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REPORT NAME: 2012 Meter Sampling Program Report

COMPANY NAME: NW Natural

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes

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If known, please select designation: RE (Electric) RG (Gas) RW (Water) RO (Other)

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Statute

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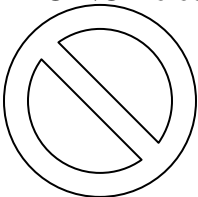
Other at request of Commission Staff

Is this report associated with a specific docket/case? No Yes

If yes, enter docket number: RG 41

List applicable Key Words for this report to facilitate electronic search:
2012 Meter Sampling Program Report

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Please file the above reports according to their individual instructions.

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February 13, 2013

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
550 Capitol Street, NE, Suite 215
Post Office Box 2148
Salem, Oregon 97308-2148

Attn: Filing Center

Re: RG 41: Meter Sampling Program Report for 2012

At the request of Commission Staff, Northwest Natural Gas Company, dba NW Natural (NW Natural or Company), files herewith its 2012 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 year 2012. This analysis utilized all relevant meter tests conducted during the five calendar years between January 1, 2008 and December 31, 2012. The results of this analysis are as follows:

- As of December 31, 2012, we had 699,190 operating meters. These meters formed 504 meter families.
- Over the course of 2012, the company tested 5826 meters. Over the five-year period of 2008 through 2012, the company has a total of 39,248 meter samples from which to base its results.
- 399 meter families either have 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 673,374 meters, or 96.6 percent of the total meter population. The performances of these families are exhibited in Appendix A.
- 1 meter family and 2 sub-families, consisting of a total of 2091 meters, are not conforming and have been put on the list to be removed by the end of 2014, per the Meter Sampling Program (MSP) guidelines. The performances of these families are exhibited in Appendix B.
- 104 meter families, consisting of 23,725 meters, could not have their accuracy determined statistically because of insufficient meter test samples. We estimate 667 meters will need to be supplementally sampled this year to determine the status of these families of meters. The performances of these families are exhibited in Appendix C.

- Compared to the results above, our analysis at the beginning of last year resulted in 246 meters being put on the list for removal by the end of 2013 and 804 meters needing to be supplementally sampled in 2012 (all of which were sampled, and families determined).

If you have any questions or comments about the report, please contact me at (503) 226-4211 ext. 4383.

Sincerely,

/s/ Kristin Schroeder

Kristin Schroeder
Gas Measurement and Technical Support Engineer

cc: A. Fortier
S. Nelson
J. Huddleston
G. Yoshihara
A. Miller
L. Russell
L. Dunlap

Appendix A
Meter Families in Conformance

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# OK	# Fast	# Slow	# Meter Tests
120	0	1968	Rockwell	175	44	108	33	1		34
120	0	1970	Rockwell	175	42	744	58	2	1	61
120	0	1971	Rockwell	175	41	616	37			37
120	0	1972	Rockwell	175	40	953	64	2	1	67
120	0	1973	Rockwell	175	39	737	61	2		63
120	0	1974	Rockwell	175	38	2828	254	6	5	265
120	0	1975	Rockwell	175	37	1955	172	17	3	192
120	0	1976	Rockwell	175	36	1207	111	2	3	116
120	0	1977	Rockwell	175	35	1471	122	3	1	126
120	0	1978	Rockwell	175	34	1604	119	3	2	124
120	0	1979	Rockwell	175	33	1748	126	3	4	133
120	0	1981	Rockwell	175	31	791	93	7	1	101
120	0	1982	Rockwell	175	30	1292	99	2	3	104
120	0	1983	Rockwell	175	29	1486	73	1		74
120	0	1984	Rockwell	175	28	1571	82	1	2	85
120	0	1985	Rockwell	175	27	2086	112	5	1	118
120	0	1986	Rockwell	175	26	1398	69	1	3	73
120	0	1987	Rockwell	175	25	2399	132		1	133
120	0	1988	Rockwell	175	24	2324	119		2	121
120	0	1989	Rockwell	175	23	3720	181	3	2	186
120	0	1990	Rockwell	175	22	3810	177	5	2	184
120	0	1991	Rockwell	175	21	4125	230	2	3	235
120	0	1992	Rockwell	175	20	7138	395	3	4	402
120	0	1993	Rockwell	175	19	2854	105		3	108
120	0	1994	Rockwell	175	18	1483	92		1	93
120	0	1999	Rockwell	175	13	4	9			9
120	0	2004	Rockwell	175	8	2				0
120	0	2005	Rockwell	175	7	2				0
120	0	2006	Rockwell	175	6	1				0
120	0	2008	Rockwell	175	4	3				0
120	0	2009	Rockwell	175	3	14	5			5
120	0	2010	Rockwell	175	2	2	5			5
125	0	1978	Rockwell	200	34	1693	102	3	1	106
125	0	1980	Rockwell	200	32	1950	74	1		75
125	0	1981	Rockwell	200	31	2605	94		2	96
125	0	1982	Rockwell	200	30	3262	145			145
125	0	1983	Rockwell	200	29	1881	71			71
125	0	1984	Rockwell	200	28	2232	98	1	2	101
125	0	1986	Rockwell	200	26	433	121	2	1	124
125	0	1987	Rockwell	200	25	650	33			33
125	0	1988	Rockwell	200	24	469	52	2	1	55
125	0	1991	Rockwell	200	21	759	38			38
125	0	1992	Rockwell	200	20	670	39			39
125	0	1993	Rockwell	200	19	584	27			27
125	0	1994	Rockwell	200	18	485	24		1	25

