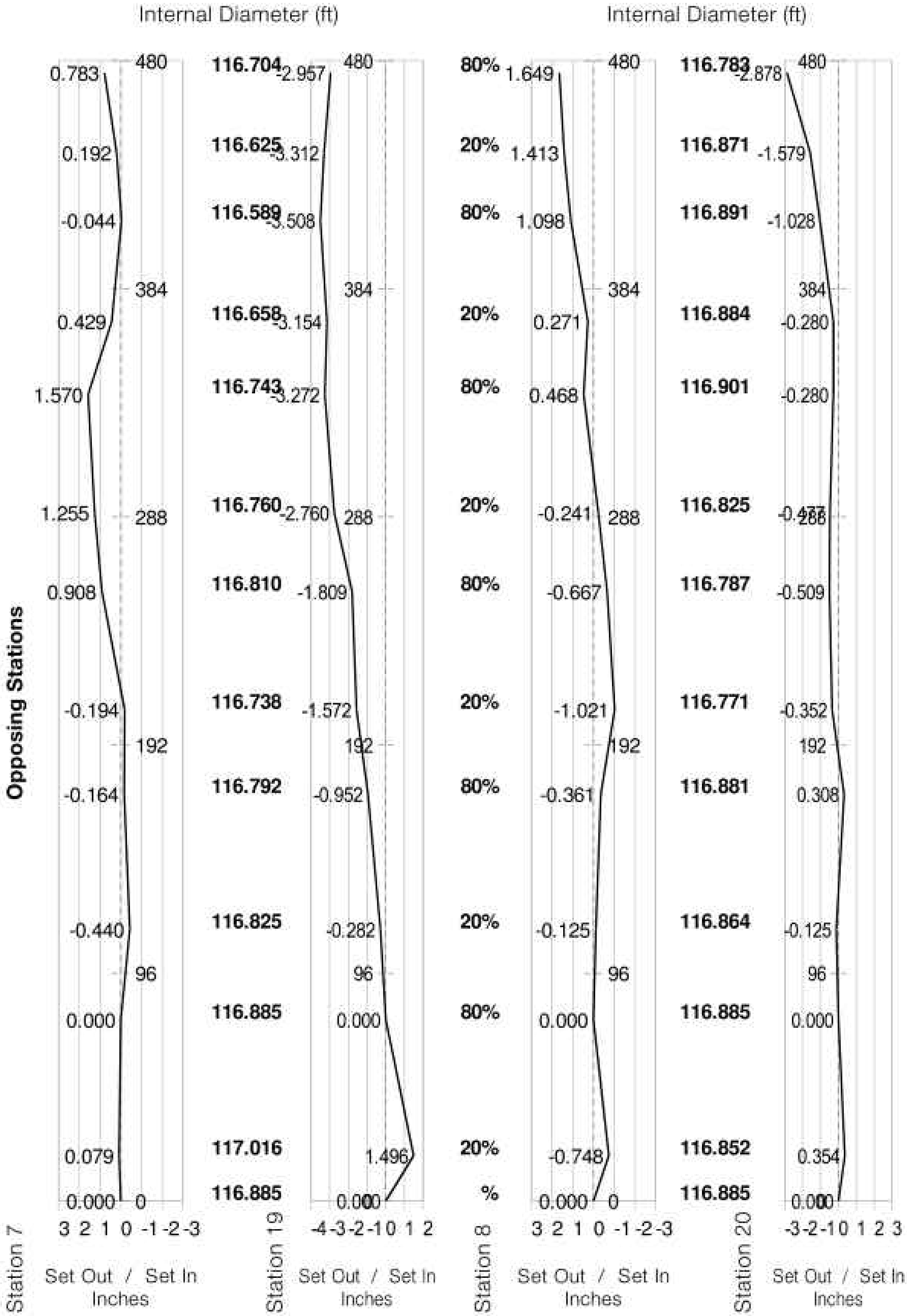


Opposing Stations

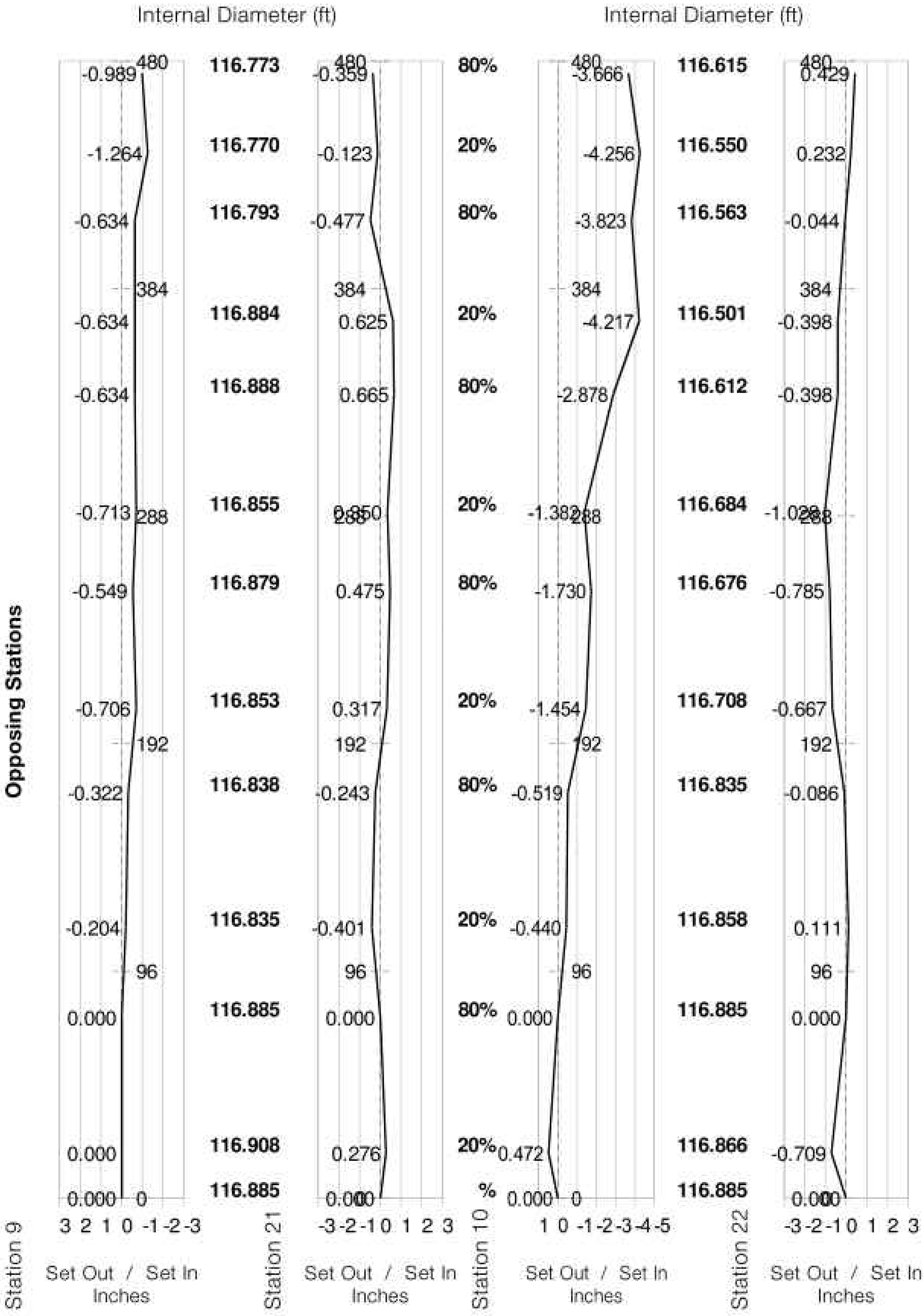


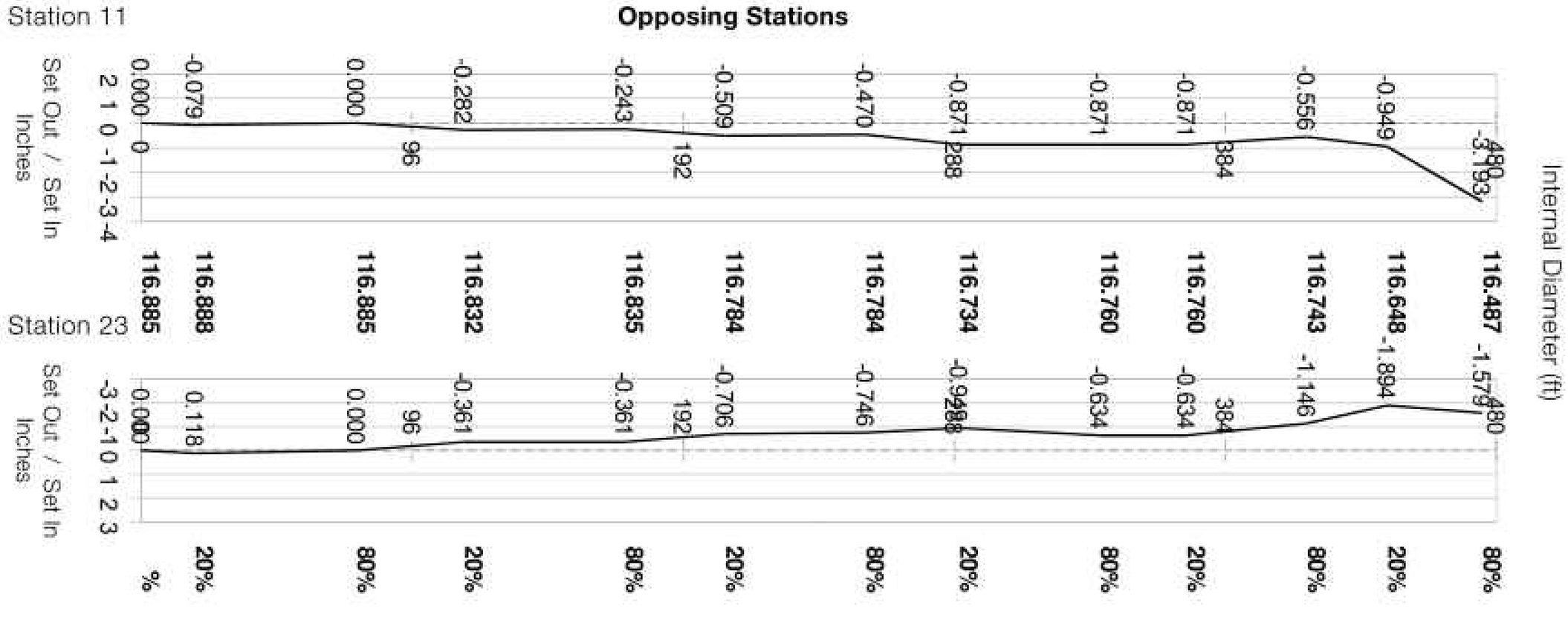

Internal Diameter (ft)
Internal Diameter (ft)
Opposing Stations
480
384
288
192
96
0
115.933
116.028
116.094
116.261
116.389
116.435
116.469
116.423
116.523
116.736
116.885
117.000
116.885
80%
20%
80%
20%
80%
20%
80%
20%
80%
20%
%
116.271
116.228
116.209
116.281
116.356
116.379
116.453
116.620
116.805
116.812
116.885
116.961
116.885
-3.823
-3.272
-2.957
-2.445
-2.091
-2.209
-2.124
-2.320
-1.897
-1.424
0.000
0.512
0.000
-7.603
-7.012
-6.540
-5.044
-3.863
-3.193
-2.872
-3.226
-2.448
-0.361
0.000
0.866
0.000
-5.752
-6.619
-5.910
-5.162
-4.532
-4.099
-3.344
-2.124
-0.755
-0.479
0.000
0.551
0.000
-1.619
-1.264
-2.209
-2.091
-1.815
-1.973
-1.848
-1.061
-0.204
-0.401
0.000
0.354
0.000
2 1 0 -1 -2 -3 -4
-8 -6 -4 -2 0
0 -2 -4 -6 -8
-3 -2 -1 0 1 2 3
Station 3
Station 15
Station 4
Station 16
Set Out / Set In
Inches


Internal Diameter (ft)
Internal Diameter (ft)
Opposing Stations
480
384
288
192
96
0
-0.989
-1.737
-2.130
-2.091
-0.713
-0.359
-0.076
-0.431
-0.243
-0.479
0.000
1.063
0.000
117.295
117.153
117.088
117.085
117.196
117.196
117.217
117.096
117.084
116.973
116.885
116.948
116.885
5.901
4.956
4.563
4.484
4.444
4.090
4.058
2.955
2.631
1.529
0.000
-0.315
0.000
80%
20%
80%
20%
80%
20%
80%
20%
80%
20%
%
-5.241
-3.154
-2.839
-4.256
-3.469
-2.478
-1.612
-0.794
-0.361
0.000
-0.315
0.000
116.478
116.661
116.652
116.596
116.711
116.761
116.800
116.871
116.855
116.885
116.833
116.885
0.350
0.468
0.035
0.783
1.374
0.987
0.593
0.623
-0.007
0.000
-0.315
0.000
3 2 1 0 -1 -2 -3
-10 1 2 3 4 5 6
1 0 -1 -2 -3 -4 -5 -6
-3 -2 -1 0 1 2 3
Set Out / Set In
Inches
Station 5
Station 17
Station 6
Station 18

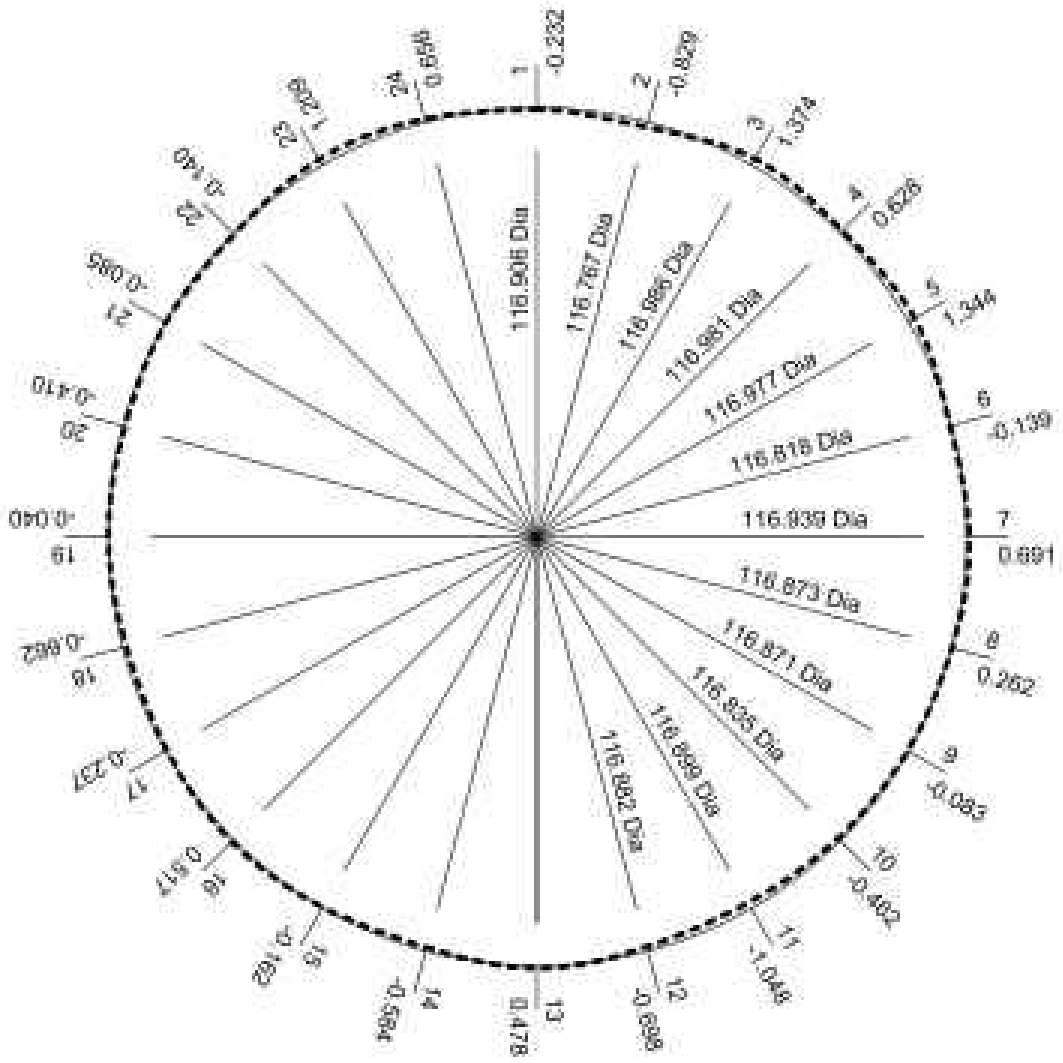

Internal Diameter (ft)
Internal Diameter (ft)
Opposing Stations
480
384
288
192
96
0
0.783
0.192
-0.044
0.429
1.570
1.255
0.908
-0.194
-0.164
-0.440
0.000
0.079
0.000
116.704
-2.957
116.625
-3.312
116.589
-3.508
116.658
-3.154
116.743
-3.272
116.760
-2.760
116.810
-1.809
116.738
-1.572
116.792
-0.952
116.825
-0.282
116.885
1.496
117.016
116.885
80%
1.649
20%
1.413
80%
1.098
20%
0.271
80%
0.468
20%
-0.241
80%
-0.667
20%
-1.021
80%
-0.361
20%
-0.125
80%
0.000
20%
-0.748
%
0.000
116.783
-2.878
116.871
-1.579
116.891
-1.028
116.884
-0.280
116.901
-0.280
116.825
-0.277
116.787
-0.509
116.771
-0.352
116.881
0.308
116.864
-0.125
116.885
0.000
116.852
0.354
116.885
0.000
3 2 1 0 -1 -2 -3
-4 -3 -2 -1 0 1 2
3 2 1 0 -1 -2 -3
-3 -2 -1 0 1 2 3
Set Out / Set In
Inches
Station 7
Station 19
Station 8
Station 20

Opposing Stations

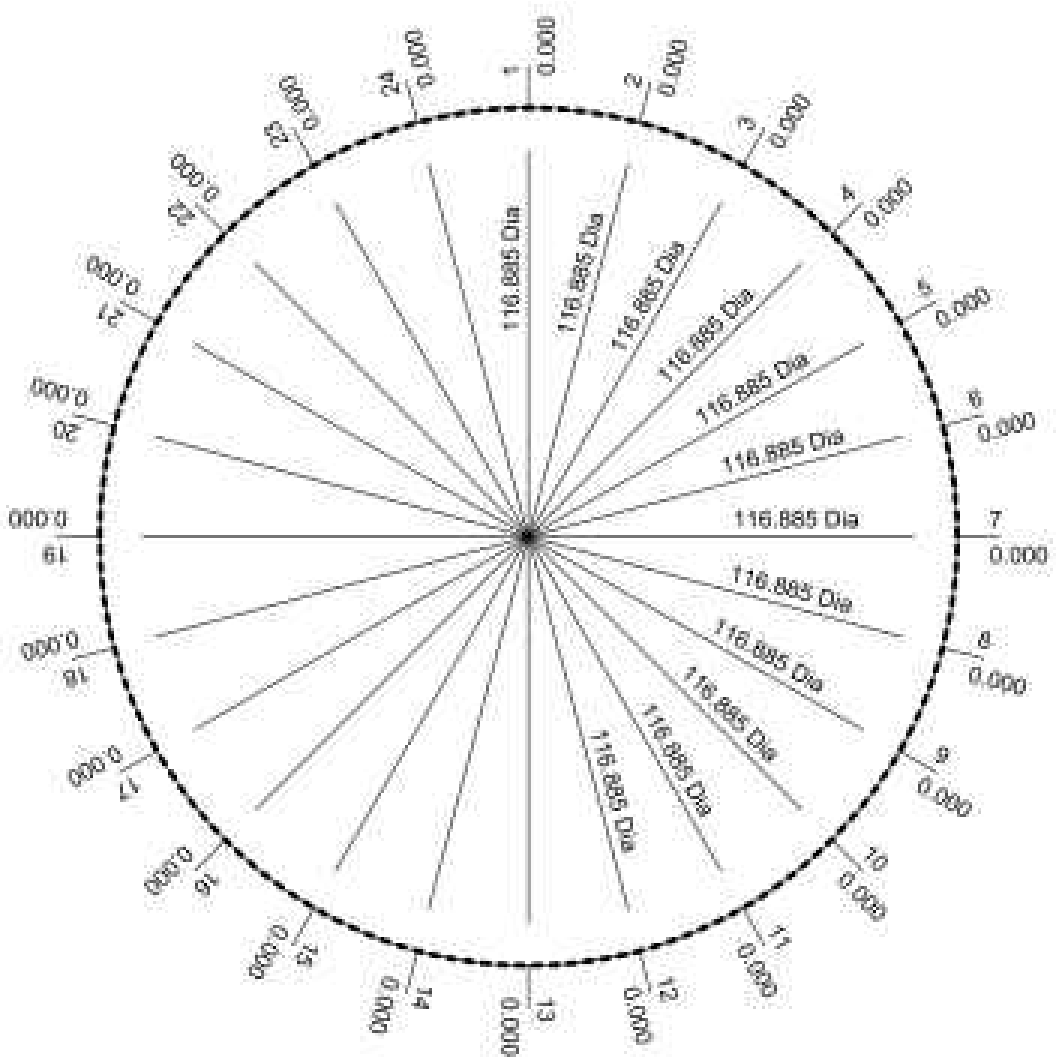



Opposing Stations
Station 11
Station 23
Set Out / Set In Inches
Internal Diameter (ft)
% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80%
0 96 192 288 384 480
0.000 -0.079 0.000 -0.282 -0.243 -0.509 -0.470 -0.871 -0.871 -0.556 -0.949 -3.193
116.885 116.888 116.885 116.832 116.835 116.784 116.784 116.734 116.760 116.743 116.648 116.487
0.000 0.118 0.000 -0.361 -0.361 -0.706 -0.746 -0.928 -0.634 -1.146 -1.894 -1.579

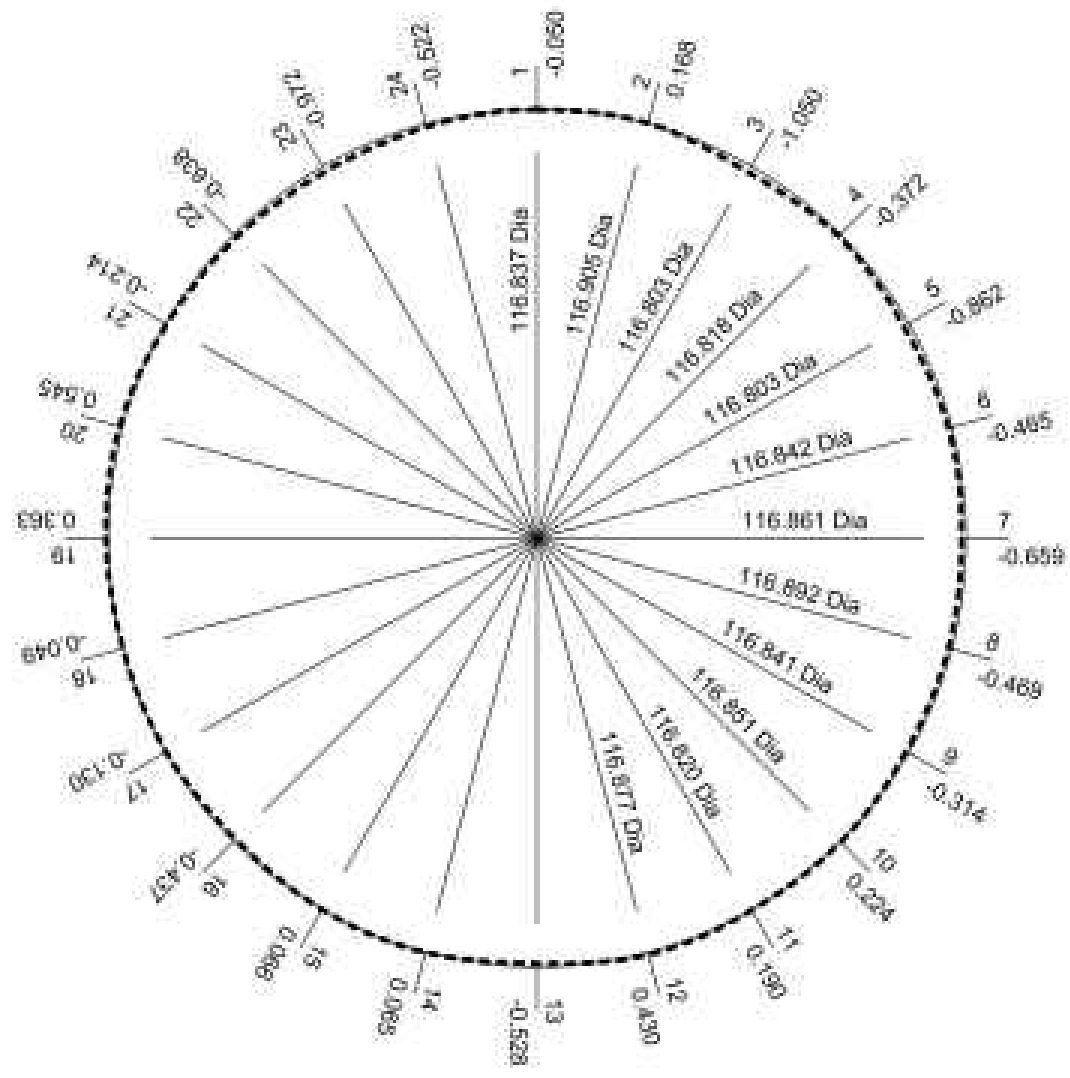
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-802
RING OFFSETS



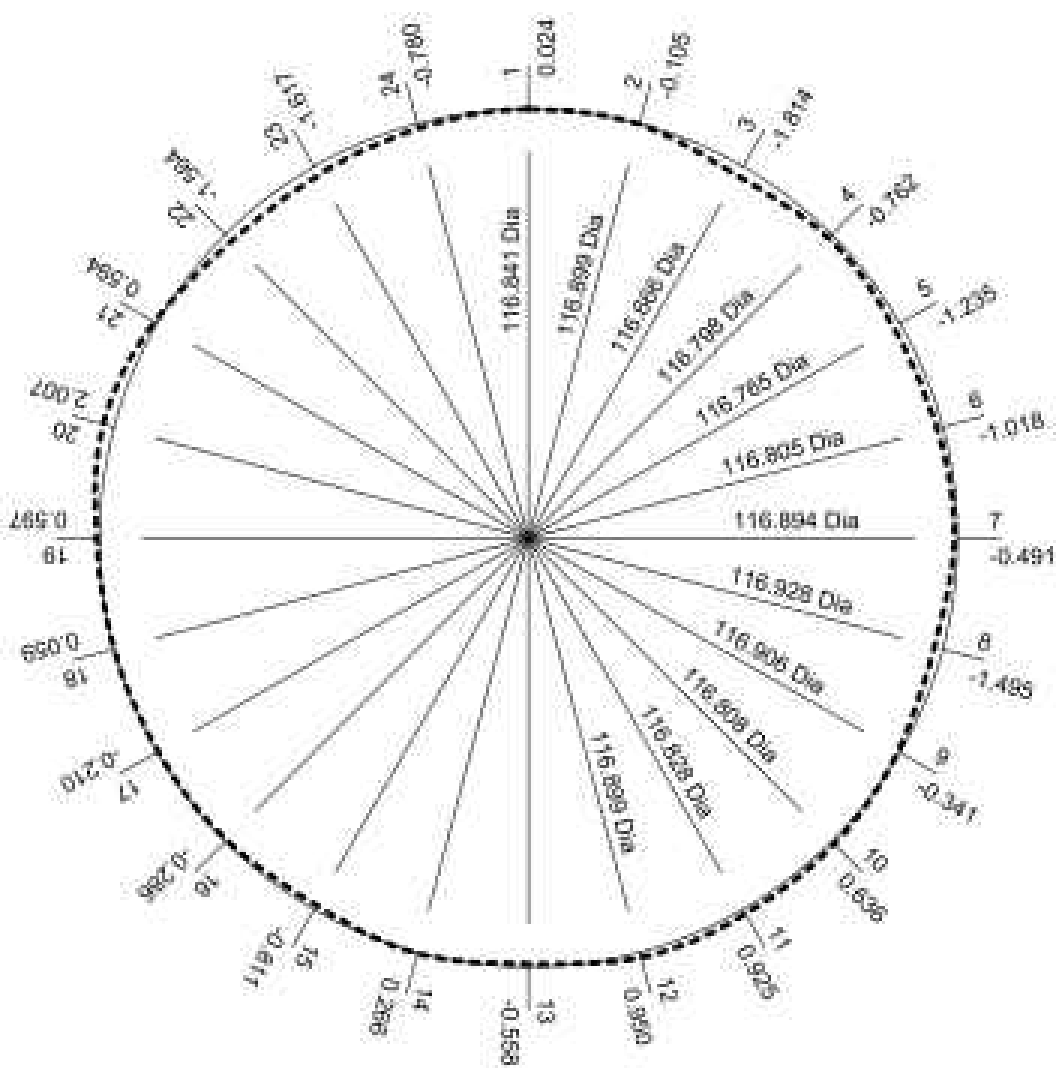
RING #1 20%



RING #1 80%

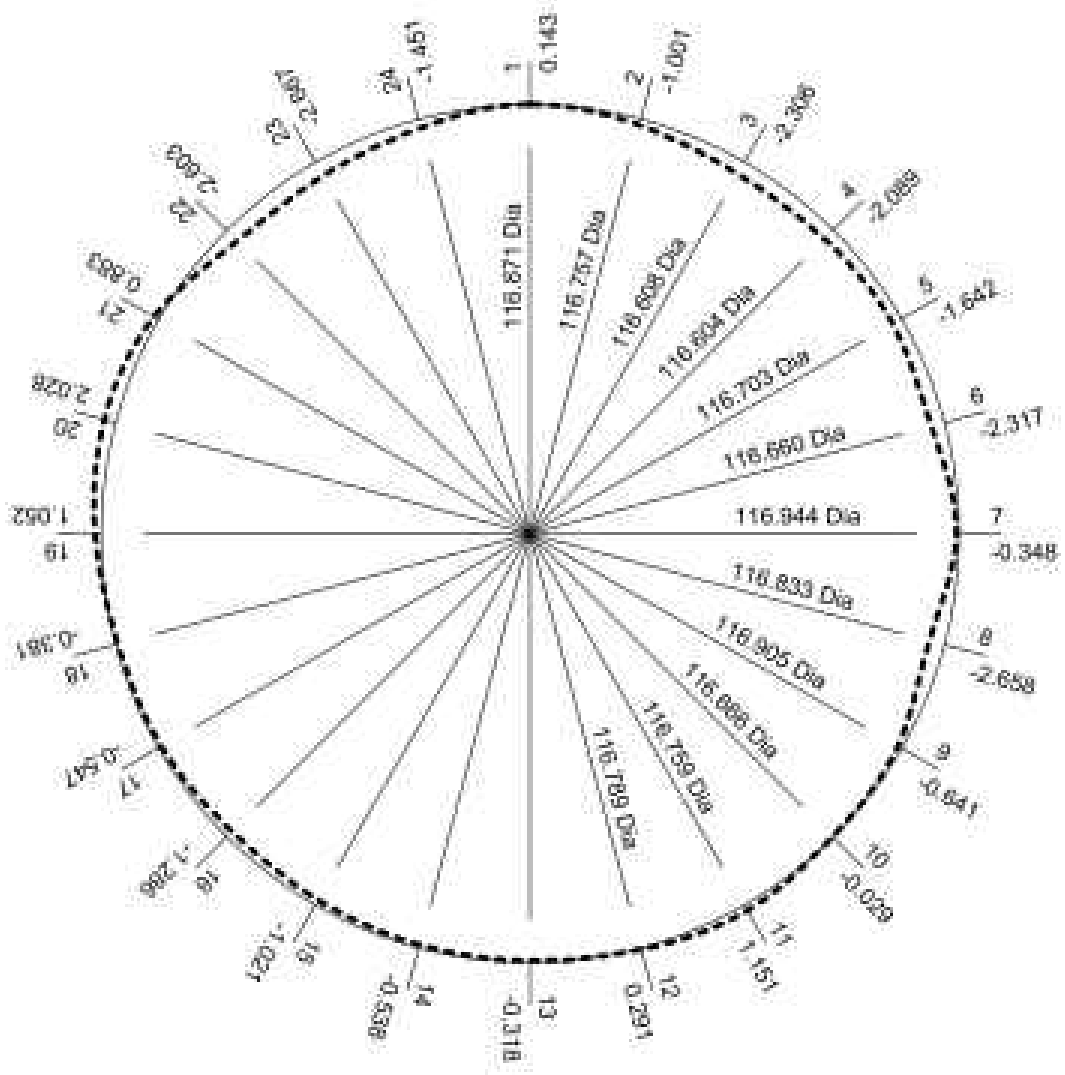


RING #2 20%

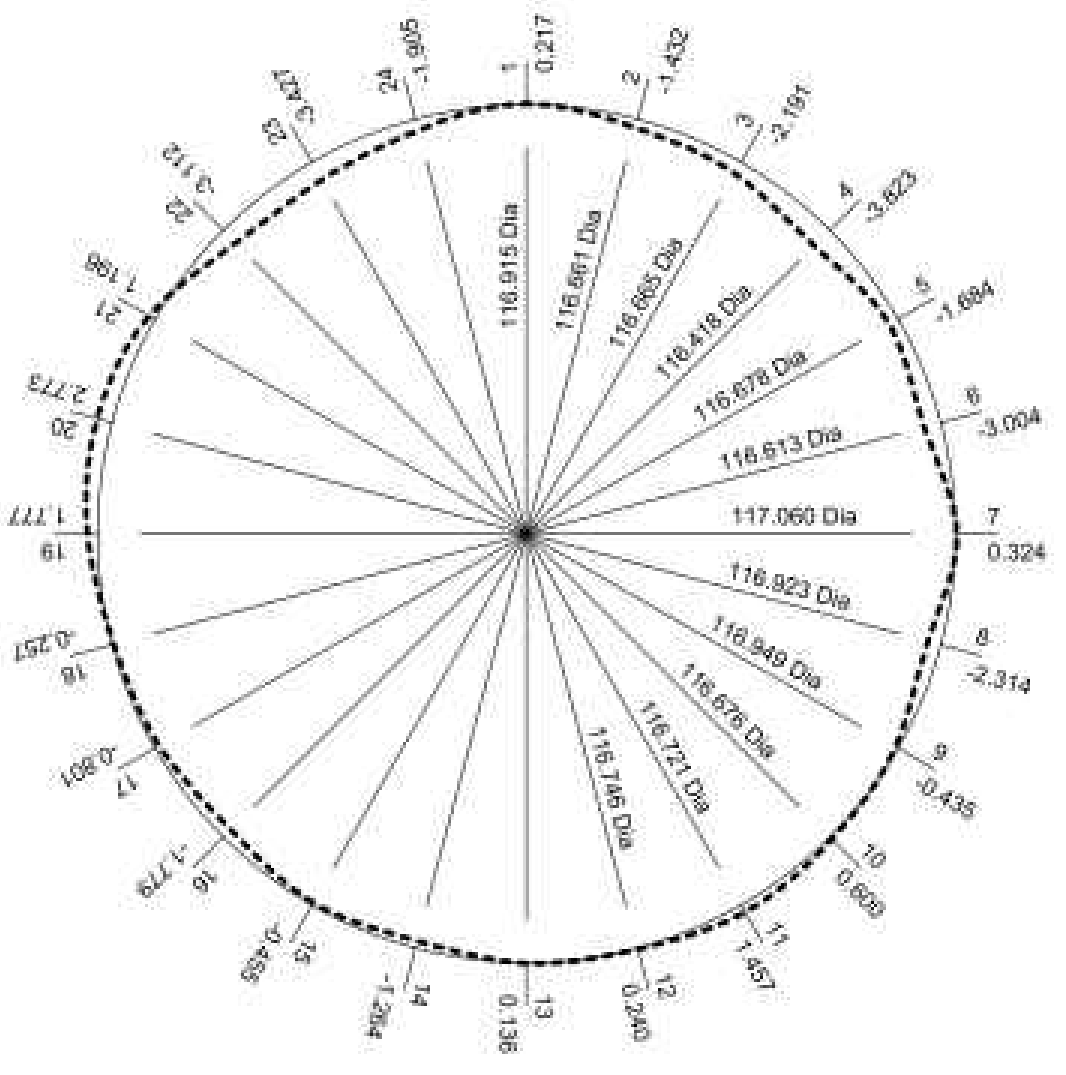


RING #2 80%

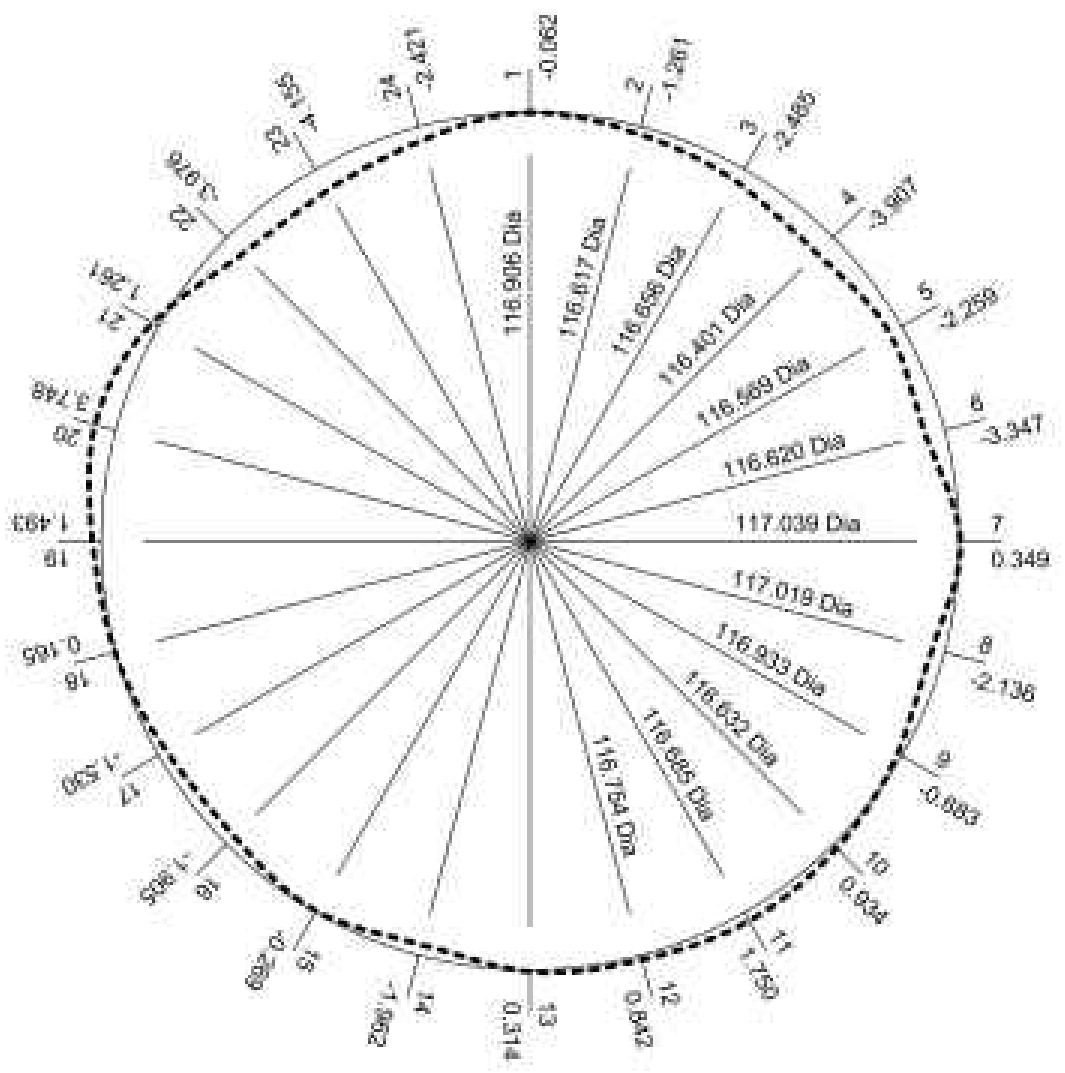
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-802
RING OFFSETS



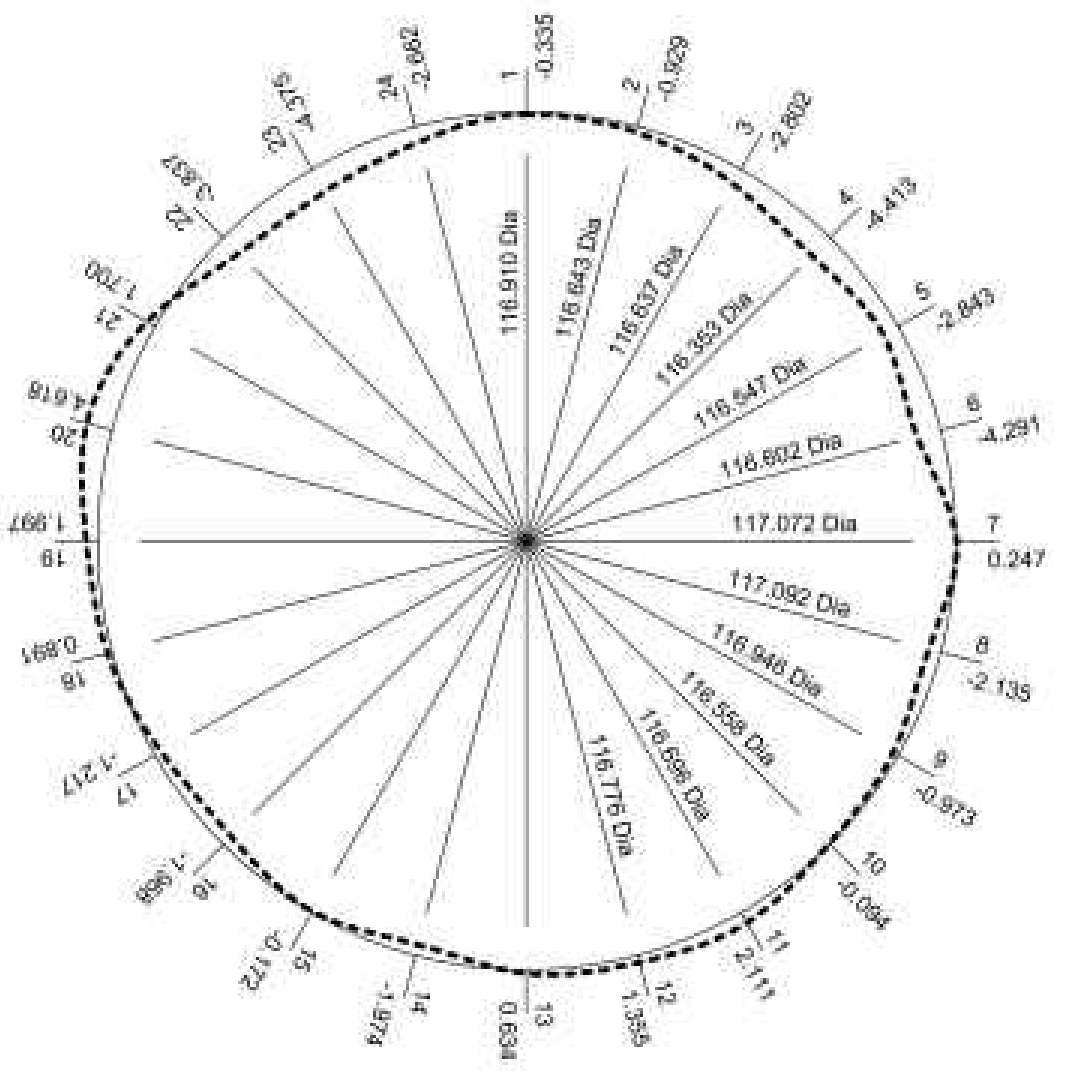
RING #3 20%



RING #3 80%

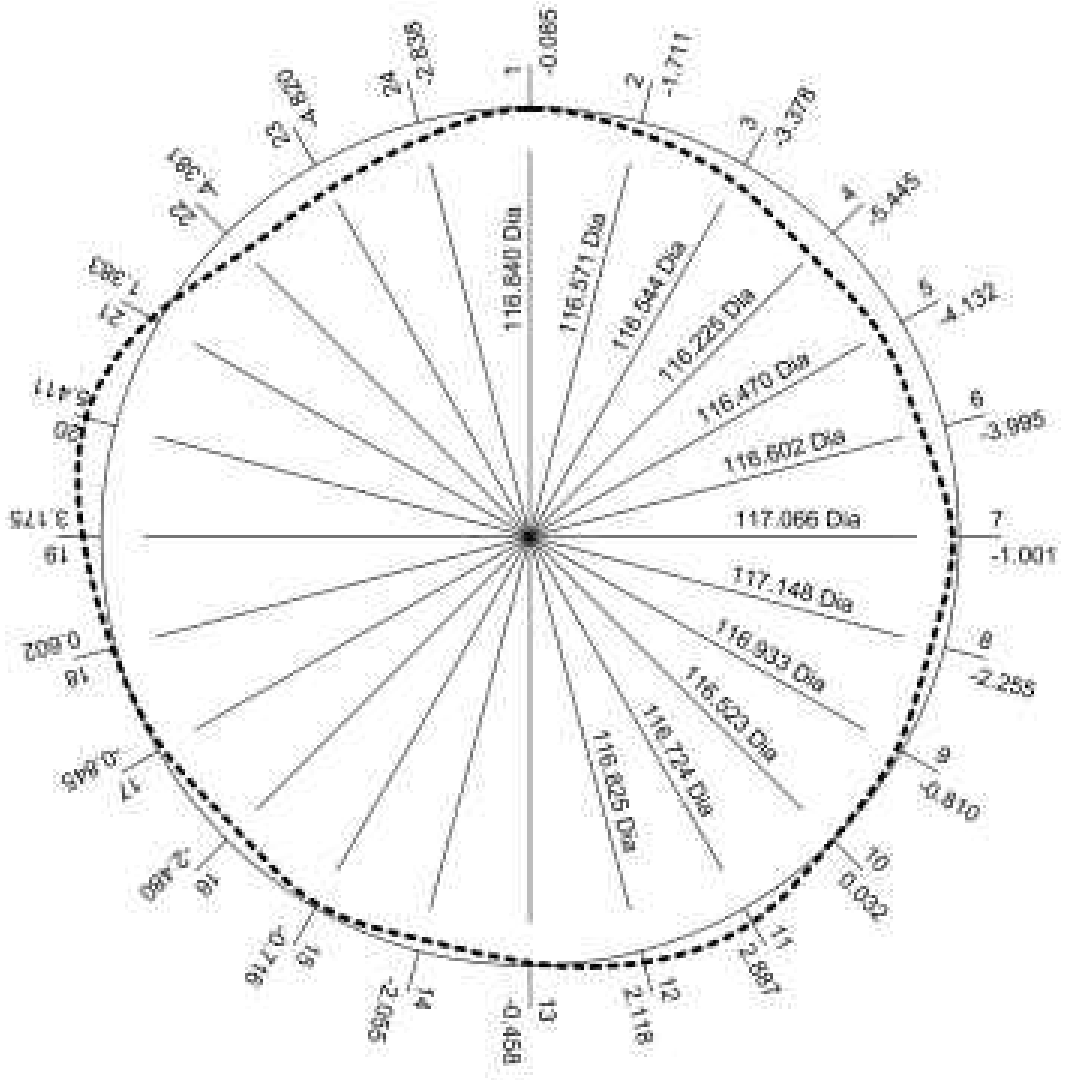


RING #4 20%

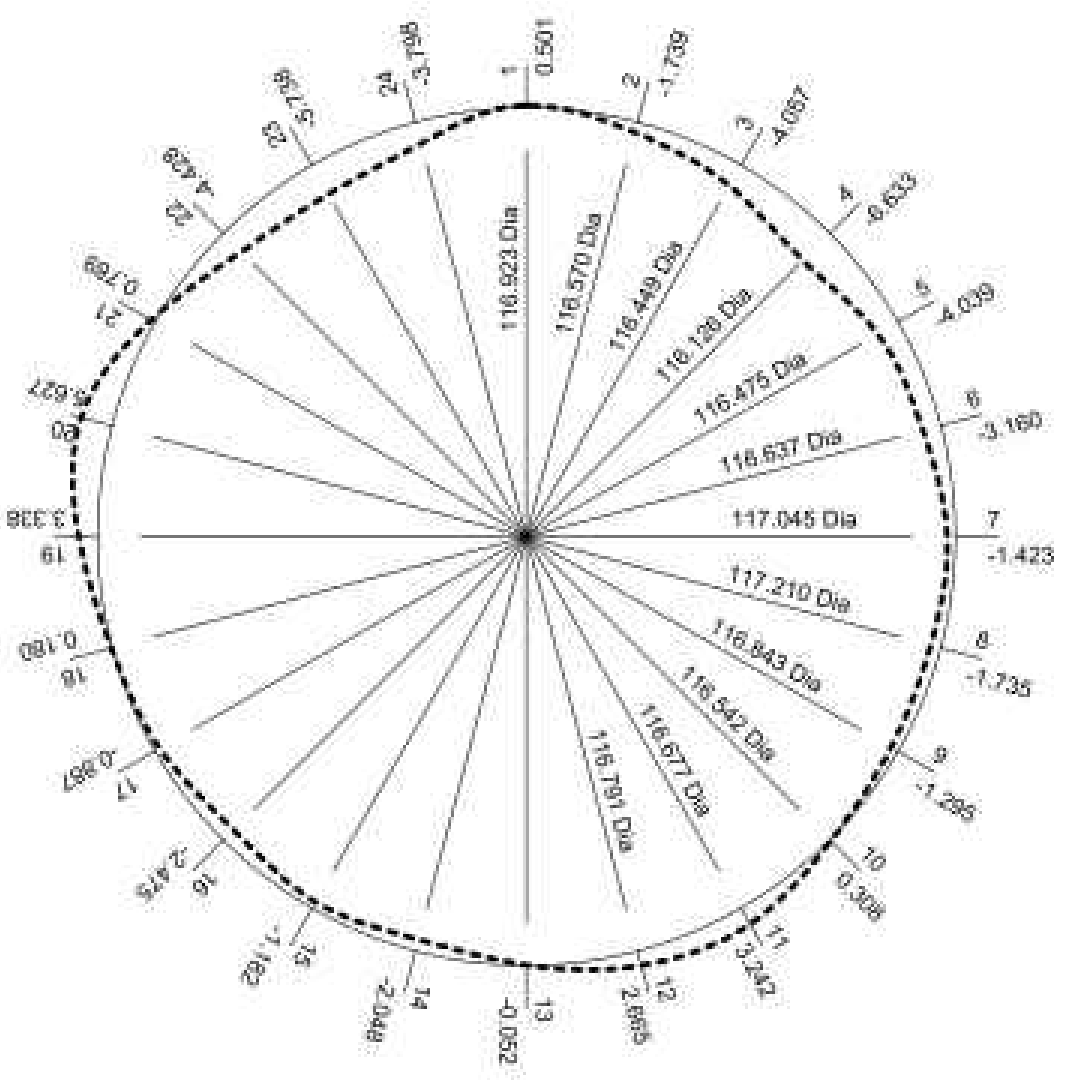


RING #4 80%

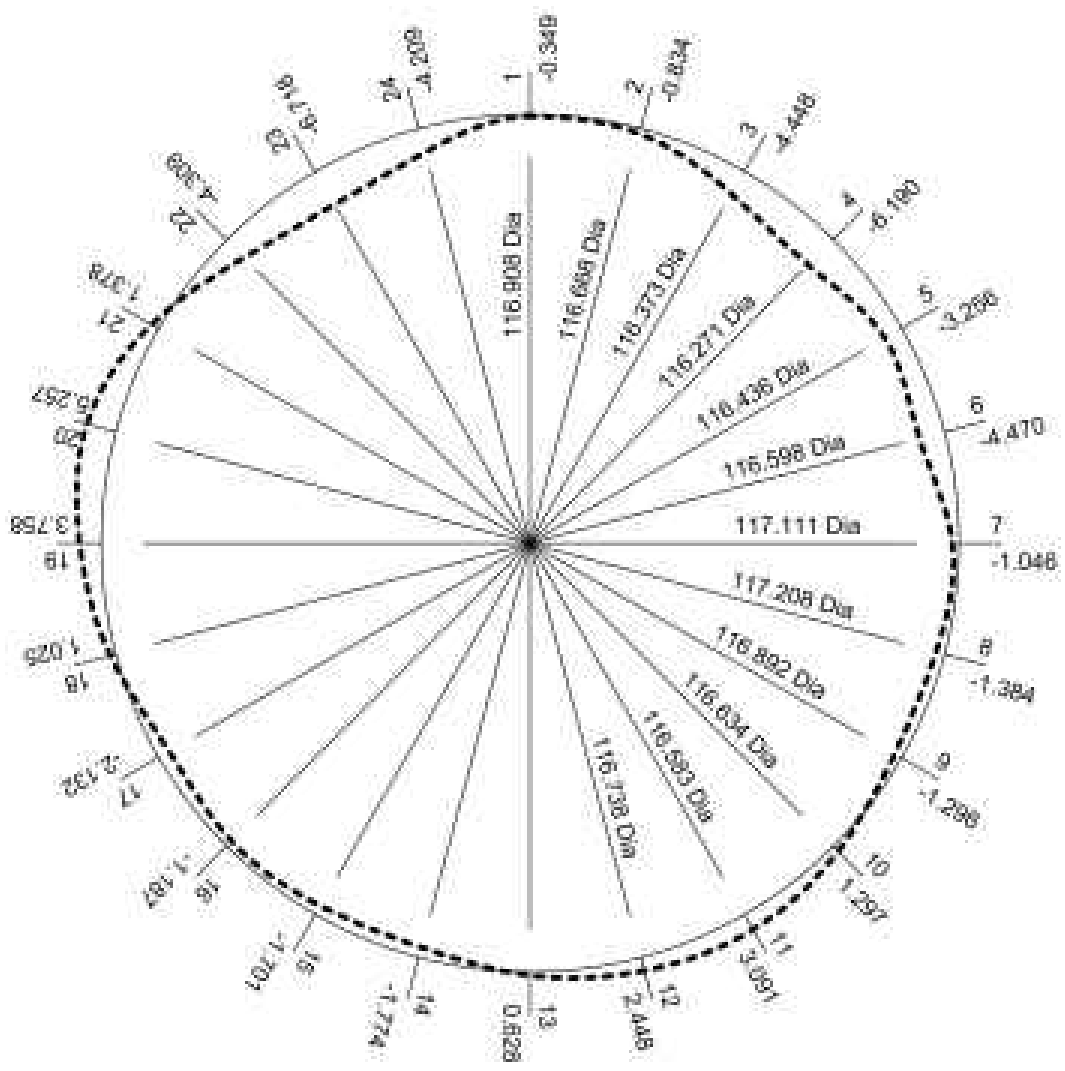
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-802
RING OFFSETS



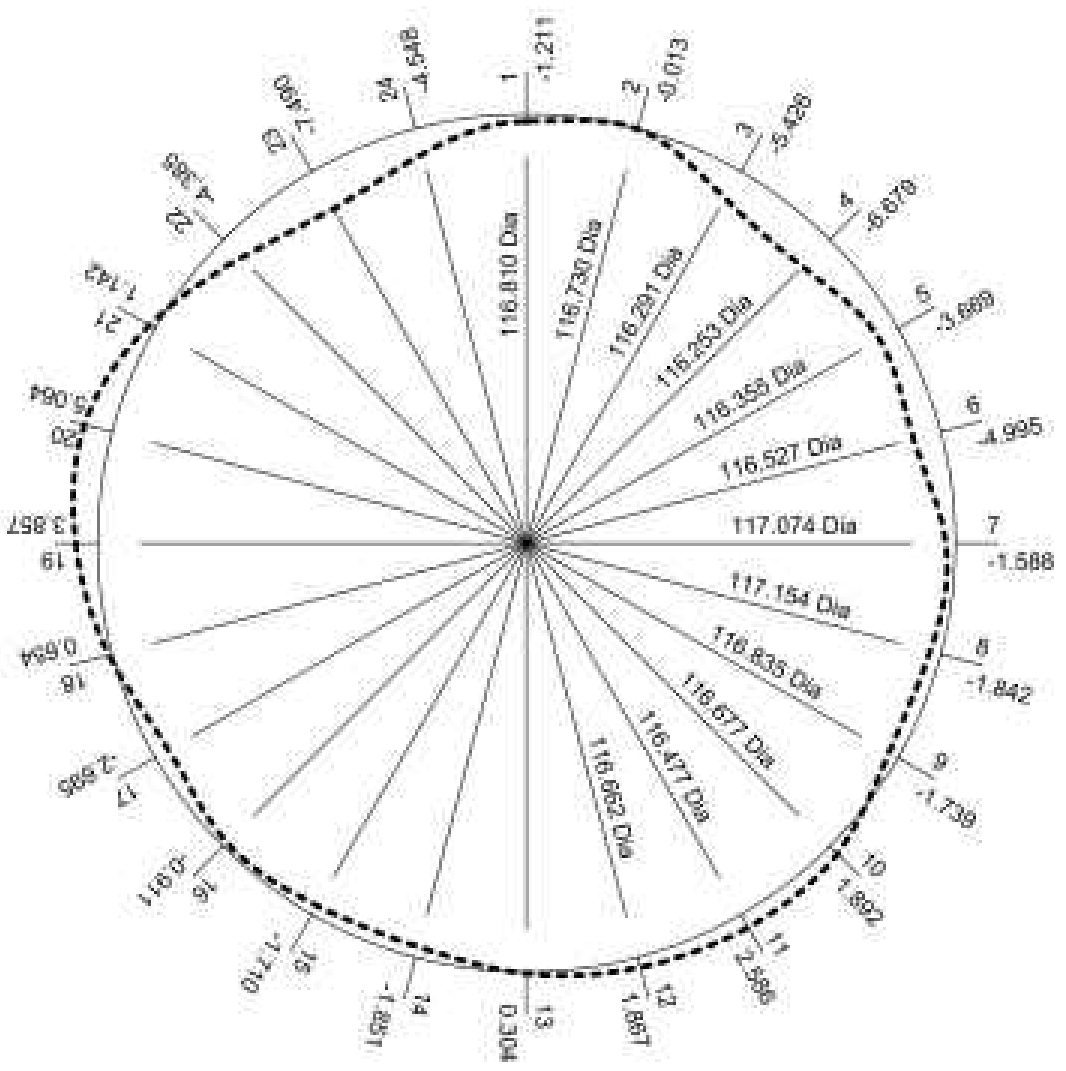
RING #5 20%



RING #5 80%



RING #6 20%



RING #6 80%

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

External Optical Readings – Millimetres

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Height (in)	0	19.1	76.3	114.3	171.3	206.8	256.5	289.7	339.5	370.3	412.9	441.3	475.0
Station	Ref												
1	163	170	163	171	185	182	178	186	187	185	207	243	261
2	227	249	227	214	214	227	239	239	217	234	240	227	202
3	479	452	479	502	516	521	515	516	520	531	544	553	573
4	372	361	372	384	346	421	451	465	477	506	522	534	548
5	582	560	582	596	594	598	594	603	617	657	659	643	636
6	106	104	106	117	137	165	184	198	210	218	214	239	277
7	033	022	033	042	044	047	034	040	052	074	089	093	090
8	040	042	040	034	043	073	075	064	064	069	076	088	093
9	816	815	816	820	825	831	830	833	833	833	837	852	844
10	272	275	272	265	255	268	264	238	259	275	259	246	225
11	147	158	147	136	121	110	105	105	106	102	083	084	101
Door Sheet													
13	342	351	342	339	325	298	265	245	219	223	194	159	145
14	406	427	406	401	379	379	389	391	388	389	386	379	382
15	464	457	464	465	498	508	499	500	507	531	558	569	554
16	817	794	817	834	842	877	896	905	915	937	947	924	927
17	819	822	819	808	814	816	815	821	825	833	842	852	858
18	496	495	496	495	491	498	494	487	470	481	489	476	476
19	556	553	556	545	544	535	516	529	520	493	488	481	474
20	526	538	526	508	477	471	453	423	405	384	383	388	386
21	404	403	404	401	380	362	354	342	330	328	342	328	326
22	161	171	161	172	188	208	216	233	230	242	240	235	239
23	794	772	794	816	829	851	866	880	882	894	918	944	949
24	520	506	520	531	540	553	567	578	586	593	618	635	646
Total Feet	31.3058	62.4639		62.9364		64.2979		64.4357		66.0991		66.8766	
Average	1.30441	1.30133		1.31117		1.31117		1.33954		1.34241		1.37706	

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.6875	0.6875	0.6875	0.5625	0.5625	0.375	0.375	0.25	0.25	0.25	0.25	0.250	0.250
Station	Ref												
1	5.730	6.005	5.730	6.170	6.721	6.790	6.633	7.073	7.112	7.033	7.900	9.317	10.026
2	8.250	9.116	8.250	7.863	7.863	8.562	9.034	9.159	8.293	8.963	9.199	8.687	7.703
3	18.171	17.108	18.171	19.201	19.752	20.137	19.901	20.065	20.222	20.656	21.167	21.522	22.309
4	13.958	13.525	13.958	14.556	13.060	16.200	17.381	18.057	18.530	19.671	20.301	20.774	21.325
5	22.226	21.360	22.226	22.902	22.823	23.168	23.011	23.490	24.041	25.616	25.695	25.065	24.789
6	3.486	3.407	3.486	4.044	4.831	6.121	6.869	7.545	8.018	8.333	8.175	9.159	10.656
7	0.612	0.179	0.612	1.091	1.170	1.475	0.964	1.325	1.797	2.663	3.254	3.411	3.293
8	0.887	0.966	0.887	0.776	1.130	2.499	2.578	2.270	2.270	2.467	2.742	3.215	3.411
9	31.438	31.399	31.438	31.721	31.918	32.342	32.302	32.545	32.545	32.545	32.703	33.293	32.978
10	10.021	10.139	10.021	9.871	9.477	10.176	10.019	9.120	9.947	10.577	9.947	9.435	8.608
11	5.100	5.533	5.100	4.792	4.201	3.956	3.759	3.884	3.923	3.766	3.018	3.057	3.726
Door Sheet													
13	12.777	13.131	12.777	12.784	12.233	11.357	10.058	9.396	8.372	8.530	7.388	6.010	5.459
14	15.297	16.124	15.297	15.225	14.359	14.546	14.940	15.144	15.026	15.065	14.947	14.671	14.789
15	17.580	17.305	17.580	17.745	19.044	19.625	19.271	19.435	19.711	20.656	21.719	22.152	21.561
16	31.478	30.572	31.478	32.272	32.587	34.153	34.901	35.380	35.774	36.640	37.033	36.128	36.246
17	31.557	31.675	31.557	31.249	31.485	31.751	31.712	32.073	32.230	32.545	32.900	33.293	33.530
18	18.840	18.801	18.840	18.926	18.768	19.231	19.074	18.923	18.254	18.687	19.002	18.490	18.490
19	21.202	21.084	21.202	20.894	20.855	20.688	19.940	20.577	20.222	19.159	18.963	18.687	18.411
20	20.021	20.494	20.021	19.438	18.217	18.168	17.460	16.404	15.695	14.868	14.829	15.026	14.947
21	15.218	15.179	15.218	15.225	14.398	13.877	13.562	13.215	12.742	12.663	13.215	12.663	12.585
22	5.651	6.045	5.651	6.209	6.839	7.814	8.129	8.923	8.805	9.278	9.199	9.002	9.159
23	30.572	29.706	30.572	31.563	32.075	33.129	33.719	34.396	34.474	34.947	35.892	36.915	37.112
24	19.785	19.234	19.785	20.343	20.697	21.397	21.948	22.506	22.821	23.096	24.081	24.750	25.183

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1	0.000	-0.276	0.000	-0.440	-0.991	-1.061	-0.903	-1.343	-1.382	-1.304	-2.170	-3.587	-4.296
2	0.000	-0.866	0.000	0.387	0.387	-0.313	-0.785	-0.910	-0.044	-0.713	-0.949	-0.438	0.547
3	0.000	1.063	0.000	-1.031	-1.582	-1.966	-1.730	-1.894	-2.052	-2.485	-2.997	-3.351	-4.138
4	0.000	0.433	0.000	-0.597	0.899	-2.242	-3.423	-4.099	-4.571	-5.713	-6.343	-6.815	-7.367
5	0.000	0.866	0.000	-0.676	-0.597	-0.942	-0.785	-1.264	-1.815	-3.390	-3.469	-2.839	-2.563
6	0.000	0.079	0.000	-0.558	-1.345	-2.635	-3.383	-4.060	-4.532	-4.847	-4.689	-5.674	-7.170
7	0.000	0.433	0.000	-0.479	-0.558	-0.864	-0.352	-0.713	-1.186	-2.052	-2.642	-2.800	-2.682
8	0.000	-0.079	0.000	0.111	-0.243	-1.612	-1.690	-1.382	-1.382	-1.579	-1.855	-2.327	-2.524
9	0.000	0.039	0.000	-0.282	-0.479	-0.903	-0.864	-1.107	-1.107	-1.107	-1.264	-1.855	-1.540
10	0.000	-0.118	0.000	0.151	0.544	-0.155	0.002	0.901	0.074	-0.556	0.074	0.586	1.413
11	0.000	-0.433	0.000	0.308	0.899	1.144	1.341	1.216	1.177	1.334	2.082	2.043	1.374
12	0.000												
13	0.000	-0.354	0.000	-0.007	0.544	1.420	2.719	3.381	4.405	4.248	5.389	6.767	7.318
14	0.000	-0.827	0.000	0.072	0.938	0.750	0.357	0.153	0.271	0.232	0.350	0.625	0.507
15	0.000	0.276	0.000	-0.164	-1.464	-2.045	-1.690	-1.855	-2.130	-3.075	-4.138	-4.571	-3.981
16	0.000	0.906	0.000	-0.794	-1.109	-2.675	-3.423	-3.902	-4.296	-5.162	-5.556	-4.650	-4.768
17	0.000	-0.118	0.000	0.308	0.072	-0.194	-0.155	-0.516	-0.674	-0.989	-1.343	-1.737	-1.973
18	0.000	0.039	0.000	-0.086	0.072	-0.391	-0.234	-0.083	0.586	0.153	-0.162	0.350	0.350
19	0.000	0.118	0.000	0.308	0.347	0.514	1.262	0.625	0.980	2.043	2.240	2.515	2.791
20	0.000	-0.472	0.000	0.584	1.804	1.853	2.562	3.618	4.326	5.153	5.192	4.996	5.074
21	0.000	0.039	0.000	-0.007	0.820	1.341	1.656	2.003	2.476	2.555	2.003	2.555	2.633
22	0.000	-0.394	0.000	-0.558	-1.188	-2.163	-2.478	-3.272	-3.154	-3.626	-3.548	-3.351	-3.508
23	0.000	0.866	0.000	-0.991	-1.503	-2.557	-3.147	-3.823	-3.902	-4.375	-5.319	-6.343	-6.540
24	0.000	0.551	0.000	-0.558	-0.912	-1.612	-2.163	-2.721	-3.036	-3.312	-4.296	-4.965	-5.398

Maximum INWARD Offset : -7.367

Maximum OUTWARD Offset : 7.318

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1 & 13	0	-0.630	0.000	-0.447	-0.447	0.359	1.816	2.038	3.023	2.944	3.219	3.180	3.023
2 & 14	0	-1.693	0.000	0.459	1.325	0.438	-0.428	-0.757	0.227	-0.481	-0.599	0.188	1.054
3 & 15	0	1.339	0.000	-1.195	-3.045	-4.011	-3.420	-3.749	-4.182	-5.560	-7.135	-7.922	-8.119
4 & 16	0	1.339	0.000	-1.392	-0.211	-4.916	-6.845	-8.001	-8.867	-10.875	-11.899	-11.466	-12.135
5 & 17	0	0.748	0.000	-0.368	-0.526	-1.137	-0.940	-1.781	-2.489	-4.379	-4.812	-4.576	-4.536
6 & 18	0	0.118	0.000	-0.644	-1.274	-3.027	-3.617	-4.143	-3.946	-4.694	-4.851	-5.324	-6.820
7 & 19	0	0.551	0.000	-0.171	-0.211	-0.349	0.910	-0.088	-0.206	-0.009	-0.403	-0.284	0.109
8 & 20	0	-0.551	0.000	0.695	1.561	0.241	0.871	2.235	2.944	3.574	3.338	2.668	2.550
9 & 21	0	0.079	0.000	-0.289	0.341	0.438	0.792	0.897	1.369	1.448	0.739	0.700	1.094
10 & 22	0	-0.512	0.000	-0.407	-0.644	-2.318	-2.475	-2.371	-3.080	-4.182	-3.473	-2.765	-2.095
11 & 23	0	0.433	0.000	-0.683	-0.604	-1.412	-1.806	-2.607	-2.725	-3.040	-3.237	-4.300	-5.166

Opposing Offsets – Calculated Internal Diameter – Feet

Course	0	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1 & 13	116.885	116.833	116.885	116.848	116.848	116.915	117.037	117.055	117.137	117.131	117.153	117.150	117.137
2 & 14	116.885	116.744	116.885	116.923	116.996	116.922	116.850	116.822	116.904	116.845	116.835	116.901	116.973
3 & 15	116.885	116.997	116.885	116.786	116.631	116.551	116.600	116.573	116.537	116.422	116.291	116.225	116.209
4 & 16	116.885	116.997	116.885	116.769	116.868	116.475	116.315	116.218	116.146	115.979	115.894	115.930	115.874
5 & 17	116.885	116.948	116.885	116.855	116.841	116.790	116.807	116.737	116.678	116.520	116.484	116.504	116.507
6 & 18	116.885	116.895	116.885	116.832	116.779	116.633	116.584	116.540	116.556	116.494	116.481	116.442	116.317
7 & 19	116.885	116.931	116.885	116.871	116.868	116.856	116.961	116.878	116.868	116.884	116.852	116.861	116.894
8 & 20	116.885	116.839	116.885	116.943	117.015	116.905	116.958	117.071	117.131	117.183	117.163	117.108	117.098
9 & 21	116.885	116.892	116.885	116.861	116.914	116.922	116.951	116.960	116.999	117.006	116.947	116.944	116.976
10 & 22	116.885	116.843	116.885	116.851	116.832	116.692	116.679	116.688	116.629	116.537	116.596	116.655	116.711
11 & 23	116.885	116.921	116.885	116.828	116.835	116.767	116.735	116.668	116.658	116.632	116.615	116.527	116.455

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Tank Dimensions

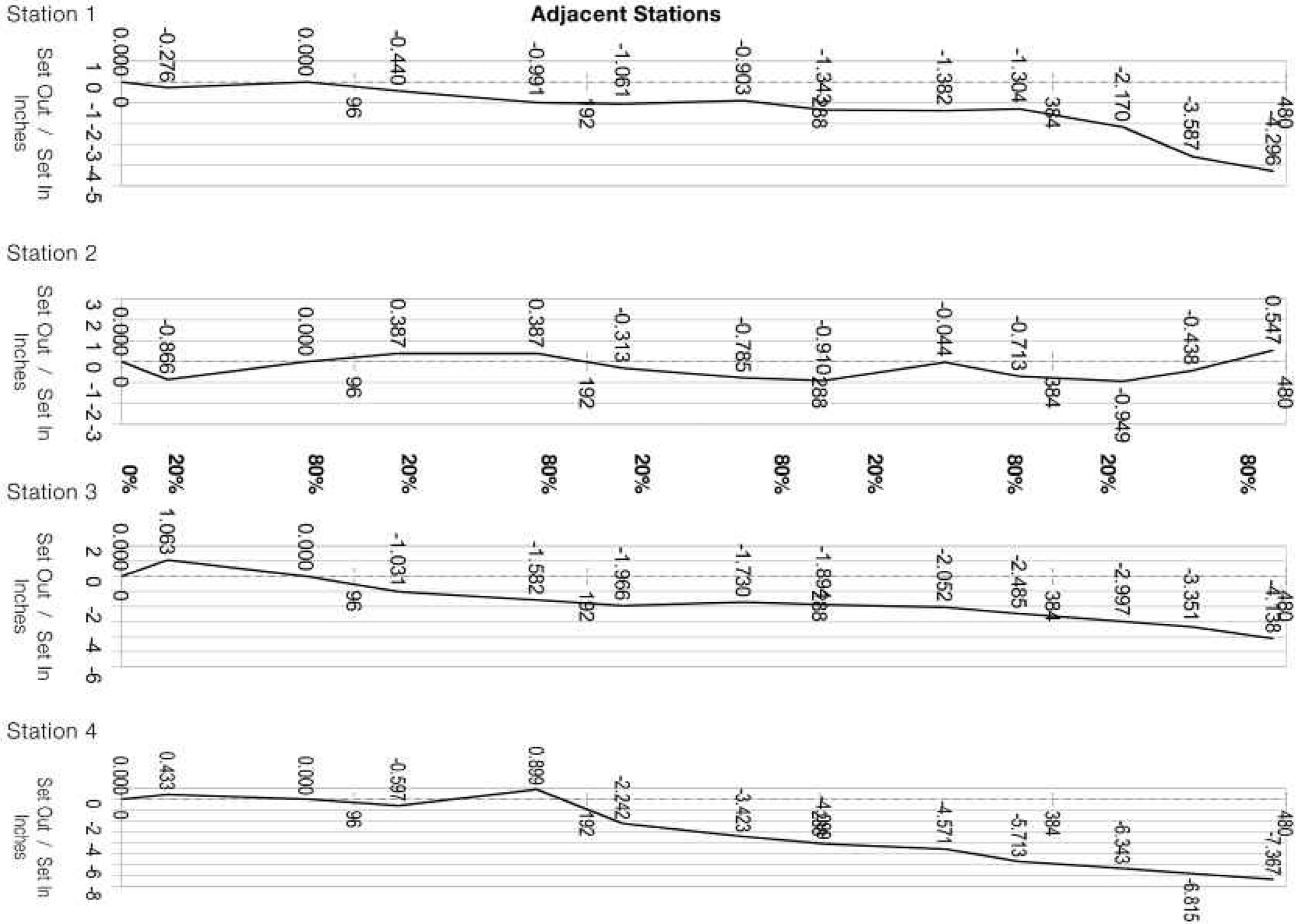
Reference Circumference (external)	112.034 Metres
Reference Circumference (external)	367.566 Feet
Reference Diameter (Internal)	116.885 Feet

Opposing Stations – Internal Offsets

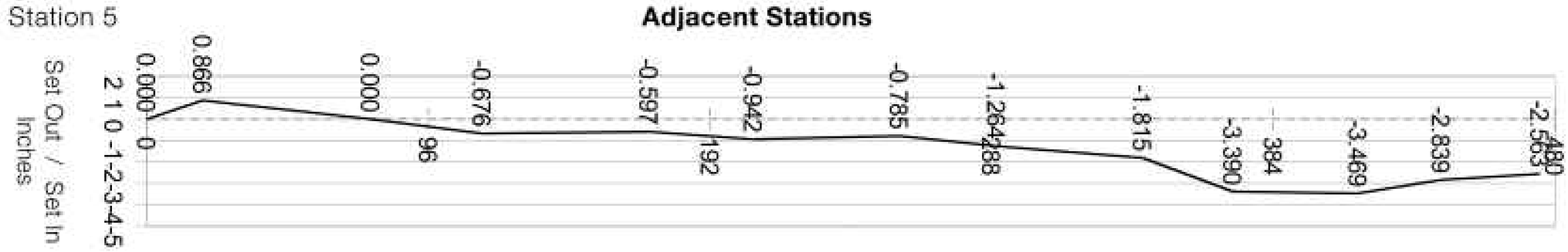
Maximum Tank SET IN (inch)	-12.135
Maximum Tank SET OUT (inch)	3.574

Opposing Stations – Internal Diameter

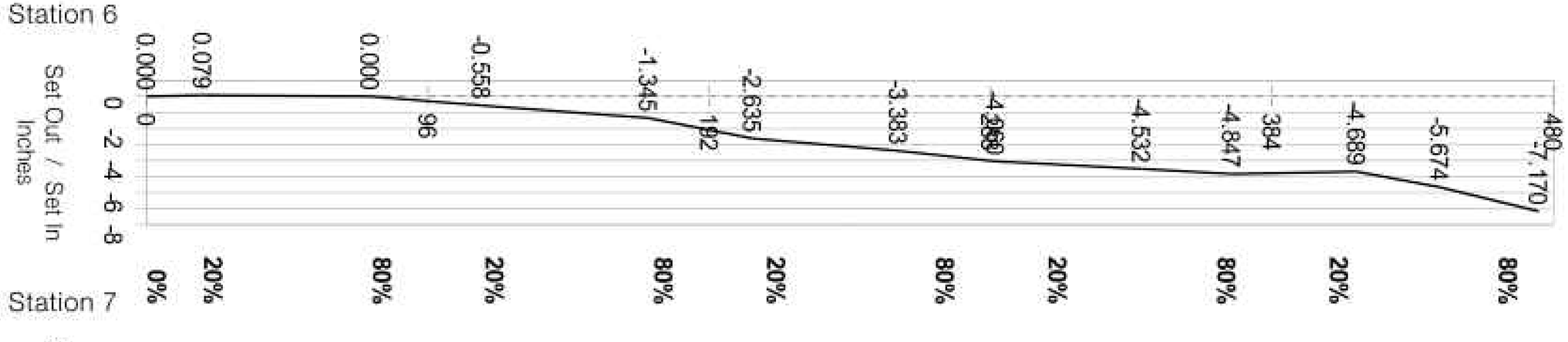
Minimum Diameter (ft)	115.874
Maximum Diameter (ft)	117.183


Adjacent Stations
Station 1
Set Out / Set In
Inches
1 0 -1 -2 -3 -4 -5
0.000 -0.276 0.000 -0.440 -0.991 -1.061 -0.903 -1.343 -1.382 -1.304 -2.170 -3.587 -4.296
0 96 192 288 384 480
Station 2
Set Out / Set In
Inches
3 2 1 0 -1 -2 -3
0.000 -0.866 0.000 0.387 0.387 -0.313 -0.785 -0.910 -0.044 -0.713 -0.949 -0.438 0.547
0 96 192 288 384 480
0% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80%
Station 3
Set Out / Set In
Inches
2 0 -2 -4 -6
0.000 1.063 0.000 -1.031 -1.582 -1.966 -1.730 -1.894 -2.052 -2.485 -2.997 -3.351 -4.138
0 96 192 288 384 480
Station 4
Set Out / Set In
Inches
0 -2 -4 -6 -8
0.000 0.433 0.000 -0.597 0.899 -2.242 -3.423 -4.209 -4.571 -5.713 -6.343 -6.815 -7.367
0 96 192 288 384 480

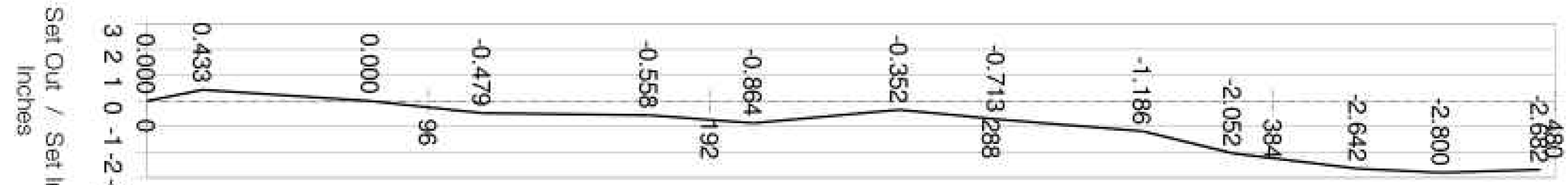
Station 5



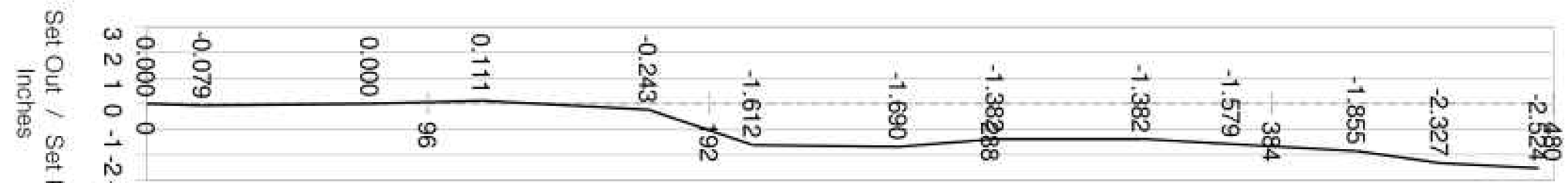
Station 6



Station 7

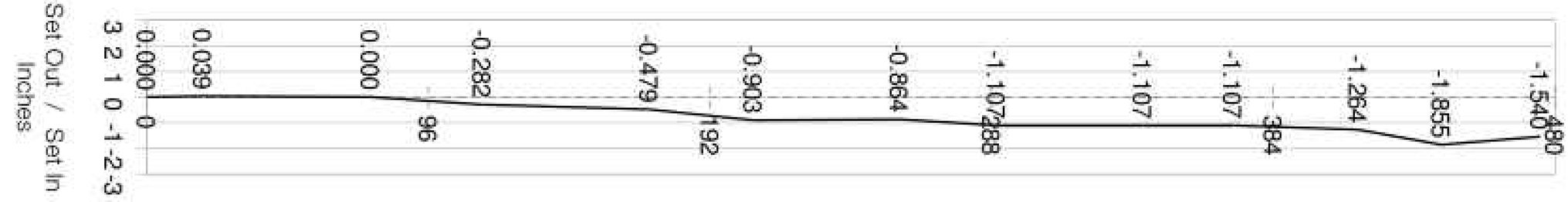


Station 8

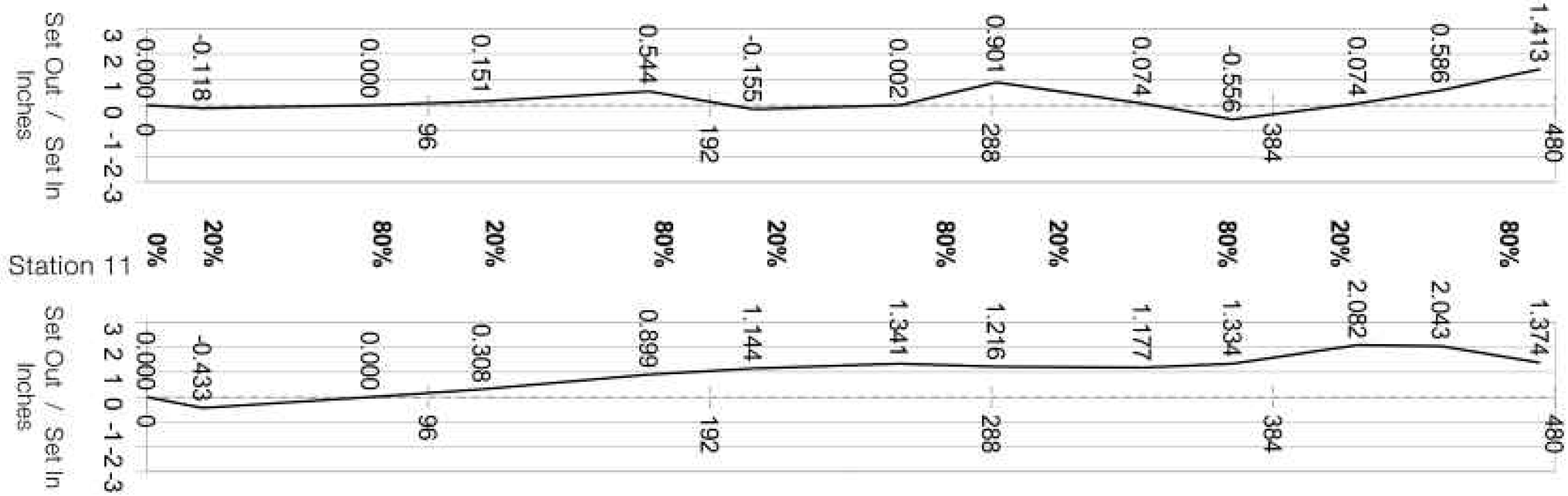


Station 9

Adjacent Stations

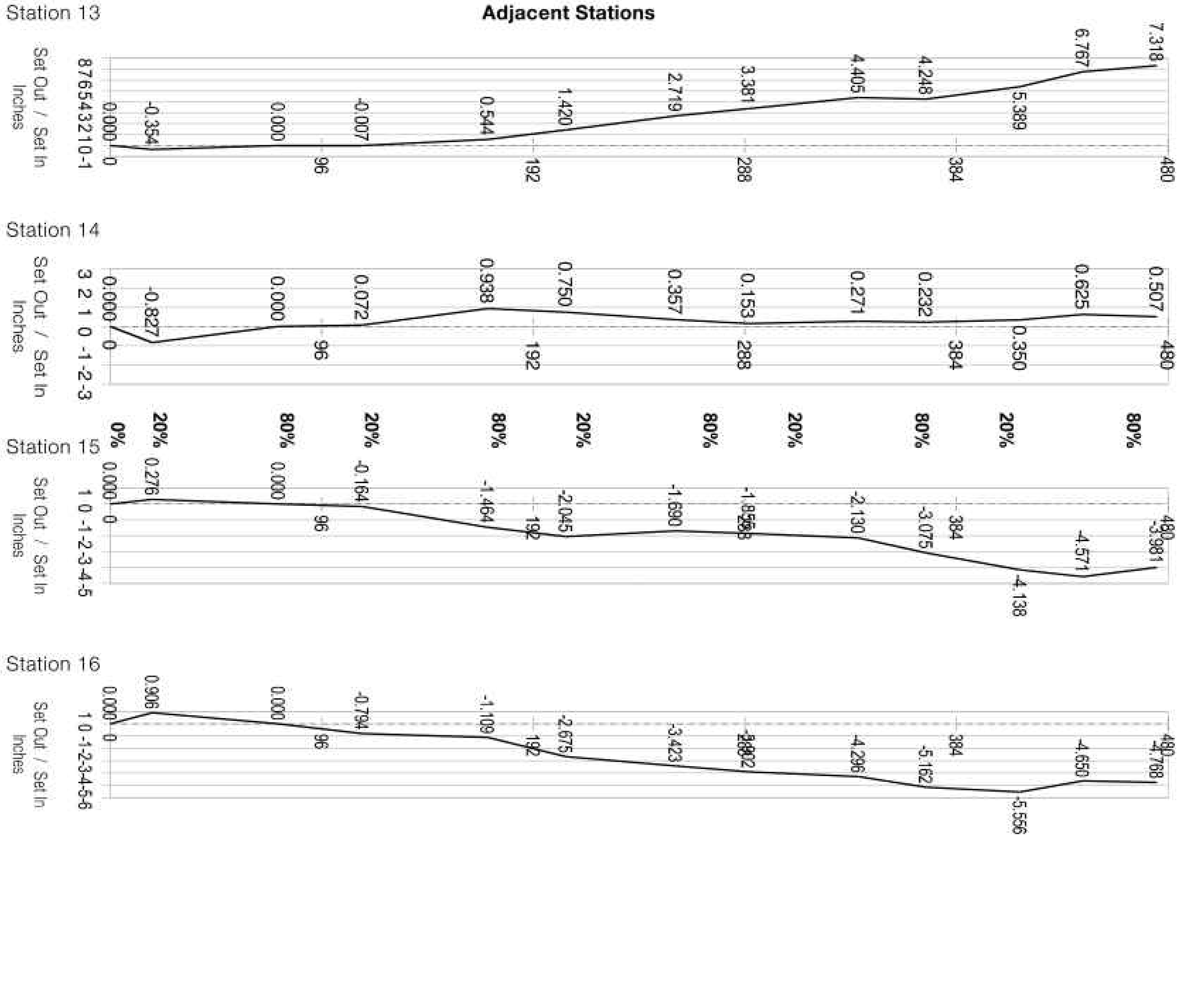


Station 10

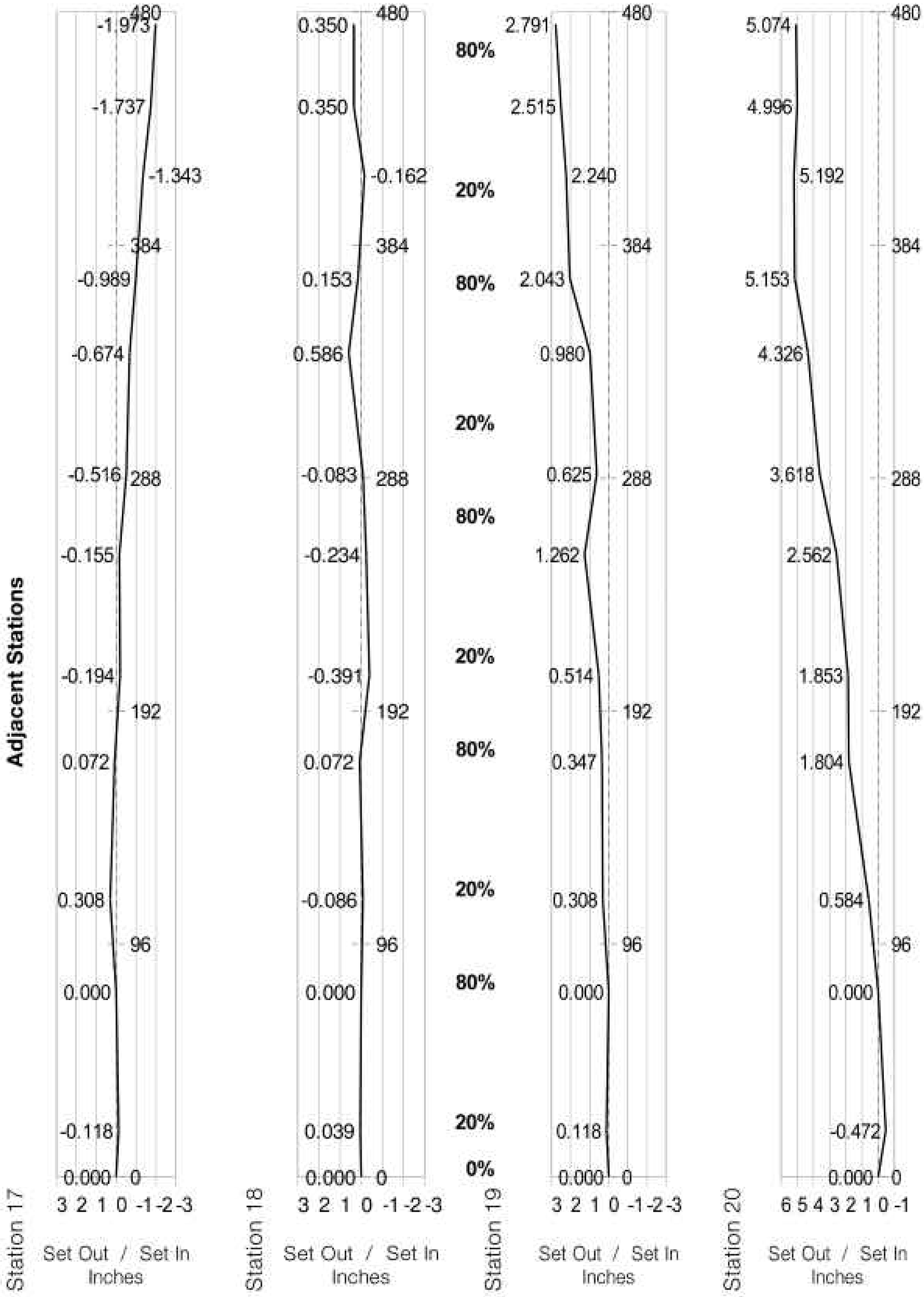


Station 11

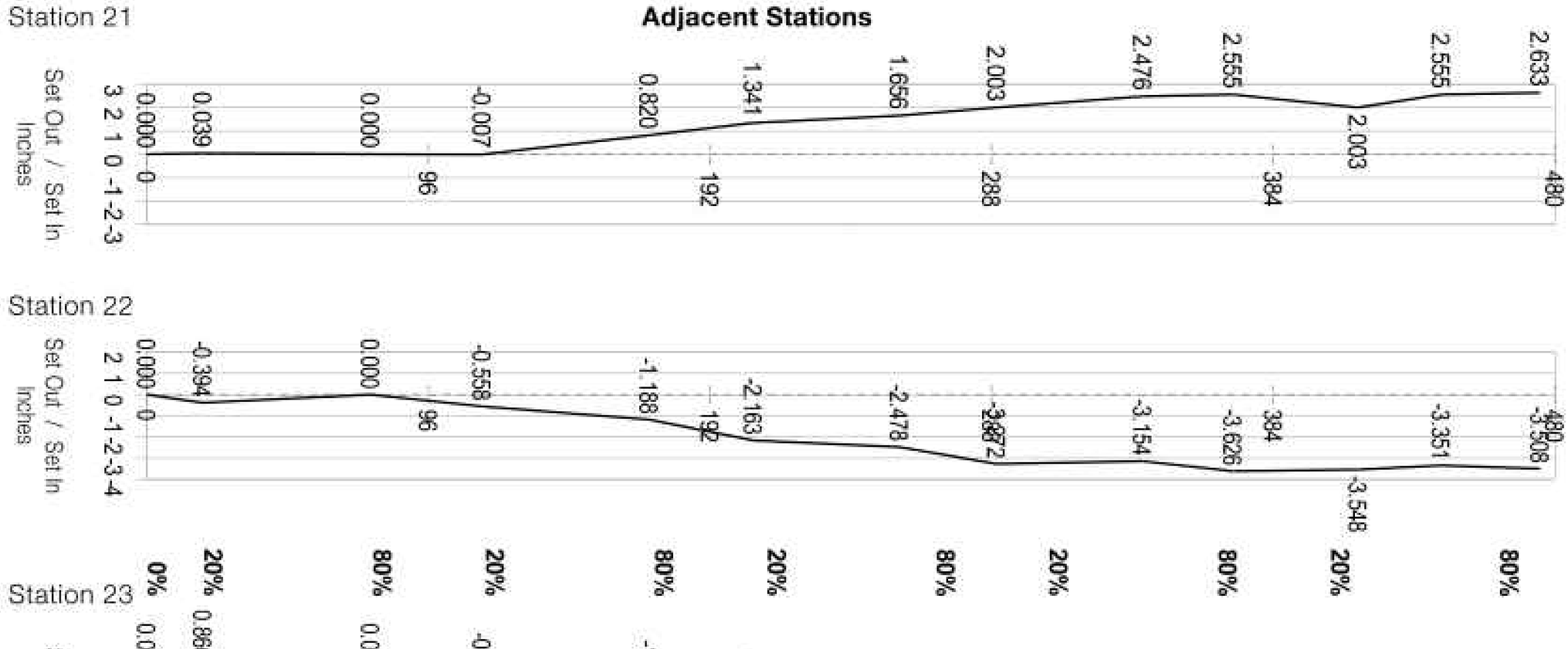
Station 12 – Not Applicable (Door Sheet)


