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COMPANY NAME: NW Natural

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Meter Sampling Program Report for 2018, NW Natural

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**MICHAEL J. MCKENZIE**  
Engineering  
Tel: 503.226.4211 x 5542  
email: mike.mckenzie@nwnatural.com



February 15, 2019

**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 2018

At the request of Commission Staff, Northwest Natural Gas Company, dba NW Natural, submits herewith its 2018 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 ft<sup>3</sup>/hr and below have been statistically analyzed for the year 2018. This analysis utilized all relevant meter tests conducted during the five calendar years between January 1, 2013 and December 31, 2018. The results of this analysis are as follows:

- As of December 31, 2018, we had 747,881 installed meters covered under the Meter Sampling Program. These meters formed 429 meter families. This total does not include meters determined to be non-conforming.
- Over the course of 2018, the company tested 5,204 meters. Over the five-year period of 2013 through 2018, the company had a total of 29,752 meter samples from which to base its results.
- 414 meter families either had sufficient meter samples to establish statistical confidence in their accuracy, or are so new that they do not yet require minimum sampling. These meter families amount to 729,362 meters, or 97.5 percent of the total meter population. The performances of these families are exhibited in Appendix A.
- 16 new meter families were added in 2018. 1 meter family, totaling 1 meter was removed during the normal course of business.
- 43 meter families, consisting of a total of 11,566 meters, are not conforming and have been put on the list to be removed by the end of 2019, per the Meter Sampling Program (MSP) guidelines. The performances of these families are exhibited in Appendix B.
- 18 meter families, totaling 11,502 meters had sufficient meter tests available to have their accuracy determined statistically and determined non-conforming. 25 meter families, totaling 64 meters, will be removed from service due to their small population size and age. The performances of these families are exhibited in Appendix B.
- Compared to the results above, the Year 2017 report resulted in 5,419 meters being put on the list for removal by the end of 2018.

If you have any questions or comments, please contact me at (503) 226-4211 ext. 5542.

Sincerely,

*/s/ Michael J. McKenzie*

Michael J. McKenzie  
Gas Measurement and Station Design Engineering Supervisor



cc: Andy Fortier  
Jon Huddleston  
Cliff Crawford  
Joe Karney

Lori Russell  
Kim Heiting



**Appendix A**  
**Meter Families in Conformance**

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
120	0	1968	Rockwell	175	49	75	31	1	
120	0	1969	Rockwell	175	48	189	66	5	
120	0	1970	Rockwell	175	47	644	84	5	1
120	0	1971	Rockwell	175	46	521	79	11	
120	0	1972	Rockwell	175	45	855	80	10	1
120	0	1973	Rockwell	175	44	672	59	1	
120	0	1974	Rockwell	175	43	2622	166	19	3
120	0	1975	Rockwell	175	42	1815	102	12	2
120	0	1976	Rockwell	175	41	1110	82	5	3
120	0	1977	Rockwell	175	40	1361	90	7	3
120	0	1978	Rockwell	175	39	1484	93	7	4
120	0	1979	Rockwell	175	38	1629	89	9	4
120	0	1980	Rockwell	175	37	1052	90	6	1
120	0	1981	Rockwell	175	36	688	81	9	2
120	0	1982	Rockwell	175	35	1188	79	10	1
120	0	1983	Rockwell	175	34	1375	93	8	1
120	0	1984	Rockwell	175	33	1462	90	9	2
120	0	1985	Rockwell	175	32	1961	89	10	2
120	0	1986	Rockwell	175	31	1328	55	2	1
120	0	1987	Rockwell	175	30	2248	113	12	2
120	0	1988	Rockwell	175	29	2203	93	6	2
120	0	1989	Rockwell	175	28	3546	138	6	4
120	0	1990	Rockwell	175	27	3608	152	8	3
120	0	1991	Rockwell	175	26	3907	163	2	6
120	0	1992	Rockwell	175	25	6800	273	9	5
120	0	1993	Rockwell	175	24	2699	117	5	3
120	0	1994	Rockwell	175	23	1398	68		2
120	0	1995	Rockwell	175	22	337	75	5	
120	0	1996	Rockwell	175	21	797	97	5	3
120	0	1997	Rockwell	175	20	184	38	1	
120	0	1998	Rockwell	175	19	77	21		
120	0	2008	Rockwell	175	9	3			
120	0	2010	Rockwell	175	7	1	1		



Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
120	0	2012	Rockwell	175	5	1			
120	0	2013	Rockwell	175	4	1	3		
120	0	2014	Rockwell	175	3	1	2		
125	0	1978	Rockwell	200	39	1601	81	4	
125	0	1979	Rockwell	200	38	158	44	1	
125	0	1980	Rockwell	200	37	1828	89	11	
125	0	1981	Rockwell	200	36	2480	88	10	3
125	0	1982	Rockwell	200	35	3135	106	6	2
125	0	1983	Rockwell	200	34	1775	86	4	
125	0	1984	Rockwell	200	33	2120	90	9	1
125	0	1986	Rockwell	200	31	381	46	1	
125	0	1987	Rockwell	200	30	563	78	4	2
125	0	1988	Rockwell	200	29	425	39	1	
125	0	1989	Rockwell	200	28	529	81	2	
125	0	1990	Rockwell	200	27	299	75	10	
125	0	1991	Rockwell	200	26	712	34		1
125	0	1992	Rockwell	200	25	620	42	1	
125	0	1993	Rockwell	200	24	491	77	7	1
125	0	1994	Rockwell	200	23	391	79	6	1
125	0	1995	Rockwell	200	22	73	45	5	
125	0	1996	Rockwell	200	21	258	44	1	
125	0	1998	Rockwell	200	19	84	26		
125	0	1999	Rockwell	200	18	140	21		
125	0	2008	Rockwell	200	9	5			
125	0	2009	Rockwell	200	8	3			
125	0	2017	Rockwell	200	0	1	3		
130	0	1971	American	175	46	1082	97	4	1
130	0	1972	American	175	45	2719	85	13	2
130	0	1973	American	175	44	731	84	8	
130	0	1974	American	175	43	4915	144	20	
130	0	1975	American	175	42	24	13		
130	0	1976	American	175	41	1382	82	14	4
130	0	1977	American	175	40	3305	111	3	
130	0	1978	American	175	39	1572	92	8	
130	0	1979	American	175	38	6446	201	12	4
130	0	1980	American	175	37	6265	218	19	1
130	0	1983	American	175	34	3058	118	12	2
130	0	1984	American	175	33	4856	165	14	3
130	0	1985	American	175	32	2111	87	10	3
130	0	1986	American	175	31	4035	139	14	2
130	0	1987	American	175	30	5965	205	24	2