125	0	1995	Rockwell	200	17	125	30			30
125	0	1997	Rockwell	200	15	146	64	1		65
125	0	1998	Rockwell	200	14	113	40		1	41
125	0	1999	Rockwell	200	13	162	38			38
125	0	2003	Rockwell	200	9	2				0
125	0	2004	Rockwell	200	8	1				0
125	0	2008	Rockwell	200	4	5	4			4
125	0	2009	Rockwell	200	3	4	1			1
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130	0	1972	American	175	40	2840	157	8	3	168
130	0	1973	American	175	39	828	66	1		67
130	0	1974	American	175	38	5117	251	19	1	271
130	0	1975	American	175	37	39	20			20
130	0	1977	American	175	35	3468	202	18	3	223
130	0	1979	American	175	33	6703	288	18	9	315
130	0	1980	American	175	32	6559	317	12	2	331
130	0	1981	American	175	31	4852	224	25	5	254
130	0	1982	American	175	30	3877	250	25	6	281
130	0	1983	American	175	29	3560	170	26	6	202
130	0	1984	American	175	28	5095	226	13	7	246
130	0	1985	American	175	27	2244	99	7	3	109
130	0	1986	American	175	26	4250	182	6	6	194
130	0	1987	American	175	25	6268	269	14	6	289
130	0	1988	American	175	24	3336	178	17	3	198
130	0	1989	American	175	23	3512	168	7	2	177
130	0	1990	American	175	22	3326	151	13		164
130	0	1991	American	175	21	5154	222	11	3	236
130	0	1992	American	175	20	1561	131	6	2	139
130	0	1993	American	175	19	3386	165	4	2	171
130	0	1995	American	175	17	643	31			31
130	0	1996	American	175	16	1114	41			41
130	0	1998	American	175	14	20	12		1	13
130	0	2004	American	175	8	5				0
130	0	2006	American	175	6	4				0
130	0	2007	American	175	5	2	2			2
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130	0	2009	American	175	3	20	6			6
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140	0	1973	Sprague	175	39	3090	182	3	9	194
140	0	1974	Sprague	175	38	669	61		5	66
140	0	1976	Sprague	175	36	1175	104	3	2	109
140	0	1977	Sprague	175	35	351	36		2	38
140	0	1978	Sprague	175	34	367	41		4	45
140	0	1979	Sprague	175	33	175	36		3	39
140	0	1980	Sprague	175	32	379	52		6	58
140	0	1981	Sprague	175	31	679	61		4	65
140	0	1984	Sprague	175	28	766	97		8	105
140	0	1985	Sprague	175	27	1247	93		7	100