Adjacent Stations
Station 13
Set Out / Set In
Inches
8 7 6 5 4 3 2 1 0 -1
0.000 -0.354 0.000 -0.007 0.544 1.420 2.719 3.381 4.405 4.248 5.389 6.767 7.318
0 96 192 288 384 480
Station 14
Set Out / Set In
Inches
3 2 1 0 -1 -2 -3
0.000 -0.827 0.000 0.072 0.938 0.750 0.357 0.153 0.271 0.232 0.350 0.625 0.507
0 96 192 288 384 480
0% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80%
Station 15
Set Out / Set In
Inches
1 0 -1 -2 -3 -4 -5
0.000 0.276 0.000 -0.164 -1.464 -2.045 -1.690 -1.856 -2.130 -3.075 -4.138 -4.571 -3.981
0 96 192 384 480
Station 16
Set Out / Set In
Inches
1 0 -1 -2 -3 -4 -5 -6
0.000 0.906 0.000 -0.794 -1.109 -2.675 -3.423 -4.296 -5.162 -5.556 -4.650 -4.768
0 96 192 384 480

Adjacent Stations

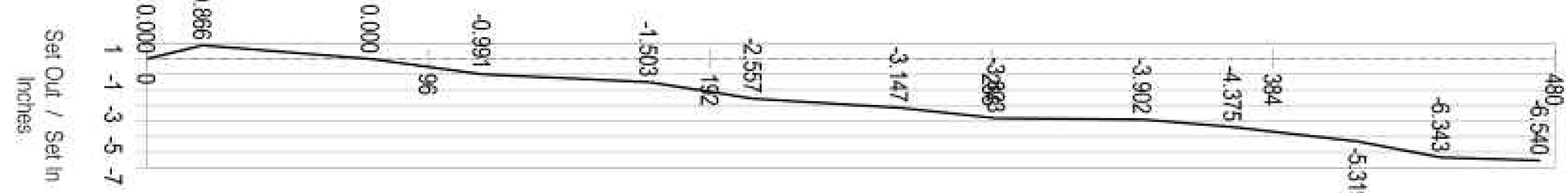


Station 21

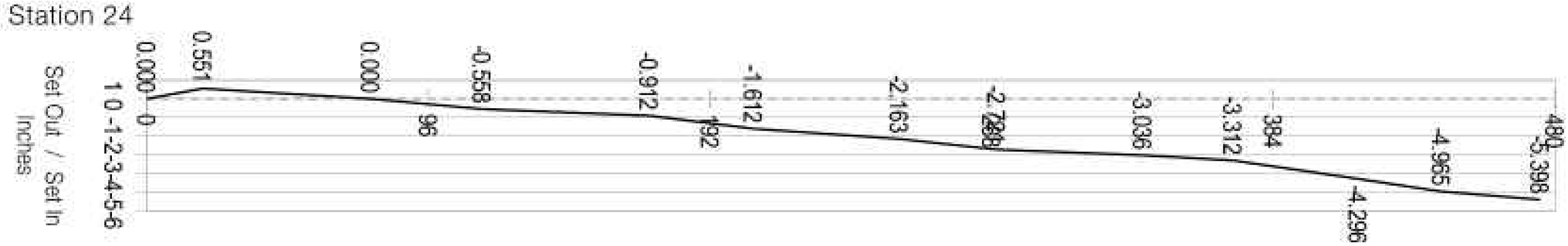


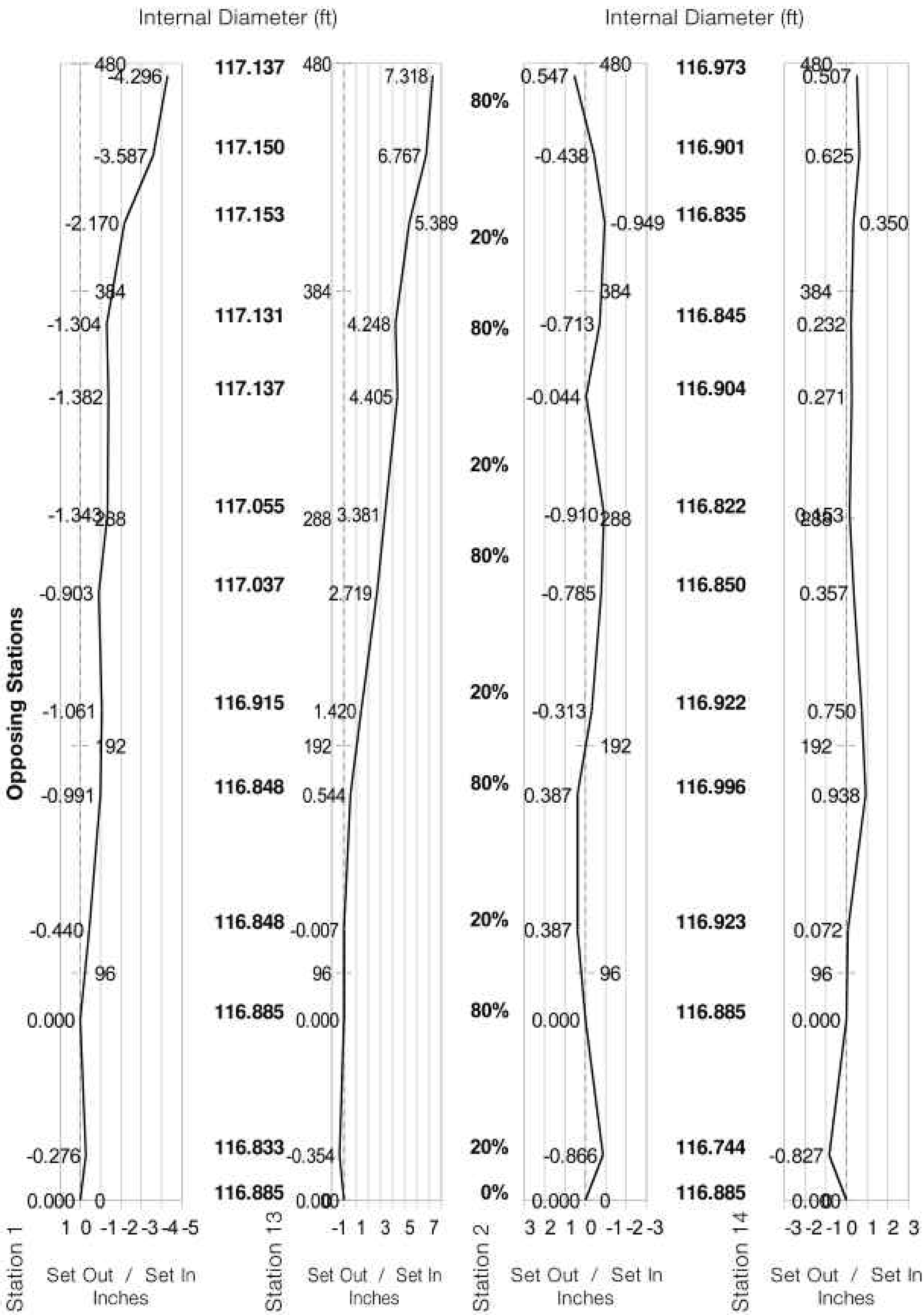
Station 22

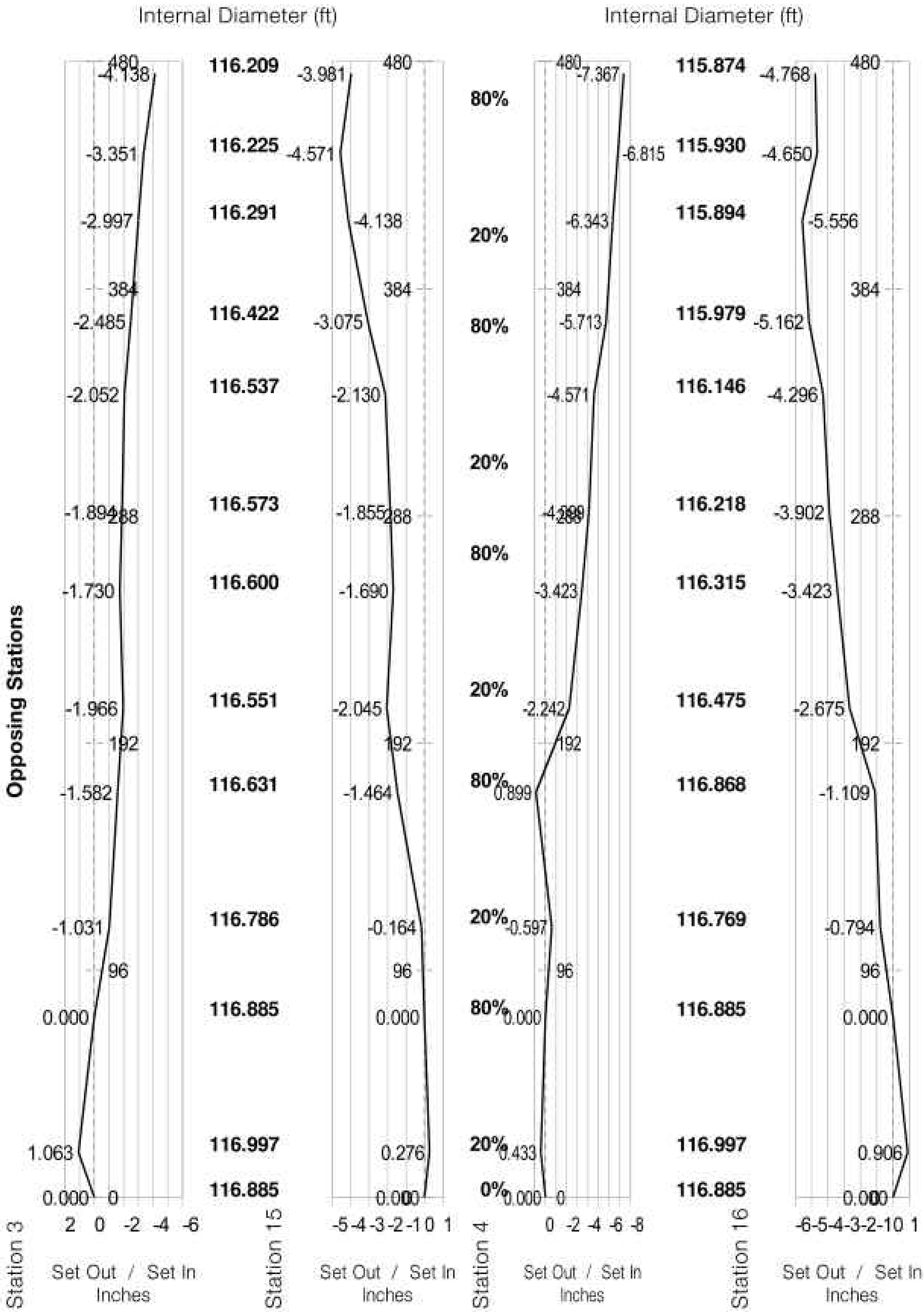
Station 23

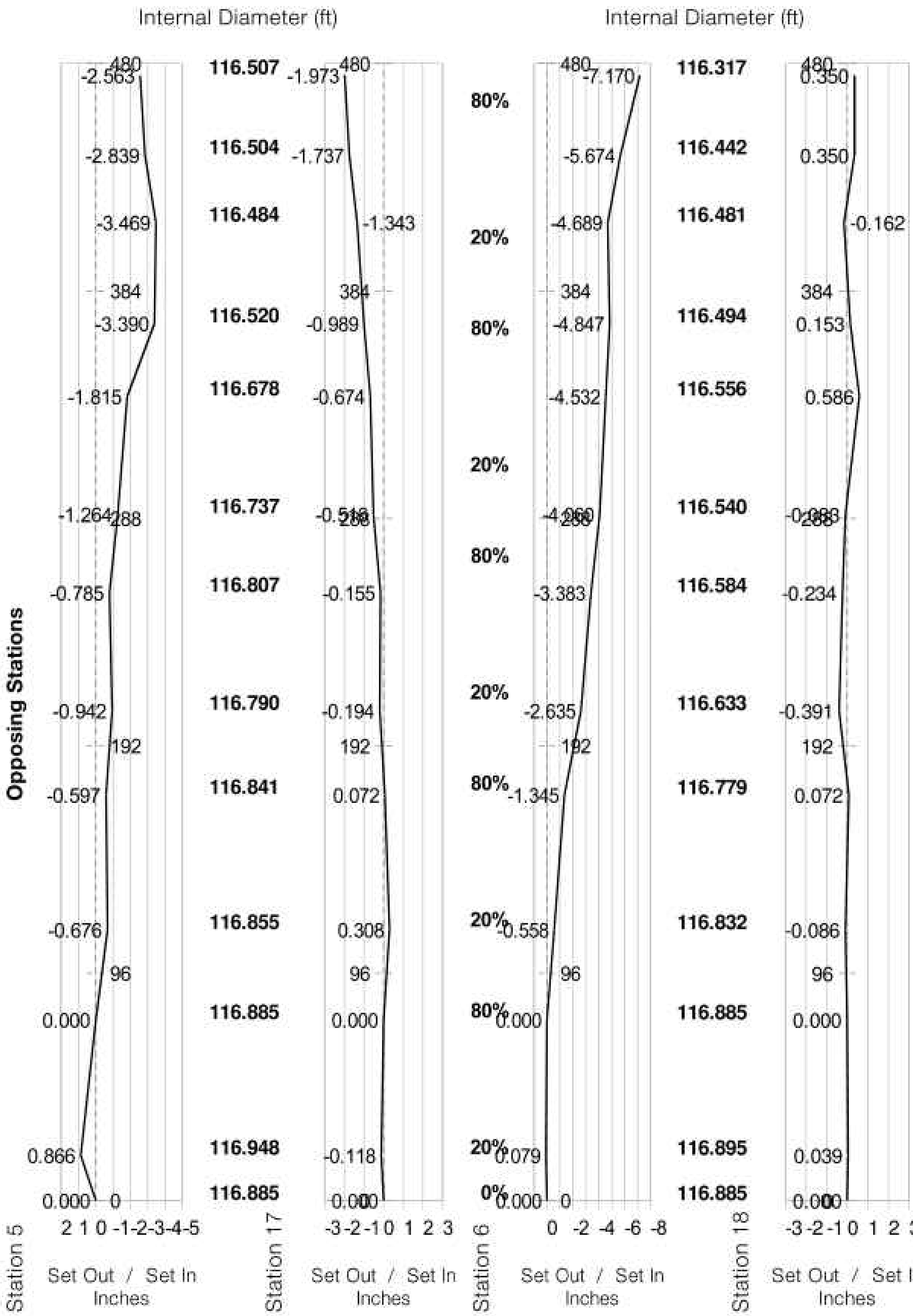


Station 24

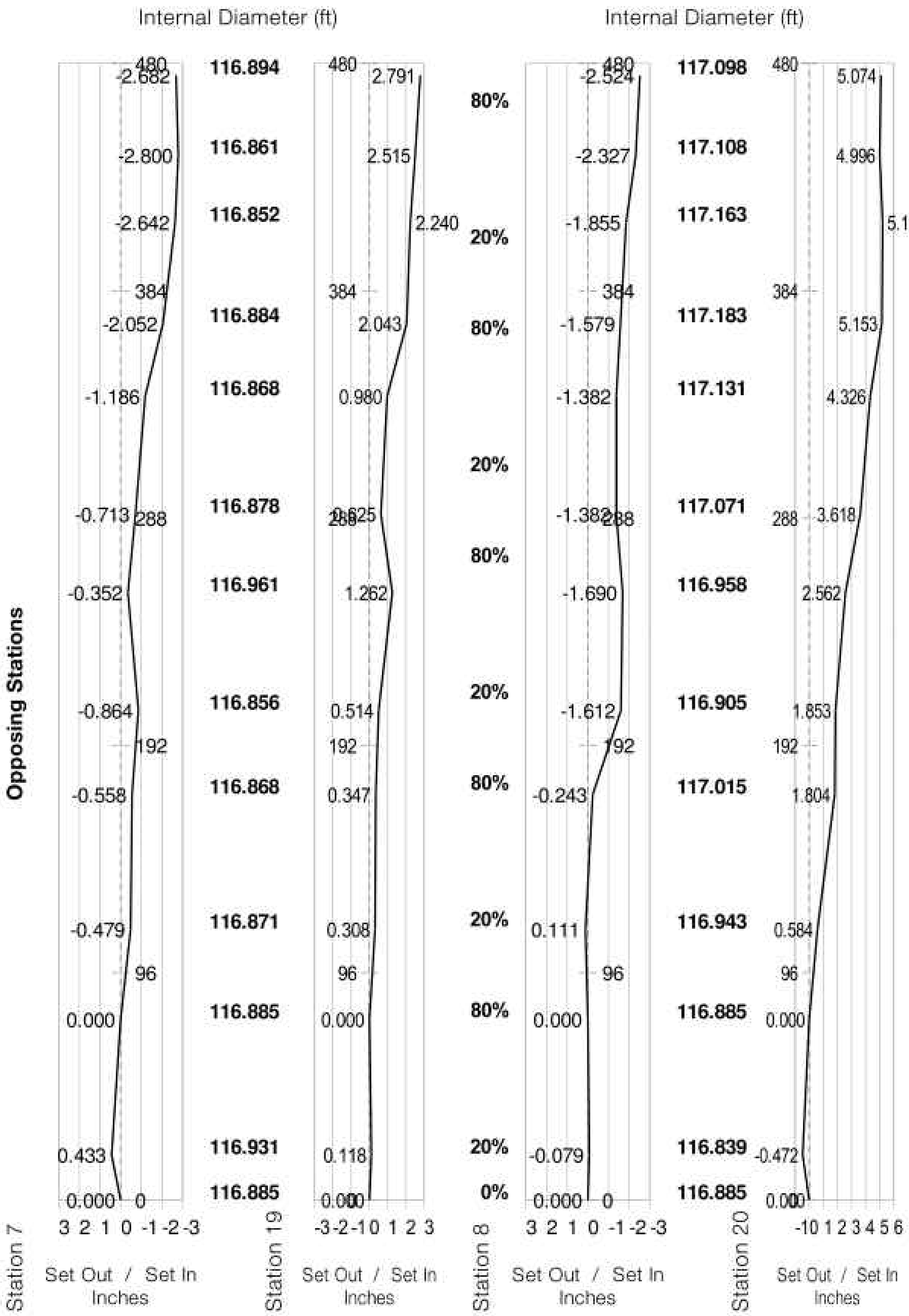



Internal Diameter (ft)
Internal Diameter (ft)
Opposing Stations
480
384
288
192
96
0
117.137
117.150
117.153
117.131
117.137
117.055
117.037
116.915
116.848
116.848
116.885
116.833
116.885
80%
20%
80%
20%
80%
20%
80%
20%
0%
-4.296
-3.587
-2.170
-1.304
-1.382
-1.343
-0.903
-1.061
-0.991
-0.440
0.000
-0.276
0.000
7.318
6.767
5.389
4.248
4.405
3.381
2.719
1.420
0.544
-0.007
0.000
-0.354
0.000
0.547
-0.438
-0.949
-0.713
-0.044
-0.910
-0.785
-0.313
0.387
0.387
0.000
-0.866
0.000
0.507
0.625
0.350
0.232
0.271
0.453
0.357
0.750
0.938
0.072
0.000
-0.827
0.000
116.973
116.901
116.835
116.845
116.904
116.822
116.850
116.922
116.996
116.923
116.885
116.744
116.885
1 0 -1 -2 -3 -4 -5
-1 1 3 5 7
3 2 1 0 -1 -2 -3
-3 -2 -1 0 1 2 3
Station 1
Station 13
Station 2
Station 14
Set Out / Set In
Inches

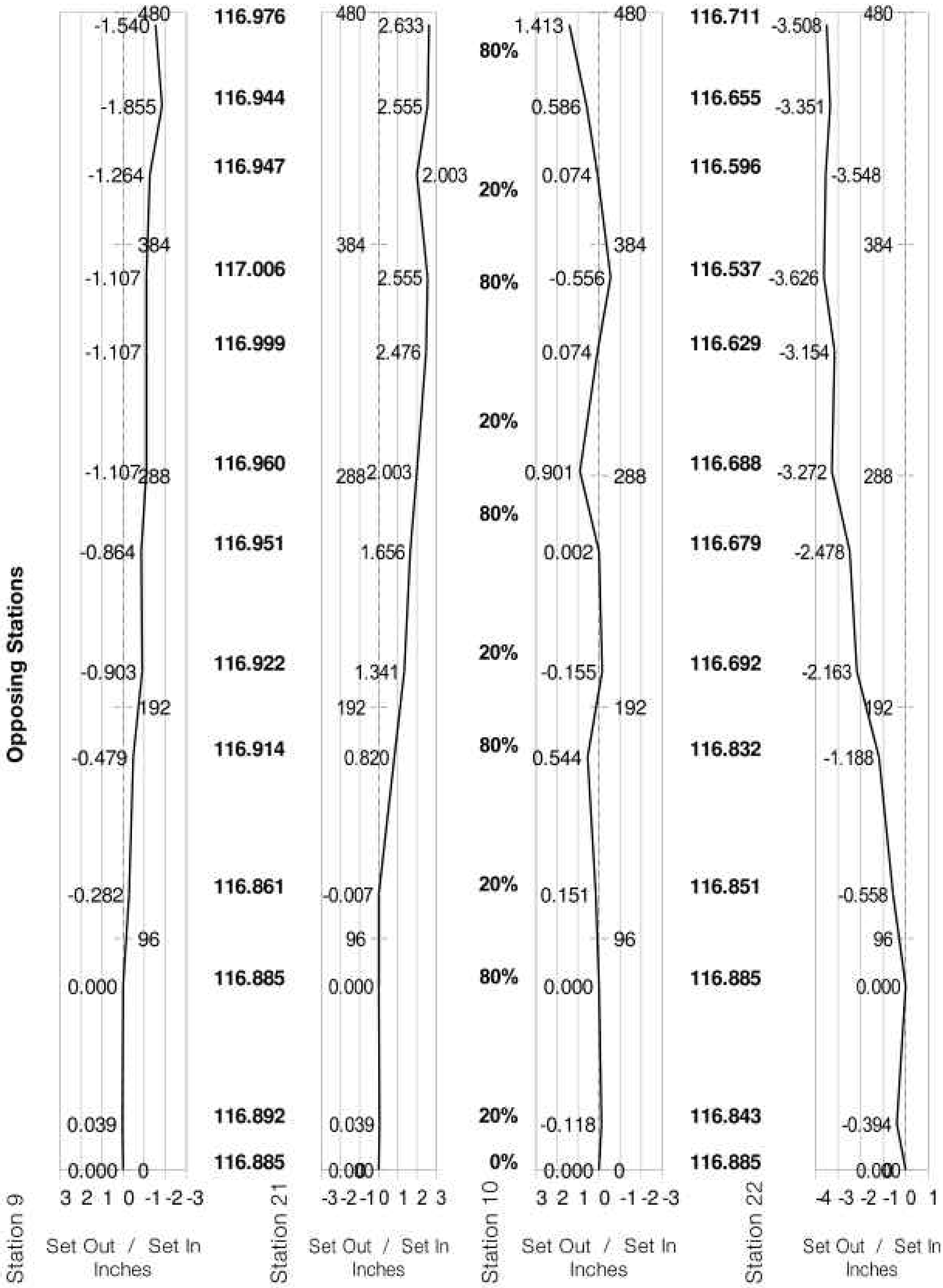

Internal Diameter (ft)
Internal Diameter (ft)
Opposing Stations
480
384
288
192
96
0
116.209
116.225
116.291
116.422
116.537
116.573
116.600
116.551
116.631
116.786
116.885
116.997
116.885
80%
20%
80%
20%
80%
20%
80%
20%
0%
115.874
115.930
115.894
115.979
116.146
116.218
116.315
116.475
116.868
116.769
116.885
116.997
116.885
-4.138
-3.351
-2.997
-2.485
-2.052
-1.894
-1.730
-1.966
-1.582
-1.031
0.000
1.063
0.000
-3.981
-4.571
-4.138
-3.075
-2.130
-1.855
-1.690
-2.045
-1.464
-0.164
0.276
0.000
-7.367
-6.815
-6.343
-5.713
-4.571
-4.299
-3.423
-2.242
0.899
-0.597
0.000
0.433
0.000
-4.768
-4.650
-5.556
-5.162
-4.296
-3.902
-3.423
-2.675
-1.109
-0.794
0.906
0.000
2 0 -2 -4 -6
-5 -4 -3 -2 -1 0 1
0 -2 -4 -6 -8
-6 -5 -4 -3 -2 -1 0 1
Station 3
Station 15
Station 4
Station 16
Set Out / Set In
Inches

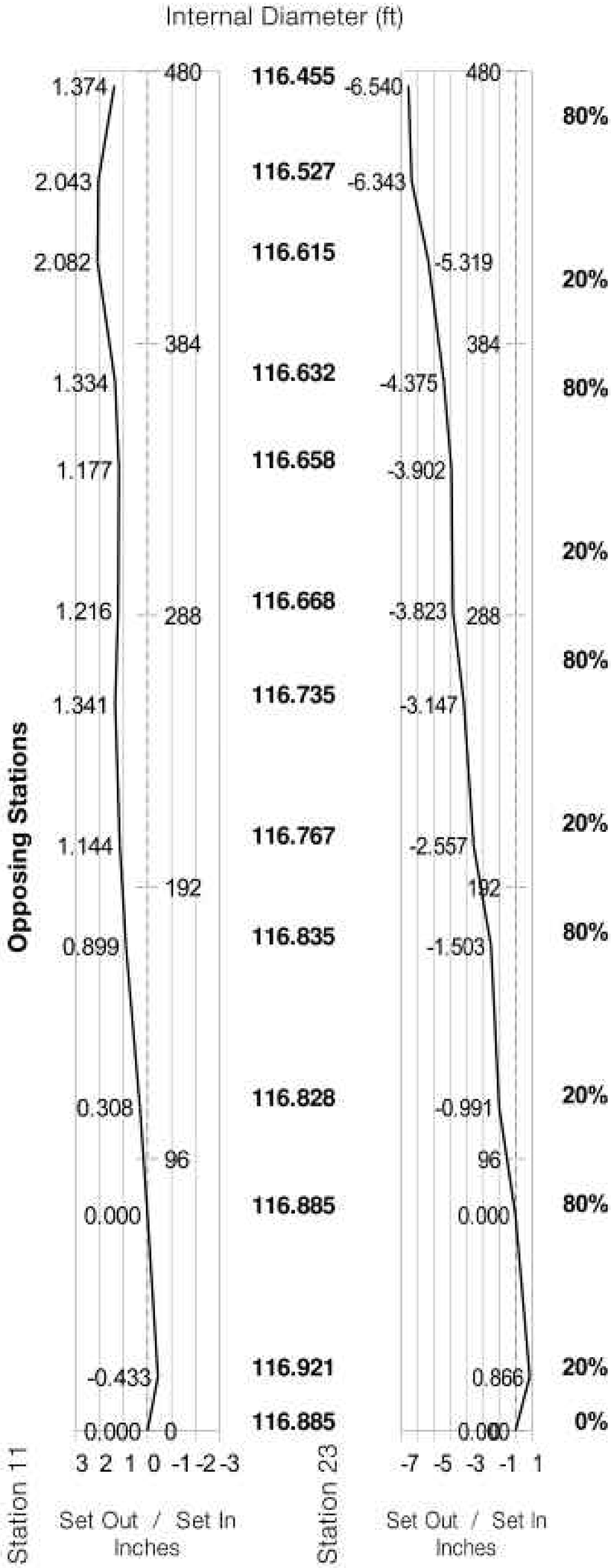

Internal Diameter (ft)
Internal Diameter (ft)
Opposing Stations
480
-2.563
-2.839
-3.469
384
-3.390
-1.815
-1.264
288
-0.785
-0.942
192
-0.597
-0.676
96
0.000
0.866
0.000
0
2 1 0 -1-2-3-4-5
Set Out / Set In
Inches
Station 5
116.507
116.504
116.484
116.520
116.678
116.737
116.807
116.790
116.841
116.855
116.885
116.948
116.885
480
-1.973
-1.737
-1.343
384
-0.989
-0.674
-0.513
288
-0.155
-0.194
192
0.072
0.308
96
0.000
-0.118
0.000
-3 -2 -1 0 1 2 3
Set Out / Set In
Inches
Station 17
80%
20%
80%
20%
80%
20%
80%
20%
0%
480
-7.170
-5.674
-4.689
384
-4.847
-4.532
-4.060
288
-3.383
-2.635
192
-1.345
-0.558
96
0.000
0.079
0.000
0
0 -2 -4 -6 -8
Set Out / Set In
Inches
Station 6
116.317
116.442
116.481
116.494
116.556
116.540
116.584
116.633
116.779
116.832
116.885
116.895
116.885
480
0.350
0.350
-0.162
384
0.153
0.586
-0.083
288
-0.234
-0.391
192
0.072
-0.086
96
0.000
0.039
0.000
-3 -2 -1 0 1 2 3
Set Out / Set In
Inches
Station 18

Opposing Stations

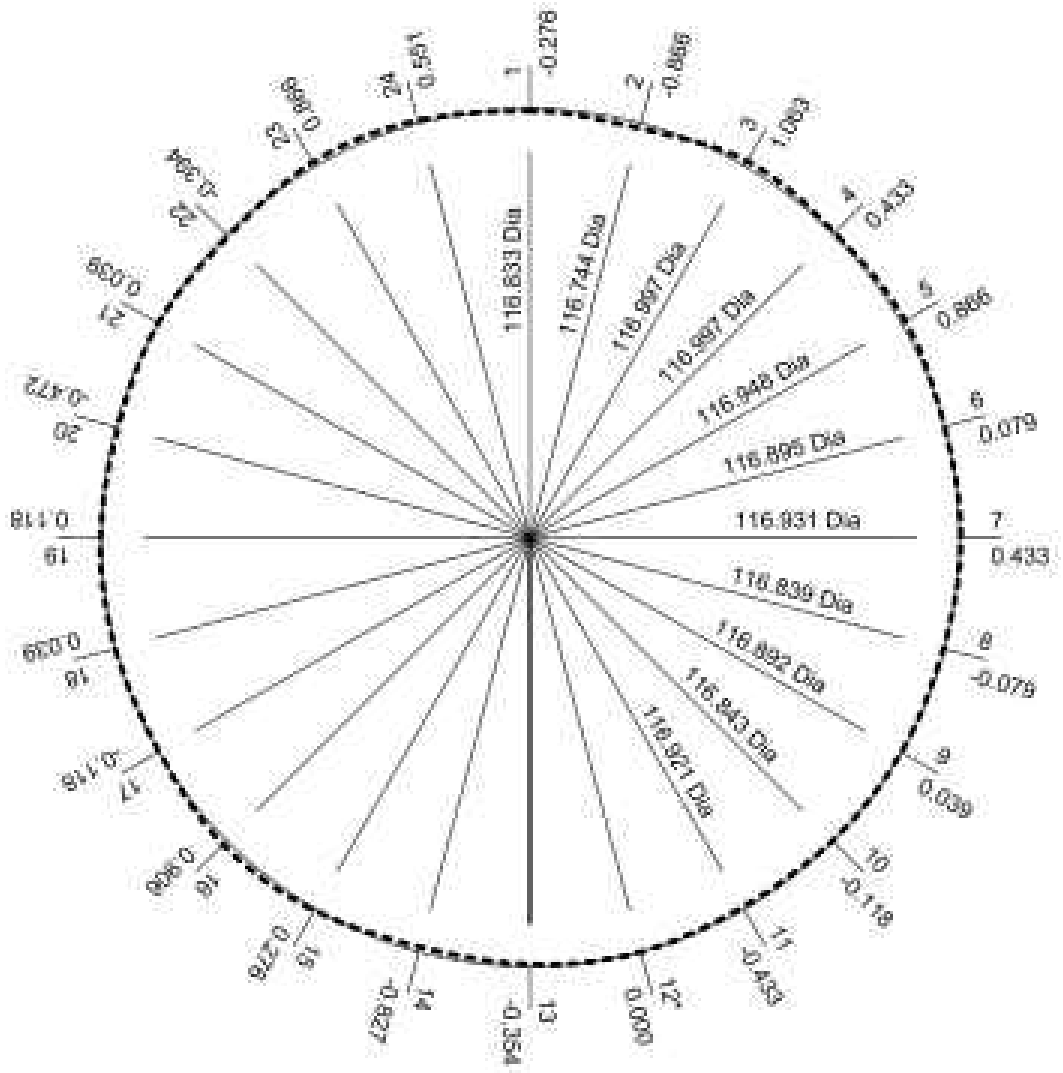


Opposing Stations

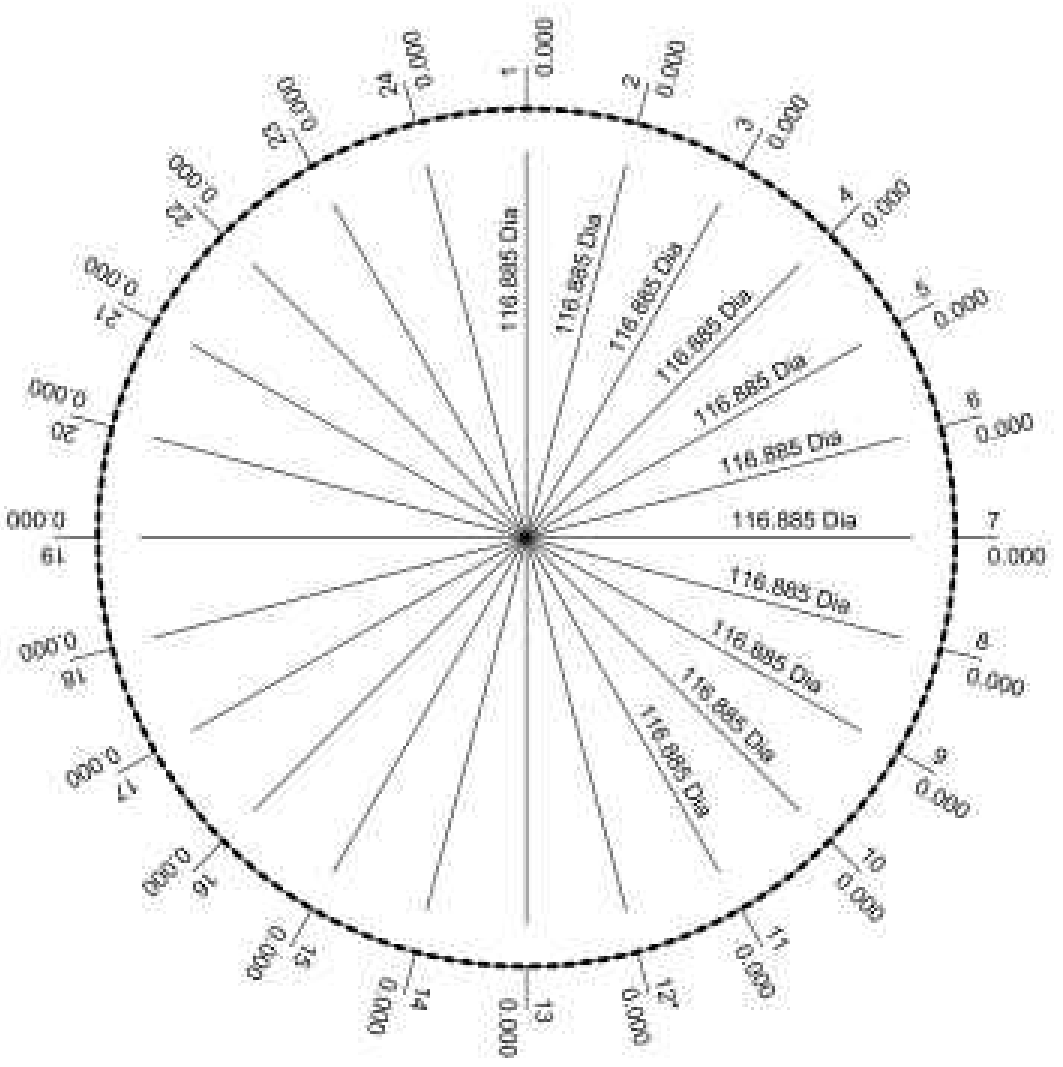



Internal Diameter (ft)
Opposing Stations
Station 11
Station 23
Set Out / Set In Inches
Set Out / Set In Inches
480
384
288
192
96
0
1.374
2.043
2.082
1.334
1.177
1.216
1.341
1.144
0.899
0.308
0.000
-0.433
0.000
-6.540
-6.343
-5.319
-4.375
-3.902
-3.823
-3.147
-2.557
-1.503
-0.991
0.000
0.866
0.000
116.455
116.527
116.615
116.632
116.658
116.668
116.735
116.767
116.835
116.828
116.885
116.921
116.885
80%
20%
80%
20%
80%
20%
80%
20%
80%
20%
0%
3 2 1 0 -1 -2 -3
-7 -5 -3 -1 1

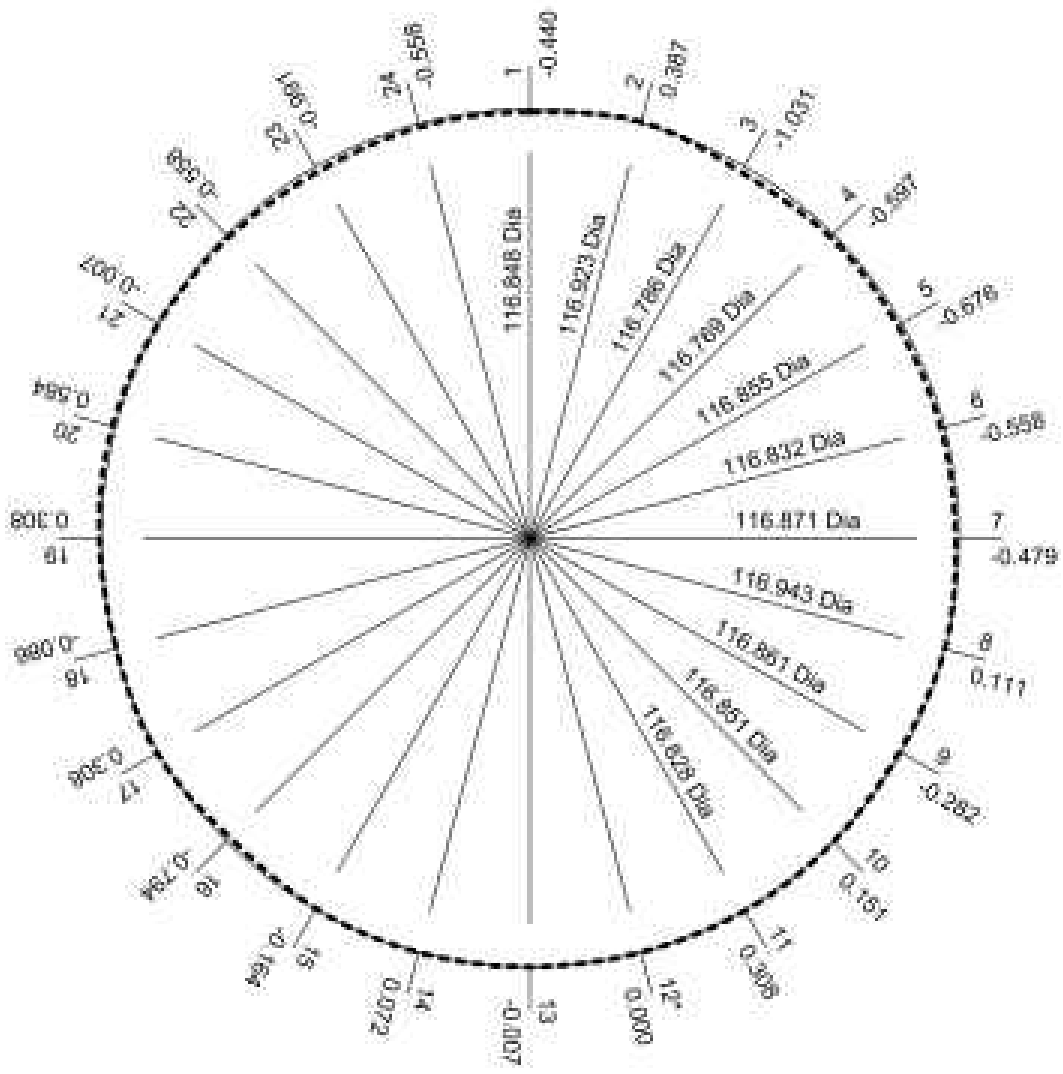
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-802
RING OFFSETS



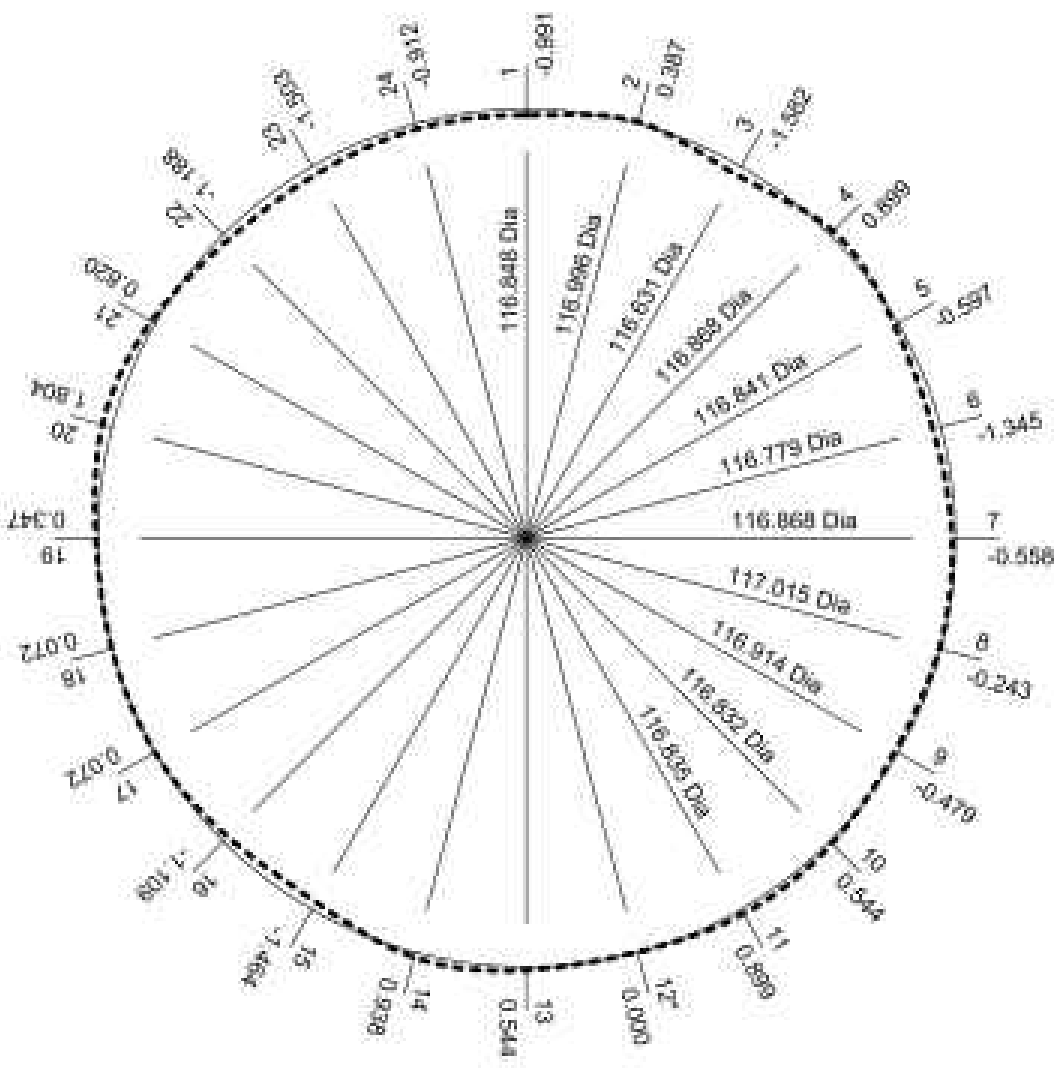
RING #1 20%



RING #1 80%



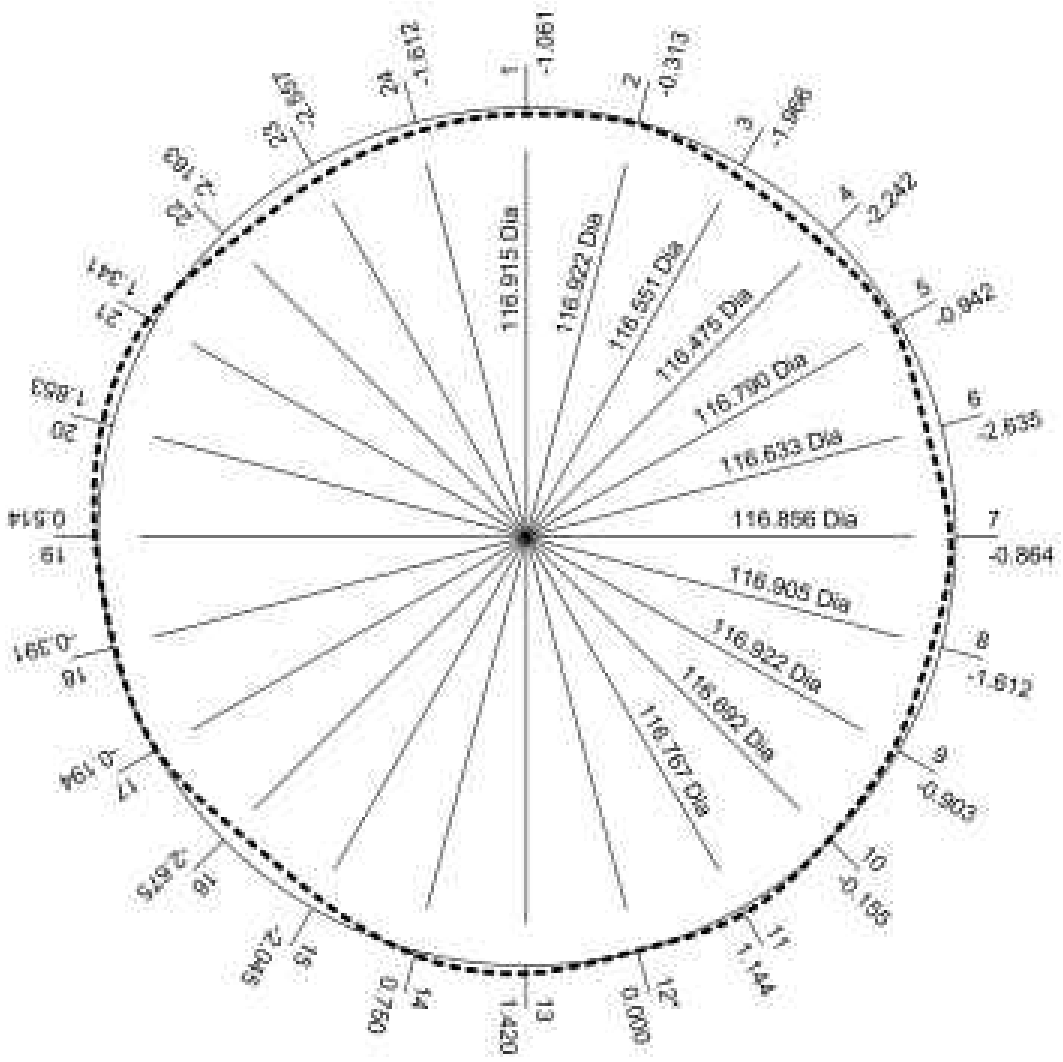
RING #2 20%



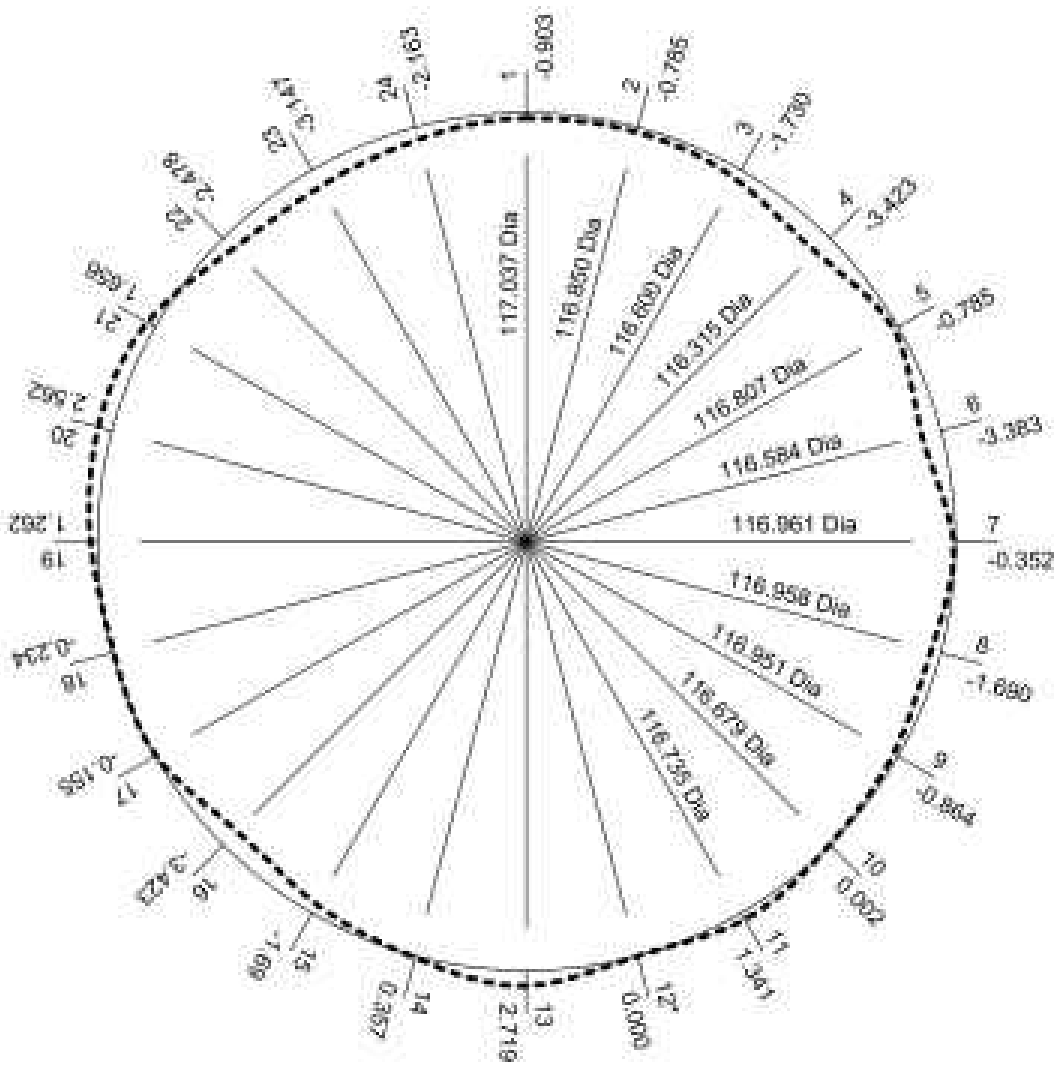
RING #2 80%

*Graph representation not applicable for
Station 12 - Door Sheet

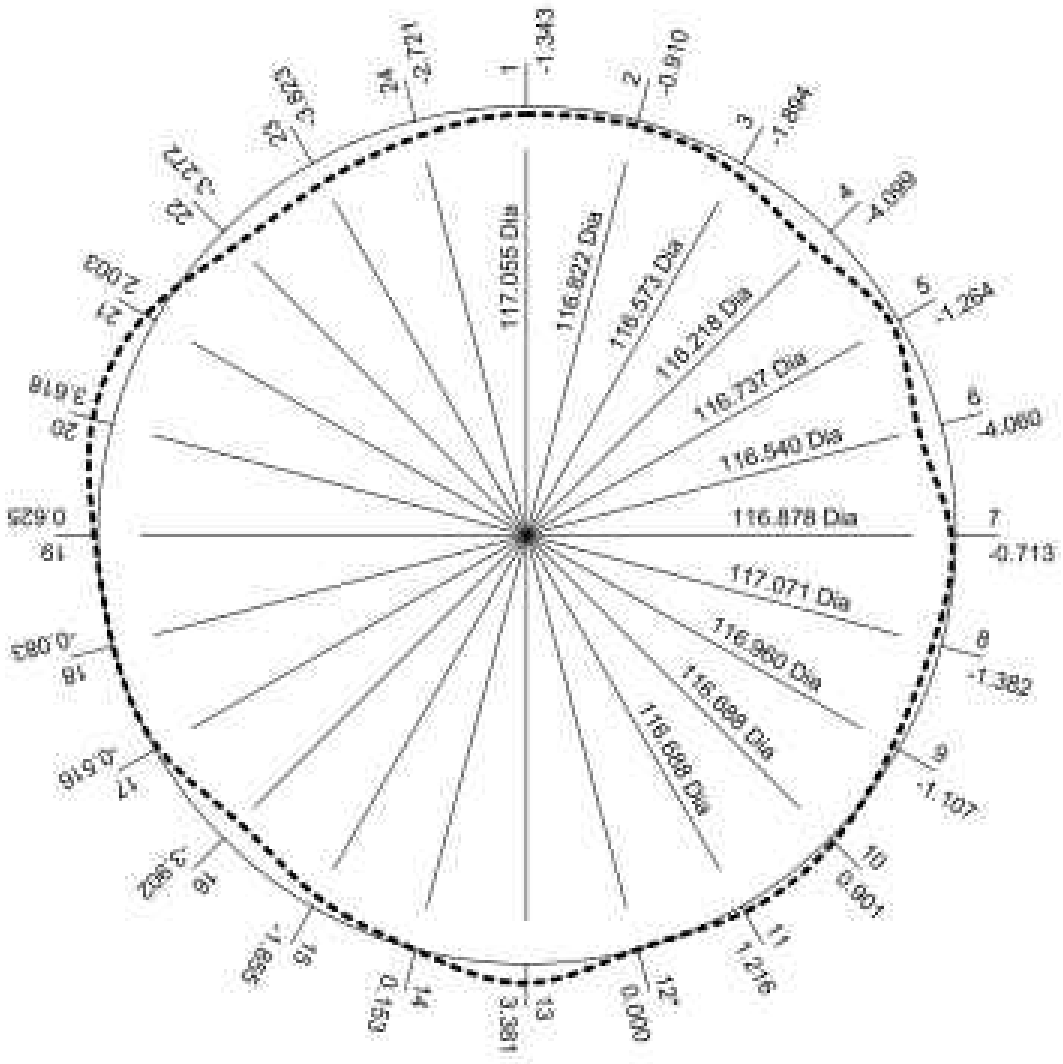
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-802
RING OFFSETS



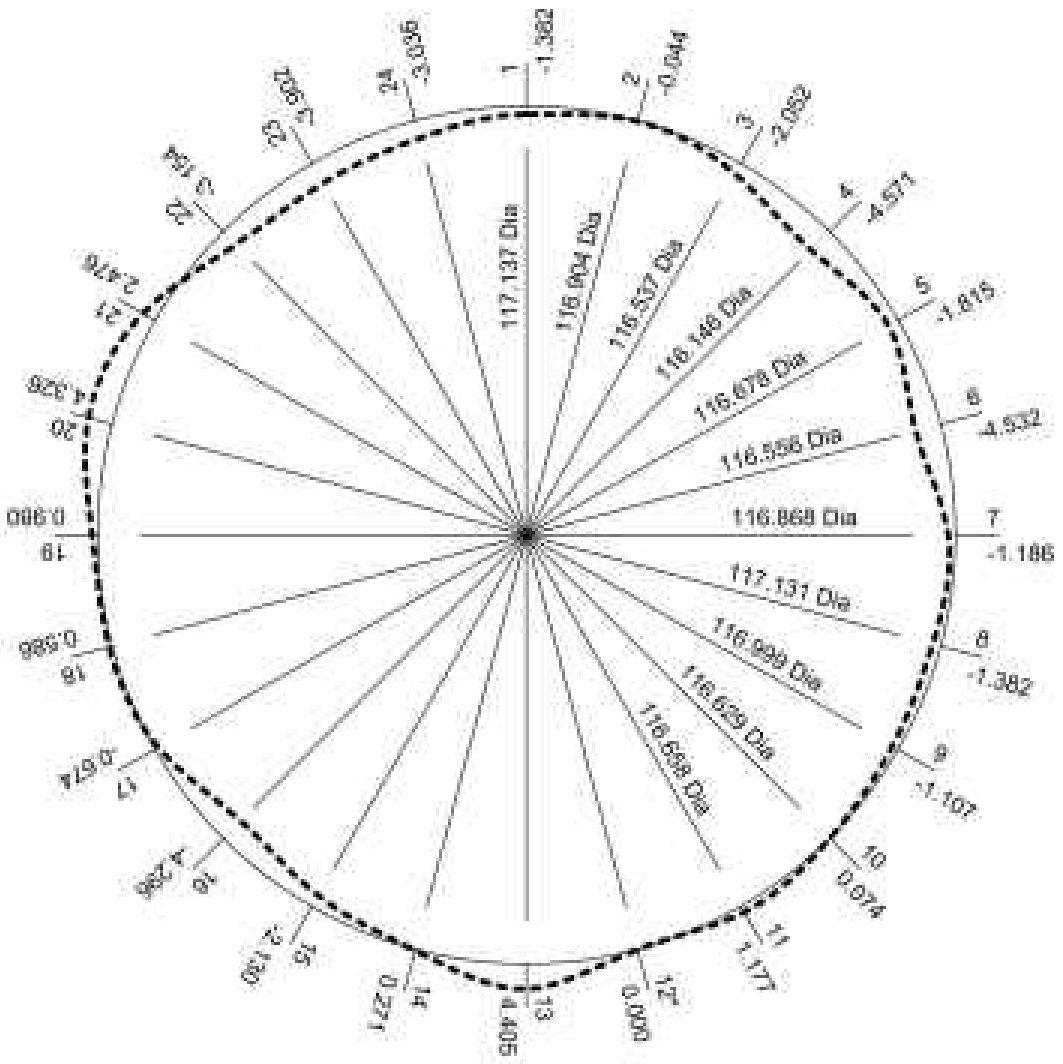
RING #3 20%



RING #3 80%



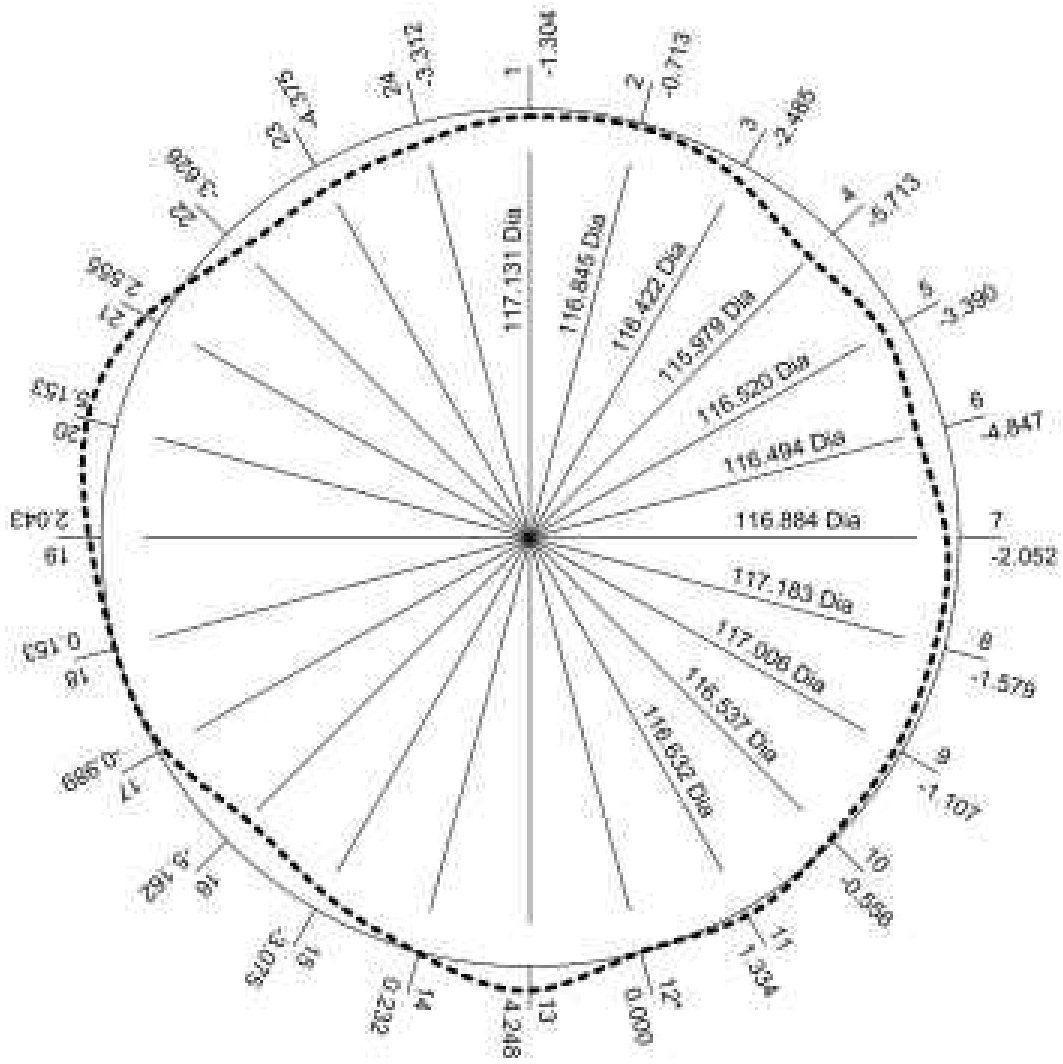
RING #4 20%



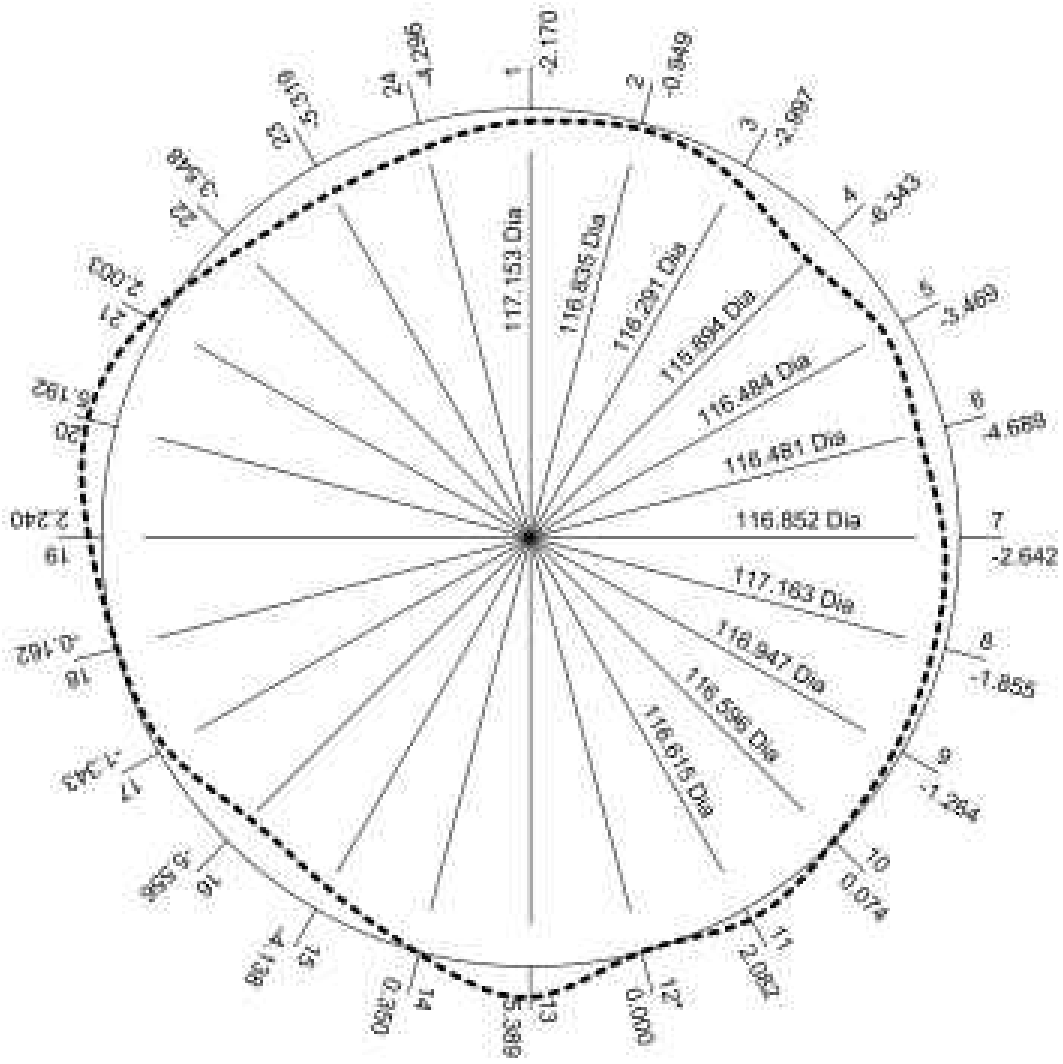
RING #4 80%

*Graph representation not applicable for
Station 12 - Door Sheet

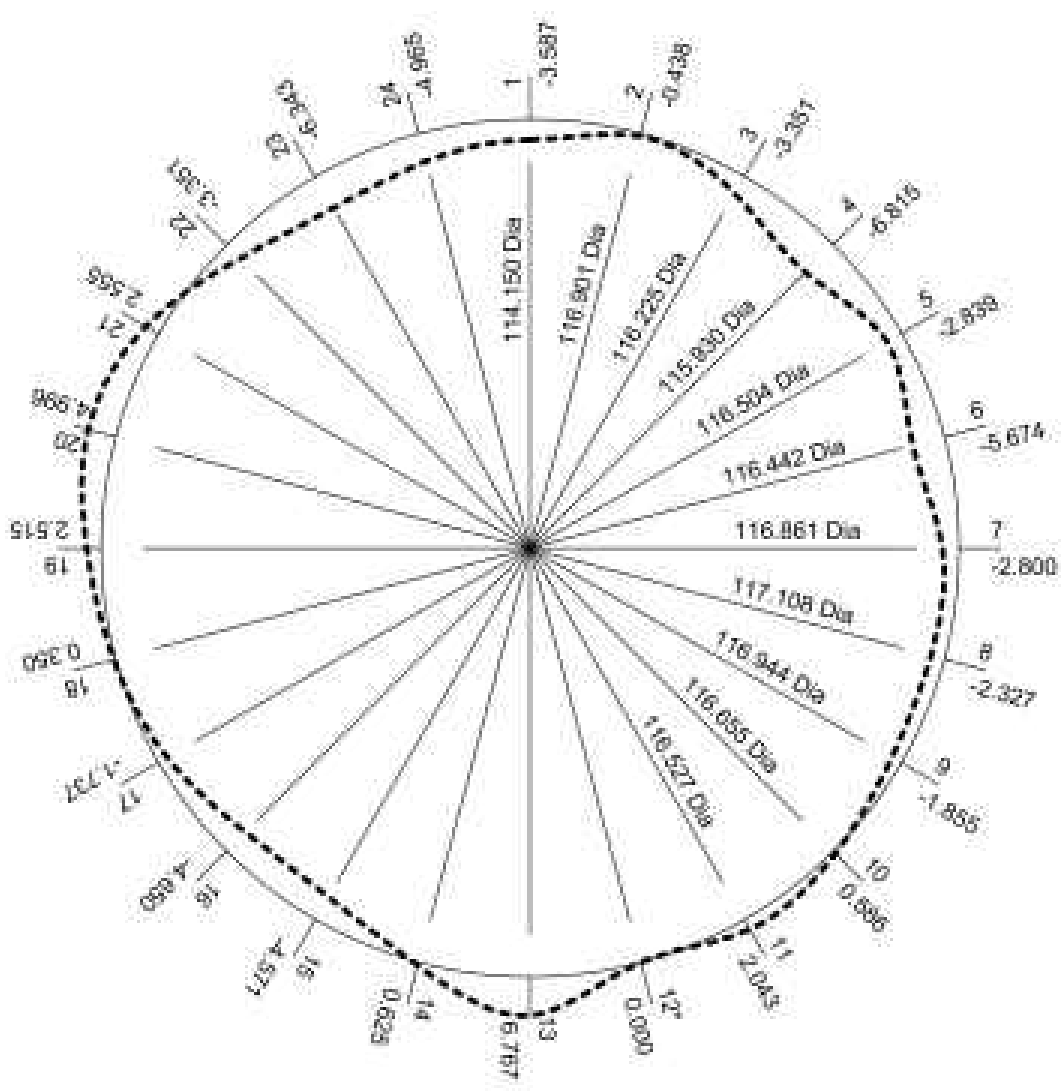
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-802
RING OFFSETS



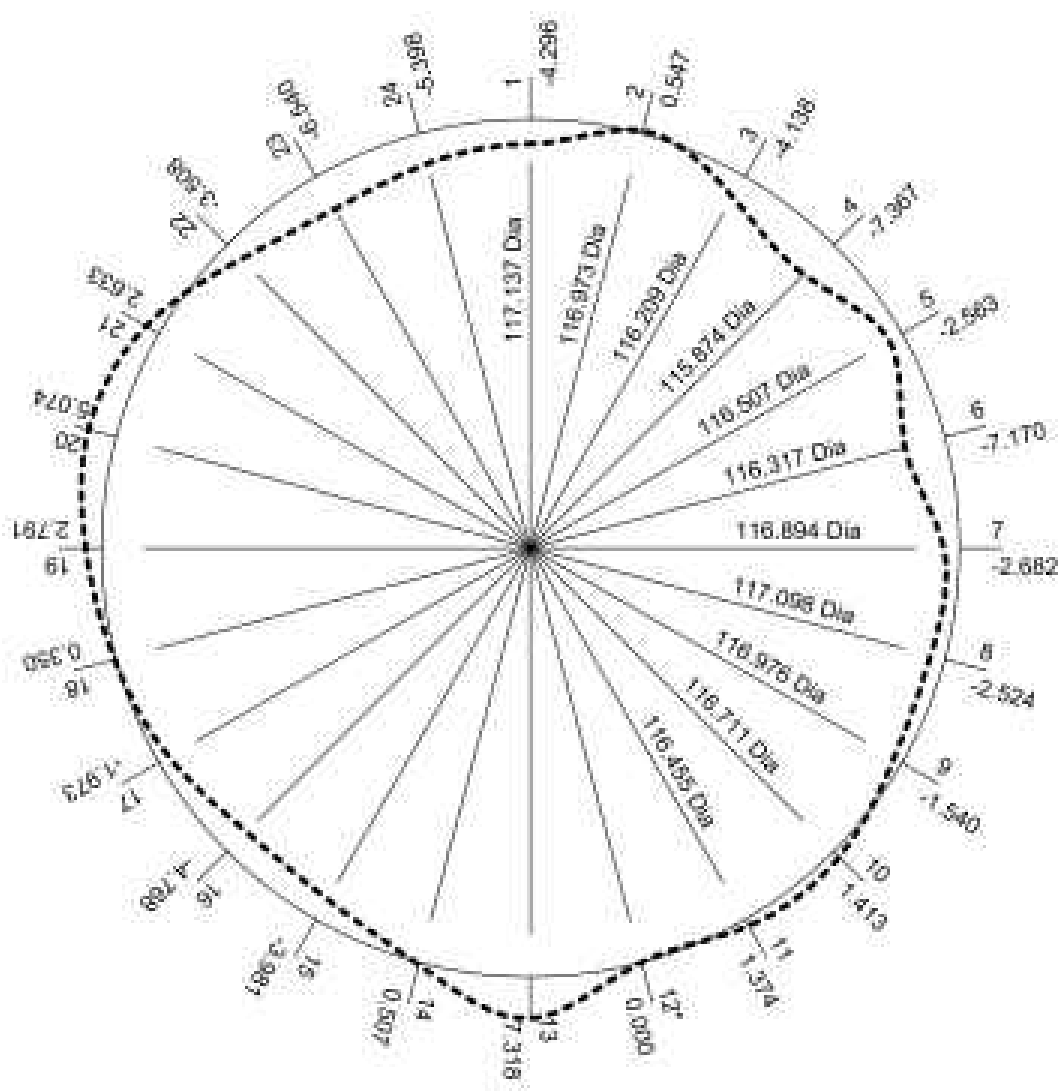
RING #5 20%



RING #5 80%



RING #6 20%



RING #6 80%

*Graph representation not applicable for
Station 12 - Door Sheet

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

External Optical Readings – Millimetres

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Height (in)	0	19.1	76.3	114.3	171.3	206.8	256.5	289.7	339.5	370.3	412.9	441.3	475.0
Station	Ref												
1	018	024	018	016	014	007	005	009	016	009	-006	016	038
2	292	313	292	285	292	310	321	313	305	325	325	302	281
3	307	272	307	330	350	357	354	359	367	381	399	408	433
4	184	168	184	190	200	229	273	272	285	311	341	330	343
5	712	678	712	731	741	746	747	759	774	806	804	784	794
6	009	013	009	018	032	060	078	083	107	100	079	112	124
7	563	545	563	576	572	563	546	543	545	577	588	578	592
8	015	008	015	024	050	075	066	058	058	061	048	039	051
9	554	556	554	559	559	562	557	560	567	563	576	576	587
10	502	514	502	493	483	495	479	467	493	490	483	458	443
11	132	159	132	124	105	095	087	076	067	048	039	042	055
12	169	186	169	155	141	153	155	136	123	104	090	095	110
13	847	835	847	857	858	847	835	828	820	847	837	820	828
14	563	577	563	558	553	568	587	601	602	604	603	597	598
15	166	170	166	161	183	184	169	161	159	173	185	198	198
16	260	247	260	268	264	284	297	297	299	312	311	279	272
17	681	687	681	681	683	687	693	709	701	691	692	724	738
18	306	322	306	304	301	307	304	290	272	279	290	268	278
19	100	101	100	087	082	065	047	051	038	008	004	-007	-009
20	521	531	521	504	467	461	442	414	392	372	367	376	381
21	472	474	472	474	454	442	434	429	418	426	441	426	432
22	613	617	613	626	650	671	684	703	699	713	714	711	713
23	393	362	393	414	431	453	472	487	493	504	527	552	572
24	273	256	273	283	289	302	313	323	329	334	358	369	377
Total Feet	28.3787		56.6451		57.3165		58.6287		58.5883		59.495		59.988
Average	1.18245		1.18011		1.19409		1.19409		1.22143		1.22059		1.23948

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.6875	0.6875	0.6875	0.5625	0.5625	0.375	0.375	0.25	0.25	0.25	0.25	0.250	0.250
Station	Ref												
1	0.026	0.258	0.026	0.076	0.002	-0.116	-0.191	0.089	0.362	0.112	-0.475	0.375	1.237
2	10.819	11.648	10.819	10.651	10.924	11.820	12.251	12.080	11.748	12.530	12.558	11.653	10.832
3	11.384	10.011	11.384	12.434	13.198	13.690	13.575	13.870	14.186	14.762	15.442	15.832	16.810
4	6.557	5.929	6.557	6.929	7.319	8.647	10.380	10.465	10.970	12.002	13.191	12.747	13.236
5	27.360	26.016	27.360	28.222	28.595	29.002	29.044	29.619	30.203	31.492	31.399	30.616	31.029
6	-0.316	-0.177	-0.316	0.150	0.702	2.001	2.688	3.031	3.975	3.680	2.845	4.154	4.639
7	21.459	20.768	21.459	22.119	21.950	21.808	21.135	21.111	21.213	22.470	22.883	22.505	23.047
8	-0.092	-0.354	-0.092	0.376	1.403	2.565	2.221	2.044	2.043	2.163	1.642	1.291	1.749
9	21.120	21.203	21.120	21.434	21.461	21.761	21.555	21.803	22.092	21.930	22.414	22.417	22.858
10	19.083	19.545	19.083	18.859	18.446	19.111	18.482	18.149	19.177	19.051	18.774	17.785	17.190
11	4.509	5.557	4.509	4.319	3.584	3.358	3.052	2.759	2.398	1.622	1.267	1.418	1.923
12	5.953	6.651	5.953	5.523	5.002	5.662	5.713	5.110	4.598	3.835	3.288	3.504	4.086
13	32.655	32.177	32.655	33.183	33.212	32.973	32.518	32.341	32.021	33.112	32.707	32.027	32.351
14	21.461	22.045	21.461	21.396	21.195	21.999	22.725	23.423	23.435	23.515	23.509	23.234	23.312
15	5.836	5.998	5.836	5.770	6.647	6.857	6.291	6.105	6.008	6.552	7.018	7.537	7.546
16	9.536	9.019	9.536	9.972	9.821	10.821	11.314	11.440	11.503	12.015	12.011	10.722	10.446
17	26.124	26.361	26.124	26.254	26.334	26.671	26.925	27.654	27.342	26.969	27.011	28.256	28.819
18	11.341	12.002	11.341	11.390	11.282	11.722	11.597	11.176	10.449	10.739	11.160	10.316	10.686
19	3.245	3.284	3.245	2.882	2.648	2.193	1.467	1.751	1.247	0.069	-0.093	-0.513	-0.612
20	19.811	20.221	19.811	19.266	17.804	17.783	17.038	16.063	15.193	14.401	14.184	14.554	14.747
21	17.897	17.982	17.897	18.111	17.303	17.014	16.701	16.636	16.197	16.514	17.109	16.519	16.755
22	23.451	23.591	23.451	24.089	25.015	26.054	26.563	27.427	27.288	27.832	27.879	27.760	27.836
23	14.775	13.566	14.775	15.746	16.392	17.442	18.202	18.929	19.150	19.595	20.512	21.493	22.265
24	10.053	9.396	10.053	10.575	10.833	11.503	11.958	12.473	12.715	12.890	13.851	14.262	14.600

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1	0.000	-0.232	0.000	-0.050	0.024	0.143	0.217	-0.062	-0.335	-0.085	0.501	-0.349	-1.211
2	0.000	-0.829	0.000	0.168	-0.105	-1.001	-1.432	-1.261	-0.929	-1.711	-1.739	-0.834	-0.013
3	0.000	1.374	0.000	-1.050	-1.814	-2.306	-2.191	-2.485	-2.802	-3.378	-4.057	-4.448	-5.426
4	0.000	0.628	0.000	-0.372	-0.762	-2.089	-3.823	-3.907	-4.413	-5.445	-6.633	-6.190	-6.679
5	0.000	1.344	0.000	-0.862	-1.235	-1.642	-1.684	-2.259	-2.843	-4.132	-4.039	-3.256	-3.669
6	0.000	-0.139	0.000	-0.465	-1.018	-2.317	-3.004	-3.347	-4.291	-3.995	-3.160	-4.470	-4.955
7	0.000	0.691	0.000	-0.659	-0.491	-0.348	0.324	0.349	0.247	-1.011	-1.423	-1.046	-1.588
8	0.000	0.262	0.000	-0.469	-1.495	-2.658	-2.314	-2.136	-2.135	-2.255	-1.735	-1.384	-1.842
9	0.000	-0.083	0.000	-0.314	-0.341	-0.641	-0.435	-0.683	-0.973	-0.810	-1.295	-1.298	-1.739
10	0.000	-0.462	0.000	0.224	0.636	-0.029	0.600	0.934	-0.094	0.032	0.308	1.297	1.892
11	0.000	-1.048	0.000	0.190	0.925	1.151	1.457	1.750	2.111	2.887	3.242	3.091	2.586
12	0.000	-0.698	0.000	0.430	0.950	0.291	0.240	0.842	1.355	2.118	2.665	2.448	1.867
13	0.000	0.478	0.000	-0.528	-0.558	-0.318	0.136	0.314	0.634	-0.458	-0.052	0.628	0.304
14	0.000	-0.584	0.000	0.065	0.266	-0.538	-1.264	-1.962	-1.974	-2.055	-2.048	-1.774	-1.851
15	0.000	-0.162	0.000	0.066	-0.811	-1.021	-0.455	-0.269	-0.172	-0.716	-1.182	-1.701	-1.710
16	0.000	0.517	0.000	-0.437	-0.286	-1.286	-1.779	-1.905	-1.968	-2.480	-2.475	-1.187	-0.911
17	0.000	-0.237	0.000	-0.130	-0.210	-0.547	-0.801	-1.530	-1.217	-0.845	-0.887	-2.132	-2.695
18	0.000	-0.662	0.000	-0.049	0.059	-0.381	-0.257	0.165	0.891	0.602	0.180	1.025	0.654
19	0.000	-0.040	0.000	0.363	0.597	1.052	1.777	1.493	1.997	3.175	3.338	3.758	3.857
20	0.000	-0.410	0.000	0.545	2.007	2.028	2.773	3.748	4.818	5.411	5.627	5.257	5.064
21	0.000	-0.085	0.000	-0.214	0.594	0.883	1.196	1.261	1.700	1.383	0.789	1.378	1.142
22	0.000	-0.140	0.000	-0.638	-1.564	-2.603	-3.112	-3.976	-3.837	-4.381	-4.428	-4.309	-4.385
23	0.000	1.209	0.000	-0.972	-1.617	-2.667	-3.427	-4.155	-4.375	-4.820	-5.738	-6.718	-7.490
24	0.000	0.656	0.000	-0.522	-0.780	-1.451	-1.905	-2.421	-2.662	-2.838	-3.798	-4.209	-4.548

Maximum INWARD Offset : -7.490

Maximum OUTWARD Offset : 5.627

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1 & 13	0	0.246	0.000	-0.578	-0.533	-0.176	0.354	0.251	0.299	-0.543	0.449	0.280	-0.907
2 & 14	0	-1.413	0.000	0.233	0.160	-1.539	-2.696	-3.223	-2.904	-3.766	-3.787	-2.608	-1.864
3 & 15	0	1.212	0.000	-0.984	-2.625	-3.327	-2.645	-2.755	-2.974	-4.094	-5.240	-6.149	-7.136
4 & 16	0	1.145	0.000	-0.809	-1.048	-3.375	-5.602	-5.812	-6.380	-7.925	-9.109	-7.376	-7.589
5 & 17	0	1.107	0.000	-0.991	-1.445	-2.189	-2.484	-3.789	-4.061	-4.977	-4.927	-5.388	-6.365
6 & 18	0	-0.801	0.000	-0.515	-0.959	-2.698	-3.261	-3.182	-3.400	-3.394	-2.980	-3.445	-4.301
7 & 19	0	0.652	0.000	-0.296	0.106	0.703	2.101	1.842	2.244	2.164	1.914	2.712	2.269
8 & 20	0	-0.148	0.000	0.076	0.512	-0.629	0.459	1.612	2.483	3.155	3.892	3.873	3.222
9 & 21	0	-0.168	0.000	-0.528	0.253	0.242	0.761	0.578	0.728	0.573	-0.506	0.080	-0.597
10 & 22	0	-0.602	0.000	-0.415	-0.928	-2.632	-2.512	-3.042	-3.931	-4.349	-4.120	-3.012	-2.493
11 & 23	0	0.161	0.000	-0.781	-0.692	-1.516	-1.970	-2.404	-2.264	-1.933	-2.496	-3.627	-4.904
12 & 24	0	-0.042	0.000	-0.093	0.170	-1.160	-1.665	-1.578	-1.308	-0.720	-1.133	-1.761	-2.681

Opposing Offsets – Calculated Internal Diameter – Feet

Course	0	1	1	2	2	3	3	4	4	5	5	6	6
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Ref												
1 & 13	116.885	116.906	116.885	116.837	116.841	116.871	116.915	116.906	116.910	116.840	116.923	116.908	116.810
2 & 14	116.885	116.767	116.885	116.905	116.899	116.757	116.661	116.617	116.643	116.571	116.570	116.668	116.730
3 & 15	116.885	116.986	116.885	116.803	116.666	116.608	116.665	116.656	116.637	116.544	116.449	116.373	116.291
4 & 16	116.885	116.981	116.885	116.818	116.798	116.604	116.418	116.401	116.353	116.225	116.126	116.271	116.253
5 & 17	116.885	116.977	116.885	116.803	116.765	116.703	116.678	116.569	116.547	116.470	116.475	116.436	116.355
6 & 18	116.885	116.818	116.885	116.842	116.805	116.660	116.613	116.620	116.602	116.602	116.637	116.598	116.527
7 & 19	116.885	116.939	116.885	116.861	116.894	116.944	117.060	117.039	117.072	117.066	117.045	117.111	117.074
8 & 20	116.885	116.873	116.885	116.892	116.928	116.833	116.923	117.019	117.092	117.148	117.210	117.208	117.154
9 & 21	116.885	116.871	116.885	116.841	116.906	116.905	116.949	116.933	116.946	116.933	116.843	116.892	116.835
10 & 22	116.885	116.835	116.885	116.851	116.808	116.666	116.676	116.632	116.558	116.523	116.542	116.634	116.677
11 & 23	116.885	116.899	116.885	116.820	116.828	116.759	116.721	116.685	116.696	116.724	116.677	116.583	116.477
12 & 24	116.885	116.882	116.885	116.877	116.899	116.789	116.746	116.754	116.776	116.825	116.791	116.738	116.662

CO-OP Refinery Complex
Regina, SK
Tank #54-10-802

24 Stations at 15.3 Feet apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Tank Dimensions

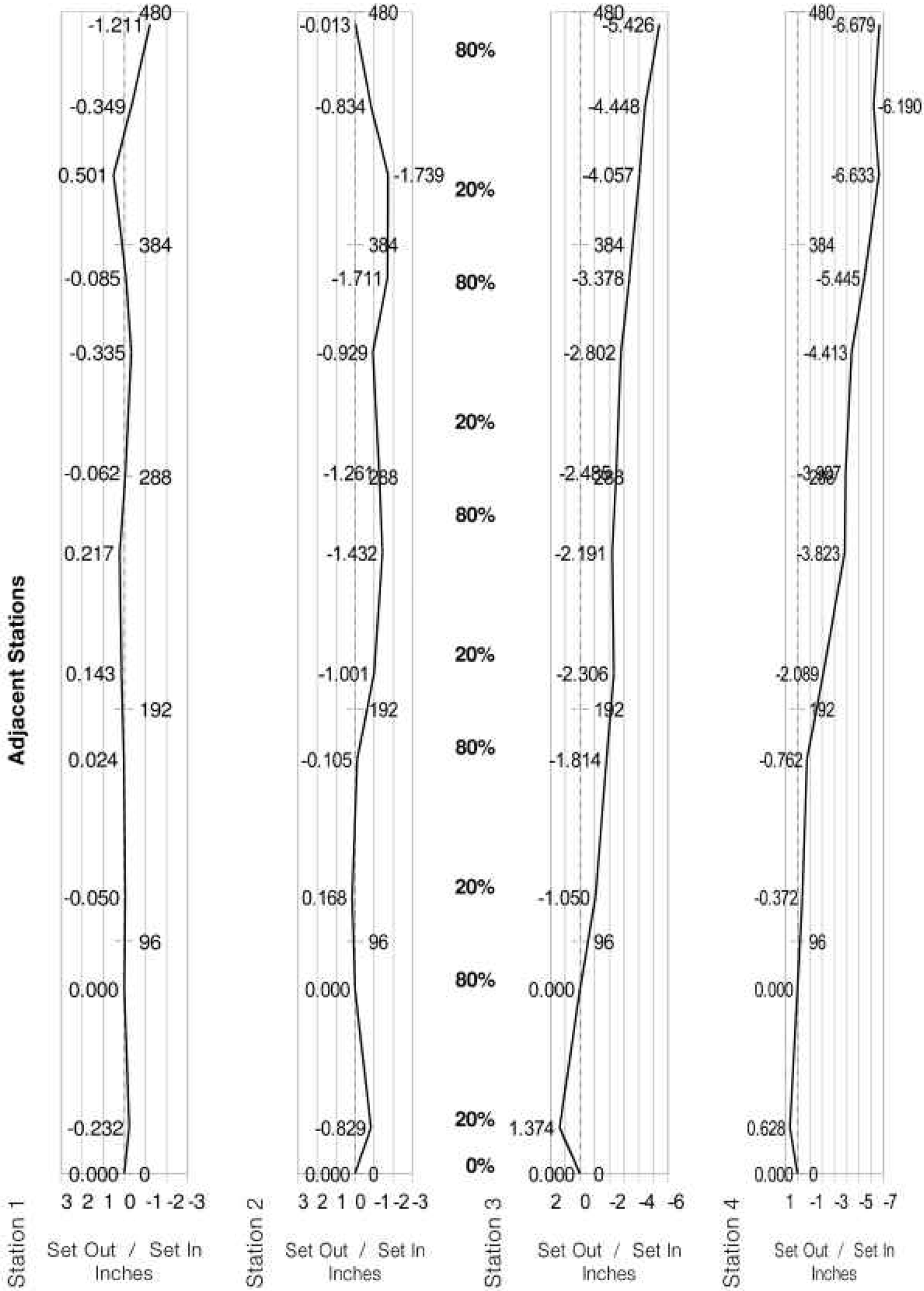
Reference Circumference (external)	112.034 Metres
Reference Circumference (external)	367.566 Feet
Reference Diameter (Internal)	116.885 Feet

Opposing Stations – Internal Offsets

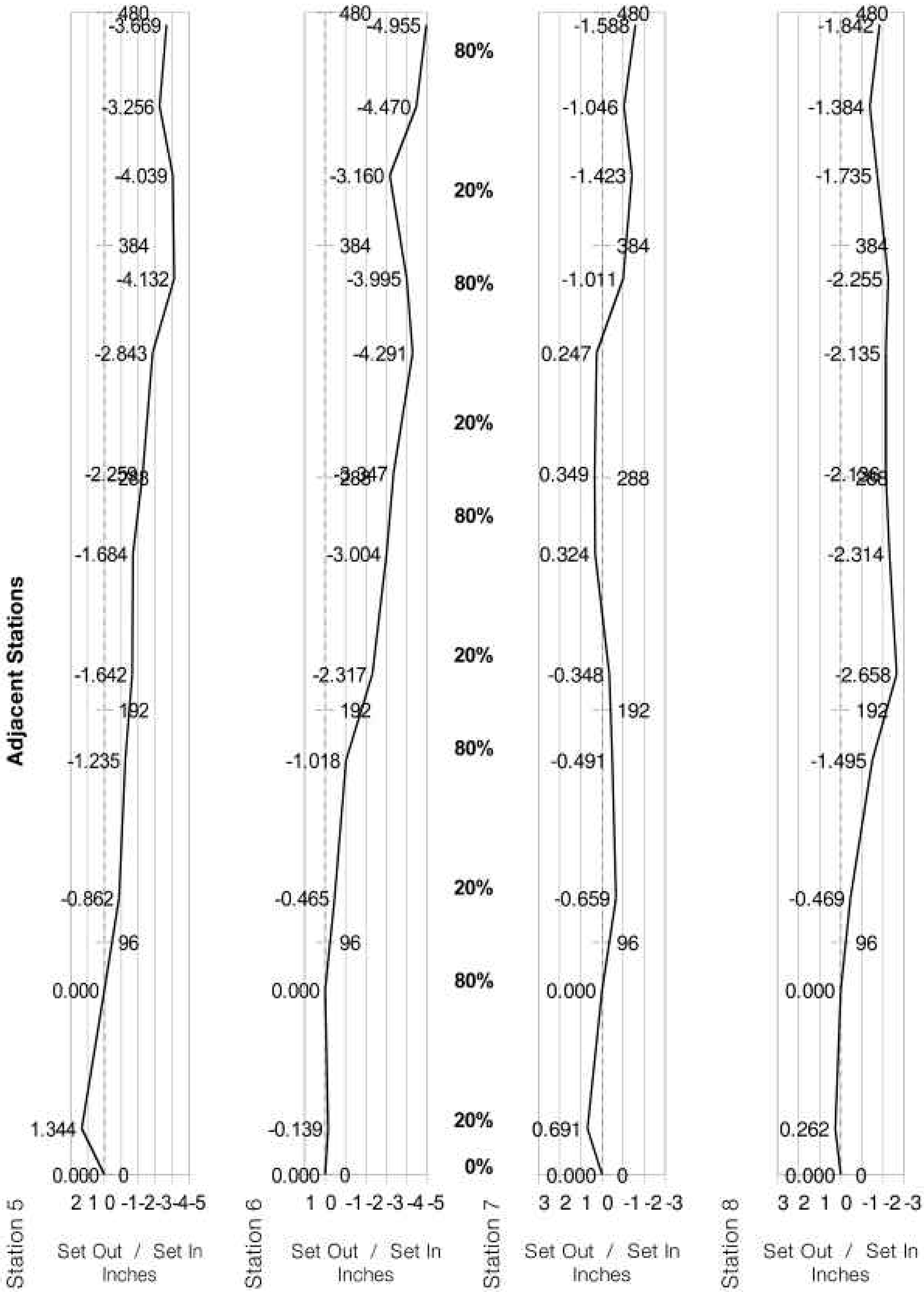
Maximum Tank SET IN (inch)	-9.109
Maximum Tank SET OUT (inch)	3.892

