

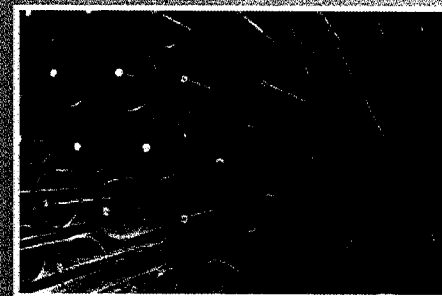


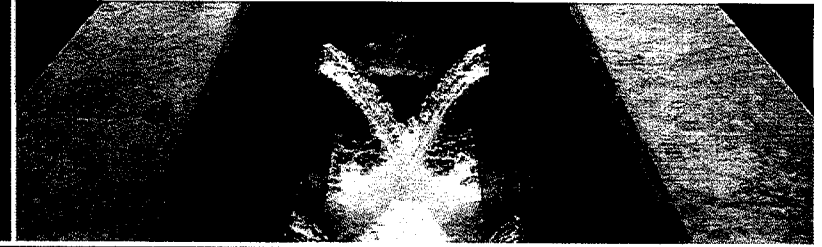
PENNSYLVANIA AMERICAN WATER

Non Revenue Water Reduction “Success from Teamwork”

AWWA Presentation-April 25 2013

aje





Preparing an NRW Reduction Approach to a Plan

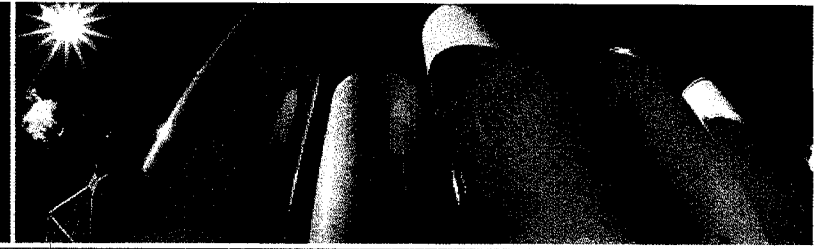
- **Identifying Accountability: The entire water utility is accountable**
 - Setting Annual Reduction Goals: Volumes by District
 - ◆ Buy in, thru communications from all management to the frontline
Participation from all Departments: Prod; Distrib; Commer; Ops Support
Participation in monthly NRW meetings and quarterly district audits
 - ◆ Educating causes of Non Revenue Water: (System Delivery -Sales)
 - ◆ Utilizing the AWWA water Audits & Loss Control Programs **M36**
 - ◆ Reporting out Monthly Data to All Depts. & New Techniques
 - ◆ Managing of the results of each NRW district data Report Card
 - ◆ Accounting for the Water
 - ◆ The PAW “DSIC” Program focuses on High Priority Main Line Replacement Projects.
 - ◆ Production Departments Installment of VFD Pumps and PRV’s into local district DMA’s.



Teaming up for Action

- **The Wilkes-Barre Operations Support Team into Action**
 - Jan. 2010 - Investigations Campaign for Back Billing processes:
 - Multiple Estimates
 - Inactive Premises with Monthly Usage
 - Active Accounts with Zero Usage
 - Stuck Meters & Large Meter Variance Report
 - Theft of Service Policy

- **Additional Metrics**
 - L.O.O.S. Leak on Owner Side Policy to Repair
 - Average Billed Days & Out of Cycle Billing Reports
 - Large Meter Change & Compliance Policy
 - Leak Detection To Repairs “Perma-Logger Program”
 - Hydrant Leak Repairs: Maintenance or Replacement



