

Chester Housing Authority

Calendar Year Report

Guarantee Year 6 of 12

January 2015 through December 2015



Helping customers manage energy resources to improve financial performance

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1.0 Overview

Program Overview

Measurement & Verification Services

Honeywell is pleased to provide this comprehensive report of your energy consumption. This report was processed using an industry-standard program based on proven and accepted engineering formulas for energy conservation and analysis.

Service Contract Number: 40105934

Baseline Period: Average of 2004, 2005 & 2006

Guarantee Period: January 2011 - December 2021
Guarantee Term: 12 Years

Report Preparation By: Honeywell -Americas M&V Services:
Charlie Hanna, M&V Specialist
Joel Bruedigam, Energy Analyst

Current Reporting Period: January 2015 through December 2015



Locations Included in Report



- PA-61 Matopas Hills
- PA-62 William Penn Housing
- PA-63 Chatham Estates Family

Methodology

ECM #	ECM Description	Post-Installation Option	Performance Period Option
1,2,3	Retrofit Common, Tenant Area and Exterior Lighting	B	A
4	Water Conservation	B	A (for Chatham Gas), C, for gas/water meters identified in D.1.4.1.1
7	High Limit Thermostats	A	C- for selected gas meters in D.1.4.1.1
8	Hot Water Boiler and Domestic HW Heater Replacement	A	C- for selected gas meters in D.1.4.1.1

Excerpt from Schedule B:

“**Option A**” is a verification approach that is designed for projects in which the potential to perform needs to be verified, but the actual performance can be stipulated based on the results of the “potential to perform and generate Savings” verification and engineering calculations. Option A involves procedures for verifying that:

- Baseline conditions have been properly defined; and
- The equipment and/or systems that were contracted to be installed have been installed; and
- The installed equipment components or systems meet the specifications of the contract in terms of quantity, quality, and rating; and
- The installed equipment is operating and performing in accordance with the specifications in the contract and meeting all functional tests.

“**Option B**” is for projects in which the potential to perform and generate Savings needs to be verified; and actual performance needs to be measured (verified). Option B involves procedures for verifying the same items as Option A plus verifying actual performance of equipment component or system. Performance verification techniques involve engineering calculations with metering and monitoring for verifying that:

- The installed equipment components or systems *at the end of the construction period* meet the specifications of the contract in terms of quantity, quality and rating, and operation and functional performance.

“**Option C**” is also for projects in which the potential to perform needs to be verified and actual performance during the term of the contract needs to be verified. Option C involves procedures for verifying the same items as Option A plus verifying actual achieved energy savings during the term of the contract. Performance verification techniques involve utility whole building meter analysis.

“**Option D**” is a verification technique where calibrated simulations of the baseline energy use and/or calibrated simulations of the post-installation energy consumption are used to measure Savings from the Energy Conservation Measures. Option D can involve measurements of energy use both before and after the Retrofit for specific equipment or energy end use as needed to calibrate the simulation program. Periodic inspections of the equipment may also be warranted. Energy consumption is calculated by developing calibrated hourly simulation models of whole-building energy use, or equipment sub-systems in the baseline mode and in the post-installation mode and comparing the simulated annual differences for either an average year or for conditions that correspond to the specific year during either the baseline or post-installation period.

2.0 Summary

Executive Summary

Honeywell is pleased to provide the Chester Housing Authority(CHA) , with this Year One Energy Audit Report. This report was prepared using engineering formulas for energy conservation, analysis, onsite interviews with building operators and documented on-site observations.

The Chester Housing Authority, Energy Conservation Project Phase I, is now being managed in the Service and Measurement and Verification (M&V) phase of the project.

The M&V performance period requirements for this project are consistent with and based upon discussions and agreements between representatives from Honeywell International Inc., HUD, and the Winder Housing Authority.

The Energy Conservation Measures (ECMs) that were a part of this project are the following:

- Common and Tenant Area Lighting
- Exterior Lighting
- Water Conservation
- High Limit Thermostats
- HW and DHW Boiler Replacement

The annual energy savings have been summarized on the following pages. These savings include the amounts guaranteed by Honeywell per Schedule D of the contract that will cover debt service payments and service costs each year. ECMs are funded through the Add-On Subsidy and Tenant Paid Allowances.

Energy Cost Avoidance Summary

January 2015 - December 2015

Water Savings (Option C)		(\$113,168)
Gas Savings (Option C)		\$49,027
Electric Savings (Option A)		\$27,288
Rolling Base Year Savings (Stipulated)		\$0
Adjustments		<u>\$392,381</u>
Total Energy Cost Avoidance		\$355,528
Annual Guarantee	\$	276,614
Rolling Base Year Savings (Stipulated)	\$	<u>-</u>
		\$276,614
Net Results		\$78,913
Percent of Plan		129%

Savings by Utility Type

ECM #	ECM Description	Total Annual Savings	Annual Energy Savings Natural Gas	Annual Energy Savings Electric	Annual Water Sewer Savings
1	Common Area Lighting Retrofit	\$4,324		\$4,323	
2	Tenant Area Lighting Retrofit	\$14,155		\$14,155	
3	Exterior Lighting Retrofit	\$13,677		\$13,677	
4	Water Retrofit	\$149,991	\$40,403	\$0	\$109,589
5	Building Weatherstripping & Caulk				
6	Attic and Crawl Space Insulation				
7	High Limit Thermostats	\$14,408	\$14,408		
8	HW and DHW Boiler Replacement	\$46,473	\$46,473		
		\$243,028	\$101,283	\$32,155	\$109,589

Year 6

ECM #	ECM Description	Tennant Paid Allowances	Total Annual Savings	Frozen Base Year
1	Common Area Lighting Retrofit		\$4,323	
2	Tenant Area Lighting Retrofit		\$14,155	
3	Exterior Lighting Retrofit		\$13,677	
4	Water Retrofit		\$173,882	
5	Building Weatherstripping & Caulk			
6	Attic and Crawl Space Insulation			
7	High Limit Thermostats		\$16,702	
8	HW and DHW Boiler Replacement		\$53,874	
	Savings w/out Rolling Base Year Savings		\$276,613	
	Rolling Base Year Savings		\$0	
	Year 6 Guaranteed Savings Total:		\$276,613	