Opposing Stations – Internal Diameter

Minimum Diameter (ft)	116.126
Maximum Diameter (ft)	117.210

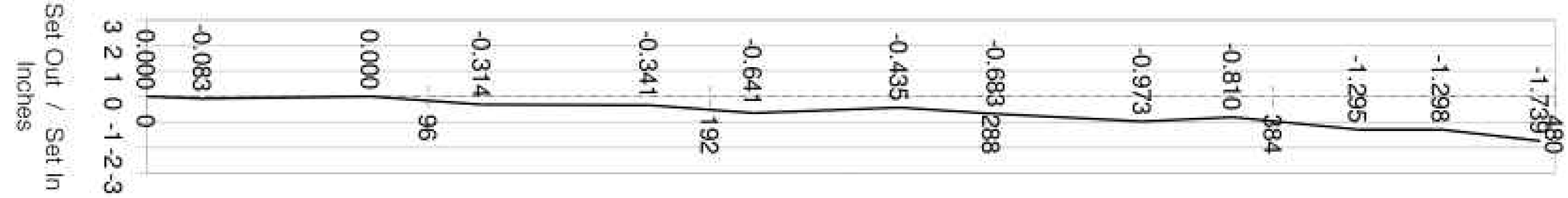

Adjacent Stations
480
384
288
192
96
0
80%
20%
80%
20%
80%
20%
0%
Station 1
-1.211
-0.349
0.501
-0.085
-0.335
-0.062
0.217
0.143
0.024
-0.050
0.000
-0.232
0.000
3 2 1 0 -1 -2 -3
Set Out / Set In
Inches
Station 2
-0.013
-0.834
-1.739
-1.711
-0.929
-1.261
-1.432
-1.001
-0.105
0.168
0.000
-0.829
0.000
3 2 1 0 -1 -2 -3
Set Out / Set In
Inches
Station 3
-5.426
-4.448
-4.057
-3.378
-2.802
-2.486
-2.191
-2.306
-1.814
-1.050
0.000
1.374
0.000
2 0 -2 -4 -6
Set Out / Set In
Inches
Station 4
-6.679
-6.190
-6.633
-5.445
-4.413
-3.997
-3.823
-2.089
-0.762
-0.372
0.000
0.628
0.000
1 -1 -3 -5 -7
Set Out / Set In
Inches

Adjacent Stations

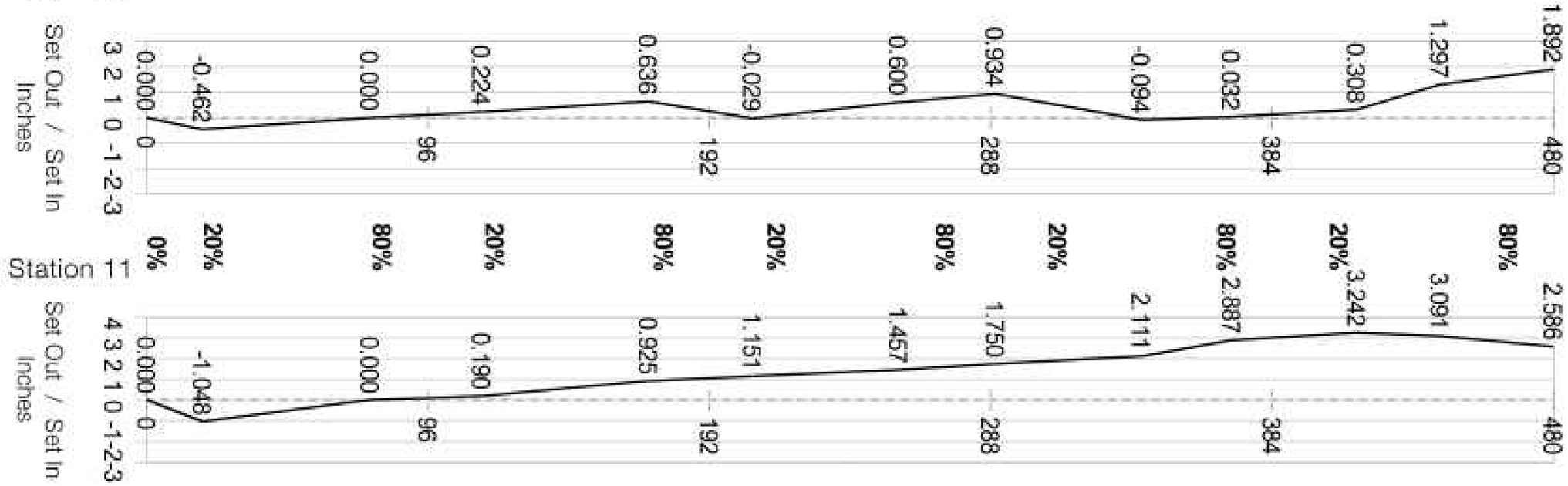


Adjacent Stations

Station 9

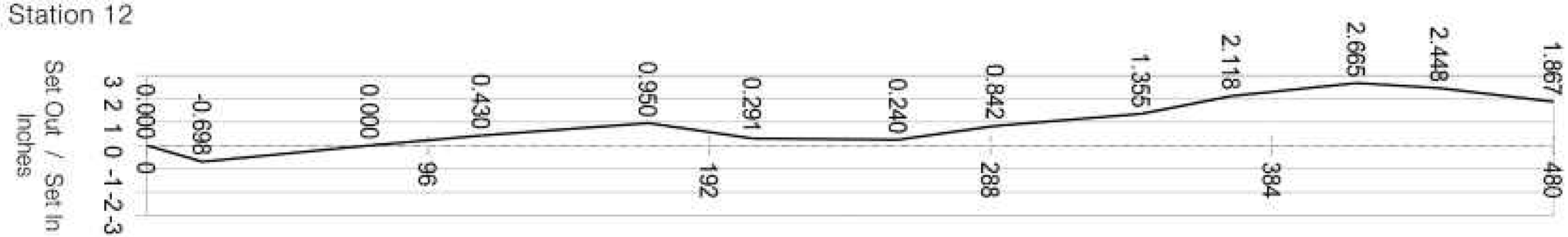


Station 10



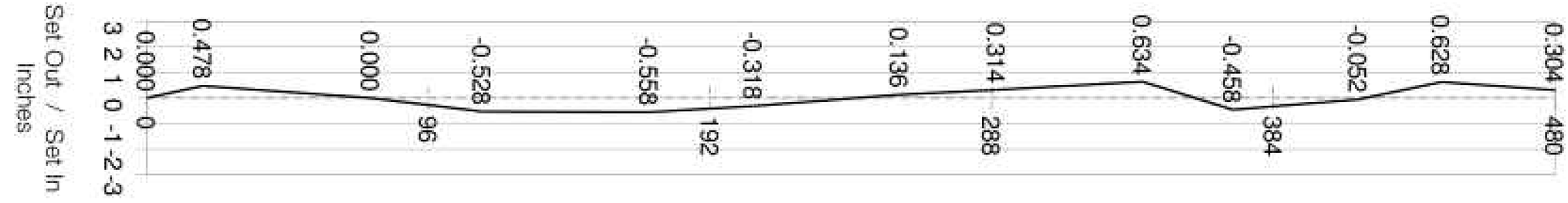
Station 11

Station 12

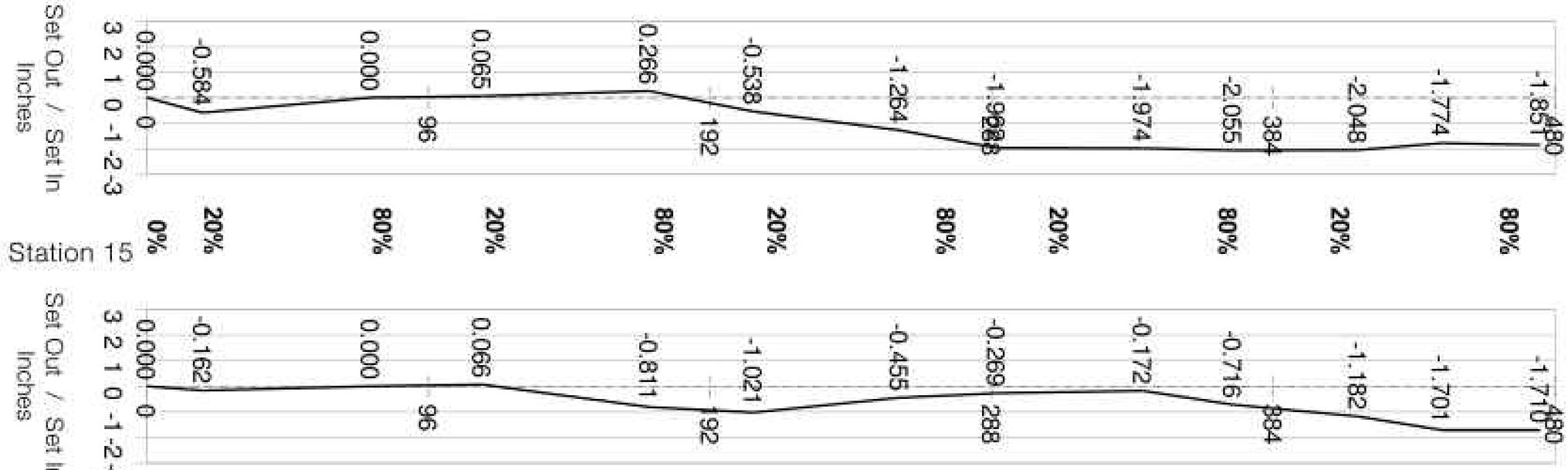


Adjacent Stations

Station 13

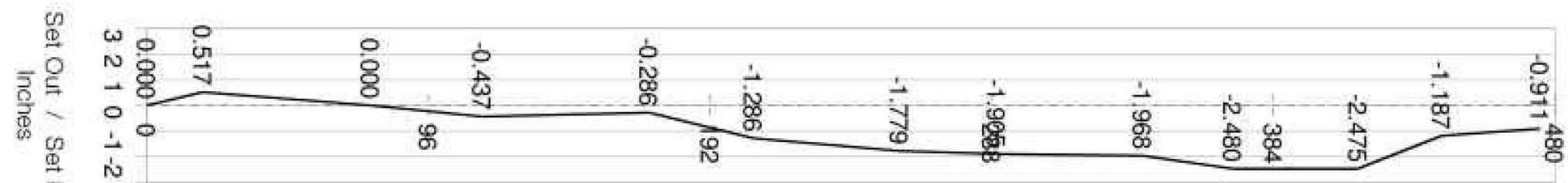


Station 14

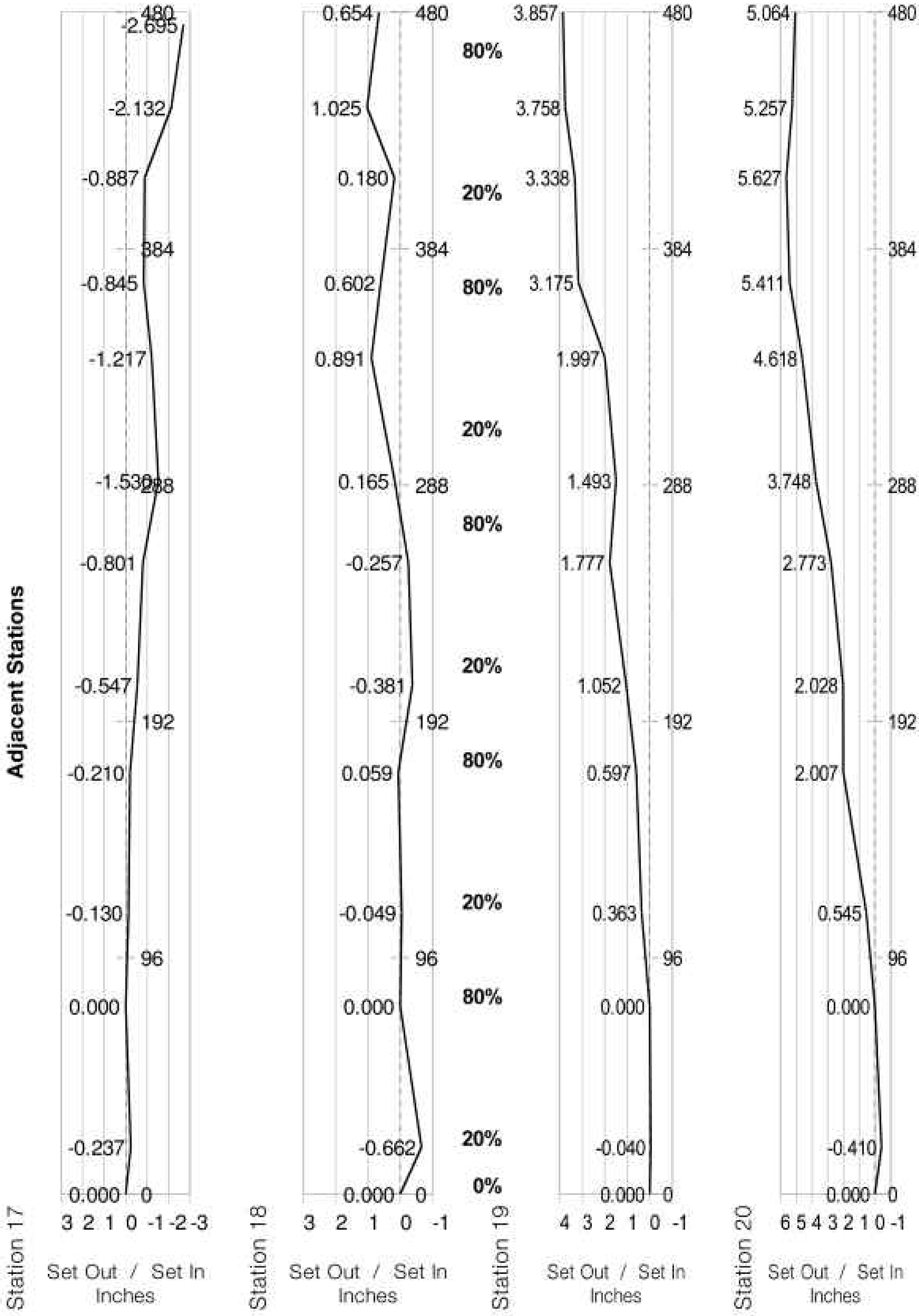


Station 15

Station 16

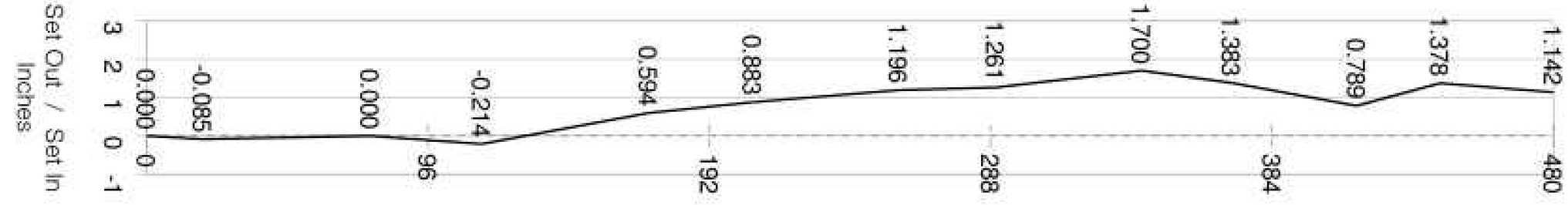


Adjacent Stations

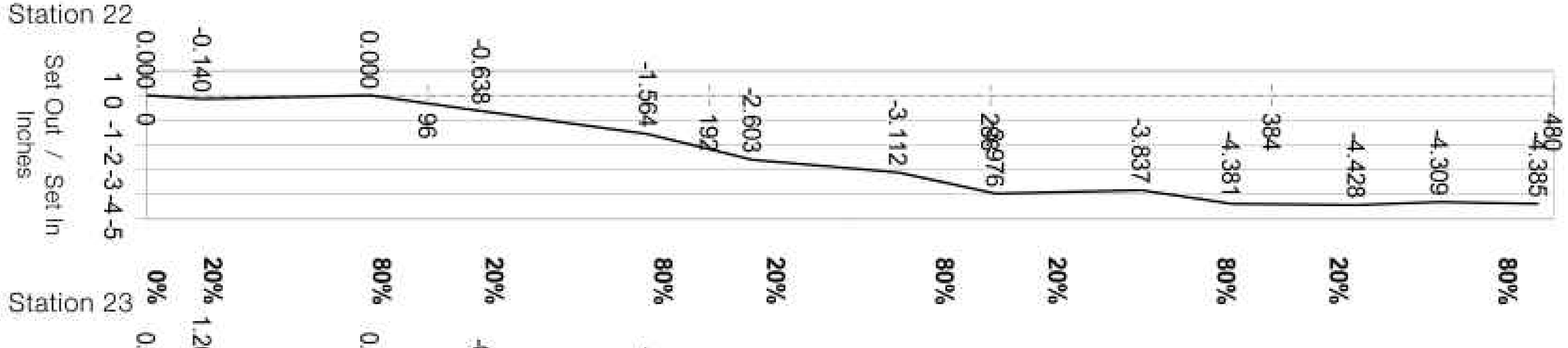


Adjacent Stations

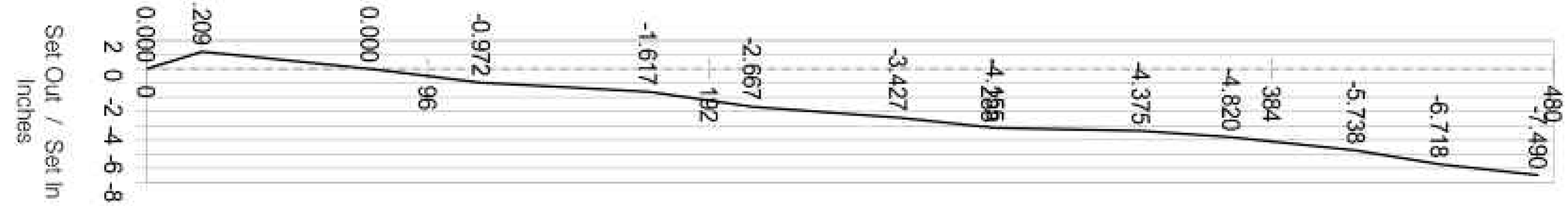
Station 21



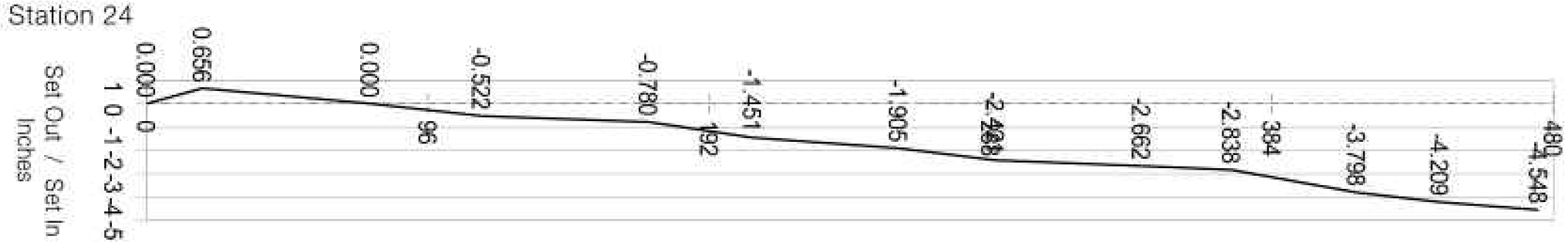
Station 22



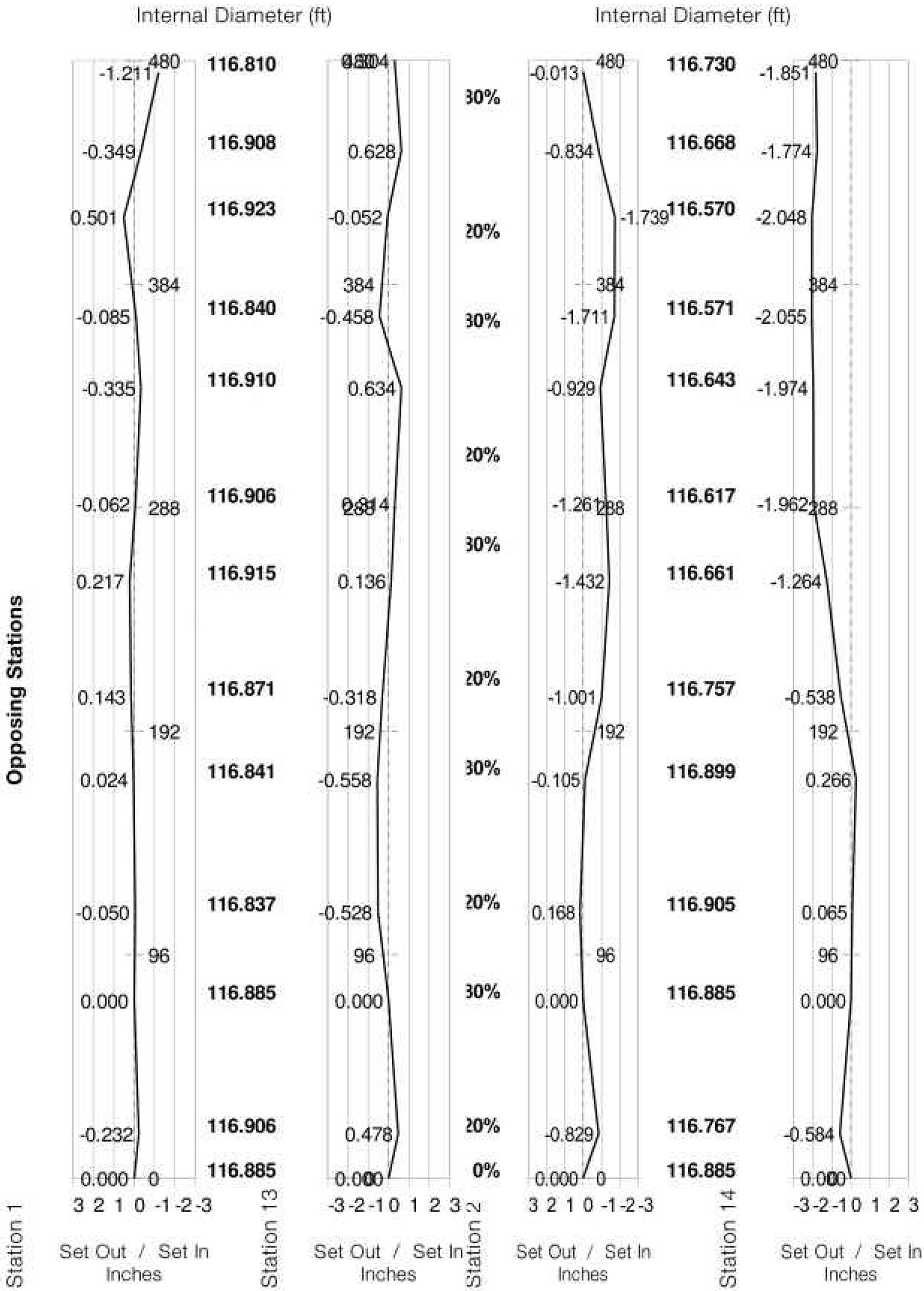
Station 23



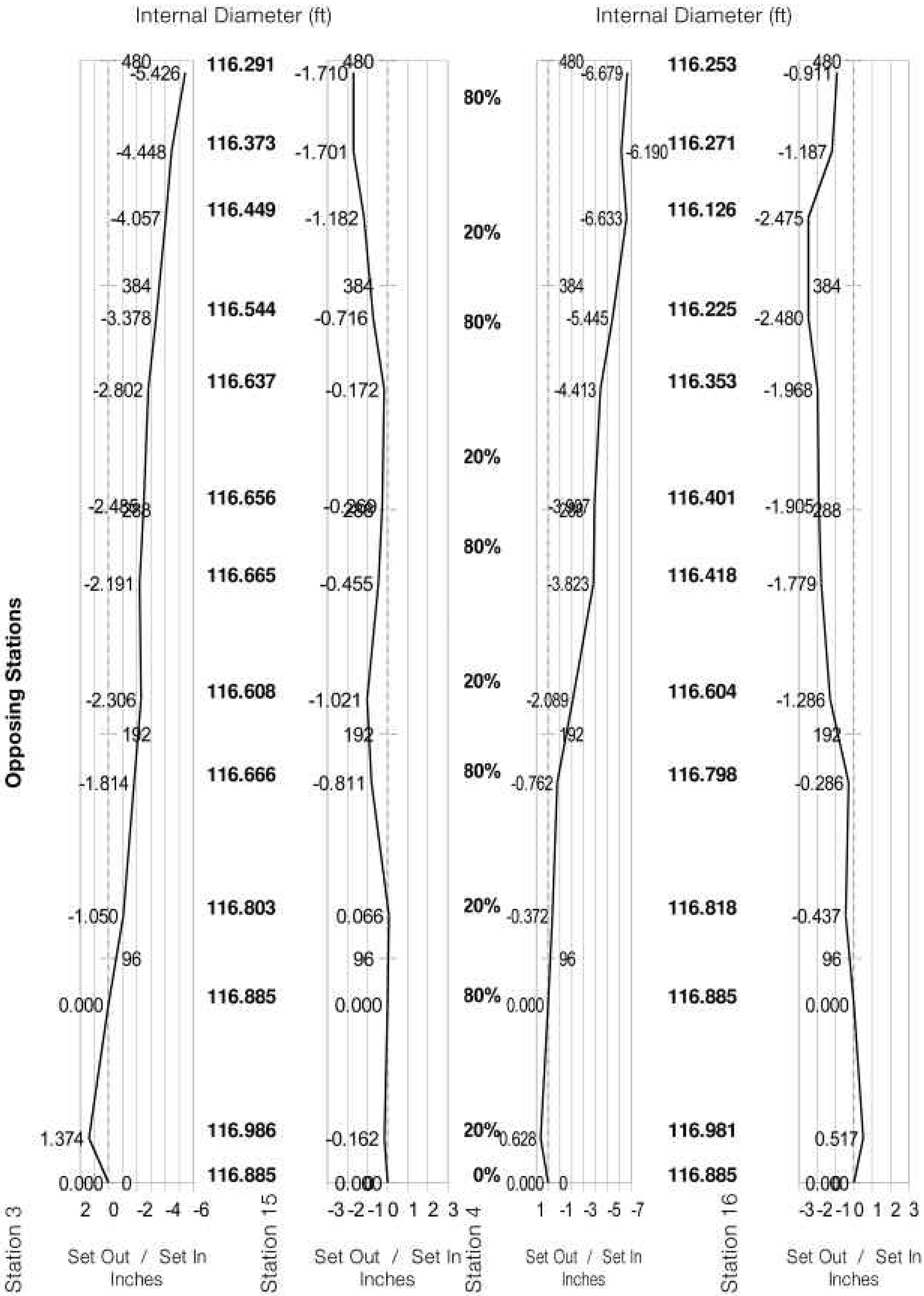
Station 24

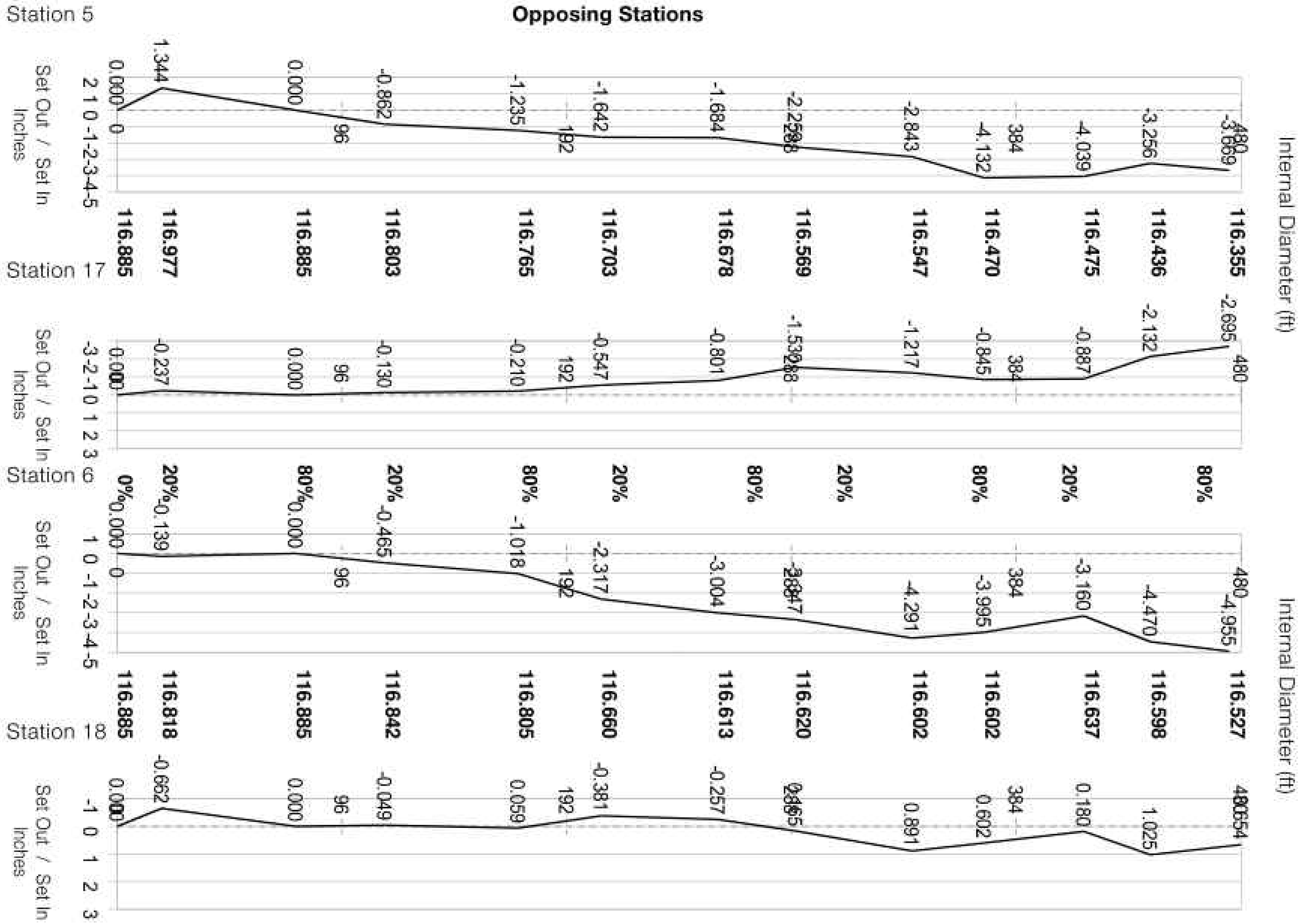


Opposing Stations

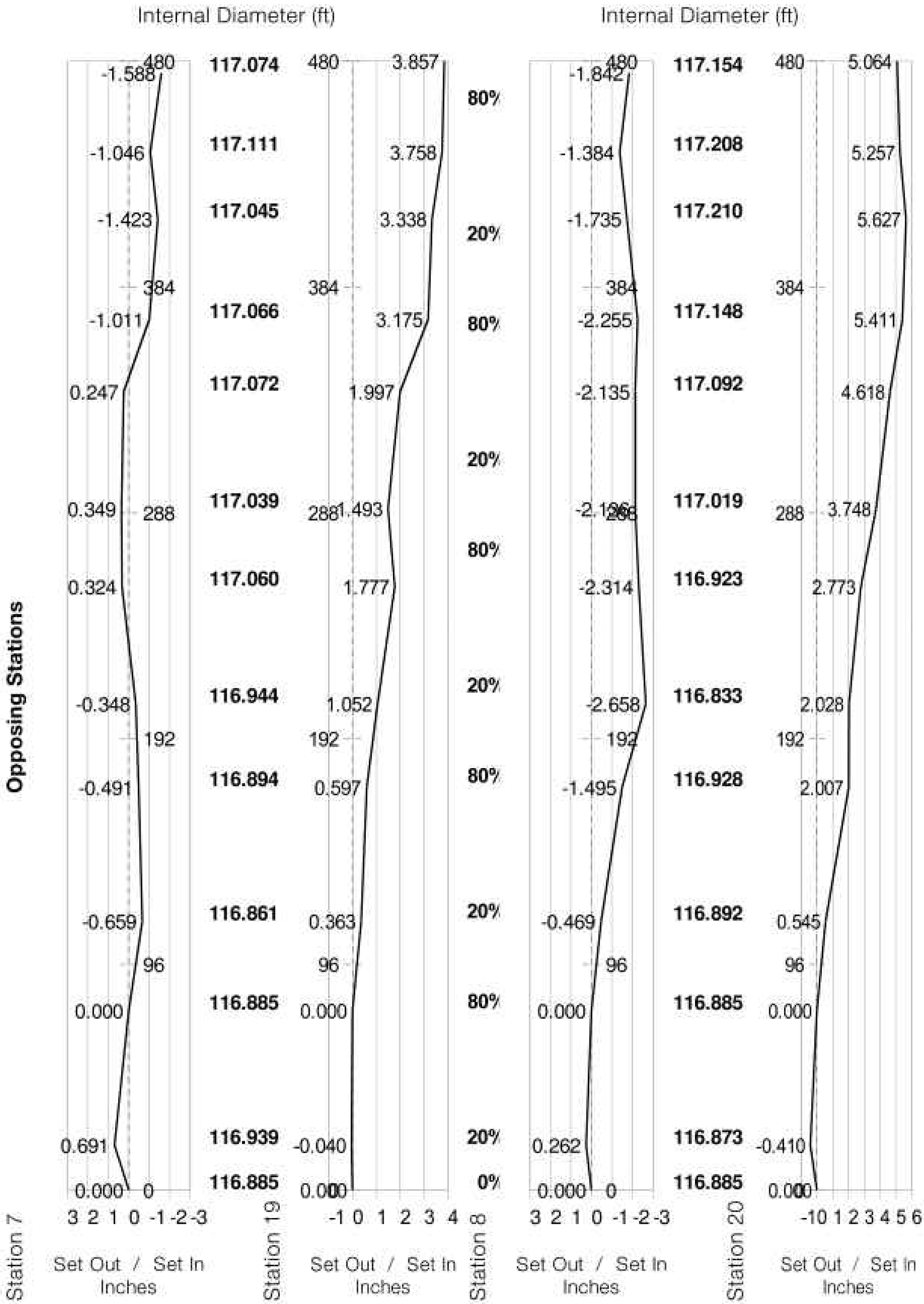


Opposing Stations

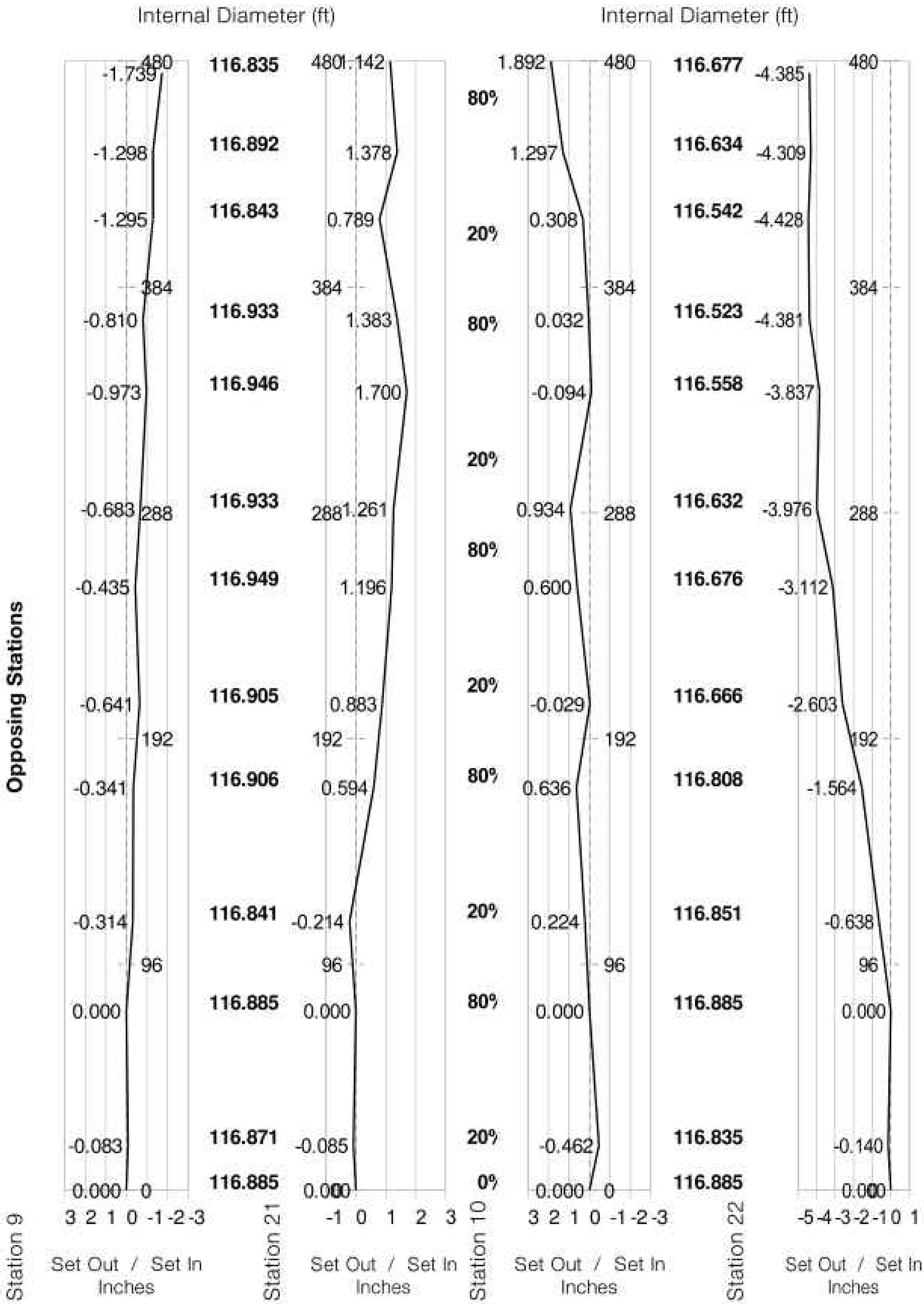



Opposing Stations
Internal Diameter (ft)
Station 5
Set Out / Set In
Inches
2 1 0 -1 -2 -3 -4 -5
0.000 1.344 0.000 -0.862 -1.235 -1.642 -1.684 -2.258 -2.843 -4.132 -4.039 -3.256 -3.669
0 96 192 384 480
116.885 116.977 116.885 116.803 116.765 116.703 116.678 116.569 116.547 116.470 116.475 116.436 116.355
Station 17
Set Out / Set In
Inches
-3 -2 -1 0 1 2 3
0.000 -0.237 0.000 -0.130 -0.210 -0.547 -0.801 -1.538 -1.217 -0.845 -0.887 -2.132 -2.695
0 96 192 384 480
80% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80%
Station 6
Set Out / Set In
Inches
1 0 -1 -2 -3 -4 -5
0.000 0.139 0.000 -0.465 -1.018 -2.317 -3.004 -3.847 -4.291 -3.995 -3.160 -4.470 -4.955
0 96 192 384 480
116.885 116.818 116.885 116.842 116.805 116.660 116.613 116.620 116.602 116.602 116.637 116.598 116.527
Station 18
Set Out / Set In
Inches
-1 0 1 2 3
0.000 -0.662 0.000 -0.049 0.059 -0.381 -0.257 -0.465 0.891 0.602 0.180 1.025 0.554
0 96 192 384 480
80% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80% 20% 80%

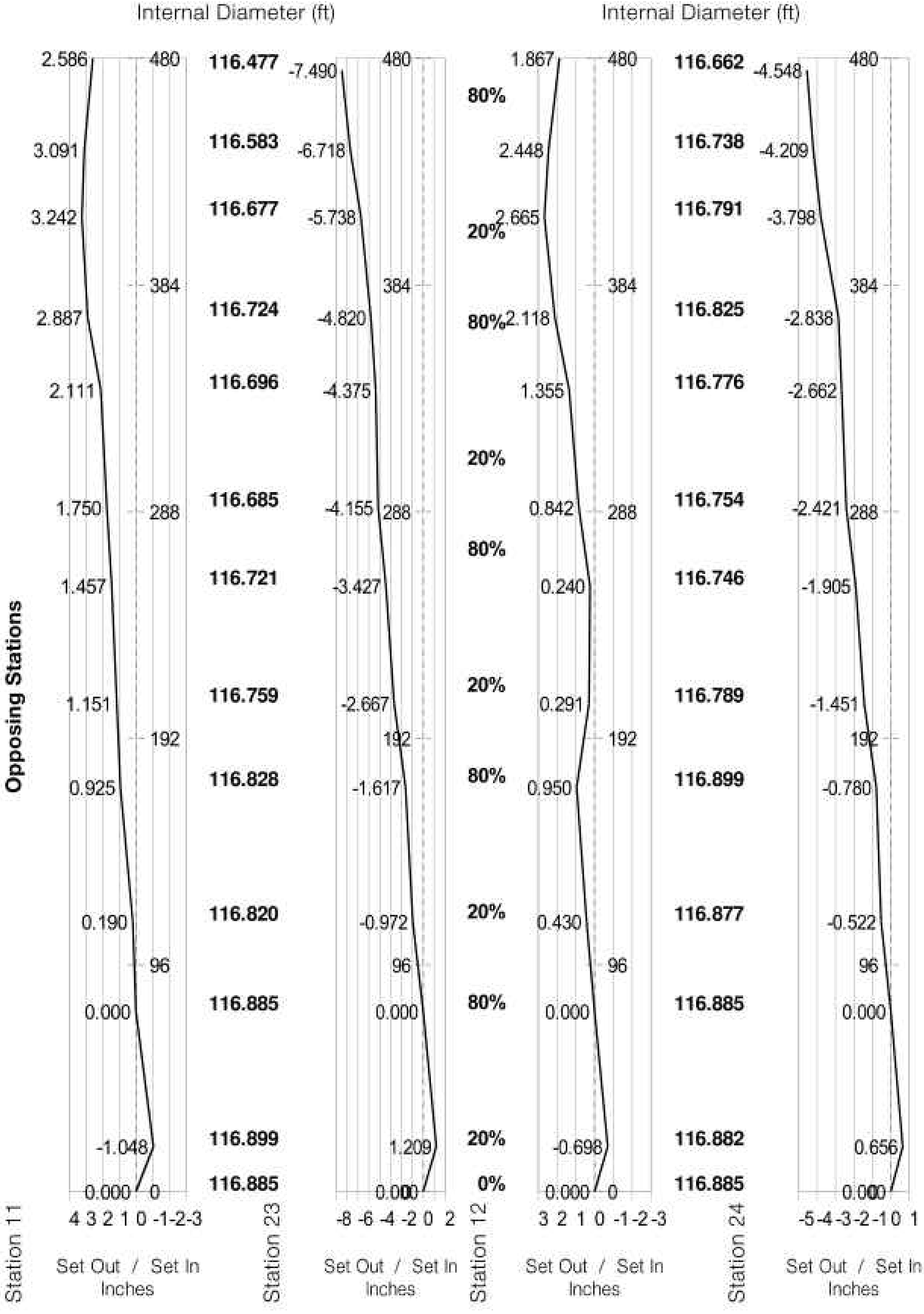
Opposing Stations



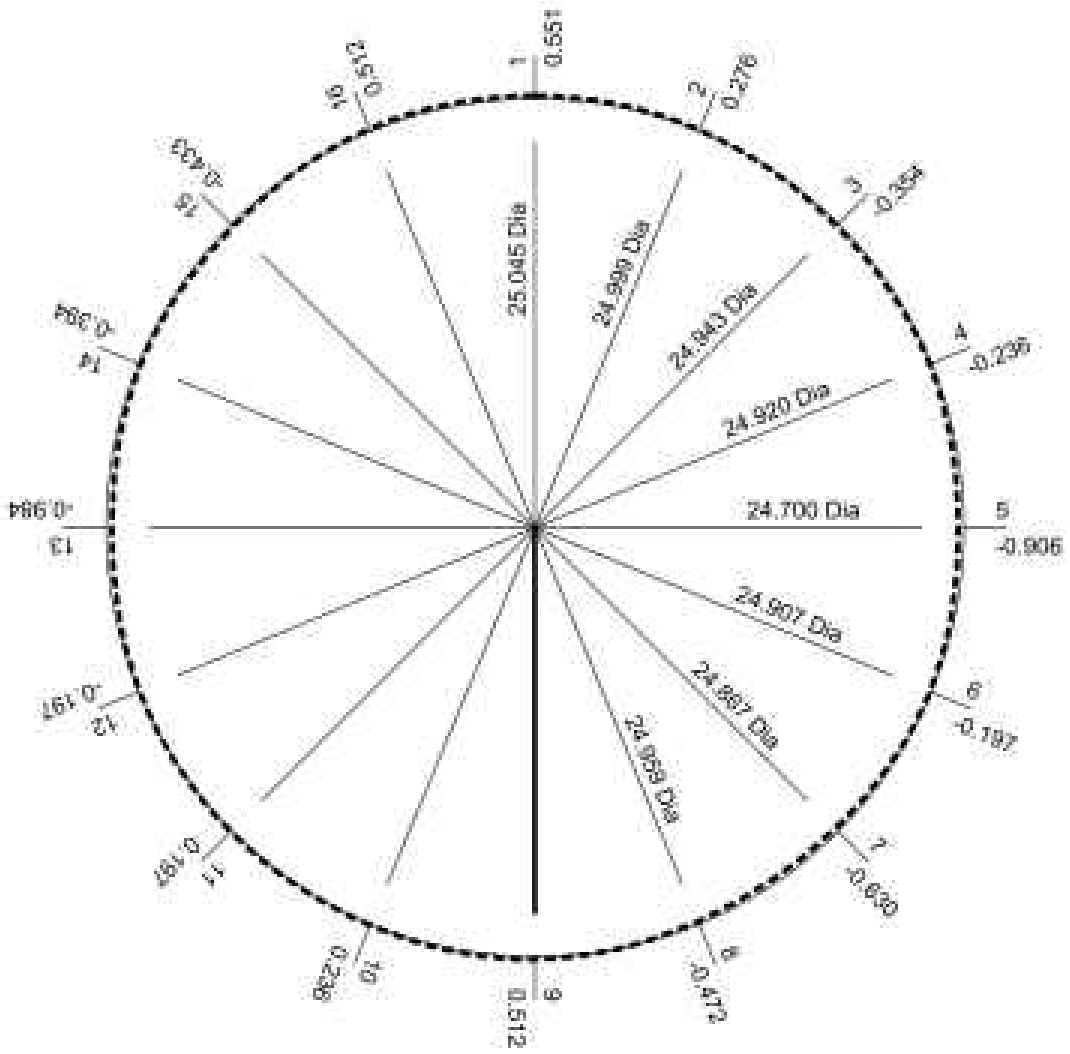
Opposing Stations



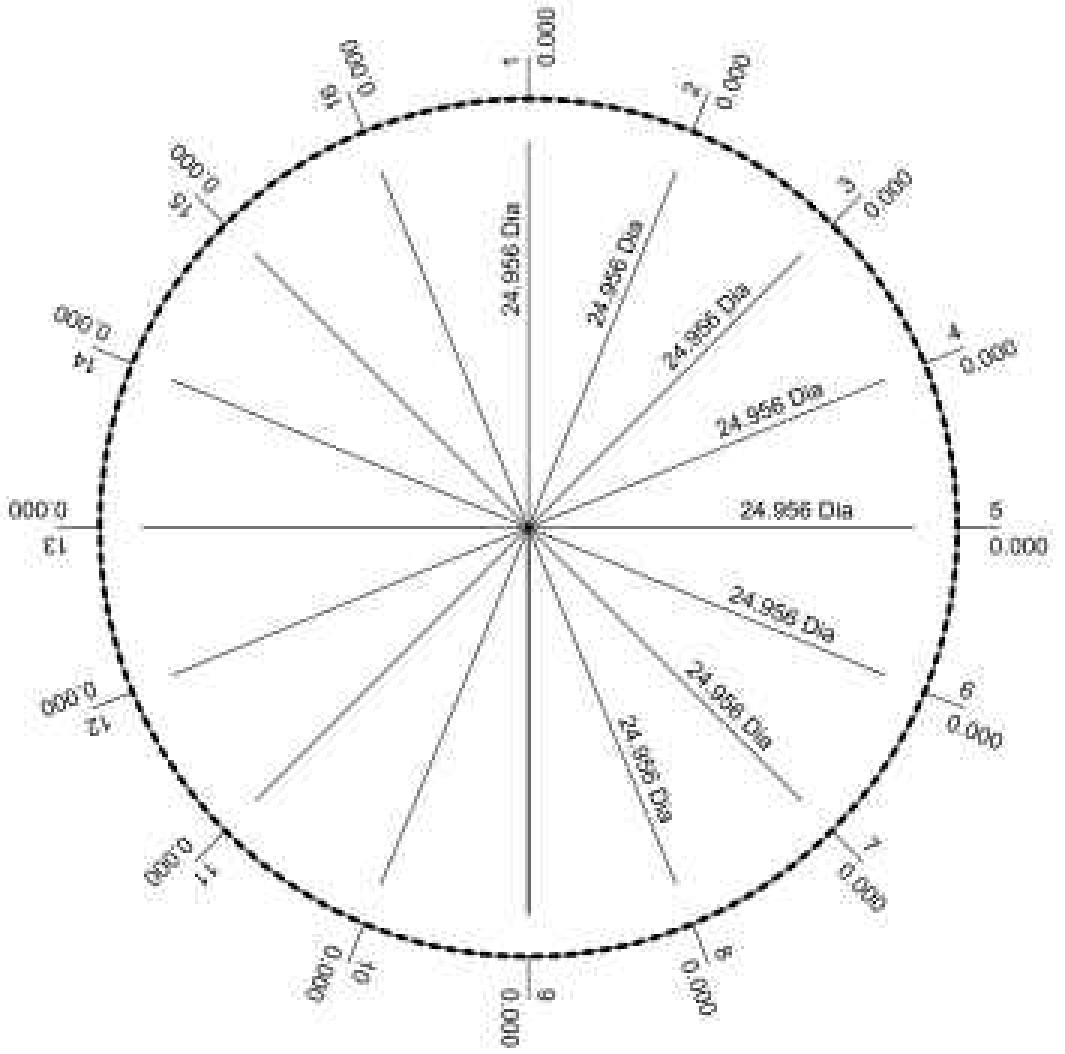
Opposing Stations



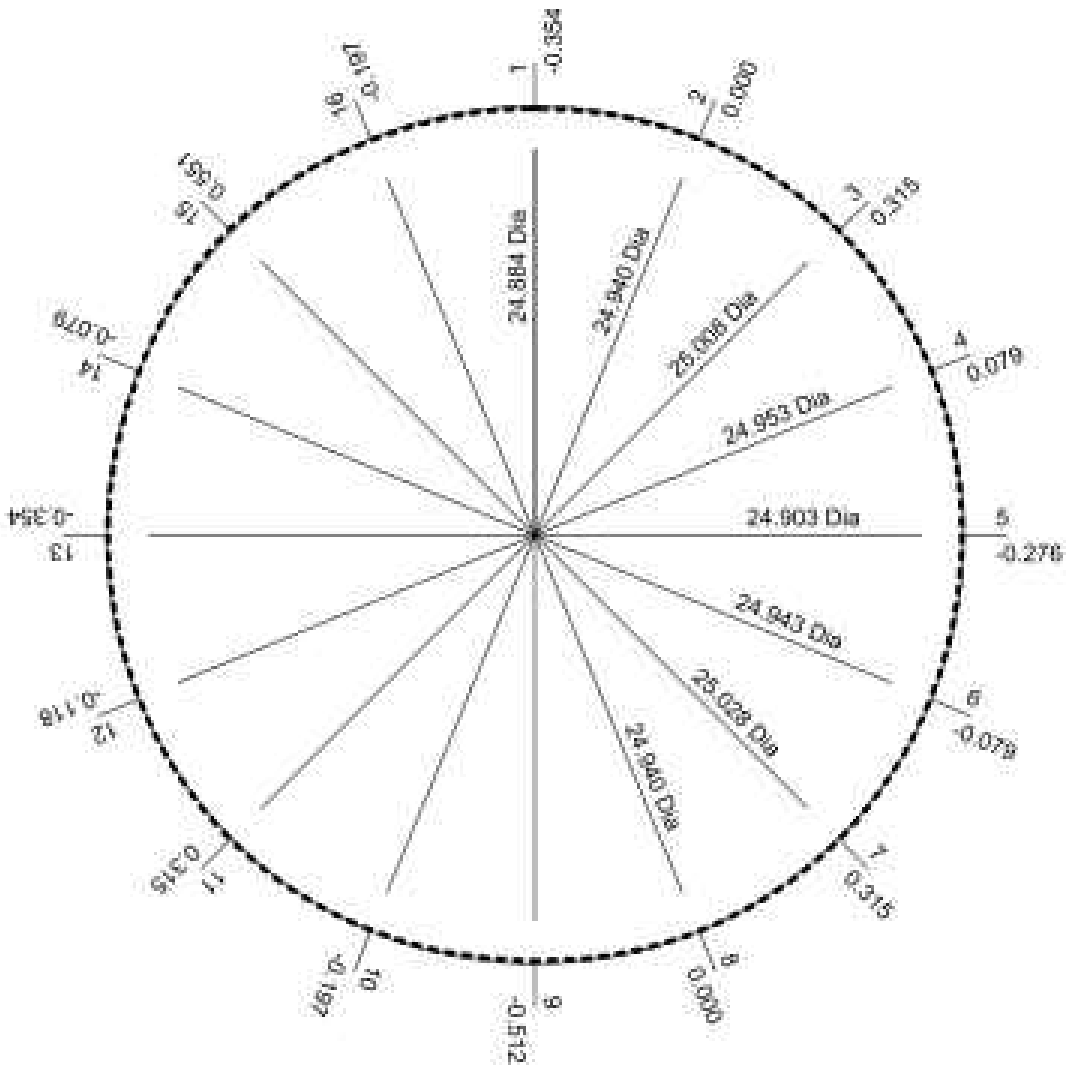
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-034
RING OFFSETS



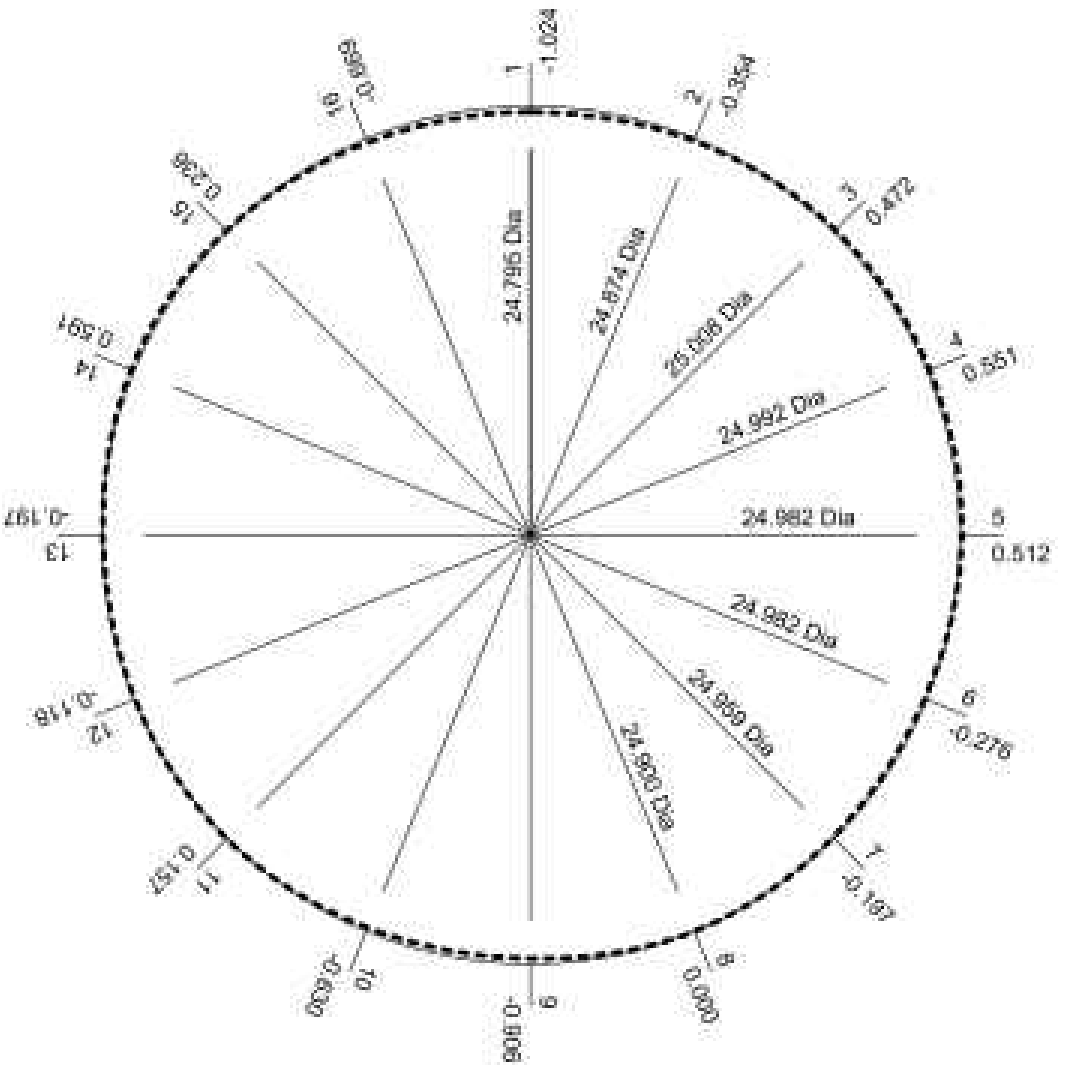
RING #1 20%



RING #1 80%

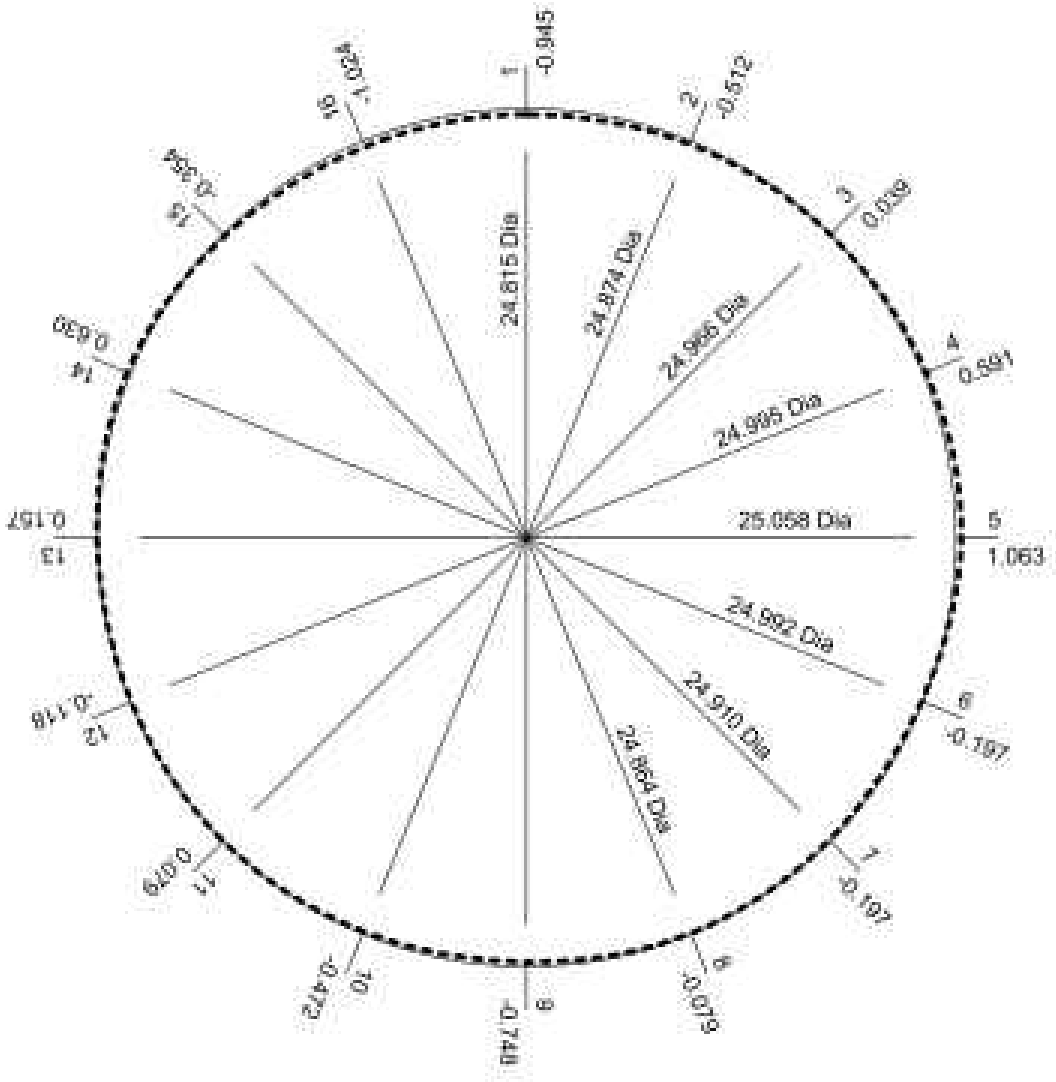


RING #2 20%

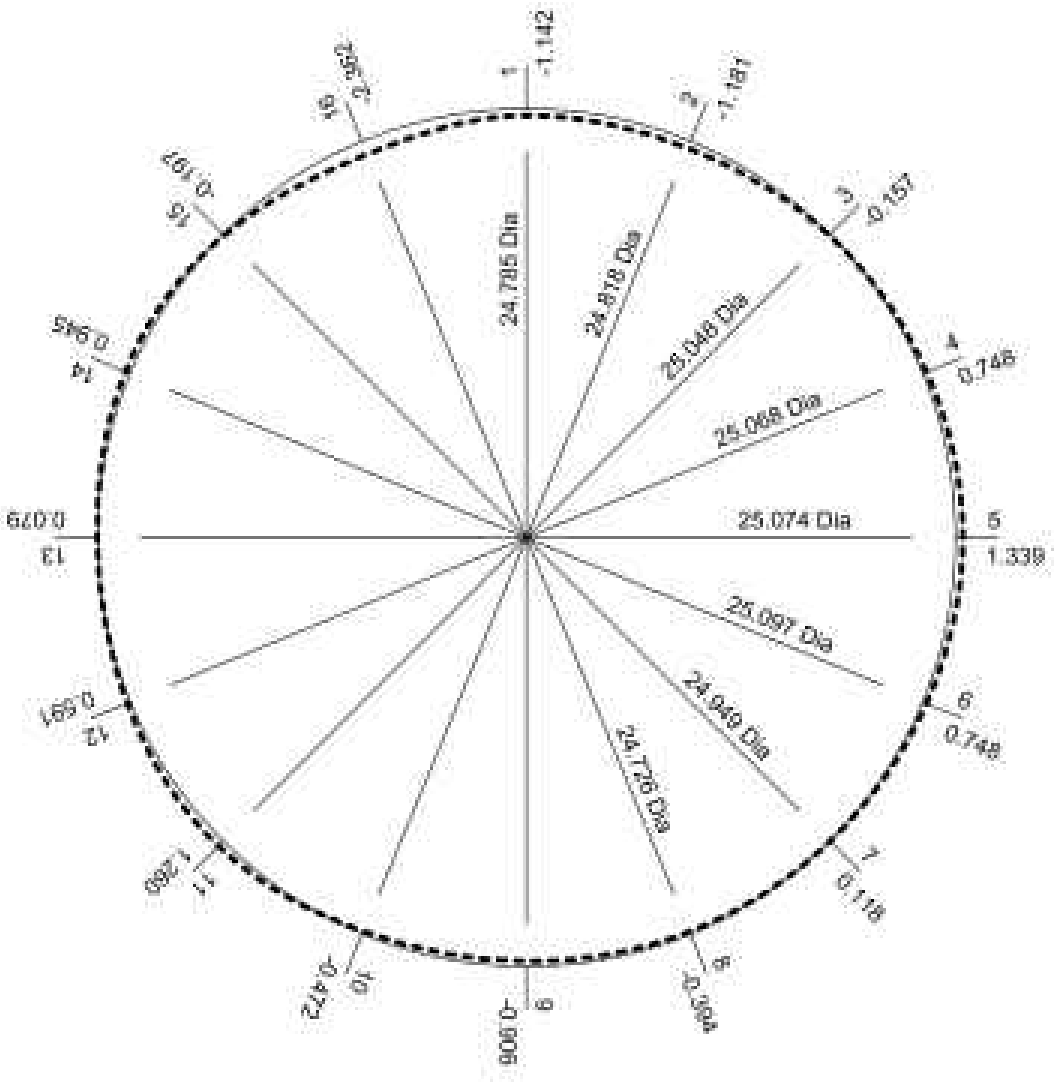


RING #2 80%

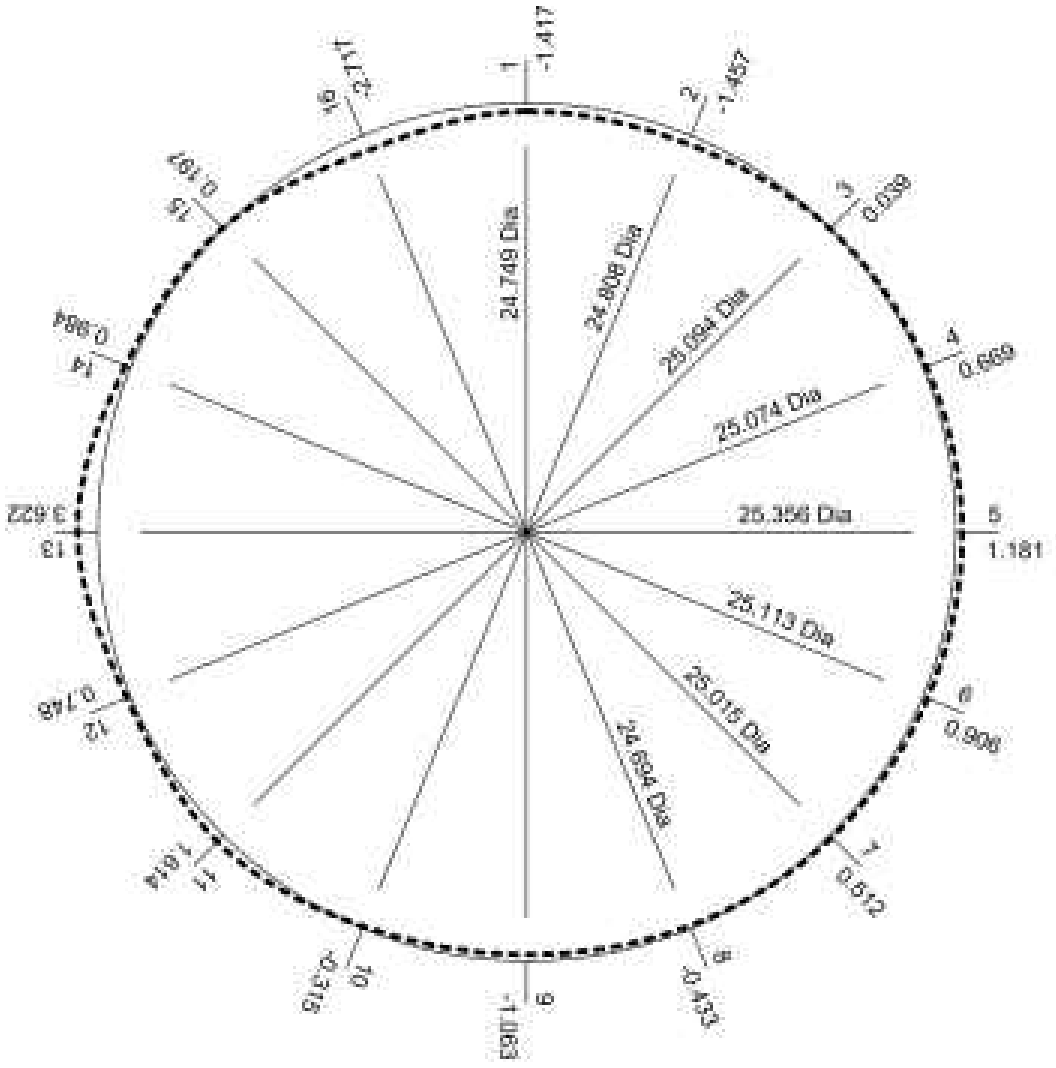
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-034
RING OFFSETS



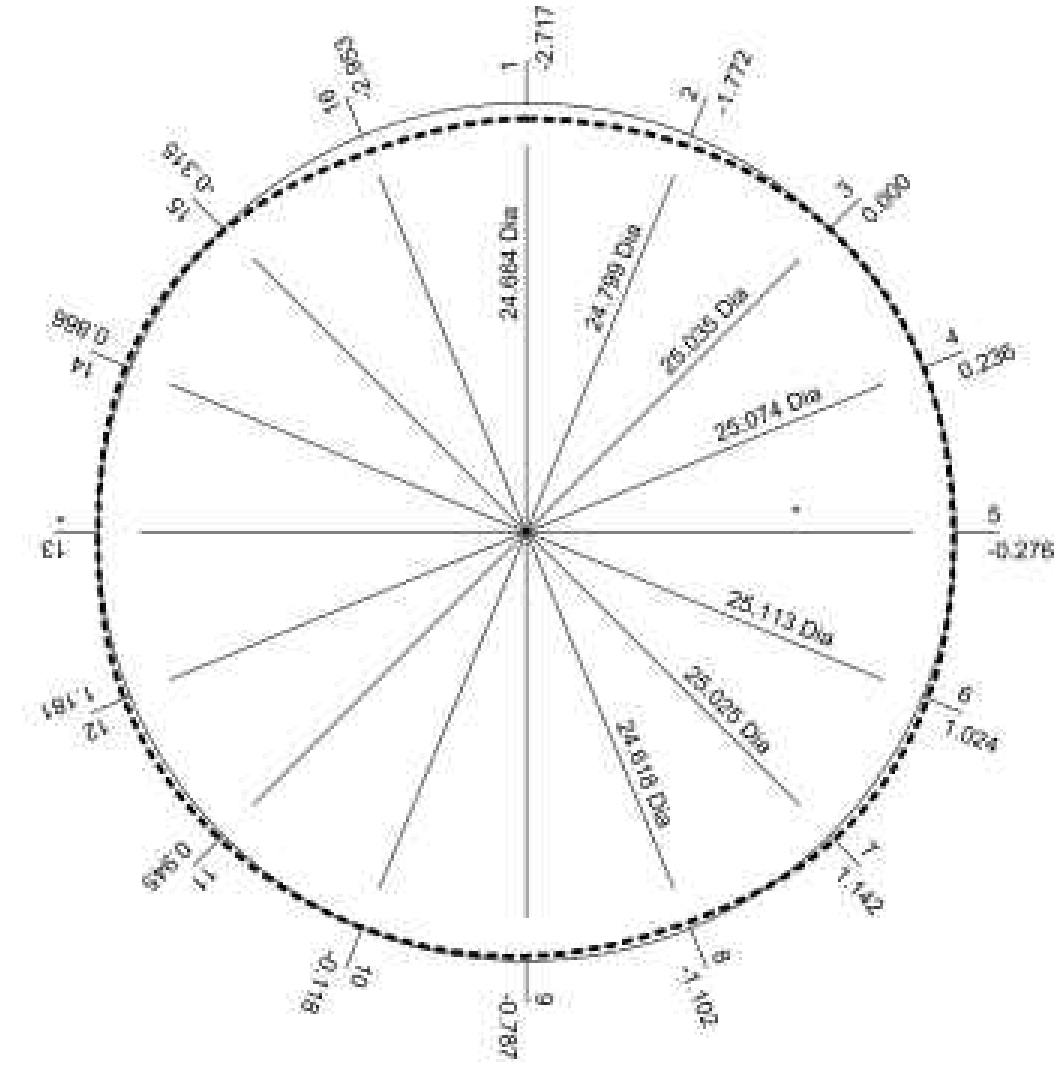
RING #3 20%



RING #3 80%



RING #4 20%



RING #4 80%

*Graph representation not applicable for
Ring #4 80% - Station 13 due to walkway

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-034

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

External Optical Readings – Millimetres

Course	1	1	1	2	2	3	3	4	4	
% up	0	20%	80%	20%	80%	20%	80%	20%	80%	
Height (in)	0	14.4	57.6	86.4	129.6	158.4	201.6	230.4	273.6	
Station	Reference									
1	285	271	285	294	311	309	314	321	354	
2	282	275	282	282	291	295	312	319	327	
3	83	092	083	075	071	082	087	082	083	
4	792	798	792	790	778	777	773	775	786	
5	606	629	606	613	593	579	572	576	613	
6	356	361	356	358	363	361	337	333	330	
7	514	530	514	506	519	519	511	501	485	
8	40	052	040	040	040	042	050	051	068	
9	85	072	085	098	108	104	108	112	105	
10	434	428	434	439	450	446	446	442	437	
11	394	389	394	386	390	392	362	353	370	
12	889	894	889	892	892	892	874	870	859	
13	945	970	945	954	950	941	943	853	*	Stair Walkway
14	224	234	224	226	209	208	200	199	202	
15	352	363	352	338	346	361	357	347	360	
16	140	127	140	145	157	166	200	209	215	
Total Feet	21.0663	42.3425		42.336		42.3885		39.1634		
Average	1.31664	1.3232		1.4112		1.32464		1.26334		

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-034

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188
Station	Reference								
1	11.032	10.481	11.032	11.387	12.056	11.977	12.174	12.450	13.749
2	10.914	10.639	10.914	10.914	11.269	11.426	12.095	12.371	12.686
3	3.080	3.434	3.080	2.765	2.607	3.040	3.237	3.040	3.080
4	30.993	31.229	30.993	30.914	30.442	30.403	30.245	30.324	30.757
5	23.670	24.576	23.670	23.946	23.158	22.607	22.332	22.489	23.946
6	13.828	14.025	13.828	13.906	14.103	14.025	13.080	12.922	12.804
7	20.048	20.678	20.048	19.733	20.245	20.245	19.930	19.536	18.906
8	1.387	1.859	1.387	1.387	1.387	1.466	1.781	1.820	2.489
9	3.158	2.647	3.158	3.670	4.064	3.906	4.064	4.221	3.946
10	16.899	16.662	16.899	17.095	17.529	17.371	17.371	17.214	17.017
11	15.324	15.127	15.324	15.009	15.166	15.245	14.064	13.710	14.379
12	34.812	35.009	34.812	34.930	34.930	34.930	34.221	34.064	33.631
13	37.017	38.001	37.017	37.371	37.214	36.859	36.938	33.395	*
14	8.631	9.025	8.631	8.710	8.040	8.001	7.686	7.647	7.765
15	13.670	14.103	13.670	13.119	13.434	14.025	13.867	13.473	13.985
16	5.324	4.812	5.324	5.521	5.993	6.347	7.686	8.040	8.277

12/06/2017

CO-OP Refinery Complex — 16 Stations at 4'10 7/8" apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-034

Internal Offsets – Inches – Negative Values = Tanks Set IN

Course		1	1	1	2	2	3	3	4	4
% up		0%	20%	80%	20%	80%	20%	80%	20%	80%
Station		Reference								
	1	0.000	0.551	0.000	-0.354	-1.024	-0.945	-1.142	-1.417	-2.717
	2	0.000	0.276	0.000	0.000	-0.354	-0.512	-1.181	-1.457	-1.772
	3	0.000	-0.354	0.000	0.315	0.472	0.039	-0.157	0.039	0.000
	4	0.000	-0.236	0.000	0.079	0.551	0.591	0.748	0.669	0.236
	5	0.000	-0.906	0.000	-0.276	0.512	1.063	1.339	1.181	-0.276
	6	0.000	-0.197	0.000	-0.079	-0.276	-0.197	0.748	0.906	1.024
	7	0.000	-0.630	0.000	0.315	-0.197	-0.197	0.118	0.512	1.142
	8	0.000	-0.472	0.000	0.000	0.000	-0.079	-0.394	-0.433	-1.102
	9	0.000	0.512	0.000	-0.512	-0.906	-0.748	-0.906	-1.063	-0.787
	10	0.000	0.236	0.000	-0.197	-0.630	-0.472	-0.472	-0.315	-0.118
	11	0.000	0.197	0.000	0.315	0.157	0.079	1.260	1.614	0.945
	12	0.000	-0.197	0.000	-0.118	-0.118	-0.118	0.591	0.748	1.181
	13	0.000	-0.984	0.000	-0.354	-0.197	0.157	0.079	3.622	*
	14	0.000	-0.394	0.000	-0.079	0.591	0.630	0.945	0.984	0.866
	15	0.000	-0.433	0.000	0.551	0.236	-0.354	-0.197	0.197	-0.315
	16	0.000	0.512	0.000	-0.197	-0.669	-1.024	-2.362	-2.717	-2.953

Maximum Offset SET IN: -2.953

Maximum Offset SET OUT: 3.622

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-034

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	0	1.063	0.000	-0.866	-1.929	-1.693	-2.047	-2.480	-3.504
2 & 10	0	0.512	0.000	-0.197	-0.984	-0.984	-1.654	-1.772	-1.890
3 & 11	0	-0.157	0.000	0.630	0.630	0.118	1.102	1.654	0.945
4 & 12	0	-0.433	0.000	-0.039	0.433	0.472	1.339	1.417	1.417
5 & 13	0	-1.890	0.000	-0.630	0.315	1.220	1.417	4.803	*
6 & 14	0	-0.591	0.000	-0.157	0.315	0.433	1.693	1.890	1.890
7 & 15	0	-1.063	0.000	0.866	0.039	-0.551	-0.079	0.709	0.827
8 & 16	0	0.039	0.000	-0.197	-0.669	-1.102	-2.756	-3.150	-4.055

Opposing Stations

Maximum Tank SET IN	-4.055
Maximum Tank SET OUT	4.803

Opposing Offsets – Calculated Internal Diameter – Feet

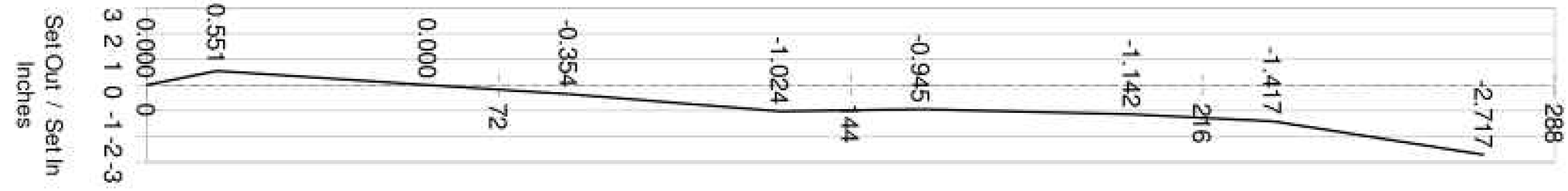
Course	0	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	24.956	25.045	24.956	24.884	24.795	24.815	24.785	24.749	24.664
2 & 10	24.956	24.999	24.956	24.940	24.874	24.874	24.818	24.808	24.799
3 & 11	24.956	24.943	24.956	25.008	25.008	24.966	25.048	25.094	25.035
4 & 12	24.956	24.920	24.956	24.953	24.992	24.995	25.068	25.074	25.074
5 & 13	24.956	24.799	24.956	24.903	24.982	25.058	25.074	25.356	*
6 & 14	24.956	24.907	24.956	24.943	24.982	24.992	25.097	25.113	25.113
7 & 15	24.956	24.867	24.956	25.028	24.959	24.910	24.949	25.015	25.025
8 & 16	24.956	24.959	24.956	24.940	24.900	24.864	24.726	24.694	24.618

Minimum Diameter (ft)	24.618
Maximum Diameter (ft)	25.356
Reference Circumference	78.5
Reference Diameter (ft)	24.956

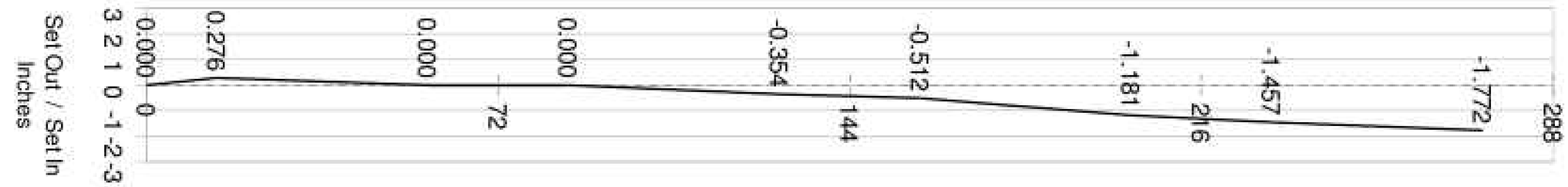
12/06/2017

Adjacent Stations

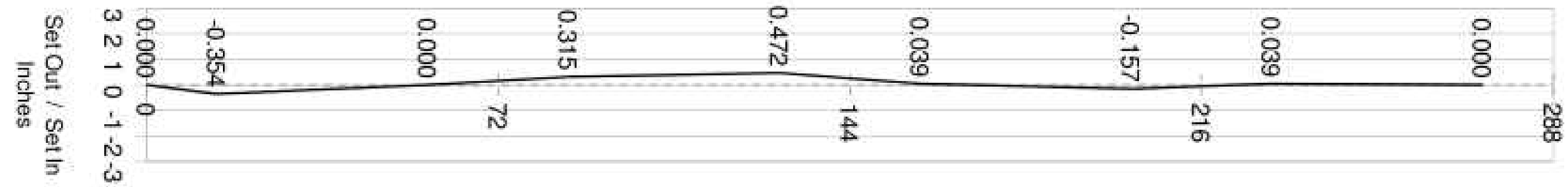
Station 1



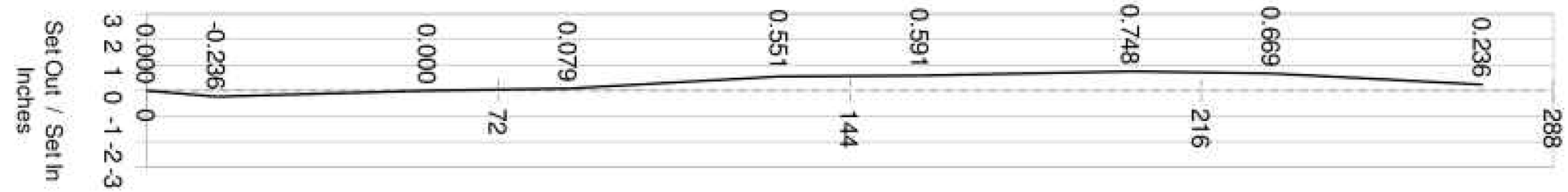
Station 2



Station 3



Station 4



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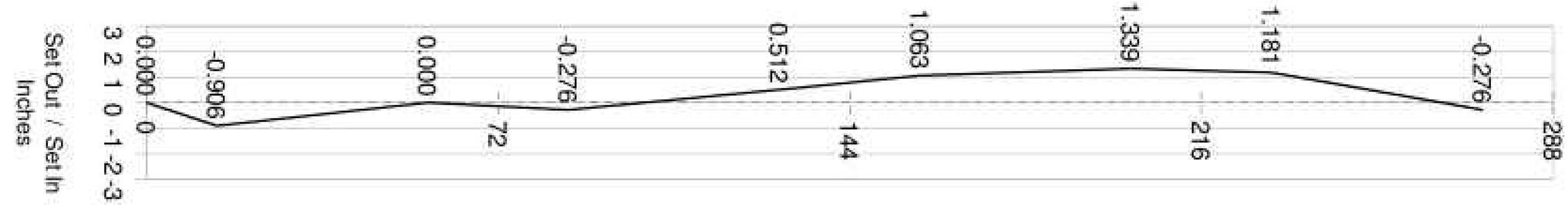
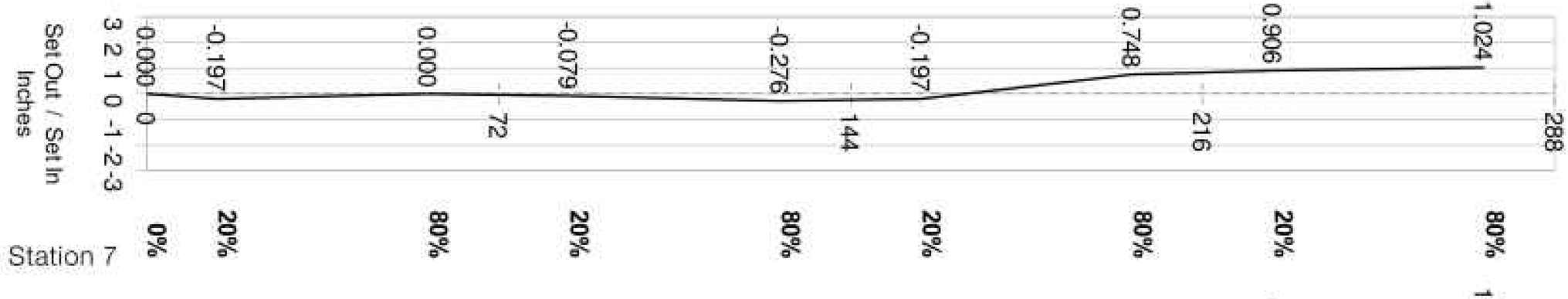
Adjacent Stations

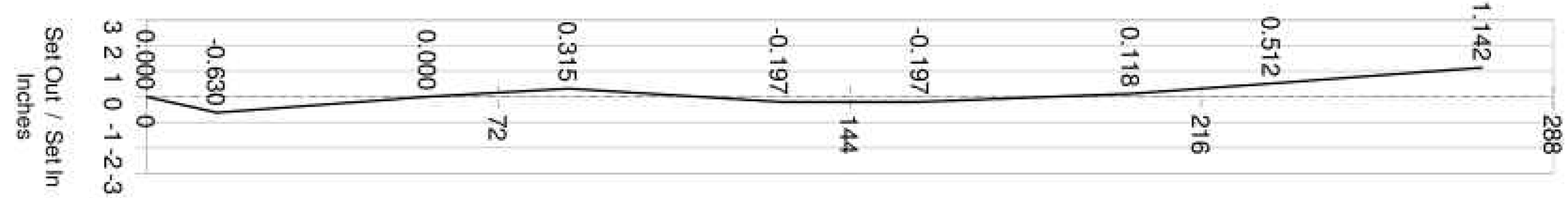
Station 5



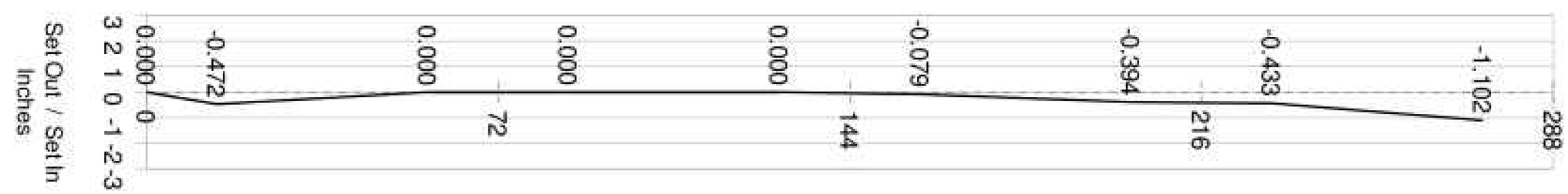
Station 6



Station 7



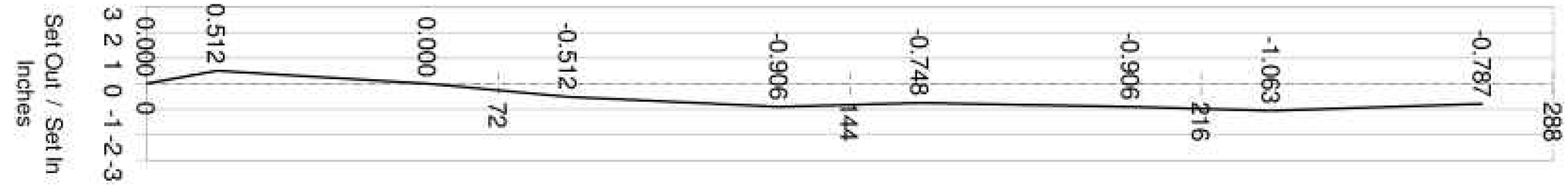
Station 8



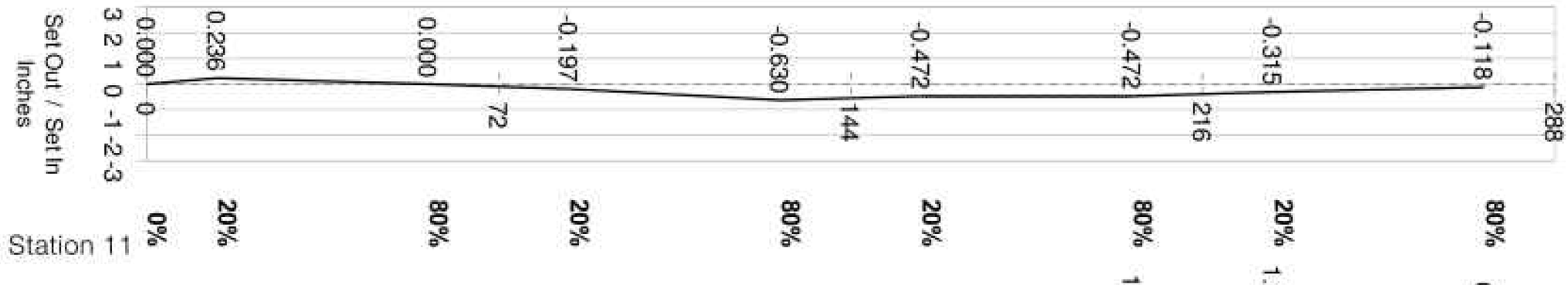
12/06/2017

Adjacent Stations

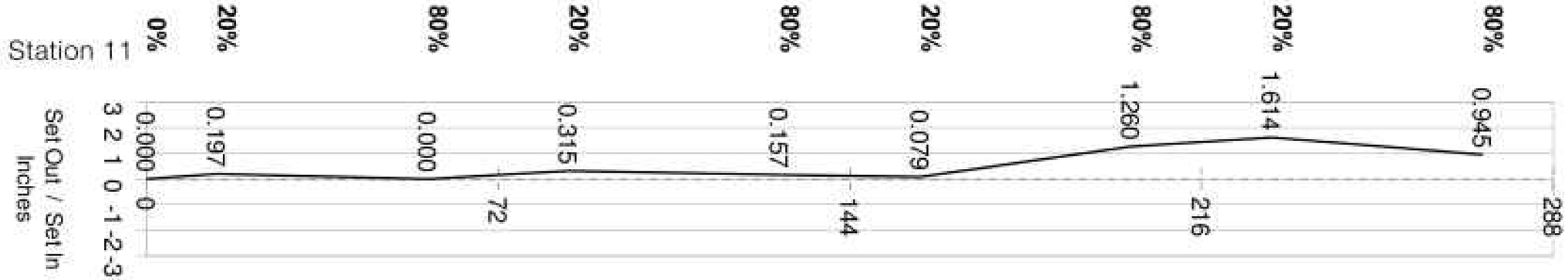
Station 9



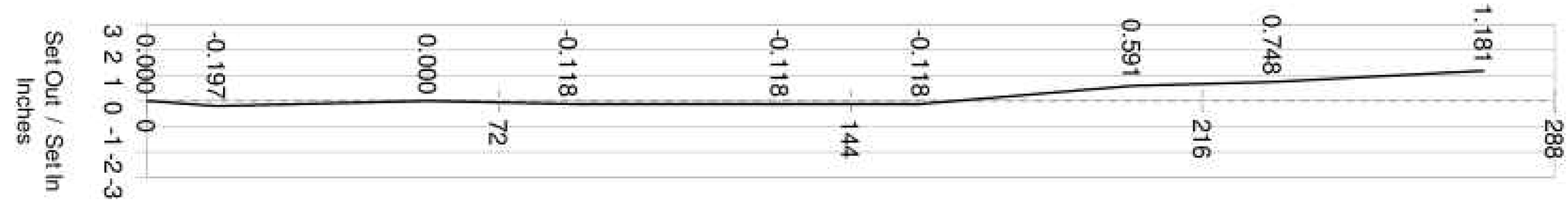
Station 10



Station 11



Station 12



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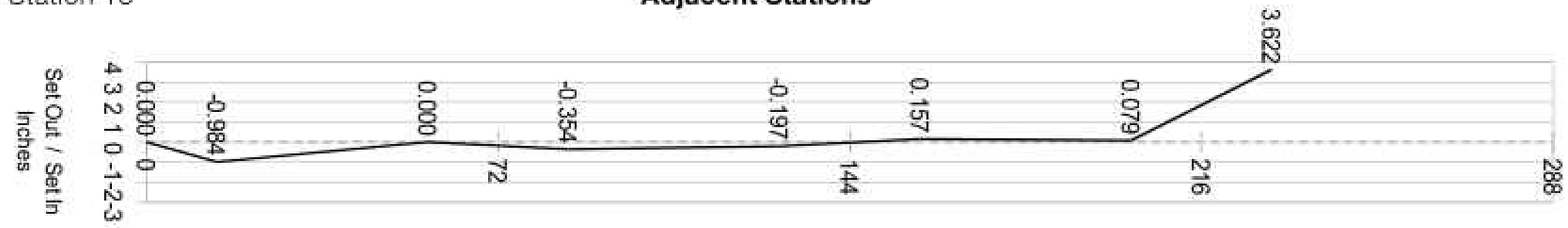
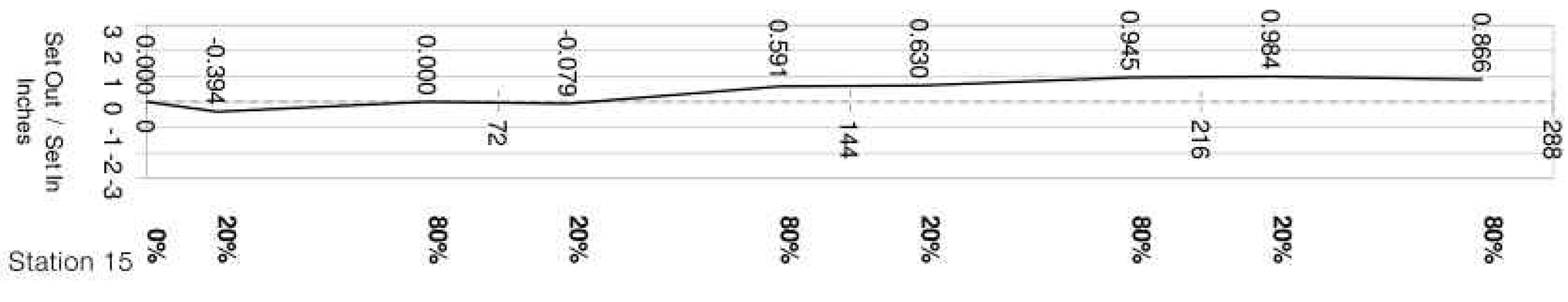
Adjacent Stations

