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February 22, 2024

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Post Office Box 1088
Salem, Oregon 97308-1088

Re: RG 41: Meter Sampling Program Report for 2023

At the request of Commission Staff, Northwest Natural Gas Company, dba NW Natural, submits herewith its 2023 Meter Sampling Program Report.

As required by our Meter Testing Standards and Procedures document, the accuracies of all operating families of diaphragm meters with capacities 1000 ft³/hr and below have been statistically analyzed for the year 2023. This analysis utilized all relevant meter tests conducted during the five calendar years between January 1, 2018, and December 31, 2023. The results of this analysis are as follows:

- As of December 31, 2023, 803,119 meters are installed and covered under the Meter Sampling Program. Of these, 716,844 meters, forming 362 distinct meter families, are conforming. The remaining 86,275 meters form 83 distinct meter families and are non-conforming and are scheduled for replacement. 59 non-conforming meter families were identified in prior years and 24 new meter families were identified as non-conforming in 2023. The 86,275 non-conforming meters represent 10.7 percent of the total meter population.
- Over the course of 2023, the company tested 7,996 meters. Over the five-year period of 2018 through 2023, the company had a total of 41,217 meter samples from which to base its results.
- 362 meter families either had sufficient meter samples to establish statistical confidence in their accuracy, or are new for 2023. These meter families amount to 716,844 meters, or 89.3 percent of the total meter population. The performances of these families are exhibited in Appendix A.
- 14 new meter families were added in 2023, reflecting new meters placed in service during the normal course of business, as well as meter replacements to replace non-conforming meters. 17 meter families were removed from service due to small family size, during the normal course of business. 4 meter families were removed from service due to the number of supplementary samples required exceeding 50 percent of the family size, with a family size less than 100 meters.
- 25 meter families, consisting of a total of 2,612 meters at the time of declaration, were identified as not conforming in 2023. Per Meter Sampling Program (MSP) guidelines outlined in NW Natural Engineering Procedure Z-1, these will be removed by the end of 2024. The performance of these families is exhibited in Appendix B.
 - The 2023 Meter Sampling Annual Report shows a significant decrease in meters declared non-conforming when compared to the 2022 annual report. In 2022, NW Natural declared 70,251 meters as non-conforming, which consisted predominantly of 42,486 American AC-250 meters

set in 2006 and 2007, and an additional 14,106 American AC-250 meters set in 1998. These meter families are large, and were predominantly made up of the American meter families that NW Natural has seen fail earlier than expected, which were set from 2005-2009. Those meters from 2005-2009 have now all been declared PCC. For 2023, NW Natural has seen what we would consider a more typical year with only one larger meter family, the 1994 American AL-175 being declared PCC, and we would expect this trend to continue as meters age into the 30-40 year range.

- A further breakdown of the 25 non-conforming meter families and associated meters described above are as follows, the performance of these families is exhibited in Appendix B:
 - 4 meter families, totaling 2,525 meters had sufficient meter tests available to have their accuracy determined statistically and determined non-conforming.
 - 17 meter families, totaling 33 meters, will be removed from service due to their small population size and age.
 - 4 meter families, totaling 54 meters, will be removed from service due to a family size less than 100 meters, and sampling requirements exceeding 50 percent of the total family population.
- Compared to the results above, the Year 2022 report resulted in 70,251 meters being put on the list for removal over five years by December 2026.
- Regarding the planned four-year removal of meters determined non-conforming from 2020-2023, the following meters remain:
 - PCC Year 2020 (for removal 2020 to 2023): 1 remains out of 42,252 determined
 - 1 meter remains for PCC Year 2020 due to access issues.
 - PCC Year 2021 (for removal 2021 to 2024): 6,515 remain out of 27,898 determined.
 - PCC Year 2022 (for removal 2022 to 2025): 9,783 remain out of 35,677 determined.
 - PCC Year 2023 (for removal 2023 to 2026): 67,484 remain out of 70,251 determined.
 - PCC Year 2024 (for removal in 2024): 2,492 remain out of 2,612 determined.

If you have any questions or comments, please contact me at matt.miller@nwnatural.com.