Option C Utility Analysis

All Water

Reference

	Jan 2006	Feb 2006	Mar 2006	Apr 2006	May 2006	Jun 2006	Jul 2005	Aug 2005	Sep 2005	Oct 2005	Nov 2005	Dec 2005
Month Use	6,302	6,899	5,939	5,985	6,182	42,985	6,469	6,062	6,747	6,184	5,788	44,674
YTD Use	6,302	13,201	19,140	25,125	31,307	74,292	80,761	86,823	93,570	99,754	105,542	150,216
Month \$	\$11,630	\$12,459	\$10,925	\$10,963	\$11,325	\$125,251	\$11,421	\$11,227	\$12,509	\$11,416	\$10,802	\$130,767
YTD \$	\$11,630	\$24,089	\$35,014	\$45,977	\$57,302	\$182,553	\$193,974	\$205,201	\$217,710	\$229,126	\$239,928	\$370,695

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	6,302	6,899	5,939	5,985	6,182	42,985	6,469	6,062	6,747	6,184	5,788	44,674
YTD Use	6,302	13,201	19,140	25,125	31,307	74,292	80,761	86,823	93,570	99,754	105,542	150,216
Month \$	\$16,131	\$18,124	\$15,543	\$15,972	\$11,819	\$167,228	\$11,421	\$15,810	\$18,665	\$15,953	\$15,265	\$177,806
YTD \$	\$16,131	\$34,255	\$49,798	\$65,770	\$77,589	\$244,817	\$256,238	\$272,048	\$290,713	\$306,667	\$321,932	\$499,738

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	11,396	7,975	8,150	8,501	11,307	35,606	15,236	9,427	5,670	11,004	7,682	70,764
YTD Use	11,396	19,371	27,521	36,022	47,329	82,935	98,171	107,598	113,268	124,272	131,954	202,718
Month \$	\$29,253	\$20,949	\$21,353	\$22,962	\$16,563	\$120,187	\$16,646	\$24,514	\$15,823	\$28,149	\$20,470	\$276,037
YTD \$	\$29,253	\$50,202	\$71,555	\$94,517	\$111,080	\$231,267	\$247,913	\$272,427	\$288,250	\$316,399	\$336,869	\$612,906

Use Avoidance

Month Use	(5,094)	(1,076)	(2,211)	(2,516)	(5,125)	7,379	(8,767)	(3,365)	1,077	(4,820)	(1,894)	(26,090)
YTD Use	(5,094)	(6,170)	(8,381)	(10,897)	(16,022)	(8,643)	(17,410)	(20,775)	(19,698)	(24,518)	(26,412)	(52,502)

Cost Avoidance

Month Use \$	(\$13,122)	(\$2,825)	(\$5,810)	(\$6,990)	(\$4,744)	\$47,041	(\$5,225)	(\$8,704)	\$2,842	(\$12,196)	(\$5,205)	(\$98,231)
YTD \$	(\$13,122)	(\$15,947)	(\$21,757)	(\$28,747)	(\$33,491)	\$13,550	\$8,325	(\$379)	\$2,463	(\$9,732)	(\$14,937)	(\$113,168)

Option C Utility Analysis

All Gas

Reference

	Jan 2006	Feb 2006	Mar 2006	Apr 2006	May 2006	Jun 2006	Jul 2005	Aug 2005	Sep 2005	Oct 2005	Nov 2005	Dec 2005
Month Use	5,829	5,210	5,316	2,253	705	706	993	209	427	939	2,791	5,624
YTD Use	5,829	11,039	16,355	18,608	19,313	20,019	21,012	21,221	21,648	22,587	25,378	31,002
Month \$	\$68,028	\$60,797	\$62,040	\$26,282	\$8,222	\$8,233	\$11,583	\$2,439	\$4,978	\$10,953	\$32,566	\$65,629
YTD \$	\$68,028	\$128,825	\$190,865	\$217,147	\$225,369	\$233,602	\$245,185	\$247,624	\$252,602	\$263,555	\$296,121	\$361,750

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	6,832	7,278	5,488	2,378	1,012	580	513	496	522	1,063	1,527	3,000
YTD \$	\$92,434	\$190,900	\$265,151	\$297,323	\$311,021	\$318,863	\$325,808	\$332,520	\$339,586	\$353,973	\$374,627	\$415,216

SimActual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	5,075	5,100	4,206	2,805	1,399	717	605	536	566	1,080	2,016	2,960
YTD Use	5,075	10,175	14,381	17,186	18,585	19,302	19,907	20,443	21,009	22,089	24,105	27,065
Month \$	\$68,665	\$69,003	\$56,907	\$37,952	\$18,928	\$9,701	\$8,186	\$7,252	\$7,658	\$14,612	\$27,276	\$40,049

Use Avoidance

Month Use	1,757	2,178	1,282	(427)	(387)	(137)	(92)	(40)	(44)	(17)	(489)	40
YTD Use	1,757	3,934	5,216	4,789	4,403	4,265	4,173	4,134	4,090	4,073	3,584	3,624

Cost Avoidance

Month Use \$	\$23,770	\$29,463	\$17,343	(\$5,779)	(\$5,230)	(\$1,859)	(\$1,241)	(\$539)	(\$593)	(\$225)	(\$6,623)	\$540
YTD \$	\$23,770	\$53,233	\$70,576	\$64,797	\$59,566	\$57,707	\$56,466	\$55,927	\$55,334	\$55,109	\$48,486	\$49,027

Guarantee Table

I. Schedule of Savings

The total cost avoidance over the Term of the contract is equal to or greater than \$3,785,620 as defined in the table below (comprised of energy and rolling base year cost avoidance): This table reflects Honeywell's annual guarantee, which will provide the Customer the amount needed to cover the principal amount to be paid to a financial institution, the interest amount to be paid to a financial institution, and on going M&V costs to be paid to Honeywell, for each performance year. The total shown is the cost of the project over the 12 year term (see projected cash flow at end of this schedule D.1.a).