140	0	1986	Sprague	175	26	1043	61	2	5	68
140	0	1987	Sprague	175	25	3151	214		8	222
140	0	1988	Sprague	175	24	843	61		2	63
140	0	1989	Sprague	175	23	819	59		5	64
140	0	1990	Sprague	175	22	1148	88	1	6	95
140	0	1991	Sprague	175	21	519	44		3	47
140	0	1992	Sprague	175	20	616	51	1	2	54
140	0	1993	Sprague	175	19	709	63		5	68
140	0	1994	Sprague	175	18	637	51		4	55
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140	0	1998	Sprague	175	14	19	14			14
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140	0	2007	Sprague	175	5	1				0
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450	0	1996	Schlumberger	400	16	329	37		1	38
450	0	1997	Schlumberger	400	15	86	20		1	21
450	0	1998	Schlumberger	400	14	516	53			53
450	0	2000	Schlumberger	400	12	6	5			5
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470	472	2005	American	425	7	39	3			3
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471	0	2008	American	425	4	79	7			7
471	0	2009	American	425	3	4				0
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480	486	1991	American	800	21	93	42	2	1	45
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480	486	1995	American	800	17	34	24	1	2	27
480	486	1997	American	800	15	25	25		1	26
480	486	1998	American	800	14	15	18	1		19
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500	502	1998	American	1000	14	145	64	4		68
500	502	1999	American	1000	13	42	33	1		34
500	502	2000	American	1000	12	54	21			21
500	502	2003	American	1000	9	47	5		1	6
500	502	2005	American	1000	7	14	5			5
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510	515	1984	Rockwell	310	28	33	30	2	2	34
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510	515	2009	Rockwell	310	3	1				0
510	515	2010	Rockwell	310	2	1				0
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510	515	2012	Rockwell	310	0	2				0

520	0	1976	Rockwell	415	36	90	29			29
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520	0	1978	Rockwell	415	34	55	30			30
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520	0	1980	Rockwell	415	32	126	45	1	1	47
520	0	1987	Rockwell	415	25	76	22			22
520	0	1988	Rockwell	415	24	74	30		1	31
520	0	1992	Rockwell	415	20	92	33	1	1	35
520	0	1994	Rockwell	415	18	117	29		1	30
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520	0	1997	Rockwell	415	15	118	26		2	28
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520	0	2000	Rockwell	415	12	150	36			36
520	0	2003	Rockwell	415	9	239	22	2		24
520	0	2004	Rockwell	415	8	132	8			8
520	0	2005	Rockwell	415	7	72	7			7
520	0	2006	Rockwell	415	6	2	1			1
520	0	2007	Rockwell	415	5	1	1			1
520	0	2009	Rockwell	415	3	3				0
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560	0	2011	American	250	1	2	4			4
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561	0	2007	American	250	5	22665	388	3	1	392
561	0	2008	American	250	4	23687	680	9		689
561	0	2009	American	250	3	14684	234	5		239
561	0	2010	American	250	2	10397	153			153
561	0	2011	American	250	1	10934	114			114
561	0	2012	American	250	0	12218	67			67
570	0	1988	Rockwell	275	24	556	29		1	30
570	0	1989	Rockwell	275	23	806	54	2	1	57
570	0	1990	Rockwell	275	22	5580	144			144
570	0	1991	Rockwell	275	21	3027	77	1		78
570	0	1992	Rockwell	275	20	195	24			24
570	0	1993	Rockwell	275	19	96	25		1	26
570	0	1994	Rockwell	275	18	5233	85	1	2	88
570	0	1995	Rockwell	275	17	6676	105		2	107
570	0	1996	Rockwell	275	16	7905	130	1	5	136
570	0	1997	Rockwell	275	15	2434	37		1	38
570	0	1998	Rockwell	275	14	5595	89	2	1	92
570	0	1999	Rockwell	275	13	10829	191	1		192
570	0	2000	Rockwell	275	12	8676	118	3		121
570	0	2001	Rockwell	275	11	8894	119	1		120
570	0	2002	Rockwell	275	10	11083	164	1	1	166
570	0	2003	Rockwell	275	9	20270	315	1	1	317
570	0	2004	Rockwell	275	8	3689	56			56
570	0	2005	Rockwell	275	7	22	3			3
570	0	2006	Rockwell	275	6	8	2			2
570	0	2007	Rockwell	275	5	7				0
570	0	2008	Rockwell	275	4	6	2			2
570	0	2009	Rockwell	275	3	17				0