Sincerely,
/s/ Matt Miller

Matt Miller
Engineering

Michael J. McKenzie, P.E.
Engineering Manager

cc:

Dan Kizer – Engineering Sr Director
Cari Colton – Utility Technical Services Sr Director
Joe Karney – VP, Engineering & Utility Operations

Dave Weber – VP, Gas Supply & Utility Support Services
Kim Rush – SVP, Chief Operating Officer

Appendix A
Meter Families in Conformance (Excluding new meters)

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
120	0	1969	Rockwell	175	54	157	67	4	0	71
120	0	1970	Rockwell	175	53	533	93	9	1	103
120	0	1972	Rockwell	175	51	762	84	6	1	91
120	0	1973	Rockwell	175	50	564	87	10	1	98
120	0	1974	Rockwell	175	49	2386	188	12	6	206
120	0	1975	Rockwell	175	48	1649	126	12	2	140
120	0	1976	Rockwell	175	47	1010	94	3	4	101
120	0	1977	Rockwell	175	46	1238	104	6	1	111
120	0	1978	Rockwell	175	45	1334	107	5	4	116
120	0	1979	Rockwell	175	44	1495	141	8	4	153
120	0	1981	Rockwell	175	42	619	95	4	2	101
120	0	1983	Rockwell	175	40	1249	115	14	2	131
120	0	1985	Rockwell	175	38	1819	118	13	1	132
120	0	1986	Rockwell	175	37	1201	98	6	2	106
120	0	1987	Rockwell	175	36	2087	129	3	3	135
120	0	1988	Rockwell	175	35	2039	135	5	5	145
120	0	1989	Rockwell	175	34	3301	184	9	5	198
120	0	1990	Rockwell	175	33	3326	194	12	6	212
120	0	1991	Rockwell	175	32	3603	221	6	13	240
120	0	1992	Rockwell	175	31	6347	343	4	13	360
120	0	1993	Rockwell	175	30	2507	151	5	4	160
120	0	1994	Rockwell	175	29	1286	83	3	4	90
120	0	1995	Rockwell	175	28	269	77	8	0	85
120	0	1996	Rockwell	175	27	703	80	2	0	82
120	0	1998	Rockwell	175	25	45	29	1	1	31
120	0	2014	Rockwell	175	9	1	0	0	0	0
120	0	2015	Rockwell	175	8	1	0	0	0	0
120	0	2021	Rockwell	175	2	1	6	0	0	6
125	0	1978	Rockwell	200	45	1459	117	2	1	120
125	0	1980	Rockwell	200	43	1727	93	8	1	102
125	0	1981	Rockwell	200	42	2358	108	6	0	114
125	0	1982	Rockwell	200	41	2928	170	5	0	175
125	0	1983	Rockwell	200	40	1649	135	2	2	139
125	0	1984	Rockwell	200	39	1989	120	10	0	130
125	0	1986	Rockwell	200	37	326	74	2	0	76
125	0	1988	Rockwell	200	35	333	89	3	0	92
125	0	1989	Rockwell	200	34	429	83	5	3	91
125	0	1991	Rockwell	200	32	657	41	0	0	41
125	0	1992	Rockwell	200	31	580	49	1	1	51
125	0	1993	Rockwell	200	30	457	26	0	2	28
125	0	1996	Rockwell	200	27	221	35	0	0	35
125	0	1998	Rockwell	200	25	39	38	3	0	41