Project: Chester Housing Authority				Annual Guarantee Summary						Honeywell		
Phase 1 Price	\$	2,761,582										
Buyout Penalty												
Phase 1B Price	\$	-										
Const. Fin.	\$	-										
(Construction interest included in first payment on Susquehanna Bank Amortization schedule)												
RBV Buy Down	\$	-										
Total Financed	\$	2,761,582										
Term		12 Years										
Rate		4.05%										
Overall Guarantee %		87.02%										
60.05% RBV dollars used to fund project.												
Escalation Over Term	Savings			Service			Amortization			P+I+Service = Honeywell Guarantee	Savings % Guaranteed by HW	
	Energy 15.9%	RBV 0.0%	Total	MECH Services Variable	M&V 3.0%	Total	Interest	Principal	Balance			
0 Year 1	\$ 243,028	\$ 140,994	\$ 384,021	\$ -	\$ 13,306	\$ 13,306	\$ 217,769	\$ 152,945	\$ 2,608,637	\$ 384,020	72.68%	
1 Year 2	\$ 249,354	\$ 130,738	\$ 380,092	\$ -	\$ 13,705	\$ 13,705	\$ 101,769	\$ 264,617	\$ 2,344,021	\$ 380,091	80.14%	
2 Year 3	\$ 255,870	\$ 89,436	\$ 345,306	\$ -	\$ 14,116	\$ 14,116	\$ 91,409	\$ 239,790	\$ 2,104,240	\$ 345,305	82.77%	
3 Year 4	\$ 262,581	\$ 45,891	\$ 308,472	\$ -	\$ 14,540	\$ 14,540	\$ 82,122	\$ 211,810	\$ 1,892,431	\$ 308,472	86.46%	
4 Year 5	\$ 269,494	\$ -	\$ 269,494	\$ -	\$ 14,976	\$ 14,976	\$ 74,042	\$ 180,475	\$ 1,711,956	\$ 269,493	92.00%	
5 Year 6	\$ 276,614	\$ -	\$ 276,614	\$ -	\$ 15,425	\$ 15,425	\$ 66,394	\$ 194,794	\$ 1,517,162	\$ 276,613	92.00%	
6 Year 7	\$ 283,948	\$ -	\$ 283,948	\$ -	\$ 15,888	\$ 15,888	\$ 58,146	\$ 209,913	\$ 1,307,249	\$ 283,947	92.00%	
7 Year 8	\$ 291,502	\$ -	\$ 291,502	\$ -	\$ 16,365	\$ 16,365	\$ 49,264	\$ 225,872	\$ 1,081,377	\$ 291,501	92.00%	
8 Year 9	\$ 299,282	\$ -	\$ 299,282	\$ -	\$ 16,856	\$ 16,856	\$ 39,712	\$ 242,714	\$ 838,663	\$ 299,282	92.00%	
9 Year 10	\$ 307,296	\$ -	\$ 307,296	\$ -	\$ 17,361	\$ 17,361	\$ 29,454	\$ 260,490	\$ 578,193	\$ 307,295	92.00%	
10 Year 11	\$ 315,550	\$ -	\$ 315,550	\$ -	\$ 17,882	\$ 17,882	\$ 18,452	\$ 279,215	\$ 298,968	\$ 315,549	92.00%	
11 Year 12	\$ 324,052	\$ -	\$ 324,052	\$ -	\$ 18,419	\$ 18,419	\$ 6,665	\$ 298,968	\$ -	\$ 324,052	92.00%	
Total	\$ 3,378,571	\$ 407,050	\$ 3,785,631	\$ -	\$ 188,830	\$ 188,830	\$ 835,199	\$ 2,761,582	\$ -	\$ 3,785,620	87.02%	

Option A Savings

	Gas		Electric		Water & Sewer		Total Savings
	\$	MCF	\$	kWh	\$	Mgal	
Common Lighting			\$8,627	88,301			\$8,627
Tenant Lighting			\$12,352	126,425			\$12,352
Exterior lighting			\$6,309	64,575			\$6,309
Kitchen Aerators							\$0
Bathroom Aerators							\$0
Showerheads							\$0
Water Closets							\$0
High Limit Thermostats							\$0
Replace Boilers in Rhodes & Eisenhower							\$0
TOTAL	\$0	0	\$27,288	279,301	\$0	0	\$27,288

Site Observations

Project: Chester Housing Authority

Inspection Date: 10/07/2015

ECM: Water Conservation & Lighting

	Site	Unit	Lighting (Tenant, Common areas, & Site)	Kitchen	Bathroom	Shower	WC
				1.5 GPM	0.5 GPM	2.0 GPM	1.6 GPF
1	Bennett Homes	1116	x	2.2	x	x	x
2	Bennett Homes	1212	x	2.2	x	x	x
3	Bennett Homes	1109	x	x	x	x	x
4	Bennett Homes	1003	x	x	x	x	x
5	Bennett Homes	1430	x	2.2	x	x	x
6	Bennett Homes	919	x	2.2	x	x	x
7	William Penn	413	x	2.2	x	x	x
8	William Penn	402	x	x	x	x	x
9	William Penn	315	x	x	x	x	x
10	William Penn	519	x	x	x	x	x
11	William Penn	309	x	x	x	x	x
12	William Penn	518	x	x	x	x	x
13	William Penn	400	x	x	x	x	x
14	William Penn	419	x	2.2	x	x	x
15	William Penn	504	x	2.2	x	x	x
16	William Penn	506	x	x	x	x	x
17	William Penn	522	x	x	x	x	x

Notes:

1- x - Proper fixture is in place and functional.

Site Observations

Project: Chester Housing Authority

Inspection Date: 10/07/2015

ECM: Limiting Thermostats

	Site	Unit #	Occ Heat	limit Heat
1	William Penn	413	70	74
2	William Penn	402	75	74
3	William Penn	315	76	74
4	William Penn	519	68	74
5	William Penn	309	75	74
6	William Penn	518	71	74
7	William Penn	400	76	74
8	William Penn	419	72	74
9	William Penn	504	76	74
10	William Penn	506	70	74
11	William Penn	522	75	74

Notes:

1- No issues were reported by the residents.

ECM: Miscellaneous

ECM Description	Notes
Boilers, Pumps, and Hot Water Heaters	No issues were reported. All in place and functional.

3.0 Review Detail

ECM 1,2,3 - Lighting

ECM	Annual kWh Energy Saved	Annual Savings Using Blended Rate
Common Area	88,301	\$8,627
Tenant Area	126,425	\$12,352
Exterior Lighting	64,575	\$6,309
		\$27,288

Common Area Lighting

Retrofit existing fluorescent lighting fixtures with T-8 lamps and electronic ballasts. Replace incandescent bulbs (where feasible) with screw-in compact fluorescent lamps. Replace incandescent fixtures (where practical) with fluorescent fixtures. Company will properly dispose of all lamps and fixtures in accordance with all EPA requirements and standards for "hazardous materials." Company's cost does not cover replacing any cracked or yellowed lenses of the fixtures that are to be retrofitted with new bulbs and ballasts.

Site #	Site Name	Electric Blended Rate	kW Demand Saved	Annual kWh Energy Saved	Average Annual Operating Hours	Annual Savings Using Blended Rate
PA-61	Matopas Hills	\$ 0.0977	6.7	58,517	8760	\$5,717
PA-62	William Penn Housing	\$ 0.0977	3.4	29,784	8760	\$2,910

Tenant Area Lighting

Retrofit existing fluorescent lighting fixtures with T-8 lamps and electronic ballasts. Replace incandescent bulbs (where feasible) with screw-in compact fluorescent lamps. Replace incandescent fixtures (where practical) with fluorescent fixtures. Company will properly dispose of all lamps and fixtures in accordance with all EPA requirements and standards for "hazardous materials." Company's cost does not cover replacing any cracked or yellowed lenses of the fixtures that are to be retrofitted with new bulbs and ballasts.