570	0	2010	Rockwell	275	2	2	3			3
570	0	2012	Rockwell	275	0	4	2			2
572	0	2004	Invensys	275	8	14243	223	1		224
572	0	2005	Invensys	275	7	25337	433	5	2	440
572	0	2006	Invensys	275	6	8364	126		1	127
572	0	2007	Invensys	275	5	24				0
572	0	2008	Invensys	275	4	79	2			2
572	0	2009	Invensys	275	3	801	58			58
572	0	2010	Invensys	275	2	17	5			5
572	0	2011	Invensys	275	1	91	6			6
572	0	2012	Invensys	275	0	4	1			1
580	0	1991	Sprague	175	21	1	15		1	16
580	0	1993	Sprague	175	19	1	9			9
580	0	2007	Sprague	175	5	1				0
585	0	1988	Sprague	250	24	204	25			25
585	0	1992	Sprague	250	20	2189	118			118
585	0	1993	Sprague	250	19	3999	134		1	135
585	0	1994	Sprague	250	18	1729	51			51
585	0	1995	Sprague	250	17	1578	70			70
585	0	1996	Sprague	250	16	4576	107		2	109
585	0	1997	Sprague	250	15	6103	128		2	130
585	0	1998	Sprague	250	14	5605	124			124
585	0	2000	Sprague	250	12	68	21			21
585	0	2001	Sprague	250	11	66	30			30
585	0	2003	Sprague	250	9	32	2			2
585	0	2004	Sprague	250	8	94	2			2
585	0	2006	Sprague	250	6	2				0
585	0	2009	Sprague	250	3	4				0
590	0	1989	Lancaster	250	23	1412	81		1	82
590	0	1990	Lancaster	250	22	1407	102	1	3	106
590	0	1991	Lancaster	250	21	1831	143	1	1	145
590	0	1992	Lancaster	250	20	2798	160		2	162
590	0	1993	Lancaster	250	19	2959	104	1	1	106
590	0	1994	Lancaster	250	18	4674	204	3	6	213
590	0	1995	Lancaster	250	17	5126	189	2	7	198
590	0	1997	Lancaster	250	15	2201	74			74
590	0	1998	Lancaster	250	14	42	23			23
590	0	2003	Lancaster	250	9	1				0
590	0	2004	Lancaster	250	8	1	1			1
590	0	2005	Lancaster	250	7	1				0
590	0	2006	Lancaster	250	6	2				0
590	0	2008	Lancaster	250	4	1	2			2
590	0	2009	Lancaster	250	3	3				0
590	0	2010	Lancaster	250	2	1				0
595	600	1998	Schlumberger	250	14	1	400	2	12	414
595	600	1999	Schlumberger	250	13	1845	1121	11	15	1147
595	600	2000	Schlumberger	250	12	3709	501	13	6	520
595	600	2001	Schlumberger	250	11	4078	389		9	398
595	600	2002	Schlumberger	250	10	3559	322		16	338
595	600	2003	Schlumberger	250	9	83	20		1	21

595	600	2004	Schlumberger	250	8	50	9			9
595	600	2005	Schlumberger	250	7	2				0
595	600	2008	Schlumberger	250		1	2			2
595	600	2012	Schlumberger	250		1	2			2
Total						673374	26162	565	475	27202

Appendix B
Meter Families Not Conforming (to be removed)

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	Subfamily
125	0	1985	Rockwell	200	27	1	Meter #'s 496176 - 496179
530	0	1998	Rockwell	1000	14	2	
561	0	2004	American	250	8	2088	Meter #'s 876480 - 879007
			Total			2091	

Appendix C
Meter Families to be Supplementally Sampled

Perf	Alt. Perf	Year Set	Manufacturer	Size	Age	# Meters in Family	# Meter Tests	Meter Test Deficit
120	0	1967	Rockwell	175	45	103	17	3
120	0	1969	Rockwell	175	43	262	68	2
120	0	1980	Rockwell	175	32	1156	76	14
120	0	1995	Rockwell	175	17	424	23	1
120	0	1996	Rockwell	175	16	911	38	5
120	0	1997	Rockwell	175	15	226	22	1
120	0	1998	Rockwell	175	14	97	18	2
120	0	2001	Rockwell	175	11	1	0	1
120	0	2002	Rockwell	175	10	3	0	1
125	0	1979	Rockwell	200	33	207	45	13
125	0	1985	Rockwell	200	27	1808	86	14
125	0	1989	Rockwell	200	23	616	18	6
125	0	1990	Rockwell	200	22	390	20	3
125	0	1996	Rockwell	200	16	303	12	11
130	0	1976	American	175	36	1505	91	9
130	0	1978	American	175	34	1693	92	8
130	0	1994	American	175	18	2812	99	1
130	0	1997	American	175	15	274	19	4
130	0	2002	American	175	10	3	1	2
140	0	1969	Sprague	175	43	6	1	4
140	0	1972	Sprague	175	40	195	47	7
140	0	1975	Sprague	175	37	843	81	9
140	0	1982	Sprague	175	30	654	55	1
140	0	1983	Sprague	175	29	948	76	9
140	0	2001	Sprague	175	11	1	0	1
140	0	2002	Sprague	175	10	1	0	1
270	0	1998	Schlumberger	1000	14	45	16	1
270	0	2000	Schlumberger	1000	12	36	14	2
270	0	2002	Schlumberger	1000	10	18	3	8
300	540	1996	Rockwell	800	16	51	15	2
300	540	1997	Rockwell	800	15	39	34	4
300	540	2002	Rockwell	800	10	16	1	9
450	0	1999	Schlumberger	400	13	122	18	3
450	0	2002	Schlumberger	400	10	2	0	1
470	472	1985	American	425	27	60	17	1
470	472	1986	American	425	26	93	26	13
470	472	1987	American	425	25	197	35	4
470	472	1988	American	425	24	86	19	1
470	472	1990	American	425	22	63	21	19
470	472	1992	American	425	20	187	47	7
470	472	1994	American	425	18	306	31	15
470	472	1995	American	425	17	114	20	1
470	472	1996	American	425	16	34	6	9