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
130	0	1988	American	175	29	3158	122	13	2
130	0	1989	American	175	28	3286	157	9	2
130	0	1990	American	175	27	3141	134	16	3
130	0	1991	American	175	26	4941	131	7	4
130	0	1992	American	175	25	1417	92	9	
130	0	1993	American	175	24	3203	119	13	3
130	0	1994	American	175	23	2666	111	7	
130	0	1995	American	175	22	558	67	3	2
130	0	1996	American	175	21	1055	46	1	1
130	0	1997	American	175	20	249	24		
130	0	2008	American	175	9	3			
130	0	2009	American	175	8	19	1		
130	0	2013	American	175	4	1	1		
130	0	2014	American	175	3	3	2		
130	0	2016	American	175	1	2	7		
140	0	1968	Sprague	175	49	1028	73		17
140	0	1970	Sprague	175	47	350	54		7
140	0	1971	Sprague	175	46	994	60		8
140	0	1972	Sprague	175	45	154	38		3
140	0	1973	Sprague	175	44	2927	135	2	9
140	0	1974	Sprague	175	43	625	36		1
140	0	1975	Sprague	175	42	732	96		2
140	0	1976	Sprague	175	41	1105	58	1	2
140	0	1977	Sprague	175	40	324	22		1
140	0	1978	Sprague	175	39	276	79		6
140	0	1979	Sprague	175	38	132	37	1	2
140	0	1980	Sprague	175	37	342	30		2
140	0	1981	Sprague	175	36	643	33		
140	0	1982	Sprague	175	35	597	47	1	3
140	0	1983	Sprague	175	34	834	94	3	4
140	0	1984	Sprague	175	33	717	43		1
140	0	1985	Sprague	175	32	1163	65	1	7
140	0	1986	Sprague	175	31	973	60	1	3
140	0	1987	Sprague	175	30	3004	114		11
140	0	1988	Sprague	175	29	761	60	1	6
140	0	1989	Sprague	175	28	768	41		3
140	0	1990	Sprague	175	27	1033	99		8
140	0	1991	Sprague	175	26	456	54		4
140	0	1992	Sprague	175	25	570	36		2
140	0	1993	Sprague	175	24	661	38		2
140	0	1994	Sprague	175	23	596	32		3

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
140	0	1997	Sprague	175	20	478	55	1	2
140	0	1998	Sprague	175	19	8	11		
140	0	2008	Sprague	175	9	2			
140	0	2009	Sprague	175	8	2			
140	0	2011	Sprague	175	6	2			
140	0	2016	Sprague	175	1	1	3		
270	0	1998	Schlumberger	1000	19	27	18		
270	0	2000	Schlumberger	1000	17	19	14		
270	0	2001	Schlumberger	1000	16	54	18		
272	0	2004	Actaris	1000	13	15	36	2	
300	540	1996	Rockwell	800	21	37	14		1
300	540	1997	Rockwell	800	20	19	17		2
300	540	2002	Rockwell	800	15	7	8		
300	540	2005	Rockwell	800	12	11	11		
450	0	1993	Schlumberger	400	24	197	34		
450	0	1996	Schlumberger	400	21	280	43		
450	0	1997	Schlumberger	400	20	65	20		
450	0	1998	Schlumberger	400	19	458	45		
450	0	1999	Schlumberger	400	18	103	21		
450	0	2003	Schlumberger	400	14	29	18		
450	0	2004	Schlumberger	400	13	8	11		
450	0	2005	Schlumberger	400	12	8	7		
450	0	2013	Schlumberger	400	4	1	1		
452	0	2003	Actaris	400	14	100	31	1	2
452	0	2004	Actaris	400	13	446	52	2	3
452	0	2005	Actaris	400	12	17	14		
452	0	2008	Actaris	400	9	1			
470	472	1982	American	425	35	19	12		
470	472	1983	American	425	34	29	15		
470	472	1984	American	425	33	118	21		
470	472	1985	American	425	32	24	29	2	
470	472	1986	American	425	31	70	22		
470	472	1987	American	425	30	160	36		
470	472	1988	American	425	29	46	37	3	



Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
470	472	1989	American	425	28	34	15		
470	472	1990	American	425	27	38	24	1	
470	472	1991	American	425	26	27	25	2	
470	472	1992	American	425	25	151	34		1
470	472	1993	American	425	24	89	20		
470	472	1994	American	425	23	234	64	2	
470	472	1995	American	425	22	88	20		
470	472	1996	American	425	21	16	16	1	
470	472	1997	American	425	20	325	52	2	
470	472	1998	American	425	19	163	65	6	
470	472	1999	American	425	18	252	51	1	
470	472	2000	American	425	17	417	79	4	
470	472	2001	American	425	16	85	20		
470	472	2002	American	425	15	445	42	1	
470	472	2003	American	425	14	212	66	4	
470	472	2004	American	425	13	92	21		
470	472	2005	American	425	12	24	15		
470	472	2006	American	425	11	35	40	1	
470	472	2007	American	425	10	237	32		3
470	472	2008	American	425	9	23			
470	472	2009	American	425	8	4			
470	472	2010	American	425	7	2			
470	472	2012	American	425	5	1			
470	472	2017	American	425	0	1			
471	0	2007	American	425	10	494	73	9	
471	0	2008	American	425	9	73	3	1	
471	0	2009	American	425	8	3	1		
471	0	2010	American	425	7	106	4		
471	0	2011	American	425	6	110	11		
471	0	2012	American	425	5	10			
475	0	2010	American	630	7	676	28		1
475	0	2011	American	630	6	1075	40		
475	0	2012	American	630	5	1473	60	1	
475	0	2013	American	630	4	1539	80		
475	0	2014	American	630	3	1594	55	1	
475	0	2015	American	630	2	1285	45	1	
475	0	2016	American	630	1	1659	18	1	
475	0	2017	American	630	0	1718	7	1	
480	486	1989	American	800	28	29	14		
480	486	1990	American	800	27	29	18		
480	486	1991	American	800	26	48	36	4	





Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
480	486	1992	American	800	25	24	18	1	1
480	486	1993	American	800	24	51	29	1	
480	486	1995	American	800	22	21	13		
480	486	1996	American	800	21	9	11	1	
480	486	2000	American	800	17	30	27	3	
480	486	2001	American	800	16	15	14	1	
480	486	2002	American	800	15	31	14		
485	0	1978	American	800	39	6	4	1	
485	0	1980	American	800	37	19	18	2	1
485	0	1981	American	800	36	34	18		
485	0	1982	American	800	35	60	43	4	
485	0	1984	American	800	33	74	29		
485	0	1987	American	800	30	27	22		1
485	0	1996	American	800	21	9	11		
485	0	1997	American	800	20	8	8		
485	0	2011	American	800	6	1			
485	0	2016	American	800	1	1			
487	0	2017	American	800	0	61			
500	502	1998	American	1000	19	92	46	6	
500	502	1999	American	1000	18	20	19	2	
500	502	2001	American	1000	16	11	10	1	1
500	502	2002	American	1000	15	53	17		
500	502	2003	American	1000	14	24	22		
505	507	1980	American	1000	37	9	8		
505	507	1981	American	1000	36	13	10		1
505	507	2007	American	1000	10	385	72	8	
505	507	2008	American	1000	9	368	29	6	
505	507	2009	American	1000	8	302	28	3	
505	507	2011	American	1000	6	387	41	1	
505	507	2012	American	1000	5	415	40	1	
505	507	2013	American	1000	4	392	38		
505	507	2014	American	1000	3	457	27		
505	507	2015	American	1000	2	369	19		
505	507	2016	American	1000	1	542	14	1	
505	507	2017	American	1000	0	206	3		
510	515	1973	Rockwell	310	44	94	48	3	4
510	515	1974	Rockwell	310	43	39	15		1
510	515	1975	Rockwell	310	42	30	24	2	3
510	515	1976	Rockwell	310	41	289	49		1
510	515	1977	Rockwell	310	40	160	37		2
510	515	1978	Rockwell	310	39	136	36	1	1