Site #	Site Name	Electric Blended Rate	kW Demand Saved	Average Annual Operating Hours	Annual kWh Energy Saved at 100% occupancy	Annual Savings Using Blended Rate at Actual occupancy
PA-61	Matopas Hills	\$ 0.0977	86.9	1500	130,335	\$12,352

Exterior Lighting

Replace existing incandescent, metal halide, and high pressure sodium outdoor fixtures that are owned by the housing authority with new fixtures using compact fluorescent or T5 lamps. All retrofits are to maintain or increase existing lighting levels.

Site #	Site Name	Electric Blended Rate	kW Demand Saved	Average Annual Operating Hours	Annual kWh Energy Saved at 100% occupancy	Annual Savings Using Blended Rate at Actual occupancy
PA-61	Matopas Hills	\$ 0.0977	16.9	4015	67,974	\$6,309

ECM 4 - Water Conservation

ECM	Gas	Electric	Water
Faucet Aerator	\$19,752		\$59,794
Showerheads	\$12,813		\$35,417
Water Closets	\$7,838		\$14,377
	\$40,403		\$109,589

Faucet Aerators

Replace all aerators in Bathrooms with new 0.5 gpm and Kitchens with new 1.5 gpm low flow type.

Showerheads/Wands

Replace all showerheads and hand held shower wands in all bathrooms that have these items presently with new 2.0 gpm low flow type.

Water Closets

Replace 3.5 gpf and 1.6 gpf water closets with new 1.0 gpf pressure assisted water closets to save water consumption.

Savings Calc's for Kitchen Aerators

Site #	Site Name	Existing Quantity	New Quantity	Existing GPM	New GPM	Minutes per Day	Max # of Residents	% of Occupancy	1000 gallons Water Saved	DHW Eff	Annual Savings		
											Gas	Electric	Water
PA-61	Matopas Hills	269	269	2.20	1.50	10.00	735	97.00%	1,723.59	80.0%	\$ 4,686		\$ 11,429
PA-63	Chatham Estates	110	110	2.20	1.50	10.00	302	97.00%	348.46	80.0%	\$ -		\$ 2,311
PA-62	William Penn Housing	160	160	2.20	1.50	10.00	416	97.00%	828.89	80.0%	\$ 2,254		\$ 5,496
									2,900.94		\$ 6,940		\$ 19,236

% of cold water that is heated: 37%

Savings Calc's for Bathroom Aerators

Site #	Site Name	Existing Quantity	New Quantity	Existing GPM	New GPM	Minutes per Day	Max # of Residents	% of Occupancy	1000 gallons Water Saved	DHW Eff	Annual Savings		
											Gas	Electric	Water
PA-61	Matopas Hills	299	299	2.00	0.50	10.00	735	97.00%	2,803.30	80.0%	\$ 7,622		\$ 18,589
PA-63	Chatham Estates	154	154	2.00	0.50	10.00	302	97.00%	1,403.85	80.0%			\$ 9,309
PA-62	William Penn Housing	218	218	2.00	0.50	10.00	416	97.00%	1,909.27	80.0%	\$ 5,191		\$ 12,660
									6,116.42		\$ 12,813		\$ 40,558

Savings Calc's for Showerheads

Site #	Site Name	Existing Quantity	New Quantity	Existing GPM	New GPM	Minutes per Day	Max # of Residents	% of Occupancy	1000 gallons Water Saved	DHW Eff	Annual Savings		
											Gas	Electric	Water
PA-61	Matopas Hills	299	299	3.50	2.00	10.00	735	97.00%	2,803.30	80.0%	\$ 5,545		\$ 18,589
PA-63	Chatham Estates	122	122	3.00	2.00	10.00	302	97.00%	1,069.23	80.0%			\$ 7,090
PA-62	William Penn Housing	177	177	3.00	2.00	10.00	416	97.00%	1,468.68	80.0%	\$ 2,293		\$ 9,739
									5,341.21		\$ 7,838		\$ 35,417

Savings Calc's for Water Closets

Site #	Site Name	Existing Quantity	New Quantity	Existing GPM	New GPM	Minutes per Day	Max # of Residents	% of Occupancy	1000 gallons Water Saved	DHW Eff	Annual Savings		
											Gas	Electric	Water
PA-61	Matopas Hills	299	299	1.90	1.00	6.00	736	97.00%	1,207.14				\$ 8,005
PA-63	Chatham Estates	154	154	1.90	1.00	6.00	302	97.00%	377.38				\$ 2,502
PA-62	William Penn Housing	218	218	2.00	1.00	6.00	416	97.00%	583.71				\$ 3,871
									2,168.23				\$ 14,377

ECM 7 - High Limit Thermostats

ECM	Gas	Electric	Water
High Limit Thermostats	\$14,408		

Replace existing wall mounted room thermostats with new temperature limiting thermostats compatible with the heating and cooling systems at each site.

PA-9-03

PA-9-04

Savings Calculations and Cost Estimates

Existing estimated average winter room temperature: **79**

Proposed maximum room temperature: **75**

Building: All Buildings Listed Below

% of original room temperature: **94.94%**

ECM: Install Thermostats to Limit High Temperature Setting to 75 degrees

Site #	Site Name	# of Living Units	Bldg Sq. Feet	Gas Cost \$/MCF	% of Units Occupied	Present Gas Heating Costs		Annual Gas Savings
							Heating	
PA-9-17	Scattered Sites	0	0	\$11.67	95.0%		\$232,663	\$11,191
	William Penn Housing	0	0	\$11.67	95.0%		\$66,869	\$3,216
	Total	0	0				\$299,532	\$14,408

ECM 8 - Replace Boilers in Rhodes & Eisenhower

ECM	Gas	Electric	Water
Replace Boilers in Rhodes & Eisenhower	\$46,473		

Install one (1) new high efficiency (87% minimum) gas-fired hot water boiler (or approved equal). The boiler shall be 300 Boiler HP with a heating output capacity of 10,000 MBH capable of producing 180 °F to 200°F hot water. The boiler shall have a turndown ratio of 4:1 that will modulate the boiler's output down to twenty-five (25) percent of full output capacity.

Keep one of the existing 400 HP Kewanee gas-fired steam boilers. Recondition the burner. Provide new operating and safety controls. The boiler to be used for standby.

Install two (2) new 1,400 gpm hot water circulating pumps with 40 hp high efficiency electric motors. Select pumps to meet the proper head.