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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
125	0	2017	Rockwell	200	6	1	0	0	0	0
125	0	2019	Rockwell	200	4	1	3	0	0	3
130	0	1971	American	175	52	979	80	11	0	91
130	0	1973	American	175	50	688	83	10	2	95
130	0	1975	American	175	48	21	15	0	0	15
130	0	1977	American	175	46	3021	177	25	4	206
130	0	1979	American	175	44	6012	333	19	2	354
130	0	1980	American	175	43	5799	343	23	5	371
130	0	1984	American	175	39	4477	246	35	8	289
130	0	1985	American	175	38	1954	110	11	0	121
130	0	1986	American	175	37	3756	176	24	6	206
130	0	1988	American	175	35	2945	134	20	3	157
130	0	1992	American	175	31	1307	89	15	0	104
130	0	1995	American	175	28	461	76	11	0	87
130	0	1997	American	175	26	195	51	1	1	53
130	0	2014	American	175	9	3	0	0	0	0
130	0	2016	American	175	7	2	0	0	0	0
130	0	2020	American	175	3	1	13	1	0	14
140	0	1968	Sprague	175	55	918	87	0	11	98
140	0	1970	Sprague	175	53	314	37	0	2	39
140	0	1971	Sprague	175	52	891	86	0	9	95
140	0	1973	Sprague	175	50	2674	217	3	6	226
140	0	1974	Sprague	175	49	575	44	0	2	46
140	0	1975	Sprague	175	48	667	55	0	3	58
140	0	1976	Sprague	175	47	1013	77	1	5	83
140	0	1977	Sprague	175	46	281	37	0	3	40
140	0	1978	Sprague	175	45	226	39	0	3	42
140	0	1980	Sprague	175	43	259	63	5	7	75
140	0	1981	Sprague	175	42	591	43	1	2	46
140	0	1982	Sprague	175	41	519	68	1	3	72
140	0	1983	Sprague	175	40	733	86	3	1	90
140	0	1985	Sprague	175	38	1056	91	0	6	97
140	0	1986	Sprague	175	37	908	54	0	3	57
140	0	1987	Sprague	175	36	2756	214	0	8	222
140	0	1988	Sprague	175	35	692	81	3	1	85
140	0	1989	Sprague	175	34	715	45	0	2	47
140	0	1990	Sprague	175	33	962	63	0	2	65
140	0	1991	Sprague	175	32	411	37	0	0	37
140	0	1992	Sprague	175	31	531	31	0	2	33
140	0	1993	Sprague	175	30	600	49	0	3	52
140	0	1994	Sprague	175	29	530	54	2	1	57
140	0	1997	Sprague	175	26	449	28	0	0	28
140	0	2016	Sprague	175	7	1	0	0	0	0
270	0	2001	Schlumberger	1000	22	20	35	2	0	37
450	0	1993	Schlumberger	400	30	167	24	0	0	24
450	0	1996	Schlumberger	400	27	240	33	0	0	33

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
450	0	1997	Schlumberger	400	26	43	19	0	0	19
450	0	1998	Schlumberger	400	25	398	52	0	1	53
450	0	1999	Schlumberger	400	24	80	20	0	0	20
450	0	2003	Schlumberger	400	20	15	13	0	0	13
450	0	2022	Schlumberger	400	1	1	0	0	0	0
452	0	2003	Actaris	400	20	72	28	0	0	28
452	0	2004	Actaris	400	19	374	66	2	1	69
470	472	1983	American	425	40	18	11	0	0	11
470	472	1986	American	425	37	27	38	1	0	39
470	472	1987	American	425	36	97	53	3	0	56
470	472	1994	American	425	29	156	65	5	1	71
470	472	1995	American	425	28	73	19	0	0	19
470	472	1996	American	425	27	7	12	0	1	13
470	472	2000	American	425	23	363	49	1	0	50
470	472	2002	American	425	21	364	74	3	0	77
470	472	2003	American	425	20	137	67	3	0	70
470	472	2004	American	425	19	45	39	4	1	44
470	472	2007	American	425	16	184	52	2	0	54
470	472	2008	American	425	15	10	13	0	0	13
470	472	2017	American	425	6	1	0	0	0	0
471	0	2007	American	425	16	444	84	4	0	88
471	0	2008	American	425	15	36	35	2	0	37
471	0	2011	American	425	12	76	31	1	0	32
475	0	2010	American	630	13	564	91	11	0	102
475	0	2011	American	630	12	993	73	1	0	74
475	0	2012	American	630	11	1380	81	0	0	81
475	0	2013	American	630	10	1441	79	2	0	81
475	0	2014	American	630	9	1504	74	0	1	75
475	0	2015	American	630	8	1215	67	1	0	68
475	0	2016	American	630	7	1588	59	0	0	59
475	0	2017	American	630	6	1654	63	1	0	64
475	0	2018	American	630	5	4575	165	2	2	169
475	0	2019	American	630	4	2922	111	0	0	111
475	0	2020	American	630	3	891	30	0	0	30
475	0	2021	American	630	2	1139	24	0	0	24
475	0	2022	American	630	1	1410	5	0	0	5
480	486	1990	American	800	33	10	17	1	0	18
480	486	1995	American	800	28	13	13	1	2	16
480	486	2001	American	800	22	11	8	0	0	8
480	486	2002	American	800	21	16	13	0	0	13
485	0	1981	American	800	42	16	14	0	3	17
485	0	1984	American	800	39	45	25	1	1	27
485	0	2016	American	800	7	1	0	0	0	0
487	0	2017	American	800	6	55	5	0	0	5
487	0	2018	American	800	5	187	12	0	0	12
487	0	2019	American	800	4	307	20	0	0	20