The Monthly NRW Productivity Report Card

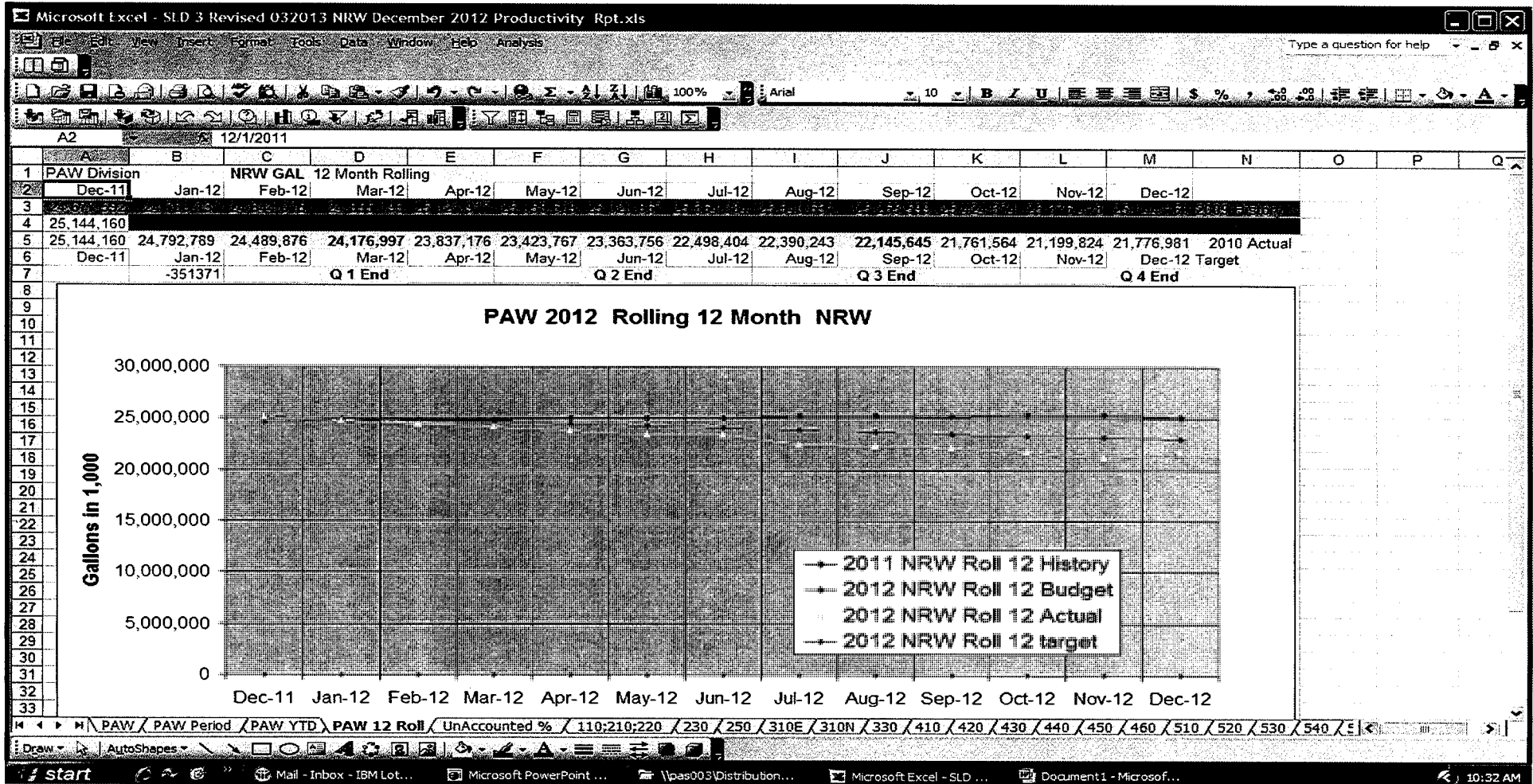
- **Rolling 12 NRW Targets vs. Monthly Activities**
 - ◆ Monthly Leaks Repaired
 - YTD Leaks Repaired
 - Leak Detection Activity
 - Miscellaneous Additional Sales
 - Production Deduction Meter/Chg
 - Graphed PAW History to Goals
 - Graphed District History to Goals
 - Lrg Meter Compliance Progress
 - Back Log of Leaks Report
 - Outreach meetings with Municipal Leaders to garner support for Safeguarding against illegal hydrant use.
- **Cause and Effect**
 - Broadcasting Monthly Results
 - ◆ Awareness for Action
 - Competitively Structured
 - Flagging Unique Problems
 - Identifying New Products
 - Introducing New Vendors

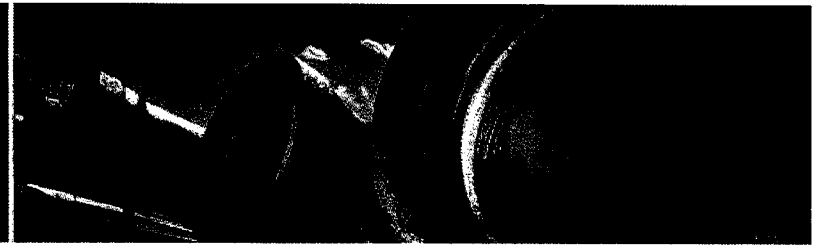


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2012 PAW Monthly Rolling 12 NRW Graph