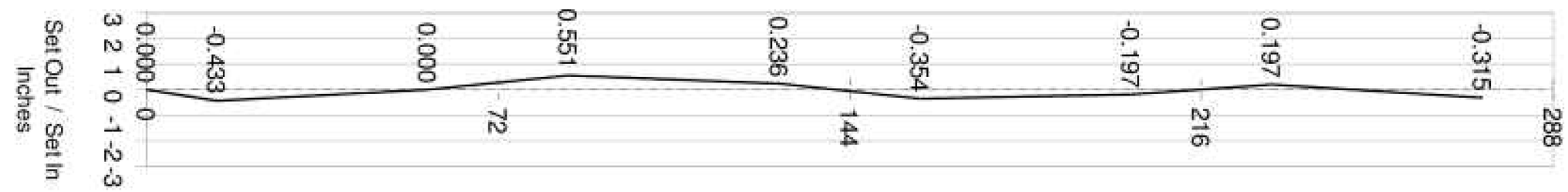
Station 13



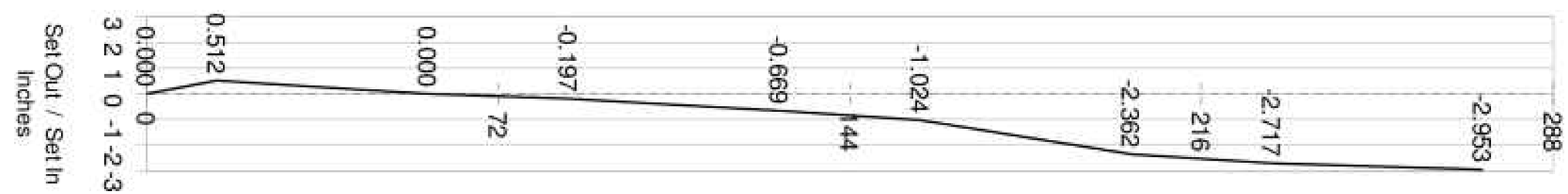
Station 14



Station 15

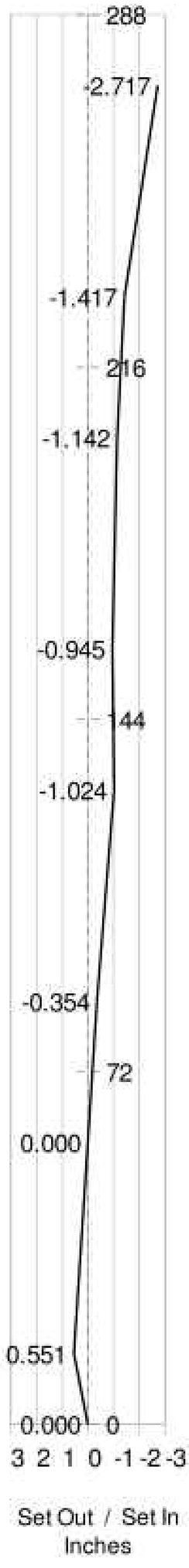


Station 16



Opposing Stations

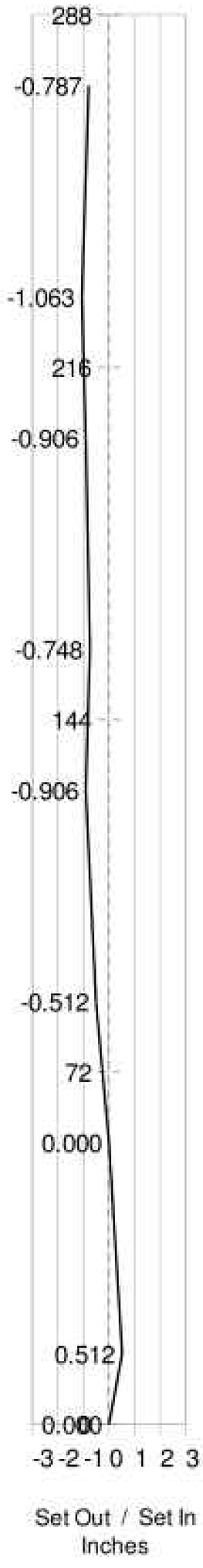
Internal Diameter (ft)



Station 1

Set Out / Set In
Inches

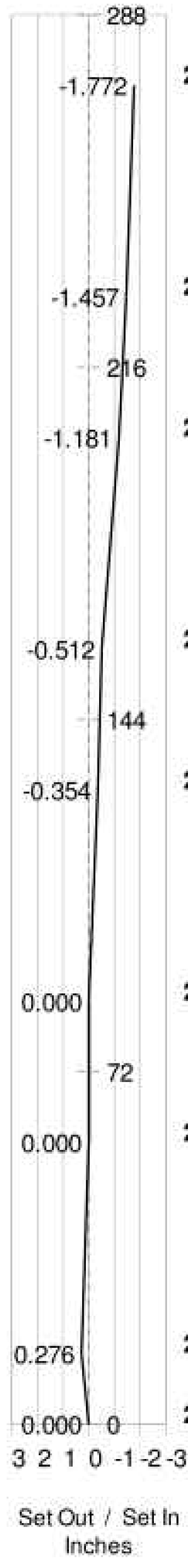
24.664	
	80%
24.749	
	20%
24.785	
	80%
24.815	
	20%
24.795	
	80%
24.884	
	20%
24.956	
	80%
25.045	
	20%
24.956	
	0%



Station 9

Set Out / Set In
Inches

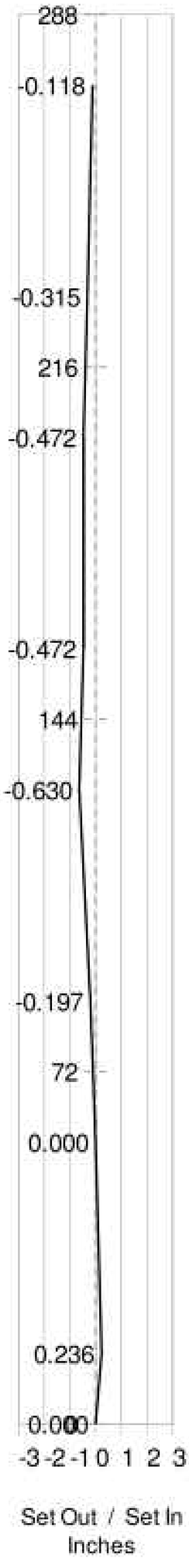
Internal Diameter (ft)



Station 2

Set Out / Set In
Inches

24.799	
	80%
24.808	
	20%
24.818	
	80%
24.874	
	20%
24.874	
	80%
24.940	
	20%
24.956	
	80%
24.999	
	20%
24.956	
	0%

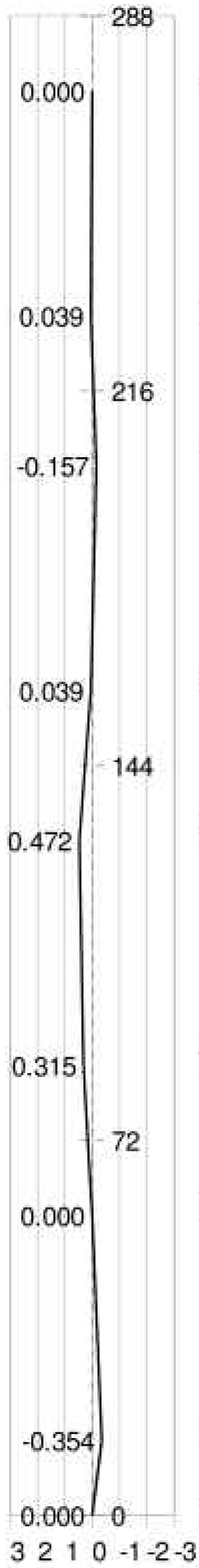


Station 10

Set Out / Set In
Inches

Opposing Stations

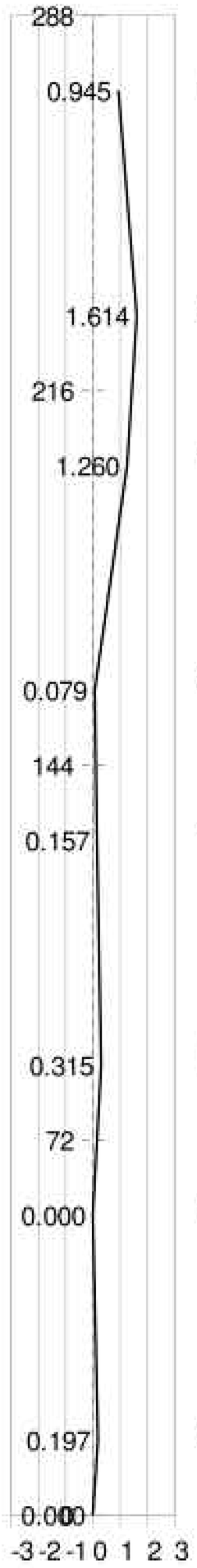
Internal Diameter (ft)



Station 3

Set Out / Set In
Inches

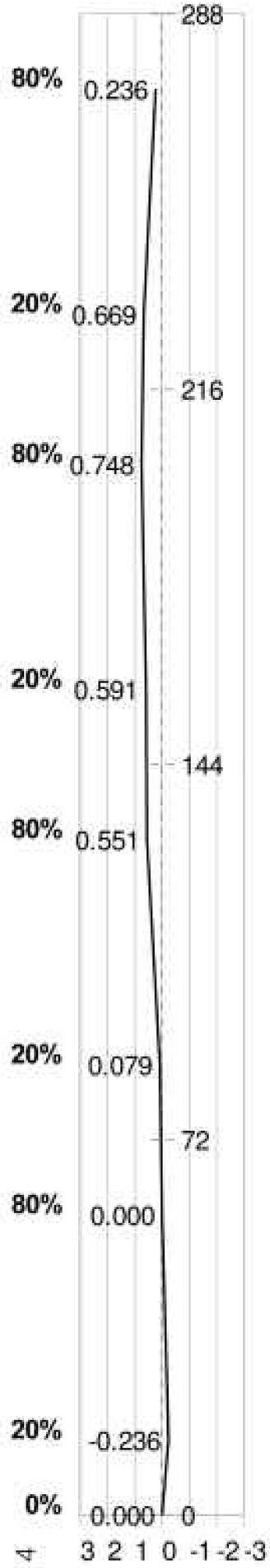
	25.035
	25.094
	25.048
	24.966
	25.008
	25.008
	24.956
	24.943
	24.956



Station 11

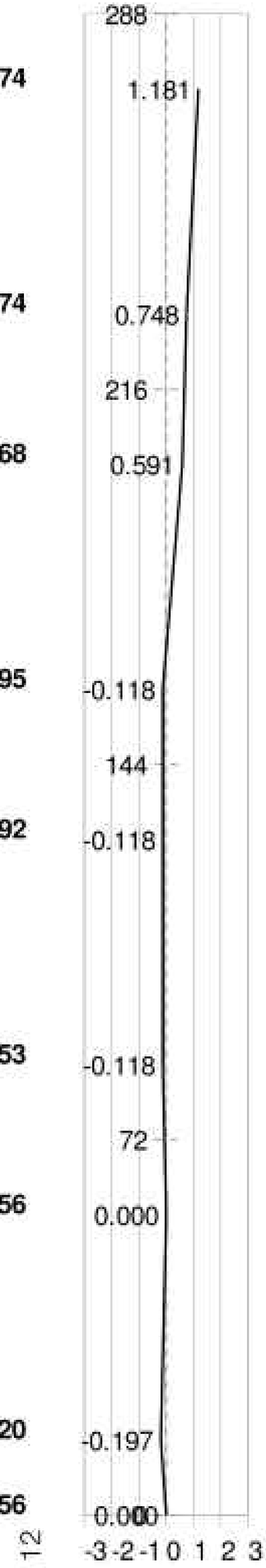
Set Out / Set In
Inches

80%	**25.074**
20%	**25.074**
80%	**25.068**
20%	**24.995**
80%	**24.992**
20%	**24.953**
80%	**24.956**
20%	**24.920**
0%	**24.956**



Station 4

Set Out / Set In
Inches

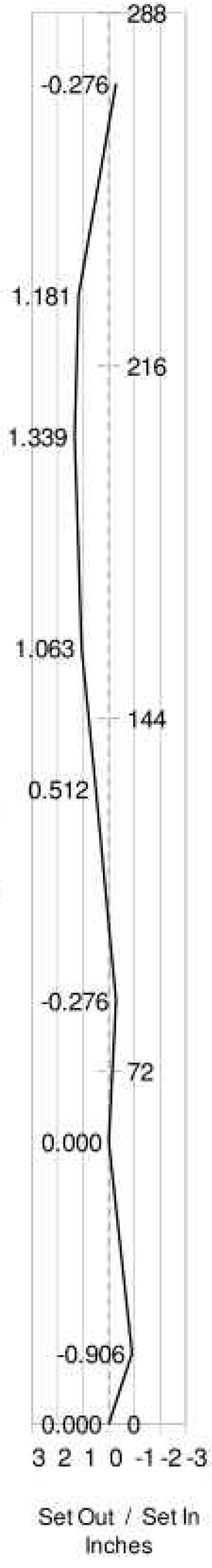


Station 12

Set Out / Set In
Inches

Opposing Stations

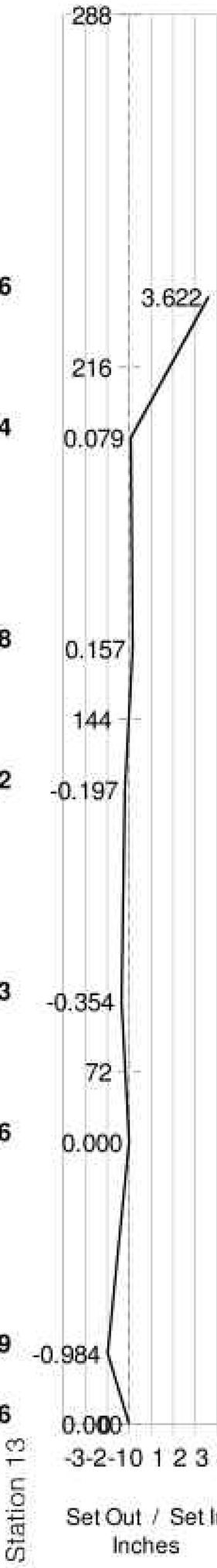
Internal Diameter (ft)



Station 5

	25.356
	25.074
	25.058
	24.982
	24.903
	24.956
	24.799
	24.956

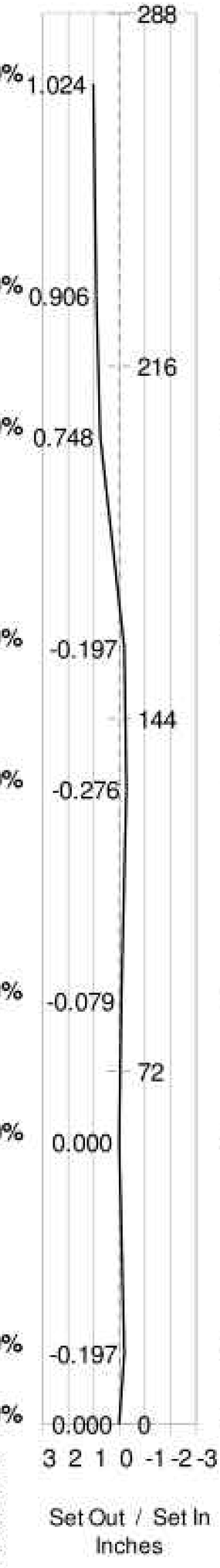
Internal Diameter (ft)



Station 13

20%	25.356
80%	25.074
20%	25.058
80%	24.982
20%	24.903
80%	24.956
20%	24.799
0%	24.956

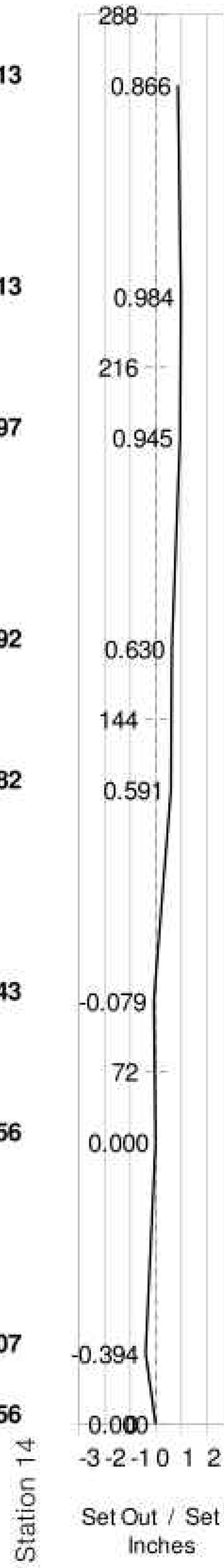
Internal Diameter (ft)



Station 6

80%	25.113
20%	25.113
80%	25.097
20%	24.992
80%	24.982
20%	24.943
80%	24.956
20%	24.907
0%	24.956

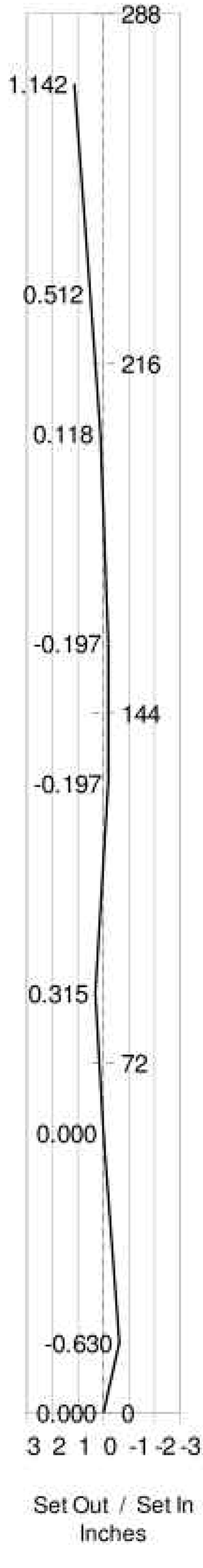
Internal Diameter (ft)



Station 14

Opposing Stations

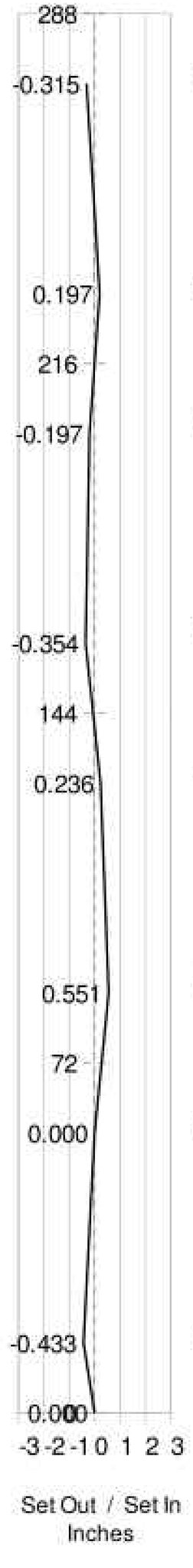
Internal Diameter (ft)



Station 7

Set Out / Set In
Inches

25.025
25.015
24.949
24.910
24.959
25.028
24.956
24.867
24.956

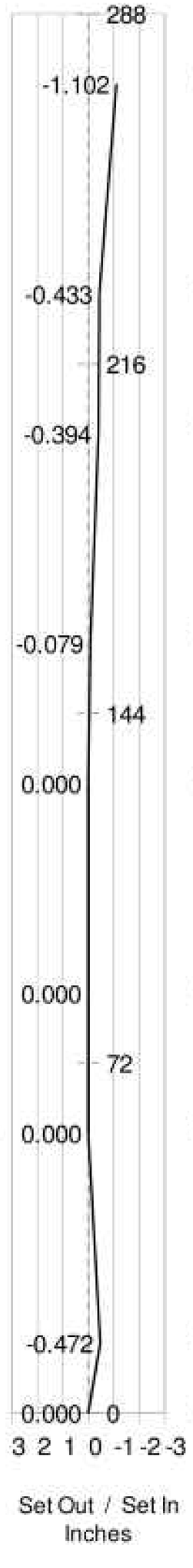


Station 15

Set Out / Set In
Inches

80%
20%
80%
20%
80%
80%
20%
20%
0%

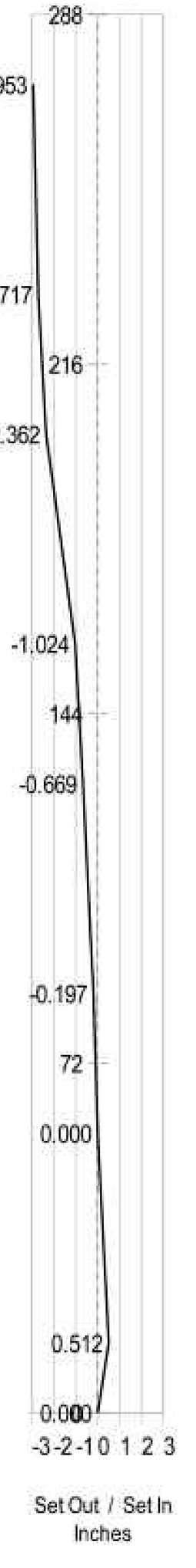
Internal Diameter (ft)



Station 8

Set Out / Set In
Inches

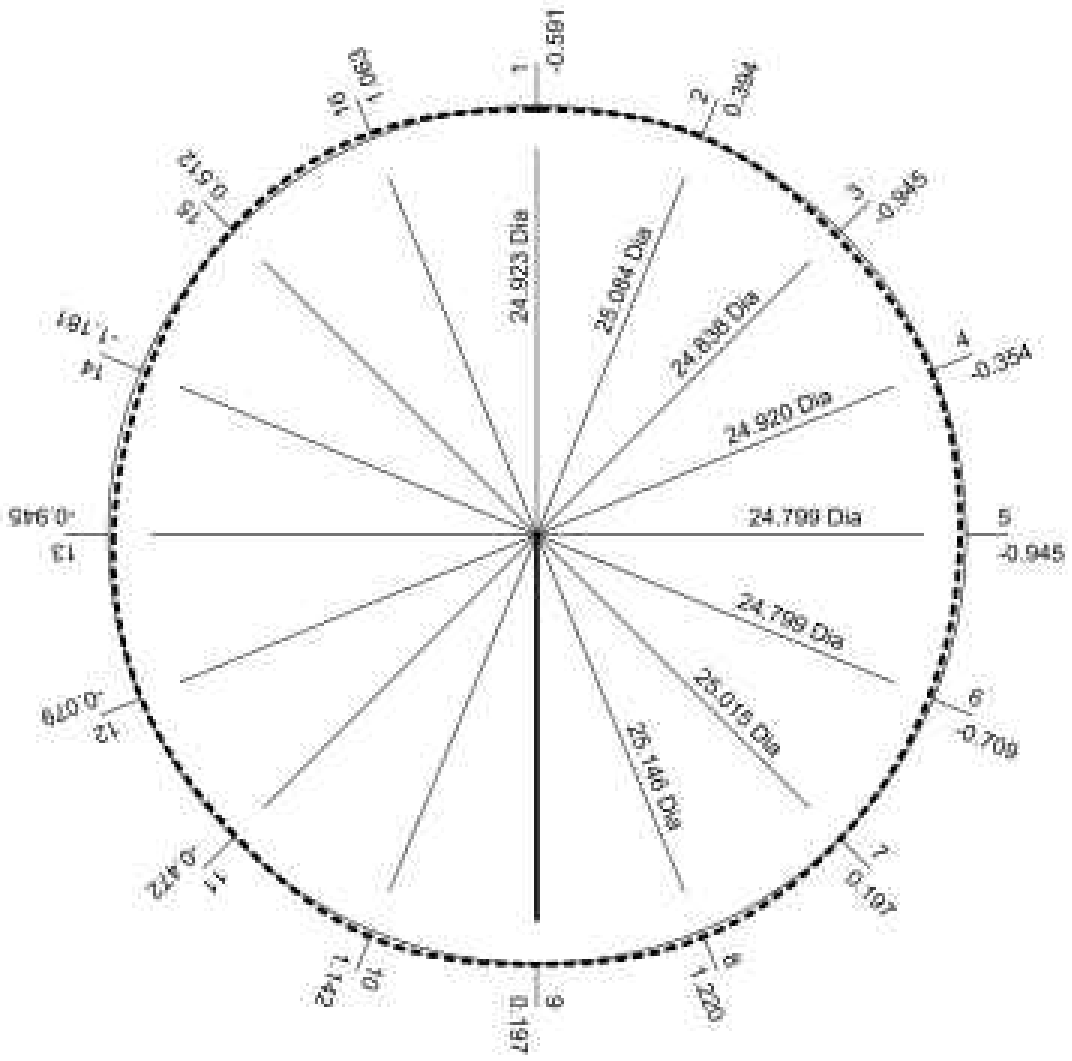
24.618
24.694
24.726
24.864
24.900
24.940
24.956
24.959
24.956



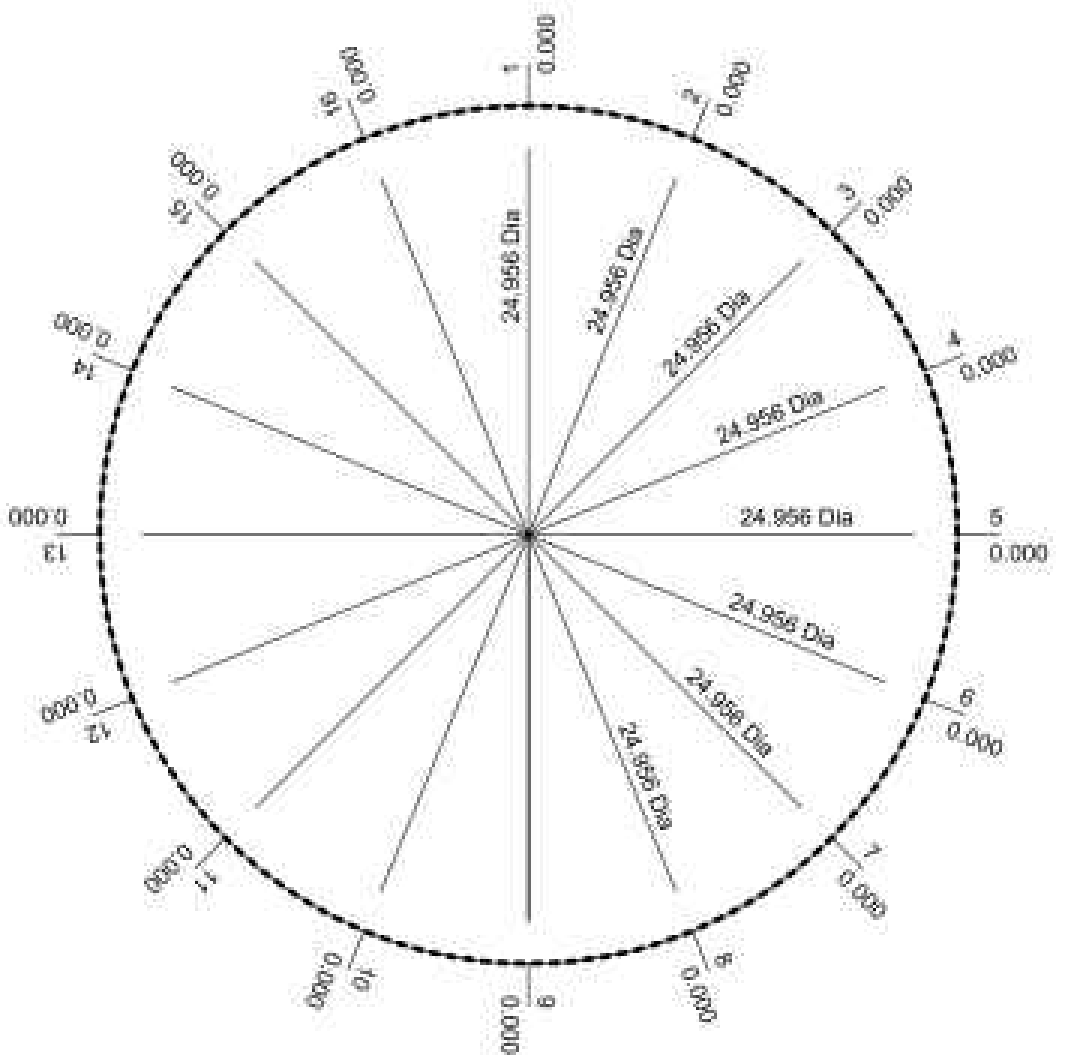
Station 16

Set Out / Set In
Inches

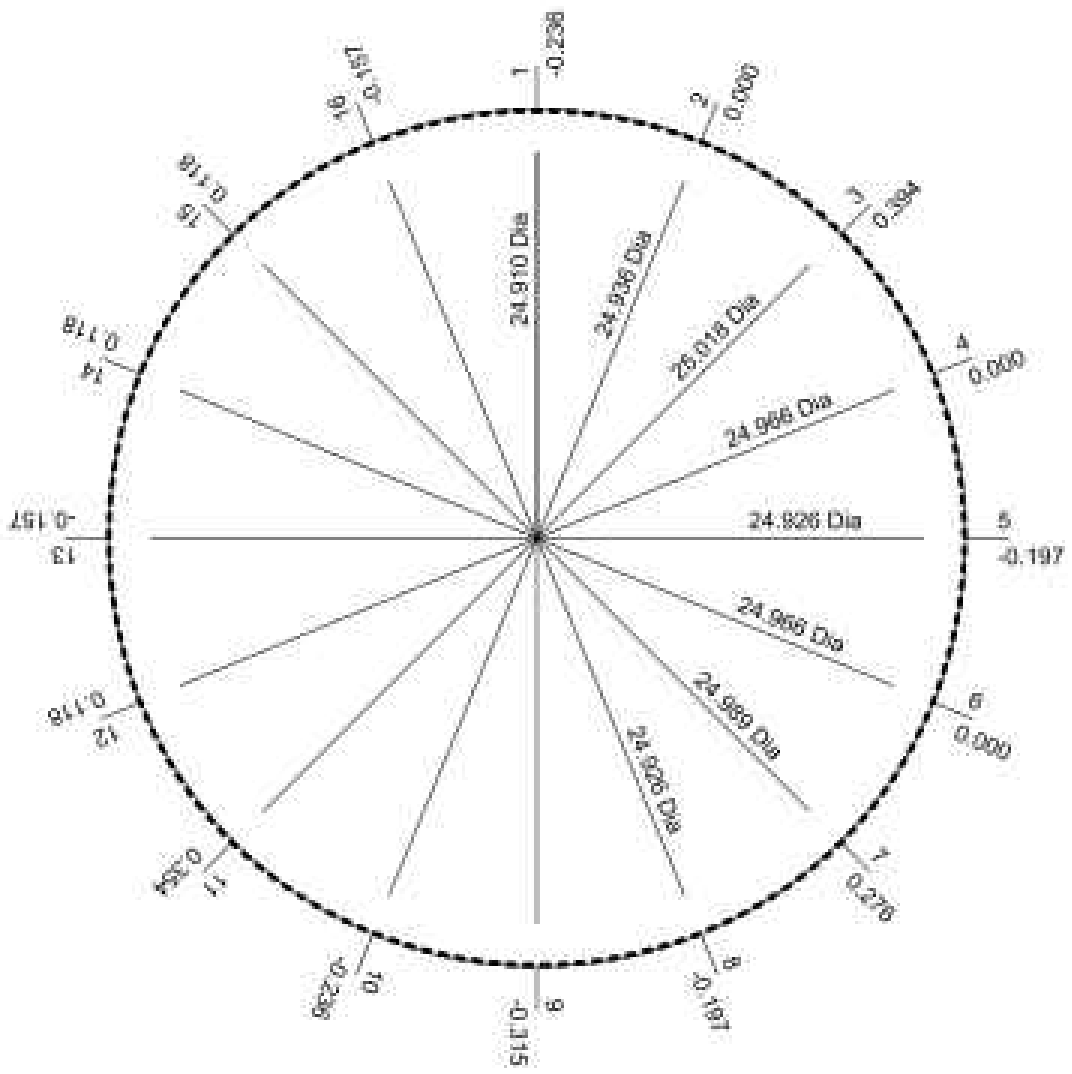
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-035
RING OFFSETS



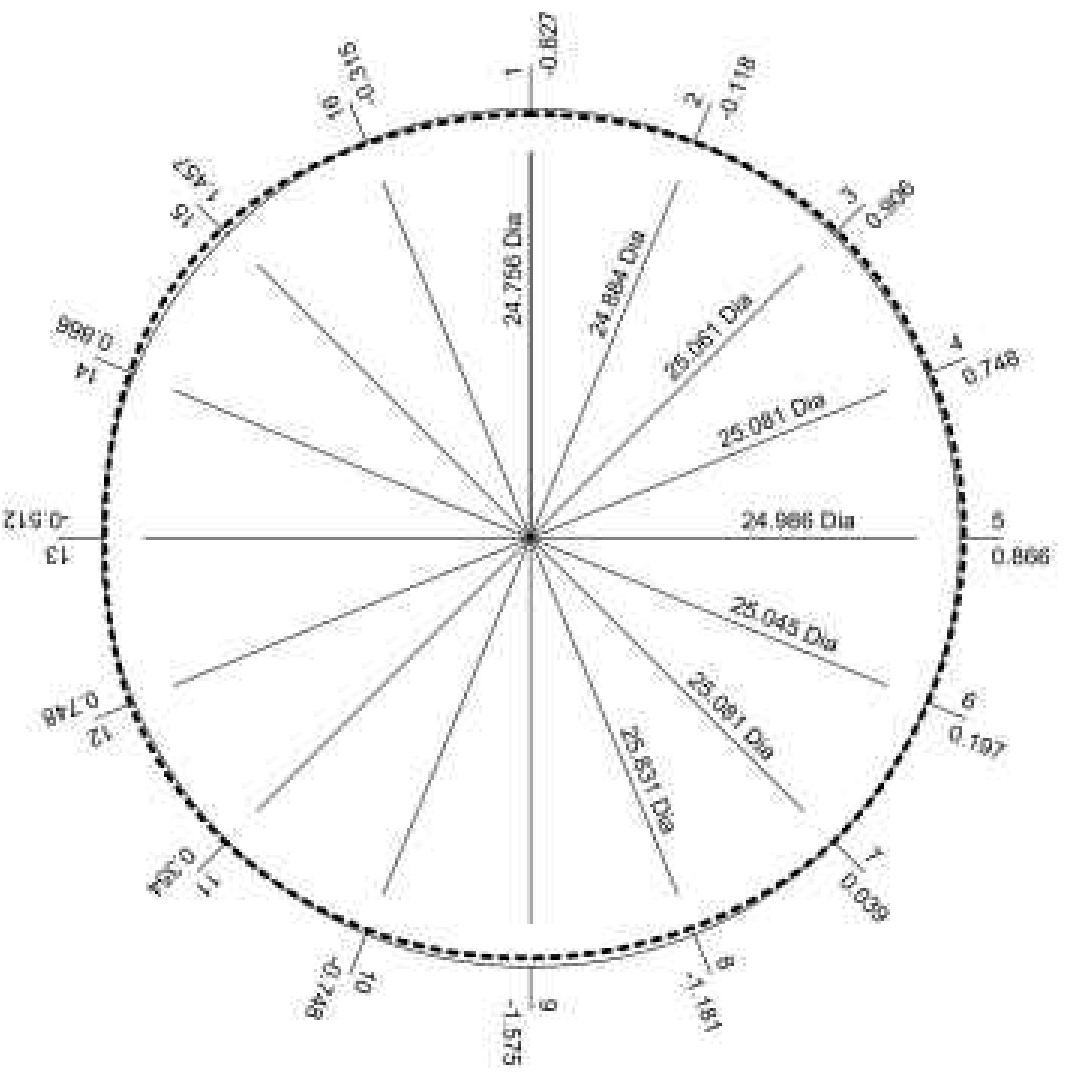
RING #1 20%



RING #1 80%

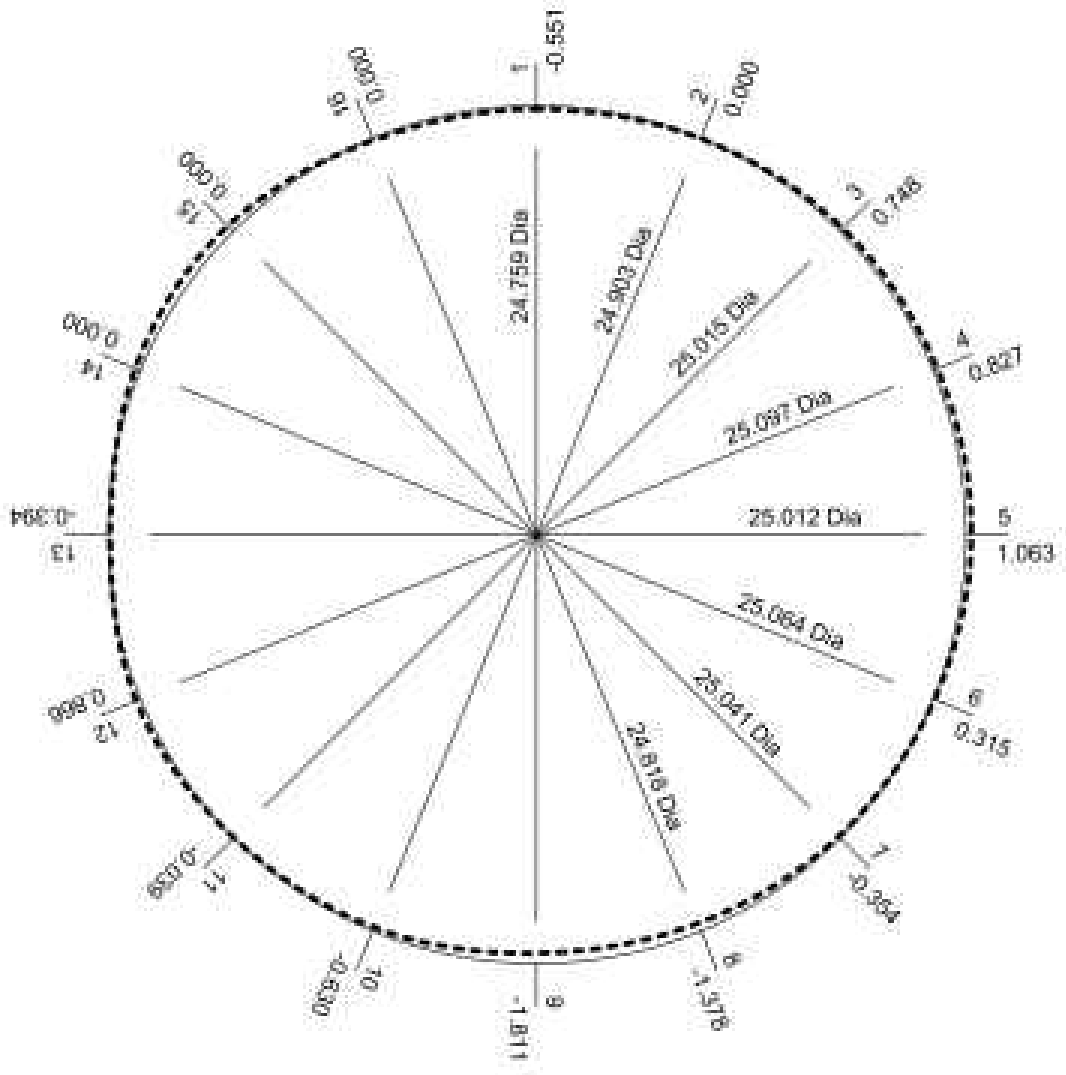


RING #2 20%

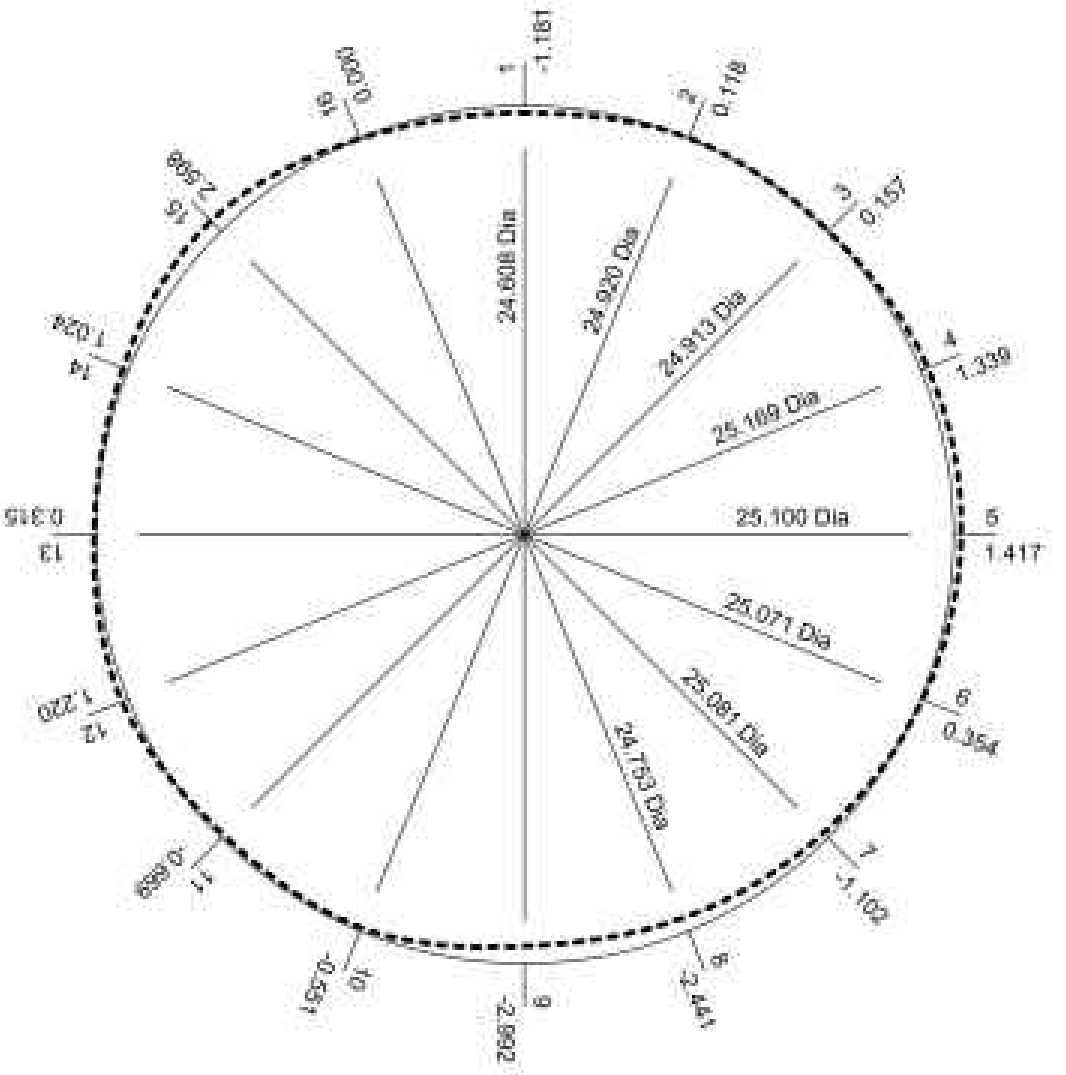


RING #2 80%

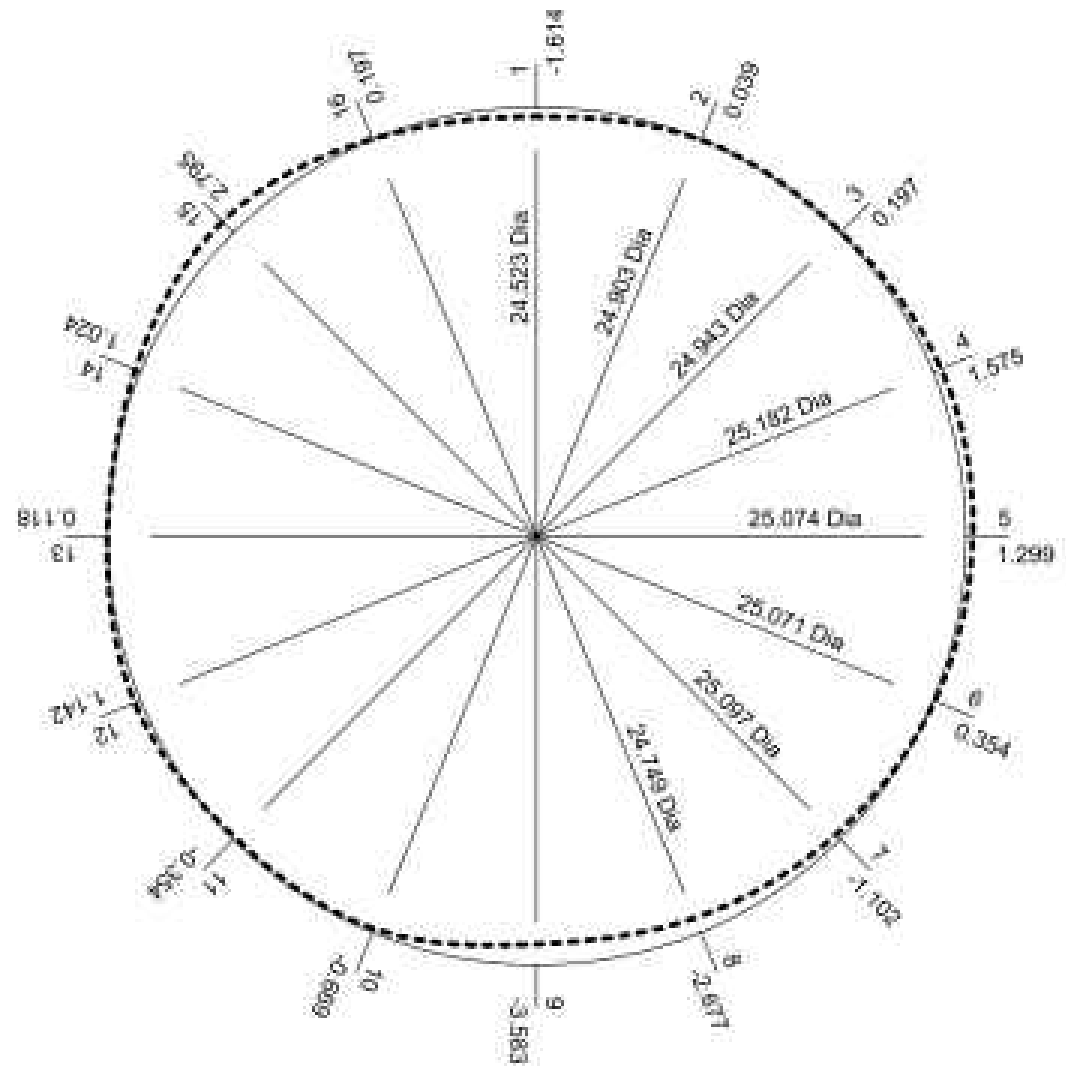
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-035
RING OFFSETS



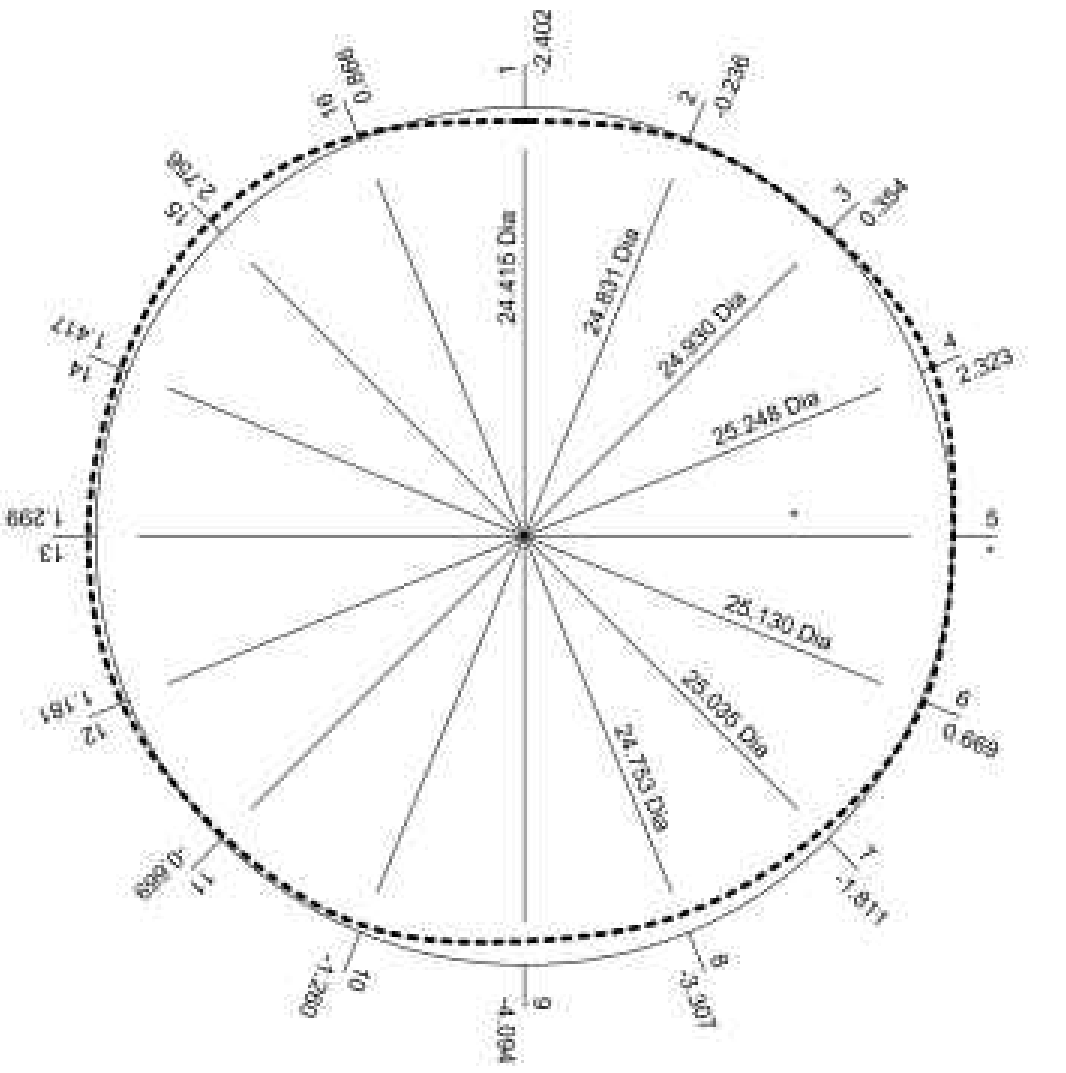
RING #3 20%



RING #3 80%



RING #4 20%



RING #4 80%

*Graph representation not applicable for
Ring #4 80% - Station 5 due to walkway

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-035

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

External Optical Readings – Millimetres

Course	1	1	1	2	2	3	3	4	4	
% up	0	20%	80%	20%	80%	20%	80%	20%	80%	
Height (in)	0	14.4	57.6	86.4	129.6	158.4	201.6	230.4	273.6	
Station	Reference									
1	581	596	581	587	602	595	611	622	642	
2	98	88	98	98	101	98	95	97	104	
3	588	612	588	578	565	569	584	583	579	
4	484	493	484	484	465	463	450	444	425	
5	758	782	758	763	736	731	722	725	*	Stair Walkway
6	80	98	80	80	75	72	71	71	63	
7	179	174	179	172	178	188	207	207	225	
8	173	142	173	178	203	208	235	241	257	
9	228	223	228	236	268	274	304	319	332	
10	283	254	283	289	302	299	297	300	315	
11	947	959	947	938	938	948	964	956	964	
12	906	908	906	903	887	884	875	877	876	
13	465	489	465	469	478	475	457	462	432	
14	289	319	289	286	267	264	263	263	253	
15	491	478	491	488	454	456	425	420	421	
16	627	600	627	631	635	634	627	622	605	
Total Feet	23.5466	47.2178		47.0276		47.0638		44.9541		
Average	1.47166	1.47556		1.56759		1.47074		1.45013		

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-035

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188
Station	Reference								
1	22.686	23.277	22.686	22.922	23.513	23.237	23.867	24.300	25.088
2	3.670	3.277	3.670	3.670	3.788	3.670	3.552	3.631	3.906
3	22.962	23.906	22.962	22.568	22.056	22.214	22.804	22.765	22.607
4	18.867	19.221	18.867	18.867	18.119	18.040	17.529	17.292	16.544
5	29.655	30.599	29.655	29.851	28.788	28.592	28.237	28.355	*
6	2.962	3.670	2.962	2.962	2.765	2.647	2.607	2.607	2.292
7	6.859	6.662	6.859	6.584	6.820	7.214	7.962	7.962	8.670
8	6.623	5.403	6.623	6.820	7.804	8.001	9.064	9.300	9.930
9	8.788	8.592	8.788	9.103	10.363	10.599	11.781	12.371	12.883
10	10.954	9.812	10.954	11.190	11.702	11.584	11.505	11.623	12.214
11	37.095	37.568	37.095	36.741	36.741	37.135	37.765	37.450	37.765
12	35.481	35.560	35.481	35.363	34.733	34.615	34.261	34.340	34.300
13	18.119	19.064	18.119	18.277	18.631	18.513	17.804	18.001	16.820
14	11.190	12.371	11.190	11.072	10.324	10.206	10.166	10.166	9.773
15	19.143	18.631	19.143	19.025	17.686	17.765	16.544	16.347	16.387
16	24.497	23.434	24.497	24.655	24.812	24.773	24.497	24.300	23.631

12/06/2017

CO-OP Refinery Complex — 16 Stations at 4'10 7/8" apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-035

Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1	0.000	-0.591	0.000	-0.236	-0.827	-0.551	-1.181	-1.614	-2.402
2	0.000	0.394	0.000	0.000	-0.118	0.000	0.118	0.039	-0.236
3	0.000	-0.945	0.000	0.394	0.906	0.748	0.157	0.197	0.354
4	0.000	-0.354	0.000	0.000	0.748	0.827	1.339	1.575	2.323
5	0.000	-0.945	0.000	-0.197	0.866	1.063	1.417	1.299	*
6	0.000	-0.709	0.000	0.000	0.197	0.315	0.354	0.354	0.669
7	0.000	0.197	0.000	0.276	0.039	-0.354	-1.102	-1.102	-1.811
8	0.000	1.220	0.000	-0.197	-1.181	-1.378	-2.441	-2.677	-3.307
9	0.000	0.197	0.000	-0.315	-1.575	-1.811	-2.992	-3.583	-4.094
10	0.000	1.142	0.000	-0.236	-0.748	-0.630	-0.551	-0.669	-1.260
11	0.000	-0.472	0.000	0.354	0.354	-0.039	-0.669	-0.354	-0.669
12	0.000	-0.079	0.000	0.118	0.748	0.866	1.220	1.142	1.181
13	0.000	-0.945	0.000	-0.157	-0.512	-0.394	0.315	0.118	1.299
14	0.000	-1.181	0.000	0.118	0.866	0.984	1.024	1.024	1.417
15	0.000	0.512	0.000	0.118	1.457	1.378	2.598	2.795	2.756
16	0.000	1.063	0.000	-0.157	-0.315	-0.276	0.000	0.197	0.866

Maximum Offset SET IN: -4.094

Maximum Offset SET OUT: 2.795

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-035

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	0	-0.394	0.000	-0.551	-2.402	-2.362	-4.173	-5.197	-6.496
2 & 10	0	1.535	0.000	-0.236	-0.866	-0.630	-0.433	-0.630	-1.496
3 & 11	0	-1.417	0.000	0.748	1.260	0.709	-0.512	-0.157	-0.315
4 & 12	0	-0.433	0.000	0.118	1.496	1.693	2.559	2.717	3.504
5 & 13	0	-1.890	0.000	-0.354	0.354	0.669	1.732	1.417	*
6 & 14	0	-1.890	0.000	0.118	1.063	1.299	1.378	1.378	2.087
7 & 15	0	0.709	0.000	0.394	1.496	1.024	1.496	1.693	0.945
8 & 16	0	2.283	0.000	-0.354	-1.496	-1.654	-2.441	-2.480	-2.441

Opposing Stations

Maximum Tank SET IN	-6.496
Maximum Tank SET OUT	3.504

Opposing Offsets – Calculated Internal Diameter – Feet

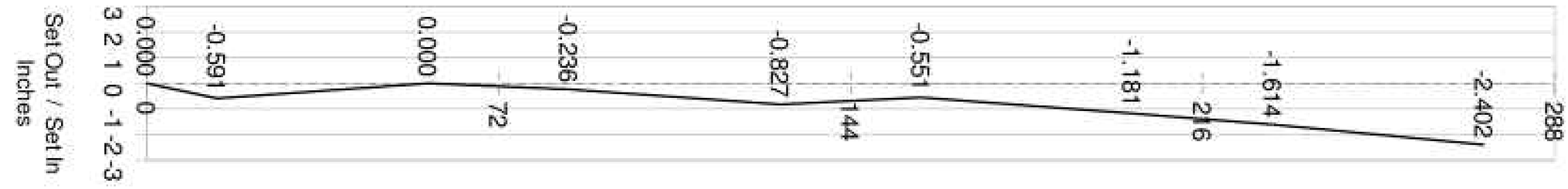
Course	0	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	24.956	24.923	24.956	24.910	24.756	24.759	24.608	24.523	24.415
2 & 10	24.956	25.084	24.956	24.936	24.884	24.903	24.920	24.903	24.831
3 & 11	24.956	24.838	24.956	25.018	25.061	25.015	24.913	24.943	24.930
4 & 12	24.956	24.920	24.956	24.966	25.081	25.097	25.169	25.182	25.248
5 & 13	24.956	24.799	24.956	24.926	24.986	25.012	25.100	25.074	*
6 & 14	24.956	24.799	24.956	24.966	25.045	25.064	25.071	25.071	25.130
7 & 15	24.956	25.015	24.956	24.989	25.081	25.041	25.081	25.097	25.035
8 & 16	24.956	25.146	24.956	24.926	24.831	24.818	24.753	24.749	24.753

Minimum Diameter (ft)	24.415
Maximum Diameter (ft)	25.248
Reference Circumference	78.5
Reference Diameter (ft)	24.956

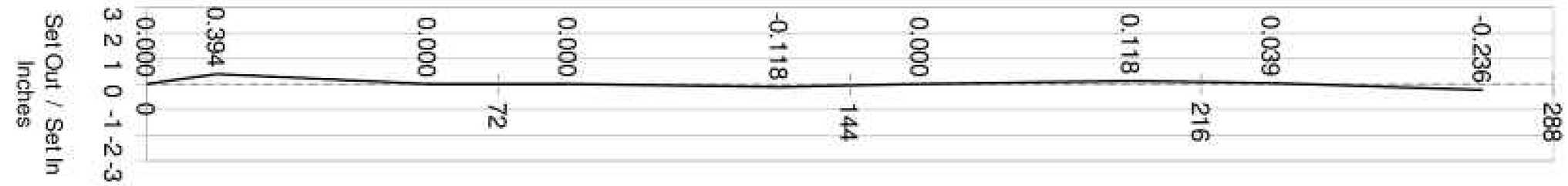
12/06/2017

Adjacent Stations

Station 1

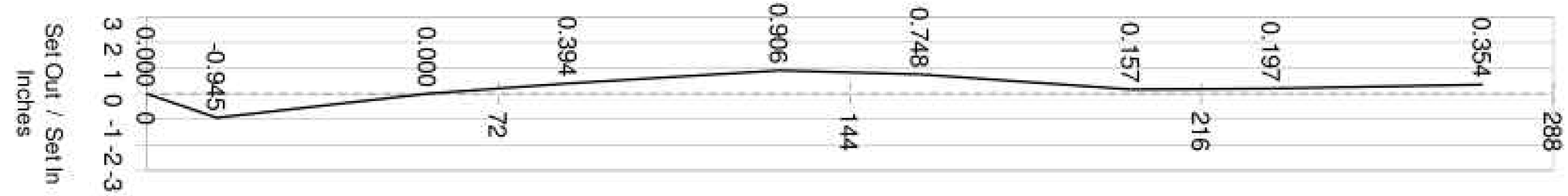


Station 2

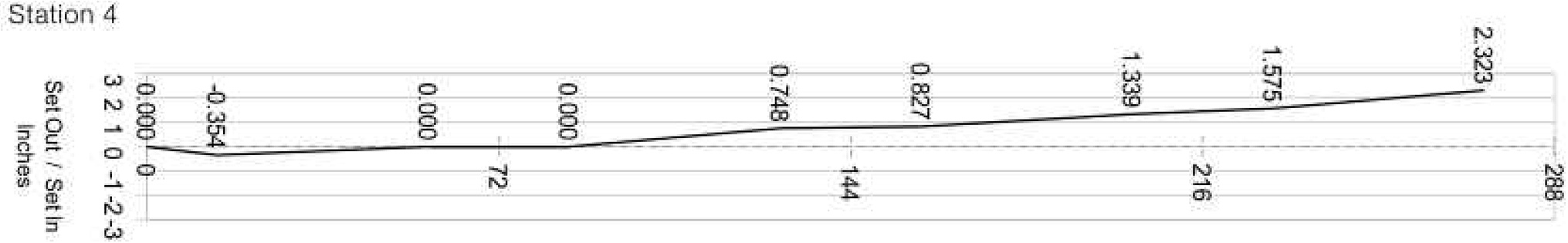


0% 20% 80% 20% 80% 20% 80% 20% 80%

Station 3



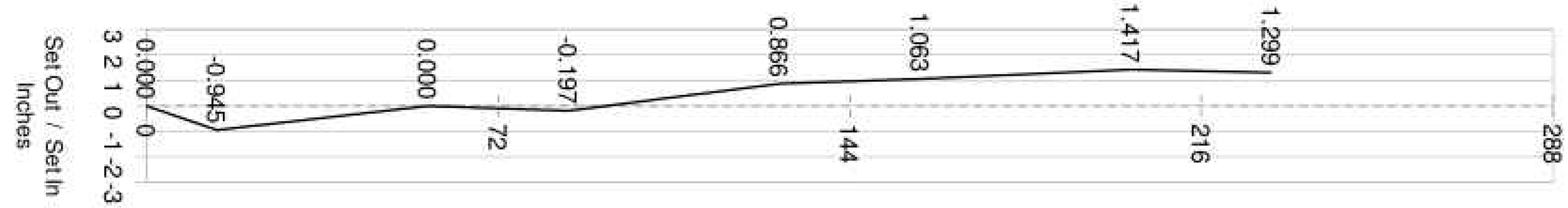
Station 4



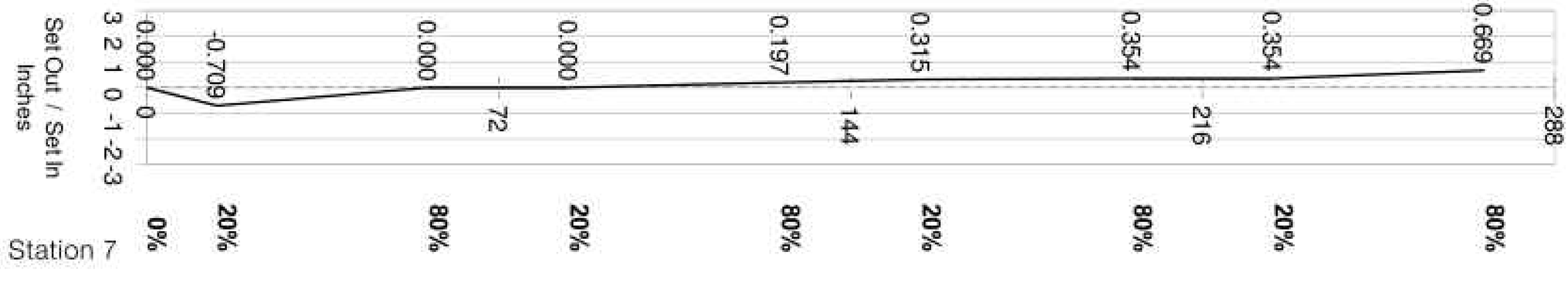
12/06/2017

Adjacent Stations

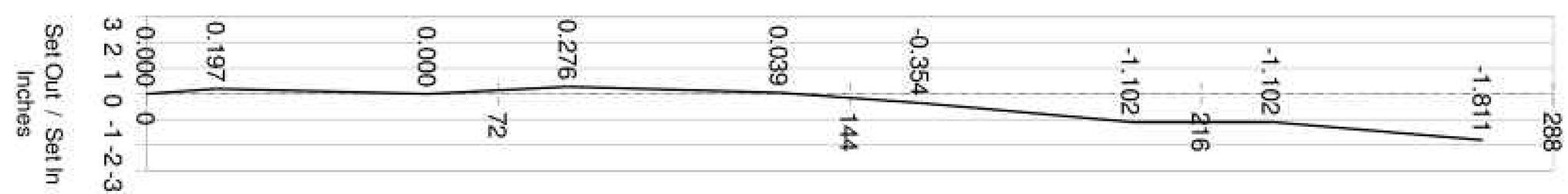
Station 5



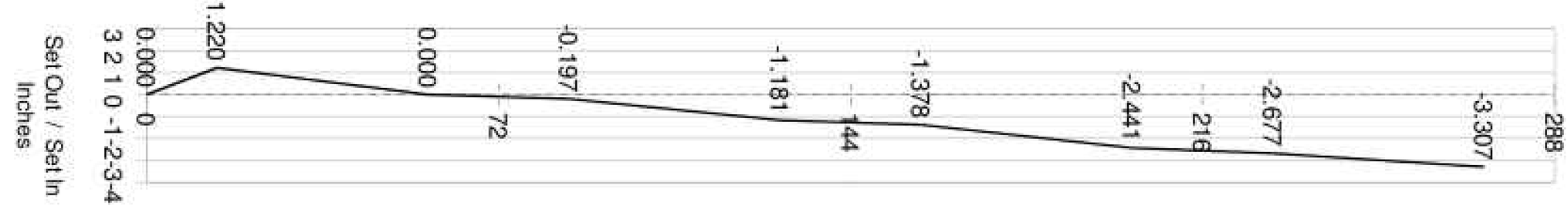
Station 6



Station 7



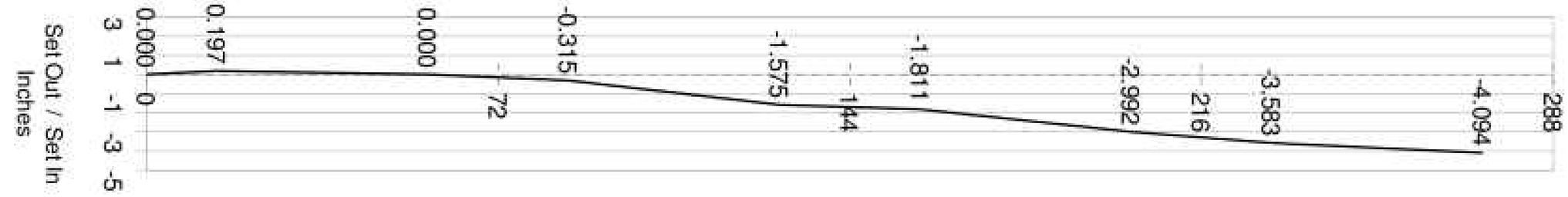
Station 8



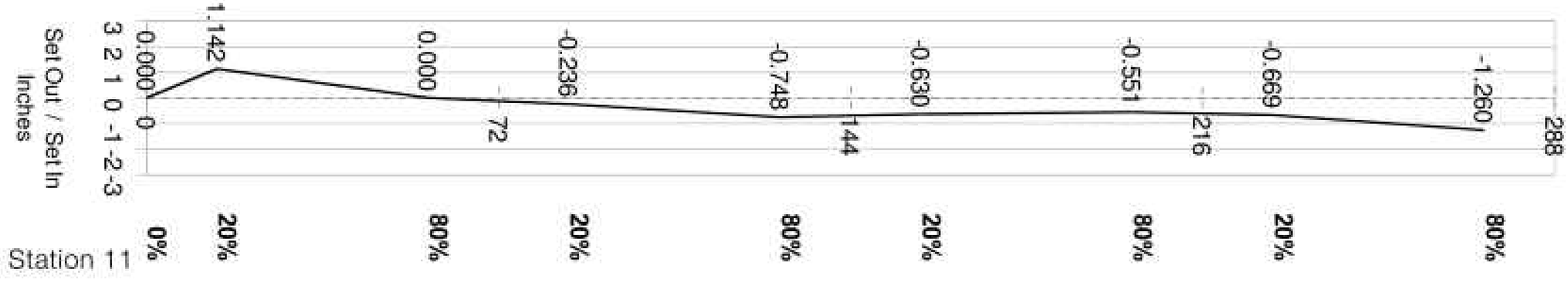
12/06/2017

Adjacent Stations

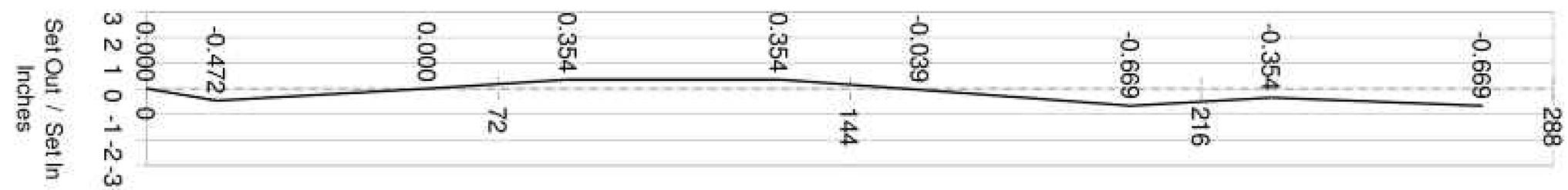
Station 9



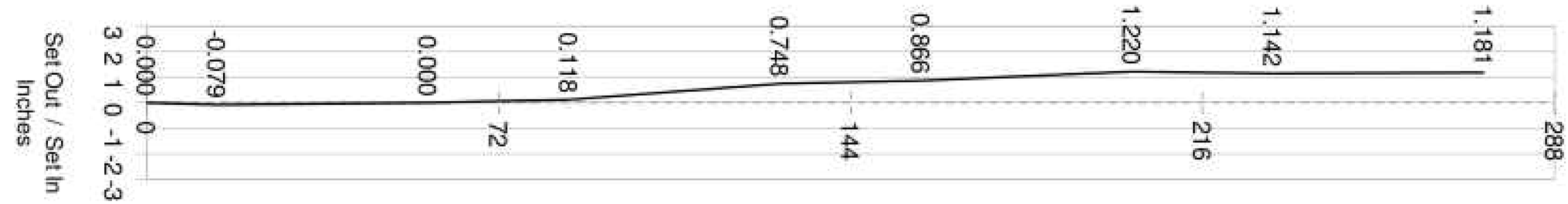
Station 10



Station 11



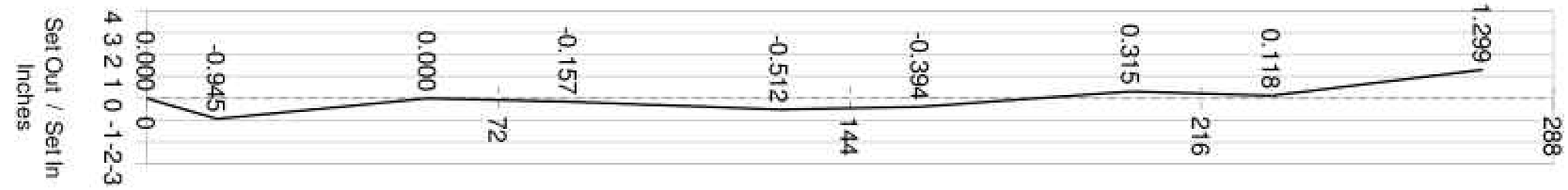
Station 12



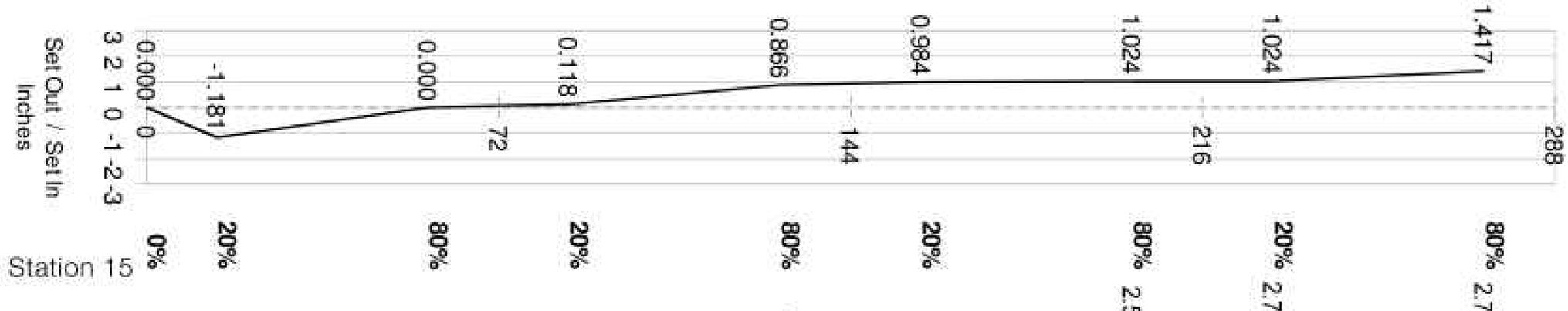
12/06/2017

Adjacent Stations

Station 13

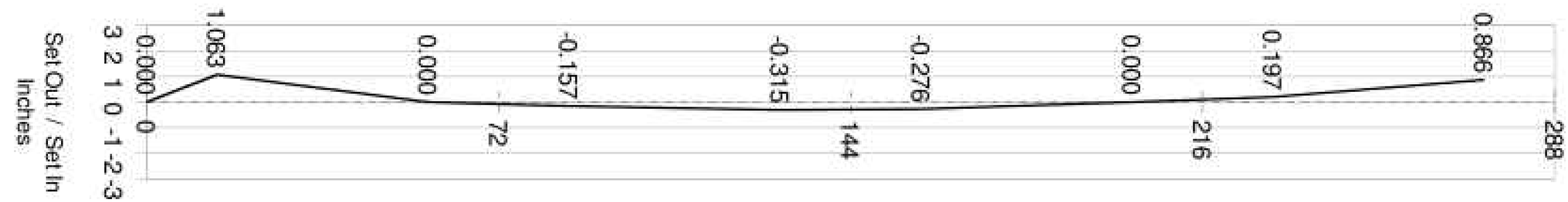


Station 14



Station 15

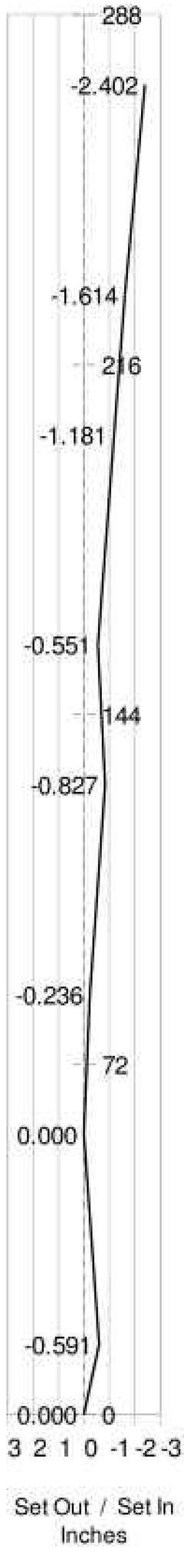
Station 16



0% 20% 80% 20% 80% 20% 80% 20% 80%

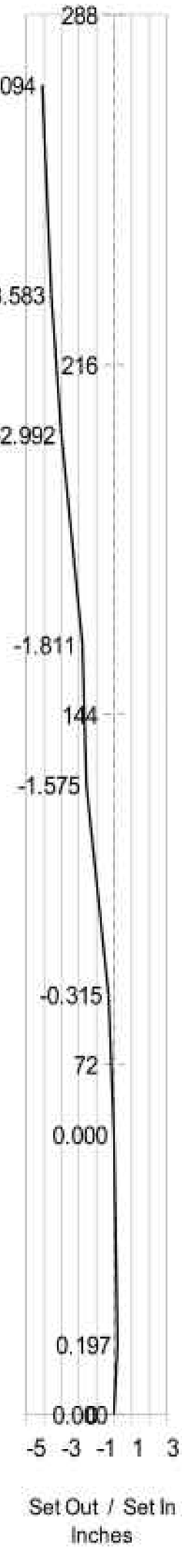
Opposing Stations

Internal Diameter (ft)



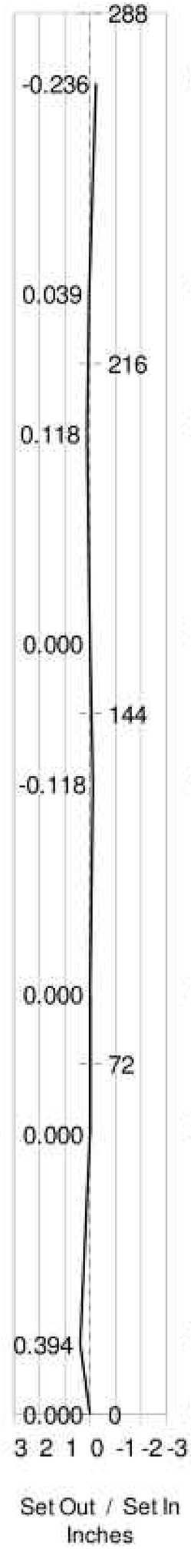
Station 1

24.415	80%
24.523	20%
24.608	80%
24.759	20%
24.756	80%
24.910	20%
24.956	80%
24.923	20%
24.956	0%



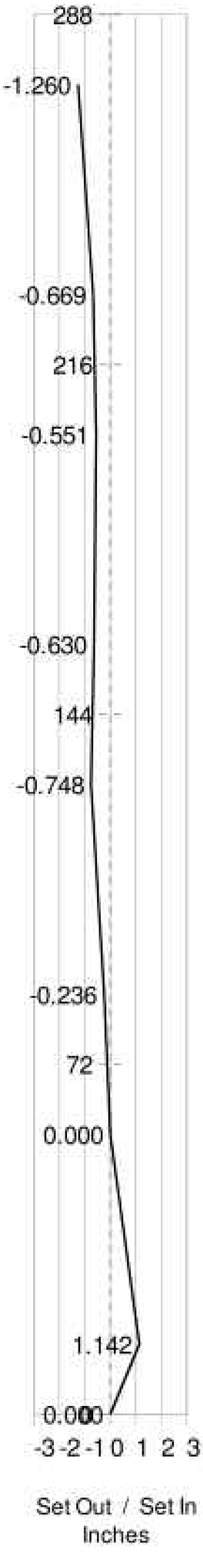
Station 9

Internal Diameter (ft)



Station 2

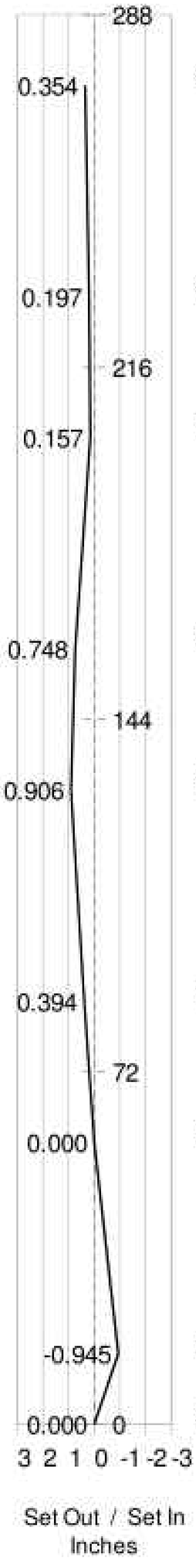
24.831	80%
24.903	20%
24.920	80%
24.903	20%
24.884	80%
24.936	20%
24.956	80%
25.084	20%
24.956	0%



Station 10

Opposing Stations

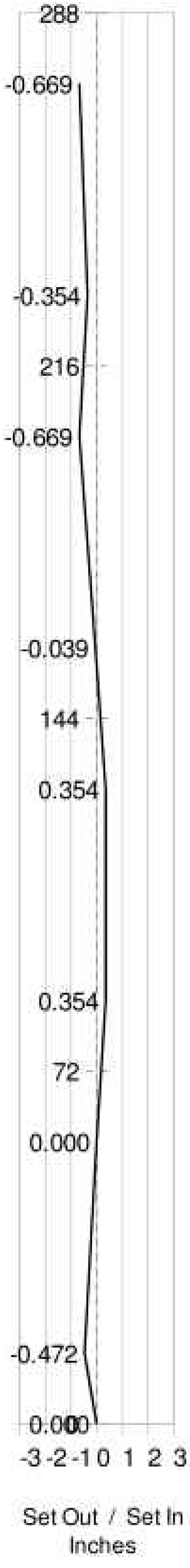
Internal Diameter (ft)



Station 3

	24.930
	24.943
	24.913
	25.015
	25.061
	25.018
	24.956
	24.838
	24.956

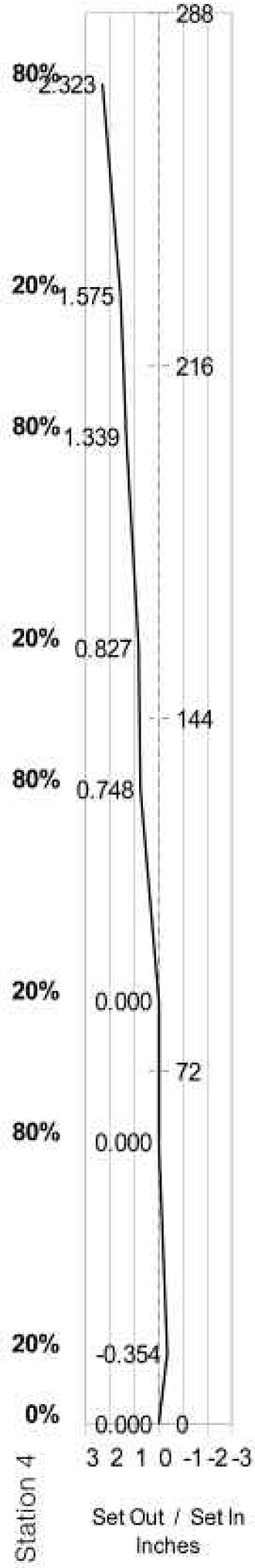
Internal Diameter (ft)



Station 11

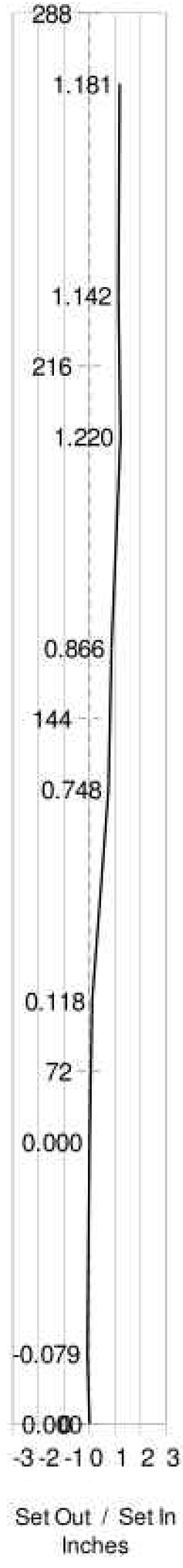
80%	**25.248**
20%	**25.182**
80%	**25.169**
20%	**25.097**
80%	**25.081**
20%	**24.966**
80%	**24.956**
20%	**24.920**
0%	**24.956**

Internal Diameter (ft)



Station 4

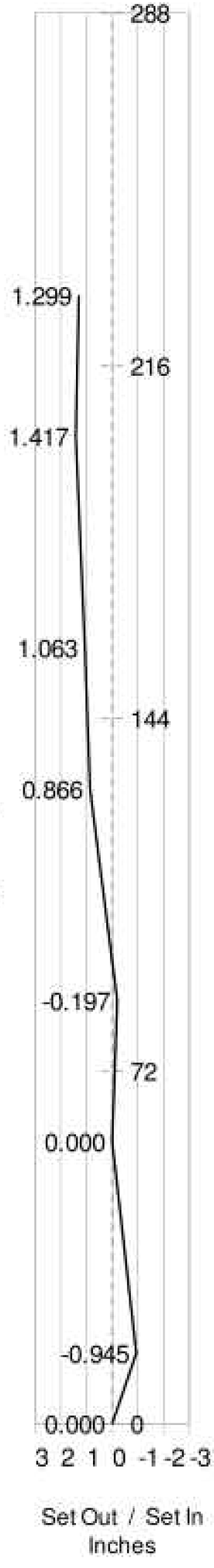
Internal Diameter (ft)



Station 12

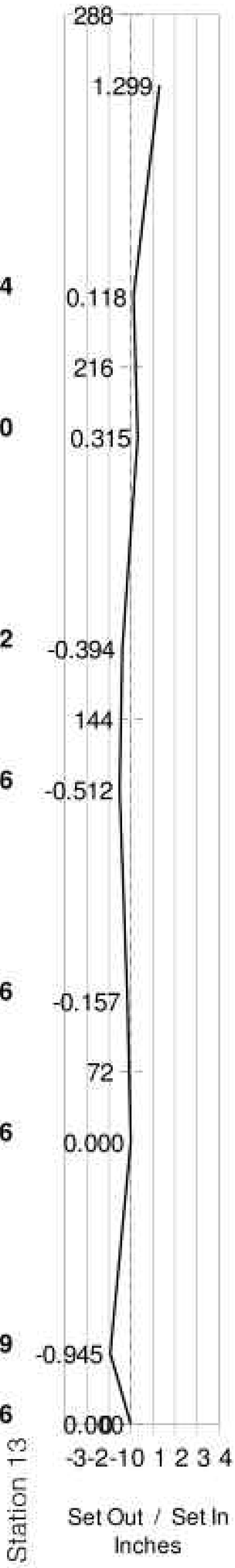
Opposing Stations

Internal Diameter (ft)



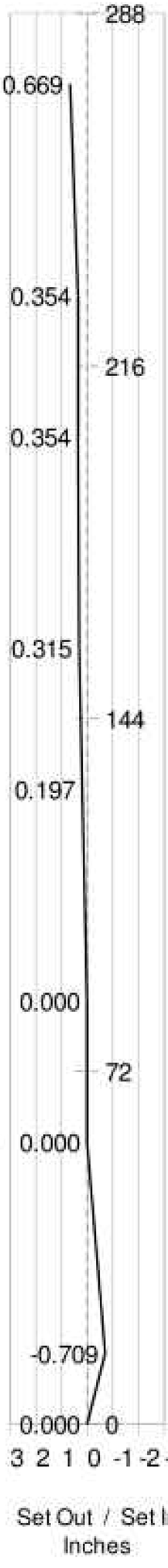
Station 5

	25.074
	25.100
	25.012
	24.986
	24.926
	24.956
	24.799
	24.956

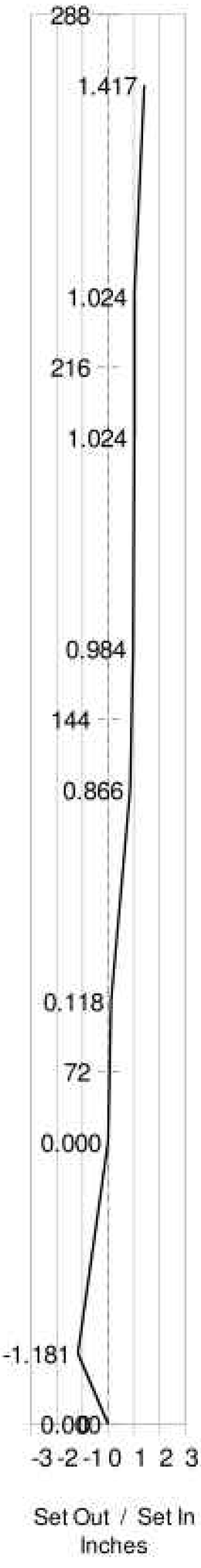


Station 13

80%	**25.130**
20%	**25.071**
80%	**25.071**
20%	**25.064**
80%	**25.045**
20%	**24.966**
80%	**24.956**
20%	**24.799**
0%	**24.956**



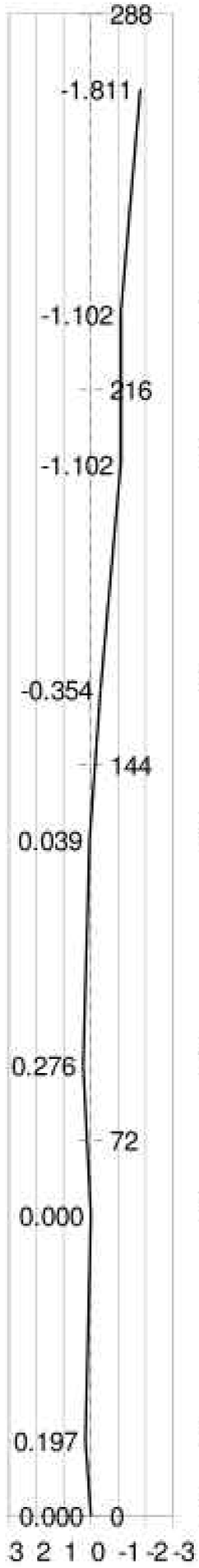
Station 6



Station 14

Opposing Stations

Internal Diameter (ft)

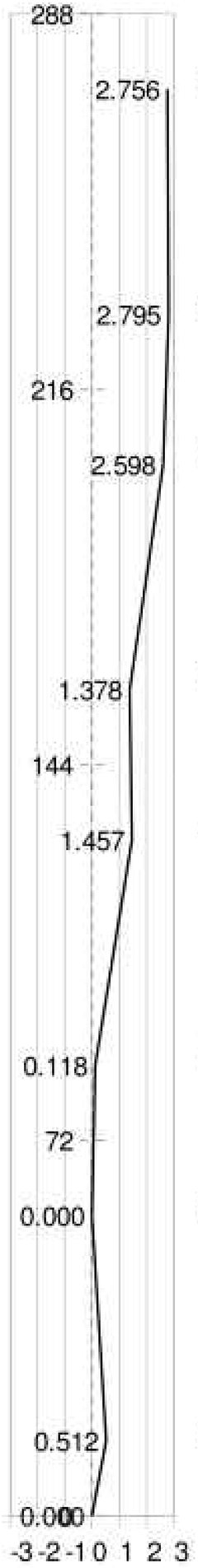


Station 7

Set Out / Set In
Inches

25.035	
25.097	80%
25.081	20%
25.041	80%
25.081	20%
24.989	80%
24.956	20%
25.015	80%
24.956	0%

Internal Diameter (ft)