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
510	515	1979	Rockwell	310	38	176	57	3	2
510	515	1980	Rockwell	310	37	120	51	8	1
510	515	1981	Rockwell	310	36	202	61	6	3
510	515	1982	Rockwell	310	35	90	31	1	2
510	515	1983	Rockwell	310	34	133	54	4	2
510	515	1984	Rockwell	310	33	15	15	1	1
510	515	1986	Rockwell	310	31	19	11		
510	515	1987	Rockwell	310	30	234	44	1	4
510	515	1988	Rockwell	310	29	134	23		1
510	515	1989	Rockwell	310	28	92	39	1	2
510	515	1990	Rockwell	310	27	255	63	4	3
510	515	1991	Rockwell	310	26	215	24		2
510	515	1992	Rockwell	310	25	131	49	2	4
510	515	1993	Rockwell	310	24	100	52	5	2
510	515	1994	Rockwell	310	23	45	32		3
510	515	1996	Rockwell	310	21	39	35	2	1
510	515	1997	Rockwell	310	20	9	11		
510	515	2008	Rockwell	310	9	1			
510	515	2009	Rockwell	310	8	1			
510	515	2010	Rockwell	310	7	1			
510	515	2011	Rockwell	310	6	1			
510	515	2013	Rockwell	310	4	1	2		
510	515	2014	Rockwell	310	3	1			
520	0	1977	Rockwell	415	40	44	15		1
520	0	1978	Rockwell	415	39	37	15		
520	0	1979	Rockwell	415	38	80	33	1	2
520	0	1980	Rockwell	415	37	75	44	2	
520	0	1981	Rockwell	415	36	231	42		1
520	0	1982	Rockwell	415	35	37	28		
520	0	1983	Rockwell	415	34	20	21		
520	0	1987	Rockwell	415	30	43	28	1	2
520	0	1988	Rockwell	415	29	51	18		1
520	0	1991	Rockwell	415	26	77	31	1	
520	0	1992	Rockwell	415	25	73	18		1
520	0	1993	Rockwell	415	24	35	14		1
520	0	1994	Rockwell	415	23	95	20		
520	0	1995	Rockwell	415	22	298	69	9	2
520	0	1996	Rockwell	415	21	137	47	1	
520	0	1997	Rockwell	415	20	58	54	4	
520	0	2000	Rockwell	415	17	90	43	7	
520	0	2003	Rockwell	415	14	158	73	1	

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
520	0	2004	Rockwell	415	13	108	23		
520	0	2005	Rockwell	415	12	51	19		
520	0	2009	Rockwell	415	8	3			
520	0	2011	Rockwell	415	6	1			
520	0	2017	Rockwell	415	0	1			
555	0	1980	American	310	37	65	41	3	
555	0	1981	American	310	36	28	27	1	1
555	0	1983	American	310	34	114	21		
555	0	1984	American	310	33	218	21		1
555	0	1985	American	310	32	126	26		
555	0	1986	American	310	31	86	36	1	
555	0	1987	American	310	30	39	35	3	1
555	0	1989	American	310	28	15	29	2	
555	0	1994	American	310	23	10	10	1	
555	0	1997	American	310	20	24	19	1	1
555	0	2008	American	310	9	1			
555	0	2009	American	310	8	1			
555	0	2012	American	310	5	1			
560	0	1985	American	250	32	1473	42	1	1
560	0	1986	American	250	31	6264	196	9	
560	0	1987	American	250	30	440	66	1	
560	0	1988	American	250	29	3175	89	1	2
560	0	1989	American	250	28	7077	212	4	5
560	0	1990	American	250	27	6380	177	1	7
560	0	1991	American	250	26	5639	181	2	4
560	0	1992	American	250	25	4851	92		2
560	0	1993	American	250	24	4111	108	2	2
560	0	1994	American	250	23	6206	124	5	
560	0	1995	American	250	22	8252	185	9	1
560	0	1996	American	250	21	11187	234	5	2
560	0	1997	American	250	20	15174	270	34	1
560	0	1998	American	250	19	14519	264	16	2
560	0	1999	American	250	18	11298	159	3	1
560	0	2000	American	250	17	11314	217	6	
560	0	2001	American	250	16	9466	169	1	1
560	0	2002	American	250	15	8537	120	4	
560	0	2003	American	250	14	458	59	2	
560	0	2005	American	250	12	79	31	1	1
560	0	2006	American	250	11	626	45	1	
560	0	2007	American	250	10	195	23		
560	0	2008	American	250	9	6			