Quarterly NRW District Audit Reviews

Microsoft Excel 2012 Q4 Final Sample NRW PAW District Audit updates.xls

	A	B	C	D	E	S	T	U	V	W	X	Y	Z	AA	AB	AC
1			Q4 2012 Final Stat 10 Rpt	NRW				Actuals	2012 Q 4 Actual	Deployed	2012 Q 4 Additional	Q 4 Additional				
2	PAW Dist.	Dec-12 Results Location	Roll 12 NRW GAL% Red If Declined from prev Quarter	Percentage Change from 2012 Q3	Roll 12 Stat 10 Rpt NRW GAL Dec 31 2011	Roll 12 STAT 10 Rpt NRW GAL Q4 Final Actual December 2012 Updated	Actual	Annual Avg	Noise Loggers	Planned Correlated	Actual Correlated	Q4 Target Planned Repairs- (2011 Goal Plan)	Q 4 Actual Leaks Repaired w Addntl Lk Correlations Under Plan Updated 7/9/2012	Q 4 Planned >= 1-1/2" performance Meter Changes 2012 Yr	Q 4 Actual >= 1-1/2" performance Meters Changed ytd by % Completion in accordance with LOS Compliance	
3							Over Plan	Rolling 12	for	leaks for	leaks for					
4							equal Black	Avg Sales Days	Leak	NRW @ 1.5	NRW @ 1.5					
5							meet/exceed Plan Goal	meet/exceed Plan Goal	Detection	per day	per day					
6			RED	%		1,000 Gals	1,000 Gals	RED	Leap Year (366) 364.5 + RED	by District			RED = meet/exceed Plan Goal		50% or greater in RED	
7	A	SAMPLE 1				0			366	822	90	61	390	313	350	36.29%
8	B	SAMPLE 2				0			365	548	90	36	140	118	63	98.41%
9	C	SAMPLE 3	34.90%		10,126,727	9,214,309	8,448,170	-766,139	364	500	90	27	95	63	19	42.11%
10																
11																
12	D	SAMPLE 4	19.00%		253,445	249,960	229,744	-20,216	364	150	45	27	60	44	4	100.00%
13	E	SAMPLE 5	11.70%		91,063	87,876	48,961	-38,915	361	125	45	11	25	17	0	
14																
15																
16	F	SAMPLE 6	31.00%		484,124	468,438	275,130	-193,308	364	150	45	0	25	21	5	80.00%
17	G	SAMPLE 7	29.90%		461,743	434,865	503,440	68,576	364	350	45	0	27	35	10	40.00%
18	H	SAMPLE 8	25.20%		744,600	714,816	615,034	-99,782	362	500	90	0	73	48	21	95.24%
19	I	SAMPLE 9	9.70%		88,404	87,078	72,183	-14,895	363	20	9	0	20	12	55	12.73%
20	J	SAMPLE 10	25.00%		115,822	110,610	79,285	-34,325	363	20	9	13	8	6	1	0.00%
21	K	SAMPLE 11	30.40%		187,341	178,911	143,071	-35,840	364	20	9	1	25	12	3	100.00%
22	L	SAMPLE 12	21.90%		30,086	28,958	32,382	3,424	362	20	9	0	15	9	1	100.00%
23	M	SAMPLE 13	28.90%		203,557	194,397	154,866	-39,531	364	10	9	0	16	14	2	100.00%
24	N	SAMPLE 14	13.20%		29,579	26,840	17,505	-11,335	364	10	9	0	4	8	2	0.00%
25																
26																
27	O	SAMPLE 15	29.90%		1,093,036	1,054,780	1,093,219	38,440	365	236	90	48	23	54	56	60.71%
28	P	SAMPLE 16	18.00%		195,459	190,573	186,522	-4,051	361	0	5	11	15	7	0	0.00%
29	Q	SAMPLE 17	21.00%		116,570	112,490	97,690	-14,800	367	25	0	0	22	11	4	0.00%

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2012 Final NRW Reduction Comparisons