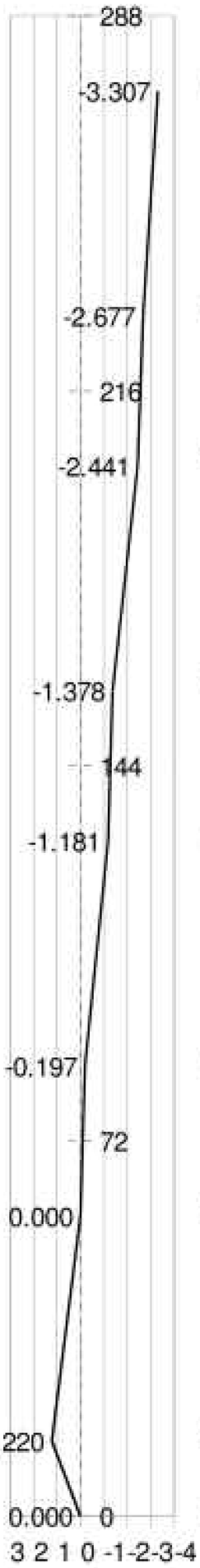


Station 15

Set Out / Set In
Inches

24.753	
24.749	80%
24.753	20%
24.818	80%
24.831	20%
24.926	80%
24.956	20%
25.146	80%
24.956	0%

Internal Diameter (ft)

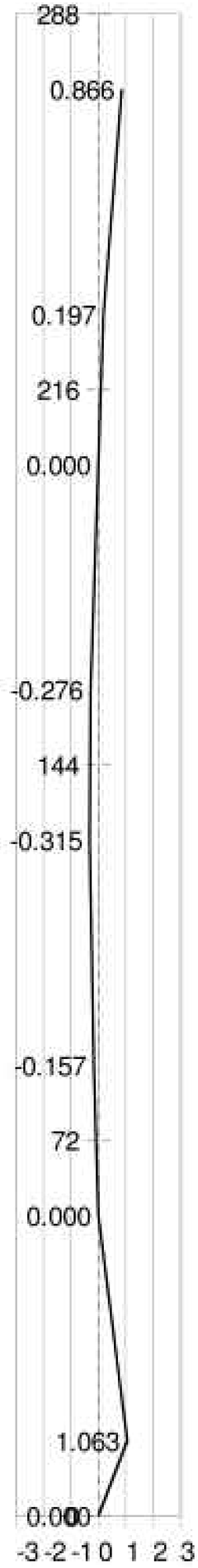


Station 8

Set Out / Set In
Inches

24.753	
24.749	80%
24.753	20%
24.818	80%
24.831	20%
24.926	80%
24.956	20%
25.146	80%
24.956	0%

Internal Diameter (ft)

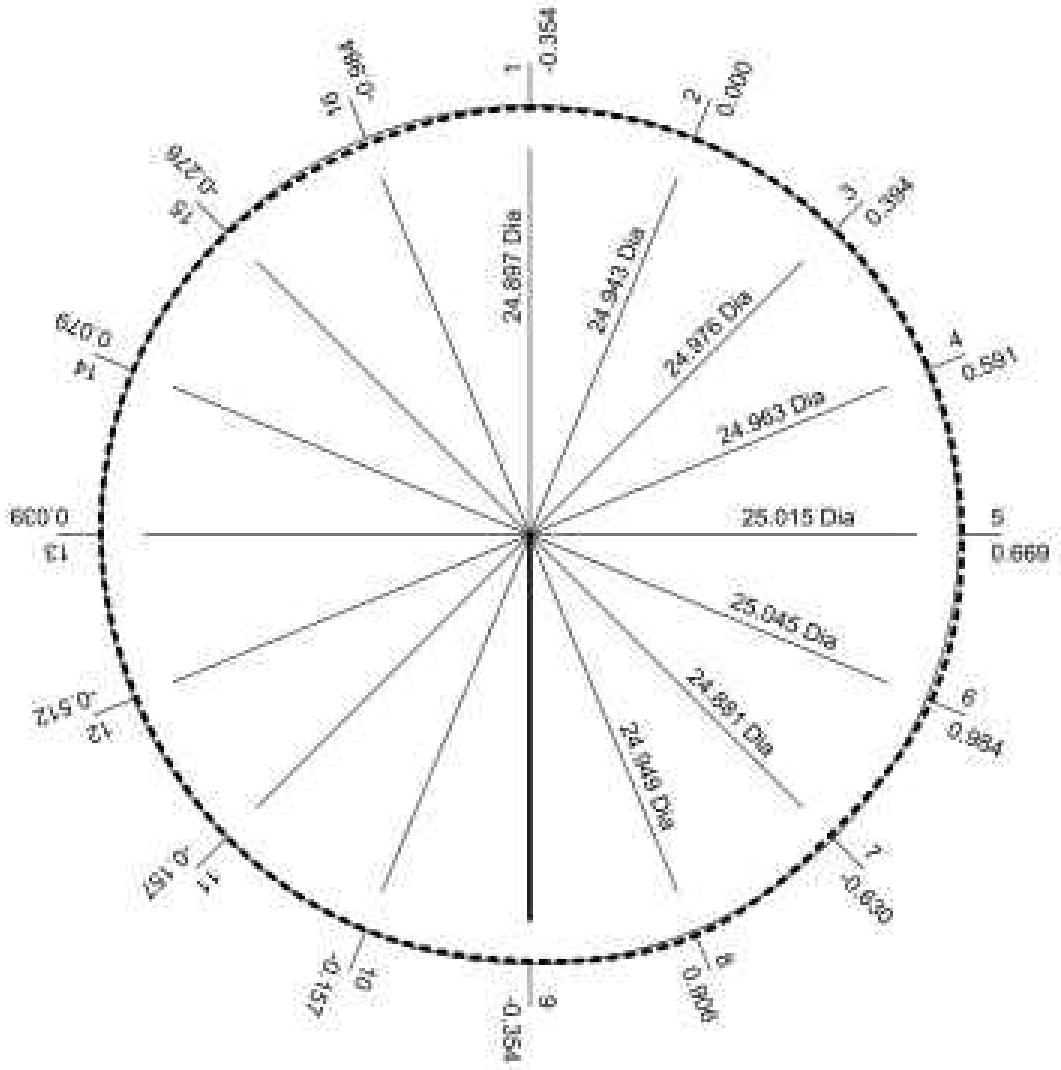


Station 16

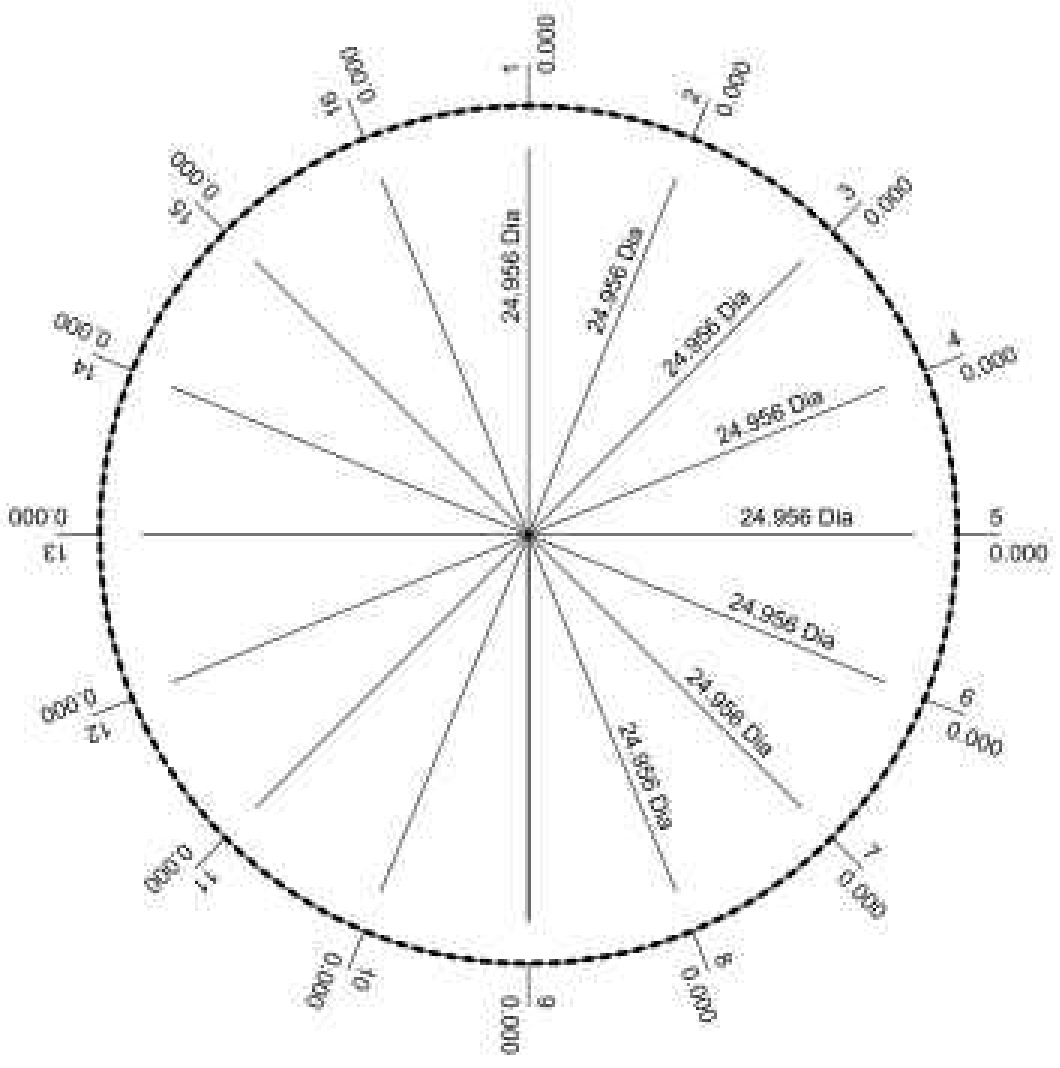
Set Out / Set In
Inches

24.753	
24.749	80%
24.753	20%
24.818	80%
24.831	20%
24.926	80%
24.956	20%
25.146	80%
24.956	0%

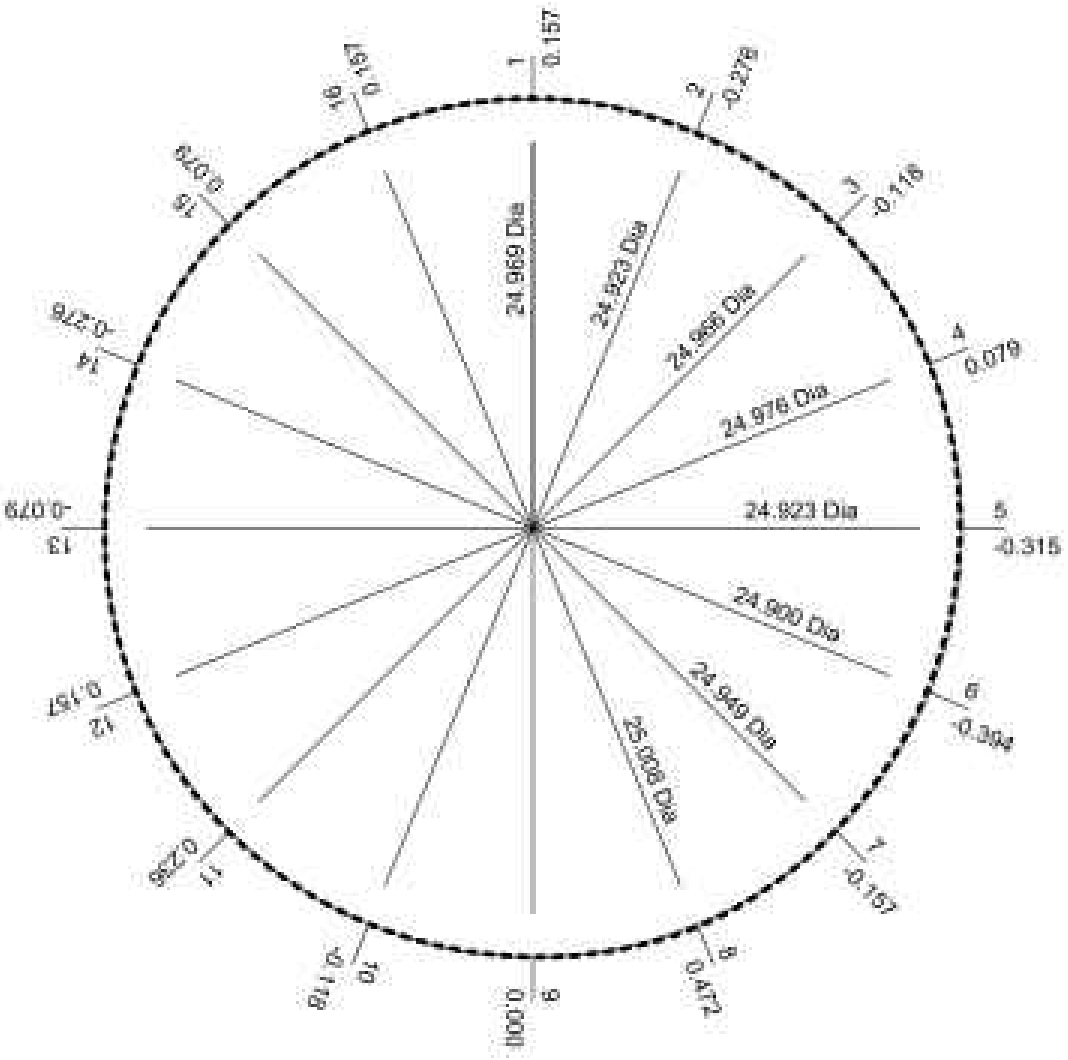
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-036
RING OFFSETS



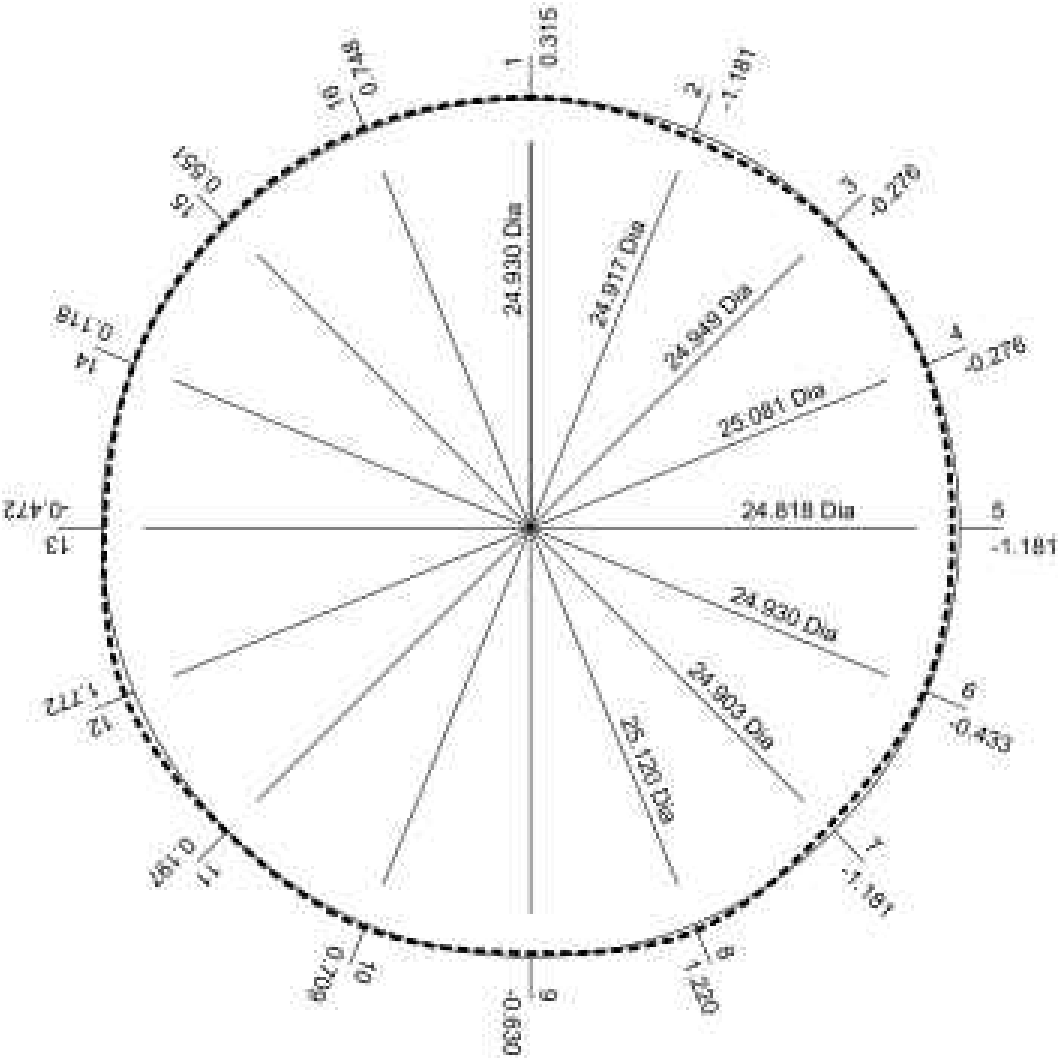
RING #1 20%



RING #1 80%

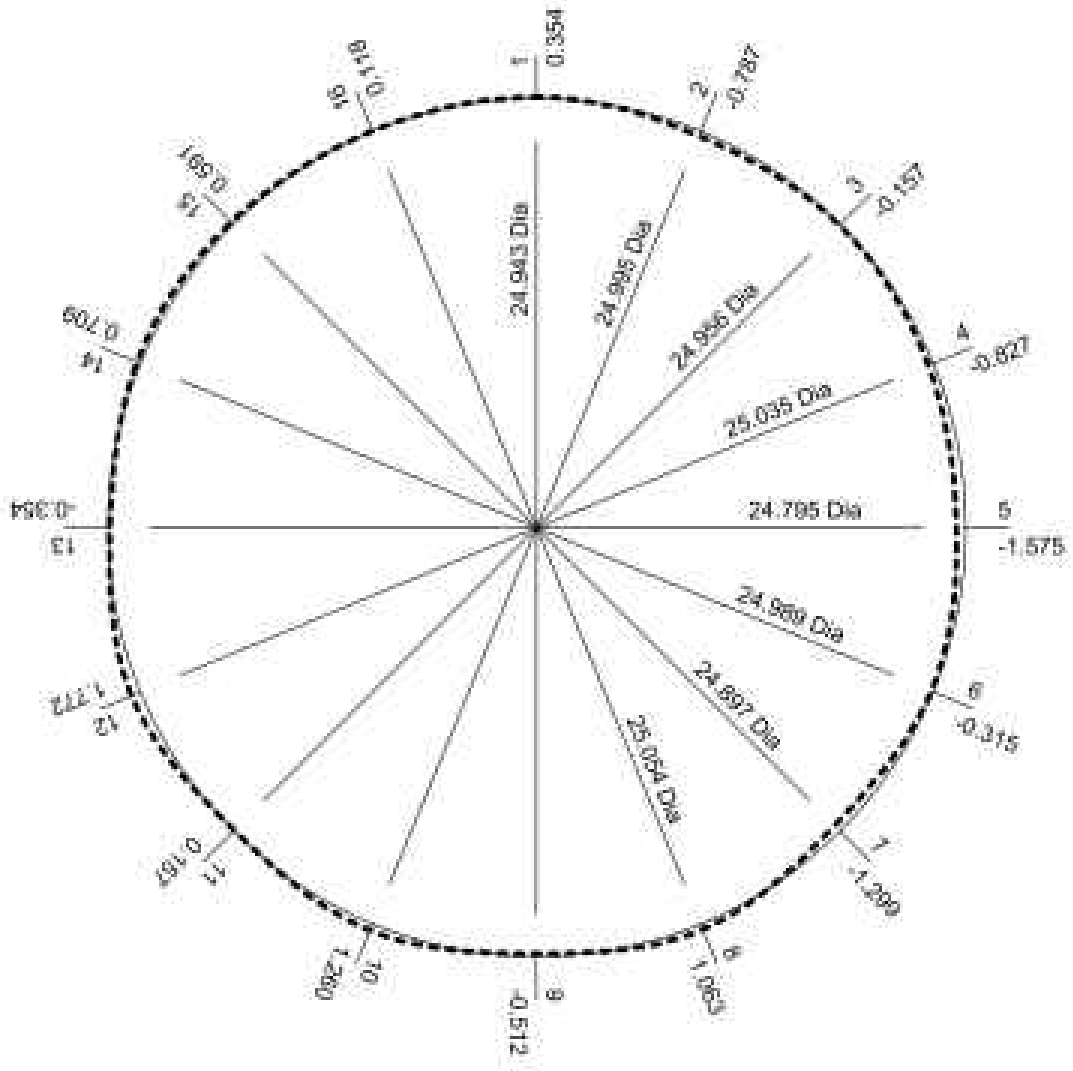


RING #2 20%

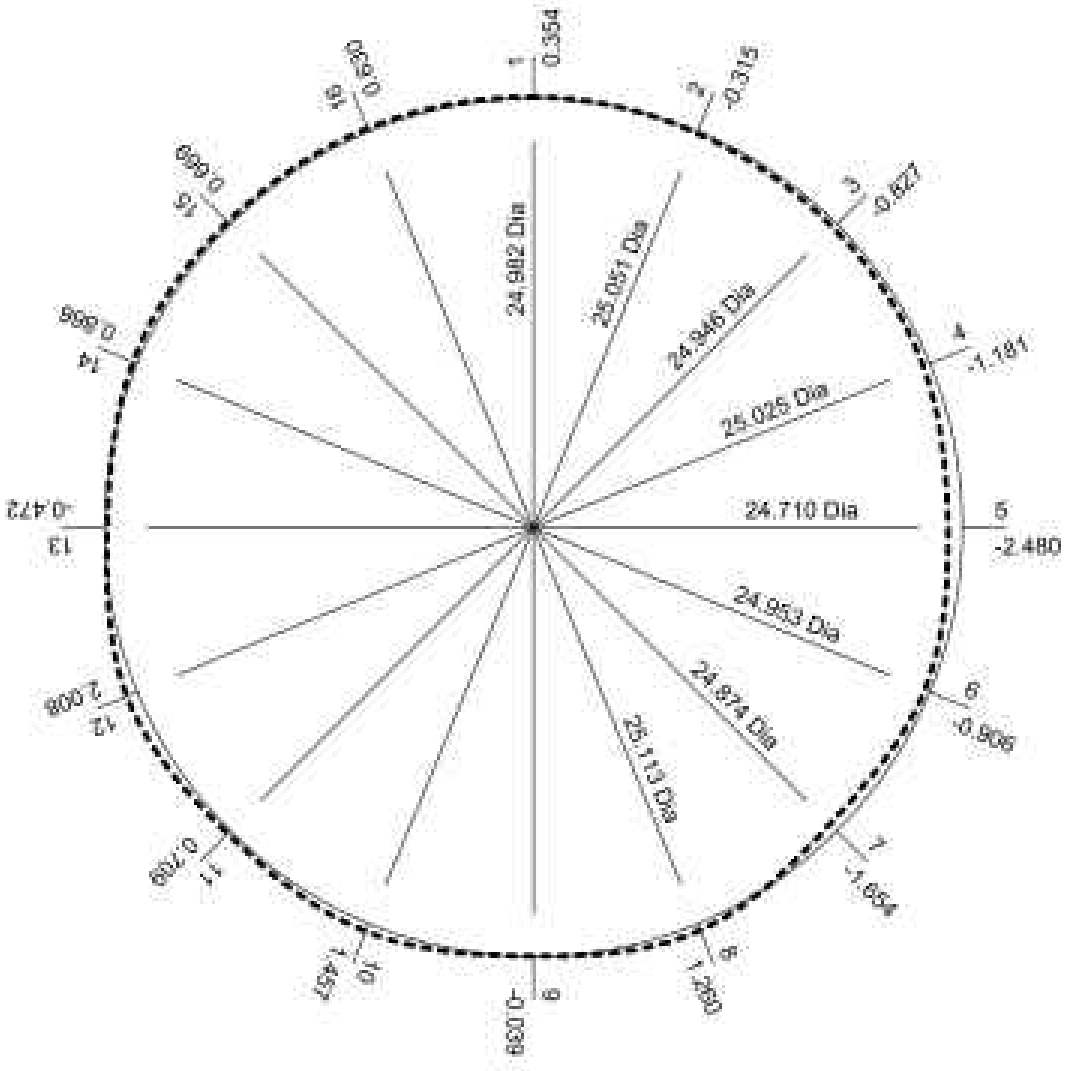


RING #2 80%

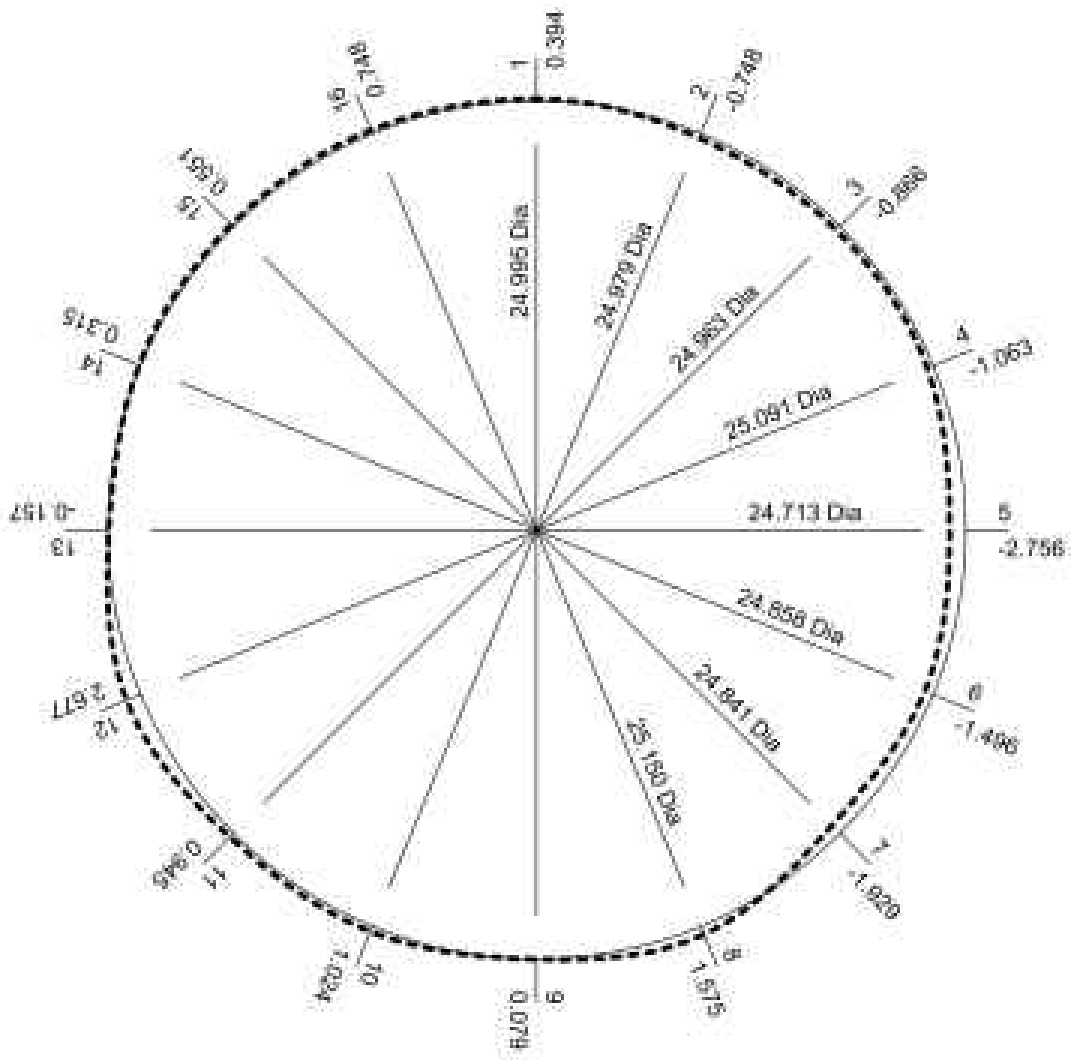
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-036
RING OFFSETS



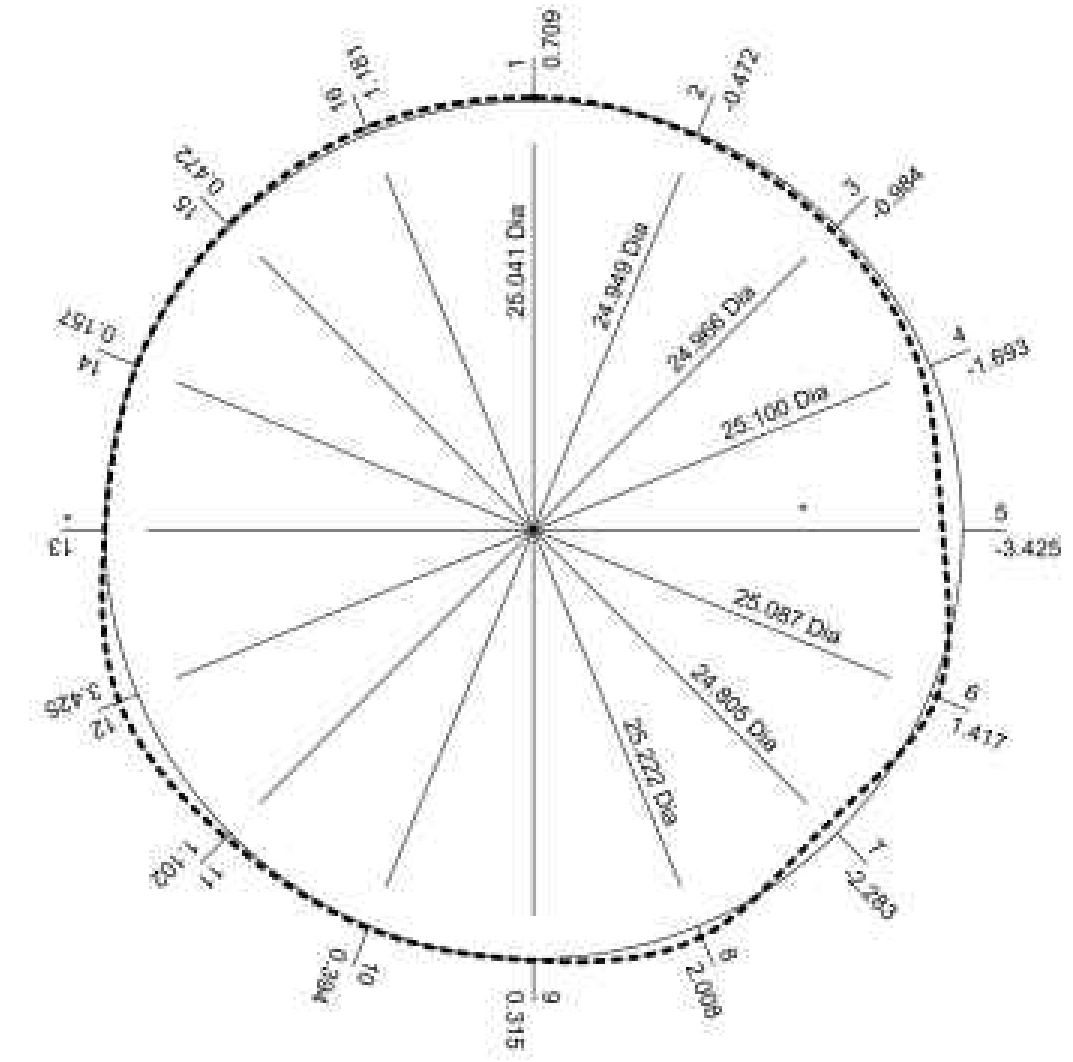
RING #3 20%



RING #3 80%



RING #4 20%



RING #4 80%

*Graph representation not applicable for
Ring #4 80% - Station 13 due to walkway

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-036

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

External Optical Readings – Millimetres

Course		1	1	1	2	2	3	3	4	4	
% up		0	20%	80%	20%	80%	20%	80%	20%	80%	
Height (in)		0	14.4	57.6	86.4	129.6	158.4	201.6	230.4	273.6	
Station		Reference									
	1	852	861	852	848	844	843	843	842	834	
	2	611	611	611	618	641	631	619	630	623	
	3	205	195	205	208	212	209	226	227	230	
	4	112	97	112	110	119	133	142	139	155	
	5	781	764	781	789	811	821	844	851	868	
	6	549	524	549	559	560	557	572	587	513	
	7	778	794	778	782	808	811	820	827	836	
	8	751	728	751	739	720	724	719	711	700	
	9	30	39	30	30	46	43	31	28	22	
	10	137	141	137	140	119	105	100	111	127	
	11	100	104	100	94	95	96	82	76	72	
	12	929	942	929	925	884	884	878	861	842	
	13	306	305	306	308	318	315	318	310	*	Stair Walkway
	14	390	388	390	397	387	372	368	382	386	
	15	976	983	976	974	962	961	959	962	964	
	16	214	239	214	210	195	211	198	195	184	
Total Feet		25.3314	50.643		50.6955		50.6398		49.5243		
Average		1.58321	1.5826		1.68985		1.58249		1.59756		

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-036

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188
Station	Reference								
1	33.355	33.710	33.355	33.198	33.040	33.001	33.001	32.962	32.647
2	23.867	23.867	23.867	24.143	25.048	24.655	24.182	24.615	24.340
3	7.883	7.489	7.883	8.001	8.158	8.040	8.710	8.749	8.867
4	4.221	3.631	4.221	4.143	4.497	5.048	5.403	5.284	5.914
5	30.560	29.891	30.560	30.875	31.741	32.135	33.040	33.316	33.985
6	21.426	20.442	21.426	21.820	21.859	21.741	22.332	22.922	20.009
7	30.442	31.072	30.442	30.599	31.623	31.741	32.095	32.371	32.725
8	29.379	28.473	29.379	28.906	28.158	28.316	28.119	27.804	27.371
9	0.993	1.347	0.993	0.993	1.623	1.505	1.032	0.914	0.678
10	5.206	5.363	5.206	5.324	4.497	3.946	3.749	4.182	4.812
11	3.749	3.906	3.749	3.513	3.552	3.592	3.040	2.804	2.647
12	36.387	36.899	36.387	36.229	34.615	34.615	34.379	33.710	32.962
13	11.859	11.820	11.859	11.938	12.332	12.214	12.332	12.017	*
14	15.166	15.088	15.166	15.442	15.048	14.458	14.300	14.851	15.009
15	38.237	38.513	38.237	38.158	37.686	37.647	37.568	37.686	37.765
16	8.237	9.221	8.237	8.080	7.489	8.119	7.607	7.489	7.056

12/06/2017

CO-OP Refinery Complex — 16 Stations at 4'10 7/8" apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-036

Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1	0.000	-0.354	0.000	0.157	0.315	0.354	0.354	0.394	0.709
2	0.000	0.000	0.000	-0.276	-1.181	-0.787	-0.315	-0.748	-0.472
3	0.000	0.394	0.000	-0.118	-0.276	-0.157	-0.827	-0.866	-0.984
4	0.000	0.591	0.000	0.079	-0.276	-0.827	-1.181	-1.063	-1.693
5	0.000	0.669	0.000	-0.315	-1.181	-1.575	-2.480	-2.756	-3.425
6	0.000	0.984	0.000	-0.394	-0.433	-0.315	-0.906	-1.496	1.417
7	0.000	-0.630	0.000	-0.157	-1.181	-1.299	-1.654	-1.929	-2.283
8	0.000	0.906	0.000	0.472	1.220	1.063	1.260	1.575	2.008
9	0.000	-0.354	0.000	0.000	-0.630	-0.512	-0.039	0.079	0.315
10	0.000	-0.157	0.000	-0.118	0.709	1.260	1.457	1.024	0.394
11	0.000	-0.157	0.000	0.236	0.197	0.157	0.709	0.945	1.102
12	0.000	-0.512	0.000	0.157	1.772	1.772	2.008	2.677	3.425
13	0.000	0.039	0.000	-0.079	-0.472	-0.354	-0.472	-0.157	*
14	0.000	0.079	0.000	-0.276	0.118	0.709	0.866	0.315	0.157
15	0.000	-0.276	0.000	0.079	0.551	0.591	0.669	0.551	0.472
16	0.000	-0.984	0.000	0.157	0.748	0.118	0.630	0.748	1.181

Maximum Offset SET IN: -3.425

Maximum Offset SET OUT: 3.425

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-036

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	0	-0.709	0.000	0.157	-0.315	-0.157	0.315	0.472	1.024
2 & 10	0	-0.157	0.000	-0.394	-0.472	0.472	1.142	0.276	-0.079
3 & 11	0	0.236	0.000	0.118	-0.079	0.000	-0.118	0.079	0.118
4 & 12	0	0.079	0.000	0.236	1.496	0.945	0.827	1.614	1.732
5 & 13	0	0.709	0.000	-0.394	-1.654	-1.929	-2.953	-2.913	*
6 & 14	0	1.063	0.000	-0.669	-0.315	0.394	-0.039	-1.181	1.575
7 & 15	0	-0.906	0.000	-0.079	-0.630	-0.709	-0.984	-1.378	-1.811
8 & 16	0	-0.079	0.000	0.630	1.969	1.181	1.890	2.323	3.189

Opposing Stations

Maximum Tank SET IN	-2.953
Maximum Tank SET OUT	3.189

Opposing Offsets – Calculated Internal Diameter – Feet

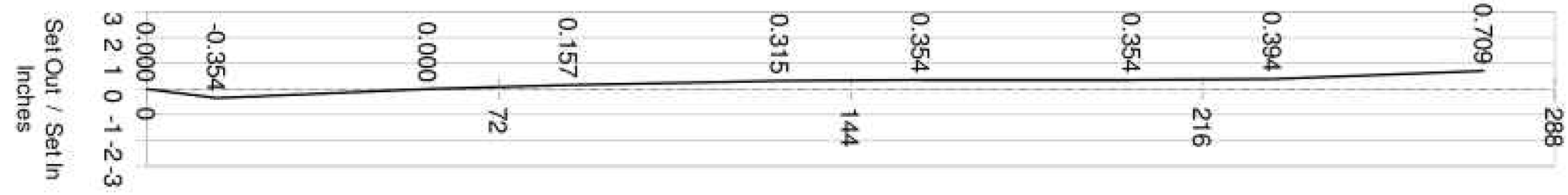
Course	0	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	24.956	24.897	24.956	24.969	24.930	24.943	24.982	24.995	25.041
2 & 10	24.956	24.943	24.956	24.923	24.917	24.995	25.051	24.979	24.949
3 & 11	24.956	24.976	24.956	24.966	24.949	24.956	24.946	24.963	24.966
4 & 12	24.956	24.963	24.956	24.976	25.081	25.035	25.025	25.091	25.100
5 & 13	24.956	25.015	24.956	24.923	24.818	24.795	24.710	24.713	*
6 & 14	24.956	25.045	24.956	24.900	24.930	24.989	24.953	24.858	25.087
7 & 15	24.956	24.881	24.956	24.949	24.903	24.897	24.874	24.841	24.805
8 & 16	24.956	24.949	24.956	25.008	25.120	25.054	25.113	25.150	25.222

Minimum Diameter (ft)	24.710
Maximum Diameter (ft)	25.222
Reference Circumference	78.5
Reference Diameter (ft)	24.956

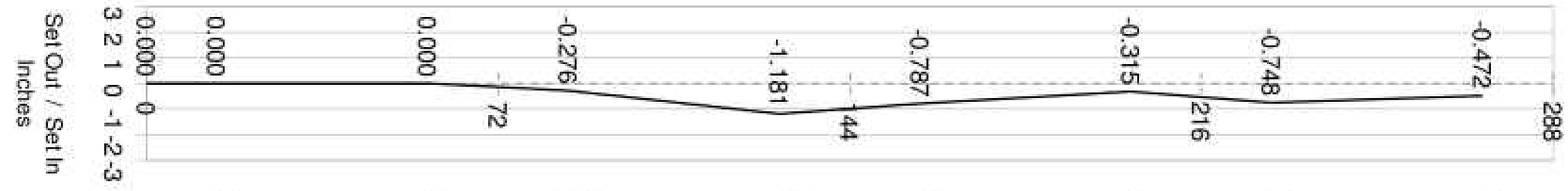
12/06/2017

Adjacent Stations

Station 1

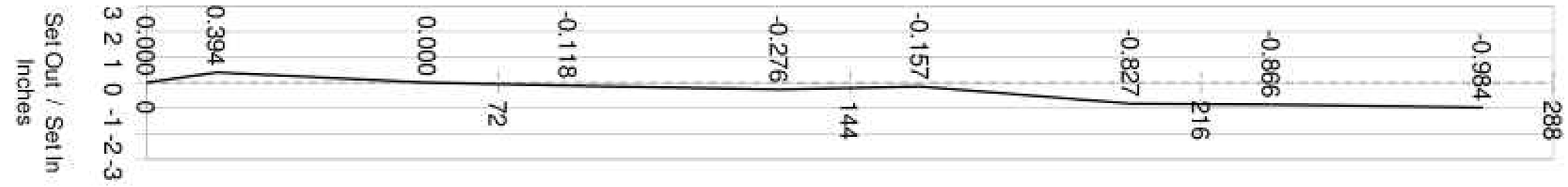


Station 2

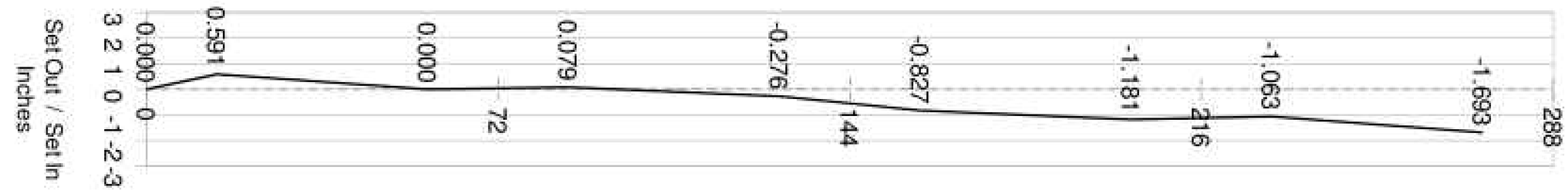


0% 20% 80% 20% 80% 20% 80% 20% 80%

Station 3



Station 4



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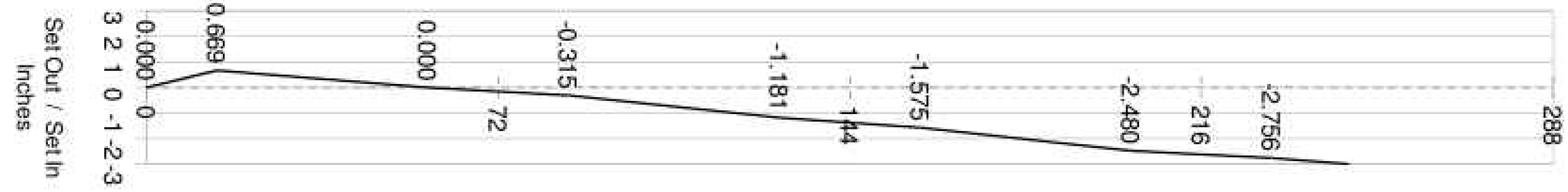
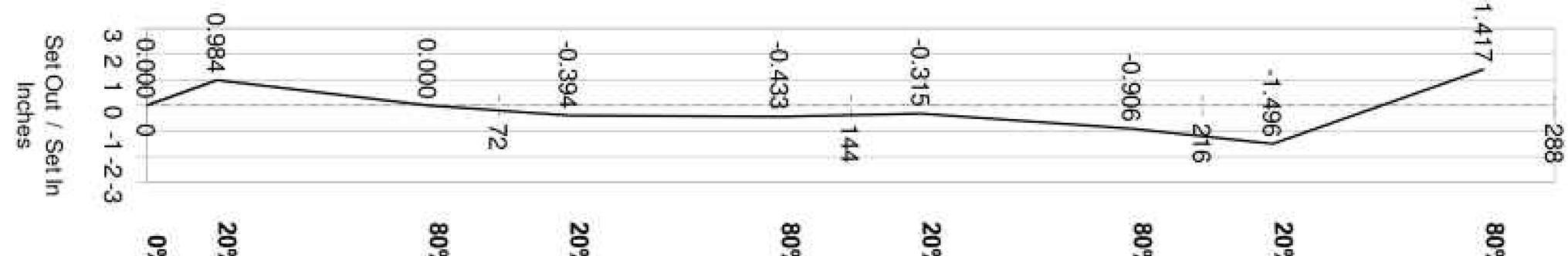
Adjacent Stations

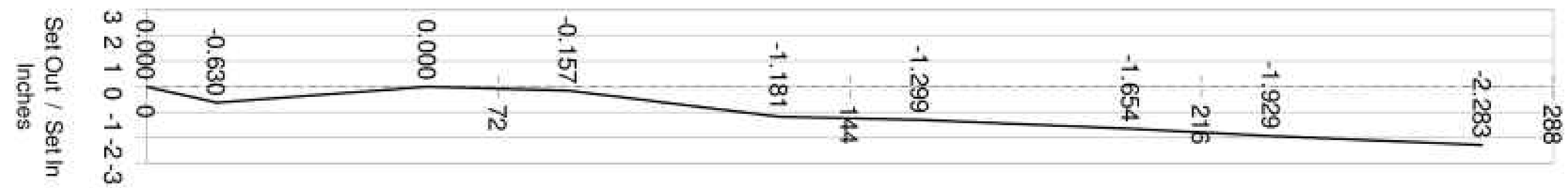
Station 5



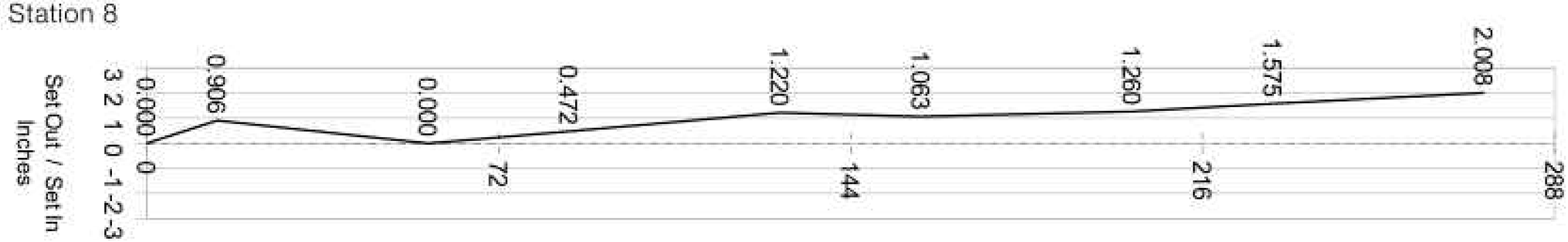
Station 6



Station 7



Station 8



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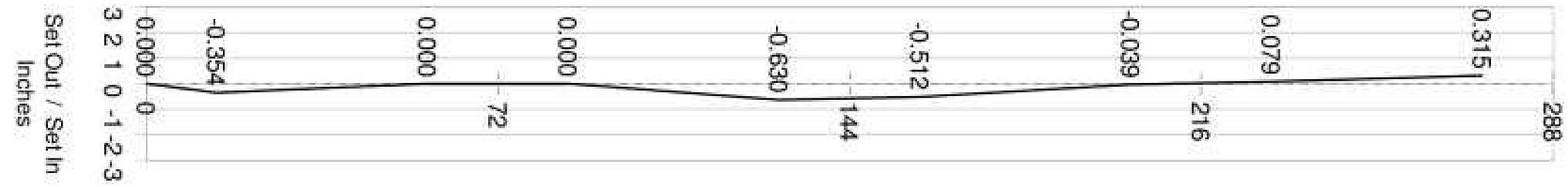
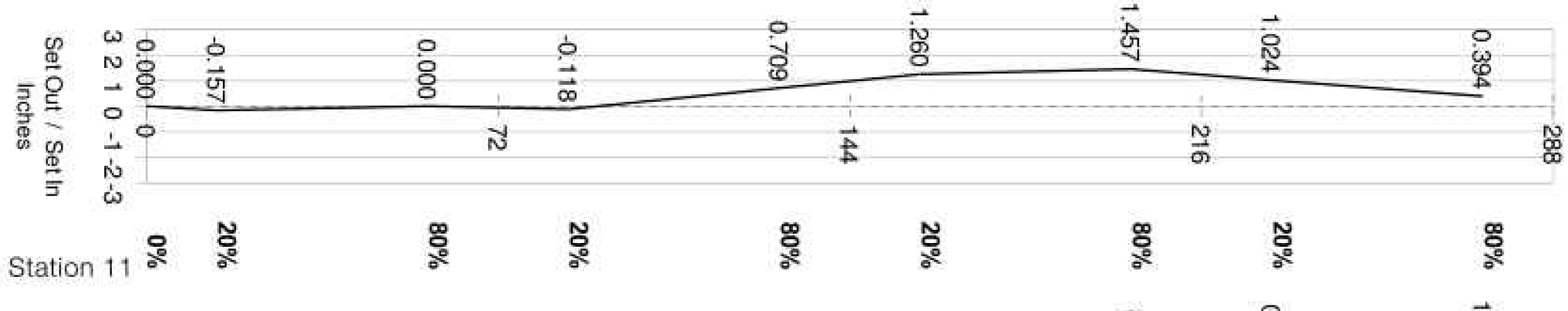
Adjacent Stations

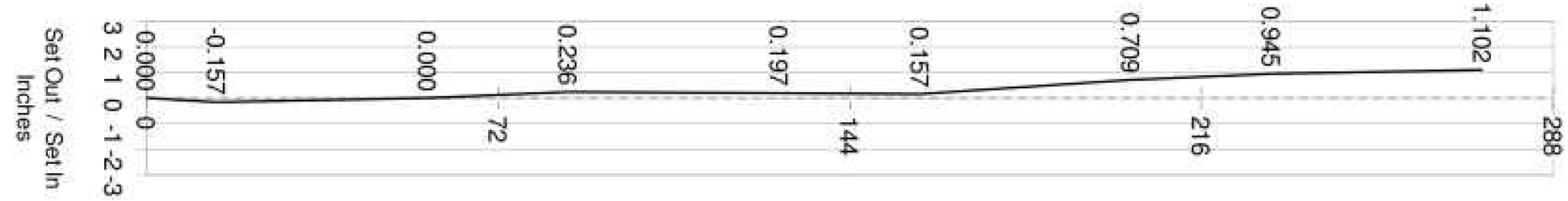
Station 9



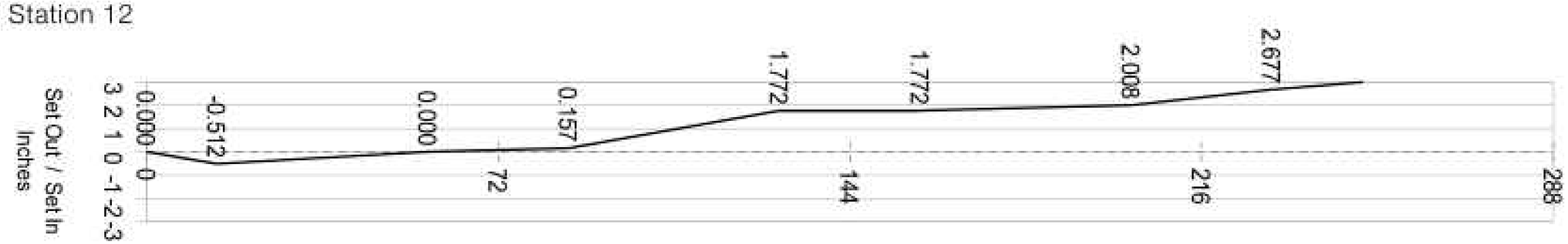
Station 10



Station 11



Station 12

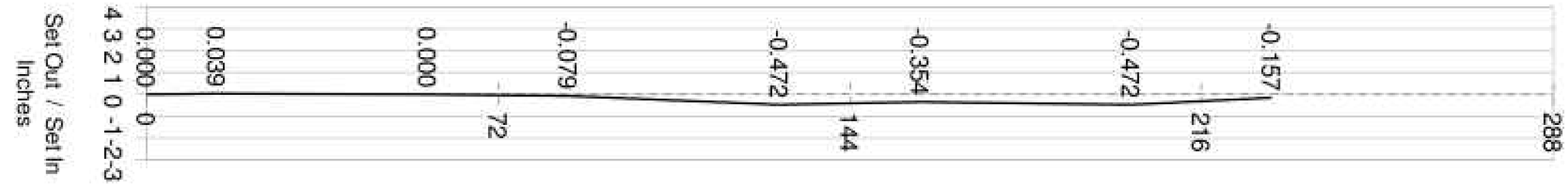


0% 20% 80% 20% 80% 20% 80% 20% 80%

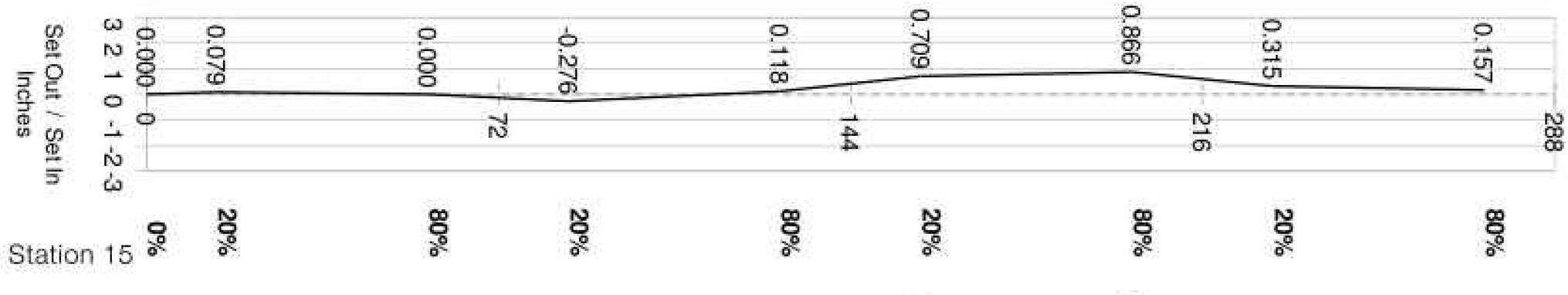
12/06/2017

Adjacent Stations

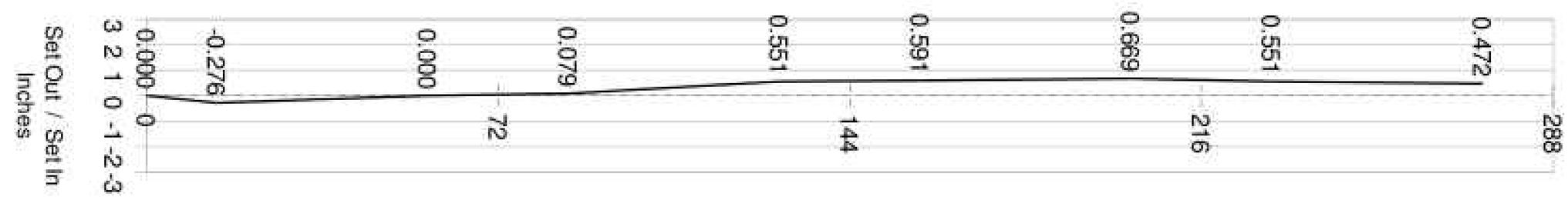
Station 13



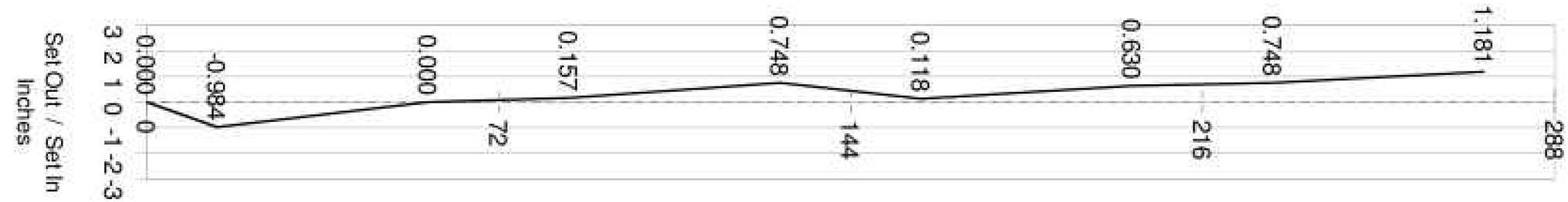
Station 14



Station 15

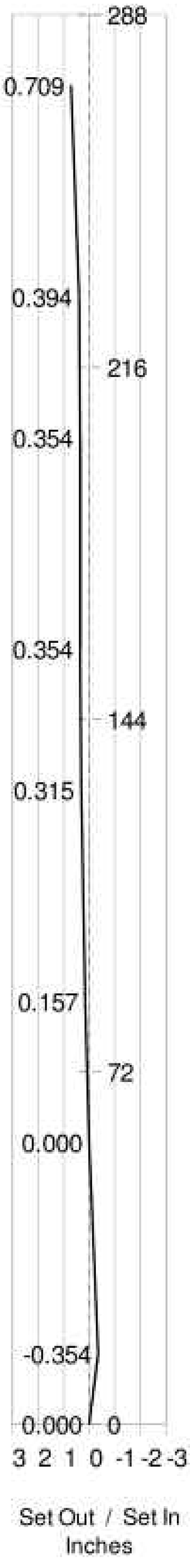


Station 16



Opposing Stations

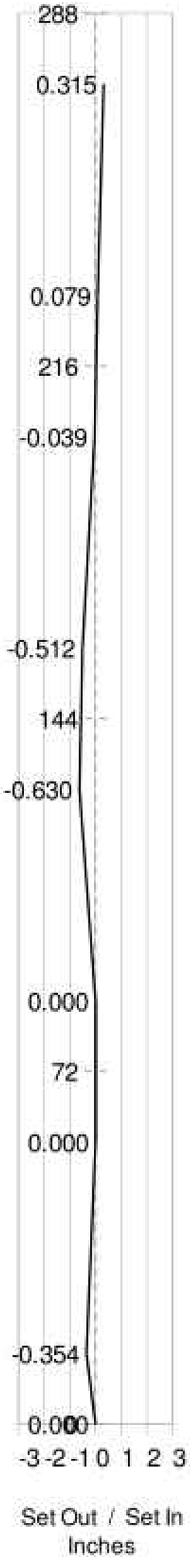
Internal Diameter (ft)



Station 1

25.041	
24.995	
24.982	
24.943	
24.930	
24.969	
24.956	
24.897	
24.956	

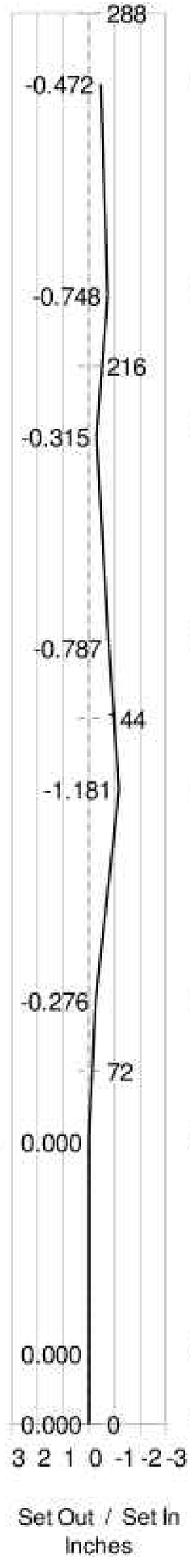
Internal Diameter (ft)



Station 9

80%	
20%	
80%	
20%	
80%	
20%	
80%	
20%	
0%	

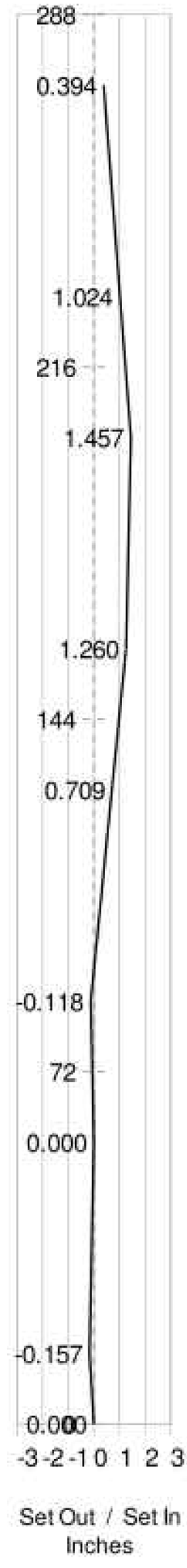
Internal Diameter (ft)



Station 2

24.949	
24.979	
25.051	
24.995	
24.917	
24.923	
24.956	
24.943	
24.956	

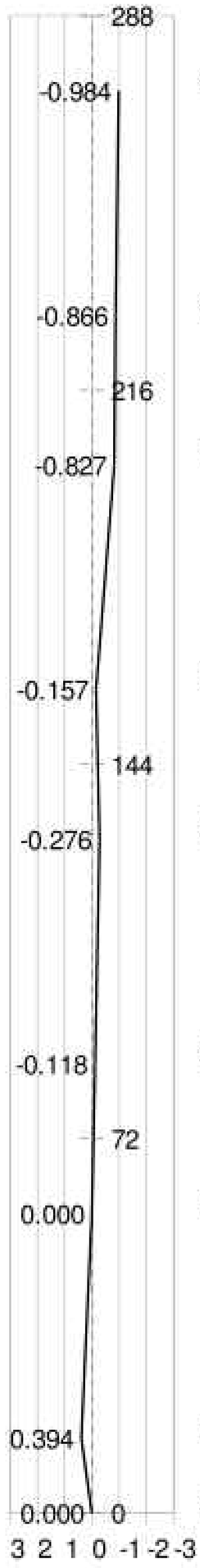
Internal Diameter (ft)



Station 10

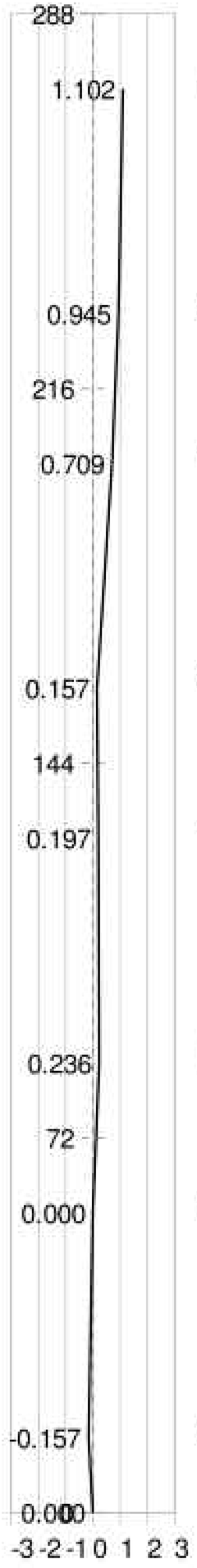
Opposing Stations

Internal Diameter (ft)

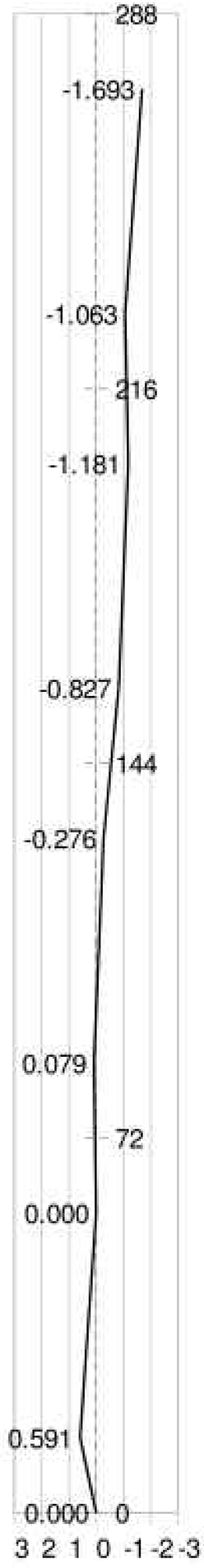


Station 3

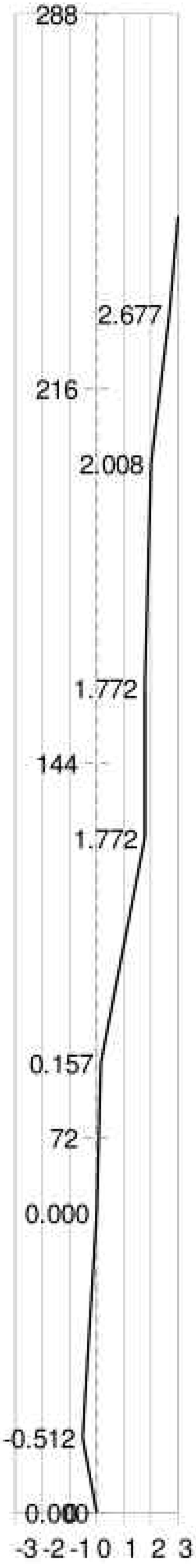
24.966	
	80%
24.963	
	20%
24.946	
	80%
24.956	
	20%
24.949	
	80%
24.966	
	20%
24.956	
	80%
24.976	
	20%
24.956	
	0%



Station 11



Station 4

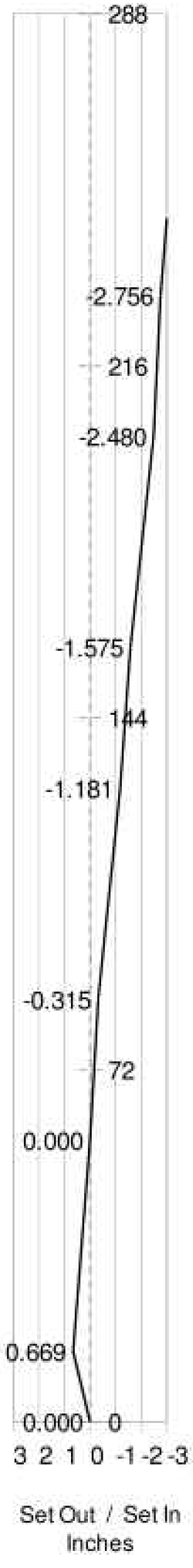


Station 12

25.100	
	80%
25.091	
	20%
25.025	
	80%
25.035	
	20%
25.081	
	80%
24.976	
	20%
24.956	
	80%
24.963	
	20%
24.956	
	0%

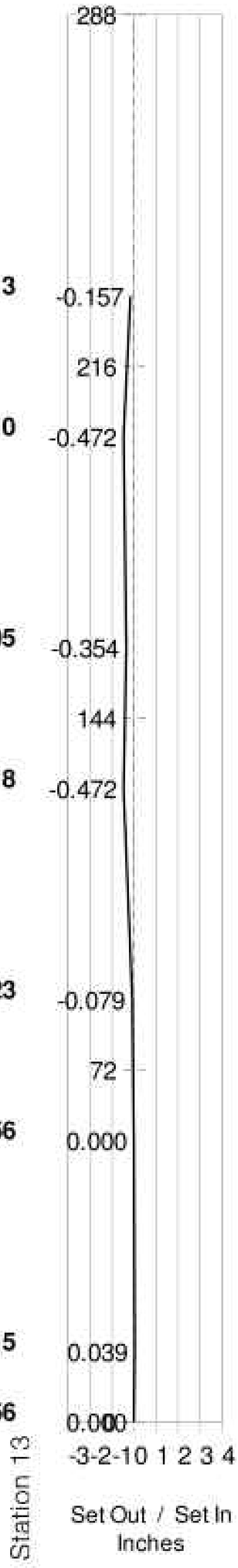
Opposing Stations

Internal Diameter (ft)



Station 5

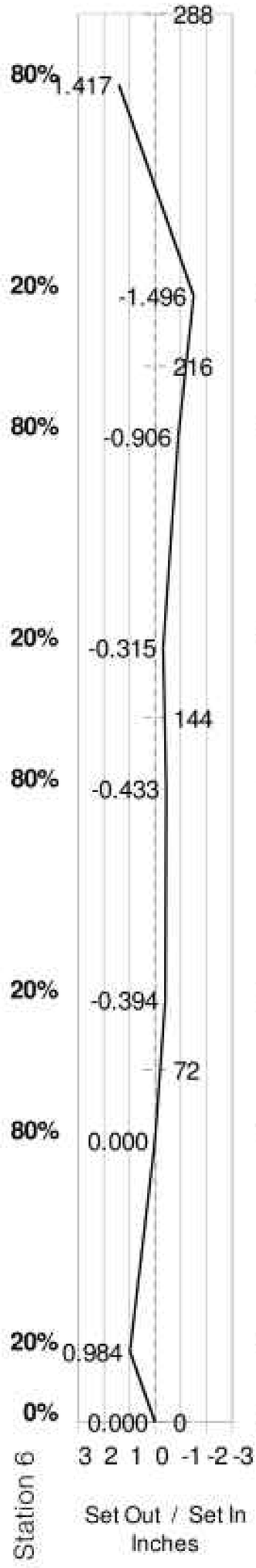
Set Out / Set In
Inches



Station 13

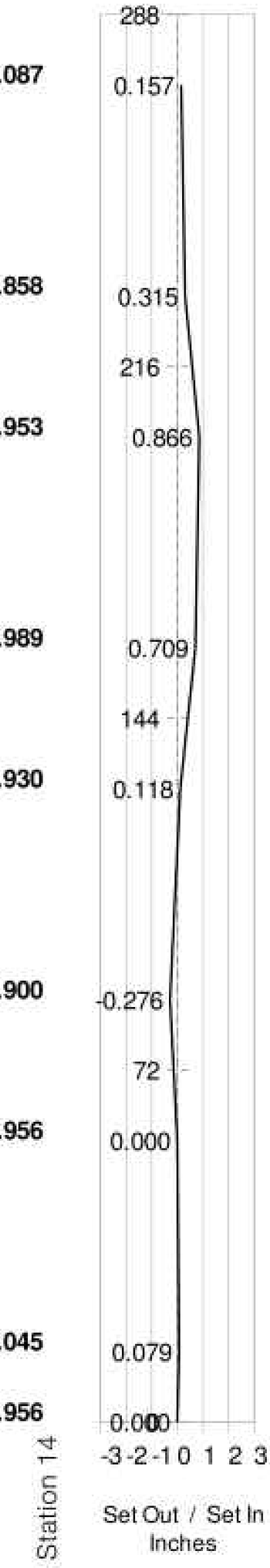
Set Out / Set In
Inches

Internal Diameter (ft)



Station 6

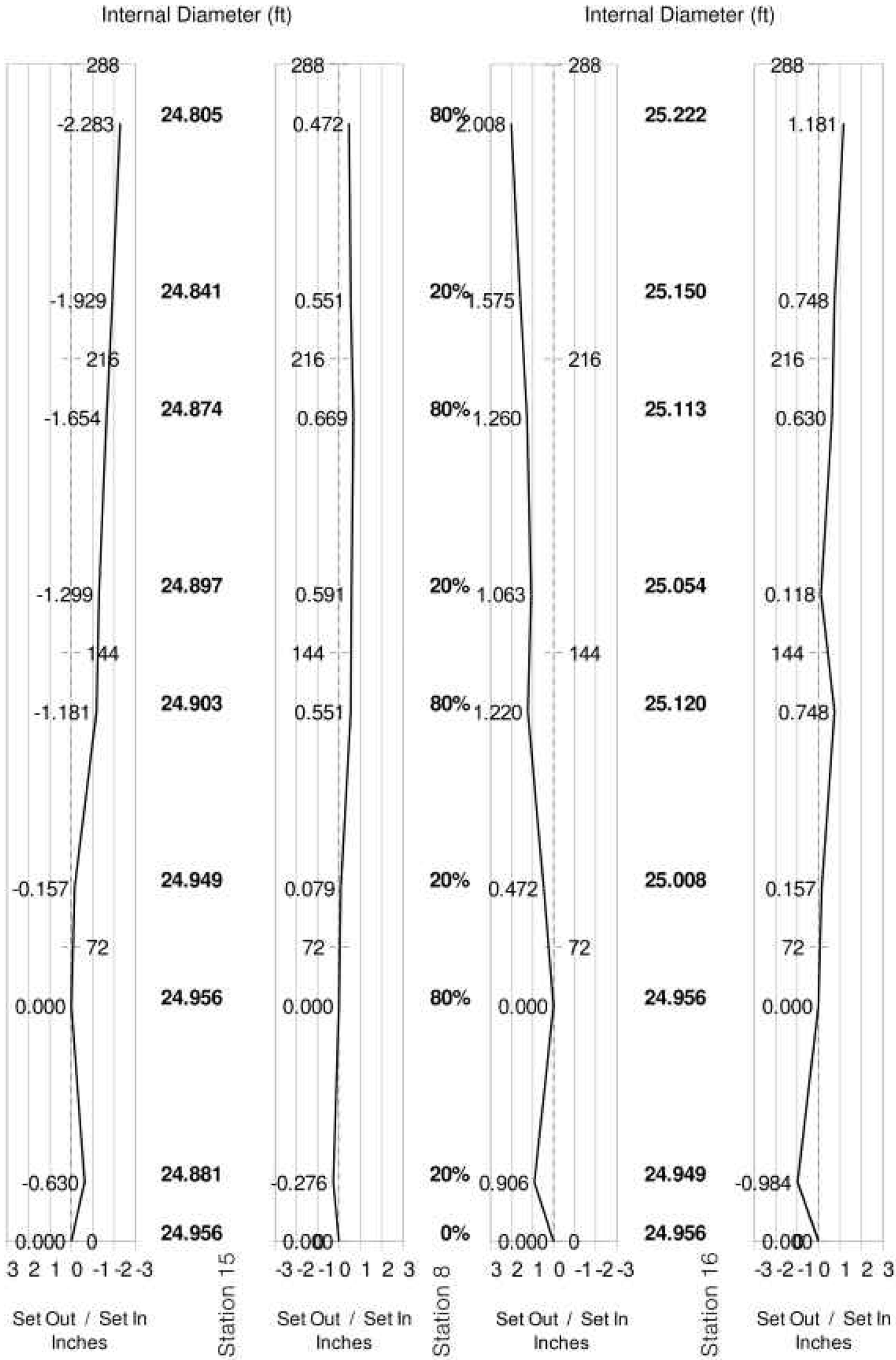
Set Out / Set In
Inches



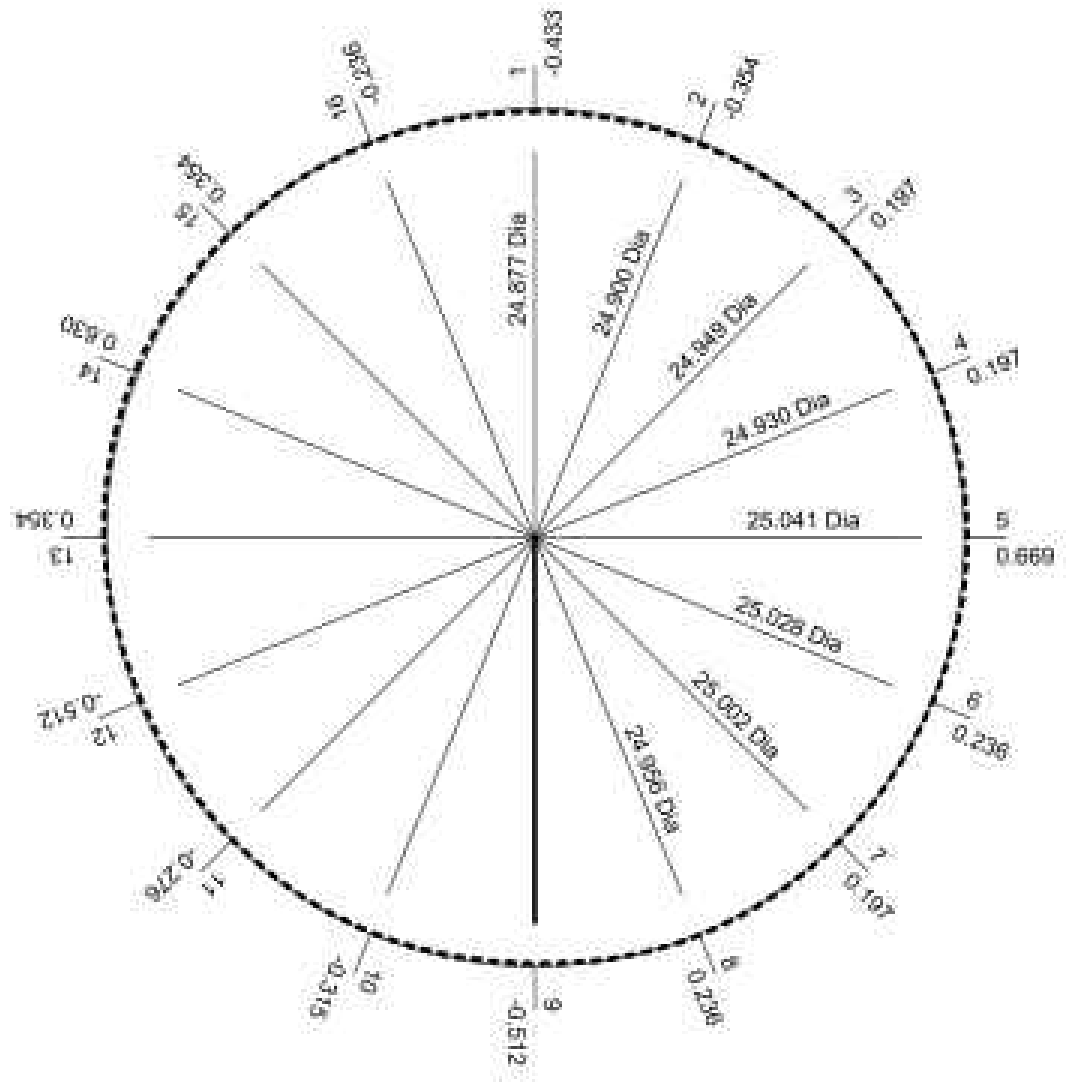
Station 14

Set Out / Set In
Inches

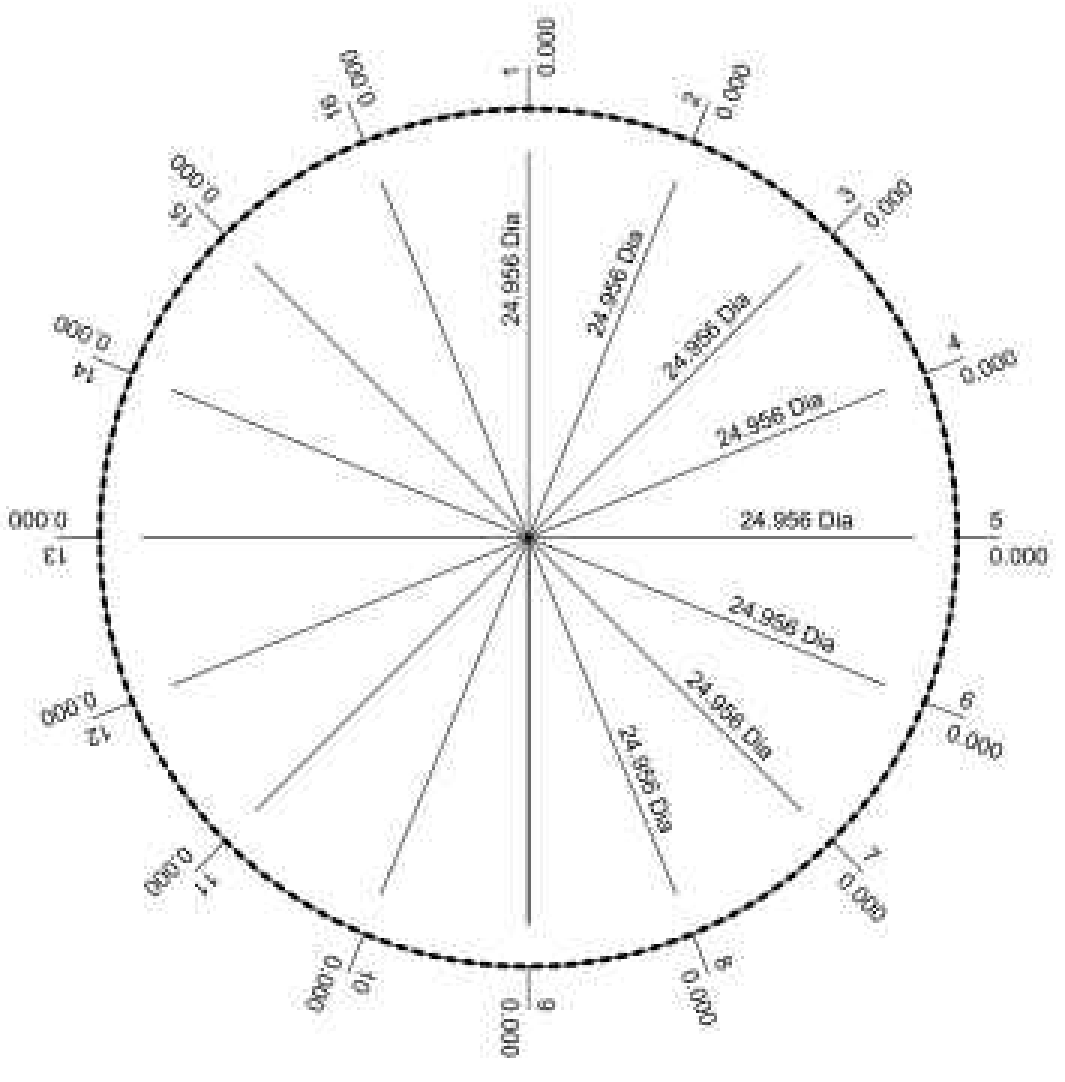
Opposing Stations



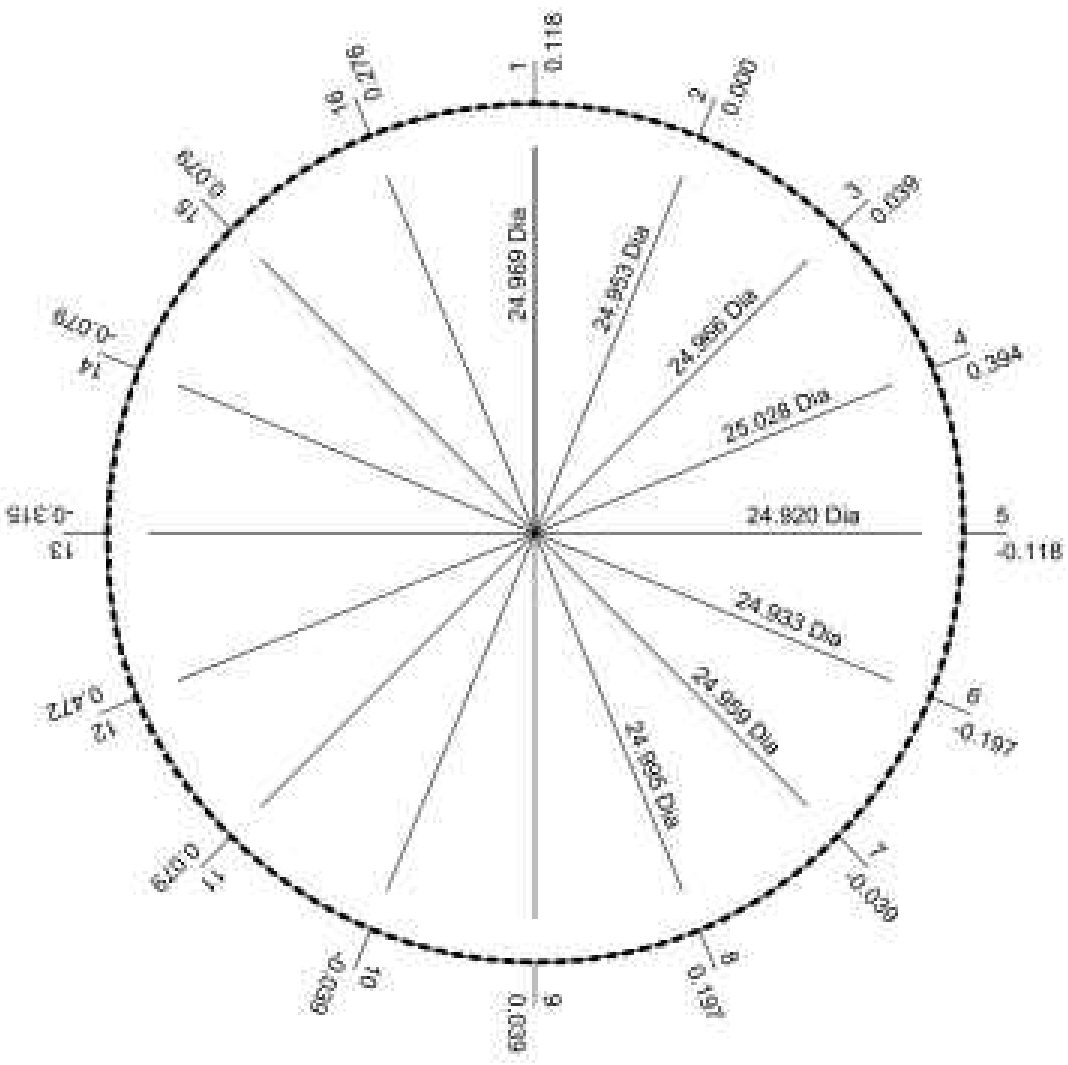
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-037
RING OFFSETS



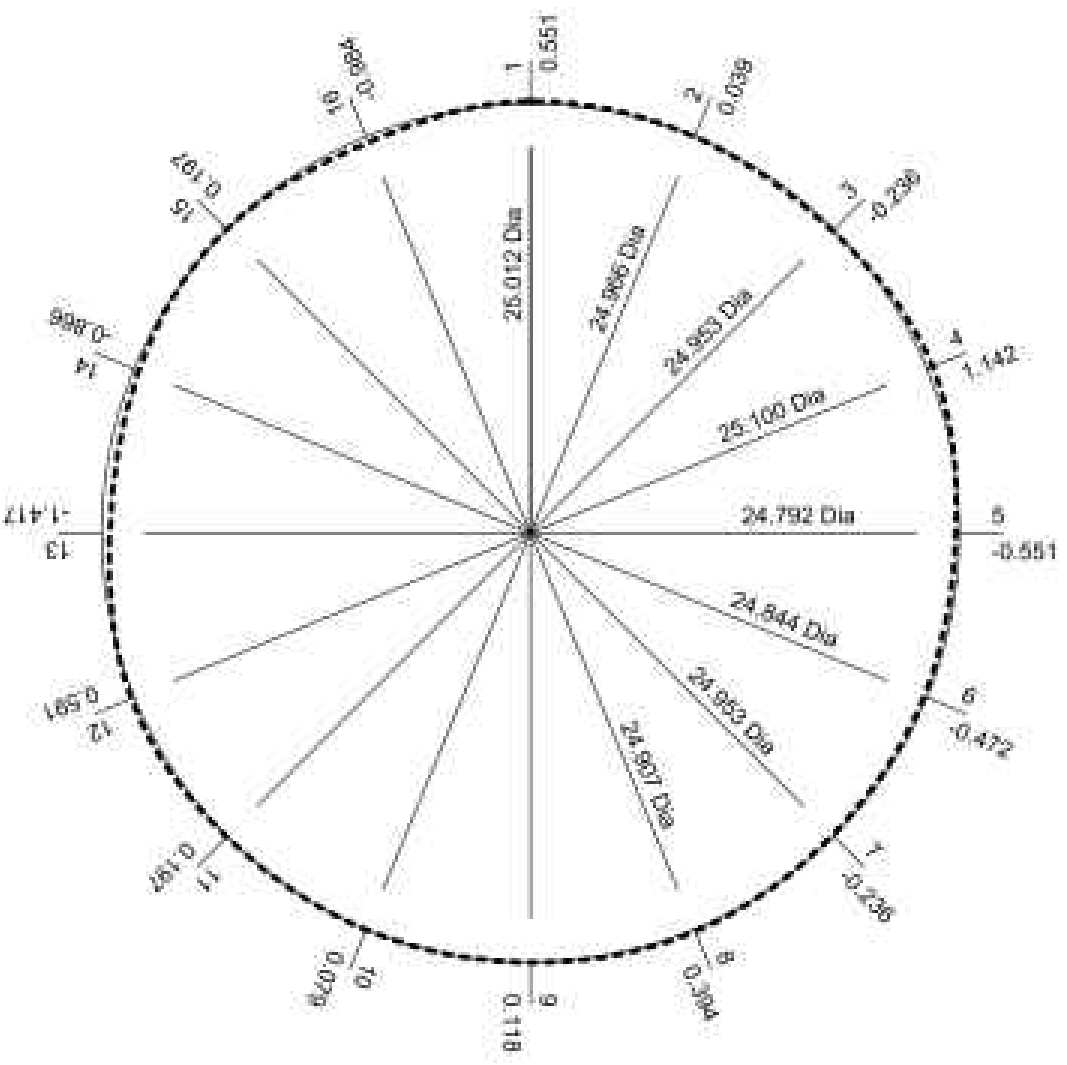
RING #1 20%



RING #1 80%

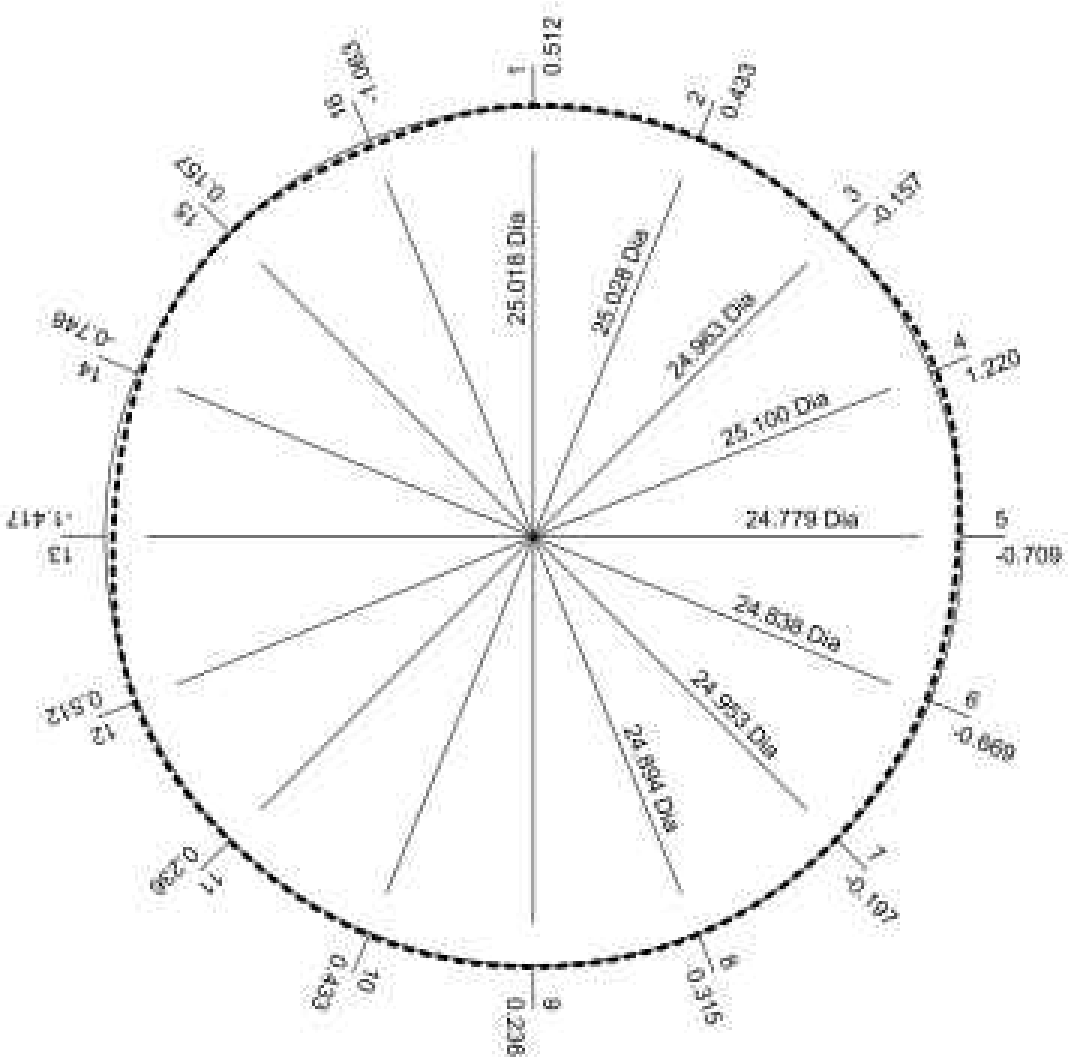


RING #2 20%

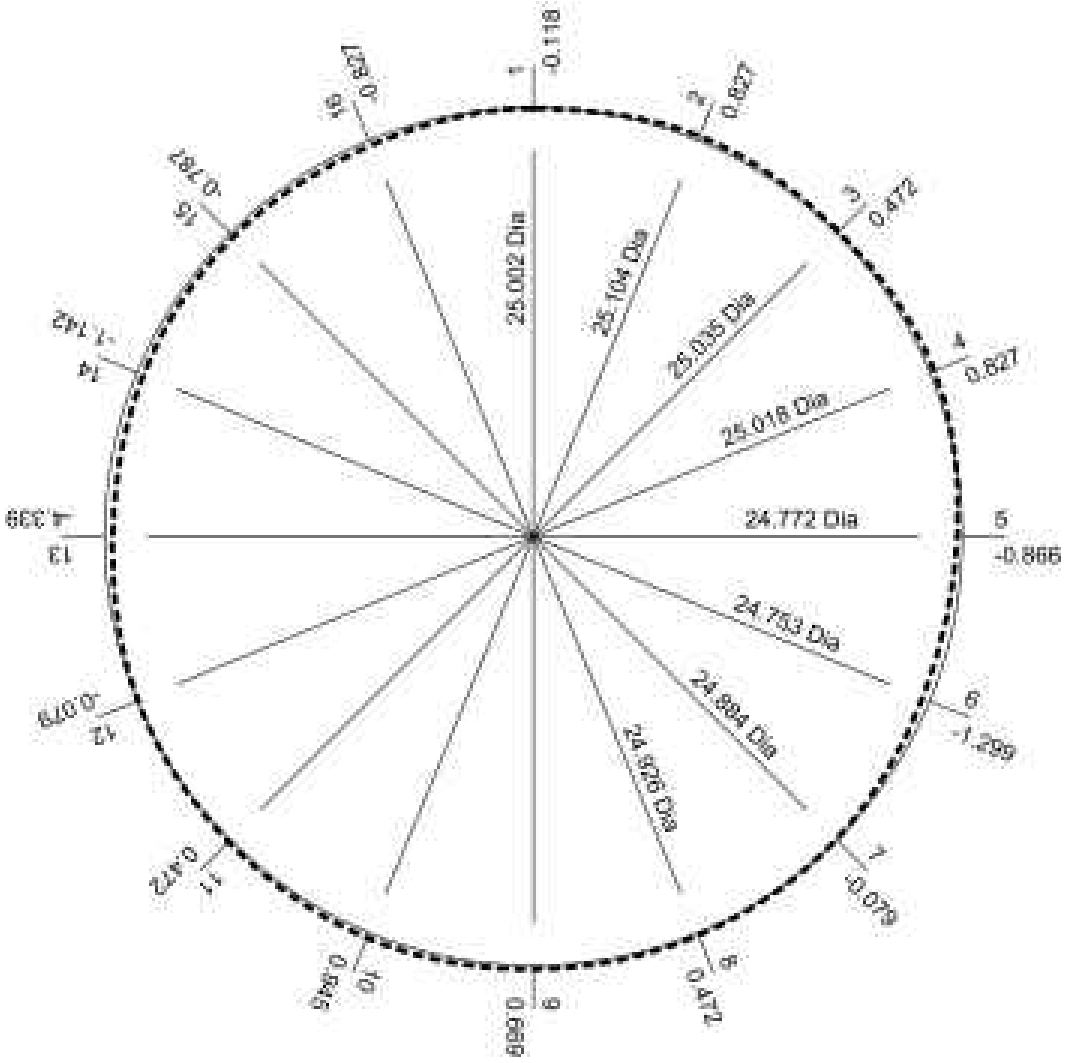


RING #2 80%

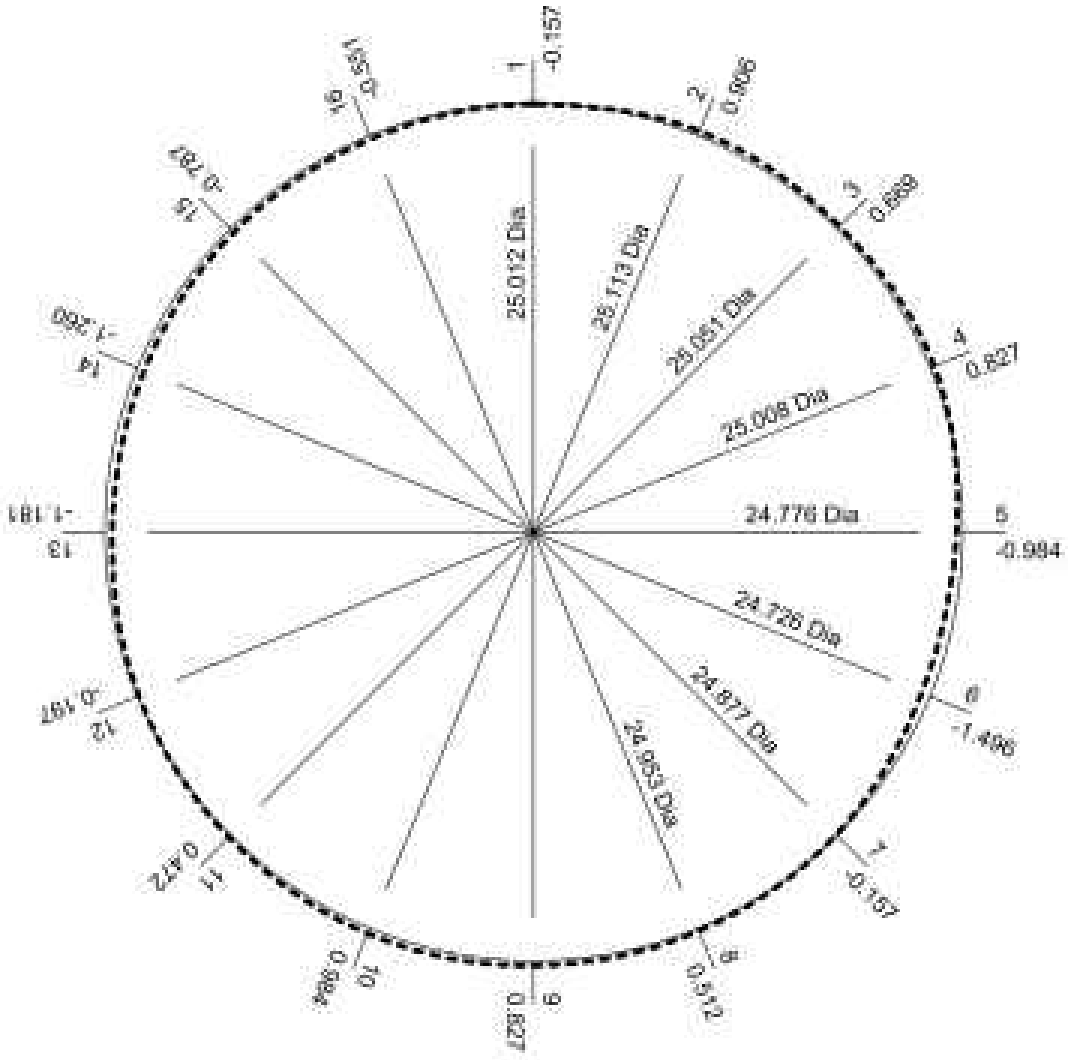
CO-OP REFINERY COMPLEX
REGINA, SK
TANK #54-10-037
RING OFFSETS