Sites: Matapos Hills

ECM: Replace Heating and Domestic Hot Water Boilers

Savings Calculation:

	Existing Heating cost	Existing efficiency	Proposed efficiency	Occupancy rate	Annual Gas Savings
Matapas Hills	\$ 237,831	70%	87%	Bldg 100% htd	\$46,473

4.0 Adjustments

Adjustment Summary

Site #	Site Name	Water/Sewer	Gas	T-Stats	Total
PA-9-01	Matopas Hills	\$190,042	(\$793)	\$6,104	\$195,353
PA-9-02	Chatham Estates Family	\$79,774	-	-	\$79,774
PA-9-03	William Penn Housing	\$2,312	\$1,774	-	\$4,086
Total Adjustments					\$279,213

Water & Sewer Adjustments

Occupancy

Site #	Site Name	Baseline Occupancy %	2015 Occupancy %	Baseline Use (kgal)	Adjusted Use (kgal)	Adjustment (kgal)	Water (\$/kgal)	Sewer (\$/kgal)	Total
PA-9-01	Matopas Hills	97.0	96.74	30,732	30,650	(81)	\$2.20	\$4.19	(\$520)
PA-9-02	Chatham Estates Family	97.0	99.92	9,400	9,684	283	\$2.53	\$4.19	\$1,905
PA-9-03	William Penn Housing	97.0	98.44	24,113	24,470	357	\$2.28	\$4.19	\$2,312
Total Water & Sewer Adjustment									\$3,697

Water & Sewer Adjustments

Water Leaks

Matopas Hills - Water

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	1,549	2,009	1,526	1,499	2,235	1,639	1,407	1,749	1,807	1,749	2,193	2,193	21,555
2012	2,193	2,143	2,143	2,143	2,960	2,960	2,960	1,768	1,768	1,768	1,767	1,767	26,340
2014	4,574	4,222	4,222	4,222	1,530	1,530	1,530	1,768	1,768	1,768	5,400	5,400	37,934
2015	5,400	4,467	4,467	4,467	7,489	7,489	7,489	5,348	1,982	7,025	3,794	5,340	64,757
Avg 2011 & 2012	1,871	2,076	1,835	1,821	2,598	2,300	2,184	1,759	1,788	1,759	1,980	1,980	23,948

40,810 Gallons @ \$2.75 /gal = \$112,113

Matopas Hills - Sewer

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	0	0	0	0	0	13,097	0	0	0	0	0	9,800	22,897
2012	0	0	0	0	0	12,073	0	0	0	0	0	6,580	18,653
2014	0	0	0	0	0	10,191	0	0	0	0	0	26,388	36,579
2015	0	0	0	0	0	9,896	0	0	0	0	0	29,602	39,498
Avg 2011 & 2012	0	0	0	0	0	12,585	0	0	0	0	0	8,190	20,775

18,723 Gallons @ \$4.19 /gal = \$78,449

Matopas Total Leakage \$190,562

Chatham Estates Family - Water

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	664	734	604	550	628	587	676	627	702	512	594	713	7,591
2012	1,022	561	608	748	931	1,052	1,121	1,502	1,335	1,576	1,725	1,701	13,882
2014	1,552	1,290	1,295	1,469	1,125	1,180	1,549	1,420	1,610	1,829	1,835	0	16,154
2015	1,585	1,210	1,385	1,736	1,425	0	5,354	2,054	1,912	1,980	1,643	2,106	22,390
Avg 2011 & 2012	843	648	606	649	780	820	899	1,065	1,019	1,044	1,160	1,207	10,737

11,654 Gallons @ \$3.27 /gal = \$38,095

Chatham Estates Family - Sewer

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	0	0	0	0	0	3,165	0	0	0	0	0	3,480	6,645
2012	0	0	0	0	0	3,715	0	0	0	0	0	4,835	8,550
2014	0	0	0	0	0	8,440	0	0	0	0	0	8,330	16,770
2015	0	0	0	0	0	8,390	0	0	0	0	0	8,700	17,090
Avg 2011 & 2012	0	0	0	0	0	3,440	0	0	0	0	0	4,158	7,598

9,493 Gallons @ \$4.19 /gal = \$39,774

Chatham Total Leakage \$77,869

Gas Adjustments

Site #	Site Name	Baseline Occupancy %	2015 Occupancy %	Baseline Use (MCF)	Adjusted Use (MCF)	Adjustment (MCF)	\$/MCF	Total
PA-9-01	Matopas Hills	97.0	96.74	22,151	22,092	(59)	\$13.53	(\$793)
PA-9-03	William Penn Housing	97.0	98.44	8,846	8,977	131	\$13.53	\$1,774
Total Gas Adjustment								\$981

5.0 Appendix

Chester Housing Authority
Chester, Pennsylvania

Final Baseline Utilities

Total Utilities for Entire Authority

Site #	Site Name	PECO			PECO			Delcora			Total
		Natural Gas			Electric			Water			
		MCF/yr.	Cost/yr.	\$ per MCF	kWh/yr.	Cost/yr.	\$ per kWh	1000 Gal/yr.	Cost/yr.	\$ per 1000 Gallons	Cost/yr.
PA-9-01	Matopas Hills	22,151	\$ 258,514	\$11.67	3,259,400	\$ 318,460	\$ 0.0977	30,732	\$ 177,322	\$5.77	\$ 754,296
PA-9-02	Chatham Estates Family	-	\$ -	\$11.67	-	\$ -	\$ 0.0977	9,400	\$ 54,240	\$5.77	\$ 54,240
PA-9-03	William Penn Housing	8,846	\$ 103,238	\$11.67	1,502,624	\$ 146,814	\$ 0.0977	24,113	\$ 139,131	\$5.77	\$ 389,183
		30,997.0	\$ 361,752	\$11.67	4,762,024	\$ 465,274	\$ 0.0977	64,245	\$ 370,694	\$5.77	\$ 1,197,719

From 52722A 2006 subsidy request: 30,997.0 \$ 361,752 \$ 11.6705 4,762,024 \$ 465,274 \$ 0.0977 64,245 \$ 1,667,929 \$ 25.9620

Summary of Final Utility Rates:		FYE 3 31 2004	FYE 3 31 2005	FYE 3 31 2006	FYE 3 31 2007
Gas	\$	11.2189	\$ 12.3482	\$ 11.5950	\$ 11.6705 per MCF
Electric	\$	0.0608	\$ 0.0640	\$ 0.0629	\$ 0.0977 per kWh
Water & Sewer	\$	4.9678	\$ 6.7663	\$ 6.7221	\$ 25.9620 per 1000 Gallons