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
487	0	2020	American	800	3	231	12	0	0	12
487	0	2021	American	800	2	340	11	0	0	11
487	0	2022	American	800	1	287	4	0	0	4
500	502	2002	American	1000	21	27	25	2	1	28
505	507	2008	American	1000	15	260	84	10	0	94
505	507	2011	American	1000	12	294	82	7	0	89
505	507	2013	American	1000	10	353	35	0	0	35
505	507	2014	American	1000	9	408	42	0	0	42
505	507	2015	American	1000	8	339	26	0	0	26
505	507	2016	American	1000	7	490	48	0	0	48
505	507	2017	American	1000	6	190	17	0	0	17
505	507	2018	American	1000	5	331	30	2	0	32
505	507	2019	American	1000	4	285	32	1	0	33
505	507	2020	American	1000	3	15	2	1	0	3
505	507	2021	American	1000	2	11	2	1	0	3
505	507	2022	American	1000	1	5	0	0	0	0
510	515	1973	Rockwell	310	50	57	33	1	3	37
510	515	1974	Rockwell	310	49	20	23	0	4	27
510	515	1977	Rockwell	310	46	122	35	1	0	36
510	515	1978	Rockwell	310	45	80	49	1	2	52
510	515	1979	Rockwell	310	44	110	50	5	8	63
510	515	1982	Rockwell	310	41	34	41	1	4	46
510	515	1983	Rockwell	310	40	93	38	0	0	38
510	515	1987	Rockwell	310	36	186	40	1	1	42
510	515	1989	Rockwell	310	34	65	22	0	0	22
510	515	1990	Rockwell	310	33	179	63	6	2	71
510	515	1991	Rockwell	310	32	192	24	0	0	24
510	515	1994	Rockwell	310	29	26	16	0	0	16
510	515	1996	Rockwell	310	27	18	19	0	1	20
520	0	1977	Rockwell	415	46	32	15	0	0	15
520	0	1981	Rockwell	415	42	196	26	0	2	28
520	0	1991	Rockwell	415	32	60	17	0	1	18
520	0	1992	Rockwell	415	31	42	25	1	2	28
520	0	1994	Rockwell	415	29	78	18	0	1	19
520	0	1996	Rockwell	415	27	88	43	2	1	46
520	0	1997	Rockwell	415	26	40	16	0	1	17
520	0	2003	Rockwell	415	20	129	28	0	0	28
520	0	2004	Rockwell	415	19	54	43	4	0	47
520	0	2005	Rockwell	415	18	19	26	1	0	27
520	0	2017	Rockwell	415	6	1	0	0	0	0
520	0	2018	Rockwell	415	5	1	0	0	0	0
520	0	2019	Rockwell	415	4	1	0	0	0	0
520	0	2020	Rockwell	415	3	1	1	0	0	1
555	0	1983	American	310	40	66	48	3	0	51
555	0	1984	American	310	39	148	62	3	1	66
555	0	1985	American	310	38	71	39	2	0	41