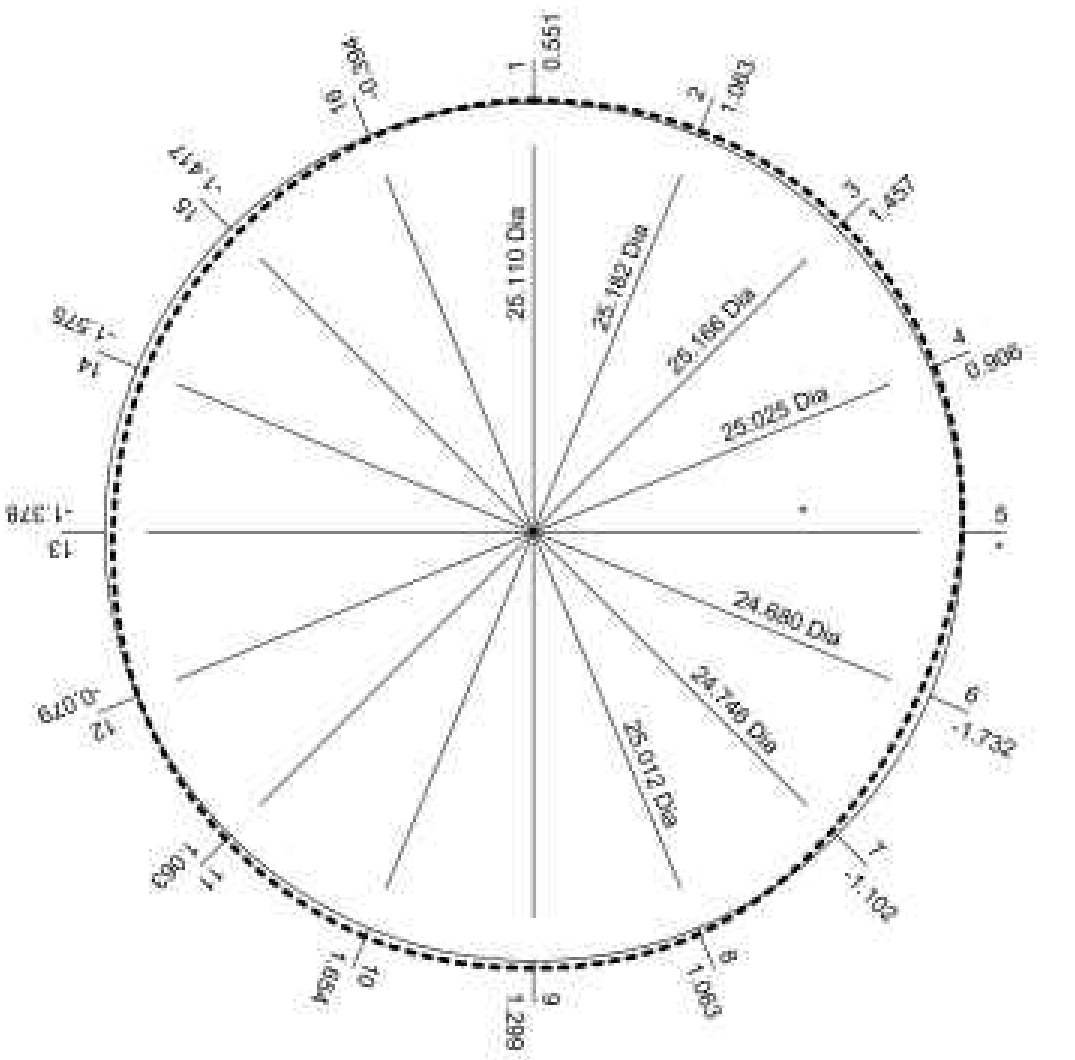
RING #3 20%



RING #3 80%



RING #4 20%



RING #4 80%

*Graph representation not applicable for
Ring #4 80% - Station 5 due to walkway

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-037

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

External Optical Readings – Millimetres

Course	1	1	1	2	2	3	3	4	4	
% up	0	20%	80%	20%	80%	20%	80%	20%	80%	
Height (in)	0	14.4	57.6	86.4	129.6	158.4	201.6	230.4	273.6	
Station	Reference									
1	609	620	609	606	595	596	612	613	595	
2	252	261	252	252	251	241	231	229	225	
3	1013	1008	1013	1012	1019	1017	1001	996	976	
4	753	748	753	743	724	722	732	732	730	
5	773	756	773	776	787	791	795	798	*	Stair Walkway
6	581	575	581	586	593	598	614	619	625	
7	229	224	229	230	235	234	231	233	257	
8	453	447	453	448	443	445	441	440	426	
9	63	76	63	62	60	57	46	42	30	
10	400	408	400	401	398	389	376	375	358	
11	398	405	398	396	393	392	386	386	371	
12	338	351	338	326	323	325	340	343	340	
13	165	156	165	173	201	201	199	195	200	
14	261	245	261	263	283	280	290	293	301	
15	883	874	883	881	878	879	903	903	919	
16	964	970	964	957	989	991	985	978	974	
Total Feet	26.6896		53.3432		53.4252		53.6089		50.8596	
Average	1.6681		1.66697		1.78084		1.67528		1.64063	

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-037

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Internal Opticals – Inches – Corrected for Plate Thickness

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Plate T (in)	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188	0.188
Station	Reference								
1	23.788	24.221	23.788	23.670	23.237	23.277	23.906	23.946	23.237
2	9.733	10.088	9.733	9.733	9.694	9.300	8.906	8.828	8.670
3	39.694	39.497	39.694	39.655	39.930	39.851	39.221	39.025	38.237
4	29.458	29.261	29.458	29.064	28.316	28.237	28.631	28.631	28.552
5	30.245	29.576	30.245	30.363	30.796	30.954	31.111	31.229	*
6	22.686	22.450	22.686	22.883	23.158	23.355	23.985	24.182	24.418
7	8.828	8.631	8.828	8.867	9.064	9.025	8.906	8.985	9.930
8	17.647	17.410	17.647	17.450	17.253	17.332	17.174	17.135	16.584
9	2.292	2.804	2.292	2.253	2.174	2.056	1.623	1.466	0.993
10	15.560	15.875	15.560	15.599	15.481	15.127	14.615	14.576	13.906
11	15.481	15.757	15.481	15.403	15.284	15.245	15.009	15.009	14.418
12	13.119	13.631	13.119	12.647	12.529	12.607	13.198	13.316	13.198
13	6.308	5.954	6.308	6.623	7.725	7.725	7.647	7.489	7.686
14	10.088	9.458	10.088	10.166	10.954	10.836	11.229	11.347	11.662
15	34.576	34.221	34.576	34.497	34.379	34.418	35.363	35.363	35.993
16	37.765	38.001	37.765	37.489	38.749	38.828	38.592	38.316	38.158

12/06/2017

CO-OP Refinery Complex — 16 Stations at 4'10 7/8" apart
Regina, SK — Station 1 @ Nameplate Manway, increasing counter-clockwise
Tank #54-10-037

Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1	0.000	-0.433	0.000	0.118	0.551	0.512	-0.118	-0.157	0.551
2	0.000	-0.354	0.000	0.000	0.039	0.433	0.827	0.906	1.063
3	0.000	0.197	0.000	0.039	-0.236	-0.157	0.472	0.669	1.457
4	0.000	0.197	0.000	0.394	1.142	1.220	0.827	0.827	0.906
5	0.000	0.669	0.000	-0.118	-0.551	-0.709	-0.866	-0.984	*
6	0.000	0.236	0.000	-0.197	-0.472	-0.669	-1.299	-1.496	-1.732
7	0.000	0.197	0.000	-0.039	-0.236	-0.197	-0.079	-0.157	-1.102
8	0.000	0.236	0.000	0.197	0.394	0.315	0.472	0.512	1.063
9	0.000	-0.512	0.000	0.039	0.118	0.236	0.669	0.827	1.299
10	0.000	-0.315	0.000	-0.039	0.079	0.433	0.945	0.984	1.654
11	0.000	-0.276	0.000	0.079	0.197	0.236	0.472	0.472	1.063
12	0.000	-0.512	0.000	0.472	0.591	0.512	-0.079	-0.197	-0.079
13	0.000	0.354	0.000	-0.315	-1.417	-1.417	-1.339	-1.181	-1.378
14	0.000	0.630	0.000	-0.079	-0.866	-0.748	-1.142	-1.260	-1.575
15	0.000	0.354	0.000	0.079	0.197	0.157	-0.787	-0.787	-1.417
16	0.000	-0.236	0.000	0.276	-0.984	-1.063	-0.827	-0.551	-0.394

Maximum Offset SET IN: -1.732

Maximum Offset SET OUT: 1.654

12/06/2017

CO-OP Refinery Complex
Regina, SK
Tank #54-10-037

16 Stations at 4'10 7/8" apart
Station 1 @ Nameplate Manway, increasing counter-clockwise

Opposing Internal Offsets – Inches – Negative Values = Tanks Set IN

Course	1	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	0	-0.945	0.000	0.157	0.669	0.748	0.551	0.669	1.850
2 & 10	0	-0.669	0.000	-0.039	0.118	0.866	1.772	1.890	2.717
3 & 11	0	-0.079	0.000	0.118	-0.039	0.079	0.945	1.142	2.520
4 & 12	0	-0.315	0.000	0.866	1.732	1.732	0.748	0.630	0.827
5 & 13	0	1.024	0.000	-0.433	-1.969	-2.126	-2.205	-2.165	*
6 & 14	0	0.866	0.000	-0.276	-1.339	-1.417	-2.441	-2.756	-3.307
7 & 15	0	0.551	0.000	0.039	-0.039	-0.039	-0.866	-0.945	-2.520
8 & 16	0	0.000	0.000	0.472	-0.591	-0.748	-0.354	-0.039	0.669

Opposing Stations

Maximum Tank SET IN	-3.307
Maximum Tank SET OUT	2.717

Opposing Offsets – Calculated Internal Diameter – Feet

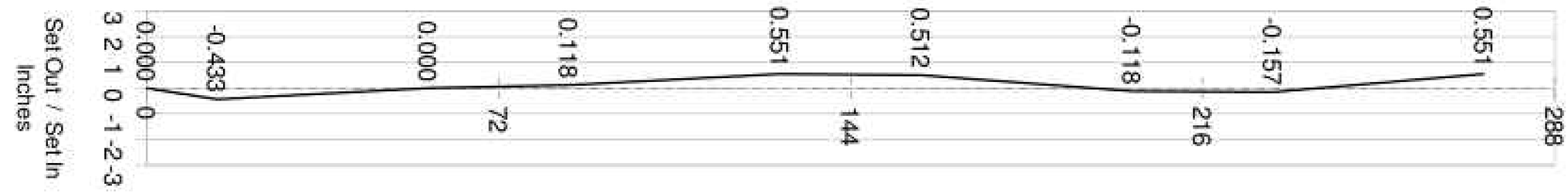
Course	0	1	1	2	2	3	3	4	4
% up	0%	20%	80%	20%	80%	20%	80%	20%	80%
Station	Reference								
1 & 9	24.956	24.877	24.956	24.969	25.012	25.018	25.002	25.012	25.110
2 & 10	24.956	24.900	24.956	24.953	24.966	25.028	25.104	25.113	25.182
3 & 11	24.956	24.949	24.956	24.966	24.953	24.963	25.035	25.051	25.166
4 & 12	24.956	24.930	24.956	25.028	25.100	25.100	25.018	25.008	25.025
5 & 13	24.956	25.041	24.956	24.920	24.792	24.779	24.772	24.776	*
6 & 14	24.956	25.028	24.956	24.933	24.844	24.838	24.753	24.726	24.680
7 & 15	24.956	25.002	24.956	24.959	24.953	24.953	24.884	24.877	24.746
8 & 16	24.956	24.956	24.956	24.995	24.907	24.894	24.926	24.953	25.012

Minimum Diameter (ft)	24.680
Maximum Diameter (ft)	25.182
Reference Circumference	78.5
Reference Diameter (ft)	24.956

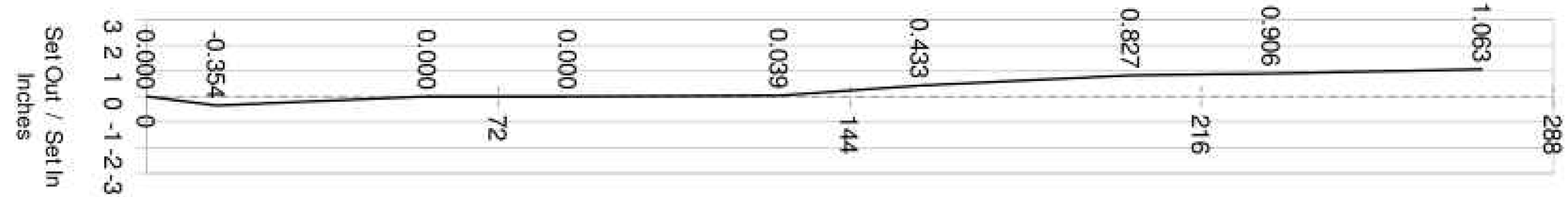
12/06/2017

Adjacent Stations

Station 1

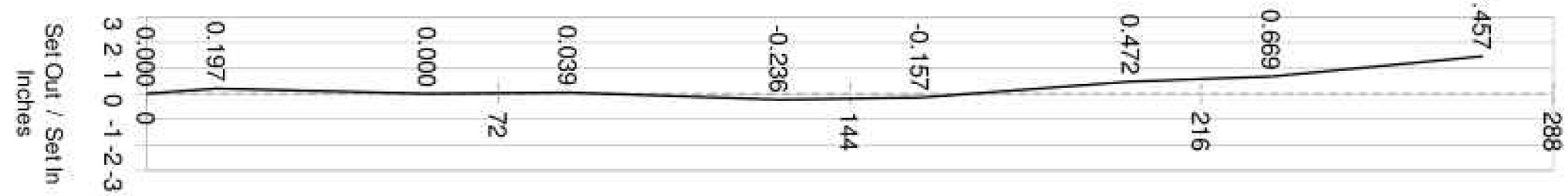


Station 2

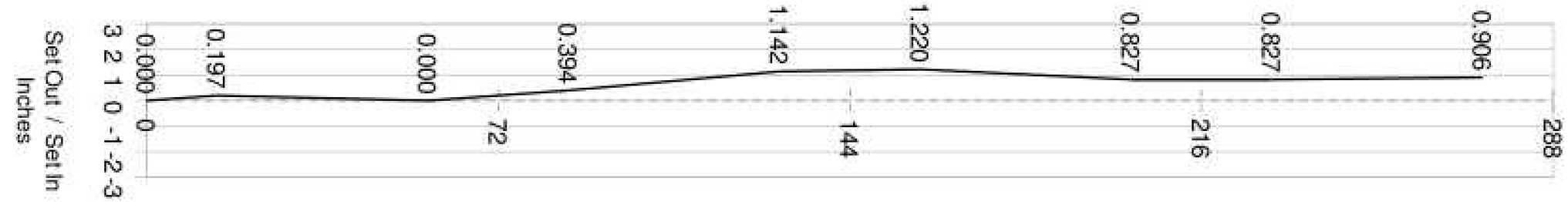


0% 20% 80% 20% 80% 20% 80% 20% 80%

Station 3



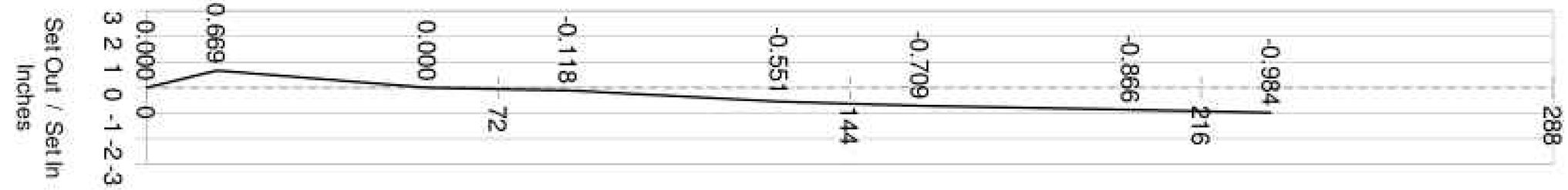
Station 4



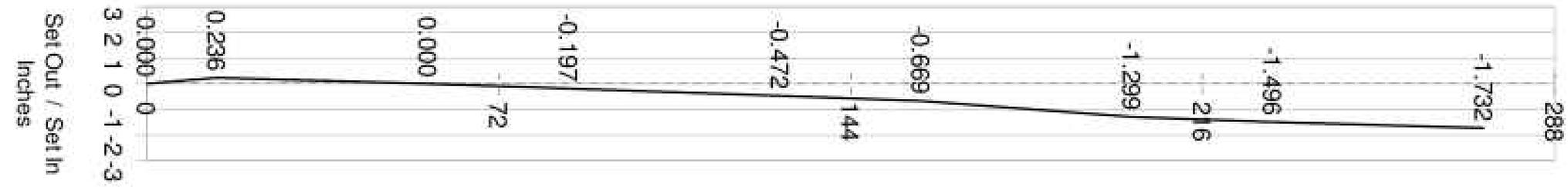
12/06/2017

Adjacent Stations

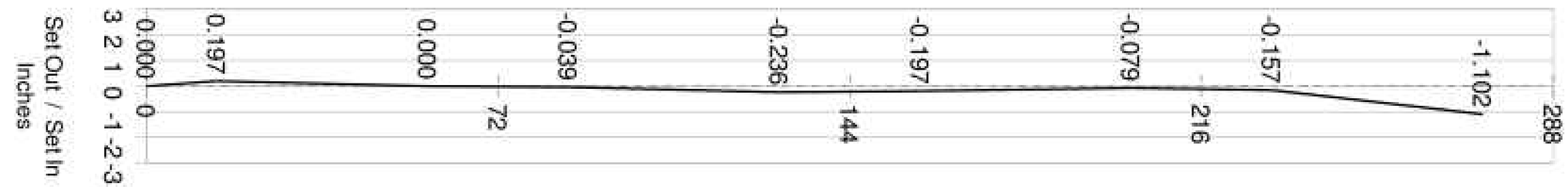
Station 5



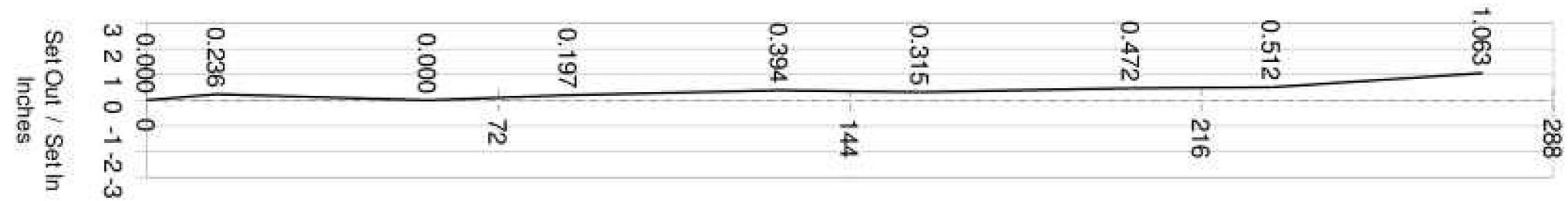
Station 6



Station 7



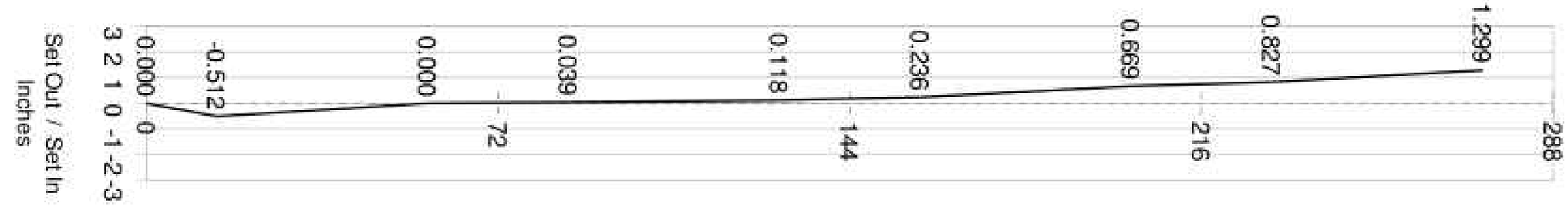
Station 8



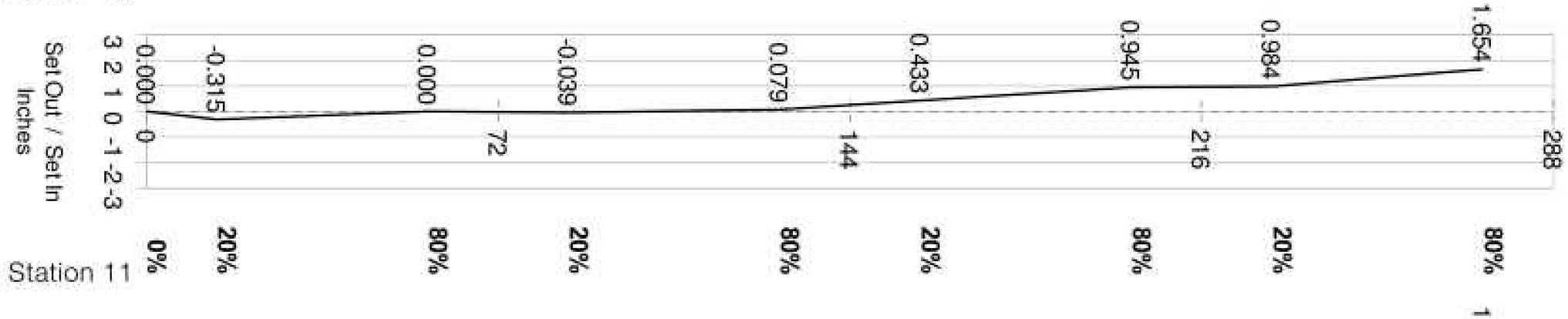
12/06/2017

Adjacent Stations

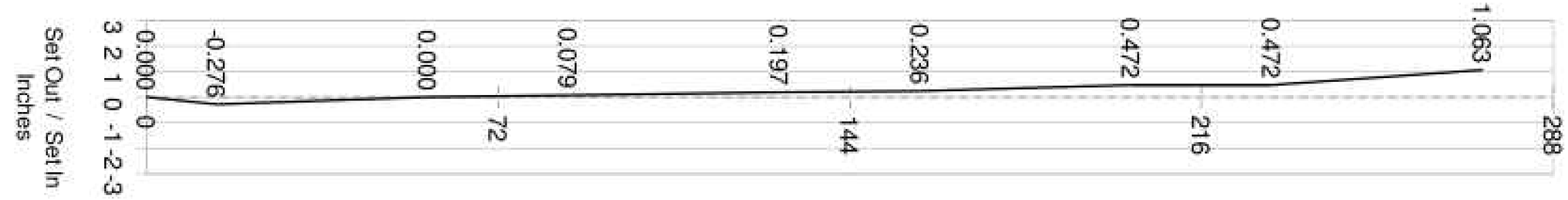
Station 9



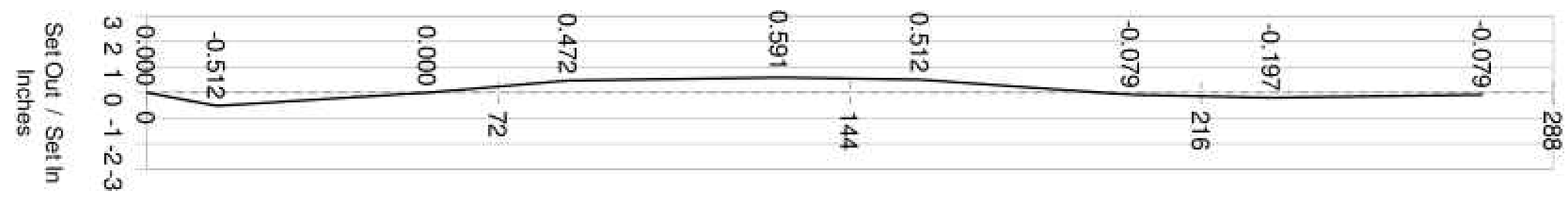
Station 10



Station 11



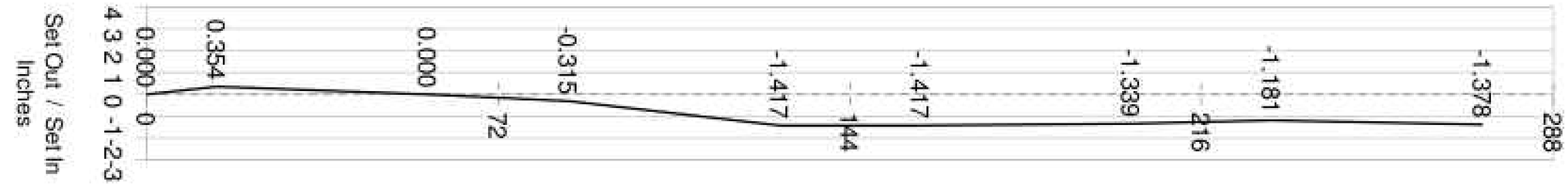
Station 12



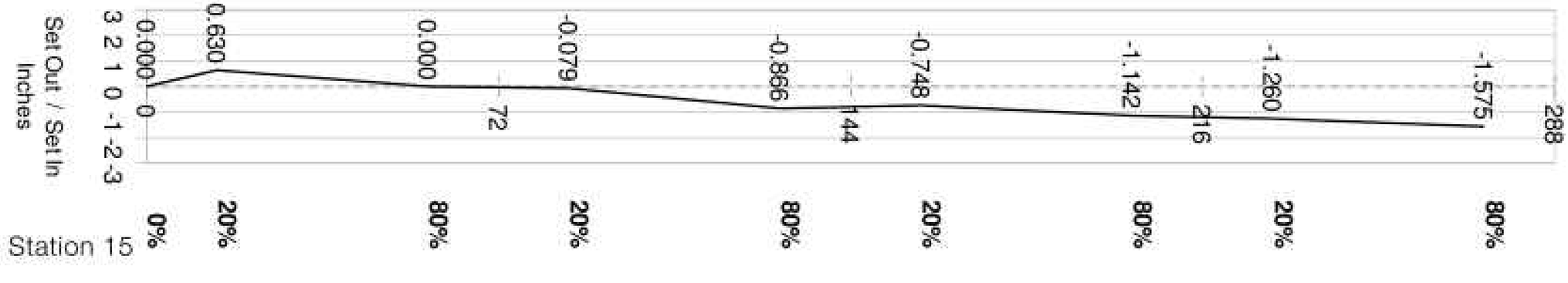
12/06/2017

Adjacent Stations

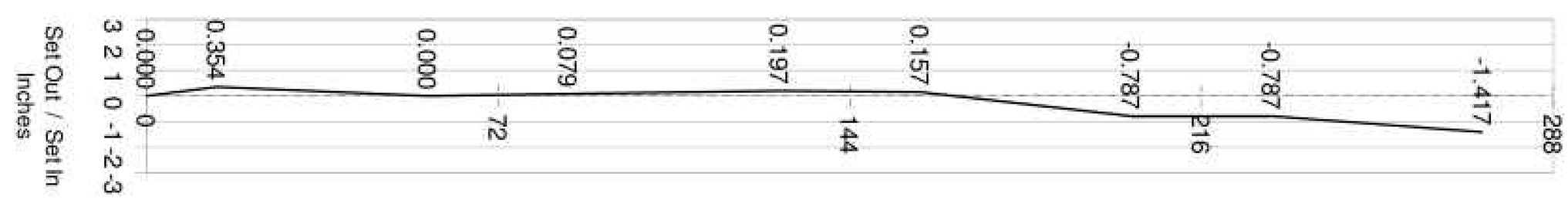
Station 13



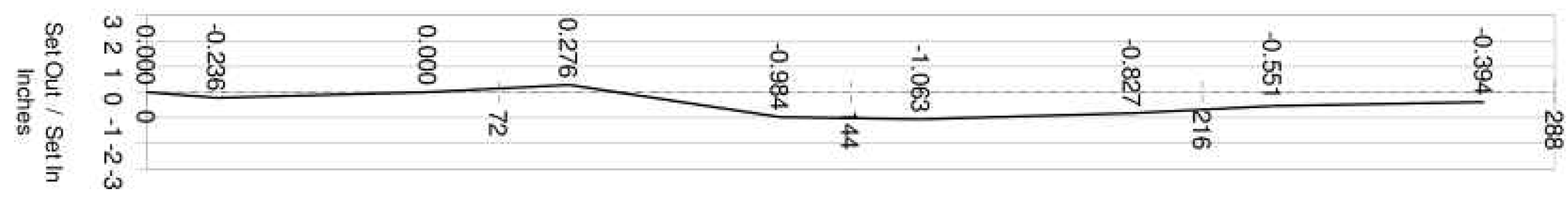
Station 14



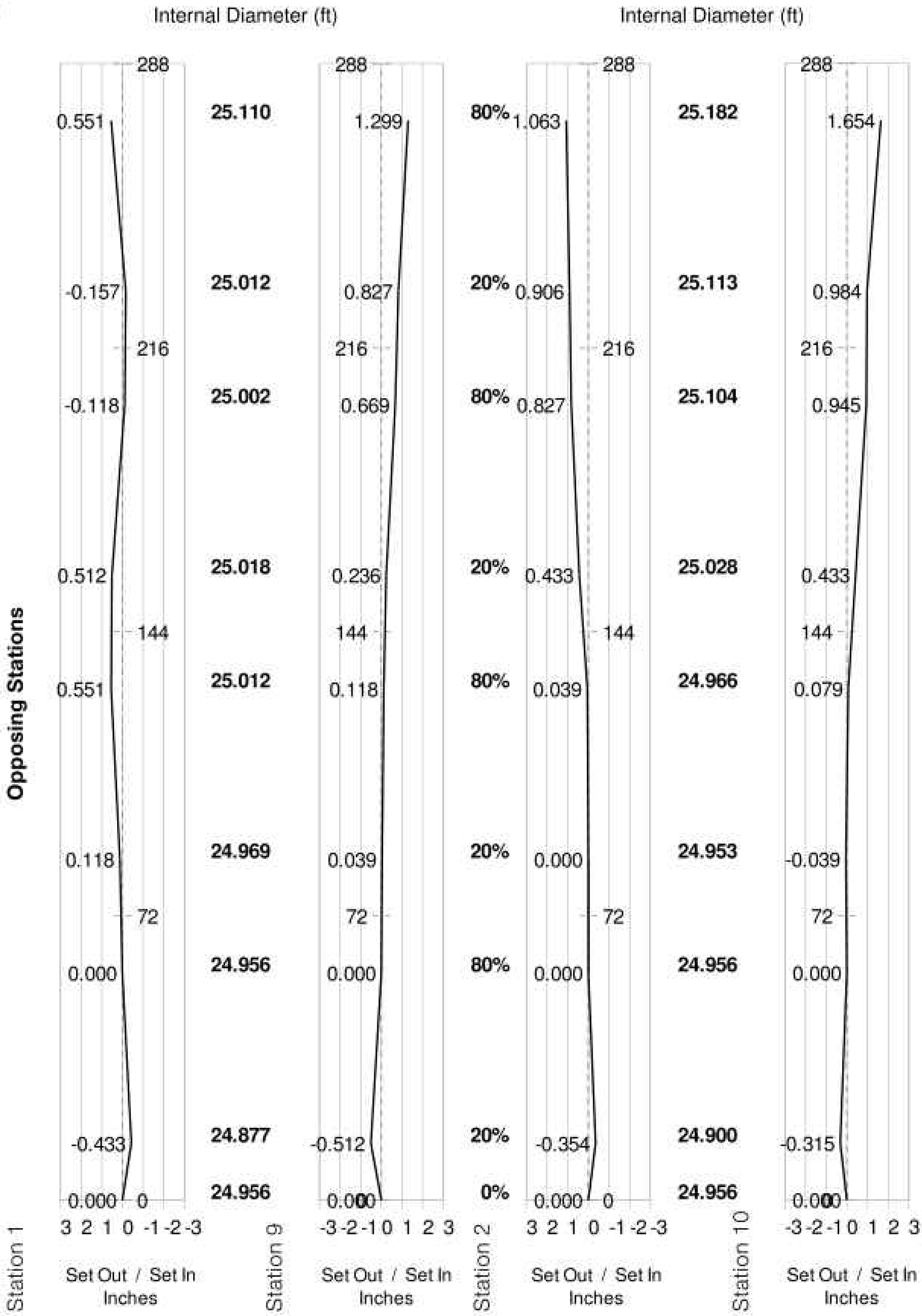
Station 15



Station 16



Opposing Stations



Opposing Stations

Station 3

Internal Diameter (ft)

288		
1.457		**25.166**
0.669		**25.051**
216		
0.472		**25.035**
-0.157		**24.963**
144		
-0.236		**24.953**
0.039		**24.966**
72		
0.000		**24.956**
0.197		**24.949**
0.000	0	**24.956**

3 2 1 0 -1 -2 -3

Set Out / Set In
Inches

Station 11

Internal Diameter (ft)

288		
1.063		**25.025**
0.472		**25.008**
216		
0.472		**25.018**
0.236		**25.100**
144		
0.197		**25.100**
0.079		**25.028**
72		
0.000		**24.956**
-0.276		**24.930**
0.000	0	**24.956**

-3 -2 -1 0 1 2 3

Set Out / Set In
Inches

Station 4

Internal Diameter (ft)

288		
80%	0.906	
20%	0.827	
216		
80%	0.827	
20%	1.220	
144		
80%	1.142	
20%	0.394	
72		
80%	0.000	
20%	0.197	
0%	0.000	0

3 2 1 0 -1 -2 -3

Set Out / Set In
Inches

Station 12

Internal Diameter (ft)

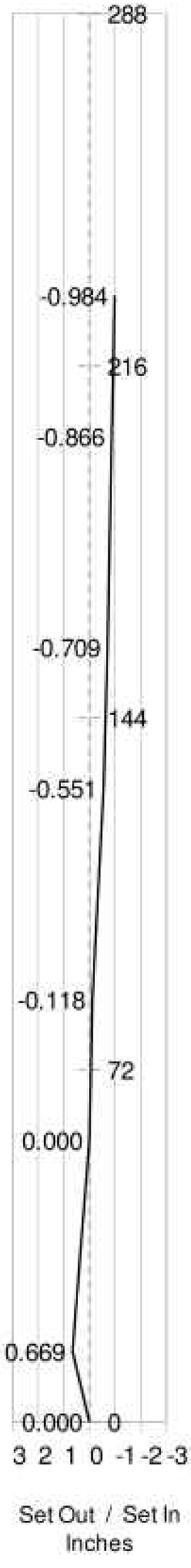
288		
-0.079		
-0.197		
216		
-0.079		
0.512		
144		
0.591		
0.472		
72		
0.000		
-0.512		
0.000	0	

-3 -2 -1 0 1 2 3

Set Out / Set In
Inches

Opposing Stations

Internal Diameter (ft)



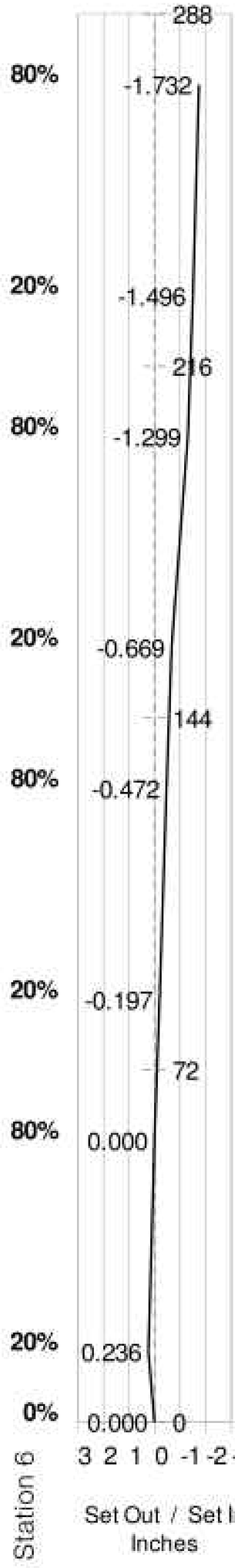
Station 5

Set Out / Set In
Inches

Station 13

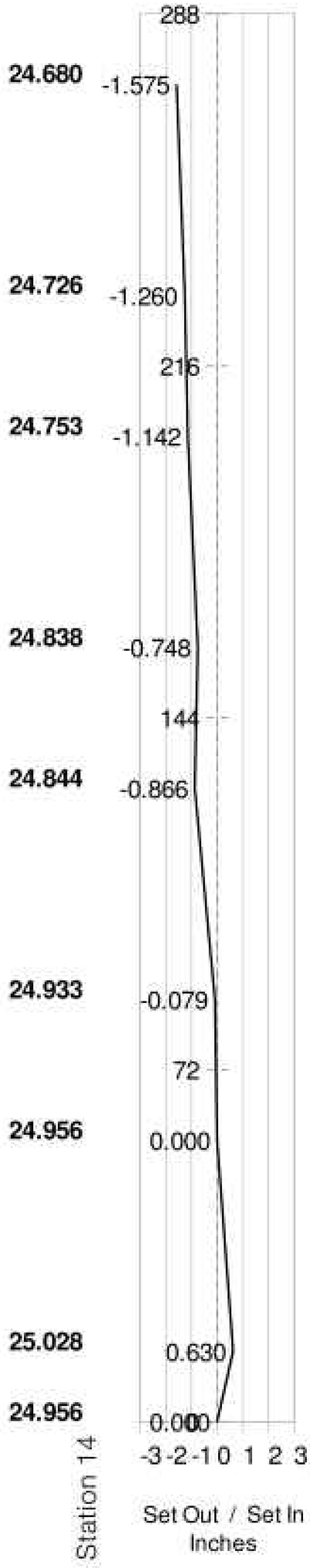
Set Out / Set In
Inches

Internal Diameter (ft)



Station 6

Set Out / Set In
Inches

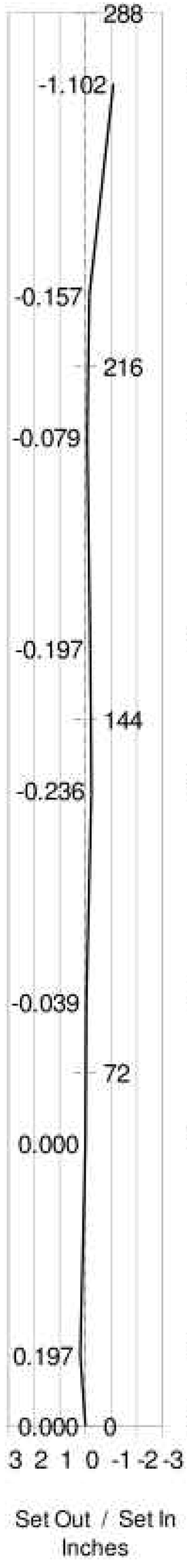


Station 14

Set Out / Set In
Inches

Opposing Stations

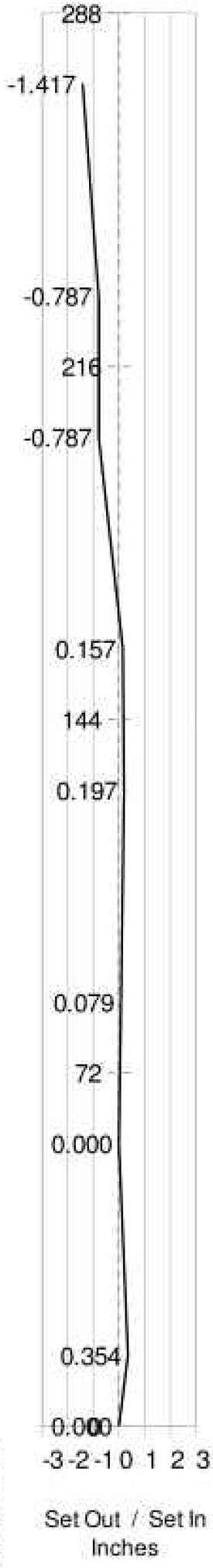
Internal Diameter (ft)



Station 7

Set Out / Set In
Inches

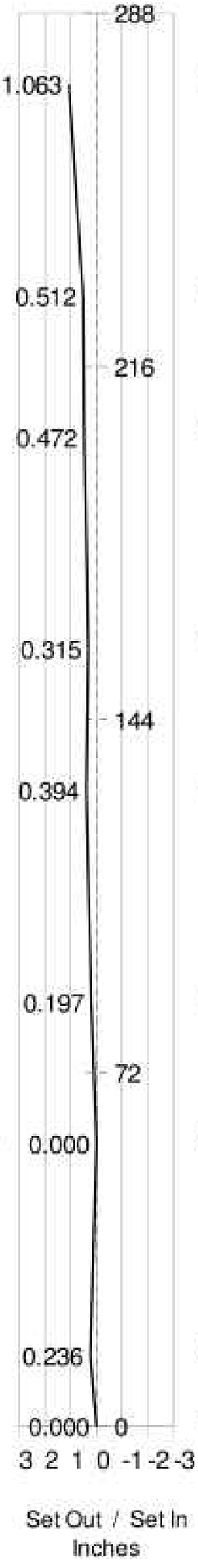
24.746
24.877
24.884
24.953
24.953
24.959
24.956
25.002
24.956



Station 15

Set Out / Set In
Inches

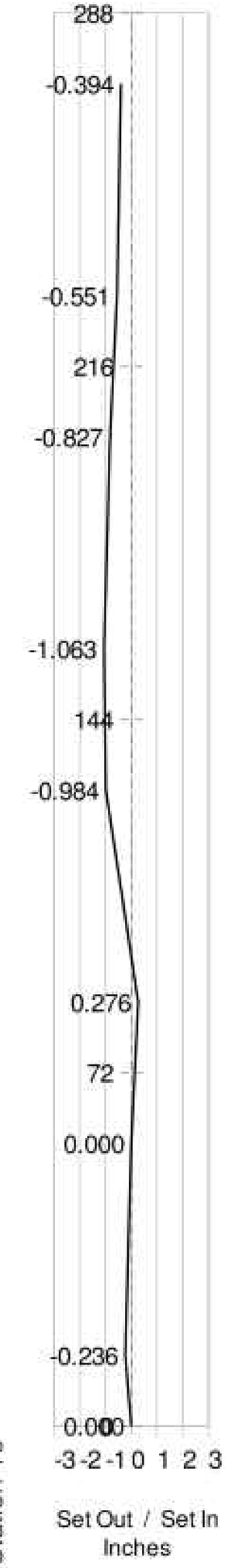
80%
20%
80%
20%
80%
20%
80%
20%
0%



Station 8

Set Out / Set In
Inches

25.012
24.953
24.926
24.894
24.907
24.995
24.956
24.956
24.956



Station 16

Set Out / Set In
Inches

Secure Energy Services **TANK # T-500**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.138 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

.00	** 4.537	.50	413.533	1.00	854.240	1.50	LL 1,294.978	2.00	1,723.969	2.50		2,164.706
.01	* 7.596	.51	422.342	1.01	863.055	1.51	1,303.793	2.01	1,732.784	2.51		2,173.521
.02	* 11.289	.52	431.150	1.02	871.869	1.52	1,312.608	2.02	1,741.598	2.52		2,182.335
.03	* 15.894	.53	439.964	1.03	880.684	1.53	1,321.423	2.03	1,750.413	2.53		2,191.150
.04	* 21.562	.54	448.777	1.04	889.499	1.54	1,330.237	2.04	1,759.228	2.54		2,199.965
.05	* 27.697	.55	457.590	1.05	898.314	1.55	1,339.052	2.05	1,768.043	2.55		2,208.780
.06	33.831	.56	466.403	1.06	907.129	1.56	1,347.867	2.06	1,776.857	2.56		2,217.594
.07	40.436	.57	475.216	1.07	915.944	1.57	1,356.681	2.07	1,785.672	2.57		2,226.409
.08	47.484	.58	484.029	1.08	924.758	1.58	1,365.496	2.08	1,794.487	2.58		2,235.224
.09	54.883	.59	492.842	1.09	933.573	1.59	1,374.311	2.09	1,803.302	2.59		2,244.038
.10	62.598	.60	501.655	1.10	942.388	1.60	1,383.126	2.10	1,812.116	2.60		2,252.853
.11	70.659	.61	510.467	1.11	951.203	1.61	1,391.940	2.11	1,820.931	2.61		2,261.668
.12	79.002	.62	519.281	1.12	960.018	1.62	1,400.755	2.12	1,829.746	2.62		2,270.483
.13	87.504	.63	528.094	1.13	968.833	1.63	1,409.570	2.13	1,838.561	2.63		2,279.297
.14	96.296	.64	536.907	1.14	977.647	1.64	1,418.385	2.14	1,847.375	2.64		2,288.112
.15	105.111	.65	545.720	1.15	986.462	1.65	1,427.199	2.15	1,856.190	2.65		2,296.927
.16	113.925	.66	554.535	1.16	995.277	1.66	1,436.014	2.16	1,865.005	2.66		2,305.742
.17	122.739	.67	563.349	1.17	1,004.092	1.67	1,444.829	2.17	1,873.819	2.67		2,314.556
.18	131.553	.68	572.163	1.18	1,012.907	1.68	1,453.644	2.18	1,882.634	2.68		2,323.371
.19	140.368	.69	580.977	1.19	1,021.721	1.69	1,462.458	2.19	1,891.449	2.69		2,332.186
.20	149.182	.70	589.792	1.20	1,030.536	1.70	1,471.273	2.20	1,900.264	2.70		2,341.001
.21	157.995	.71	598.607	1.21	1,039.351	1.71	1,480.088	2.21	1,909.078	2.71		2,349.815
.22	166.808	.72	607.422	1.22	1,048.166	1.72	1,488.903	2.22	1,917.893	2.72		2,358.630
.23	175.622	.73	616.237	1.23	1,056.980	1.73	1,497.717	2.23	1,926.708	2.73		2,367.445
.24	184.435	.74	625.052	1.24	1,065.795	1.74	1,506.532	2.24	1,935.523	2.74		2,376.260
.25	193.248	.75	633.867	1.25	1,074.610	1.75	1,515.347	2.25	1,944.337	2.75		2,385.074
.26	202.030	.76	642.682	1.26	1,083.425	1.76	1,524.161	2.26	1,953.152	2.76		2,393.889
.27	210.811	.77	651.497	1.27	1,092.239	1.77	1,532.976	2.27	1,961.967	2.77		2,402.704
.28	219.625	.78	660.312	1.28	1,101.054	1.78	1,541.791	2.28	1,970.782	2.78		2,411.518
.29	228.439	.79	669.127	1.29	1,109.869	1.79	1,550.606	2.29	1,979.596	2.79		2,420.333
.30	237.254	.80	677.942	1.30	1,118.684	1.80	L 1,559.420	2.30	1,988.411	2.80		2,429.148
.31	246.068	.81	686.757	1.31	1,127.498	1.81	1,568.235	2.31	1,997.226	2.81		2,437.963
.32	254.881	.82	695.572	1.32	1,136.313	1.82	1,577.050	2.32	2,006.041	2.82		2,446.777
.33	263.695	.83	704.386	1.33	1,145.128	1.83	1,585.865	2.33	2,014.855	2.83		2,455.592
.34	272.509	.84	713.201	1.34	1,153.943	1.84	1,594.679	2.34	2,023.670	2.84		2,464.407
.35	281.323	.85	722.016	1.35	1,162.757	1.85	1,600.558	2.35	2,032.485	2.85		2,473.222
.36	290.137	.86	730.831	1.36	1,171.572	1.86	1,606.436	2.36	2,041.300	2.86		2,482.036
.37	298.951	.87	739.646	1.37	1,180.387	1.87	1,612.314	2.37	2,050.114	2.87		2,490.851
.38	307.765	.88	748.461	1.38	1,189.201	1.88	1,618.192	2.38	2,058.929	2.88		2,499.666
.39	316.579	.89	757.276	1.39	1,198.016	1.89	1,627.007	2.39	2,067.744	2.89		2,508.481
.40	325.393	.90	766.091	1.40	1,206.831	1.90	1,635.822	2.40	2,076.558	2.90		2,517.295
.41	334.207	.91	774.906	1.41	1,215.646	1.91	1,644.636	2.41	2,085.373	2.91		2,526.110
.42	343.021	.92	783.721	1.42	1,224.460	1.92	1,653.451	2.42	2,094.188	2.92		2,534.925
.43	351.835	.93	792.536	1.43	1,233.275	1.93	1,662.266	2.43	2,103.003	2.93		2,543.740
.44	360.649	.94	801.351	1.44	1,242.090	1.94	1,671.081	2.44	2,111.817	2.94		2,552.554
.45	369.463	.95	810.166	1.45	1,250.905	1.95	1,679.895	2.45	2,120.632	2.95		2,561.369
.46	378.277	.96	818.980	1.46	1,259.719	1.96	1,688.710	2.46	2,129.447	2.96		2,570.184
.47	387.091	.97	827.795	1.47	1,268.534	1.97	1,697.525	2.47	2,138.262	2.97		2,578.999
.48	395.905	.98	836.610	1.48	1,277.349	1.98	1,706.339	2.48	2,147.076	2.98		2,587.813
.49	404.719	.99	845.425	1.49	1,286.164	1.99	1,715.154	2.49	2,155.891	2.99		2,596.628

Low Critical Zone - No Critical measurements

High Critical Zone - No Critical measurements

** Volume Below Strike Point; Located 5.4 Centimetres above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Centimetres not applicable

Tables calculated prior to Hydro Test Volumes reflect a Shell Temperature of 15°C

Alarm Levels: HH-13400mm, H-13300mm, L-1800mm, LL-1500mm

A total of 11.746 Cubic Metres were deducted between 179 & 193 Centimetres based on a weight of 10054.782 Kilograms and a density of 856 kg/m3. Gauged quantities above 193 Centimetres reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

Secure Energy Services **TANK # T-500**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.138 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

3.00	2,605.443	3.50	3,046.594	4.00	3,487.790	4.50	3,928.986	5.00	4,370.182	5.50	4,811.378
3.01	2,614.257	3.51	3,055.418	4.01	3,496.614	4.51	3,937.810	5.01	4,379.006	5.51	4,820.202
3.02	2,623.072	3.52	3,064.242	4.02	3,505.438	4.52	3,946.634	5.02	4,387.830	5.52	4,829.026
3.03	2,631.887	3.53	3,073.066	4.03	3,514.262	4.53	3,955.458	5.03	4,396.654	5.53	4,837.849
3.04	2,640.702	3.54	3,081.890	4.04	3,523.086	4.54	3,964.282	5.04	4,405.478	5.54	4,846.673
3.05	2,649.518	3.55	3,090.714	4.05	3,531.910	4.55	3,973.106	5.05	4,414.301	5.55	4,855.497
3.06	2,658.342	3.56	3,099.538	4.06	3,540.734	4.56	3,981.930	5.06	4,423.125	5.56	4,864.321
3.07	2,667.166	3.57	3,108.362	4.07	3,549.558	4.57	3,990.753	5.07	4,431.949	5.57	4,873.145
3.08	2,675.990	3.58	3,117.186	4.08	3,558.382	4.58	3,999.577	5.08	4,440.773	5.58	4,881.969
3.09	2,684.814	3.59	3,126.010	4.09	3,567.206	4.59	4,008.401	5.09	4,449.597	5.59	4,890.793
3.10	2,693.638	3.60	3,134.834	4.10	3,576.029	4.60	4,017.225	5.10	4,458.421	5.60	4,899.617
3.11	2,702.462	3.61	3,143.658	4.11	3,584.853	4.61	4,026.049	5.11	4,467.245	5.61	4,908.441
3.12	2,711.286	3.62	3,152.481	4.12	3,593.677	4.62	4,034.873	5.12	4,476.069	5.62	4,917.265
3.13	2,720.110	3.63	3,161.305	4.13	3,602.501	4.63	4,043.697	5.13	4,484.893	5.63	4,926.089
3.14	2,728.933	3.64	3,170.129	4.14	3,611.325	4.64	4,052.521	5.14	4,493.717	5.64	4,934.913
3.15	2,737.757	3.65	3,178.953	4.15	3,620.149	4.65	4,061.345	5.15	4,502.541	5.65	4,943.736
3.16	2,746.581	3.66	3,187.777	4.16	3,628.973	4.66	4,070.169	5.16	4,511.365	5.66	4,952.560
3.17	2,755.405	3.67	3,196.601	4.17	3,637.797	4.67	4,078.993	5.17	4,520.188	5.67	4,961.384
3.18	2,764.229	3.68	3,205.425	4.18	3,646.621	4.68	4,087.817	5.18	4,529.012	5.68	4,970.208
3.19	2,773.053	3.69	3,214.249	4.19	3,655.445	4.69	4,096.640	5.19	4,537.836	5.69	4,979.032
3.20	2,781.877	3.70	3,223.073	4.20	3,664.269	4.70	4,105.464	5.20	4,546.660	5.70	4,987.856
3.21	2,790.701	3.71	3,231.897	4.21	3,673.093	4.71	4,114.288	5.21	4,555.484	5.71	4,996.680
3.22	2,799.525	3.72	3,240.721	4.22	3,681.916	4.72	4,123.112	5.22	4,564.308	5.72	5,005.504
3.23	2,808.349	3.73	3,249.545	4.23	3,690.740	4.73	4,131.936	5.23	4,573.132	5.73	5,014.328
3.24	2,817.173	3.74	3,258.368	4.24	3,699.564	4.74	4,140.760	5.24	4,581.956	5.74	5,023.152
3.25	2,825.997	3.75	3,267.192	4.25	3,708.388	4.75	4,149.584	5.25	4,590.780	5.75	5,031.976
3.26	2,834.820	3.76	3,276.016	4.26	3,717.212	4.76	4,158.408	5.26	4,599.604	5.76	5,040.800
3.27	2,843.644	3.77	3,284.840	4.27	3,726.036	4.77	4,167.232	5.27	4,608.428	5.77	5,049.623
3.28	2,852.468	3.78	3,293.664	4.28	3,734.860	4.78	4,176.056	5.28	4,617.252	5.78	5,058.447
3.29	2,861.292	3.79	3,302.488	4.29	3,743.684	4.79	4,184.880	5.29	4,626.075	5.79	5,067.271
3.30	2,870.116	3.80	3,311.312	4.30	3,752.508	4.80	4,193.704	5.30	4,634.899	5.80	5,076.095
3.31	2,878.940	3.81	3,320.136	4.31	3,761.332	4.81	4,202.527	5.31	4,643.723	5.81	5,084.919
3.32	2,887.764	3.82	3,328.960	4.32	3,770.156	4.82	4,211.351	5.32	4,652.547	5.82	5,093.743
3.33	2,896.588	3.83	3,337.784	4.33	3,778.980	4.83	4,220.175	5.33	4,661.371	5.83	5,102.567
3.34	2,905.412	3.84	3,346.608	4.34	3,787.803	4.84	4,228.999	5.34	4,670.195	5.84	5,111.391
3.35	2,914.236	3.85	3,355.432	4.35	3,796.627	4.85	4,237.823	5.35	4,679.019	5.85	5,120.215
3.36	2,923.060	3.86	3,364.255	4.36	3,805.451	4.86	4,246.647	5.36	4,687.843	5.86	5,129.039
3.37	2,931.884	3.87	3,373.079	4.37	3,814.275	4.87	4,255.471	5.37	4,696.667	5.87	5,137.863
3.38	2,940.707	3.88	3,381.903	4.38	3,823.099	4.88	4,264.295	5.38	4,705.491	5.88	5,146.687
3.39	2,949.531	3.89	3,390.727	4.39	3,831.923	4.89	4,273.119	5.39	4,714.315	5.89	5,155.510
3.40	2,958.355	3.90	3,399.551	4.40	3,840.747	4.90	4,281.943	5.40	4,723.139	5.90	5,164.334
3.41	2,967.179	3.91	3,408.375	4.41	3,849.571	4.91	4,290.767	5.41	4,731.962	5.91	5,173.158
3.42	2,976.003	3.92	3,417.199	4.42	3,858.395	4.92	4,299.591	5.42	4,740.786	5.92	5,181.982
3.43	2,984.827	3.93	3,426.023	4.43	3,867.219	4.93	4,308.414	5.43	4,749.610	5.93	5,190.806
3.44	2,993.651	3.94	3,434.847	4.44	3,876.043	4.94	4,317.238	5.44	4,758.434	5.94	5,199.630
3.45	3,002.475	3.95	3,443.671	4.45	3,884.867	4.95	4,326.062	5.45	4,767.258	5.95	5,208.454
3.46	3,011.299	3.96	3,452.495	4.46	3,893.690	4.96	4,334.886	5.46	4,776.082	5.96	5,217.278
3.47	3,020.123	3.97	3,461.319	4.47	3,902.514	4.97	4,343.710	5.47	4,784.906	5.97	5,226.102
3.48	3,028.947	3.98	3,470.142	4.48	3,911.338	4.98	4,352.534	5.48	4,793.730	5.98	5,234.926
3.49	3,037.771	3.99	3,478.966	4.49	3,920.162	4.99	4,361.358	5.49	4,802.554	5.99	5,243.750

Displacement Correction = 10054.782 Kilograms / Kilograms/Cubic Metre = 11.746 Cubic Metres

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NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-500**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions ; 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.138 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

6.00	5,252.573	6.50	5,693.853	7.00	6,135.153	7.50	6,576.452	8.00	7,017.752	8.50	7,459.052
6.01	5,261.397	6.51	5,702.679	7.01	6,143.979	7.51	6,585.278	8.01	7,026.578	8.51	7,467.878
6.02	5,270.221	6.52	5,711.505	7.02	6,152.805	7.52	6,594.104	8.02	7,035.404	8.52	7,476.704
6.03	5,279.045	6.53	5,720.331	7.03	6,161.631	7.53	6,602.930	8.03	7,044.230	8.53	7,485.530
6.04	5,287.869	6.54	5,729.157	7.04	6,170.457	7.54	6,611.756	8.04	7,053.056	8.54	7,494.356
6.05	5,296.693	6.55	5,737.983	7.05	6,179.283	7.55	6,620.582	8.05	7,061.882	8.55	7,503.182
6.06	5,305.517	6.56	5,746.809	7.06	6,188.109	7.56	6,629.408	8.06	7,070.708	8.56	7,512.008
6.07	5,314.341	6.57	5,755.635	7.07	6,196.935	7.57	6,638.234	8.07	7,079.534	8.57	7,520.834
6.08	5,323.165	6.58	5,764.461	7.08	6,205.761	7.58	6,647.060	8.08	7,088.360	8.58	7,529.660
6.09	5,331.989	6.59	5,773.287	7.09	6,214.587	7.59	6,655.886	8.09	7,097.186	8.59	7,538.486
6.10	5,340.813	6.60	5,782.113	7.10	6,223.413	7.60	6,664.712	8.10	7,106.012	8.60	7,547.312
6.11	5,349.639	6.61	5,790.939	7.11	6,232.239	7.61	6,673.538	8.11	7,114.838	8.61	7,556.138
6.12	5,358.465	6.62	5,799.765	7.12	6,241.065	7.62	6,682.364	8.12	7,123.664	8.62	7,564.964
6.13	5,367.291	6.63	5,808.591	7.13	6,249.891	7.63	6,691.190	8.13	7,132.490	8.63	7,573.790
6.14	5,376.117	6.64	5,817.417	7.14	6,258.717	7.64	6,700.016	8.14	7,141.316	8.64	7,582.616
6.15	5,384.943	6.65	5,826.243	7.15	6,267.543	7.65	6,708.842	8.15	7,150.142	8.65	7,591.442
6.16	5,393.769	6.66	5,835.069	7.16	6,276.369	7.66	6,717.668	8.16	7,158.968	8.66	7,600.268
6.17	5,402.595	6.67	5,843.895	7.17	6,285.195	7.67	6,726.494	8.17	7,167.794	8.67	7,609.093
6.18	5,411.421	6.68	5,852.721	7.18	6,294.021	7.68	6,735.320	8.18	7,176.620	8.68	7,617.919
6.19	5,420.247	6.69	5,861.547	7.19	6,302.847	7.69	6,744.146	8.19	7,185.446	8.69	7,626.745
6.20	5,429.073	6.70	5,870.373	7.20	6,311.673	7.70	6,752.972	8.20	7,194.272	8.70	7,635.571
6.21	5,437.899	6.71	5,879.199	7.21	6,320.499	7.71	6,761.798	8.21	7,203.098	8.71	7,644.397
6.22	5,446.725	6.72	5,888.025	7.22	6,329.325	7.72	6,770.624	8.22	7,211.924	8.72	7,653.223
6.23	5,455.551	6.73	5,896.851	7.23	6,338.151	7.73	6,779.450	8.23	7,220.750	8.73	7,662.049
6.24	5,464.377	6.74	5,905.677	7.24	6,346.977	7.74	6,788.276	8.24	7,229.576	8.74	7,670.875
6.25	5,473.203	6.75	5,914.503	7.25	6,355.803	7.75	6,797.102	8.25	7,238.402	8.75	7,679.701
6.26	5,482.029	6.76	5,923.329	7.26	6,364.629	7.76	6,805.928	8.26	7,247.228	8.76	7,688.527
6.27	5,490.855	6.77	5,932.155	7.27	6,373.455	7.77	6,814.754	8.27	7,256.054	8.77	7,697.353
6.28	5,499.681	6.78	5,940.981	7.28	6,382.281	7.78	6,823.580	8.28	7,264.880	8.78	7,706.179
6.29	5,508.507	6.79	5,949.807	7.29	6,391.107	7.79	6,832.406	8.29	7,273.706	8.79	7,715.005
6.30	5,517.333	6.80	5,958.633	7.30	6,399.933	7.80	6,841.232	8.30	7,282.532	8.80	7,723.831
6.31	5,526.159	6.81	5,967.459	7.31	6,408.759	7.81	6,850.058	8.31	7,291.358	8.81	7,732.657
6.32	5,534.985	6.82	5,976.285	7.32	6,417.585	7.82	6,858.884	8.32	7,300.184	8.82	7,741.483
6.33	5,543.811	6.83	5,985.111	7.33	6,426.411	7.83	6,867.710	8.33	7,309.010	8.83	7,750.309
6.34	5,552.637	6.84	5,993.937	7.34	6,435.237	7.84	6,876.536	8.34	7,317.836	8.84	7,759.135
6.35	5,561.463	6.85	6,002.763	7.35	6,444.063	7.85	6,885.362	8.35	7,326.662	8.85	7,767.961
6.36	5,570.289	6.86	6,011.589	7.36	6,452.889	7.86	6,894.188	8.36	7,335.488	8.86	7,776.787
6.37	5,579.115	6.87	6,020.415	7.37	6,461.715	7.87	6,903.014	8.37	7,344.314	8.87	7,785.613
6.38	5,587.941	6.88	6,029.241	7.38	6,470.540	7.88	6,911.840	8.38	7,353.140	8.88	7,794.439
6.39	5,596.767	6.89	6,038.067	7.39	6,479.366	7.89	6,920.666	8.39	7,361.966	8.89	7,803.265
6.40	5,605.593	6.90	6,046.893	7.40	6,488.192	7.90	6,929.492	8.40	7,370.792	8.90	7,812.091
6.41	5,614.419	6.91	6,055.719	7.41	6,497.018	7.91	6,938.318	8.41	7,379.618	8.91	7,820.917
6.42	5,623.245	6.92	6,064.545	7.42	6,505.844	7.92	6,947.144	8.42	7,388.444	8.92	7,829.743
6.43	5,632.071	6.93	6,073.371	7.43	6,514.670	7.93	6,955.970	8.43	7,397.270	8.93	7,838.569
6.44	5,640.897	6.94	6,082.197	7.44	6,523.496	7.94	6,964.796	8.44	7,406.096	8.94	7,847.395
6.45	5,649.723	6.95	6,091.023	7.45	6,532.322	7.95	6,973.622	8.45	7,414.922	8.95	7,856.221
6.46	5,658.549	6.96	6,099.849	7.46	6,541.148	7.96	6,982.448	8.46	7,423.748	8.96	7,865.047
6.47	5,667.375	6.97	6,108.675	7.47	6,549.974	7.97	6,991.274	8.47	7,432.574	8.97	7,873.873
6.48	5,676.201	6.98	6,117.501	7.48	6,558.800	7.98	7,000.100	8.48	7,441.400	8.98	7,882.699
6.49	5,685.027	6.99	6,126.327	7.49	6,567.626	7.99	7,008.926	8.49	7,450.226	8.99	7,891.525

Millimetres

1	0.883	6	5.296
2	1.765	7	6.178
3	2.648	8	7.061
4	3.530	9	7.943
5	4.413		

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
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NEXTGEN
INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-500**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.138 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

9.00	7,900.351	9.50	8,341.740	10.00	8,783.165	10.50	9,224.591	11.00	9,666.016	11.50	10,107.441
9.01	7,909.177	9.51	8,350.569	10.01	8,791.994	10.51	9,233.419	11.01	9,674.844	11.51	10,116.269
9.02	7,918.003	9.52	8,359.397	10.02	8,800.822	10.52	9,242.248	11.02	9,683.673	11.52	10,125.098
9.03	7,926.829	9.53	8,368.226	10.03	8,809.651	10.53	9,251.076	11.03	9,692.501	11.53	10,133.926
9.04	7,935.655	9.54	8,377.054	10.04	8,818.479	10.54	9,259.905	11.04	9,701.330	11.54	10,142.755
9.05	7,944.481	9.55	8,385.883	10.05	8,827.308	10.55	9,268.733	11.05	9,710.158	11.55	10,151.583
9.06	7,953.307	9.56	8,394.711	10.06	8,836.136	10.56	9,277.562	11.06	9,718.987	11.56	10,160.412
9.07	7,962.133	9.57	8,403.540	10.07	8,844.965	10.57	9,286.390	11.07	9,727.815	11.57	10,169.240
9.08	7,970.959	9.58	8,412.368	10.08	8,853.793	10.58	9,295.219	11.08	9,736.644	11.58	10,178.069
9.09	7,979.785	9.59	8,421.197	10.09	8,862.622	10.59	9,304.047	11.09	9,745.472	11.59	10,186.897
9.10	7,988.611	9.60	8,430.025	10.10	8,871.450	10.60	9,312.876	11.10	9,754.301	11.60	10,195.726
9.11	7,997.437	9.61	8,438.854	10.11	8,880.279	10.61	9,321.704	11.11	9,763.129	11.61	10,204.554
9.12	8,006.263	9.62	8,447.682	10.12	8,889.107	10.62	9,330.533	11.12	9,771.958	11.62	10,213.383
9.13	8,015.089	9.63	8,456.511	10.13	8,897.936	10.63	9,339.361	11.13	9,780.786	11.63	10,222.211
9.14	8,023.915	9.64	8,465.339	10.14	8,906.764	10.64	9,348.190	11.14	9,789.615	11.64	10,231.040
9.15	8,032.743	9.65	8,474.168	10.15	8,915.593	10.65	9,357.018	11.15	9,798.443	11.65	10,239.869
9.16	8,041.571	9.66	8,482.996	10.16	8,924.421	10.66	9,365.847	11.16	9,807.272	11.66	10,248.697
9.17	8,050.400	9.67	8,491.825	10.17	8,933.250	10.67	9,374.675	11.17	9,816.100	11.67	10,257.526
9.18	8,059.228	9.68	8,500.653	10.18	8,942.078	10.68	9,383.504	11.18	9,824.929	11.68	10,266.354
9.19	8,068.057	9.69	8,509.482	10.19	8,950.907	10.69	9,392.332	11.19	9,833.757	11.69	10,275.183
9.20	8,076.885	9.70	8,518.310	10.20	8,959.735	10.70	9,401.161	11.20	9,842.586	11.70	10,284.011
9.21	8,085.714	9.71	8,527.139	10.21	8,968.564	10.71	9,409.989	11.21	9,851.414	11.71	10,292.840
9.22	8,094.542	9.72	8,535.967	10.22	8,977.393	10.72	9,418.818	11.22	9,860.243	11.72	10,301.668
9.23	8,103.371	9.73	8,544.796	10.23	8,986.221	10.73	9,427.646	11.23	9,869.071	11.73	10,310.497
9.24	8,112.199	9.74	8,553.624	10.24	8,995.050	10.74	9,436.475	11.24	9,877.900	11.74	10,319.325
9.25	8,121.028	9.75	8,562.453	10.25	9,003.878	10.75	9,445.303	11.25	9,886.728	11.75	10,328.154
9.26	8,129.856	9.76	8,571.281	10.26	9,012.707	10.76	9,454.132	11.26	9,895.557	11.76	10,336.982
9.27	8,138.685	9.77	8,580.110	10.27	9,021.535	10.77	9,462.960	11.27	9,904.385	11.77	10,345.811
9.28	8,147.513	9.78	8,588.938	10.28	9,030.364	10.78	9,471.789	11.28	9,913.214	11.78	10,354.639
9.29	8,156.342	9.79	8,597.767	10.29	9,039.192	10.79	9,480.617	11.29	9,922.042	11.79	10,363.468
9.30	8,165.170	9.80	8,606.595	10.30	9,048.021	10.80	9,489.446	11.30	9,930.871	11.80	10,372.296
9.31	8,173.999	9.81	8,615.424	10.31	9,056.849	10.81	9,498.274	11.31	9,939.699	11.81	10,381.125
9.32	8,182.827	9.82	8,624.252	10.32	9,065.678	10.82	9,507.103	11.32	9,948.528	11.82	10,389.953
9.33	8,191.656	9.83	8,633.081	10.33	9,074.506	10.83	9,515.931	11.33	9,957.356	11.83	10,398.782
9.34	8,200.484	9.84	8,641.909	10.34	9,083.335	10.84	9,524.760	11.34	9,966.185	11.84	10,407.610
9.35	8,209.313	9.85	8,650.738	10.35	9,092.163	10.85	9,533.588	11.35	9,975.013	11.85	10,416.439
9.36	8,218.141	9.86	8,659.566	10.36	9,100.992	10.86	9,542.417	11.36	9,983.842	11.86	10,425.267
9.37	8,226.970	9.87	8,668.395	10.37	9,109.820	10.87	9,551.245	11.37	9,992.670	11.87	10,434.096
9.38	8,235.798	9.88	8,677.223	10.38	9,118.649	10.88	9,560.074	11.38	10,001.499	11.88	10,442.924
9.39	8,244.627	9.89	8,686.052	10.39	9,127.477	10.89	9,568.902	11.39	10,010.327	11.89	10,451.753
9.40	8,253.455	9.90	8,694.880	10.40	9,136.306	10.90	9,577.731	11.40	10,019.156	11.90	10,460.581
9.41	8,262.284	9.91	8,703.709	10.41	9,145.134	10.91	9,586.559	11.41	10,027.984	11.91	10,469.410
9.42	8,271.112	9.92	8,712.537	10.42	9,153.963	10.92	9,595.388	11.42	10,036.813	11.92	10,478.238
9.43	8,279.941	9.93	8,721.366	10.43	9,162.791	10.93	9,604.216	11.43	10,045.641	11.93	10,487.067
9.44	8,288.769	9.94	8,730.194	10.44	9,171.620	10.94	9,613.045	11.44	10,054.470	11.94	10,495.895
9.45	8,297.598	9.95	8,739.023	10.45	9,180.448	10.95	9,621.873	11.45	10,063.298	11.95	10,504.724
9.46	8,306.426	9.96	8,747.851	10.46	9,189.277	10.96	9,630.702	11.46	10,072.127	11.96	10,513.552
9.47	8,315.255	9.97	8,756.680	10.47	9,198.105	10.97	9,639.530	11.47	10,080.955	11.97	10,522.381
9.48	8,324.083	9.98	8,765.508	10.48	9,206.934	10.98	9,648.359	11.48	10,089.784	11.98	10,531.209
9.49	8,332.912	9.99	8,774.337	10.49	9,215.762	10.99	9,657.187	11.49	10,098.612	11.99	10,540.038

Millimetres

1	0.883	6	5.296
2	1.765	7	6.178
3	2.648	8	7.061
4	3.530	9	7.943
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NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-500**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.138 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

12.00	10,548.866	12.50	10,990.419	13.00	11,432.052	13.50	11,873.685	14.00	12,315.318	14.50	12,756.951
12.01	10,557.695	12.51	10,999.252	13.01	11,440.885	13.51	11,882.518	14.01	12,324.151	14.51	12,765.784
12.02	10,566.523	12.52	11,008.085	13.02	11,449.718	13.52	11,891.351	14.02	12,332.983	14.52	12,774.616
12.03	10,575.352	12.53	11,016.917	13.03	11,458.550	13.53	11,900.183	14.03	12,341.816	14.53	12,783.449
12.04	10,584.180	12.54	11,025.750	13.04	11,467.383	13.54	11,909.016	14.04	12,350.649	14.54	12,792.282
12.05	10,593.009	12.55	11,034.583	13.05	11,476.216	13.55	11,917.848	14.05	12,359.481	14.55	12,801.114
12.06	10,601.837	12.56	11,043.415	13.06	11,485.048	13.56	11,926.681	14.06	12,368.314	14.56	12,809.947
12.07	10,610.666	12.57	11,052.248	13.07	11,493.881	13.57	11,935.514	14.07	12,377.147	14.57	12,818.780
12.08	10,619.494	12.58	11,061.081	13.08	11,502.714	13.58	11,944.346	14.08	12,385.979	14.58	12,827.612
12.09	10,628.323	12.59	11,069.913	13.09	11,511.546	13.59	11,953.179	14.09	12,394.812	14.59	12,836.445
12.10	10,637.151	12.60	11,078.746	13.10	11,520.379	13.60	11,962.012	14.10	12,403.645	14.60	12,845.278
12.11	10,645.980	12.61	11,087.579	13.11	11,529.211	13.61	11,970.844	14.11	12,412.477	14.61	12,854.110
12.12	10,654.808	12.62	11,096.411	13.12	11,538.044	13.62	11,979.677	14.12	12,421.310	14.62	12,862.943
12.13	10,663.637	12.63	11,105.244	13.13	11,546.877	13.63	11,988.510	14.13	12,430.143	14.63	12,871.776
12.14	10,672.465	12.64	11,114.077	13.14	11,555.709	13.64	11,997.342	14.14	12,438.975	14.64	12,872.129
12.15	10,681.294	12.65	11,122.909	13.15	11,564.542	13.65	12,006.175	14.15	12,447.808	14.65	
12.16	10,690.122	12.66	11,131.742	13.16	11,573.375	13.66	12,015.008	14.16	12,456.641	14.66	
12.17	10,698.951	12.67	11,140.574	13.17	11,582.207	13.67	12,023.840	14.17	12,465.473	14.67	
12.18	10,707.779	12.68	11,149.407	13.18	11,591.040	13.68	12,032.673	14.18	12,474.306	14.68	
12.19	10,716.608	12.69	11,158.240	13.19	11,599.873	13.69	12,041.506	14.19	12,483.139	14.69	
12.20	10,725.440	12.70	11,167.072	13.20	11,608.705	13.70	12,050.338	14.20	12,491.971	14.70	
12.21	10,734.272	12.71	11,175.905	13.21	11,617.538	13.71	12,059.171	14.21	12,500.804	14.71	
12.22	10,743.105	12.72	11,184.738	13.22	11,626.371	13.72	12,068.004	14.22	12,509.637	14.72	
12.23	10,751.937	12.73	11,193.570	13.23	11,635.203	13.73	12,076.836	14.23	12,518.469	14.73	
12.24	10,760.770	12.74	11,202.403	13.24	11,644.036	13.74	12,085.669	14.24	12,527.302	14.74	
12.25	10,769.603	12.75	11,211.236	13.25	11,652.869	13.75	12,094.502	14.25	12,536.135	14.75	
12.26	10,778.435	12.76	11,220.068	13.26	11,661.701	13.76	12,103.334	14.26	12,544.967	14.76	
12.27	10,787.268	12.77	11,228.901	13.27	11,670.534	13.77	12,112.167	14.27	12,553.800	14.77	
12.28	10,796.101	12.78	11,237.734	13.28	11,679.367	13.78	12,121.000	14.28	12,562.633	14.78	
12.29	10,804.933	12.79	11,246.566	13.29	11,688.199	13.79	12,129.832	14.29	12,571.465	14.79	
12.30	10,813.766	12.80	11,255.399	13.30 H	11,697.032	13.80	12,138.665	14.30	12,580.298	14.80	
12.31	10,822.599	12.81	11,264.232	13.31	11,705.865	13.81	12,147.498	14.31	12,589.131	14.81	
12.32	10,831.431	12.82	11,273.064	13.32	11,714.697	13.82	12,156.330	14.32	12,597.963	14.82	
12.33	10,840.264	12.83	11,281.897	13.33	11,723.530	13.83	12,165.163	14.33	12,606.796	14.83	
12.34	10,849.097	12.84	11,290.730	13.34	11,732.363	13.84	12,173.996	14.34	12,615.629	14.84	
12.35	10,857.929	12.85	11,299.562	13.35	11,741.195	13.85	12,182.828	14.35	12,624.461	14.85	
12.36	10,866.762	12.86	11,308.395	13.36	11,750.028	13.86	12,191.661	14.36	12,633.294	14.86	
12.37	10,875.595	12.87	11,317.228	13.37	11,758.861	13.87	12,200.494	14.37	12,642.127	14.87	
12.38	10,884.427	12.88	11,326.060	13.38	11,767.693	13.88	12,209.326	14.38	12,650.959	14.88	
12.39	10,893.260	12.89	11,334.893	13.39	11,776.526	13.89	12,218.159	14.39	12,659.792	14.89	
12.40	10,902.093	12.90	11,343.726	13.40 HH	11,785.359	13.90	12,226.992	14.40	12,668.625	14.90	
12.41	10,910.925	12.91	11,352.558	13.41	11,794.191	13.91	12,235.824	14.41	12,677.457	14.91	
12.42	10,919.758	12.92	11,361.391	13.42	11,803.024	13.92	12,244.657	14.42	12,686.290	14.92	
12.43	10,928.591	12.93	11,370.224	13.43	11,811.857	13.93	12,253.490	14.43	12,695.122	14.93	
12.44	10,937.423	12.94	11,379.056	13.44	11,820.689	13.94	12,262.322	14.44	12,703.955	14.94	
12.45	10,946.256	12.95	11,387.889	13.45	11,829.522	13.95	12,271.155	14.45	12,712.788	14.95	
12.46	10,955.089	12.96	11,396.722	13.46	11,838.355	13.96	12,279.988	14.46	12,721.620	14.96	
12.47	10,963.921	12.97	11,405.554	13.47	11,847.187	13.97	12,288.820	14.47	12,730.453	14.97	
12.48	10,972.754	12.98	11,414.387	13.48	11,856.020	13.98	12,297.653	14.48	12,739.286	14.98	
12.49	10,981.587	12.99	11,423.220	13.49	11,864.853	13.99	12,306.485	14.49	12,748.118	14.99	

Millimetres

1	0.883	6	5.296
2	1.765	7	6.178
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NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-500**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	4.537403	4.537403	4.537403
1	1	8.815025	-5.756886	3.058139	7.595541
2	1	8.815025	-5.121282	3.693743	11.289284
3	1	8.815025	-4.209995	4.605030	15.894314
4	1	8.815025	-3.147528	5.667497	21.561811
5	1	8.815025	-2.680092	6.134933	27.696744
6	1	8.815025	-2.680521	6.134504	33.831248
7	1	8.815025	-2.210726	6.604299	40.435546
8	1	8.815025	-1.766685	7.048340	47.483886
9	1	8.815025	-1.416092	7.398933	54.882819
10	1	8.815025	-1.099347	7.715678	62.598496
11	1	8.815025	-0.754069	8.060956	70.659452
12	1	8.815025	-0.472296	8.342729	79.002182
13	1	8.815025	-0.313317	8.501708	87.503889
14	1	8.815025	-0.022421	8.792604	96.296494
20	6	8.815025	-0.000805	8.814220	149.181815
25	5	8.815025	-0.001695	8.813330	193.248467
27	2	8.815025	-0.033680	8.781345	210.811157
28	1	8.815025	-0.001498	8.813527	219.624684
30	2	8.815025	-0.000554	8.814471	237.253626
31	1	8.815025	-0.001097	8.813928	246.067554
33	2	8.815025	-0.001151	8.813874	263.695302
38	5	8.815025	-0.001043	8.813982	307.765211
39	1	8.815025	-0.000859	8.814166	316.579376
40	1	8.815025	-0.001150	8.813875	325.393252
43	3	8.815025	-0.001071	8.813954	351.835115
45	2	8.815025	-0.000998	8.814027	369.463170
53	6	8.815025	-0.001024	8.814001	439.964119
52	2	8.815025	-0.006554	8.808471	431.150118
54	1	8.815025	-0.002001	8.813024	448.777143
59	5	8.815025	-0.002064	8.812961	492.841946
60	1	8.815025	-0.001895	8.813130	501.655076
61	1	8.815025	-0.002724	8.812301	510.467378
65	4	8.815025	-0.001746	8.813279	545.720494
67	2	8.815025	-0.000915	8.814110	563.348714
69	2	8.815025	-0.000763	8.814263	580.977239
74	5	8.815025	-0.000036	8.814989	625.052185
87	13	8.815025	-0.000109	8.814916	739.646094
94	7	8.815025	-0.000083	8.814942	801.350689
117	23	8.815025	-0.000191	8.814834	1004.091875
122	5	8.815025	-0.000270	8.814755	1048.165651
304	178	8.815025	-0.000287	8.814738	2640.701681
188	4	8.815025	-2.936847	5.878178	1618.192102
305	1	8.816861	-0.000287	8.816573	2649.518254
609	304	8.824203	-0.000287	8.823916	5331.988744
610	1	8.825034	-0.000287	8.824747	5340.813490
914	304	8.826280	-0.000287	8.825992	8023.915133
915	1	8.827786	-0.000287	8.827499	8032.742632
1219	304	8.828791	-0.000287	8.828503	10716.607690
1220	1	8.832115	-0.000287	8.831828	10725.439518
1463	243	8.832946	-0.000287	8.832659	12871.775674
1464	1	0.353318	-0.000287	0.353031	12872.128704

Secure Energy Services

Kerrobert, SK

General Information

Tank Number	T-500
Date of Strapping Data	06/20/2018
Year Built	2018
Product in Service	Crude
Product Service Density	0.856 g/cc (SG)

Tank Dimensions

Nominal Diameter	110 Feet
Nominal Height	48 Feet
Measured Tank Height	14.623 Metres
Tank Tilt	0 Millimetres
Gauge Point Information	Top of Benchmark tab in hatch
Reference Gauge Height	635.375 Inches
Horizontal To Gauge	42 Inches

Roof & Bottom Survey

Roof Type	Internal Floating
Floating Roof Shape	
Floating Roof Weight	10054.78 Kg / 22,167 lbs
Roof Landed Height	179 Centimetres
Roof Full Floating Height	193 Centimetres
Bottom Description	Physical Survey

Report Constraints

Main Increment	Centimetres
Main Volume	Cubic Metres
Product at Strapping	empty
Product Strap Density	1 g/cc (SG)
Liquid Height at Strap	*Before Hydro*
Alarm Levels	HH-13.4m, H-13.3m L-1.8m, LL-1.5m
Overflow Or Foamline	13.441 Metres

Secure Energy Services

Kerrobert, SK

Strap Correction to 60°F

Shell Temperature (°F)	68.0	**Master Tape Serial**	
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994840

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	105.330	345.571	0.000	345.553
2	105.330	345.571	0.000	345.553
3	105.330	345.571	0.000	345.553
4	105.330	345.571	0.000	345.553
5	105.330	345.571	0.000	345.553

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	438.583	0.000	0.000	105.324	345.553
2	435.583	-3.000	18.850	105.343	345.614
3	439.500	0.917	-5.760	105.319	345.534
4	441.083	2.500	-15.708	105.309	345.501
5	440.708	2.125	-13.352	105.311	345.509

Secure Energy Services

Kerrobert, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	345.553	0.506 Inches	10.000 Feet	10.000 Feet
2	345.614	0.399 Inches	10.000 Feet	20.000 Feet
3	345.534	0.305 Inches	10.000 Feet	30.000 Feet
4	345.501	0.305 Inches	10.000 Feet	40.000 Feet
5	345.509	0.305 Inches	8.000 Feet	48.000 Feet

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	10	0.250 Inches	1.000 Millimetres
2	Butt Weld	10	0.250 Inches	1.000 Millimetres
3	Butt Weld	10	0.250 Inches	1.000 Millimetres
4	Butt Weld	10	0.250 Inches	1.000 Millimetres
5	Butt Weld	10	0.250 Inches	1.000 Millimetres

Secure Energy Services

Kerrobert, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$\frac{-K\ (G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	345.553	0.506	0
2.00	62.428	1.000	0	345.614	0.399	0
3.00	62.428	1.000	0	345.534	0.305	0
4.00	62.428	1.000	0	345.501	0.305	0
5.00	62.428	1.000	0	345.509	0.305	0

Secure Energy Services

Kerrobert, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	345.553	0.000	0.000	0.265	345.288
2	345.614	0.000	0.000	0.209	345.405
3	345.534	0.000	0.000	0.160	345.374
4	345.501	0.000	0.000	0.160	345.341
5	345.509	0.000	0.000	0.160	345.349

Secure Energy Services

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Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Centimetre
1	345.288	0.019	345.306	8.815
2	345.405	0.031	345.437	8.822
3	345.374	0.041	345.415	8.821
4	345.341	0.041	345.382	8.819
5	345.349	0.033	345.382	8.819

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Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Centimetre	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	8.815	0.003	0.000	8.815	8.815
2	8.822	0.003	0.003	8.824	8.824
3	8.821	0.004	0.006	8.826	8.826
4	8.819	0.004	0.010	8.829	8.829
5	8.819	0.000	0.014	8.833	8.833

Secure Energy Services **TANK # T-501**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.125 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