470	472	1999	American	425	13	308	38	2
470	472	2001	American	425	11	106	17	3
480	486	1977	American	800	35	9	5	2
480	486	1989	American	800	23	44	34	1
480	486	1993	American	800	19	87	31	19
480	486	1996	American	800	16	20	9	3
480	486	1999	American	800	13	73	13	6
480	486	2001	American	800	11	31	20	4
480	486	2002	American	800	10	47	8	9
485	0	1981	American	800	31	51	35	3
485	0	1982	American	800	30	110	36	24
485	0	1983	American	800	29	84	45	5
485	0	1987	American	800	25	52	33	7
485	0	1993	American	800	19	4	3	1
500	502	1991	American	1000	21	20	15	5
500	502	1992	American	1000	20	9	6	1
500	502	1993	American	1000	19	19	12	1
500	502	1994	American	1000	18	7	5	1
500	502	1996	American	1000	16	23	4	9
500	502	2001	American	1000	11	27	11	3
500	502	2002	American	1000	10	73	15	4
505	507	1980	American	1000	32	18	8	7
505	507	1994	American	1000	18	5	3	2
505	507	1996	American	1000	16	4	1	3
505	507	2002	American	1000	10	8	2	5
510	515	1973	Rockwell	310	39	157	36	31
510	515	1978	Rockwell	310	34	177	28	12
510	515	1979	Rockwell	310	33	240	36	4
510	515	1980	Rockwell	310	32	185	20	16
510	515	1983	Rockwell	310	29	207	53	12
510	515	1985	Rockwell	310	27	54	31	9
510	515	1989	Rockwell	310	23	141	58	2
510	515	1990	Rockwell	310	22	348	47	33
510	515	1992	Rockwell	310	20	186	60	5
510	515	1996	Rockwell	310	16	83	13	9
510	515	2002	Rockwell	310	10	3	0	1
520	0	1981	Rockwell	415	31	280	47	18
520	0	1982	Rockwell	415	30	64	33	7
520	0	1983	Rockwell	415	29	42	10	12
520	0	1984	Rockwell	415	28	33	12	3
520	0	1986	Rockwell	415	26	9	6	1
520	0	1993	Rockwell	415	19	50	15	2
520	0	1996	Rockwell	415	16	190	27	20
520	0	1999	Rockwell	415	13	391	70	10
520	0	2001	Rockwell	415	11	447	76	4
520	0	2002	Rockwell	415	10	116	10	11
530	0	2002	Rockwell	1000	10	4	0	1
535	0	1985	Rockwell	1000	27	1	0	1
555	0	1980	American	310	32	111	19	2
555	0	2002	American	310	10	1	0	1

560	0	1983	American	250	29	1	0	1
560	0	1987	American	250	25	512	26	32
561	0	2000	American	250	12	1	0	1
561	0	2002	American	250	10	1	0	1
585	0	1991	Sprague	250	21	780	21	3
585	0	1999	Sprague	250	13	273	22	1
585	0	2002	Sprague	250	10	138	2	19
590	0	1988	Lancaster	250	24	100	19	1
590	0	1996	Lancaster	250	16	67	5	14
590	0	1999	Lancaster	250	13	180	19	3
590	0	2002	Lancaster	250	10	2	0	1
			Total			23725	2558	667