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
555	0	1989	American	310	34	7	7	0	0	7
560	0	1985	American	250	38	1361	76	3	1	80
560	0	1986	American	250	37	5853	273	7	3	283
560	0	1987	American	250	36	405	25	0	0	25
560	0	1988	American	250	35	3010	117	2	0	119
560	0	1989	American	250	34	6632	328	5	5	338
560	0	1990	American	250	33	5992	254	9	4	267
560	0	1991	American	250	32	5273	243	5	4	252
560	0	1992	American	250	31	4632	142	3	5	150
560	0	1993	American	250	30	3911	136	0	2	138
560	0	1994	American	250	29	5919	170	10	1	181
560	0	1995	American	250	28	7876	241	17	3	261
560	0	1996	American	250	27	10708	335	21	3	359
560	0	1999	American	250	24	10917	246	25	1	272
560	0	2000	American	250	23	10924	287	5	2	294
560	0	2001	American	250	22	9200	187	6	1	194
560	0	2002	American	250	21	8299	171	8	0	179
560	0	2003	American	250	20	395	48	0	2	50
560	0	2005	American	250	18	44	30	1	0	31
560	0	2006	American	250	17	580	61	2	0	63
560	0	2007	American	250	16	179	23	0	0	23
560	0	2014	American	250	9	5	0	0	0	0
560	0	2015	American	250	8	1	0	0	0	0
560	0	2018	American	250	5	3	14	1	0	15
560	0	2022	American	250	1	1	10	0	0	10
561	0	2010	American	250	13	9777	309	7	2	318
561	0	2011	American	250	12	10282	364	5	0	369
561	0	2012	American	250	11	11527	397	2	3	402
561	0	2013	American	250	10	14981	353	3	4	360
561	0	2014	American	250	9	14324	346	4	1	351
561	0	2015	American	250	8	17597	347	1	1	349
561	0	2016	American	250	7	12472	182	0	0	182
561	0	2017	American	250	6	11644	194	0	1	195
561	0	2018	American	250	5	9615	172	2	3	177
561	0	2019	American	250	4	14438	197	2	0	199
561	0	2020	American	250	3	10632	109	10	0	119
561	0	2023	American	250	0	4	0	0	0	0
562	0	2017	American	250	6	22	0	0	0	0
562	0	2018	American	250	5	695	0	0	0	0
562	0	2019	American	250	4	1369	5	1	0	6
562	0	2020	American	250	3	996	0	0	0	0
562	0	2021	American	250	2	1101	2	0	0	2
562	0	2022	American	250	1	564	0	0	0	0
570	0	1989	Rockwell	275	34	683	75	3	0	78
570	0	1990	Rockwell	275	33	5189	182	5	0	187
570	0	1991	Rockwell	275	32	2774	120	4	0	124

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
570	0	1994	Rockwell	275	29	4886	154	6	0	160
570	0	1995	Rockwell	275	28	6232	219	7	5	231
570	0	1996	Rockwell	275	27	7475	178	2	3	183
570	0	1997	Rockwell	275	26	2301	46	1	0	47
570	0	1998	Rockwell	275	25	5260	152	18	1	171
570	0	1999	Rockwell	275	24	10222	239	20	4	263
570	0	2000	Rockwell	275	23	8262	174	17	3	194
570	0	2001	Rockwell	275	22	8479	197	7	0	204
570	0	2002	Rockwell	275	21	10583	197	1	0	198
570	0	2003	Rockwell	275	20	19351	452	7	1	460
570	0	2004	Rockwell	275	19	3508	80	0	0	80
570	0	2014	Rockwell	275	9	2	0	0	0	0
570	0	2016	Rockwell	275	7	2	0	0	0	0
570	0	2017	Rockwell	275	6	3	0	0	0	0
570	0	2018	Rockwell	275	5	2	2	0	0	2
572	0	2004	Sensus	275	19	13595	293	20	1	314
572	0	2005	Sensus	275	18	11109	5433	328	7	5768
572	0	2008	Sensus	275	15	34	40	1	0	41
572	0	2009	Sensus	275	14	722	51	1	0	52
572	0	2011	Sensus	275	12	63	18	0	0	18
572	0	2014	Sensus	275	9	2	0	0	0	0
572	0	2015	Sensus	275	8	2	0	0	0	0
572	0	2016	Sensus	275	7	3	0	0	0	0
572	0	2020	Sensus	275	3	9369	109	3	1	113
572	0	2021	Sensus	275	2	11997	108	0	2	110
572	0	2022	Sensus	275	1	12972	70	1	0	71
572	0	2023	Sensus	275	0	2	0	0	0	0
585	0	1991	Sprague	250	32	684	64	1	0	65
585	0	1992	Sprague	250	31	1990	114	1	1	116
585	0	1993	Sprague	250	30	3681	175	1	0	176
585	0	1994	Sprague	250	29	1599	66	0	1	67
585	0	1995	Sprague	250	28	1444	70	2	1	73
585	0	1996	Sprague	250	27	4266	167	1	1	169
585	0	1997	Sprague	250	26	5728	196	1	1	198
585	0	1998	Sprague	250	25	5205	211	1	1	213
585	0	1999	Sprague	250	24	196	52	1	0	53
585	0	2001	Sprague	250	22	47	19	0	0	19
585	0	2002	Sprague	250	21	43	16	0	0	16
585	0	2004	Sprague	250	19	42	20	0	1	21
585	0	2014	Sprague	250	9	2	0	0	0	0
585	0	2021	Sprague	250	2	1	2	0	0	2
590	0	1989	Lancaster	250	34	1242	77	0	0	77
590	0	1990	Lancaster	250	33	1255	70	0	1	71
590	0	1991	Lancaster	250	32	1632	93	1	0	94
590	0	1992	Lancaster	250	31	2541	133	1	0	134
590	0	1993	Lancaster	250	30	2743	93	2	0	95