.00	** 4.474	.50	413.356	1.00	854.372	1.50	LL 1,295.421	2.00	1,724.721	2.50	2,165.768
.01	* 7.633	.51	422.171	1.01	863.193	1.51	1,304.242	2.01	1,733.542	2.51	2,174.589
.02	* 11.299	.52	430.985	1.02	872.014	1.52	1,313.063	2.02	1,742.363	2.52	2,183.410
.03	* 15.749	.53	439.805	1.03	880.835	1.53	1,321.884	2.03	1,751.184	2.53	2,192.231
.04	* 21.292	.54	448.625	1.04	889.656	1.54	1,330.705	2.04	1,760.005	2.54	2,201.052
.05	27.312	.55	457.444	1.05	898.477	1.55	1,339.525	2.05	1,768.826	2.55	2,209.873
.06	33.523	.56	466.263	1.06	907.298	1.56	1,348.346	2.06	1,777.647	2.56	2,218.694
.07	40.111	.57	475.082	1.07	916.120	1.57	1,357.167	2.07	1,786.468	2.57	2,227.515
.08	47.271	.58	483.901	1.08	924.941	1.58	1,365.988	2.08	1,795.289	2.58	2,236.336
.09	54.726	.59	492.720	1.09	933.762	1.59	1,374.809	2.09	1,804.110	2.59	2,245.157
.10	62.576	.60	501.540	1.10	942.583	1.60	1,383.630	2.10	1,812.931	2.60	2,253.977
.11	70.566	.61	510.358	1.11	951.404	1.61	1,392.451	2.11	1,821.752	2.61	2,262.798
.12	78.769	.62	519.178	1.12	960.225	1.62	1,401.272	2.12	1,830.573	2.62	2,271.619
.13	87.236	.63	527.997	1.13	969.046	1.63	1,410.093	2.13	1,839.394	2.63	2,280.440
.14	95.896	.64	536.817	1.14	977.867	1.64	1,418.914	2.14	1,848.214	2.64	2,289.261
.15	104.716	.65	545.636	1.15	986.688	1.65	1,427.735	2.15	1,857.035	2.65	2,298.082
.16	113.537	.66	554.456	1.16	995.509	1.66	1,435.865	2.16	1,865.856	2.66	2,306.903
.17	122.357	.67	563.277	1.17	1,004.330	1.67	1,443.995	2.17	1,874.677	2.67	2,315.724
.18	131.178	.68	572.097	1.18	1,013.151	1.68	1,452.125	2.18	1,883.498	2.68	2,324.545
.19	139.998	.69	580.918	1.19	1,021.972	1.69	1,460.255	2.19	1,892.319	2.69	2,333.366
.20	148.819	.70	589.739	1.20	1,030.793	1.70	1,468.385	2.20	1,901.140	2.70	2,342.187
.21	157.638	.71	598.560	1.21	1,039.614	1.71	1,476.515	2.21	1,909.961	2.71	2,351.008
.22	166.458	.72	607.381	1.22	1,048.435	1.72	1,484.645	2.22	1,918.782	2.72	2,359.829
.23	175.277	.73	616.202	1.23	1,057.256	1.73	1,492.775	2.23	1,927.603	2.73	2,368.650
.24	184.097	.74	625.024	1.24	1,066.076	1.74	1,500.905	2.24	1,936.424	2.74	2,377.471
.25	192.916	.75	633.845	1.25	1,074.897	1.75	1,509.035	2.25	1,945.245	2.75	2,386.292
.26	201.704	.76	642.666	1.26	1,083.718	1.76	1,517.165	2.26	1,954.066	2.76	2,395.112
.27	210.491	.77	651.487	1.27	1,092.539	1.77	1,525.295	2.27	1,962.887	2.77	2,403.933
.28	219.311	.78	660.308	1.28	1,101.360	1.78	1,533.425	2.28	1,971.708	2.78	2,412.754
.29	228.132	.79	669.129	1.29	1,110.181	1.79	1,541.555	2.29	1,980.528	2.79	2,421.575
.30	236.952	.80	677.950	1.30	1,119.002	1.80	L 1,549.685	2.30	1,989.349	2.80	2,430.396
.31	245.772	.81	686.771	1.31	1,127.823	1.81	1,557.815	2.31	1,998.170	2.81	2,439.217
.32	254.593	.82	695.593	1.32	1,136.644	1.82	1,565.945	2.32	2,006.991	2.82	2,448.038
.33	263.413	.83	704.414	1.33	1,145.465	1.83	1,574.765	2.33	2,015.812	2.83	2,456.859
.34	272.233	.84	713.235	1.34	1,154.286	1.84	1,583.586	2.34	2,024.633	2.84	2,465.680
.35	281.053	.85	722.056	1.35	1,163.107	1.85	1,592.407	2.35	2,033.454	2.85	2,474.501
.36	289.873	.86	730.877	1.36	1,171.928	1.86	1,601.228	2.36	2,042.275	2.86	2,483.322
.37	298.693	.87	739.698	1.37	1,180.749	1.87	1,610.049	2.37	2,051.096	2.87	2,492.143
.38	307.514	.88	748.519	1.38	1,189.570	1.88	1,618.870	2.38	2,059.917	2.88	2,500.964
.39	316.334	.89	757.340	1.39	1,198.391	1.89	1,627.691	2.39	2,068.738	2.89	2,509.785
.40	325.154	.90	766.162	1.40	1,207.211	1.90	1,636.512	2.40	2,077.559	2.90	2,518.606
.41	333.974	.91	774.983	1.41	1,216.032	1.91	1,645.333	2.41	2,086.380	2.91	2,527.427
.42	342.794	.92	783.804	1.42	1,224.853	1.92	1,654.154	2.42	2,095.201	2.92	2,536.247
.43	351.614	.93	792.625	1.43	1,233.674	1.93	1,662.975	2.43	2,104.022	2.93	2,545.068
.44	360.435	.94	801.446	1.44	1,242.495	1.94	1,671.796	2.44	2,112.843	2.94	2,553.889
.45	369.255	.95	810.267	1.45	1,251.316	1.95	1,680.617	2.45	2,121.663	2.95	2,562.710
.46	378.075	.96	819.088	1.46	1,260.137	1.96	1,689.438	2.46	2,130.484	2.96	2,571.531
.47	386.895	.97	827.909	1.47	1,268.958	1.97	1,698.259	2.47	2,139.305	2.97	2,580.352
.48	395.715	.98	836.730	1.48	1,277.779	1.98	1,707.079	2.48	2,148.126	2.98	2,589.173
.49	404.536	.99	845.551	1.49	1,286.600	1.99	1,715.900	2.49	2,156.947	2.99	2,597.994

Low Critical Zone - No Critical measurements

High Critical Zone - No Critical measurements

** Volume Below Strike Point; Located 4.8 Centimetres above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Centimetres not applicable

Tables calculated prior to Hydro Test Volumes reflect a Shell Temperature of 15°C

Alarm Levels: HH-13400mm, H-13300mm, L-1800mm, LL-1500mm

A total of 11.746 Cubic Metres were deducted between 179 & 196 Centimetres based on a weight of 10054.782 Kilograms and a density of 856 kg/m3. Gauged quantities above 196 Centimetres reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

Secure Energy Services **TANK # T-501**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions ; 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.125 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

3.00	2,606.815	3.50	3,048.068	4.00	3,489.344	4.50	3,930.619	5.00	4,371.895	5.50	4,813.170
3.01	2,615.636	3.51	3,056.894	4.01	3,498.169	4.51	3,939.445	5.01	4,380.720	5.51	4,821.996
3.02	2,624.457	3.52	3,065.719	4.02	3,506.995	4.52	3,948.270	5.02	4,389.546	5.52	4,830.822
3.03	2,633.278	3.53	3,074.545	4.03	3,515.821	4.53	3,957.096	5.03	4,398.372	5.53	4,839.647
3.04	2,642.099	3.54	3,083.371	4.04	3,524.646	4.54	3,965.922	5.04	4,407.197	5.54	4,848.473
3.05	2,650.921	3.55	3,092.196	4.05	3,533.472	4.55	3,974.747	5.05	4,416.023	5.55	4,857.298
3.06	2,659.746	3.56	3,101.022	4.06	3,542.297	4.56	3,983.573	5.06	4,424.848	5.56	4,866.124
3.07	2,668.572	3.57	3,109.847	4.07	3,551.123	4.57	3,992.398	5.07	4,433.674	5.57	4,874.949
3.08	2,677.397	3.58	3,118.673	4.08	3,559.948	4.58	4,001.224	5.08	4,442.499	5.58	4,883.775
3.09	2,686.223	3.59	3,127.498	4.09	3,568.774	4.59	4,010.049	5.09	4,451.325	5.59	4,892.600
3.10	2,695.048	3.60	3,136.324	4.10	3,577.599	4.60	4,018.875	5.10	4,460.150	5.60	4,901.426
3.11	2,703.874	3.61	3,145.149	4.11	3,586.425	4.61	4,027.700	5.11	4,468.976	5.61	4,910.251
3.12	2,712.699	3.62	3,153.975	4.12	3,595.250	4.62	4,036.526	5.12	4,477.801	5.62	4,919.077
3.13	2,721.525	3.63	3,162.800	4.13	3,604.076	4.63	4,045.351	5.13	4,486.627	5.63	4,927.902
3.14	2,730.350	3.64	3,171.626	4.14	3,612.901	4.64	4,054.177	5.14	4,495.452	5.64	4,936.728
3.15	2,739.176	3.65	3,180.451	4.15	3,621.727	4.65	4,063.002	5.15	4,504.278	5.65	4,945.553
3.16	2,748.001	3.66	3,189.277	4.16	3,630.552	4.66	4,071.828	5.16	4,513.103	5.66	4,954.379
3.17	2,756.827	3.67	3,198.102	4.17	3,639.378	4.67	4,080.653	5.17	4,521.929	5.67	4,963.204
3.18	2,765.652	3.68	3,206.928	4.18	3,648.203	4.68	4,089.479	5.18	4,530.754	5.68	4,972.030
3.19	2,774.478	3.69	3,215.753	4.19	3,657.029	4.69	4,098.304	5.19	4,539.580	5.69	4,980.855
3.20	2,783.303	3.70	3,224.579	4.20	3,665.854	4.70	4,107.130	5.20	4,548.405	5.70	4,989.681
3.21	2,792.129	3.71	3,233.404	4.21	3,674.680	4.71	4,115.955	5.21	4,557.231	5.71	4,998.506
3.22	2,800.954	3.72	3,242.230	4.22	3,683.505	4.72	4,124.781	5.22	4,566.056	5.72	5,007.332
3.23	2,809.780	3.73	3,251.055	4.23	3,692.331	4.73	4,133.606	5.23	4,574.882	5.73	5,016.157
3.24	2,818.605	3.74	3,259.881	4.24	3,701.156	4.74	4,142.432	5.24	4,583.707	5.74	5,024.983
3.25	2,827.431	3.75	3,268.706	4.25	3,709.982	4.75	4,151.257	5.25	4,592.533	5.75	5,033.808
3.26	2,836.256	3.76	3,277.532	4.26	3,718.807	4.76	4,160.083	5.26	4,601.358	5.76	5,042.634
3.27	2,845.082	3.77	3,286.357	4.27	3,727.633	4.77	4,168.908	5.27	4,610.184	5.77	5,051.459
3.28	2,853.907	3.78	3,295.183	4.28	3,736.458	4.78	4,177.734	5.28	4,619.009	5.78	5,060.285
3.29	2,862.733	3.79	3,304.008	4.29	3,745.284	4.79	4,186.559	5.29	4,627.835	5.79	5,069.110
3.30	2,871.558	3.80	3,312.834	4.30	3,754.109	4.80	4,195.385	5.30	4,636.660	5.80	5,077.936
3.31	2,880.384	3.81	3,321.659	4.31	3,762.935	4.81	4,204.210	5.31	4,645.486	5.81	5,086.761
3.32	2,889.209	3.82	3,330.485	4.32	3,771.760	4.82	4,213.036	5.32	4,654.311	5.82	5,095.587
3.33	2,898.035	3.83	3,339.310	4.33	3,780.586	4.83	4,221.861	5.33	4,663.137	5.83	5,104.412
3.34	2,906.860	3.84	3,348.136	4.34	3,789.411	4.84	4,230.687	5.34	4,671.962	5.84	5,113.238
3.35	2,915.686	3.85	3,356.961	4.35	3,798.237	4.85	4,239.512	5.35	4,680.788	5.85	5,122.063
3.36	2,924.511	3.86	3,365.787	4.36	3,807.062	4.86	4,248.338	5.36	4,689.613	5.86	5,130.889
3.37	2,933.337	3.87	3,374.612	4.37	3,815.888	4.87	4,257.163	5.37	4,698.439	5.87	5,139.714
3.38	2,942.162	3.88	3,383.438	4.38	3,824.713	4.88	4,265.989	5.38	4,707.264	5.88	5,148.540
3.39	2,950.988	3.89	3,392.263	4.39	3,833.539	4.89	4,274.814	5.39	4,716.090	5.89	5,157.365
3.40	2,959.813	3.90	3,401.089	4.40	3,842.364	4.90	4,283.640	5.40	4,724.915	5.90	5,166.191
3.41	2,968.639	3.91	3,409.914	4.41	3,851.190	4.91	4,292.465	5.41	4,733.741	5.91	5,175.016
3.42	2,977.464	3.92	3,418.740	4.42	3,860.015	4.92	4,301.291	5.42	4,742.566	5.92	5,183.842
3.43	2,986.290	3.93	3,427.565	4.43	3,868.841	4.93	4,310.116	5.43	4,751.392	5.93	5,192.667
3.44	2,995.115	3.94	3,436.391	4.44	3,877.666	4.94	4,318.942	5.44	4,760.217	5.94	5,201.493
3.45	3,003.941	3.95	3,445.216	4.45	3,886.492	4.95	4,327.767	5.45	4,769.043	5.95	5,210.318
3.46	3,012.766	3.96	3,454.042	4.46	3,895.317	4.96	4,336.593	5.46	4,777.868	5.96	5,219.144
3.47	3,021.592	3.97	3,462.867	4.47	3,904.143	4.97	4,345.418	5.47	4,786.694	5.97	5,227.969
3.48	3,030.417	3.98	3,471.693	4.48	3,912.968	4.98	4,354.244	5.48	4,795.519	5.98	5,236.795
3.49	3,039.243	3.99	3,480.518	4.49	3,921.794	4.99	4,363.069	5.49	4,804.345	5.99	5,245.620

Displacement Correction = 10054.782 Kilograms / Kilograms/Cubic Metre = 11.746 Cubic Metres

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
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NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-501**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.125 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

6.00	5,254.446	6.50	5,695.754	7.00	6,137.070	7.50	6,578.386	8.00	7,019.701	8.50	7,461.017
6.01	5,263.271	6.51	5,704.580	7.01	6,145.896	7.51	6,587.212	8.01	7,028.528	8.51	7,469.843
6.02	5,272.097	6.52	5,713.407	7.02	6,154.722	7.52	6,596.038	8.02	7,037.354	8.52	7,478.670
6.03	5,280.923	6.53	5,722.233	7.03	6,163.549	7.53	6,604.865	8.03	7,046.180	8.53	7,487.496
6.04	5,289.748	6.54	5,731.059	7.04	6,172.375	7.54	6,613.691	8.04	7,055.007	8.54	7,496.322
6.05	5,298.574	6.55	5,739.886	7.05	6,181.201	7.55	6,622.517	8.05	7,063.833	8.55	7,505.149
6.06	5,307.399	6.56	5,748.712	7.06	6,190.028	7.56	6,631.343	8.06	7,072.659	8.56	7,513.975
6.07	5,316.225	6.57	5,757.538	7.07	6,198.854	7.57	6,640.170	8.07	7,081.486	8.57	7,522.801
6.08	5,325.050	6.58	5,766.365	7.08	6,207.680	7.58	6,648.996	8.08	7,090.312	8.58	7,531.628
6.09	5,333.876	6.59	5,775.191	7.09	6,216.507	7.59	6,657.822	8.09	7,099.138	8.59	7,540.454
6.10	5,342.701	6.60	5,784.017	7.10	6,225.333	7.60	6,666.649	8.10	7,107.964	8.60	7,549.280
6.11	5,351.528	6.61	5,792.843	7.11	6,234.159	7.61	6,675.475	8.11	7,116.791	8.61	7,558.107
6.12	5,360.354	6.62	5,801.670	7.12	6,242.986	7.62	6,684.301	8.12	7,125.617	8.62	7,566.933
6.13	5,369.180	6.63	5,810.496	7.13	6,251.812	7.63	6,693.128	8.13	7,134.443	8.63	7,575.759
6.14	5,378.007	6.64	5,819.322	7.14	6,260.638	7.64	6,701.954	8.14	7,143.270	8.64	7,584.586
6.15	5,386.833	6.65	5,828.149	7.15	6,269.465	7.65	6,710.780	8.15	7,152.096	8.65	7,593.412
6.16	5,395.659	6.66	5,836.975	7.16	6,278.291	7.66	6,719.607	8.16	7,160.922	8.66	7,602.238
6.17	5,404.486	6.67	5,845.801	7.17	6,287.117	7.67	6,728.433	8.17	7,169.749	8.67	7,611.064
6.18	5,413.312	6.68	5,854.628	7.18	6,295.943	7.68	6,737.259	8.18	7,178.575	8.68	7,619.891
6.19	5,422.138	6.69	5,863.454	7.19	6,304.770	7.69	6,746.086	8.19	7,187.401	8.69	7,628.717
6.20	5,430.965	6.70	5,872.280	7.20	6,313.596	7.70	6,754.912	8.20	7,196.228	8.70	7,637.543
6.21	5,439.791	6.71	5,881.107	7.21	6,322.422	7.71	6,763.738	8.21	7,205.054	8.71	7,646.370
6.22	5,448.617	6.72	5,889.933	7.22	6,331.249	7.72	6,772.565	8.22	7,213.880	8.72	7,655.196
6.23	5,457.444	6.73	5,898.759	7.23	6,340.075	7.73	6,781.391	8.23	7,222.707	8.73	7,664.022
6.24	5,466.270	6.74	5,907.586	7.24	6,348.901	7.74	6,790.217	8.24	7,231.533	8.74	7,672.849
6.25	5,475.096	6.75	5,916.412	7.25	6,357.728	7.75	6,799.043	8.25	7,240.359	8.75	7,681.675
6.26	5,483.922	6.76	5,925.238	7.26	6,366.554	7.76	6,807.870	8.26	7,249.186	8.76	7,690.501
6.27	5,492.749	6.77	5,934.065	7.27	6,375.380	7.77	6,816.696	8.27	7,258.012	8.77	7,699.328
6.28	5,501.575	6.78	5,942.891	7.28	6,384.207	7.78	6,825.522	8.28	7,266.838	8.78	7,708.154
6.29	5,510.401	6.79	5,951.717	7.29	6,393.033	7.79	6,834.349	8.29	7,275.664	8.79	7,716.980
6.30	5,519.228	6.80	5,960.543	7.30	6,401.859	7.80	6,843.175	8.30	7,284.491	8.80	7,725.807
6.31	5,528.054	6.81	5,969.370	7.31	6,410.686	7.81	6,852.001	8.31	7,293.317	8.81	7,734.633
6.32	5,536.880	6.82	5,978.196	7.32	6,419.512	7.82	6,860.828	8.32	7,302.143	8.82	7,743.459
6.33	5,545.707	6.83	5,987.022	7.33	6,428.338	7.83	6,869.654	8.33	7,310.970	8.83	7,752.286
6.34	5,554.533	6.84	5,995.849	7.34	6,437.165	7.84	6,878.480	8.34	7,319.796	8.84	7,761.112
6.35	5,563.359	6.85	6,004.675	7.35	6,445.991	7.85	6,887.307	8.35	7,328.622	8.85	7,769.938
6.36	5,572.186	6.86	6,013.501	7.36	6,454.817	7.86	6,896.133	8.36	7,337.449	8.86	7,778.764
6.37	5,581.012	6.87	6,022.328	7.37	6,463.643	7.87	6,904.959	8.37	7,346.275	8.87	7,787.591
6.38	5,589.838	6.88	6,031.154	7.38	6,472.470	7.88	6,913.786	8.38	7,355.101	8.88	7,796.417
6.39	5,598.665	6.89	6,039.980	7.39	6,481.296	7.89	6,922.612	8.39	7,363.928	8.89	7,805.243
6.40	5,607.491	6.90	6,048.807	7.40	6,490.122	7.90	6,931.438	8.40	7,372.754	8.90	7,814.070
6.41	5,616.317	6.91	6,057.633	7.41	6,498.949	7.91	6,940.265	8.41	7,381.580	8.91	7,822.896
6.42	5,625.143	6.92	6,066.459	7.42	6,507.775	7.92	6,949.091	8.42	7,390.407	8.92	7,831.722
6.43	5,633.970	6.93	6,075.286	7.43	6,516.601	7.93	6,957.917	8.43	7,399.233	8.93	7,840.549
6.44	5,642.796	6.94	6,084.112	7.44	6,525.428	7.94	6,966.743	8.44	7,408.059	8.94	7,849.375
6.45	5,651.622	6.95	6,092.938	7.45	6,534.254	7.95	6,975.570	8.45	7,416.886	8.95	7,858.201
6.46	5,660.449	6.96	6,101.765	7.46	6,543.080	7.96	6,984.396	8.46	7,425.712	8.96	7,867.028
6.47	5,669.275	6.97	6,110.591	7.47	6,551.907	7.97	6,993.222	8.47	7,434.538	8.97	7,875.854
6.48	5,678.101	6.98	6,119.417	7.48	6,560.733	7.98	7,002.049	8.48	7,443.364	8.98	7,884.680
6.49	5,686.928	6.99	6,128.243	7.49	6,569.559	7.99	7,010.875	8.49	7,452.191	8.99	7,893.507

Millimetres

1	0.883	6	5.296
2	1.765	7	6.178
3	2.648	8	7.061
4	3.530	9	7.943
5	4.413		

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NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-501**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.125 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

9.00	7,902.333	9.50	8,343.913	10.00	8,785.600	10.50	9,227.287	11.00	9,668.975	11.50	10,110.662
9.01	7,911.159	9.51	8,352.747	10.01	8,794.434	10.51	9,236.121	11.01	9,677.808	11.51	10,119.496
9.02	7,919.986	9.52	8,361.581	10.02	8,803.268	10.52	9,244.955	11.02	9,686.642	11.52	10,128.329
9.03	7,928.812	9.53	8,370.414	10.03	8,812.102	10.53	9,253.789	11.03	9,695.476	11.53	10,137.163
9.04	7,937.638	9.54	8,379.248	10.04	8,820.935	10.54	9,262.622	11.04	9,704.310	11.54	10,145.997
9.05	7,946.464	9.55	8,388.082	10.05	8,829.769	10.55	9,271.456	11.05	9,713.143	11.55	10,154.831
9.06	7,955.291	9.56	8,396.916	10.06	8,838.603	10.56	9,280.290	11.06	9,721.977	11.56	10,163.664
9.07	7,964.117	9.57	8,405.749	10.07	8,847.436	10.57	9,289.124	11.07	9,730.811	11.57	10,172.498
9.08	7,972.943	9.58	8,414.583	10.08	8,856.270	10.58	9,297.957	11.08	9,739.645	11.58	10,181.332
9.09	7,981.770	9.59	8,423.417	10.09	8,865.104	10.59	9,306.791	11.09	9,748.478	11.59	10,190.166
9.10	7,990.596	9.60	8,432.251	10.10	8,873.938	10.60	9,315.625	11.10	9,757.312	11.60	10,198.999
9.11	7,999.422	9.61	8,441.084	10.11	8,882.771	10.61	9,324.459	11.11	9,766.146	11.61	10,207.833
9.12	8,008.249	9.62	8,449.918	10.12	8,891.605	10.62	9,333.292	11.12	9,774.980	11.62	10,216.667
9.13	8,017.075	9.63	8,458.752	10.13	8,900.439	10.63	9,342.126	11.13	9,783.813	11.63	10,225.500
9.14	8,025.901	9.64	8,467.586	10.14	8,909.273	10.64	9,350.960	11.14	9,792.647	11.64	10,234.334
9.15	8,034.732	9.65	8,476.419	10.15	8,918.106	10.65	9,359.794	11.15	9,801.481	11.65	10,243.168
9.16	8,043.566	9.66	8,485.253	10.16	8,926.940	10.66	9,368.627	11.16	9,810.315	11.66	10,252.002
9.17	8,052.400	9.67	8,494.087	10.17	8,935.774	10.67	9,377.461	11.17	9,819.148	11.67	10,260.835
9.18	8,061.233	9.68	8,502.920	10.18	8,944.608	10.68	9,386.295	11.18	9,827.982	11.68	10,269.669
9.19	8,070.067	9.69	8,511.754	10.19	8,953.441	10.69	9,395.129	11.19	9,836.816	11.69	10,278.503
9.20	8,078.901	9.70	8,520.588	10.20	8,962.275	10.70	9,403.962	11.20	9,845.650	11.70	10,287.337
9.21	8,087.735	9.71	8,529.422	10.21	8,971.109	10.71	9,412.796	11.21	9,854.483	11.71	10,296.170
9.22	8,096.568	9.72	8,538.255	10.22	8,979.943	10.72	9,421.630	11.22	9,863.317	11.72	10,305.004
9.23	8,105.402	9.73	8,547.089	10.23	8,988.776	10.73	9,430.464	11.23	9,872.151	11.73	10,313.838
9.24	8,114.236	9.74	8,555.923	10.24	8,997.610	10.74	9,439.297	11.24	9,880.984	11.74	10,322.672
9.25	8,123.070	9.75	8,564.757	10.25	9,006.444	10.75	9,448.131	11.25	9,889.818	11.75	10,331.505
9.26	8,131.903	9.76	8,573.590	10.26	9,015.278	10.76	9,456.965	11.26	9,898.652	11.76	10,340.339
9.27	8,140.737	9.77	8,582.424	10.27	9,024.111	10.77	9,465.799	11.27	9,907.486	11.77	10,349.173
9.28	8,149.571	9.78	8,591.258	10.28	9,032.945	10.78	9,474.632	11.28	9,916.319	11.78	10,358.007
9.29	8,158.404	9.79	8,600.092	10.29	9,041.779	10.79	9,483.466	11.29	9,925.153	11.79	10,366.840
9.30	8,167.238	9.80	8,608.925	10.30	9,050.613	10.80	9,492.300	11.30	9,933.987	11.80	10,375.674
9.31	8,176.072	9.81	8,617.759	10.31	9,059.446	10.81	9,501.134	11.31	9,942.821	11.81	10,384.508
9.32	8,184.906	9.82	8,626.593	10.32	9,068.280	10.82	9,509.967	11.32	9,951.654	11.82	10,393.342
9.33	8,193.739	9.83	8,635.427	10.33	9,077.114	10.83	9,518.801	11.33	9,960.488	11.83	10,402.175
9.34	8,202.573	9.84	8,644.260	10.34	9,085.948	10.84	9,527.635	11.34	9,969.322	11.84	10,411.009
9.35	8,211.407	9.85	8,653.094	10.35	9,094.781	10.85	9,536.468	11.35	9,978.156	11.85	10,419.843
9.36	8,220.241	9.86	8,661.928	10.36	9,103.615	10.86	9,545.302	11.36	9,986.989	11.86	10,428.677
9.37	8,229.074	9.87	8,670.762	10.37	9,112.449	10.87	9,554.136	11.37	9,995.823	11.87	10,437.510
9.38	8,237.908	9.88	8,679.595	10.38	9,121.283	10.88	9,562.970	11.38	10,004.657	11.88	10,446.344
9.39	8,246.742	9.89	8,688.429	10.39	9,130.116	10.89	9,571.803	11.39	10,013.491	11.89	10,455.178
9.40	8,255.576	9.90	8,697.263	10.40	9,138.950	10.90	9,580.637	11.40	10,022.324	11.90	10,464.012
9.41	8,264.409	9.91	8,706.097	10.41	9,147.784	10.91	9,589.471	11.41	10,031.158	11.91	10,472.845
9.42	8,273.243	9.92	8,714.930	10.42	9,156.618	10.92	9,598.305	11.42	10,039.992	11.92	10,481.679
9.43	8,282.077	9.93	8,723.764	10.43	9,165.451	10.93	9,607.138	11.43	10,048.826	11.93	10,490.513
9.44	8,290.911	9.94	8,732.598	10.44	9,174.285	10.94	9,615.972	11.44	10,057.659	11.94	10,499.347
9.45	8,299.744	9.95	8,741.432	10.45	9,183.119	10.95	9,624.806	11.45	10,066.493	11.95	10,508.180
9.46	8,308.578	9.96	8,750.265	10.46	9,191.952	10.96	9,633.640	11.46	10,075.327	11.96	10,517.014
9.47	8,317.412	9.97	8,759.099	10.47	9,200.786	10.97	9,642.473	11.47	10,084.161	11.97	10,525.848
9.48	8,326.246	9.98	8,767.933	10.48	9,209.620	10.98	9,651.307	11.48	10,092.994	11.98	10,534.682
9.49	8,335.079	9.99	8,776.767	10.49	9,218.454	10.99	9,660.141	11.49	10,101.828	11.99	10,543.515

Millimetres

1	0.883	6	5.296
2	1.765	7	6.178
3	2.648	8	7.061
4	3.530	9	7.943
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NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-501**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet INNAGE TABLE

Reference Gauge Height - 16.125 Metres; Located 1.067 Metres to Benchmark tab in hatch Height in Centimetres; Capacity in Cubic Metres

12.00	10,552.349	12.50	10,994.095	13.00	11,435.878	13.50	11,877.662	14.00	12,319.445	14.50	12,761.228
12.01	10,561.183	12.51	11,002.931	13.01	11,444.714	13.51	11,886.497	14.01	12,328.280	14.51	12,770.064
12.02	10,570.016	12.52	11,011.767	13.02	11,453.550	13.52	11,895.333	14.02	12,337.116	14.52	12,778.899
12.03	10,578.850	12.53	11,020.602	13.03	11,462.385	13.53	11,904.169	14.03	12,345.952	14.53	12,787.735
12.04	10,587.684	12.54	11,029.438	13.04	11,471.221	13.54	11,913.004	14.04	12,354.787	14.54	12,796.571
12.05	10,596.518	12.55	11,038.274	13.05	11,480.057	13.55	11,921.840	14.05	12,363.623	14.55	12,805.406
12.06	10,605.351	12.56	11,047.109	13.06	11,488.892	13.56	11,930.676	14.06	12,372.459	14.56	12,814.242
12.07	10,614.185	12.57	11,055.945	13.07	11,497.728	13.57	11,939.511	14.07	12,381.294	14.57	12,823.078
12.08	10,623.019	12.58	11,064.781	13.08	11,506.564	13.58	11,948.347	14.08	12,390.130	14.58	12,831.913
12.09	10,631.853	12.59	11,073.616	13.09	11,515.399	13.59	11,957.183	14.09	12,398.966	14.59	12,840.749
12.10	10,640.686	12.60	11,082.452	13.10	11,524.235	13.60	11,966.018	14.10	12,407.801	14.60	12,849.585
12.11	10,649.520	12.61	11,091.288	13.11	11,533.071	13.61	11,974.854	14.11	12,416.637	14.61	12,858.420
12.12	10,658.354	12.62	11,100.123	13.12	11,541.906	13.62	11,983.690	14.12	12,425.473	14.62	12,867.256
12.13	10,667.188	12.63	11,108.959	13.13	11,550.742	13.63	11,992.525	14.13	12,434.308	14.63	12,869.023
12.14	10,676.021	12.64	11,117.795	13.14	11,559.578	13.64	12,001.361	14.14	12,443.144	14.64	
12.15	10,684.855	12.65	11,126.630	13.15	11,568.413	13.65	12,010.197	14.15	12,451.980	14.65	
12.16	10,693.689	12.66	11,135.466	13.16	11,577.249	13.66	12,019.032	14.16	12,460.815	14.66	
12.17	10,702.523	12.67	11,144.302	13.17	11,586.085	13.67	12,027.868	14.17	12,469.651	14.67	
12.18	10,711.356	12.68	11,153.137	13.18	11,594.920	13.68	12,036.704	14.18	12,478.487	14.68	
12.19	10,720.190	12.69	11,161.973	13.19	11,603.756	13.69	12,045.539	14.19	12,487.322	14.69	
12.20	10,729.025	12.70	11,170.809	13.20	11,612.592	13.70	12,054.375	14.20	12,496.158	14.70	
12.21	10,737.861	12.71	11,179.644	13.21	11,621.427	13.71	12,063.211	14.21	12,504.994	14.71	
12.22	10,746.697	12.72	11,188.480	13.22	11,630.263	13.72	12,072.046	14.22	12,513.829	14.72	
12.23	10,755.532	12.73	11,197.316	13.23	11,639.099	13.73	12,080.882	14.23	12,522.665	14.73	
12.24	10,764.368	12.74	11,206.151	13.24	11,647.934	13.74	12,089.718	14.24	12,531.501	14.74	
12.25	10,773.204	12.75	11,214.987	13.25	11,656.770	13.75	12,098.553	14.25	12,540.336	14.75	
12.26	10,782.039	12.76	11,223.823	13.26	11,665.606	13.76	12,107.389	14.26	12,549.172	14.76	
12.27	10,790.875	12.77	11,232.658	13.27	11,674.441	13.77	12,116.225	14.27	12,558.008	14.77	
12.28	10,799.711	12.78	11,241.494	13.28	11,683.277	13.78	12,125.060	14.28	12,566.843	14.78	
12.29	10,808.546	12.79	11,250.330	13.29	11,692.113	13.79	12,133.896	14.29	12,575.679	14.79	
12.30	10,817.382	12.80	11,259.165	13.30 H	11,700.948	13.80	12,142.732	14.30	12,584.515	14.80	
12.31	10,826.218	12.81	11,268.001	13.31	11,709.784	13.81	12,151.567	14.31	12,593.350	14.81	
12.32	10,835.053	12.82	11,276.837	13.32	11,718.620	13.82	12,160.403	14.32	12,602.186	14.82	
12.33	10,843.889	12.83	11,285.672	13.33	11,727.455	13.83	12,169.239	14.33	12,611.022	14.83	
12.34	10,852.725	12.84	11,294.508	13.34	11,736.291	13.84	12,178.074	14.34	12,619.857	14.84	
12.35	10,861.560	12.85	11,303.344	13.35	11,745.127	13.85	12,186.910	14.35	12,628.693	14.85	
12.36	10,870.396	12.86	11,312.179	13.36	11,753.962	13.86	12,195.746	14.36	12,637.529	14.86	
12.37	10,879.232	12.87	11,321.015	13.37	11,762.798	13.87	12,204.581	14.37	12,646.364	14.87	
12.38	10,888.067	12.88	11,329.851	13.38	11,771.634	13.88	12,213.417	14.38	12,655.200	14.88	
12.39	10,896.903	12.89	11,338.686	13.39	11,780.469	13.89	12,222.252	14.39	12,664.036	14.89	
12.40	10,905.739	12.90	11,347.522	13.40 HH	11,789.305	13.90	12,231.088	14.40	12,672.871	14.90	
12.41	10,914.574	12.91	11,356.357	13.41	11,798.141	13.91	12,239.924	14.41	12,681.707	14.91	
12.42	10,923.410	12.92	11,365.193	13.42	11,806.976	13.92	12,248.759	14.42	12,690.543	14.92	
12.43	10,932.246	12.93	11,374.029	13.43	11,815.812	13.93	12,257.595	14.43	12,699.378	14.93	
12.44	10,941.081	12.94	11,382.864	13.44	11,824.648	13.94	12,266.431	14.44	12,708.214	14.94	
12.45	10,949.917	12.95	11,391.700	13.45	11,833.483	13.95	12,275.266	14.45	12,717.050	14.95	
12.46	10,958.753	12.96	11,400.536	13.46	11,842.319	13.96	12,284.102	14.46	12,725.885	14.96	
12.47	10,967.588	12.97	11,409.371	13.47	11,851.155	13.97	12,292.938	14.47	12,734.721	14.97	
12.48	10,976.424	12.98	11,418.207	13.48	11,859.990	13.98	12,301.773	14.48	12,743.557	14.98	
12.49	10,985.260	12.99	11,427.043	13.49	11,868.826	13.99	12,310.609	14.49	12,752.392	14.99	

Millimetres

1	0.883	6	5.296
2	1.765	7	6.178
3	2.648	8	7.061
4	3.530	9	7.943
5	4.413		

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

NEXTGEN INDUSTRIAL SERVICES

Secure Energy Services **TANK # T-501**

Kerrobert, SK **856 kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 110 Feet X 48 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	4.537403	4.537403	4.537403
1	1	8.815025	-5.756886	3.058139	7.595541
2	1	8.815025	-5.121282	3.693743	11.289284
3	1	8.815025	-4.209995	4.605030	15.894314
4	1	8.815025	-3.147528	5.667497	21.561811
5	1	8.815025	-2.680092	6.134933	27.696744
6	1	8.815025	-2.680521	6.134504	33.831248
7	1	8.815025	-2.210726	6.604299	40.435546
8	1	8.815025	-1.766685	7.048340	47.483886
9	1	8.815025	-1.416092	7.398933	54.882819
10	1	8.815025	-1.099347	7.715678	62.598496
11	1	8.815025	-0.754069	8.060956	70.659452
12	1	8.815025	-0.472296	8.342729	79.002182
13	1	8.815025	-0.313317	8.501708	87.503889
14	1	8.815025	-0.022421	8.792604	96.296494
20	6	8.815025	-0.000805	8.814220	149.181815
25	5	8.815025	-0.001695	8.813330	193.248467
27	2	8.815025	-0.033680	8.781345	210.811157
28	1	8.815025	-0.001498	8.813527	219.624684
30	2	8.815025	-0.000554	8.814471	237.253626
31	1	8.815025	-0.001097	8.813928	246.067554
33	2	8.815025	-0.001151	8.813874	263.695302
38	5	8.815025	-0.001043	8.813982	307.765211
39	1	8.815025	-0.000859	8.814166	316.579376
40	1	8.815025	-0.001150	8.813875	325.393252
43	3	8.815025	-0.001071	8.813954	351.835115
45	2	8.815025	-0.000998	8.814027	369.463170
53	6	8.815025	-0.001024	8.814001	439.964119
52	2	8.815025	-0.006554	8.808471	431.150118
54	1	8.815025	-0.002001	8.813024	448.777143
59	5	8.815025	-0.002064	8.812961	492.841946
60	1	8.815025	-0.001895	8.813130	501.655076
61	1	8.815025	-0.002724	8.812301	510.467378
65	4	8.815025	-0.001746	8.813279	545.720494
67	2	8.815025	-0.000915	8.814110	563.348714
69	2	8.815025	-0.000763	8.814263	580.977239
74	5	8.815025	-0.000036	8.814989	625.052185
87	13	8.815025	-0.000109	8.814916	739.646094
94	7	8.815025	-0.000083	8.814942	801.350689
117	23	8.815025	-0.000191	8.814834	1004.091875
122	5	8.815025	-0.000270	8.814755	1048.165651
304	178	8.815025	-0.000287	8.814738	2640.701681
188	4	8.815025	-2.936847	5.878178	1618.192102
305	1	8.816861	-0.000287	8.816573	2649.518254
609	304	8.824203	-0.000287	8.823916	5331.988744
610	1	8.825034	-0.000287	8.824747	5340.813490
914	304	8.826280	-0.000287	8.825992	8023.915133
915	1	8.827786	-0.000287	8.827499	8032.742632
1219	304	8.828791	-0.000287	8.828503	10716.607690
1220	1	8.832115	-0.000287	8.831828	10725.439518
1463	243	8.832946	-0.000287	8.832659	12871.775674
1464	1	0.353318	-0.000287	0.353031	12872.128704

Secure Energy Services

Kerrobert, SK

General Information

Tank Number	T-501	
Date of Strapping Data	06/14/2018	
Year Built	2018	
Product in Service	Blended Crude	
Product Service Density	0.856	g/cc (SG)

Tank Dimensions

Nominal Diameter	110	Feet
Nominal Height	48	Feet
Measured Tank Height	14.622	Metres
Tank Tilt	0	Millimetres
Gauge Point Information	Top of Benchmark tab in hatch	
Reference Gauge Height	16.125	Metres
Horizontal To Gauge	42	Inches

Roof & Bottom Survey

Roof Type	Internal Floating	
Floating Roof Shape		
Floating Roof Weight	10054.78	Kilograms
Roof Landed Height	179	Centimetres
Roof Full Floating Height	196	Centimetres
Bottom Description	Physical Survey	

Report Constraints

Main Increment	Centimetres	
Main Volume	Cubic Metres	
Product at Strapping	empty	
Product Strap Density	1	g/cc (SG)
Liquid Height at Strap	Feet	
Alarm Levels	HH-13.4m, H-13.3m	L-1.8m, LL-1.5m
Overflow Or Foamline	13.427	Metres

Secure Energy Services

Kerrobert, SK

Strap Correction to 60°F

Shell Temperature (°F)	68.0	**Master Tape Serial**	
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994840

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	105.367	345.692	0.001	345.674
2	105.367	345.692	0.001	345.674
3	105.367	345.692	0.001	345.674
4	105.367	345.692	0.001	345.674
5	105.367	345.692	0.001	345.674

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	387.667	0.000	0.000	105.361	345.674
2	389.042	1.375	-8.639	105.353	345.646
3	394.167	6.500	-40.841	105.321	345.540
4	391.083	3.417	-21.468	105.340	345.603
5	392.833	5.167	-32.463	105.329	345.567

Secure Energy Services

Kerrobert, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	345.674	0.506 Inches	10.000 Feet	10.000 Feet
2	345.646	0.399 Inches	10.000 Feet	20.000 Feet
3	345.540	0.305 Inches	10.000 Feet	30.000 Feet
4	345.603	0.305 Inches	10.000 Feet	40.000 Feet
5	345.567	0.305 Inches	8.000 Feet	48.000 Feet

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	10	0.750 Inches	1.000 Millimetres
2	Butt Weld	10	0.750 Inches	1.000 Millimetres
3	Butt Weld	10	0.750 Inches	1.000 Millimetres
4	Butt Weld	10	0.750 Inches	1.000 Millimetres
5	Butt Weld	10	0.750 Inches	1.000 Millimetres

Secure Energy Services

Kerrobert, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$-K\ \frac{(G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	345.674	0.506	0
2.00	62.428	1.000	0	345.646	0.399	0
3.00	62.428	1.000	0	345.540	0.305	0
4.00	62.428	1.000	0	345.603	0.305	0
5.00	62.428	1.000	0	345.567	0.305	0

Secure Energy Services

Kerrobert, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	345.674	0.000	0.001	0.265	345.409
2	345.646	0.000	0.001	0.209	345.437
3	345.540	0.000	0.001	0.160	345.380
4	345.603	0.000	0.001	0.160	345.444
5	345.567	0.000	0.001	0.160	345.408

Secure Energy Services

Kerrobert, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Centimetr
1	345.409	0.019	345.428	8.821
2	345.437	0.031	345.468	8.823
3	345.380	0.041	345.421	8.821
4	345.444	0.041	345.485	8.824
5	345.408	0.033	345.440	8.822

Secure Energy Services

Kerrobert, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Centimetre	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	8.821	0.003	0.000	8.821	8.821
2	8.823	0.003	0.003	8.826	8.826
3	8.821	0.004	0.006	8.827	8.827
4	8.824	0.004	0.010	8.834	8.834
5	8.822	0.000	0.014	8.836	8.836

CO-OP Refinery Complex **TANK # 54-10-503**

Regina, SK **791 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet INNAGE TABLE

Ref Gauge Height - 42' 10-13/16; Located 55 Inches to Benchmark on rim inside pipe — Height in Inches; Capacities in Cubic Metres

0	0 **	10.708	**4**	0	878.202	**8**	0	1,756.108	**12**	0	2,647.017	**16**	0	3,537.948
	1	20.969		1	896.748		1	1,774.668		1	2,665.578		1	3,556.523
	2	33.634		2	915.294		2	1,793.229		2	2,684.138		2	3,575.097
	3	48.145		3	933.840		3	1,811.790		3	2,702.699		3	3,593.671
	4	63.896		4	952.386		4	1,830.350		4	2,721.260		4	3,612.246
	5	82.337		5	970.932		5	1,848.911		5	2,739.820		5	3,630.820
	6	100.881		6	989.478		6	1,867.471		6	2,758.381		6	3,649.394
	7	119.425		7	1,008.024		7	1,886.032		7	2,776.941		7	3,667.969
	8	137.969		8	1,026.569		8	1,904.593		8	2,795.502		8	3,686.543
	9	156.449		9	1,045.115		9	1,923.153		9	2,814.063		9	3,705.117
	10	174.929		10	1,057.506		10	1,941.714		10	2,832.623		10	3,723.691
	11	193.408		11	1,069.897		11	1,960.275		11	2,851.184		11	3,742.266
1	0	211.886	**5**	0	1,088.443	**9**	0	1,978.835	**13**	0	2,869.744	**17**	0	3,760.840
	1	230.364		1	1,106.989		1	1,997.396		1	2,888.305		1	3,779.414
	2	248.827		2	1,125.535		2	2,015.956		2	2,906.866		2	3,797.989
	3	267.300		3	1,144.081		3	2,034.517		3	2,925.426		3	3,816.563
	4	285.774		4	1,162.627		4	2,053.078		4	2,943.987		4	3,835.137
	5	304.249		5	1,181.173		5	2,071.638		5	2,962.547		5	3,853.712
	6	322.712		6	1,199.718		6	2,090.199		6	2,981.108		6	3,872.286
	7	341.176		7	1,218.264		7	2,108.759		7	2,999.669		7	3,890.860
	8	359.642		8	1,236.810		8	2,127.320		8	3,018.229		8	3,909.435
	9	378.108		9	1,255.356		9	2,145.881		9	3,036.790		9	3,928.009
	10	396.574		10	1,273.902		10	2,164.441		10	3,055.350		10	3,946.583
	11	415.040		11	1,292.448		11	2,183.002		11	3,073.911		11	3,965.157
2	0	433.506	**6**	0	1,310.993	**10**	0	2,201.562	**14**	0	3,092.472	**18**	0	3,983.732
	1	451.971		1	1,329.539		1	2,220.123		1	3,111.032		1	4,002.306
	2	470.437		2	1,348.085		2	2,238.684		2	3,129.593		2	4,020.880
	3	488.902		3	1,366.631		3	2,257.244		3	3,148.154		3	4,039.455
	4	507.368		4	1,385.177		4	2,275.805		4	3,166.714		4	4,058.029
	5	525.890		5	1,403.723		5	2,294.365		5	3,185.275		5	4,076.603
	6	544.422		6	1,422.268		6	2,312.926		6	3,203.835		6	4,095.178
	7	562.955		7	1,440.814		7	2,331.487		7	3,222.396		7	4,113.752
	8	581.487		8	1,459.360		8	2,350.047		8	3,240.957		8	4,132.326
	9	600.019		9	1,477.906		9	2,368.608		9	3,259.517		9	4,150.901
	10	618.551		10	1,496.452		10	2,387.169		10	3,278.078		10	4,169.475
	11	637.098		11	1,514.998		11	2,405.729		11	3,296.638		11	4,188.049
3	0	655.645	**7**	0	1,533.544	**11**	0	2,424.290	**15**	0	3,315.199	**19**	0	4,206.623
	1	674.191		1	1,552.089		1	2,442.850		1	3,333.760		1	4,225.198
	2	692.738		2	1,570.635		2	2,461.411		2	3,352.320		2	4,243.772
	3	711.285		3	1,589.181		3	2,479.972		3	3,370.881		3	4,262.346
	4	729.831		4	1,607.727		4	2,498.532		4	3,389.441		4	4,280.921
	5	748.378		5	1,626.273		5	2,517.093		5	3,408.002		5	4,299.495
	6	766.924		6	1,644.819		6	2,535.653		6	3,426.563		6	4,318.069
	7	785.471		7	1,663.364		7	2,554.214		7	3,445.123		7	4,336.644
	8	804.017		8	1,681.910		8	2,572.775		8	3,463.684		8	4,355.218
	9	822.563		9	1,700.456		9	2,591.335		9	3,482.245		9	4,373.792
	10	841.109		10	1,719.002		10	2,609.896		10	3,500.805		10	4,392.367
	11	859.656		11	1,737.548		11	2,628.456		11	3,519.374		11	4,410.941

Low Critical Zone

** Volume Below Strike Point. Located 1.3" Above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

SF - Safe Fill Height @ 35' 0"

A total of 12.309 Cubic Metres were deducted between 55 & 61 Inches based on a weight of 9736.814 Kilograms and a density of 791 Kg/m3. Gauged quantities above 61 Inches reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

No Measurements are to be taken in Critical Zones

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex **TANK # 54-10-503**

Regina, SK **791 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet INNAGE TABLE

Ref Gauge Height - 42' 10-13/16; Located 55 Inches to Benchmark on rim inside pipe — Height in Inches; Capacities in Cubic Metres

20	0	4,429.515	**24**	0	5,321.121	**28**	0	6,213.496	**32**	0	7,105.912	**36**	0	7,998.937
	1	4,448.089		1	5,339.712		1	6,232.088		1	7,124.517		1	8,017.542
	2	4,466.664		2	5,358.304		2	6,250.679		2	7,143.121		2	8,036.147
	3	4,485.238		3	5,376.895		3	6,269.270		3	7,161.726		3	8,054.751
	4	4,503.812		4	5,395.486		4	6,287.861		4	7,180.331		4	8,073.356
	5	4,522.387		5	5,414.077		5	6,306.452		5	7,198.935		5	8,091.961
	6	4,540.961		6	5,432.668		6	6,325.043		6	7,217.540		6	8,110.566
	7	4,559.535		7	5,451.259		7	6,343.634		7	7,236.145		7	8,129.170
	8	4,578.110		8	5,469.850		8	6,362.226		8	7,254.749		8	8,147.775
	9	4,596.684		9	5,488.442		9	6,380.817		9	7,273.354		9	8,166.380
	10	4,615.258		10	5,507.033		10	6,399.408		10	7,291.959		10	8,184.984
	11	4,633.833		11	5,525.624		11	6,417.999		11	7,310.564		11	8,203.589
21	0	4,652.407	**25**	0	5,544.215	**29**	0	6,436.590	**33**	0	7,329.168	**37**	0	8,222.194
	1	4,670.981		1	5,562.806		1	6,455.181		1	7,347.773		1	8,240.798
	2	4,689.555		2	5,581.397		2	6,473.772		2	7,366.378		2	8,259.403
	3	4,708.130		3	5,599.988		3	6,492.364		3	7,384.982		3	8,278.008
	4	4,726.704		4	5,618.580		4	6,510.955		4	7,403.587		4	8,296.613
	5	4,745.278		5	5,637.171		5	6,529.546		5	7,422.192		5	8,315.217
	6	4,763.853		6	5,655.762		6	6,548.137		6	7,440.796		6	8,333.822
	7	4,782.427		7	5,674.353		7	6,566.728		7	7,459.401		7	8,352.427
	8	4,801.001		8	5,692.944		8	6,585.319		8	7,478.006		8	8,371.031
	9	4,819.576		9	5,711.535		9	6,603.910		9	7,496.611		9	8,389.636
	10	4,838.150		10	5,730.126		10	6,622.502		10	7,515.215		10	8,408.241
	11	4,856.724		11	5,748.718		11	6,641.093		11	7,533.820		11	8,426.845
22	0	4,875.299	**26**	0	5,767.309	**30**	0	6,659.684	**34**	0	7,552.425	**38**	0	8,464.055
	1	4,893.873		1	5,785.900		1	6,678.275		1	7,571.029		1	8,482.660
	2	4,912.447		2	5,804.491		2	6,696.866		2	7,589.634		2	8,501.264
	3	4,931.021		3	5,823.082		3	6,715.457		3	7,608.239		3	8,519.869
	4	4,949.596		4	5,841.673		4	6,734.049		4	7,626.843		4	8,538.474
	5	4,968.170		5	5,860.265		5	6,752.640		5	7,645.448		5	8,557.078
	6	4,986.744		6	5,878.856		6	6,771.231		6	7,664.053		6	8,575.683
	7	5,005.319		7	5,897.447		7	6,789.822		7	7,682.657		7	8,594.288
	8	5,023.893		8	5,916.038		8	6,808.413		8	7,701.262		8	8,612.892
	9	5,042.467		9	5,934.629		9	6,827.004		9	7,719.867		9	8,631.497
	10	5,061.042		10	5,953.220		10	6,845.595		10	7,738.472		10	8,650.102
	11	5,079.616		11	5,971.811		11	6,864.187		11	7,757.076		11	8,668.707
23	0	5,098.190	**27**	0	5,990.403	**31**	0	6,882.778	**35**	0	**SF** 7,775.681	**39**	0	8,705.916
	1	5,116.765		1	6,008.994		1	6,901.369		1	7,794.286		1	8,724.521
	2	5,135.339		2	6,027.585		2	6,919.960		2	7,812.890		2	8,743.125
	3	5,153.913		3	6,046.176		3	6,938.551		3	7,831.495		3	8,761.730
	4	5,172.488		4	6,064.767		4	6,957.142		4	7,850.100		4	8,780.335
	5	5,191.062		5	6,083.358		5	6,975.733		5	7,868.704		5	8,798.939
	6	5,209.636		6	6,101.949		6	6,994.325		6	7,887.309		6	8,817.544
	7	5,228.210		7	6,120.541		7	7,012.916		7	7,905.914		7	8,836.149
	8	5,246.785		8	6,139.132		8	7,031.507		8	7,924.519		8	8,854.754
	9	5,265.359		9	6,157.723		9	7,050.098		9	7,943.123		9	8,873.358
	10	5,283.939		10	6,176.314		10	7,068.702		10	7,961.728		10	8,891.963
	11	5,302.530		11	6,194.905		11	7,087.307		11	7,980.333		11	8,910.568

SF - Safe Fill Height @ 35' 0"

Fractions

1/16	1.158264	9/16	10.424376
1/ 8	2.316528	5/ 8	11.582640
3/16	3.474792	11/16	12.740904
1/ 4	4.633056	3/ 4	13.899168
5/16	5.791320	13/16	15.057432
3/ 8	6.949584	7/ 8	16.215696
7/16	8.107848	15/16	17.373960
1/ 2	9.266112	1	18.532224

Displacement Correction = 9736.814 Kilograms / Kilograms/Cubic Metre - 12.309 Cubic Metres

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CO-OP Refinery Complex | **TANK # 54-10-503**

Regina, SK | **791 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet | INNAGE TABLE

Ref Gauge Height - 42' 10-13/16; Located 55 Inches to Benchmark on rim inside pipe — Height in Inches; Capacities in Cubic Metres

40	0	8,891.963	44	0		48	0		52	0		56	0	
	1			1			1			1			1	
	2			2			2			2			2	
	3			3			3			3			3	
	4			4			4			4			4	
	5			5			5			5			5	
	6			6			6			6			6	
	7			7			7			7			7	
	8			8			8			8			8	
	9			9			9			9			9	
	10			10			10			10			10	
	11			11			11			11			11	

41	0		45	0		49	0		53	0		57	0	
	1			1			1			1			1	
	2			2			2			2			2	
	3			3			3			3			3	
	4			4			4			4			4	
	5			5			5			5			5	
	6			6			6			6			6	
	7			7			7			7			7	
	8			8			8			8			8	
	9			9			9			9			9	
	10			10			10			10			10	
	11			11			11			11			11	

42	0		46	0		50	0		54	0		58	0	
	1			1			1			1			1	
	2			2			2			2			2	
	3			3			3			3			3	
	4			4			4			4			4	
	5			5			5			5			5	
	6			6			6			6			6	
	7			7			7			7			7	
	8			8			8			8			8	
	9			9			9			9			9	
	10			10			10			10			10	
	11			11			11			11			11	

43	0		47	0		51	0		55	0		59	0	
	1			1			1			1			1	
	2			2			2			2			2	
	3			3			3			3			3	
	4			4			4			4			4	
	5			5			5			5			5	
	6			6			6			6			6	
	7			7			7			7			7	
	8			8			8			8			8	
	9			9			9			9			9	
	10			10			10			10			10	
	11			11			11			11			11	

SF - Safe Fill Height @ 35' 0"

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CO-OP Refinery Complex **TANK # 54-10-503**

Regina, SK **791 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	10.708201	10.708201	10.708201
1	1	18.556263	-8.295941	10.260322	20.968523
2	1	18.556263	-5.890313	12.665950	33.634473
3	1	18.556263	-4.045797	14.510467	48.144940
4	1	18.556263	-2.805595	15.750669	63.895609
5	1	18.556263	-0.114512	18.441751	82.337360
6	1	18.556263	-0.012454	18.543809	100.881169
7	1	18.556263	-0.012578	18.543685	119.424854
8	1	18.556263	-0.012275	18.543988	137.968842
11	3	18.556263	-0.076411	18.479852	193.408398
12	1	18.556263	-0.078383	18.477880	211.886278
13	1	18.556263	-0.078327	18.477936	230.364214
14	1	18.556263	-0.093822	18.462442	248.826656
15	1	18.556263	-0.082728	18.473535	267.300191
17	2	18.556263	-0.082083	18.474180	304.248551
19	2	18.556263	-0.092572	18.463691	341.175933
20	1	18.556263	-0.089975	18.466289	359.642222
21	1	18.556263	-0.090139	18.466124	378.108346
23	2	18.556263	-0.090317	18.465947	415.040239
24	1	18.556263	-0.090527	18.465736	433.505976
27	3	18.556263	-0.090889	18.465374	488.902099
28	1	18.556263	-0.090692	18.465571	507.367670
29	1	18.556263	-0.034106	18.522157	525.889827
31	2	18.556263	-0.023903	18.532360	562.954548
34	3	18.556263	-0.024039	18.532224	618.551219
37	3	18.556263	-0.009553	18.546710	674.191349
41	4	18.556263	-0.009616	18.546647	748.377936
45	4	18.556263	-0.009952	18.546311	822.563180
49	4	18.556263	-0.010030	18.546233	896.748111
53	4	18.556263	-0.010307	18.545956	970.931935
59	2	18.556263	-6.165171	12.391092	1069.897486
95	40	18.556263	-0.010421	18.545842	1737.547788
96	1	18.570450	-0.010421	18.560028	1756.107816
190	94	18.571031	-0.010421	18.560610	3500.805117
191	1	18.579337	-0.010421	18.568915	3519.374032
285	94	18.584730	-0.010421	18.574309	5265.359051
286	1	18.590299	-0.010421	18.579878	5283.938929
381	95	18.601570	-0.010421	18.591149	7050.098059
382	1	18.614800	-0.010421	18.604378	7068.702437
485	103	18.615120	-0.010421	18.604699	8984.986390

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CO-OP Refinery Complex

Regina, SK

General Information

Tank Number		54-10-503
Date of Strapping Data		09/17/2018
Year Built		
Product in Service		Slop
Product Service	0.669 to 0.966	g/cc (SG)

Tank Dimensions

Nominal Diameter	100	Feet
Nominal Height	40	Feet
Measured Tank Height	12.340	Metres
Tank Tilt	0	Millimetres
Gauge Point Information	Benchmark on rim inside pipe	
Reference Gauge Height	42'10-13/16" (13.076 Metres)	
Horizontal To Gauge	55	Inches

Roof & Bottom Survey

Roof Type	Internal Floating
Floating Roof Shape	
Floating Roof Weight	21466 Lbs (9736.81 Kilograms)
Roof Landed Height	
Roof Full Floating Height	
Bottom Description	Physical Survey

Report Constraints

Main Increment		Inches
Main Volume		Cubic Metres
Product at Strapping		empty
Product Strap Density	1	g/cc (SG)
Liquid Height at Strap		
Safe Fill Height	35	Feet
Overflow Or Foamline	11.562	Metres

CO-OP Refinery Complex

Regina, SK

Strap Correction to 60°F

Shell Temperature (°F)	64.4	**Master Tape Serial**	
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994840

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	95.898	314.626	0.001	314.609
2	95.898	314.626	0.001	314.609
3	95.898	314.626	0.001	314.609
4	95.898	314.626	0.001	314.609
5	95.898	314.626	0.001	314.609

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	523.833	0.000	0.000	95.893	314.609
2	521.083	-2.750	17.279	95.910	314.666
3	520.500	-3.333	20.944	95.914	314.678
4	519.667	-4.167	26.180	95.919	314.695
5	517.917	-5.917	37.176	95.930	314.731

CO-OP Refinery Complex

Regina, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	314.609	0.500 Inches	2.414 Metres	2.414 Metres
2	314.666	0.438 Inches	2.422 Metres	4.836 Metres
3	314.678	0.313 Inches	2.420 Metres	7.256 Metres
4	314.695	0.188 Inches	2.422 Metres	9.678 Metres
5	314.731	0.188 Inches	2.662 Metres	12.340 Metres

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	14	0.750 Inches	1.000 Millimetres
2	Butt Weld	14	0.750 Inches	1.000 Millimetres
3	Butt Weld	14	0.750 Inches	1.000 Millimetres
4	Butt Weld	14	0.750 Inches	1.000 Millimetres
5	Butt Weld	14	0.750 Inches	1.000 Millimetres

CO-OP Refinery Complex

Regina, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$\frac{-K\ (G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	314.609	0.500	0
2.00	62.428	1.000	0	314.666	0.438	0
3.00	62.428	1.000	0	314.678	0.313	0
4.00	62.428	1.000	0	314.695	0.188	0
5.00	62.428	1.000	0	314.731	0.188	0

CO-OP Refinery Complex

Regina, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	314.609	0.000	0.001	0.262	314.347
2	314.666	0.000	0.001	0.229	314.437
3	314.678	0.000	0.001	0.164	314.514
4	314.695	0.000	0.001	0.098	314.597
5	314.731	0.000	0.001	0.098	314.633

CO-OP Refinery Complex

Regina, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Inch
1	314.347	0.008	314.356	18.557
2	314.437	0.016	314.453	18.568
3	314.514	0.022	314.537	18.578
4	314.597	0.037	314.634	18.589
5	314.633	0.041	314.674	18.594

CO-OP Refinery Complex

Regina, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Inch	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	18.557	0.003	0.000	18.557	18.556
2	18.568	0.004	0.003	18.571	18.571
3	18.578	0.005	0.007	18.585	18.585
4	18.589	0.009	0.012	18.602	18.602
5	18.594	0.000	0.021	18.615	18.615

CO-OP Refinery Complex **TANK # 54-10-503**

Regina, SK **696 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	10.708072	10.708072	10.708072
1	1	18.556040	-8.296170	10.259870	20.967941
2	1	18.556040	-5.890571	12.665469	33.633410
3	1	18.556040	-4.046077	14.509963	48.143373
4	1	18.556040	-2.805890	15.750150	63.893523
5	1	18.556040	-0.114840	18.441200	82.334723
6	1	18.556040	-0.012783	18.543257	100.877979
7	1	18.556040	-0.012907	18.543133	119.421112
8	1	18.556040	-0.012551	18.543489	137.964601
11	3	18.556040	-0.076687	18.479353	193.402660
12	1	18.556040	-0.078929	18.477111	211.879771
13	1	18.556040	-0.078873	18.477167	230.356938
14	1	18.556040	-0.094252	18.461788	248.818726
15	1	18.556040	-0.082782	18.473258	267.291983
17	2	18.556040	-0.082083	18.473957	304.239897
19	2	18.556040	-0.092572	18.463468	341.166832
20	1	18.556040	-0.089975	18.466065	359.632897
21	1	18.556040	-0.090139	18.465901	378.098797
23	2	18.556040	-0.090317	18.465723	415.030243
24	1	18.556040	-0.090527	18.465513	433.495756
27	3	18.556040	-0.090889	18.465151	488.891209
28	1	18.556040	-0.090692	18.465348	507.356556
29	1	18.556040	-0.034106	18.521934	525.878490
31	2	18.556040	-0.023903	18.532137	562.942764
34	3	18.556040	-0.024039	18.532000	618.538764
37	3	18.556040	-0.009553	18.546486	674.178223
41	4	18.556040	-0.009616	18.546423	748.363916
45	4	18.556040	-0.009952	18.546087	822.548265
49	4	18.556040	-0.010030	18.546009	896.732301
53	4	18.556040	-0.010307	18.545733	970.915232
59	2	18.556040	-7.005259	11.550780	1068.199265
95	40	18.556040	-0.010421	18.545618	1735.841518
96	1	18.569313	-0.010421	18.558891	1754.400409
190	94	18.569857	-0.010421	18.559435	3498.987319
191	1	18.577540	-0.010421	18.567118	3517.554437
285	94	18.582529	-0.010421	18.572107	5263.332503
286	1	18.587569	-0.010421	18.577148	5281.909651
381	95	18.597770	-0.010421	18.587349	7047.707770
382	1	18.608952	-0.010421	18.598531	7066.306301
485	103	18.609223	-0.010421	18.598801	8981.982824

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex **TANK # 54-10-503**

Regina, SK **791 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	10.708201	10.708201	10.708201
1	1	18.556263	-8.295941	10.260322	20.968523
2	1	18.556263	-5.890313	12.665950	33.634473
3	1	18.556263	-4.045797	14.510467	48.144940
4	1	18.556263	-2.805595	15.750669	63.895609
5	1	18.556263	-0.114512	18.441751	82.337360
6	1	18.556263	-0.012454	18.543809	100.881169
7	1	18.556263	-0.012578	18.543685	119.424854
8	1	18.556263	-0.012275	18.543988	137.968842
11	3	18.556263	-0.076411	18.479852	193.408398
12	1	18.556263	-0.078383	18.477880	211.886278
13	1	18.556263	-0.078327	18.477936	230.364214
14	1	18.556263	-0.093822	18.462442	248.826656
15	1	18.556263	-0.082728	18.473535	267.300191
17	2	18.556263	-0.082083	18.474180	304.248551
19	2	18.556263	-0.092572	18.463691	341.175933
20	1	18.556263	-0.089975	18.466289	359.642222
21	1	18.556263	-0.090139	18.466124	378.108346
23	2	18.556263	-0.090317	18.465947	415.040239
24	1	18.556263	-0.090527	18.465736	433.505976
27	3	18.556263	-0.090889	18.465374	488.902099
28	1	18.556263	-0.090692	18.465571	507.367670
29	1	18.556263	-0.034106	18.522157	525.889827
31	2	18.556263	-0.023903	18.532360	562.954548
34	3	18.556263	-0.024039	18.532224	618.551219
37	3	18.556263	-0.009553	18.546710	674.191349
41	4	18.556263	-0.009616	18.546647	748.377936
45	4	18.556263	-0.009952	18.546311	822.563180
49	4	18.556263	-0.010030	18.546233	896.748111
53	4	18.556263	-0.010307	18.545956	970.931935
59	2	18.556263	-6.165171	12.391092	1069.897486
95	40	18.556263	-0.010421	18.545842	1737.547788
96	1	18.570450	-0.010421	18.560028	1756.107816
190	94	18.571031	-0.010421	18.560610	3500.805117
191	1	18.579337	-0.010421	18.568915	3519.374032
285	94	18.584730	-0.010421	18.574309	5265.359051
286	1	18.590299	-0.010421	18.579878	5283.938929
381	95	18.601570	-0.010421	18.591149	7050.098059
382	1	18.614800	-0.010421	18.604378	7068.702437
485	103	18.615120	-0.010421	18.604699	8984.986390

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CO-OP Refinery Complex **TANK # 54-10-503**

Regina, SK **966 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 100 Feet X 40 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	10.708481	10.708481	10.708481
1	1	18.556750	-8.295721	10.261029	20.969510
2	1	18.556750	-5.890031	12.666719	33.636229
3	1	18.556750	-4.045466	14.511284	48.147513
4	1	18.556750	-2.805231	15.751518	63.899032
5	1	18.556750	-0.114079	18.442671	82.341703
6	1	18.556750	-0.012018	18.544732	100.886435
7	1	18.556750	-0.012142	18.544608	119.431043
8	1	18.556750	-0.011910	18.544840	137.975883
11	3	18.556750	-0.076045	18.480704	193.417997
12	1	18.556750	-0.077659	18.479091	211.897088
13	1	18.556750	-0.077603	18.479147	230.376235
14	1	18.556750	-0.093251	18.463499	248.839734
15	1	18.556750	-0.082658	18.474092	267.313826
17	2	18.556750	-0.082083	18.474667	304.263160
19	2	18.556750	-0.092572	18.464178	341.191516
20	1	18.556750	-0.089975	18.466775	359.658291
21	1	18.556750	-0.090139	18.466611	378.124901
23	2	18.556750	-0.090317	18.466433	415.057768
24	1	18.556750	-0.090527	18.466223	433.523991
27	3	18.556750	-0.090889	18.465861	488.921574
28	1	18.556750	-0.090692	18.466058	507.387632
29	1	18.556750	-0.034106	18.522644	525.910276
31	2	18.556750	-0.023903	18.532847	562.975970
34	3	18.556750	-0.024039	18.532710	618.574101
37	3	18.556750	-0.009553	18.547196	674.215691
41	4	18.556750	-0.009616	18.547134	748.404225
45	4	18.556750	-0.009952	18.546798	822.591415
49	4	18.556750	-0.010030	18.546719	896.778292
53	4	18.556750	-0.010307	18.546443	970.964063
59	2	18.556750	-5.050180	13.506570	1072.162516
95	40	18.556750	-0.010421	18.546328	1739.830338
96	1	18.572925	-0.010421	18.562503	1758.392841
190	94	18.573587	-0.010421	18.563166	3503.330446
191	1	18.583249	-0.010421	18.572828	3521.903274
285	94	18.589523	-0.010421	18.579101	5268.338800
286	1	18.596243	-0.010421	18.585821	5286.924621
381	95	18.609843	-0.010421	18.599421	7053.869629
382	1	18.627530	-0.010421	18.617109	7072.486738
485	103	18.627958	-0.010421	18.617537	8990.093007

Tables produced by:
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CO-OP Refinery Complex **TANK # 54-10-811**

Regina, SK **884 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 120 Feet X 40 Feet INNAGE TABLE

Ref Gauge Height - 44' 8-13/16; Located 40 Inches to Benchmark on rim inside pipe — Height in Inches; Capacities in Cubic Metres

0	0 **	3.279	**4**	0	1,246.815	**8**	0	2,529.043	**12**	0	3,811.316	**16**	0	5,093.594
	1	15.675		1	1,273.529		1	2,555.757		1	3,838.030		1	5,120.312
	2	31.979		2	1,300.242		2	2,582.471		2	3,864.744		2	5,147.031
	3	51.939		3	1,326.956		3	2,609.185		3	3,891.458		3	5,173.751
	4	74.837		4	1,353.669		4	2,635.899		4	3,918.172		4	5,200.470
	5	99.401		5	1,380.383		5	2,662.613		5	3,944.886		5	5,227.189
	6	125.915		6	1,407.096		6	2,689.327		6	3,971.600		6	5,253.909
	7	152.593		7	1,433.809		7	2,716.041		7	3,998.314		7	5,280.628
	8	179.270		8	1,460.523		8	2,742.755		8	4,025.028		8	5,307.347
	9	205.947		9	1,487.217		9	2,769.469		9	4,051.742		9	5,334.067
	10	232.624		10	1,513.911		10	2,796.183		10	4,078.456		10	5,360.786
	11	259.302		11	1,540.626		11	2,822.897		11	4,105.170		11	5,387.505
1	0	285.979	**5**	0	1,567.340	**9**	0	2,849.611	**13**	0	4,131.884	**17**	0	5,414.225
	1	312.655		1	1,594.055		1	2,876.325		1	4,158.598		1	5,440.944
	2	339.331		2	1,620.769		2	2,903.039		2	4,185.312		2	5,467.663
	3	366.005		3	1,647.478		3	2,929.753		3	4,212.026		3	5,494.383
	4	392.659		4	1,674.187		4	2,956.467		4	4,238.740		4	5,521.102
	5	419.325		5	1,700.895		5	2,983.181		5	4,265.454		5	5,547.821
	6	446.009		6	1,727.610		6	3,009.895		6	4,292.168		6	5,574.541
	7	472.694		7	1,754.324		7	3,036.609		7	4,318.882		7	5,601.260
	8	499.380		8	1,781.039		8	3,063.323		8	4,345.596		8	5,627.979
	9	526.065		9	1,807.753		9	3,090.037		9	4,372.310		9	5,654.699
	10	552.750		10	1,834.467		10	3,116.751		10	4,399.024		10	5,681.418
	11	579.435		11	1,861.182		11	3,143.465		11	4,425.738		11	5,708.137
2	0	606.120	**6**	0	1,887.896	**10**	0	3,170.179	**14**	0	4,452.452	**18**	0	5,734.857
	1	632.806		1	1,914.611		1	3,196.893		1	4,479.166		1	5,761.576
	2	659.491		2	1,941.325		2	3,223.607		2	4,505.881		2	5,788.295
	3	686.177		3	1,968.040		3	3,250.321		3	4,532.595		3	5,815.015
	4	712.863		4	1,994.754		4	3,277.035		4	4,559.309		4	5,841.734
	5	739.549		5	2,021.469		5	3,303.749		5	4,586.023		5	5,868.453
	6	766.235		6	2,048.183		6	3,330.463		6	4,612.737		6	5,895.173
	7	792.920		7	2,074.897		7	3,357.178		7	4,639.451		7	5,921.892
	8	819.606		8	2,101.612		8	3,383.892		8	4,666.165		8	5,948.611
	9	846.292		9	2,128.326		9	3,410.606		9	4,692.879		9	5,975.331
	10	872.977		10	2,155.041		10	3,437.320		10	4,719.593		10	6,002.050
	11	899.663		11	2,181.755		11	3,464.034		11	4,746.307		11	6,028.769
3	0	926.349	**7**	0	2,208.470	**11**	0	3,490.748	**15**	0	4,773.021	**19**	0	6,055.489
	1	953.039		1	2,235.184		1	3,517.462		1	4,799.735		1	6,082.208
	2	979.729		2	2,261.899		2	3,544.176		2	4,826.449		2	6,108.928
	3	1,006.419		3	2,288.613		3	3,570.890		3	4,853.163		3	6,135.647
	4	1,033.109		4	2,315.328		4	3,597.604		4	4,879.877		4	6,162.366
	5	1,059.822		5	2,342.042		5	3,624.318		5	4,906.591		5	6,189.086
	6	1,086.535		6	2,368.756		6	3,651.032		6	4,933.305		6	6,215.805
	7	1,113.248		7	2,395.471		7	3,677.746		7	4,960.019		7	6,242.524
	8	1,139.962		8	2,422.185		8	3,704.460		8	4,986.733		8	6,269.244
	9	1,166.675		9	2,448.900		9	3,731.174		9	5,013.447		9	6,295.963
	10	1,193.388		10	2,475.614		10	3,757.888		10	5,040.161		10	6,322.682
	11	1,220.102		11	2,502.329		11	3,784.602		11	5,066.877		11	6,349.402

** Volume Below Strike Point. Located 1.5" Above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

SF - Safe Fill Height @ 38' 6"

Tables produced by:
Nextgen Industrial Services Inc.
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CO-OP Refinery Complex **TANK # 54-10-811**

Regina, SK **884 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 120 Feet X 40 Feet INNAGE TABLE

Ref Gauge Height - 44' 8-13/16; Located 40 Inches to Benchmark on rim inside pipe — Height in Inches; Capacities in Cubic Metres

20	0	6,376.121	**24**	0	7,658.668	**28**	0	8,941.611	**32**	0	10,224.613	**36**	0	11,508.476	
	1	6,402.840		1	7,685.396		1	8,968.339		1	10,251.360		1	11,535.223	
	2	6,429.560		2	7,712.124		2	8,995.067		2	10,278.107		2	11,561.971	
	3	6,456.279		3	7,738.852		3	9,021.795		3	10,304.854		3	11,588.718	
	4	6,482.998		4	7,765.580		4	9,048.523		4	10,331.601		4	11,615.465	
	5	6,509.718		5	7,792.308		5	9,075.251		5	10,358.349		5	11,642.212	
	6	6,536.437		6	7,819.036		6	9,101.979		6	10,385.096		6	11,668.959	
	7	6,563.156		7	7,845.764		7	9,128.707		7	10,411.843		7	11,695.706	
	8	6,589.876		8	7,872.492		8	9,155.435		8	10,438.590		8	11,722.453	
	9	6,616.595		9	7,899.220		9	9,182.163		9	10,465.337		9	11,749.201	
	10	6,643.314		10	7,925.948		10	9,208.891		10	10,492.084		10	11,775.948	
	11	6,670.034		11	7,952.676		11	9,235.619		11	10,518.832		11	11,802.695	
21	0	6,696.753	**25**	0	7,979.404	**29**	0	9,262.347	**33**	0	10,545.579	**37**	0	11,829.442	
	1	6,723.472		1	8,006.132		1	9,289.075		1	10,572.326		1	11,856.189	
	2	6,750.192		2	8,032.860		2	9,315.803		2	10,599.073		2	11,882.936	
	3	6,776.911		3	8,059.588		3	9,342.531		3	10,625.820		3	11,909.684	
	4	6,803.630		4	8,086.316		4	9,369.259		4	10,652.567		4	11,936.431	
	5	6,830.350		5	8,113.044		5	9,395.987		5	10,679.314		5	11,963.178	
	6	6,857.069		6	8,139.772		6	9,422.715		6	10,706.062		6	11,989.925	
	7	6,883.788		7	8,166.500		7	9,449.443		7	10,732.809		7	12,016.672	
	8	6,910.508		8	8,193.228		8	9,476.171		8	10,759.556		8	12,043.419	
	9	6,937.227		9	8,219.955		9	9,502.899		9	10,786.303		9	12,070.166	
	10	6,963.946		10	8,246.683		10	9,529.627		10	10,813.050		10	12,096.914	
	11	6,990.666		11	8,273.411		11	9,556.355		11	10,839.797		11	12,123.661	
22	0	7,017.385	**26**	0	8,300.139	**30**	0	9,583.083	**34**	0	10,866.545	**38**	0	12,177.155	
	1	7,044.105		1	8,326.867		1	9,609.811		1	10,893.292		1	12,203.902	
	2	7,070.824		2	8,353.595		2	9,636.539		2	10,920.039		2	12,230.649	
	3	7,097.543		3	8,380.323		3	9,663.267		3	10,946.786		3	12,257.397	
	4	7,124.263		4	8,407.051		4	9,689.995		4	10,973.533		4	12,284.144	
	5	7,150.982		5	8,433.779		5	9,716.723		5	11,000.280		5	12,310.891	
	6	7,177.701		6	8,460.507		6	9,743.451		6	11,027.027		6	**SF** 12,337.638	
	7	7,204.421		7	8,487.235		7	9,770.179		7	11,053.775		7	12,364.385	
	8	7,231.140		8	8,513.963		8	9,796.907		8	11,080.522		8	12,391.132	
	9	7,257.859		9	8,540.691		9	9,823.635		9	11,107.269		9	12,417.879	
	10	7,284.579		10	8,567.419		10	9,850.363		10	11,134.016		10	12,444.627	
	11	7,311.298		11	8,594.147		11	9,877.091		11	11,160.763		11	12,471.374	
23	0	7,338.017	**27**	0	8,620.875	**31**	0	9,903.819	**35**	0	**SF** 11,187.510	**39**	0	12,524.868	
	1	7,364.737		1	8,647.603		1	9,930.546		1	11,214.258		1	12,551.615	
	2	7,391.456		2	8,674.331		2	9,957.274		2	11,241.005		2	12,578.362	
	3	7,418.175		3	8,701.059		3	9,984.002		3	11,267.752		3	12,605.110	
	4	7,444.895		4	8,727.787		4	10,010.730		4	11,294.499		4	12,631.857	
	5	7,471.614		5	8,754.515		5	10,037.458		5	11,321.246		5	12,658.604	
	6	7,498.333		6	8,781.243		6	10,064.186		6	11,347.993		6	12,685.351	
	7	7,525.053		7	8,807.971		7	10,090.914		7	11,374.740		7	12,689.132	
	8	7,551.772		8	8,834.699		8	10,117.642		8	11,401.488		8		
	9	7,578.491		9	8,861.427		9	10,144.371		9	11,428.235		9		
	10	7,605.212		10	8,888.155		10	10,171.119		10	11,454.982		10		
	11	7,631.940		11	8,914.883		11	10,197.866		11	11,481.729		11		

SF - Safe Fill Height @ 38' 6"

Fractions

1/16	1.669959	9/16	15.029629
1/ 8	3.339917	5/ 8	16.699587
3/16	5.009876	11/16	18.369546
1/ 4	6.679835	3/ 4	20.039505
5/16	8.349794	13/16	21.709464
3/ 8	10.019752	7/ 8	23.379422
7/16	11.689711	15/16	25.049381
1/ 2	13.359670	1	26.719340

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CO-OP Refinery Complex **TANK # 54-10-811**

Regina, SK **884 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 120 Feet X 40 Feet

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	3.278904	3.278904	3.278904
1	1	26.728114	-14.331991	12.396123	15.675028
2	1	26.728114	-10.424288	16.303826	31.978854
3	1	26.728114	-6.767478	19.960636	51.939490
4	1	26.728114	-3.830528	22.897586	74.837077
5	1	26.728114	-2.164062	24.564052	99.401128
6	1	26.728114	-0.213811	26.514303	125.915432
12	6	26.728114	-0.050859	26.677255	285.978963
13	1	26.728114	-0.051783	26.676331	312.655294
14	1	26.728114	-0.052285	26.675829	339.331123
15	1	26.728114	-0.053946	26.674168	366.005290
16	1	26.728114	-0.074563	26.653551	392.658842
17	1	26.728114	-0.062260	26.665854	419.324695
18	1	26.728114	-0.043333	26.684781	446.009477
19	1	26.728114	-0.043132	26.684982	472.694458
20	1	26.728114	-0.042939	26.685175	499.379634
21	1	26.728114	-0.042981	26.685133	526.064767
24	3	26.728114	-0.042901	26.685213	606.120405
26	2	26.728114	-0.042738	26.685376	659.491158
28	2	26.728114	-0.042064	26.686050	712.863258
29	1	26.728114	-0.042264	26.685850	739.549109
36	7	26.728114	-0.042458	26.685656	926.348703
40	4	26.728114	-0.038104	26.690010	1033.108744
46	6	26.728114	-0.014894	26.713220	1193.388064
48	2	26.728114	-0.014414	26.713700	1246.815465
56	8	26.728114	-0.014699	26.713414	1460.522780
57	1	26.728114	-0.034280	26.693834	1487.216614
58	1	26.728114	-0.033244	26.694870	1513.911484
65	3	26.728114	-0.019484	26.708630	1700.895176
95	34	26.728114	-0.013663	26.714450	2502.328690
96	1	26.727787	-0.013663	26.714124	2529.042814
190	94	26.727686	-0.013663	26.714023	5040.160961
191	1	26.729305	-0.013663	26.715641	5066.876602
193	2	26.731292	-0.013663	26.717629	5120.311859
285	92	26.731292	-0.011950	26.719342	7578.491357
286	1	26.732449	-0.011950	26.720499	7605.211857
380	94	26.739934	-0.011950	26.727984	10117.642379
381	1	26.740991	-0.011950	26.729041	10144.371420
476	95	26.759103	-0.011950	26.747153	12685.350964
477	1	3.792629	-0.011950	3.780679	12689.131644

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CO-OP Refinery Complex

Regina, SK

General Information

Tank Number		54-10-811
Date of Strapping Data		12/10/2018
Year Built		
Product in Service		DHU Diesel
Product Service Density	0.884	g/cc (SG)

Tank Dimensions

Nominal Diameter	120	Feet
Nominal Height	40	Feet
Measured Tank Height	12.164 Metres	39' 10-7/8"
Tank Tilt	0	Millimetres
Gauge Point Information		Benchmark
Reference Gauge Height	13.635 Metres	44' 8-13/16"
Horizontal To Gauge	40	Inches

Roof & Bottom Survey

Roof Type	Cone
Floating Roof Shape	N/A
Floating Roof Weight	N/A
Roof Landed Height	N/A
Roof Full Floating Height	N/A
Bottom Description	Physical Survey

Report Constraints

Main Increment		Inches
Main Volume		Cubic Metres
Product at Strapping		empty
Product Strap Density	1	g/cc (SG)
Liquid Height at Strap		
Safe Fill Height		38' 6"
Overflow Or Foamline	11.670 Metres	38' 3-7/16"

CO-OP Refinery Complex

Regina, SK

Strap Correction to 60°F

Shell Temperature (°F)	14.0	**Master Tape Serial**	
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994830

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	115.115	377.674	0.001	377.654
2	115.115	377.674	0.001	377.654
3	115.115	377.674	0.001	377.654
4	115.115	377.674	0.001	377.654
5	115.115	377.674	0.001	377.654

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	622.036	1.250	-7.854	115.101	377.628
2	627.786	7.000	-43.982	115.065	377.509
3	632.214	11.429	-71.808	115.037	377.418
4	633.857	13.071	-82.130	115.027	377.384
5	632.464	11.679	-73.379	115.035	377.413

CO-OP Refinery Complex

Regina, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	377.628	0.694 Inches	2.419 Metres	2.419 Metres
2	377.509	0.562 Inches	2.421 Metres	4.840 Metres
3	377.418	0.437 Inches	2.421 Metres	7.261 Metres
4	377.384	0.375 Inches	2.415 Metres	9.676 Metres
5	377.413	0.313 Inches	2.418 Metres	12.094 Metres

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	16	0.750 Inches	1.000 Millimetres
2	Butt Weld	16	0.750 Inches	1.000 Millimetres
3	Butt Weld	16	0.750 Inches	1.000 Millimetres
4	Butt Weld	16	0.750 Inches	1.000 Millimetres
5	Butt Weld	16	0.750 Inches	1.000 Millimetres

CO-OP Refinery Complex

Regina, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$\frac{-K\ (G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	377.628	0.694	0
2.00	62.428	1.000	0	377.509	0.562	0
3.00	62.428	1.000	0	377.418	0.437	0
4.00	62.428	1.000	0	377.384	0.375	0
5.00	62.428	1.000	0	377.413	0.313	0

CO-OP Refinery Complex

Regina, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	377.628	0.000	0.001	0.363	377.264
2	377.509	0.000	0.001	0.294	377.215
3	377.418	0.000	0.001	0.229	377.189
4	377.384	0.000	0.001	0.196	377.188
5	377.413	0.000	0.001	0.164	377.249

CO-OP Refinery Complex

Regina, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \left(\frac{G * H * C^2}{T}\right)$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Inch
1	377.264	0.012	377.277	26.728
2	377.215	0.022	377.237	26.723
3	377.189	0.029	377.218	26.720
4	377.188	0.034	377.221	26.721
5	377.249	0.040	377.290	26.730

CO-OP Refinery Complex

Regina, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Inch	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	26.728	0.005	0.000	26.728	26.728
2	26.723	0.006	0.005	26.728	26.728
3	26.720	0.008	0.012	26.732	26.731
4	26.721	0.010	0.020	26.740	26.740
5	26.730	0.000	0.029	26.759	26.759

CO-OP Refinery Complex **TANK # 54-10-909**

Regina, SK **893 Kg/m3 @ 15°C**

External Floating Roof Tank - Nominal Dimensions : 136' 3" X 48' INNAGE TABLE

Ref Gauge Height - 55' 9"; Located 39.5 Inches to Rim of Flange — Height in Inches; Capacities in Cubic Metres

0	0 **	5.512	**4**	0	Low Critical Zone	1,522.362	**8**	0		3,151.349	**12**	0		4,802.086	**16**	0	6,453.175
	1	25.491		1		1,549.633		1		3,185.731		1		4,836.484		1	6,487.573
	2	51.656		2		1,576.903		2		3,220.112		2		4,870.881		2	6,521.971
	3	80.179		3		1,604.174		3		3,254.494		3		4,905.279		3	6,556.368
	4	111.068		4		1,638.556		4		3,288.876		4		4,939.677		4	6,590.766
	5	144.303		5		1,672.937		5		3,323.257		5		4,974.074		5	6,625.164
	6	178.332		6		1,707.319		6		3,357.639		6		5,008.472		6	6,659.561
	7	212.675		7		1,741.701		7		3,392.021		7		5,042.870		7	6,693.959
	8	247.020		8		1,776.082		8		3,426.402		8		5,077.267		8	6,728.357
	9	281.364		9		1,810.464		9		3,460.784		9		5,111.665		9	6,762.754
	10	315.710		10		1,844.846		10		3,495.166		10		5,146.063		10	6,797.152
	11	350.057		11		1,879.227		11		3,529.547		11		5,180.460		11	6,831.550
1	0	384.403	**5**	0		1,913.609	**9**	0		3,563.929	**13**	0		5,214.858	**17**	0	6,865.948
	1	418.749		1		1,947.991		1		3,598.311		1		5,249.256		1	6,900.345
	2	453.096		2		1,982.372		2		3,632.692		2		5,283.654		2	6,934.743
	3	487.442		3		2,016.754		3		3,667.074		3		5,318.051		3	6,969.141
	4	521.788		4		2,051.136		4		3,701.456		4		5,352.449		4	7,003.538
	5	556.153		5		2,085.517		5		3,735.837		5		5,386.847		5	7,037.936
	6	590.517		6		2,119.899		6		3,770.219		6		5,421.244		6	7,072.334
	7	624.881		7		2,154.281		7		3,804.601		7		5,455.642		7	7,106.731
	8	659.246		8		2,188.662		8		3,838.982		8		5,490.040		8	7,141.129
	9	693.618		9		2,223.044		9		3,873.364		9		5,524.437		9	7,175.527
	10	727.994		10		2,257.426		10		3,907.746		10		5,558.835		10	7,209.924
	11	762.370		11		2,291.807		11		3,942.143		11		5,593.233		11	7,244.322
2	0	796.753	**6**	0		2,326.189	**10**	0		3,976.541	**14**	0		5,627.631	**18**	0	7,278.720
	1	831.136		1		2,360.571		1		4,010.939		1		5,662.028		1	7,313.118
	2	865.518		2		2,394.952		2		4,045.337		2		5,696.426		2	7,347.515
	3	899.899		3		2,429.334		3		4,079.734		3		5,730.824		3	7,381.913
	4	934.281		4		2,463.716		4		4,114.132		4		5,765.221		4	7,416.311
	5	968.663		5		2,498.097		5		4,148.530		5		5,799.619		5	7,450.708
	6	1,003.045		6		2,532.479		6		4,182.927		6		5,834.017		6	7,485.106
	7	1,037.427		7		2,566.861		7		4,217.325		7		5,868.414		7	7,519.504
	8	1,071.809		8		2,601.242		8		4,251.723		8		5,902.812		8	7,553.901
	9	1,106.191		9		2,635.624		9		4,286.120		9		5,937.210		9	7,588.299
	10	1,140.573		10		2,670.006		10		4,320.518		10		5,971.607		10	7,622.697
	11	1,167.844		11		2,704.387		11		4,354.916		11		6,006.005		11	7,657.095
3	0	1,195.114	**7**	0		2,738.769	**11**	0		4,389.314	**15**	0		6,040.403	**19**	0	7,691.492
	1	1,222.385		1		2,773.151		1		4,423.711		1		6,074.801		1	7,725.890
	2	1,249.656		2		2,807.532		2		4,458.109		2		6,109.198		2	7,760.288
	3	1,276.926		3		2,841.914		3		4,492.507		3		6,143.596		3	7,794.685
	4	1,304.197		4		2,876.296		4		4,526.904		4		6,177.994		4	7,829.083
	5	1,331.468		5		2,910.677		5		4,561.302		5		6,212.391		5	7,863.481
	6	1,358.738		6		2,945.059		6		4,595.700		6		6,246.789		6	7,897.878
	7	1,386.009		7		2,979.441		7		4,630.097		7		6,281.187		7	7,932.276
	8	1,413.280		8		3,013.822		8		4,664.495		8		6,315.584		8	7,966.674
	9	1,440.550		9		3,048.204		9		4,698.893		9		6,349.982		9	8,001.133
	10	1,467.821		10		3,082.586		10		4,733.290		10		6,384.380		10	8,035.593
	11	1,495.091		11		3,116.967		11		4,767.688		11		6,418.777		11	8,070.053

Low Critical Zone

High Critical Zone

** Volume Below Strike Point. Located 0.6" Above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

SF - Safe Fill Height @ 44'

A total of 120.890239641657 Cubic Metres were deducted between 32 & 53 Inches based on a weight of 107954.984 Kilograms and a density of 893 Kg/m3. Gauged quantities above 53 Inches reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

No Measurements are to be taken in Critical Zones

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CO-OP Refinery Complex **TANK # 54-10-909**

Regina, SK **893 Kg/m3 @ 15°C**

External Floating Roof Tank - Nominal Dimensions : 136' 3" X 48' INNAGE TABLE

Ref Gauge Height - 55' 9"; Located 39.5 Inches to Rim of Flange — Height in Inches; Capacities in Cubic Metres

20	0	8,104.512	**24**	0	9,758.574	**28**	0	11,412.637	**32**	0	13,067.748	**36**	0	14,723.209
	1	8,138.972		1	9,793.034		1	11,447.096		1	13,102.236		1	14,757.697
	2	8,173.432		2	9,827.494		2	11,481.556		2	13,136.725		2	14,792.186
	3	8,207.891		3	9,861.953		3	11,516.015		3	13,171.214		3	14,826.675
	4	8,242.351		4	9,896.413		4	11,550.475		4	13,205.703		4	14,861.164
	5	8,276.810		5	9,930.873		5	11,584.935		5	13,240.192		5	14,895.652
	6	8,311.270		6	9,965.332		6	11,619.394		6	13,274.680		6	14,930.141
	7	8,345.730		7	9,999.792		7	11,653.854		7	13,309.169		7	14,964.630
	8	8,380.189		8	10,034.251		8	11,688.314		8	13,343.658		8	14,999.119
	9	8,414.649		9	10,068.711		9	11,722.773		9	13,378.147		9	15,033.607
	10	8,449.109		10	10,103.171		10	11,757.233		10	13,412.635		10	15,068.096
	11	8,483.568		11	10,137.630		11	11,791.692		11	13,447.124		11	15,102.585
21	0	8,518.028	**25**	0	10,172.090	**29**	0	11,826.152	**33**	0	13,481.613	**37**	0	15,137.074
	1	8,552.487		1	10,206.550		1	11,860.641		1	13,516.102		1	15,171.563
	2	8,586.947		2	10,241.009		2	11,895.130		2	13,550.590		2	15,206.051
	3	8,621.407		3	10,275.469		3	11,929.618		3	13,585.079		3	15,240.540
	4	8,655.866		4	10,309.928		4	11,964.107		4	13,619.568		4	15,275.029
	5	8,690.326		5	10,344.388		5	11,998.596		5	13,654.057		5	15,309.518
	6	8,724.786		6	10,378.848		6	12,033.085		6	13,688.546		6	15,344.006
	7	8,759.245		7	10,413.307		7	12,067.573		7	13,723.034		7	15,378.495
	8	8,793.705		8	10,447.767		8	12,102.062		8	13,757.523		8	15,412.984
	9	8,828.164		9	10,482.227		9	12,136.551		9	13,792.012		9	15,447.473
	10	8,862.624		10	10,516.686		10	12,171.040		10	13,826.501		10	15,481.961
	11	8,897.084		11	10,551.146		11	12,205.528		11	13,860.989		11	15,516.450
22	0	8,931.543	**26**	0	10,585.605	**30**	0	12,240.017	**34**	0	13,895.478	**38**	0	15,585.428
	1	8,966.003		1	10,620.065		1	12,274.506		1	13,929.967		1	15,619.916
	2	9,000.463		2	10,654.525		2	12,308.995		2	13,964.456		2	15,654.405
	3	9,034.922		3	10,688.984		3	12,343.484		3	13,998.944		3	15,688.894
	4	9,069.382		4	10,723.444		4	12,377.972		4	14,033.433		4	15,723.408
	5	9,103.841		5	10,757.904		5	12,412.461		5	14,067.922		5	15,757.922
	6	9,138.301		6	10,792.363		6	12,446.950		6	14,102.411		6	15,792.435
	7	9,172.761		7	10,826.823		7	12,481.439		7	14,136.899		7	15,826.949
	8	9,207.220		8	10,861.282		8	12,515.927		8	14,171.388		8	15,861.463
	9	9,241.680		9	10,895.742		9	12,550.416		9	14,205.877		9	15,895.977
	10	9,276.140		10	10,930.202		10	12,584.905		10	14,240.366		10	15,930.490
	11	9,310.599		11	10,964.661		11	12,619.394		11	14,274.855		11	15,965.004
23	0	9,345.059	**27**	0	10,999.121	**31**	0	12,653.882	**35**	0	14,309.343	**39**	0	16,034.032
	1	9,379.518		1	11,033.581		1	12,688.371		1	14,343.832		1	16,068.546
	2	9,413.978		2	11,068.040		2	12,722.860		2	14,378.321		2	16,103.059
	3	9,448.438		3	11,102.500		3	12,757.349		3	14,412.810		3	16,137.573
	4	9,482.897		4	11,136.959		4	12,791.838		4	14,447.298		4	16,172.087
	5	9,517.357		5	11,171.419		5	12,826.326		5	14,481.787		5	16,206.601
	6	9,551.817		6	11,205.879		6	12,860.815		6	14,516.276		6	16,241.114
	7	9,586.276		7	11,240.338		7	12,895.304		7	14,550.765		7	16,275.628
	8	9,620.736		8	11,274.798		8	12,929.793		8	14,585.253		8	16,310.142
	9	9,655.196		9	11,309.258		9	12,964.281		9	14,619.742		9	16,344.656
	10	9,689.655		10	11,343.717		10	12,998.770		10	14,654.231		10	16,379.170
	11	9,724.115		11	11,378.177		11	13,033.259		11	14,688.720		11	16,413.683