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
560	0	2010	American	250	7	2			
560	0	2011	American	250	6	3			
560	0	2012	American	250	5	6	1		
560	0	2013	American	250	4	4	3		
560	0	2014	American	250	3	5	5		
560	0	2015	American	250	2	1	8		
561	0	2005	American	250	12	1653	94	14	
561	0	2006	American	250	11	21608	360	16	1
561	0	2007	American	250	10	22121	415	32	
561	0	2008	American	250	9	23129	426	41	
561	0	2009	American	250	8	14325	258	34	
561	0	2010	American	250	7	10187	180	3	
561	0	2011	American	250	6	10742	164		
561	0	2012	American	250	5	12037	211	1	1
561	0	2013	American	250	4	15416	292	4	1
561	0	2014	American	250	3	14792	161	1	
561	0	2015	American	250	2	18020	136	3	
561	0	2016	American	250	1	12711	74		
561	0	2017	American	250	0	11821	49	2	
562	0	2017	American	250	0	22			
570	0	1989	Rockwell	275	28	773	25		
570	0	1990	Rockwell	275	27	5425	128	10	3
570	0	1991	Rockwell	275	26	2899	95	6	
570	0	1992	Rockwell	275	25	133	55	5	
570	0	1993	Rockwell	275	24	62	31	1	
570	0	1994	Rockwell	275	23	5102	102	4	
570	0	1995	Rockwell	275	22	6530	125	7	
570	0	1996	Rockwell	275	21	7716	143	3	
570	0	1997	Rockwell	275	20	2370	51	1	
570	0	1998	Rockwell	275	19	5490	77	1	1
570	0	1999	Rockwell	275	18	10576	183	26	2
570	0	2000	Rockwell	275	17	8522	115	17	2
570	0	2001	Rockwell	275	16	8745	119	2	1
570	0	2002	Rockwell	275	15	10864	170	3	1
570	0	2003	Rockwell	275	14	19934	276	5	2
570	0	2004	Rockwell	275	13	3618	63		2
570	0	2005	Rockwell	275	12	13	9		
570	0	2008	Rockwell	275	9	7			
570	0	2009	Rockwell	275	8	16	1		
570	0	2011	Rockwell	275	6	1			
570	0	2012	Rockwell	275	5	4	1		

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
570	0	2013	Rockwell	275	4	1	3		
570	0	2014	Rockwell	275	3	2	3		
570	0	2016	Rockwell	275	1	2	2		
570	0	2017	Rockwell	275	0	3	3		
572	0	2004	Invensys	275	13	13996	201	14	1
572	0	2005	Invensys	275	12	24818	383	38	1
572	0	2006	Invensys	275	11	8185	140	21	1
572	0	2008	Invensys	275	9	78	1		
572	0	2009	Invensys	275	8	780	19		
572	0	2010	Invensys	275	7	16	1		
572	0	2011	Invensys	275	6	87	4		
572	0	2012	Invensys	275	5	4			
572	0	2013	Invensys	275	4	1	1		
572	0	2014	Invensys	275	3	1	1		
572	0	2015	Invensys	275	2	2	1		
572	0	2016	Invensys	275	1	3			
585	0	1988	Sprague	250	29	181	22		
585	0	1991	Sprague	250	26	751	26		
585	0	1992	Sprague	250	25	2122	67		
585	0	1993	Sprague	250	24	3869	116		
585	0	1994	Sprague	250	23	1669	49	1	
585	0	1995	Sprague	250	22	1529	47		
585	0	1996	Sprague	250	21	4467	97		1
585	0	1997	Sprague	250	20	5957	126	1	2
585	0	1998	Sprague	250	19	5445	134		
585	0	1999	Sprague	250	18	249	23		
585	0	2000	Sprague	250	17	36	30	2	
585	0	2001	Sprague	250	16	49	17		
585	0	2002	Sprague	250	15	59	77	2	
585	0	2003	Sprague	250	14	14	17		
585	0	2004	Sprague	250	13	63	28		
585	0	2009	Sprague	250	8	5			
585	0	2014	Sprague	250	3	2			
590	0	1988	Lancaster	250	29	80	19		
590	0	1989	Lancaster	250	28	1330	70		1
590	0	1990	Lancaster	250	27	1336	60	1	
590	0	1991	Lancaster	250	26	1739	75		3
590	0	1992	Lancaster	250	25	2689	90	1	1
590	0	1993	Lancaster	250	24	2859	79	1	
590	0	1994	Lancaster	250	23	4428	176	10	7
590	0	1995	Lancaster	250	22	4887	150	6	10