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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
590	0	1994	Lancaster	250	29	4166	195	10	3	208
590	0	1995	Lancaster	250	28	4598	200	11	13	224
590	0	1996	Lancaster	250	27	25	22	0	0	22
590	0	1997	Lancaster	250	26	2042	73	1	1	75
590	0	1998	Lancaster	250	25	15	13	0	0	13
590	0	1999	Lancaster	250	24	96	52	2	0	54
590	0	2016	Lancaster	250	7	1	0	0	0	0
590	0	2019	Lancaster	250	4	1	1	0	0	1
590	0	2021	Lancaster	250	2	1	2	0	0	2
590	0	2022	Lancaster	250	1	1	0	0	0	0
595	600	2000	Schlumberger	250	23	2820	415	16	16	447
595	600	2001	Schlumberger	250	22	3541	291	6	1	298
595	600	2002	Schlumberger	250	21	3112	171	1	8	180
595	600	2003	Schlumberger	250	20	44	17	0	0	17
595	600	2016	Schlumberger	250	7	1	1	0	0	1
595	600	2019	Schlumberger	250	4	1	3	0	0	3
602	0	2016	Itron	250	7	4271	91	0	1	92
602	0	2017	Itron	250	6	4524	85	0	1	86
602	0	2018	Itron	250	5	8086	133	2	0	135
602	0	2019	Itron	250	4	11414	155	0	0	155
602	0	2020	Itron	250	3	21284	211	0	0	211
602	0	2021	Itron	250	2	22430	115	1	0	116
602	0	2022	Itron	250	1	8810	34	0	0	34
602	0	2023	Itron	250	0	2	0	0	0	0
603	0	2020	Itron	400	3	421	18	0	0	18
603	0	2021	Itron	400	2	380	7	0	0	7
603	0	2022	Itron	400	1	32	0	0	0	0
561	0	2021	American	250	2	6918	26	0	0	26
561	0	2022	American	250	1	6237	6	0	0	6
471	0	2010	American	425	13	73	30	1	0	31
510	515	1976	Rockwell	310	47	214	55	3	5	63
595	600	2004	Schlumberger	250	19	20	12	0	0	12
120	0	1980	Rockwell	175	43	951	83	6	1	90
520	0	1978	Rockwell	415	45	26	13	0	0	13
120	0	1997	Rockwell	175	26	123	55	4	1	60
510	515	1981	Rockwell	310	42	161	29	0	3	32
470	472	2001	American	425	22	46	39	3	0	42
120	0	1982	Rockwell	175	41	1088	81	8	1	90
120	0	1984	Rockwell	175	39	1353	93	10	2	105
125	0	1995	Rockwell	200	28	65	46	4	0	50
505	507	2012	American	1000	11	348	52	2	0	54
520	0	1988	Rockwell	415	35	36	15	0	0	15
140	0	1979	Sprague	175	44	118	22	0	0	22
480	486	1992	American	800	31	16	10	0	0	10
120	0	1968	Rockwell	175	55	51	28	1	0	29
140	0	1984	Sprague	175	39	627	69	1	9	79