Microsoft Excel - PAW NRW Sample Comparison for 2012.xls

File Edit View Insert Format Tools Data Window Help Analysis

Type a question for help

80% Arial 10

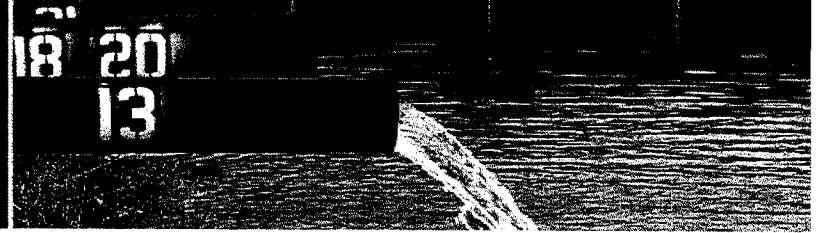
Compared to 2012 NRW Annual Comparison for PAW Districts															
2 District	#	PAW District	2009 NRW %	2012 December Ending Rolling 12 Months NRW %	Lg Mtr Chgts	Leaks Rprd	2011 NRW %	2011 Mtr Chgts	2011 Lks Rprd	2009 NRW %	2009 Mtr Chgts	2009 Lks Rprd			
A															
3	A	SAMPLE 1	-5.30%	34.90%	127	1315	40.2%	196	1651	40.2%	223	1658			
4	B	SAMPLE 2	-5.30%	34.90%	62	510	40.2%	225	492	40.2%	43	484			
5	C	SAMPLE 3	-5.30%	34.90%	41	254	40.2%	104	394	40.2%	26	437			
6	D	SAMPLE 4	-1.50%	19.00%	4	152	20.4%	45	185	20.5%	7	152			
7	E	SAMPLE 5	-18.80%	11.70%	0	81	20.6%	26	138	30.5%	13	102			
8	F	SAMPLE 6	-14.40%	31.00%	5	96	56.7%	72	269	45.4%	16	280			
9	G	SAMPLE 7	-3.00%	29.90%	6	151	16.7%	72	269	32.9%	16	280			
10	H	SAMPLE 8	-3.60%	25.20%	20	240	29.0%	76	286	28.8%	23	236			
11	I	SAMPLE 9	-2.50%	9.70%	7	59	11.5%	42	75	12.2%	3	112			
12	J	SAMPLE 10	-17.30%	25.00%	0	57	33.6%	21	66	42.3%					
13	K	SAMPLE 11	-4.40%	30.40%	3	50	35.0%	12	50	34.8%					
14	L	SAMPLE 12	-14.40%	21.90%	1	27	20.7%	1	24	36.3%					
15	M	SAMPLE 13	-6.20%	28.90%	2	58	33.4%	24	77	35.1%					
16	N	SAMPLE 14	-9.70%	13.20%	0	29	20.8%	8	42	22.9%					
17	O	SAMPLE 15	1.20%	29.70%	35	263	29.7%	96	196	28.5%					
18	P	SAMPLE 16	3.10%	19.00%	0	71	18.6%	6	80	15.9%					
19	Q	SAMPLE 17	-4.80%	17.10%	3	61	24.3%	18	75	21.9%					
20	R	SAMPLE 18	7.90%	47.80%	2	27	43.9%	4	34	39.9%					
21	S	SAMPLE 19	-3.00%	21.80%	0	19	25.6%	9	26	24.8%					
22	T	SAMPLE 20	-2.60%	8.60%	3	45	14.0%	24	42	11.2%					
23	U	SAMPLE 21	-7.00%	33.50%	4	127	42.7%	8	152	40.5%					
24	V	SAMPLE 22	-1.70%	30.10%	17	208	32.2%	80	157	31.8%					
25	W	SAMPLE 23	-8.40%	17.50%	1	148	23.5%	28	109	25.9%					
26	X	SAMPLE 24	-12.10%	10.80%	23	28	10.5%	67	22	22.9%					
27	Y	SAMPLE 25	2.90%	11.40%	21	36	12.6%	5	58	8.5%					
28	Z	SAMPLE 26	-1.10%	10.20%	27	14	13.9%	46	48	11.3%					
29	A1	SAMPLE 27	-10.90%	20.50%	15	44	23.5%	42	44	31.4%					
30	A2	SAMPLE 28	-0.50%	11.00%	0	42	13.1%	1	16	11.5%					
31	A3	SAMPLE 29	-3.10%	29.70%	0	149	36.7%	8	152	32.8%					
32	A4	SAMPLE 30	1.60%	11.90%	6	102	12.6%	23	95	10.3%					
33	A5	SAMPLE 31	-7.50%	36.50%	2	102	34.5%	9	113	44.0%					
34	A6	SAMPLE 32	-14.80%	21.60%	2	58	28.8%	8	60	36.4%					
35	A7	SAMPLE 33	-8.80%	19.10%	0	15	27.2%	3	14	27.9%					
36	A8	SAMPLE 34	-3.90%	35.50%	44	1841	40.0%	220	1539	39.4%					

Macro1 Sheet1 Sheet2 Sheet3

Ready Calculate CAPS NUM



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Take Aways- Success is a result of the Teams Ambition