Current Subsidy Request

Utilities Usage Types

Site #	Site Name	Heating by	Cooling by	DHW by	Cooking by	Washers by	Dryers by	Space Heating Efficiency	DHW Heating Efficiency
PA-9-01	Matopas Hills	Gas	Electric	Gas	Electric	Electric	Electric	70.0%	80.0%
PA-9-02	Chatham Estates Family	Gas	Electric	Gas	Electric	Electric	Electric	80.0%	80.0%
PA-9-03	William Penn Housing	Gas	Electric	Gas	Electric	Electric	Electric	80.0%	80.0%
PA-9-04		Gas	Electric	Gas	Electric	Electric	Electric	77.0%	77.0%
PA-9-05		Gas	Electric	Gas	Electric	Electric	Electric	77.0%	77.0%
PA-9-06		Gas	Electric	Gas	Electric	Electric	Electric	80.0%	80.0%
PA-9-08		Gas	Electric	Gas	Electric	Electric	Electric	80.0%	80.0%
PA-9-10		Gas	Electric	Gas	Electric	Electric	Electric	75.0%	75.0%

Annual Utility Costs by Category

Site #	Site Name	Natural Gas				Electric					
		Heating	DHW	Cooking	Total	Heating	Cooling	DHW	Cooking	Misc	Total
PA-9-01	Matopas Hills	\$ 232,663	\$ 25,851	\$ -	\$ 258,514	\$ -	\$ 127,384	\$ -	\$ 15,923	\$ 175,153	\$ 318,460
PA-9-02	Chatham Estates Family	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PA-9-03	William Penn Housing	\$ 92,914	\$ 10,324	\$ -	\$ 103,238	\$ -	\$ 58,726	\$ -	\$ 7,341	\$ 80,748	\$ 146,814
PA-9-04		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PA-9-05		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PA-9-06		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PA-9-08		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PA-9-10		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		\$ 325,576	\$ 36,175	\$ -	\$ 361,752	\$ -	\$ 186,110	\$ -	\$ 23,264	\$ 255,901	\$ 465,274

Average Utility Costs & Consumption per Unit (Apartment)

Site #	Site Name	# of Units	Natural Gas				Electric				Water				Total
			MCF/yr.	Cost/yr.	MCF per Unit per month	\$ per Unit per month	kWh/yr.	Cost/yr.	kWh per Unit per month	\$ per Unit per month	1000 Gal/yr.	Cost/yr.	Gallons per Day per unit	\$ per Unit per year	
PA-9-01	Matopas Hills	400	22,151.0	\$ 258,514	4.61	\$ 53.86	3,259,400	\$ 318,460	679.04	\$ 66.35	30,731.8	\$ 177,322	210.5	\$ 443.31	\$ 1,885.74
PA-9-02	Chatham Estates Family	102	-	\$ -	-	\$ -	-	\$ -	-	\$ -	9,400.3	\$ 54,240	252.5	\$ 531.76	\$ 531.76
PA-9-03	William Penn Housing	526	8,846.0	\$ 103,238	1.40	\$ 16.36	1,502,624	\$ 146,814	238.06	\$ 23.26	24,112.9	\$ 139,131	125.6	\$ 264.51	\$ 739.89
PA-9-04		48	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$ -
PA-9-05		145	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$ -
PA-9-06		156	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$ -
PA-9-08		156	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$ -
PA-9-10		70	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$ -
		1,603	30,997.0	\$ 361,752	1.61	\$ 18.81	4,762,024	\$ 465,274	248	\$ 24.19	64,245	\$ 370,694	109.8	\$ 231.25	\$ 747.17

Average Annual Utility Costs per Square Foot

Site #	Site Name	sq. ft.	Natural Gas			Electric			Water		
			MCF/yr.	Cost/yr.	\$ per Sq. Ft.	kWh/yr.	Cost/yr.	\$ per Sq. Ft.	1000 Gal/yr.	Cost/yr.	\$ per Sq. Ft.
PA-9-01	Matopas Hills	165,448	22,151	\$ 258,514	\$ 1.5625	3,259,400	\$ 318,460	\$ 1.9248	30,732	\$ 177,322	\$ 1.0718
PA-9-02	Chatham Estates Family	50,967	-	\$ -	\$ -	-	\$ -	\$ -	9,400	\$ 54,240	\$ 1.0642
PA-9-03	William Penn Housing	256,042	8,846	\$ 103,238	\$ 0.4032	1,502,624	\$ 146,814	\$ 0.5734	24,113	\$ 139,131	\$ 0.5434
PA-9-04		25,361	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
PA-9-05		72,030	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
PA-9-06		76,225	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
PA-9-08		76,225	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
PA-9-10		34,006	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
		756,304	30,997	\$ 361,752	\$ 0.4783	4,762,024	\$ 465,274	\$ 0.6152	64,245	\$ 370,694	\$ 0.4901

Occupancy Data Summary

	Total Units	Baseline Occupancy %	2015 Occupancy %
William Penn	160	97.0	98.44
Chatham Estates	110	97.0	99.92
Matopas Hills	261	97.0	96.74

Occupancy Data Details

Vacant	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Total Units
William Penn	5	3	2	2	2	3	2	2	3	2	2	2	160
Chatham Estates	0	0	0	0	0	0	0	0	0	0	0	1	110
Matopas Hills	11	11	12	10	7	6	5	5	5	8	10	12	261

Occupancy %	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Total Units
William Penn	96.88	98.13	98.75	98.75	98.75	98.13	98.75	98.75	98.13	98.75	98.75	98.75	98.44
Chatham Estates	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.09	99.92
Matopas Hills	95.79	95.79	95.40	96.17	97.32	97.70	98.08	98.08	98.08	96.93	96.17	95.40	96.74

Chester Housing Authority
Chester, Pennsylvania

Building Data

	Site Name	Address	Building Type	Common Area Sq ft	Total Sq. Ft.	Year Built	# of Floors	# of Units	# of Bldgs	Number of Bedrooms							Tot. BR's
										Eff	1	2	3	4	5	6	
PA-7-11	Matopas Hills	1350 W. 9th Street	Family	14,908	247,642	1980	2	269	35	-	63	92	84	27	3	-	622
PA-7-13	Chatham Estates Family	1701 W. 7th Street	Elderly	2,127	130,631	1960	2	110	22	-	14	54	32	8	2	-	260
PA-7-10	William Penn Housing	514 W. Union Street	Family	18,442	142,600	1960	3	160	19	-	43	59	41	11	6	-	358
					520,873			539	76	-	120	205	157	46	11	-	1,240

Estimated # of Residents: 1 1 2 4 5 6

Additional Buildings:

Site
Matopas Hills

Additional Buildings

Boiler Plant
 Community Bldg
 Central Admin Offices

Chester, PA Weather Data

Annual Heating Degree Days: **5555**
 Indoor Heating Design Temp: **72**
 Outdoor Heating Design Temp: **9**
 Heating Design Delta T: **63**
 Annual Cooling Degree Days: **1104**
 Indoor Cooling Design Temp: **75**
 Outdoor Cooling Design db Temp: **92**
 Outdoor Cooling Design wb Temp: **73**
 Cooling Design Delta T: **17**

Meter Detail Report

Meter: Chatham Sewer

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	0	0	0	0	0	4,500	0	0	0	0	0	5,355
YTD Use	0	0	0	0	0	4,500	4,500	4,500	4,500	4,500	4,500	9,855
Month \$	\$0	\$0	\$0	\$0	\$0	\$13,729	\$0	\$0	\$0	\$0	\$0	\$16,667
YTD \$	\$0	\$0	\$0	\$0	\$0	\$13,729	\$13,729	\$13,729	\$13,729	\$13,729	\$13,729	\$30,396
Month Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.11
YTD Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.05	\$3.05	\$3.05	\$3.05	\$3.05	\$3.05	\$3.08

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	0	0	0	0	0	4,500	0	0	0	0	0	5,355
YTD Use	0	0	0	0	0	4,500	4,500	4,500	4,500	4,500	4,500	9,855
Applicable Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19
Month \$	\$0	\$0	\$0	\$0	\$0	\$18,855	\$0	\$0	\$0	\$0	\$0	\$22,437
YTD \$	\$0	\$0	\$0	\$0	\$0	\$18,855	\$18,855	\$18,855	\$18,855	\$18,855	\$18,855	\$41,292

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	0	0	0	0	0	8,390	0	0	0	0	0	8,700
YTD Use	0	0	0	0	0	8,390	8,390	8,390	8,390	8,390	8,390	17,090
Month \$	\$0	\$0	\$0	\$0	\$0	\$35,154	\$0	\$0	\$0	\$0	\$0	\$36,453
YTD \$	\$0	\$0	\$0	\$0	\$0	\$35,154	\$35,154	\$35,154	\$35,154	\$35,154	\$35,154	\$71,607
Month Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19
YTD Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19

Use Avoidance

Month Use	0	0	0	0	0	(3,890)	0	0	0	0	0	(3,345)
YTD Use	0	0	0	0	0	(3,890)	(3,890)	(3,890)	(3,890)	(3,890)	(3,890)	(7,235)

Cost Avoidance

Month \$	\$0	\$0	\$0	\$0	\$0	(\$16,299)	\$0	\$0	\$0	\$0	\$0	(\$14,016)
YTD \$	\$0	\$0	\$0	\$0	\$0	(\$16,299)	(\$16,299)	(\$16,299)	(\$16,299)	(\$16,299)	(\$16,299)	(\$30,315)

Meter Detail Report

Meter: Chatham Water

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	805	847	717	808	788	813	720	800	878	773	687	738
YTD Use	805	1,652	2,369	3,177	3,965	4,778	5,498	6,298	7,176	7,949	8,636	9,374
Month \$	\$1,822	\$1,900	\$1,689	\$1,823	\$1,806	\$3,004	\$1,606	\$1,832	\$1,966	\$1,787	\$1,645	\$2,965
YTD \$	\$1,822	\$3,722	\$5,411	\$7,234	\$9,040	\$12,044	\$13,650	\$15,482	\$17,448	\$19,235	\$20,880	\$23,845
Month Rate	\$2.26	\$2.24	\$2.36	\$2.26	\$2.29	\$3.69	\$2.23	\$2.29	\$2.24	\$2.31	\$2.39	\$4.02
YTD Rate	\$2.26	\$2.25	\$2.28	\$2.28	\$2.28	\$2.52	\$2.48	\$2.46	\$2.43	\$2.42	\$2.42	\$2.54

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	805	847	717	808	788	813	720	800	878	773	687	738
YTD Use	805	1,652	2,369	3,177	3,965	4,778	5,498	6,298	7,176	7,949	8,636	9,374
Applicable Rate	\$3.11	\$3.03	\$2.94	\$3.27	\$2.92	\$3.69	\$2.23	\$2.83	\$2.87	\$2.85	\$2.96	\$4.02
Month \$	\$2,502	\$2,563	\$2,105	\$2,641	\$2,300	\$3,004	\$1,606	\$2,266	\$2,518	\$2,203	\$2,033	\$2,965
YTD \$	\$2,502	\$5,066	\$7,171	\$9,812	\$12,112	\$15,116	\$16,722	\$18,988	\$21,506	\$23,708	\$25,741	\$28,706

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	1,585	1,210	1,385	1,736	1,425	0	5,354	2,054	1,912	1,980	1,643	2,106
YTD Use	1,585	2,795	4,180	5,916	7,341	7,341	12,695	14,749	16,661	18,641	20,284	22,390
Month \$	\$4,927	\$3,662	\$4,066	\$5,675	\$4,159	\$0	\$4,242	\$5,818	\$5,483	\$5,642	\$4,861	\$5,934
YTD \$	\$4,927	\$8,589	\$12,655	\$18,330	\$22,489	\$22,489	\$26,731	\$32,549	\$38,032	\$43,674	\$48,535	\$54,469
Month Rate	\$3.11	\$3.03	\$2.94	\$3.27	\$2.92	\$0.00	\$0.79	\$2.83	\$2.87	\$2.85	\$2.96	\$2.82
YTD Rate	\$3.11	\$3.07	\$3.03	\$3.10	\$3.06	\$3.06	\$2.11	\$2.21	\$2.28	\$2.34	\$2.39	\$2.43

Use Avoidance

Month Use	(780)	(363)	(668)	(928)	(637)	813	(4,634)	(1,254)	(1,034)	(1,207)	(956)	(1,368)
YTD Use	(780)	(1,143)	(1,811)	(2,739)	(3,376)	(2,563)	(7,197)	(8,451)	(9,485)	(10,692)	(11,648)	(13,016)

Cost Avoidance

Month \$	(\$2,425)	(\$1,099)	(\$1,961)	(\$3,034)	(\$1,859)	\$3,004	(\$2,636)	(\$3,552)	(\$2,965)	(\$3,439)	(\$2,828)	(\$2,969)
YTD \$	(\$2,425)	(\$3,523)	(\$5,484)	(\$8,518)	(\$10,377)	(\$7,373)	(\$10,009)	(\$13,561)	(\$16,526)	(\$19,966)	(\$22,794)	(\$25,763)