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Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow
590	0	1996	Lancaster	250	21	47	19		
590	0	1997	Lancaster	250	20	2136	48		3
590	0	1998	Lancaster	250	19	28	14		
590	0	1999	Lancaster	250	18	152	26		
590	0	2008	Lancaster	250	9	1			
590	0	2009	Lancaster	250	8	2	1		
590	0	2010	Lancaster	250	7	1			
590	0	2011	Lancaster	250	6	1			
590	0	2016	Lancaster	250	1	1	2		
595	600	2000	Schlumberger	250	17	3354	310	19	7
595	600	2001	Schlumberger	250	16	3862	206	4	1
595	600	2002	Schlumberger	250	15	3326	199	1	3
595	600	2003	Schlumberger	250	14	60	17		1
595	600	2004	Schlumberger	250	13	33	15		
595	600	2008	Schlumberger	250	9	1			
595	600	2012	Schlumberger	250	5	1	1		
595	600	2016	Schlumberger	250	1	2			
602	0	2016	ltron	250	1	4374	26		
602	0	2017	ltron	250	0	4610	13		
<b>Total</b>						<b>729,362</b>	<b>23,912</b>	<b>1,205</b>	<b>402</b>



**Appendix B  
Meter Families Not Conforming (To Be Removed)**

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family
120	0	2006	Rockwell	175	11	1
120	0	2009	Rockwell	175	8	11
120	0	2017	Rockwell	175	0	2
130	0	1981	American	175	36	4647
130	0	1982	American	175	35	3657
130	0	2006	American	175	11	4
130	0	2007	American	175	10	3
140	0	2006	Sprague	175	11	1
140	0	2007	Sprague	175	10	1
270	0	2002	Schlumberger	1000	15	6
450	0	2006	Schlumberger	400	11	1
452	0	2006	Actaris	400	11	4
471	0	2005	American	425	12	949
471	0	2017	American	425	0	1
480	486	2007	American	800	10	1
490	0	2007	Sprague	305	10	1
500	502	1993	American	1000	24	6
505	507	2006	American	1000	11	560
520	0	1984	Rockwell	415	33	16
520	0	1999	Rockwell	415	18	343
520	0	2007	Rockwell	415	10	1
561	0	1978	American	250	39	1
570	0	1988	Rockwell	275	29	537
570	0	2015	Rockwell	275	2	2
572	0	1986	Invensys	275	31	1
580	0	2007	Sprague	175	10	1
585	0	1989	Sprague	250	28	1
585	0	2006	Sprague	250	11	2
590	0	2006	Lancaster	250	11	2
595	600	1995	Schlumberger	250	22	1
602	0	1990	Itron	250	27	1
485	0	1995	American	800	22	15
505	507	1982	American	1000	35	5
485	0	1983	American	800	34	43
572	0	2007	Invensys	275	10	22
555	0	1995	American	310	22	6
520	0	2002	Rockwell	415	15	75

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<b>Perf</b>	<b>Alt. Perf</b>	<b>Year Set</b>	<b>Manufacturer</b>	<b>Size</b>	<b>Age</b>	<b># Meters in Family</b>
475	0	2007	American	630	10	576
510	515	1995	Rockwell	310	22	30
470	472	1973	American	425	44	6
555	0	1988	American	310	29	6
555	0	1990	American	310	27	16
570	0	2007	Rockwell	275	10	1
<b>Total</b>						<b>11,566</b>