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
470	472	1992	American	425	31	103	43	2	0	45
125	0	1999	Rockwell	200	24	127	21	0	0	21
130	0	1996	American	175	27	997	39	1	2	42
125	0	1994	Rockwell	200	29	363	25	0	0	25
480	486	1989	American	800	34	15	10	0	0	10
520	0	1979	Rockwell	415	44	50	24	0	3	27
470	472	1984	American	425	39	95	20	0	0	20
520	0	1980	Rockwell	415	43	39	31	2	0	33
125	0	1987	Rockwell	200	36	476	76	4	0	80
470	472	1982	American	425	41	10	8	0	0	8
470	472	1997	American	425	26	249	65	8	0	73
570	0	1993	Rockwell	275	30	44	15	0	1	16
470	472	2006	American	425	17	21	12	0	0	12
585	0	2000	Sprague	250	23	21	14	0	0	14
470	472	1985	American	425	38	12	9	0	0	9
470	472	1998	American	425	25	124	56	5	0	61
555	0	1980	American	310	43	36	32	2	0	34
555	0	1981	American	310	42	12	9	0	0	9
555	0	1987	American	310	36	21	14	0	0	14
585	0	1988	Sprague	250	35	161	22	0	0	22
520	0	1982	Rockwell	415	41	21	13	0	0	13
590	0	1988	Lancaster	250	35	58	17	0	1	18
125	0	1990	Rockwell	200	33	217	67	6	0	73
470	472	1999	American	425	24	166	67	6	0	73
125	0	1979	Rockwell	200	44	134	22	0	0	22
140	0	1972	Sprague	175	51	128	22	0	0	22
510	515	1986	Rockwell	310	37	9	10	1	1	12
510	515	1992	Rockwell	310	31	68	42	6	3	51
510	515	1993	Rockwell	310	30	65	31	1	2	34
570	0	1992	Rockwell	275	31	109	22	0	0	22

Appendix B
Meter Families Not Conforming (To Be Removed Over 1 Year)

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	% Not Conforming	PCC Reason
120	0	2012	Rockwell	175	11	1	0	0	0	0	Small Family
120	0	2013	Rockwell	175	10	1	0	0	0	0	Small Family
130	0	1994	American	175	29	2505	106	19	0	125	Determined
130	0	2013	American	175	10	1	0	0	0	0	Small Family
130	0	2022	American	175	1	1	10	4	1	15	Determined
450	0	2013	Schlumberger	400	10	1	0	0	0	0	Small Family
470	472	1989	American	425	34	18	17	2	0	19	Determined
470	472	2012	American	425	11	1	0	0	0	0	Small Family
475	0	1996	American	630	27	1	0	0	0	0	Small Family
560	0	2012	American	250	11	6	0	0	0	0	Small Family
560	0	2013	American	250	10	2	0	0	0	0	Small Family
561	0	1984	American	250	39	1	0	0	0	0	Small Family
570	0	2005	Rockwell	275	18	6	7	0	0	7	Small Family
570	0	2012	Rockwell	275	11	4	1	0	0	1	Small Family
570	0	2013	Rockwell	275	10	1	0	0	0	0	Small Family
570	0	2022	Rockwell	275	1	1	6	1	0	7	Determined
572	0	1999	Sensus	275	24	1	0	0	0	0	Small Family
572	0	2012	Sensus	275	11	3	1	0	0	1	Small Family
572	0	2013	Sensus	275	10	1	0	0	0	0	Small Family
595	600	2012	Schlumberger	250	11	1	0	0	0	0	Small Family
602	0	1997	Itron	250	26	1	0	0	0	0	Small Family
270	0	2000	Schlumberger	1000	23	17	2	0	0	2	Samples >50%
510	515	1984	Rockwell	310	39	12	2	0	0	2	Samples >50%
270	0	1998	Schlumberger	1000	25	16	7	1	0	8	Samples >50%
471	0	2012	American	425	11	9	1	0	0	1	Samples >50%

Total 2,612