SF - Safe Fill Height @ 44'

Fractions

1/16	2.153727	9/16	19.383541
1/ 8	4.307453	5/ 8	21.537267
3/16	6.461180	11/16	23.690994
1/ 4	8.614907	3/ 4	25.844721
5/16	10.768634	13/16	27.998447
3/ 8	12.922360	7/ 8	30.152174
7/16	15.076087	15/16	32.305901
1/ 2	17.229814	1	34.459628

Displacement Correction = 107954.984 Kilograms / Kilograms/Cubic Metre - 120.890239641657 Cubic Metres

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex **TANK # 54-10-909**

Regina, SK **893 Kg/m3 @ 15°C**

External Floating Roof Tank - Nominal Dimensions : 136' 3" X 48' INNAGE TABLE

Ref Gauge Height - 55' 9"; Located 39.5 Inches to Rim of Flange — Height in Inches; Capacities in Cubic Metres

40		44				48		52		56	
	0	16,379.170	0	SF	18,035.831		0		0		0
	1	16,413.683	1				1		1		1
	2	16,448.197	2				2		2		2
	3	16,482.711	3				3		3		3
	4	16,517.225	4				4		4		4
	5	16,551.738	5				5		5		5
	6	16,586.252	6				6		6		6
	7	16,620.766	7				7		7		7
	8	16,655.280	8				8		8		8
	9	16,689.794	9				9		9		9
	10	16,724.307	10				10		10		10
	11	16,758.821	11				11		11		11

41		45				49		53		57	
	0	16,793.335	0				0		0		0
	1	16,827.849	1				1		1		1
	2	16,862.362	2				2		2		2
	3	16,896.876	3				3		3		3
	4	16,931.390	4				4		4		4
	5	16,965.904	5				5		5		5
	6	17,000.418	6				6		6		6
	7	17,034.931	7				7		7		7
	8	17,069.445	8				8		8		8
	9	17,103.959	9				9		9		9
	10	17,138.473	10				10		10		10
	11	17,172.986	11				11		11		11

42		46				50		54		58	
	0	17,207.500	0				0		0		0
	1	17,242.014	1				1		1		1
	2	17,276.528	2				2		2		2
	3	17,311.042	3				3		3		3
	4	17,345.555	4				4		4		4
	5	17,380.069	5				5		5		5
	6	17,414.583	6				6		6		6
	7	17,449.097	7				7		7		7
	8	17,483.610	8				8		8		8
	9	17,518.124	9				9		9		9
	10	17,552.638	10				10		10		10
	11	17,587.152	11				11		11		11

43		47				51		55		59	
	0	17,621.666	0				0		0		0
	1	17,656.179	1				1		1		1
	2	17,690.693	2				2		2		2
	3	17,725.207	3				3		3		3
	4	17,759.721	4				4		4		4
	5	17,794.234	5				5		5		5
	6	17,828.748	6				6		6		6
	7	17,863.262	7				7		7		7
	8	17,897.776	8				8		8		8
	9	17,932.290	9				9		9		9
	10	17,966.803	10				10		10		10
	11	18,001.317	11				11		11		11

SF - Safe Fill Height @ 44'

Tables produced by:
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CO-OP Refinery Complex **TANK # 54-10-909**

Regina, SK **893 Kg/m3 @ 15°C**

External Floating Roof Tank - Nominal Dimensions : 136' 3" X 48'

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	5.511653	5.511653	5.511653
1	1	34.381808	-14.402161	19.979647	25.491300
2	1	34.381808	-8.216951	26.164857	51.656157
3	1	34.381808	-5.858709	28.523099	80.179255
4	1	34.381808	-3.492865	30.888943	111.068199
5	1	34.381808	-1.146973	33.234835	144.303033
6	1	34.381808	-0.353336	34.028472	178.331505
7	1	34.381808	-0.038002	34.343806	212.675311
8	1	34.381808	-0.037493	34.344315	247.019626
9	1	34.381808	-0.037632	34.344176	281.363802
10	1	34.381808	-0.035255	34.346553	315.710356
11	1	34.381808	-0.035088	34.346720	350.057076
12	1	34.381808	-0.035869	34.345939	384.403015
15	3	34.381808	-0.035545	34.346263	487.441803
16	1	34.381808	-0.035301	34.346507	521.788311
20	4	34.381808	-0.017487	34.364321	659.245593
21	1	34.381808	-0.009574	34.372234	693.617828
22	1	34.381808	-0.005442	34.376366	727.994194
23	1	34.381808	-0.005516	34.376292	762.370485
24	1	34.381808	0.000802	34.382610	796.753096
25	1	34.381808	0.000714	34.382522	831.135617
34	9	34.381808	0.000108	34.381916	1140.572861
39	5	34.381808	-7.111083	27.270725	1276.926487
51	12	34.381808	-7.111197	27.270611	1604.173819
52	1	34.381808	-0.000006	34.381802	1638.555620
118	66	34.381808	-0.000139	34.381669	3907.745789
236	118	34.397833	-0.000139	34.397695	7966.673752
348	112	34.459766	-0.000139	34.459628	11826.152045
460	112	34.488907	-0.000139	34.488768	15688.894032
572	112	34.513916	-0.000139	34.513777	19554.437094
573	1		-0.000139	-0.000139	19554.436955

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex

Regina, SK

General Information

Tank Number		54-10-909
Date of Strapping Data		01/29/2018
Year Built		
Product in Service		Vacuum Gas Oil
Product Service Density	0.8934	g/cc (SG)

Tank Dimensions

Nominal Diameter	136' 3"	
Nominal Height	48"	
Measured Tank Height	47' 8"	
Tank Tilt	0	Millimetres
Gauge Point Information		Rim of Flange
Reference Gauge Height	55' 9"	
Horizontal To Gauge	39.5	Inches

Roof & Bottom Survey

Roof Type		External Floating
Floating Roof Shape		Angle Pontoon
Floating Roof Weight	238,000 Lbs	107954.98 Kg
Roof Landed Height	34	Inches
Roof Full Floating Height	51	Inches
Bottom Description		Physical Survey

Report Constraints

Main Increment		Inches
Main Volume		Cubic Metres
Product at Strapping		empty
Product Strap Density	1	g/cc (SG)
Liquid Height at Strap	0	Feet
Safe Fill Height	44	Feet
Overflow Or Foamline		

CO-OP Refinery Complex

Regina, SK

Strap Correction to 60°F

Shell Temperature (°F)	-31.0	**Master Tape Serial**
Shell Material	Carbon Steel	**Master Tape Span**
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 1.00058695

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	130.337	427.615	0.000	427.866
2	130.347	427.648	0.000	427.899
3	130.347	427.648	0.000	427.899
4	130.347	427.648	0.000	427.899
5	130.347	427.648	0.000	427.899

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	461.938	0.000	0.000	130.414	427.866
2	461.938	0.000	0.000	130.424	427.899
3	476.031	14.094	88.554	130.512	428.189
4	479.781	17.844	112.116	130.536	428.266
5	481.781	19.844	124.682	130.548	428.308

CO-OP Refinery Complex

Regina, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	427.866	0.688 Inches	118.00 Inches	118.000 Inches
2	427.899	0.500 Inches	118.00 Inches	236.000 Inches
3	428.189	0.375 Inches	112.00 Inches	348.000 Inches
4	428.266	0.375 Inches	112.00 Inches	460.000 Inches
5	428.308	0.313 Inches	112.00 Inches	572.000 Inches

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	0	0.000 Inches	0.000 Inches
2	Butt Weld	0	0.000 Inches	0.000 Inches
3	Butt Weld	0	0.000 Inches	0.000 Inches
4	Butt Weld	0	0.000 Inches	0.000 Inches
5	Butt Weld	0	0.000 Inches	0.000 Inches

CO-OP Refinery Complex

Regina, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$\frac{-K\ (G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	427.866	0.688	0
2.00	62.428	1.000	0	427.899	0.500	0
3.00	62.428	1.000	0	428.189	0.375	0
4.00	62.428	1.000	0	428.266	0.375	0
5.00	62.428	1.000	0	428.308	0.313	0

CO-OP Refinery Complex

Regina, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
2	427.899	0.000	0.000	0.000	427.899
3	428.189	0.000	0.000	0.000	428.189
4	428.266	0.000	0.000	0.000	428.266
5	428.308	0.000	0.000	0.000	428.308
1	427.866	0.000	0.000	0.000	427.866

CO-OP Refinery Complex

Regina, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Inch
1	427.866	0.032	427.898	34.382
2	427.899	0.039	427.938	34.389
3	428.189	0.052	428.241	34.437
4	428.266	0.052	428.318	34.450
5	428.308	0.062	428.370	34.458

CO-OP Refinery Complex

Regina, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^2}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Inch	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	34.382	0.010	0.000	34.382	34.382
2	34.389	0.013	0.010	34.398	34.398
3	34.437	0.017	0.023	34.460	34.460
4	34.450	0.017	0.040	34.489	34.489
5	34.458	0.000	0.056	34.514	34.514

CO-OP Refinery Complex **TANK # 88-10-718**

Regina, SK **719.7 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 47' 9" INNAGE TABLE

Ref Gauge Height - 53' 9-7/8; Located 39 Inches to Benchmark in hatch opposite hinge — Height in Inches; Capacities in Cubic Metres

0	0**	1.124	**4**	0	626.854	**8**	0	1,258.867	**12**	0	1,900.195	**16**	0	2,541.529
	1	5.714		1	640.198		1	1,272.228		1	1,913.556		1	2,554.901
	2	13.958		2	653.542		2	1,285.589		2	1,926.917		2	2,568.273
	3	26.445		3	666.886		3	1,298.950		3	1,940.278		3	2,581.645
	4	39.783		4	680.229		4	1,312.311		4	1,953.639		4	2,595.017
	5	53.121		5	693.573		5	1,325.672		5	1,967.000		5	2,608.389
	6	66.459		6	706.917		6	1,339.033		6	1,980.361		6	2,621.761
	7	79.797		7	717.429		7	1,352.394		7	1,993.722		7	2,635.133
	8	93.135		8	727.940		8	1,365.755		8	2,007.083		8	2,648.505
	9	106.478		9	738.452		9	1,379.116		9	2,020.444		9	2,661.877
	10	119.821		10	751.796		10	1,392.477		10	2,033.805		10	2,675.249
	11	133.164		11	765.140		11	1,405.838		11	2,047.166		11	2,688.621
1	0	146.507	**5**	0	778.483	**9**	0	1,419.199	**13**	0	2,060.527	**17**	0	2,701.993
	1	159.850		1	791.827		1	1,432.560		1	2,073.888		1	2,715.365
	2	173.194		2	805.171		2	1,445.921		2	2,087.249		2	2,728.737
	3	186.537		3	818.515		3	1,459.282		3	2,100.610		3	2,742.110
	4	199.880		4	831.858		4	1,472.643		4	2,113.971		4	2,755.482
	5	213.223		5	845.202		5	1,486.004		5	2,127.332		5	2,768.854
	6	226.567		6	858.546		6	1,499.365		6	2,140.693		6	2,782.226
	7	239.910		7	871.890		7	1,512.726		7	2,154.054		7	2,795.598
	8	253.253		8	885.233		8	1,526.087		8	2,167.415		8	2,808.970
	9	266.597		9	898.577		9	1,539.448		9	2,180.776		9	2,822.342
	10	279.940		10	911.921		10	1,552.809		10	2,194.137		10	2,835.714
	11	293.284		11	925.264		11	1,566.170		11	2,207.498		11	2,849.086
2	0	306.627	**6**	0	938.608	**10**	0	1,579.531	**14**	0	2,220.859	**18**	0	2,862.458
	1	319.971		1	951.952		1	1,592.892		1	2,234.220		1	2,875.830
	2	333.315		2	965.296		2	1,606.253		2	2,247.581		2	2,889.202
	3	346.659		3	978.639		3	1,619.614		3	2,260.942		3	2,902.574
	4	360.004		4	991.983		4	1,632.975		4	2,274.303		4	2,915.946
	5	373.348		5	1,005.327		5	1,646.336		5	2,287.664		5	2,929.318
	6	386.692		6	1,018.671		6	1,659.697		6	2,301.025		6	2,942.690
	7	400.037		7	1,032.014		7	1,673.058		7	2,314.386		7	2,956.062
	8	413.381		8	1,045.358		8	1,686.419		8	2,327.747		8	2,969.434
	9	426.715		9	1,058.702		9	1,699.780		9	2,341.108		9	2,982.807
	10	440.050		10	1,072.046		10	1,713.141		10	2,354.469		10	2,996.179
	11	453.384		11	1,085.389		11	1,726.502		11	2,367.830		11	3,009.551
3	0	466.728	**7**	0	1,098.733	**11**	0	1,739.863	**15**	0	2,381.191	**19**	0	3,022.923
	1	480.072		1	1,112.077		1	1,753.224		1	2,394.552		1	3,036.295
	2	493.416		2	1,125.421		2	1,766.585		2	2,407.913		2	3,049.667
	3	506.760		3	1,138.764		3	1,779.946		3	2,421.274		3	3,063.039
	4	520.103		4	1,152.108		4	1,793.307		4	2,434.635		4	3,076.411
	5	533.447		5	1,165.452		5	1,806.668		5	2,447.996		5	3,089.783
	6	546.791		6	1,178.795		6	1,820.029		6	2,461.357		6	3,103.155
	7	560.135		7	1,192.139		7	1,833.390		7	2,474.718		7	3,116.527
	8	573.479		8	1,205.483		8	1,846.751		8	2,488.079		8	3,129.899
	9	586.823		9	1,218.827		9	1,860.112		9	2,501.440		9	3,143.271
	10	600.166		10	1,232.170		10	1,873.473		10	2,514.801		10	3,156.643
	11	613.510		11	1,245.514		11	1,886.834		11	2,528.162		11	3,170.015

Low Critical Zone

High Critical Zone

** Volume Below Strike Point. Located 1.75" Above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

SF - Safe Fill Height @ 44'

A total of 8.496 Cubic Metres were deducted between 52 & 59 Inches based on a weight of 6117.1467 Kilograms and a density of 719.7 Kg/m3. Gauged quantities above 59 Inches reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

No Measurements are to be taken in Critical Zones

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex **TANK # 88-10-718**

Regina, SK **719.7 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 47' 9" INNAGE TABLE

Ref Gauge Height - 53' 9-7/8; Located 39 Inches to Benchmark in hatch opposite hinge — Height in Inches; Capacities in Cubic Metres

20	0	3,183.387	**24**	0	3,825.249	**28**	0	4,467.424	**32**	0	5,109.593	**36**	0	5,751.174
	1	3,196.759		1	3,838.628		1	4,480.803		1	5,122.959		1	5,764.540
	2	3,210.131		2	3,852.007		2	4,494.181		2	5,136.325		2	5,777.907
	3	3,223.504		3	3,865.385		3	4,507.560		3	5,149.691		3	5,791.273
	4	3,236.876		4	3,878.764		4	4,520.939		4	5,163.058		4	5,804.639
	5	3,250.248		5	3,892.143		5	4,534.317		5	5,176.424		5	5,818.006
	6	3,263.620		6	3,905.521		6	4,547.696		6	5,189.790		6	5,831.372
	7	3,276.992		7	3,918.900		7	4,561.074		7	5,203.157		7	5,844.738
	8	3,290.364		8	3,932.278		8	4,574.453		8	5,216.523		8	5,858.104
	9	3,303.736		9	3,945.657		9	4,587.832		9	5,229.889		9	5,871.471
	10	3,317.108		10	3,959.036		10	4,601.210		10	5,243.255		10	5,884.837
	11	3,330.480		11	3,972.414		11	4,614.589		11	5,256.622		11	5,898.203
21	0	3,343.852	**25**	0	3,985.793	**29**	0	4,627.968	**33**	0	5,269.988	**37**	0	5,911.570
	1	3,357.224		1	3,999.172		1	4,641.346		1	5,283.354		1	5,924.936
	2	3,370.596		2	4,012.550		2	4,654.725		2	5,296.721		2	5,938.302
	3	3,383.968		3	4,025.929		3	4,668.104		3	5,310.087		3	5,951.668
	4	3,397.340		4	4,039.308		4	4,681.482		4	5,323.453		4	5,965.035
	5	3,410.712		5	4,052.686		5	4,694.861		5	5,336.819		5	5,978.401
	6	3,424.084		6	4,066.065		6	4,708.240		6	5,350.186		6	5,991.767
	7	3,437.456		7	4,079.443		7	4,721.618		7	5,363.552		7	6,005.134
	8	3,450.828		8	4,092.822		8	4,734.997		8	5,376.918		8	6,018.500
	9	3,464.201		9	4,106.201		9	4,748.375		9	5,390.284		9	6,031.866
	10	3,477.573		10	4,119.579		10	4,761.754		10	5,403.651		10	6,045.232
	11	3,490.945		11	4,132.958		11	4,775.133		11	5,417.017		11	6,058.599
22	0	3,504.317	**26**	0	4,146.337	**30**	0	4,788.511	**34**	0	5,430.383	**38**	0	6,085.331
	1	3,517.689		1	4,159.715		1	4,801.890		1	5,443.750		1	6,098.698
	2	3,531.061		2	4,173.094		2	4,815.269		2	5,457.116		2	6,112.064
	3	3,544.433		3	4,186.473		3	4,828.647		3	5,470.482		3	6,125.430
	4	3,557.805		4	4,199.851		4	4,842.026		4	5,483.848		4	6,138.796
	5	3,571.177		5	4,213.230		5	4,855.405		5	5,497.215		5	6,152.163
	6	3,584.549		6	4,226.608		6	4,868.783		6	5,510.581		6	6,165.529
	7	3,597.921		7	4,239.987		7	4,882.162		7	5,523.947		7	6,178.895
	8	3,611.293		8	4,253.366		8	4,895.540		8	5,537.314		8	6,192.262
	9	3,624.665		9	4,266.744		9	4,908.919		9	5,550.680		9	6,205.628
	10	3,638.037		10	4,280.123		10	4,922.298		10	5,564.046		10	6,218.994
	11	3,651.409		11	4,293.502		11	4,935.676		11	5,577.412		11	6,232.360
23	0	3,664.781	**27**	0	4,306.880	**31**	0	4,949.055	**35**	0	5,590.779	**39**	0	6,259.093
	1	3,678.153		1	4,320.259		1	4,962.434		1	5,604.145		1	6,272.459
	2	3,691.525		2	4,333.638		2	4,975.812		2	5,617.511		2	6,285.826
	3	3,704.898		3	4,347.016		3	4,989.191		3	5,630.878		3	6,299.192
	4	3,718.270		4	4,360.395		4	5,002.570		4	5,644.244		4	6,312.558
	5	3,731.642		5	4,373.774		5	5,015.948		5	5,657.610		5	6,325.924
	6	3,745.014		6	4,387.152		6	5,029.327		6	5,670.976		6	6,339.291
	7	3,758.386		7	4,400.531		7	5,042.706		7	5,684.343		7	6,352.657
	8	3,771.758		8	4,413.909		8	5,056.084		8	5,697.709		8	6,366.023
	9	3,785.130		9	4,427.288		9	5,069.463		9	5,711.075		9	6,379.390
	10	3,798.502		10	4,440.667		10	5,082.841		10	5,724.442		10	6,392.756
	11	3,811.874		11	4,454.045		11	5,096.220		11	5,737.808		11	6,406.122

SF - Safe Fill Height @ 44'
OF - Overflow Height @ 46' 10"

Fractions

1/16	0.835753	9/16	7.521781
1/ 8	1.671507	5/ 8	8.357535
3/16	2.507260	11/16	9.193288
1/ 4	3.343014	3/ 4	10.029042
5/16	4.178767	13/16	10.864795
3/ 8	5.014521	7/ 8	11.700548
7/16	5.850274	15/16	12.536302
1/ 2	6.686028	1	13.372055

Displacement Correction = 6117.1467 Kilogram / Kilograms/Cubic Metre = 8.496 Cubic Metres

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CO-OP Refinery Complex **TANK # 88-10-718**

Regina, SK **719.7 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 47' 9" INNAGE TABLE

Ref Gauge Height - 53' 9-7/8; Located 39 Inches to Benchmark in hatch opposite hinge — Height in Inches; Capacities in Cubic Metres

40		44			48		52		56	
0	6,392.756	0	SF	7,034.056	0		0		0	
1	6,406.122	1		7,047.415	1		1		1	
2	6,419.488	2		7,060.774	2		2		2	
3	6,432.855	3		7,074.133	3		3		3	
4	6,446.221	4		7,087.492	4		4		4	
5	6,459.587	5		7,100.850	5		5		5	
6	6,472.954	6		7,114.209	6		6		6	
7	6,486.320	7		7,127.568	7		7		7	
8	6,499.686	8		7,140.927	8		8		8	
9	6,513.052	9		7,154.286	9		9		9	
10	6,526.415	10		7,167.645	10		10		10	
11	6,539.774	11		7,181.004	11		11		11	

41		45			49		53		57	
0	6,553.133	0		7,194.363	0		0		0	
1	6,566.492	1		7,207.722	1		1		1	
2	6,579.851	2		7,221.081	2		2		2	
3	6,593.210	3		7,234.440	3		3		3	
4	6,606.569	4		7,247.799	4		4		4	
5	6,619.928	5		7,261.158	5		5		5	
6	6,633.287	6		7,274.517	6		6		6	
7	6,646.646	7		7,287.876	7		7		7	
8	6,660.005	8		7,301.235	8		8		8	
9	6,673.364	9		7,314.594	9		9		9	
10	6,686.723	10		7,327.953	10		10		10	
11	6,700.082	11		7,341.312	11		11		11	

42		46			50		54		58	
0	6,713.441	0		7,354.671	0		0		0	
1	6,726.799	1		7,368.030	1		1		1	
2	6,740.158	2		7,381.389	2		2		2	
3	6,753.517	3		7,394.748	3		3		3	
4	6,766.876	4		7,408.107	4		4		4	
5	6,780.235	5		7,421.466	5		5		5	
6	6,793.594	6		7,434.825	6		6		6	
7	6,806.953	7		7,448.184	7		7		7	
8	6,820.312	8		7,461.543	8		8		8	
9	6,833.671	9		7,474.901	9		9		9	
10	6,847.030	10	OF	7,488.260	10		10		10	
11	6,860.389	11			11		11		11	

43		47		51		55		59	
0	6,873.748	0		0		0		0	
1	6,887.107	1		1		1		1	
2	6,900.466	2		2		2		2	
3	6,913.825	3		3		3		3	
4	6,927.184	4		4		4		4	
5	6,940.543	5		5		5		5	
6	6,953.902	6		6		6		6	
7	6,967.261	7		7		7		7	
8	6,980.620	8		8		8		8	
9	6,993.979	9		9		9		9	
10	7,007.338	10		10		10		10	
11	7,020.697	11		11		11		11	

SF - Safe Fill Height @ 44'
OF - Overflow Height @ 46' 10"

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CO-OP Refinery Complex **TANK # 88-10-718**

Regina, SK **719.7 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 47' 9"

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	1.123661	1.123661	1.123661
1	1	13.345017	-8.755071	4.589946	5.713607
2	1	13.345017	-5.100184	8.244833	13.958440
3	1	13.345017	-0.858857	12.486160	26.444600
8	5	13.345017	-0.007002	13.338015	93.134676
9	1	13.345017	-0.001724	13.343293	106.477969
13	3	13.345017	-0.001915	13.343102	159.850457
16	4	13.345017	-0.001833	13.343183	199.880007
19	3	13.345017	-0.001737	13.343280	239.909846
20	1	13.345017	-0.001656	13.343361	253.253207
22	2	13.345017	-0.001440	13.343577	279.940361
23	1	13.345017	-0.001394	13.343623	293.283984
24	1	13.345017	-0.001666	13.343351	306.627335
25	1	13.345017	-0.001431	13.343585	319.970920
26	1	13.345017	-0.000877	13.344140	333.315060
28	2	13.345017	-0.000593	13.344424	360.003908
31	3	13.345017	-0.000759	13.344257	400.036680
32	1	13.345017	-0.000681	13.344336	413.381016
35	3	13.345017	-0.010544	13.334473	453.384436
40	1	13.345017	-0.001732	13.343285	520.103313
41	1	13.345017	-0.001730	13.343287	533.446600
42	1	13.345017	-0.000787	13.344230	546.790830
43	1	13.345017	-0.001117	13.343900	560.134730
50	11	13.345017	-0.001119	13.343898	653.542015
57	3	13.345017	-2.833291	10.511725	738.452143
95	42	13.345017	-0.001279	13.343738	1245.514179
96	1	13.353658	-0.001279	13.352379	1258.866558
191	95	13.362285	-0.001279	13.361006	2528.162164
192	1	13.367814	-0.001279	13.366535	2541.528699
287	95	13.373334	-0.001279	13.372055	3811.873956
288	1	13.376629	-0.001279	13.375350	3825.249306
383	95	13.379919	-0.001279	13.378640	5096.220063
384	1	13.373736	-0.001279	13.372457	5109.592520
489	105	13.367563	-0.001279	13.366284	6513.052376
490	1	13.363898	-0.001279	13.362619	6526.414995
595	105	13.360244	-0.001279	13.358965	7929.106303
596	1	6.664090	-0.001279	6.662811	7935.769114

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CO-OP Refinery Complex

Regina, SK

General Information

Tank Number	88-10-718
Date of Strapping Data	01/23/2019
Year Built	
Product in Service	Ethanol Blended Gasoline
Product Service Density	0.7197 g/cc (SG)

Tank Dimensions

Nominal Diameter	85'
Nominal Height	47' 9"
Measured Tank Height	49' 11"
Tank Tilt	
Gauge Point Information	Benchmark in Hatch
Reference Gauge Height	53' 9 7/8"
Horizontal To Gauge	39 Inches

Roof & Bottom Survey

Roof Type	Internal Floating
Floating Roof Shape	Sandborn
Floating Roof Weight	13486 Lbs 6117.15 Kilograms
Roof Landed Height	54 Inches
Roof Full Floating Height	57 Inches
Bottom Description	Physical Survey

Report Constraints

Main Increment	Inches
Main Volume	Cubic Metres
Product at Strapping	empty
Product Strap Density	1 g/cc (SG)
Liquid Height at Strap	
Safe Fill Height	44'
Overflow Or Foamline	46' 10"

CO-OP Refinery Complex

Regina, SK

Strap Correction to 60°F

Shell Temperature (°F)	1.4	**Master Tape Serial**	
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994824

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	81.338	266.857	0.001	266.842
2	81.338	266.857	0.001	266.842
3	81.338	266.857	0.001	266.842
4	81.338	266.857	0.001	266.842
5	81.338	266.857	0.001	266.842
6	81.338	266.857	0.001	266.842

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	556.400	0.000	0.000	81.334	266.842
2	550.700	-5.700	35.814	81.369	266.960
3	547.950	-8.450	53.093	81.387	267.017
4	549.300	-7.100	44.611	81.378	266.989
5	557.000	0.600	-3.770	81.330	266.830
6	562.350	5.950	-37.385	81.296	266.720

CO-OP Refinery Complex

Regina, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	266.842	0.500 Inches	7.958 Feet	7.958 Feet
2	266.960	0.438 Inches	8.000 Feet	15.958 Feet
3	267.017	0.375 Inches	8.000 Feet	23.958 Feet
4	266.989	0.250 Inches	8.000 Feet	31.958 Feet
5	266.830	0.250 Inches	8.833 Feet	40.792 Feet
6	266.720	0.250 Inches	8.833 Feet	49.625 Feet

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	12	0.250 Inches	1.000 Millimetres
2	Butt Weld	12	0.250 Inches	1.000 Millimetres
3	Butt Weld	12	0.250 Inches	1.000 Millimetres
4	Butt Weld	12	0.250 Inches	1.000 Millimetres
5	Butt Weld	12	0.250 Inches	1.000 Millimetres
6	Butt Weld	12	0.250 Inches	1.000 Millimetres

CO-OP Refinery Complex

Regina, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$-K\ \frac{(G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	266.842	0.500	0
2.00	62.428	1.000	0	266.960	0.438	0
3.00	62.428	1.000	0	267.017	0.375	0
4.00	62.428	1.000	0	266.989	0.250	0
5.00	62.428	1.000	0	266.830	0.250	0
6.00	62.428	1.000	0	266.720	0.250	0

CO-OP Refinery Complex

Regina, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	266.842	0.000	0.001	0.262	266.581
2	266.960	0.000	0.001	0.229	266.731
3	267.017	0.000	0.001	0.196	266.820
4	266.989	0.000	0.001	0.131	266.858
5	266.830	0.000	0.001	0.131	266.699
6	266.720	0.000	0.001	0.131	266.589

CO-OP Refinery Complex

Regina, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Inch
1	266.581	0.004	266.585	13.345
2	266.731	0.010	266.741	13.361
3	266.820	0.011	266.832	13.370
4	266.858	0.017	266.875	13.374
5	266.699	0.019	266.718	13.359
6	266.589	0.019	266.608	13.347

CO-OP Refinery Complex

Regina, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Inch	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	13.345	0.002	0.000	13.345	13.345
2	13.361	0.002	0.002	13.362	13.362
3	13.370	0.002	0.004	13.374	13.373
4	13.374	0.003	0.006	13.380	13.380
5	13.359	0.004	0.009	13.368	13.368
6	13.347	0.000	0.013	13.360	13.360

CO-OP Refinery Complex **TANK # 88-10-706**

Regina, SK **734.8 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 49' 6" INNAGE TABLE

Ref Gauge Height - 55' 5" 15/16; Located 16.5 Inches to Rim of Flange — Height in Inches; Capacities in Cubic Metres

0	0 **	18.108	**4**	0	645.145	**8**	0	1,265.004	**12**	0	1,893.405	**16**	0	2,521.814
	1	30.417		1	658.232		1	1,278.096		1	1,906.496		1	2,534.909
	2	43.265		2	671.319		2	1,291.188		2	1,919.588		2	2,548.004
	3	56.351		3	684.406		3	1,304.279		3	1,932.680		3	2,561.098
	4	69.437		4	697.493		4	1,317.371		4	1,945.771		4	2,574.193
	5	82.523		5	710.580		5	1,330.463		5	1,958.863		5	2,587.288
	6	95.609		6	723.667		6	1,343.555		6	1,971.955		6	2,600.383
	7	108.695		7	736.753		7	1,356.646		7	1,985.046		7	2,613.477
	8	121.781		8	749.840		8	1,369.738		8	1,998.138		8	2,626.572
	9	134.868		9	762.927		9	1,382.830		9	2,011.230		9	2,639.667
	10	147.955		10	776.014		10	1,395.921		10	2,024.321		10	2,652.762
	11	161.041		11	789.101		11	1,409.013		11	2,037.413		11	2,665.857
1	0	174.128	**5**	0	802.187	**9**	0	1,422.105	**13**	0	2,050.505	**17**	0	2,678.951
	1	187.215		1	815.274		1	1,435.196		1	2,063.596		1	2,692.046
	2	200.300		2	828.361		2	1,448.288		2	2,076.688		2	2,705.141
	3	213.385		3	841.448		3	1,461.380		3	2,089.780		3	2,718.236
	4	226.470		4	854.535		4	1,474.471		4	2,102.871		4	2,731.330
	5	239.555		5	867.621		5	1,487.563		5	2,115.963		5	2,744.425
	6	252.635		6	880.708		6	1,500.655		6	2,129.055		6	2,757.520
	7	265.715		7	893.795		7	1,513.746		7	2,142.146		7	2,770.615
	8	278.795		8	906.882		8	1,526.838		8	2,155.238		8	2,783.710
	9	291.876		9	919.969		9	1,539.930		9	2,168.330		9	2,796.804
	10	304.957		10	933.055		10	1,553.021		10	2,181.421		10	2,809.899
	11	318.038		11	946.142		11	1,566.113		11	2,194.513		11	2,822.994
2	0	331.119	**6**	0	959.229	**10**	0	1,579.205	**14**	0	2,207.605	**18**	0	2,836.089
	1	344.200		1	972.316		1	1,592.296		1	2,220.696		1	2,849.183
	2	357.280		2	985.403		2	1,605.388		2	2,233.788		2	2,862.278
	3	370.361		3	998.489		3	1,618.480		3	2,246.880		3	2,875.373
	4	383.442		4	1,011.576		4	1,631.571		4	2,259.971		4	2,888.468
	5	396.523		5	1,024.663		5	1,644.663		5	2,273.063		5	2,901.563
	6	409.604		6	1,037.750		6	1,657.755		6	2,286.155		6	2,914.657
	7	422.685		7	1,048.756		7	1,670.846		7	2,299.246		7	2,927.752
	8	435.766		8	1,059.762		8	1,683.938		8	2,312.338		8	2,940.847
	9	448.847		9	1,070.768		9	1,697.030		9	2,325.430		9	2,953.942
	10	461.927		10	1,081.774		10	1,710.121		10	2,338.521		10	2,967.036
	11	475.014		11	1,094.861		11	1,723.213		11	2,351.613		11	2,980.131
3	0	488.101	**7**	0	1,107.948	**11**	0	1,736.305	**15**	0	2,364.705	**19**	0	2,993.226
	1	501.188		1	1,121.035		1	1,749.396		1	2,377.796		1	3,006.321
	2	514.275		2	1,134.122		2	1,762.488		2	2,390.888		2	3,019.416
	3	527.362		3	1,147.208		3	1,775.580		3	2,403.980		3	3,032.510
	4	540.449		4	1,160.295		4	1,788.671		4	2,417.071		4	3,045.605
	5	553.536		5	1,173.382		5	1,801.763		5	2,430.163		5	3,058.700
	6	566.623		6	1,186.469		6	1,814.855		6	2,443.255		6	3,071.795
	7	579.710		7	1,199.556		7	1,827.946		7	2,456.346		7	3,084.889
	8	592.797		8	1,212.642		8	1,841.038		8	2,469.438		8	3,097.984
	9	605.884		9	1,225.729		9	1,854.130		9	2,482.530		9	3,111.079
	10	618.971		10	1,238.821		10	1,867.221		10	2,495.624		10	3,124.174
	11	632.058		11	1,251.913		11	1,880.313		11	2,508.719		11	3,137.269

Critical Zone

** Volume Below Strike Point. Located 0.5" Below intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

SF - Safe Fill Height @ 45' **OF - Overflow Height @ 47' 7"**

A total of 8.323 Cubic Metres were deducted between 76 & 84 Inches based on a weight of 6117.15 Kilograms and a density of 734.8 Kg/m3. Gauged quantities above 84 Inches reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

No Measurements are to be taken in Critical Zones

Tables produced by:
Nextgen Industrial Services Inc.
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CO-OP Refinery Complex **TANK # 88-10-706**

Regina, SK **734.8 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 49' 6" INNAGE TABLE

Ref Gauge Height - 55' 5" 15/16; Located 16.5 Inches to Rim of Flange — Height in Inches; Capacities in Cubic Metres

20	0	3,150.363	**24**	0	3,778.902	**28**	0	4,407.276	**32**	0	5,035.651	**36**	0	5,664.029
	1	3,163.458		1	3,791.993		1	4,420.367		1	5,048.742		1	5,677.120
	2	3,176.553		2	3,805.084		2	4,433.458		2	5,061.833		2	5,690.211
	3	3,189.648		3	3,818.175		3	4,446.550		3	5,074.924		3	5,703.303
	4	3,202.742		4	3,831.266		4	4,459.641		4	5,088.015		4	5,716.394
	5	3,215.837		5	3,844.358		5	4,472.732		5	5,101.107		5	5,729.485
	6	3,228.932		6	3,857.449		6	4,485.823		6	5,114.198		6	5,742.576
	7	3,242.027		7	3,870.540		7	4,498.914		7	5,127.289		7	5,755.668
	8	3,255.122		8	3,883.631		8	4,512.005		8	5,140.380		8	5,768.759
	9	3,268.216		9	3,896.722		9	4,525.096		9	5,153.472		9	5,781.850
	10	3,281.311		10	3,909.813		10	4,538.187		10	5,166.563		10	5,794.941
	11	3,294.406		11	3,922.904		11	4,551.279		11	5,179.654		11	5,808.032
21	0	3,307.501	**25**	0	3,935.996	**29**	0	4,564.370	**33**	0	5,192.745	**37**	0	5,821.124
	1	3,320.595		1	3,949.087		1	4,577.461		1	5,205.836		1	5,834.215
	2	3,333.690		2	3,962.178		2	4,590.552		2	5,218.928		2	5,847.306
	3	3,346.785		3	3,975.269		3	4,603.643		3	5,232.019		3	5,860.397
	4	3,359.880		4	3,988.360		4	4,616.734		4	5,245.110		4	5,873.489
	5	3,372.975		5	4,001.451		5	4,629.825		5	5,258.201		5	5,886.580
	6	3,386.069		6	4,014.542		6	4,642.916		6	5,271.292		6	5,899.671
	7	3,399.164		7	4,027.633		7	4,656.008		7	5,284.384		7	5,912.762
	8	3,412.259		8	4,040.725		8	4,669.099		8	5,297.475		8	5,925.853
	9	3,425.354		9	4,053.816		9	4,682.190		9	5,310.566		9	5,938.945
	10	3,438.448		10	4,066.907		10	4,695.281		10	5,323.657		10	5,952.036
	11	3,451.543		11	4,079.998		11	4,708.372		11	5,336.749		11	5,965.127
22	0	3,464.638	**26**	0	4,093.089	**30**	0	4,721.463	**34**	0	5,349.840	**38**	0	5,991.310
	1	3,477.733		1	4,106.180		1	4,734.554		1	5,362.931		1	6,004.401
	2	3,490.828		2	4,119.271		2	4,747.645		2	5,376.022		2	6,017.492
	3	3,503.922		3	4,132.362		3	4,760.737		3	5,389.113		3	6,030.583
	4	3,517.017		4	4,145.454		4	4,773.828		4	5,402.205		4	6,043.674
	5	3,530.112		5	4,158.545		5	4,786.919		5	5,415.296		5	6,056.766
	6	3,543.207		6	4,171.636		6	4,800.010		6	5,428.387		6	6,069.857
	7	3,556.301		7	4,184.727		7	4,813.101		7	5,441.478		7	6,082.948
	8	3,569.396		8	4,197.818		8	4,826.192		8	5,454.570		8	6,096.039
	9	3,582.491		9	4,210.909		9	4,839.283		9	5,467.661		9	6,109.131
	10	3,595.586		10	4,224.000		10	4,852.374		10	5,480.752		10	6,122.222
	11	3,608.681		11	4,237.091		11	4,865.466		11	5,493.843		11	6,135.313
23	0	3,621.775	**27**	0	4,250.183	**31**	0	4,878.557	**35**	0	5,506.934	**39**	0	6,161.495
	1	3,634.870		1	4,263.274		1	4,891.648		1	5,520.026		1	6,174.587
	2	3,647.965		2	4,276.365		2	4,904.739		2	5,533.117		2	6,187.678
	3	3,661.060		3	4,289.456		3	4,917.830		3	5,546.208		3	6,200.769
	4	3,674.154		4	4,302.547		4	4,930.921		4	5,559.299		4	6,213.860
	5	3,687.249		5	4,315.638		5	4,944.012		5	5,572.391		5	6,226.951
	6	3,700.344		6	4,328.729		6	4,957.104		6	5,585.482		6	6,240.043
	7	3,713.439		7	4,341.820		7	4,970.195		7	5,598.573		7	6,253.134
	8	3,726.534		8	4,354.912		8	4,983.286		8	5,611.664		8	6,266.225
	9	3,739.628		9	4,368.003		9	4,996.377		9	5,624.755		9	6,279.316
	10	3,752.720		10	4,381.094		10	5,009.468		10	5,637.847		10	6,292.408
	11	3,765.811		11	4,394.185		11	5,022.559		11	5,650.938		11	6,305.499

SF - Safe Fill Height @ 45'
OF - Overflow Height @ 47' 7"

Fractions

1/16	0.818424	9/16	7.365813
1/ 8	1.636847	5/ 8	8.184236
3/16	2.455271	11/16	9.002660
1/ 4	3.273694	3/ 4	9.821083
5/16	4.092118	13/16	10.639507
3/ 8	4.910542	7/ 8	11.457931
7/16	5.728965	15/16	12.276354
1/ 2	6.547389	1	13.094778

Displacement Correction = 6117.15 Kilograms / Kilograms/Cubic Metre - 8.323 Cubic Metres

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CO-OP Refinery Complex **TANK # 88-10-706**

Regina, SK **734.8 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 49' 6" INNAGE TABLE

Ref Gauge Height - 55' 5" 15/16; Located 16.5 Inches to Rim of Flange — Height in Inches; Capacities in Cubic Metres

40	0	6,292.408	**44**	0	6,920.950	**48**	0		**52**	0		**56**	0	
	1	6,305.499		1	6,934.045		1			1			1	
	2	6,318.590		2	6,947.140		2			2			2	
	3	6,331.681		3	6,960.235		3			3			3	
	4	6,344.772		4	6,973.330		4			4			4	
	5	6,357.864		5	6,986.425		5			5			5	
	6	6,370.956		6	6,999.520		6			6			6	
	7	6,384.051		7	7,012.615		7			7			7	
	8	6,397.146		8	7,025.711		8			8			8	
	9	6,410.241		9	7,038.806		9			9			9	
	10	6,423.336		10	7,051.901		10			10			10	
	11	6,436.431		11	7,064.996		11			11			11	
41	0	6,449.526	**45**	0	**SF** 7,078.091	**49**	0		**53**	0		**57**	0	
	1	6,462.621		1	7,091.186		1			1			1	
	2	6,475.716		2	7,104.281		2			2			2	
	3	6,488.812		3	7,117.376		3			3			3	
	4	6,501.907		4	7,130.471		4			4			4	
	5	6,515.002		5	7,143.566		5			5			5	
	6	6,528.097		6	7,156.662		6			6			6	
	7	6,541.192		7	7,169.757		7			7			7	
	8	6,554.287		8	7,182.852		8			8			8	
	9	6,567.382		9	7,195.947		9			9			9	
	10	6,580.477		10	7,209.042		10			10			10	
	11	6,593.572		11	7,222.137		11			11			11	
42	0	6,606.667	**46**	0	7,235.232	**50**	0		**54**	0		**58**	0	
	1	6,619.763		1	7,248.327		1			1			1	
	2	6,632.858		2	7,261.422		2			2			2	
	3	6,645.953		3	7,274.517		3			3			3	
	4	6,659.048		4	7,287.613		4			4			4	
	5	6,672.143		5	7,300.708		5			5			5	
	6	6,685.238		6	7,313.803		6			6			6	
	7	6,698.333		7	7,326.898		7			7			7	
	8	6,711.428		8	7,339.993		8			8			8	
	9	6,724.523		9	7,353.088		9			9			9	
	10	6,737.618		10	7,366.183		10			10			10	
	11	6,750.714		11	7,379.278		11			11			11	
43	0	6,763.809	**47**	0	7,392.373	**51**	0		**55**	0		**59**	0	
	1	6,776.904		1	7,405.468		1			1			1	
	2	6,789.999		2	7,418.564		2			2			2	
	3	6,803.094		3	7,431.659		3			3			3	
	4	6,816.189		4	7,444.754		4			4			4	
	5	6,829.284		5	7,457.849		5			5			5	
	6	6,842.379		6	7,470.944		6			6			6	
	7	6,855.474		7	**OF** 7,484.039		7			7			7	
	8	6,868.569		8			8			8			8	
	9	6,881.665		9			9			9			9	
	10	6,894.760		10			10			10			10	
	11	6,907.855		11			11			11			11	

SF - Safe Fill Height @ 45'
OF - Overflow Height @ 47' 7"

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CO-OP Refinery Complex **TANK # 88-10-706**

Regina, SK **734.8 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 85' X 49' 6"

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	18.107753	18.107753	18.107753
1	1	13.088204	-0.778927	12.309276	30.417029
2	1	13.088204	-0.240388	12.847816	43.264845
5	3	13.088204	-0.002255	13.085948	82.522690
7	2	13.088204	-0.002202	13.086002	108.694695
12	5	13.088204	-0.001535	13.086669	174.128037
13	1	13.088204	-0.001673	13.086531	187.214568
17	4	13.088204	-0.002999	13.085204	239.555386
18	1	13.088204	-0.008551	13.079653	252.635038
20	2	13.088204	-0.008433	13.079771	278.794580
23	3	13.088204	-0.007106	13.081097	318.037873
24	1	13.088204	-0.007330	13.080874	331.118746
27	3	13.088204	-0.007448	13.080756	370.361013
34	7	13.088204	-0.007288	13.080916	461.927423
39	5	13.088204	-0.001373	13.086831	527.361576
45	6	13.088204	-0.001069	13.087135	605.884383
51	6	13.088204	-0.001240	13.086964	684.406165
82	4	13.088204	-2.082064	11.006140	1081.774418
92	37	13.088204	-0.001400	13.086803	1212.642452
93	1	13.088434	-0.001400	13.087033	1225.729485
189	96	13.093069	-0.001400	13.091669	2482.529663
190	1	13.096129	-0.001400	13.094729	2495.624392
285	95	13.096178	-0.001400	13.094778	3739.628298
286	1	13.092816	-0.001400	13.091416	3752.719714
380	94	13.092529	-0.001400	13.091128	4983.285766
381	1	13.092534	-0.001400	13.091133	4996.376899
485	104	13.092619	-0.001400	13.091219	6357.863660
486	1	13.093444	-0.001400	13.092043	6370.955703
593	107	13.096498	-0.001400	13.095098	7772.131147
594	1	7.093063	-0.001400	7.091663	7779.222810

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CO-OP Refinery Complex

Regina, SK

General Information

Tank Number		88-10-706
Date of Strapping Data		03/12/2019
Year Built		1970
Product in Service		Premium Gasoline
Product Service Density	61.06° API density	0.7348 g/cc (SG)

Tank Dimensions

Nominal Diameter	85	Feet
Nominal Height	49' 6"	
Measured Tank Height	15.076	Metres
Tank Tilt	0	Millimetres
Gauge Point Information	On rim opposite side hinge	
Reference Gauge Height	55' 5 15/16"	
Horizontal To Gauge	16 1/2"	

Roof & Bottom Survey

Roof Type		Internal Floating
Floating Roof Shape		Flat Pan
Floating Roof Weight	6117.15	Kilograms
Roof Landed Height	78	Inches
Roof Full Floating Height	82	Inches
Bottom Description		Physical Survey

Report Constraints

Main Increment		Inches
Main Volume		Cubic Metres
Product at Strapping		Empty
Product Strap Density	1	g/cc (SG)
Liquid Height at Strap		
Safe Fill Height	45	Feet
Overflow Or Foamline	14.521	Metres

CO-OP Refinery Complex

Regina, SK

Strap Correction to 60°F

Shell Temperature (°F)	30.2	**Master Tape Serial**	
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994835

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	80.552	264.278	0.000	264.264
2	80.552	264.278	0.000	264.264
3	80.552	264.278	0.000	264.264
4	80.552	264.278	0.000	264.264
5	80.552	264.278	0.000	264.264
6	80.552	264.278	0.000	264.264

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	618.900	0.000	0.000	80.548	264.264
2	619.150	0.250	-1.571	80.546	264.259
3	620.250	1.350	-8.482	80.539	264.236
4	626.600	7.700	-48.381	80.499	264.105
5	628.300	9.400	-59.062	80.489	264.070
6	628.250	9.350	-58.748	80.489	264.071

CO-OP Refinery Complex

Regina, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	264.264	0.500 Inches	2.361 Metres	2.361 Metres
2	264.259	0.438 Inches	2.440 Metres	4.801 Metres
3	264.236	0.375 Inches	2.440 Metres	7.241 Metres
4	264.105	0.250 Inches	2.435 Metres	9.676 Metres
5	264.070	0.250 Inches	2.663 Metres	12.339 Metres
6	264.071	0.250 Inches	2.737 Metres	15.076 Metres

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	8	0.500 Inches	1.000 Millimetres
2	Butt Weld	8	0.500 Inches	1.000 Millimetres
3	Butt Weld	8	0.500 Inches	1.000 Millimetres
4	Butt Weld	8	0.500 Inches	1.000 Millimetres
5	Butt Weld	8	0.500 Inches	1.000 Millimetres
6	Butt Weld	8	0.500 Inches	1.000 Millimetres

CO-OP Refinery Complex

Regina, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$\frac{-K\ (G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	264.264	0.500	0
2.00	62.428	1.000	0	264.259	0.438	0
3.00	62.428	1.000	0	264.236	0.375	0
4.00	62.428	1.000	0	264.105	0.250	0
5.00	62.428	1.000	0	264.070	0.250	0
6.00	62.428	1.000	0	264.071	0.250	0

CO-OP Refinery Complex

Regina, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	264.264	0.000	0.000	0.262	264.002
2	264.259	0.000	0.000	0.229	264.030
3	264.236	0.000	0.000	0.196	264.040
4	264.105	0.000	0.000	0.131	263.974
5	264.070	0.000	0.000	0.131	263.939
6	264.071	0.000	0.000	0.131	263.940

CO-OP Refinery Complex

Regina, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Inch
1	264.002	0.005	264.007	13.088
2	264.030	0.010	264.040	13.092
3	264.040	0.011	264.051	13.093
4	263.974	0.017	263.992	13.087
5	263.939	0.019	263.958	13.084
6	263.940	0.019	263.960	13.084

CO-OP Refinery Complex

Regina, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Inch	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	13.088	0.002	0.000	13.088	13.088
2	13.092	0.002	0.002	13.093	13.093
3	13.093	0.002	0.004	13.096	13.096
4	13.087	0.003	0.006	13.093	13.093
5	13.084	0.004	0.009	13.093	13.093
6	13.084	0.000	0.013	13.097	13.096

CO-OP Refinery Complex **TANK # 54-10-901**

Regina, SK **918 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 134' X 48' INNAGE TABLE

Ref Gauge Height - 52' 7-1/2"; Located 38 Inches to Benchmark in hatch — Height in Inches; Capacities in Cubic Metres

0	0 **	3.143	**4**	0	Low Critical Zone	1,453.126	**8**	0		3,047.176	**12**	0		4,648.359	**16**	0	6,249.542
	1	4.785		1		1,483.393		1		3,080.534		1		4,681.717		1	6,282.910
	2	10.572		2		1,513.660		2		3,113.892		2		4,715.075		2	6,316.277
	3	19.716		3		1,546.997		3		3,147.250		3		4,748.433		3	6,349.644
	4	32.949		4		1,580.335		4		3,180.608		4		4,781.791		4	6,383.011
	5	49.943		5		1,613.672		5		3,213.966		5		4,815.149		5	6,416.379
	6	70.276		6		1,647.009		6		3,247.324		6		4,848.507		6	6,449.746
	7	97.439		7		1,680.346		7		3,280.682		7		4,881.865		7	6,483.113
	8	130.468		8		1,713.684		8		3,314.040		8		4,915.223		8	6,516.480
	9	163.748		9		1,747.021		9		3,347.398		9		4,948.581		9	6,549.848
	10	197.011		10		1,780.358		10		3,380.756		10		4,981.939		10	6,583.215
	11	230.289		11		1,813.696		11		3,414.114		11		5,015.297		11	6,616.582
1	0	263.492	**5**	0		1,847.033	**9**	0		3,447.472	**13**	0		5,048.655	**17**	0	6,649.949
	1	296.696		1		1,880.370		1		3,480.830		1		5,082.013		1	6,683.317
	2	329.899		2		1,913.708		2		3,514.188		2		5,115.371		2	6,716.684
	3	363.113		3		1,947.045		3		3,547.546		3		5,148.729		3	6,750.051
	4	396.393		4		1,980.382		4		3,580.904		4		5,182.087		4	6,783.418
	5	429.658		5		2,013.720		5		3,614.262		5		5,215.445		5	6,816.786
	6	462.923		6		2,047.057		6		3,647.620		6		5,248.803		6	6,850.153
	7	496.188		7		2,080.394		7		3,680.978		7		5,282.161		7	6,883.520
	8	529.484		8		2,113.732		8		3,714.336		8		5,315.519		8	6,916.888
	9	562.768		9		2,147.069		9		3,747.694		9		5,348.877		9	6,950.255
	10	596.053		10		2,180.406		10		3,781.052		10		5,382.235		10	6,983.622
	11	629.337		11		2,213.744		11		3,814.410		11		5,415.593		11	7,016.989
2	0	662.622	**6**	0		2,247.081	**10**	0		3,847.768	**14**	0		5,448.951	**18**	0	7,050.357
	1	695.906		1		2,280.418		1		3,881.126		1		5,482.309		1	7,083.724
	2	729.228		2		2,313.755		2		3,914.484		2		5,515.667		2	7,117.091
	3	762.550		3		2,347.093		3		3,947.842		3		5,549.025		3	7,150.458
	4	795.872		4		2,380.430		4		3,981.200		4		5,582.383		4	7,183.826
	5	829.185		5		2,413.767		5		4,014.558		5		5,615.741		5	7,217.193
	6	862.497		6		2,447.105		6		4,047.916		6		5,649.099		6	7,250.560
	7	895.809		7		2,480.442		7		4,081.274		7		5,682.457		7	7,283.927
	8	929.131		8		2,513.779		8		4,114.632		8		5,715.815		8	7,317.295
	9	962.452		9		2,547.117		9		4,147.990		9		5,749.173		9	7,350.662
	10	995.774		10		2,580.454		10		4,181.348		10		5,782.531		10	7,384.029
	11	1,029.095		11		2,613.791		11		4,214.706		11		5,815.889		11	7,417.396
3	0	1,062.417	**7**	0		2,647.129	**11**	0		4,248.064	**15**	0		5,849.247	**19**	0	7,450.764
	1	1,095.738		1		2,680.466		1		4,281.422		1		5,882.605		1	7,484.131
	2	1,129.060		2		2,713.803		2		4,314.780		2		5,915.963		2	7,517.498
	3	1,162.381		3		2,747.141		3		4,348.138		3		5,949.321		3	7,550.865
	4	1,195.703		4		2,780.478		4		4,381.496		4		5,982.678		4	7,584.233
	5	1,229.025		5		2,813.815		5		4,414.854		5		6,016.036		5	7,617.600
	6	1,262.346		6		2,847.153		6		4,448.212		6		6,049.394		6	7,650.967
	7	1,295.667		7		2,880.490		7		4,481.569		7		6,082.752		7	7,684.334
	8	1,328.989		8		2,913.827		8		4,514.927		8		6,116.110		8	7,717.702
	9	1,362.326		9		2,947.164		9		4,548.285		9		6,149.468		9	7,751.069
	10	1,392.593		10		2,980.502		10		4,581.643		10		6,182.826		10	7,784.436
	11	1,422.860		11		3,013.839		11		4,615.001		11		6,216.184		11	7,817.804

Low Critical Zone

High Critical Zone

Low Critical Zone

** Volume Below Strike Point. Located 1.9" Above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

SF - Safe Fill Height @ 45'

A total of 15.353 Cubic Metres were deducted between 43 & 52 Inches based on a weight of 14094 Kilograms and a density of 918 Kg/m3. Gauged quantities above 52 Inches reflect this deduction but shall be adjusted for a differing specific gravity at 15°C according to the following formula (see page 2).

No Measurements are to be taken in Critical Zones

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CO-OP Refinery Complex **TANK # 54-10-901**

Regina, SK **918 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 134' X 48' INNAGE TABLE

Ref Gauge Height - 52' 7-1/2"; Located 38 Inches to Benchmark in hatch — Height in Inches; Capacities in Cubic Metres

20	0	7,851.171	**24**	0	9,452.799	**28**	0	11,055.862	**32**	0	12,658.925	**36**	0	14,262.899
	1	7,884.538		1	9,486.196		1	11,089.259		1	12,692.341		1	14,296.315
	2	7,917.905		2	9,519.593		2	11,122.656		2	12,725.757		2	14,329.731
	3	7,951.273		3	9,552.991		3	11,156.053		3	12,759.173		3	14,363.147
	4	7,984.640		4	9,586.388		4	11,189.450		4	12,792.589		4	14,396.564
	5	8,018.007		5	9,619.785		5	11,222.848		5	12,826.005		5	14,429.980
	6	8,051.374		6	9,653.182		6	11,256.245		6	12,859.421		6	14,463.396
	7	8,084.742		7	9,686.579		7	11,289.642		7	12,892.837		7	14,496.812
	8	8,118.109		8	9,719.976		8	11,323.039		8	12,926.254		8	14,530.228
	9	8,151.476		9	9,753.373		9	11,356.436		9	12,959.670		9	14,563.644
	10	8,184.843		10	9,786.771		10	11,389.833		10	12,993.086		10	14,597.060
	11	8,218.211		11	9,820.168		11	11,423.230		11	13,026.502		11	14,630.477
21	0	8,251.578	**25**	0	9,853.565	**29**	0	11,456.628	**33**	0	13,059.918	**37**	0	14,663.893
	1	8,284.945		1	9,886.962		1	11,490.025		1	13,093.334		1	14,697.309
	2	8,318.312		2	9,920.359		2	11,523.422		2	13,126.750		2	14,730.725
	3	8,351.680		3	9,953.756		3	11,556.819		3	13,160.167		3	14,764.141
	4	8,385.047		4	9,987.153		4	11,590.216		4	13,193.583		4	14,797.557
	5	8,418.414		5	10,020.551		5	11,623.613		5	13,226.999		5	14,830.973
	6	8,451.781		6	10,053.948		6	11,657.010		6	13,260.415		6	14,864.389
	7	8,485.149		7	10,087.345		7	11,690.408		7	13,293.831		7	14,897.806
	8	8,518.516		8	10,120.742		8	11,723.805		8	13,327.247		8	14,931.222
	9	8,551.883		9	10,154.139		9	11,757.202		9	13,360.663		9	14,964.638
	10	8,585.250		10	10,187.536		10	11,790.599		10	13,394.080		10	14,998.054
	11	8,618.618		11	10,220.933		11	11,823.996		11	13,427.496		11	15,031.470
22	0	8,651.985	**26**	0	10,254.331	**30**	0	11,857.393	**34**	0	13,460.912	**38**	0	15,098.302
	1	8,685.352		1	10,287.728		1	11,890.790		1	13,494.328		1	15,131.719
	2	8,718.720		2	10,321.125		2	11,924.187		2	13,527.744		2	15,165.135
	3	8,752.087		3	10,354.522		3	11,957.585		3	13,561.160		3	15,198.551
	4	8,785.454		4	10,387.919		4	11,990.982		4	13,594.576		4	15,231.967
	5	8,818.821		5	10,421.316		5	12,024.379		5	13,627.992		5	15,265.383
	6	8,852.189		6	10,454.713		6	12,057.776		6	13,661.409		6	15,298.799
	7	8,885.556		7	10,488.111		7	12,091.173		7	13,694.825		7	15,332.215
	8	8,918.923		8	10,521.508		8	12,124.570		8	13,728.241		8	15,365.632
	9	8,952.290		9	10,554.905		9	12,157.967		9	13,761.657		9	15,399.048
	10	8,985.658		10	10,588.302		10	12,191.365		10	13,795.073		10	15,432.464
	11	9,019.025		11	10,621.699		11	12,224.762		11	13,828.489		11	15,465.880
23	0	9,052.392	**27**	0	10,655.096	**31**	0	12,258.159	**35**	0	13,861.905	**39**	0	15,532.712
	1	9,085.759		1	10,688.493		1	12,291.556		1	13,895.322		1	15,566.128
	2	9,119.127		2	10,721.890		2	12,324.953		2	13,928.738		2	15,599.544
	3	9,152.494		3	10,755.288		3	12,358.350		3	13,962.154		3	15,632.961
	4	9,185.861		4	10,788.685		4	12,391.747		4	13,995.570		4	15,666.377
	5	9,219.228		5	10,822.082		5	12,425.145		5	14,028.986		5	15,699.793
	6	9,252.596		6	10,855.479		6	12,458.542		6	14,062.402		6	15,733.209
	7	9,285.963		7	10,888.876		7	12,491.939		7	14,095.818		7	15,766.625
	8	9,319.330		8	10,922.273		8	12,525.336		8	14,129.235		8	15,800.041
	9	9,352.697		9	10,955.670		9	12,558.733		9	14,162.651		9	15,833.457
	10	9,386.065		10	10,989.068		10	12,592.130		10	14,196.067		10	15,866.874
	11	9,419.432		11	11,022.465		11	12,625.527		11	14,229.483		11	15,900.304

SF - Safe Fill Height @ 45'
OF - Overflow Height @ 46' 6"

Fractions

1/16	2.085454	9/16	18.769083
1/ 8	4.170907	5/ 8	20.854537
3/16	6.256361	11/16	22.939991
1/ 4	8.341815	3/ 4	25.025444
5/16	10.427269	13/16	27.110898
3/ 8	12.512722	7/ 8	29.196352
7/16	14.598176	15/16	31.281806
1/ 2	16.683630	1	33.367259

Displacement Correction = 14094 Kilograms / Kilograms/Cubic Metre - 15.353 Cubic Metres

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex — **TANK # 54-10-901**

Regina, SK — **918 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 134' X 48' — INNAGE TABLE

Ref Gauge Height - 52' 7-1/2"; Located 38 Inches to Benchmark in hatch — Height in Inches; Capacities in Cubic Metres

40	0	15,866.874	**44**	0	**SF**	17,471.511	**48**	0			**52**	0			**56**	0
	1	15,900.304		1		17,504.940		1				1				1
	2	15,933.733		2		17,538.370		2				2				2
	3	15,967.163		3		17,571.800		3				3				3
	4	16,000.593		4		17,605.230		4				4				4
	5	16,034.023		5		17,638.660		5				5				5
	6	16,067.453		6		17,672.090		6				6				6
	7	16,100.883		7		17,705.520		7				7				7
	8	16,134.313		8		17,738.950		8				8				8
	9	16,167.743		9		17,772.380		9				9				9
	10	16,201.173		10		17,805.810		10				10				10
	11	16,234.603		11		17,839.240		11				11				11
41	0	16,268.033	**45**	0		17,872.670	**49**	0			**53**	0			**57**	0
	1	16,301.463		1		17,906.100		1				1				1
	2	16,334.893		2		17,939.530		2				2				2
	3	16,368.323		3		17,972.960		3				3				3
	4	16,401.753		4		18,006.389		4				4				4
	5	16,435.182		5		18,039.819		5				5				5
	6	16,468.612		6		18,073.249		6				6				6
	7	16,502.042		7		18,106.679		7				7				7
	8	16,535.472		8		18,140.109		8				8				8
	9	16,568.902		9		18,173.539		9				9				9
	10	16,602.332		10		18,206.969		10				10				10
	11	16,635.762		11		18,240.399		11				11				11
42	0	16,669.192	**46**	0		18,273.829	**50**	0			**54**	0			**58**	0
	1	16,702.622		1		18,307.259		1				1				1
	2	16,736.052		2		18,340.689		2				2				2
	3	16,769.482		3		18,374.119		3				3				3
	4	16,802.912		4		18,407.549		4				4				4
	5	16,836.342		5		18,440.979		5				5				5
	6	16,869.772		6	**OF**	18,474.409		6				6				6
	7	16,903.202		7				7				7				7
	8	16,936.632		8				8				8				8
	9	16,970.061		9				9				9				9
	10	17,003.491		10				10				10				10
	11	17,036.921		11				11				11				11
43	0	17,070.351	**47**	0			**51**	0			**55**	0			**59**	0
	1	17,103.781		1				1				1				1
	2	17,137.211		2				2				2				2
	3	17,170.641		3				3				3				3
	4	17,204.071		4				4				4				4
	5	17,237.501		5				5				5				5
	6	17,270.931		6				6				6				6
	7	17,304.361		7				7				7				7
	8	17,337.791		8				8				8				8
	9	17,371.221		9				9				9				9
	10	17,404.651		10				10				10				10
	11	17,438.081		11				11				11				11

SF - Safe Fill Height @ 45'
OF - Overflow Height @ 46' 6"

Tables produced by:
Nextgen Industrial Services Inc.
(306) 596-8330
www.nextgenis.net

CO-OP Refinery Complex **TANK # 54-10-901**

Regina, SK **918 Kg/m3 @ 15°C**

Internal Floating Roof Tank - Nominal Dimensions : 134' X 48'

Volumes in: Cubic Metres

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	3.142894	3.142894	3.142894
1	1	33.339219	-31.696982	1.642236	4.785130
2	1	33.339219	-27.552049	5.787170	10.572300
3	1	33.339219	-24.195179	9.144039	19.716339
4	1	33.339219	-20.106822	13.232397	32.948736
5	1	33.339219	-16.345200	16.994018	49.942754
6	1	33.339219	-13.006326	20.332892	70.275646
7	1	33.339219	-6.175425	27.163793	97.439440
8	1	33.339219	-0.310315	33.028903	130.468343
9	1	33.339219	-0.059162	33.280057	163.748400
10	1	33.339219	-0.076951	33.262267	197.010667
11	1	33.339219	-0.060711	33.278507	230.289174
12	1	33.339219	-0.136125	33.203094	263.492268
14	2	33.339219	-0.135860	33.203359	329.898986
15	1	33.339219	-0.124782	33.214437	363.113423
16	1	33.339219	-0.059234	33.279984	396.393407
18	2	33.339219	-0.074465	33.264753	462.922913
19	1	33.339219	-0.073804	33.265414	496.188327
20	1	33.339219	-0.043639	33.295580	529.483907
22	2	33.339219	-0.054716	33.284502	596.052912
25	3	33.339219	-0.054846	33.284373	695.906030
26	1	33.339219	-0.016985	33.322234	729.228264
28	2	33.339219	-0.017172	33.322046	795.872357
29	1	33.339219	-0.026762	33.312457	829.184814
31	2	33.339219	-0.027114	33.312104	895.809022
42	11	33.339219	-0.017660	33.321558	1262.346164
44	2	33.339219	-0.017969	33.321249	1328.988663
45	1	33.339219	-0.001713	33.337505	1362.326168
46	1	33.339219	-3.072398	30.266821	1392.592989
50	4	33.339219	-3.072491	30.266728	1513.659900
96	46	33.339219	-0.001903	33.337316	3047.176431
192	96	33.359881	-0.001903	33.357978	6249.542318
288	96	33.369162	-0.001903	33.367259	9452.799213
384	96	33.399042	-0.001903	33.397139	12658.924541
480	96	33.418038	-0.001903	33.416136	15866.873567
576	96	33.431839	-0.001903	33.429936	19076.147450
577	1		-0.001903	-0.001903	19076.145548

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CO-OP Refinery Complex

Regina, SK

General Information

Tank Number	54-10-901
Date of Strapping Data	04/15/2019
Year Built	
Product in Service	Crude Oil
Product Service Density	0.918 g/cc (SG)

Tank Dimensions

Nominal Diameter	134 Feet
Nominal Height	48 Feet
Measured Tank Height	14.631 Metres
Tank Tilt	0 Millimetres
Gauge Point Information	Benchmark in Hatch
Reference Gauge Height	52' 7 1/2"
Horizontal To Gauge	38 Inches

Roof & Bottom Survey

Roof Type	Internal Floating
Floating Roof Shape	
Floating Roof Weight	14094 Kilograms
Roof Landed Height	45 Inches
Roof Full Floating Height	50 Inches
Bottom Description	Physical Survey

Report Constraints

Main Increment	Inches
Main Volume	Cubic Metres
Product at Strapping	empty
Product Strap Density	1 g/cc (SG)
Liquid Height at Strap	
Safe Fill Height	45 Feet
Overflow Or Foamline	46' 6"

CO-OP Refinery Complex

Regina, SK

Strap Correction to 60°F

Shell Temperature (°F)	46.4	**Master Tape Serial**	WLWT8100
Shell Material	Carbon Steel	**Master Tape Span**	
Shell Expansion (per Foot)	0.000006450	**Master Tape Tension**	

Certified Tape Factor	1
Tape Correction Factor	1+('Shell Temperature' − 68)'Tape Expansion'
Shell Correction Factor	1+(60 − 'Shell Temperature')'Shell Expansion'

Correction Summary

Certified Tape Factor * Tape Correction Factor * Shell Correction Factor

Correction Factor = 0.99994839

Course	Strap Circumference Metres	Converted Circumference (Feet)	Tape Rise (Feet)	Corrected Strap Circumference (Feet)
1	128.550	421.752	0.004	421.727
2	128.550	421.752	0.004	421.727
3	128.550	421.752	0.004	421.727
4	128.550	421.752	0.004	421.727
5	128.550	421.752	0.004	421.727
6	128.550	421.752	0.004	421.727

Optical Circumference Corrections

Course	Average Optical Offset Millimetres	Difference Millimetres	Correction Millimetres	Corrected Circumference Metres	Corrected Circumference (Feet)
1	522.214	0.000	0.000	128.542	421.727
2	521.679	-0.536	3.366	128.546	421.738
3	525.143	2.929	-18.401	128.524	421.666
4	523.071	0.857	-5.386	128.537	421.709
5	523.679	1.464	-9.200	128.533	421.696
6	524.750	2.536	-15.932	128.526	421.674

CO-OP Refinery Complex

Regina, SK

Tank Measurements

Course	Strap (Feet)	Plate Thickness	Course Height	Accumulated Total
1	421.727	0.730 Inches	8.000 Feet	8.000 Feet
2	421.738	0.614 Inches	8.000 Feet	16.000 Feet
3	421.666	0.486 Inches	8.000 Feet	24.000 Feet
4	421.709	0.364 Inches	8.000 Feet	32.000 Feet
5	421.696	0.307 Inches	8.000 Feet	40.000 Feet
6	421.674	0.310 Inches	8.000 Feet	48.000 Feet

Tank Construction

Course	Course Fit/Join	Plates per Course	Width of Tape Rise	Depth of Tape Rise
1	Butt Weld	14	0.875 Inches	0.125 Inches
2	Butt Weld	14	0.875 Inches	0.125 Inches
3	Butt Weld	14	0.875 Inches	0.125 Inches
4	Butt Weld	14	0.875 Inches	0.125 Inches
5	Butt Weld	14	0.875 Inches	0.125 Inches
6	Butt Weld	14	0.875 Inches	0.125 Inches

CO-OP Refinery Complex

Regina, SK

Circumference Corrected to Empty Tank Basis

$$\frac{-W * H * C^2}{2*\pi*E*T}$$ (Correction in Feet) Or $$-K\ \frac{(G * H * C')}{T}$$ (Correction in Inches)

Where :

$$K = \frac{W}{24 * \pi * E} = 0.000000028550919$$

G = Observed Density of Liquid in tank.
H = height of liquid above strap, in feet.
C = measured circumference, in feet.
T = thickness of shell material, in inches.
W = weight of liquid, in pounds per cubic foot.
E = modulus of elasticity of shell material.

Correction Summary

Course	Product Weight (Lb/Ft3)	Density	Liquid Height (Feet)	Corrected Circumference (Feet)	Plate Thickness (Inches)	Empty Tank Corrected (Feet)
1.00	62.428	1.000	0	421.727	0.730	0
2.00	62.428	1.000	0	421.738	0.614	0
3.00	62.428	1.000	0	421.666	0.486	0
4.00	62.428	1.000	0	421.709	0.364	0
5.00	62.428	1.000	0	421.696	0.307	0
6.00	62.428	1.000	0	421.674	0.310	0

CO-OP Refinery Complex

Regina, SK

Circumference Deduction for Tape Rises

Butt Strap Correction (In Feet)

$$= \frac{(2 * N * T * W)}{(12 * D)} + \frac{(8 * N * T)}{(12 * 3)} * \sqrt{T/D}$$

Lap Joint Correction (In Feet)

$$= \frac{(4 * N * T)}{(12 * 3)} * \sqrt{T/(2*D)}$$

Where :

N = number of butt straps or projections per course
T = thickness of straps or projections (in inches)
W = width of straps or projections (in inches)
D = nominal diameter of tank (in inches)

Circumference Deduction for Shell Thickness

$$= \frac{(\pi * T)}{6}$$ (Correction In Feet)

Where :

T = thickness of shell material (In Inches)

Summary of Circumference Deductions

Course	Temperature Compensated Circumference	Empty Tank (Feet)	Tape Rise (Feet)	Plate Thickness (Feet)	Inside Circumference (Feet)
1	421.727	0.000	0.004	0.382	421.344
2	421.738	0.000	0.004	0.321	421.416
3	421.666	0.000	0.004	0.254	421.412
4	421.709	0.000	0.004	0.191	421.518
5	421.696	0.000	0.004	0.161	421.536
6	421.674	0.000	0.004	0.162	421.512

CO-OP Refinery Complex

Regina, SK

Incremental Volume Per Course

Liquid Head Stress Correction (In Feet)

$$= K \frac{(G * H * C^2)}{T}$$

Incremental Volume (in Cubic Feet)

$$= (C / \pi / 2)^2 * (\pi / 12)$$

Where :

G = tank Service Density.
H = height of liquid (between strap & top of course), in feet.
C = circumference, in feet.
T = thickness of shell material, in inches.

Incremental Volume Per Course

Course	Inside Circumference (Feet)	Liquid Head Stress (Feet)	Stressed Circumference (Feet)	Cubic Metres Per Inch
1	421.344	0.016	421.360	33.340
2	421.416	0.028	421.444	33.353
3	421.412	0.035	421.447	33.353
4	421.518	0.047	421.565	33.372
5	421.536	0.056	421.591	33.376
6	421.512	0.055	421.567	33.372

CO-OP Refinery Complex

Regina, SK

Liquid Head Corrections

Volumetric Increase per Course

$$= \frac{H}{T} * \frac{K}{F}$$

Where :

H = Course Height (in inches)
T = Plate Thickness (in inches)
$K = \frac{\pi * W * G * D^3}{4 * E}$
W = weight of liquid, in pounds per cubic foot.
G = Specific Gravity of product to be stored.
D = Inside Diameter of the Course.
E = modulus of elasticity of shell material.
F = desired volume conversion (cubic inch per unit volume)
eg. 231 to US Gallons, 61.023744 to Litres

Gross Volume per Chart Increment

Course	Cubic Metres Per Inch	Volume Correction Cubic Metres	Incremental Correction Cubic Metres	Gross Volume @ 60°F	Gross Volume @ 59 °F 0.9999871
1	33.340	0.007	0.000	33.340	33.339
2	33.353	0.009	0.007	33.360	33.360
3	33.353	0.011	0.016	33.370	33.369
4	33.372	0.015	0.027	33.399	33.399
5	33.376	0.018	0.042	33.418	33.418
6	33.372	0.000	0.060	33.432	33.432

Imperial Oil **TANK # 332**

Sherwood Park, AB **860 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 60 Feet X 48 Feet INNAGE TABLE

Ref Gauge Height - 48' 9-3/8"; Located 20 Inches to Benchmark in hatch — Height in Inches; Capacities in US Barrel

0	0	**	1.182	**4**	0	1,919.829	**8**	0	3,931.359	**12**	0	5,945.261	**16**	0	7,959.169
	1	*	2.620		1	1,961.733		1	3,973.315		1	5,987.217		1	8,001.134
	2	*	12.048		2	2,003.636		2	4,015.271		2	6,029.173		2	8,043.098
	3	*	34.543		3	2,045.539		3	4,057.228		3	6,071.129		3	8,085.063
	4		76.424		4	2,087.442		4	4,099.184		4	6,113.086		4	8,127.027
	5		118.305		5	2,129.346		5	4,141.140		5	6,155.042		5	8,168.991
	6		160.187		6	2,171.249		6	LLC 4,183.096		6	6,196.998		6	8,210.956
	7		202.073		7	2,213.153		7	4,225.053		7	6,238.955		7	8,252.920
	8		243.958		8	2,255.058		8	4,267.009		8	6,280.911		8	8,294.885
	9		285.844		9	2,296.963		9	4,308.965		9	6,322.867		9	8,336.849
	10		327.724		10	2,338.867		10	4,350.922		10	6,364.823		10	8,378.814
	11		369.606		11	2,380.772		11	4,392.878		11	6,406.780		11	8,420.778
1	0		411.484	**5**	0	2,422.676	**9**	0	4,434.834	**13**	0	6,448.736	**17**	0	8,462.742
	1		453.368		1	2,464.581		1	4,476.790		1	6,490.692		1	8,504.707
	2		495.255		2	2,506.486		2	4,518.747		2	6,532.649		2	8,546.671
	3		537.134		3	2,548.390		3	4,560.703		3	6,574.605		3	8,588.636
	4		579.012		4	2,590.295		4	4,602.659		4	6,616.561		4	8,630.600
	5		620.905		5	2,632.199		5	4,644.616		5	6,658.517		5	8,672.565
	6		662.783		6	2,674.104		6	4,686.572		6	6,700.474		6	8,714.529
	7		704.660		7	2,716.009		7	4,728.528		7	6,742.430		7	8,756.493
	8		746.541		8	2,757.913		8	4,770.485		8	6,784.386		8	8,798.458
	9		788.438		9	2,799.818		9	4,812.441		9	6,826.343		9	8,840.422
	10		830.336		10	2,841.722		10	4,854.397		10	6,868.299		10	8,882.387
	11		872.234		11	2,883.631		11	4,896.353		11	6,910.255		11	8,924.351
2	0		914.130	**6**	0	2,925.540	**10**	0	4,938.310	**14**	0	6,952.211	**18**	0	8,966.316
	1		956.025		1	2,967.449		1	4,980.266		1	6,994.168		1	9,008.280
	2		997.929		2	3,009.357		2	5,022.222		2	7,036.124		2	9,050.244
	3		1,039.835		3	3,051.266		3	5,064.179		3	7,078.080		3	9,092.209
	4		1,081.742		4	3,093.175		4	5,106.135		4	7,120.037		4	9,134.173
	5		1,123.648		5	3,135.083		5	5,148.091		5	7,161.993		5	9,176.138
	6		1,165.554		6	3,176.992		6	5,190.047		6	7,203.949		6	9,218.102
	7		1,207.459		7	3,218.901		7	5,232.004		7	7,245.905		7	9,260.067
	8		1,249.364		8	3,260.809		8	5,273.960		8	7,287.862		8	9,302.031
	9	LL	1,291.269		9	3,302.718		9	5,315.916		9	7,329.818		9	9,343.995
	10		1,333.173		10	3,344.627		10	5,357.873		10	7,371.774		10	9,385.960
	11		1,375.078		11	3,386.536		11	5,399.829		11	7,413.731		11	9,427.924
3	0		1,416.983	**7**	0	3,428.444	**11**	0	5,441.785	**15**	0	7,455.687	**19**	0	9,469.889
	1		1,458.888		1	3,470.353		1	5,483.741		1	7,497.643		1	9,511.853
	2		1,500.792		2	3,512.262		2	5,525.698		2	7,539.599		2	9,553.818
	3		1,542.697		3	3,554.170		3	5,567.654		3	7,581.556		3	9,595.782
	4		1,584.602		4	3,596.079		4	5,609.610		4	7,623.512		4	9,637.746
	5		1,626.507		5	3,637.988		5	5,651.567		5	7,665.468		5	9,679.711
	6		1,668.410		6	3,679.896		6	5,693.523		6	7,707.425		6	9,721.675
	7		1,710.313		7	3,721.805		7	5,735.479		7	7,749.381		7	9,763.640
	8		1,752.216		8	3,763.714		8	5,777.435		8	7,791.337		8	9,805.604
	9		1,794.120		9	3,805.623		9	5,819.392		9	7,833.293		9	9,847.569
	10		1,836.023		10	3,847.531		10	5,861.348		10	7,875.250		10	9,889.533
	11		1,877.926		11	3,889.440		11	5,903.304		11	7,917.206		11	9,931.497

** Volume Below Strike Point. Located 1/32" Above intersection of shell & bottom.

* Bottom volume based on Physical Survey Calculation. Average Inches not applicable

Volumes reflect a Shell Temperature of 15°C

LLC – Low Level Cut Out 8'6"
LL - Low Level Alarm 2'9"
HL - High Level Alarm 38'6"
High-High Level Alarm 42'9"
SF - Safe Fill Height @ 48'

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NEXTGEN INDUSTRIAL SERVICES

Imperial Oil **TANK # 332**

Sherwood Park, AB **860 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 60 Feet X 48 Feet INNAGE TABLE

Ref Gauge Height - 48' 9-3/8"; Located 20 Inches to Benchmark in hatch — Height in Inches; Capacities in US Barrel

20	0	9,973.462	**24**	0	11,987.752	**28**	0	14,001.951	**32**	0	16,016.165	**36**	0	18,030.766	
	1	10,015.426		1	12,029.715		1	14,043.913		1	16,058.135		1	18,072.736	
	2	10,057.391		2	12,071.677		2	14,085.876		2	16,100.106		2	18,114.707	
	3	10,099.355		3	12,113.640		3	14,127.838		3	16,142.077		3	18,156.678	
	4	10,141.320		4	12,155.602		4	14,169.801		4	16,184.048		4	18,198.649	
	5	10,183.284		5	12,197.565		5	14,211.763		5	16,226.019		5	18,240.620	
	6	10,225.248		6	12,239.527		6	14,253.726		6	16,267.990		6	18,282.591	
	7	10,267.213		7	12,281.490		7	14,295.688		7	16,309.961		7	18,324.562	
	8	10,309.177		8	12,323.452		8	14,337.651		8	16,351.931		8	18,366.532	
	9	10,351.142		9	12,365.415		9	14,379.613		9	16,393.902		9	18,408.503	
	10	10,393.106		10	12,407.377		10	14,421.575		10	16,435.873		10	18,450.474	
	11	10,435.071		11	12,449.339		11	14,463.538		11	16,477.844		11	18,492.445	
21	0	10,477.035	**25**	0	12,491.302	**29**	0	14,505.500	**33**	0	16,519.815	**37**	0	18,534.416	
	1	10,518.999		1	12,533.264		1	14,547.463		1	16,561.786		1	18,576.387	
	2	10,560.964		2	12,575.227		2	14,589.425		2	16,603.757		2	18,618.357	
	3	10,602.928		3	12,617.189		3	14,631.388		3	16,645.727		3	18,660.328	
	4	10,644.893		4	12,659.152		4	14,673.350		4	16,687.698		4	18,702.299	
	5	10,686.857		5	12,701.114		5	14,715.313		5	16,729.669		5	18,744.270	
	6	10,728.822		6	12,743.077		6	14,757.275		6	16,771.640		6	18,786.241	
	7	10,770.786		7	12,785.039		7	14,799.238		7	16,813.611		7	18,828.212	
	8	10,812.751		8	12,827.002		8	14,841.200		8	16,855.582		8	18,870.183	
	9	10,854.715		9	12,868.964		9	14,883.163		9	16,897.553		9	18,912.153	
	10	10,896.679		10	12,910.927		10	14,925.125		10	16,939.523		10	18,954.124	
	11	10,938.644		11	12,952.889		11	14,967.088		11	16,981.494		11	18,996.095	
22	0	10,980.608	**26**	0	12,994.852	**30**	0	15,009.050	**34**	0	17,023.465	**38**	0	19,080.037	
	1	11,022.573		1	13,036.814		1	15,051.012		1	17,065.436		1	19,122.008	
	2	11,064.537		2	13,078.776		2	15,092.975		2	17,107.407		2	19,163.979	
	3	11,106.502		3	13,120.739		3	15,134.937		3	17,149.378		3	19,205.949	
	4	11,148.466		4	13,162.701		4	15,176.900		4	17,191.348		4	19,247.920	
	5	11,190.430		5	13,204.664		5	15,218.862		5	17,233.319		5	19,289.891	
	6	11,232.395		6	13,246.626		6	15,260.825		6	17,275.290		6 HL	19,331.862	
	7	11,274.359		7	13,288.589		7	15,302.787		7	17,317.261		7	19,373.833	
	8	11,316.324		8	13,330.551		8	15,344.750		8	17,359.232		8	19,415.804	
	9	11,358.288		9	13,372.514		9	15,386.712		9	17,401.203		9	19,457.775	
	10	11,400.253		10	13,414.476		10	15,428.675		10	17,443.174		10	19,499.745	
	11	11,442.217		11	13,456.439		11	15,470.637		11	17,485.144		11	19,541.716	
23	0	11,484.181	**27**	0	13,498.401	**31**	0	15,512.600	**35**	0	17,527.115	**39**	0	19,625.658	
	1	11,526.146		1	13,540.364		1	15,554.562		1	17,569.086		1	19,667.629	
	2	11,568.110		2	13,582.326		2	15,596.525		2	17,611.057		2	19,709.600	
	3	11,610.075		3	13,624.289		3	15,638.487		3	17,653.028		3	19,751.571	
	4	11,652.039		4	13,666.251		4	15,680.449		4	17,694.999		4	19,793.541	
	5	11,694.004		5	13,708.213		5	15,722.412		5	17,736.970		5	19,835.512	
	6	11,735.968		6	13,750.176		6	15,764.374		6	17,778.940		6	19,877.483	
	7	11,777.932		7	13,792.138		7	15,806.337		7	17,820.911		7	19,919.454	
	8	11,819.897		8	13,834.101		8	15,848.299		8	17,862.882		8	19,961.430	
	9	11,861.861		9	13,876.063		9	15,890.262		9	17,904.853		9	20,003.418	
	10	11,903.826		10	13,918.026		10	15,932.224		10	17,946.824		10	20,045.406	
	11	11,945.790		11	13,959.988		11	15,974.194		11	17,988.795		11	20,087.394	

Fractions

1/16	2.622777	9/16	23.604992
1/ 8	5.245554	5/ 8	26.227769
3/16	7.868331	11/16	28.850546
1/ 4	10.491108	3/ 4	31.473323
5/16	13.113885	13/16	34.096100
3/ 8	15.736661	7/ 8	36.718877
7/16	18.359438	15/16	39.341654
1/ 2	20.982215	1	41.964430

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Imperial Oil **TANK # 332**

Sherwood Park, AB **860 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 60 Feet X 48 Feet INNAGE TABLE

Ref Gauge Height - 48' 9-3/8"; Located 20 Inches to Benchmark in hatch — Height in Inches; Capacities in US Barrel

40	0	20,045.406	**44**	0	22,060.832	**48**	0	SF 24,060.713	**52**	0		**56**	0		
	1	20,087.394		1	22,102.820		1			1			1		
	2	20,129.382		2	22,144.808		2			2			2		
	3	20,171.371		3	22,186.796		3			3			3		
	4	20,213.359		4	22,228.784		4			4			4		
	5	20,255.347		5	22,270.772		5			5			5		
	6	20,297.335		6	22,312.760		6			6			6		
	7	20,339.323		7	22,354.749		7			7			7		
	8	20,381.311		8	22,396.737		8			8			8		
	9	20,423.299		9	22,438.725		9			9			9		
	10	20,465.287		10	22,480.713		10			10			10		
	11	20,507.275		11	22,522.701		11			11			11		
41	0	20,549.263	**45**	0	22,564.689	**49**	0		**53**	0		**57**	0		
	1	20,591.251		1	22,606.677		1			1			1		
	2	20,633.239		2	22,648.665		2			2			2		
	3	20,675.227		3	22,690.653		3			3			3		
	4	20,717.215		4	22,732.641		4			4			4		
	5	20,759.203		5	22,774.629		5			5			5		
	6	20,801.191		6	22,816.617		6			6			6		
	7	20,843.179		7	22,858.605		7			7			7		
	8	20,885.167		8	22,900.593		8			8			8		
	9	20,927.155		9	22,942.581		9			9			9		
	10	20,969.143		10	22,984.569		10			10			10		
	11	21,011.131		11	23,026.557		11			11			11		
42	0	21,053.119	**46**	0	23,068.545	**50**	0		**54**	0		**58**	0		
	1	21,095.107		1	23,110.533		1			1			1		
	2	21,137.095		2	23,152.521		2			2			2		
	3	21,179.083		3	23,194.509		3			3			3		
	4	21,221.071		4	23,236.497		4			4			4		
	5	21,263.060		5	23,278.485		5			5			5		
	6	21,305.048		6	23,320.473		6			6			6		
	7	21,347.036		7	23,362.461		7			7			7		
	8	21,389.024		8	23,404.449		8			8			8		
	9 HH	21,431.012		9	23,446.438		9			9			9		
	10	21,473.000		10	23,488.426		10			10			10		
	11	21,514.988		11	23,530.414		11			11			11		
43	0	21,556.976	**47**	0	23,572.402	**51**	0		**55**	0		**59**	0		
	1	21,598.964		1	23,614.390		1			1			1		
	2	21,640.952		2	23,656.378		2			2			2		
	3	21,682.940		3	23,698.366		3			3			3		
	4	21,724.928		4	23,740.354		4			4			4		
	5	21,766.916		5	23,782.342		5			5			5		
	6	21,808.904		6	23,824.330		6			6			6		
	7	21,850.892		7	23,866.318		7			7			7		
	8	21,892.880		8	23,908.306		8			8			8		
	9	21,934.868		9	23,950.294		9			9			9		
	10	21,976.856		10	23,992.282		10			10			10		
	11	22,018.844		11	24,034.270		11			11			11		

LLC - Low Level Cut Out 8'6"
LL - Low Level Alarm 2'9"
HL – High Level Alarm 38'6"
HH-High Level Alarm 42'9"
SF - Safe Fill Height @ 48'

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NEXTGEN INDUSTRIAL SERVICES

Imperial Oil **TANK # 332**

Sherwood Park, AB **860 Kg/m3 @ 15°C**

Cone Roof Tank - Nominal Dimensions : 60 Feet X 48 Feet

Volumes in: US Barrel

To Increment	Incs	Gross Volume per Increment	Deadwood Volume	Net Volume	Accumulated Volume
0	1	0.000000	1.182252	1.182252	1.182252
1	1	41.925583	-40.488221	1.437361	2.619614
2	1	41.925583	-32.497458	9.428124	12.047738
3	1	41.925583	-19.430780	22.494803	34.542541
6	3	41.925583	-0.044232	41.881351	160.186593
9	3	41.925583	-0.039670	41.885913	285.844331
10	1	41.925583	-0.046249	41.879333	327.723664
11	1	41.925583	-0.043598	41.881984	369.605648
12	1	41.925583	-0.047694	41.877888	411.483537
13	1	41.925583	-0.041114	41.884468	453.368005
14	1	41.925583	-0.038587	41.886995	495.255000
16	2	41.925583	-0.046879	41.878704	579.012408
17	1	41.925583	-0.033121	41.892461	620.904869
19	2	41.925583	-0.047932	41.877650	704.660170
20	1	41.925583	-0.044905	41.880677	746.540847
21	1	41.925583	-0.028583	41.896999	788.437847
23	2	41.925583	-0.027469	41.898114	872.234074
24	1	41.925583	-0.030151	41.895432	914.129506
25	1	41.925583	-0.029996	41.895586	956.025093
26	1	41.925583	-0.021704	41.903878	997.928971
30	4	41.925583	-0.019251	41.906331	1165.554296
41	11	41.925583	-0.020827	41.904755	1626.506605
54	13	41.925583	-0.022338	41.903244	2171.248780
70	16	41.925583	-0.020978	41.904604	2841.722452
95	25	41.925583	-0.016882	41.908700	3889.439962
96	1	41.935699	-0.016882	41.918817	3931.358779
191	95	41.973168	-0.016882	41.956286	7917.205958
192	1	41.980158	-0.016882	41.963276	7959.169234
286	94	41.981313	-0.016882	41.964430	11903.825701
287	1	41.981019	-0.016882	41.964137	11945.789837
382	95	41.979350	-0.016882	41.962468	15932.224278
383	1	41.986349	-0.016882	41.969467	15974.193744
477	94	41.987735	-0.016882	41.970853	19919.453932
478	1	41.993283	-0.016882	41.976401	19961.430333
575	97	42.004920	-0.016882	41.988038	24034.270059
576	1	26.459792	-0.016882	26.442910	24060.712969

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