Meter Detail Report

Meter: Matopas Hills Sewer

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	0	0	0	0	0	17,977	0	0	0	0	0	18,878
YTD Use	0	0	0	0	0	17,977	17,977	17,977	17,977	17,977	17,977	36,855
Month \$	\$0	\$0	\$0	\$0	\$0	\$54,934	\$0	\$0	\$0	\$0	\$0	\$58,745
YTD \$	\$0	\$0	\$0	\$0	\$0	\$54,934	\$54,934	\$54,934	\$54,934	\$54,934	\$54,934	\$113,679
Month Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.06	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.11
YTD Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.06	\$3.06	\$3.06	\$3.06	\$3.06	\$3.06	\$3.08

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	0	0	0	0	0	17,977	0	0	0	0	0	18,878
YTD Use	0	0	0	0	0	17,977	17,977	17,977	17,977	17,977	17,977	36,855
Applicable Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19
Month \$	\$0	\$0	\$0	\$0	\$0	\$75,323	\$0	\$0	\$0	\$0	\$0	\$79,099
YTD \$	\$0	\$0	\$0	\$0	\$0	\$75,323	\$75,323	\$75,323	\$75,323	\$75,323	\$75,323	\$154,422

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	0	0	0	0	0	9,896	0	0	0	0	0	29,602
YTD Use	0	0	0	0	0	9,896	9,896	9,896	9,896	9,896	9,896	39,498
Month \$	\$0	\$0	\$0	\$0	\$0	\$41,464	\$0	\$0	\$0	\$0	\$0	\$124,032
YTD \$	\$0	\$0	\$0	\$0	\$0	\$41,464	\$41,464	\$41,464	\$41,464	\$41,464	\$41,464	\$165,496
Month Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19
YTD Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19

Use Avoidance

Month Use	0	0	0	0	0	8,081	0	0	0	0	0	(10,724)
YTD Use	0	0	0	0	0	8,081	8,081	8,081	8,081	8,081	8,081	(2,643)

Cost Avoidance

Month \$	\$0	\$0	\$0	\$0	\$0	\$33,859	\$0	\$0	\$0	\$0	\$0	(\$44,933)
YTD \$	\$0	\$0	\$0	\$0	\$0	\$33,859	\$33,859	\$33,859	\$33,859	\$33,859	\$33,859	(\$11,074)

Meter Detail Report

Meter: Matopas Hills Water

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	3,079	3,362	2,825	2,742	3,153	2,723	3,101	2,947	3,223	3,281	2,817	3,152
YTD Use	3,079	6,441	9,266	12,008	15,161	17,884	20,985	23,932	27,155	30,436	33,253	36,405
Month \$	\$5,514	\$5,820	\$4,958	\$4,817	\$5,500	\$4,765	\$5,334	\$5,272	\$5,864	\$5,822	\$5,100	\$4,877
YTD \$	\$5,514	\$11,334	\$16,292	\$21,109	\$26,609	\$31,374	\$36,708	\$41,980	\$47,844	\$53,666	\$58,766	\$63,643
Month Rate	\$1.79	\$1.73	\$1.76	\$1.76	\$1.74	\$1.75	\$1.72	\$1.79	\$1.82	\$1.77	\$1.81	\$1.55
YTD Rate	\$1.79	\$1.76	\$1.76	\$1.76	\$1.76	\$1.75	\$1.75	\$1.75	\$1.76	\$1.76	\$1.77	\$1.75

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	3,079	3,362	2,825	2,742	3,153	2,723	3,101	2,947	3,223	3,281	2,817	3,152
YTD Use	3,079	6,441	9,266	12,008	15,161	17,884	20,985	23,932	27,155	30,436	33,253	36,405
Applicable Rate	\$2.47	\$2.50	\$2.50	\$2.50	\$1.74	\$1.75	\$1.72	\$2.47	\$2.75	\$2.43	\$2.54	\$2.47
Month \$	\$7,607	\$8,419	\$7,074	\$6,866	\$5,500	\$4,765	\$5,334	\$7,285	\$8,854	\$7,984	\$7,151	\$7,793
YTD \$	\$7,607	\$16,026	\$23,101	\$29,967	\$35,467	\$40,232	\$45,566	\$52,851	\$61,706	\$69,690	\$76,841	\$84,633

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	5,400	4,467	4,467	4,467	7,489	7,489	7,489	5,348	1,982	7,025	3,794	5,340
YTD Use	5,400	9,867	14,334	18,801	26,290	33,779	41,268	46,616	48,598	55,623	59,417	64,757
Month \$	\$13,342	\$11,186	\$11,186	\$11,186	\$9,517	\$9,517	\$9,517	\$13,221	\$5,445	\$17,095	\$9,631	\$13,202
YTD \$	\$13,342	\$24,528	\$35,714	\$46,900	\$56,417	\$65,934	\$75,451	\$88,672	\$94,117	\$111,212	\$120,843	\$134,045
Month Rate	\$2.47	\$2.50	\$2.50	\$2.50	\$1.27	\$1.27	\$1.27	\$2.47	\$2.75	\$2.43	\$2.54	\$2.47
YTD Rate	\$2.47	\$2.49	\$2.49	\$2.49	\$2.15	\$1.95	\$1.83	\$1.90	\$1.94	\$2.00	\$2.03	\$2.07

Use Avoidance

Month Use	(2,321)	(1,105)	(1,642)	(1,725)	(4,336)	(4,766)	(4,388)	(2,401)	1,241	(3,744)	(977)	(2,188)
YTD Use	(2,321)	(3,426)	(5,068)	(6,793)	(11,129)	(15,895)	(20,283)	(22,684)	(21,443)	(25,187)	(26,164)	(28,352)

Cost Avoidance

Month \$	(\$5,735)	(\$2,767)	(\$4,112)	(\$4,320)	(\$4,017)	(\$4,752)	(\$4,183)	(\$5,936)	\$3,409	(\$9,111)	(\$2,480)	(\$5,409)
YTD \$	(\$5,735)	(\$8,502)	(\$12,613)	(\$16,933)	(\$20,950)	(\$25,702)	(\$29,885)	(\$35,821)	(\$32,411)	(\$41,522)	(\$44,002)	(\$49,412)

Meter Detail Report

Meter: WM Penn Sewer

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	0	0	0	0	0	14,557	0	0	0	0	0	14,318
YTD Use	0	0	0	0	0	14,557	14,557	14,557	14,557	14,557	14,557	28,875
Month \$	\$0	\$0	\$0	\$0	\$0	\$44,532	\$0	\$0	\$0	\$0	\$0	\$43,848
YTD \$	\$0	\$0	\$0	\$0	\$0	\$44,532	\$44,532	\$44,532	\$44,532	\$44,532	\$44,532	\$88,380
Month Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.06	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.06
YTD Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.06	\$3.06	\$3.06	\$3.06	\$3.06	\$3.06	\$3.06

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	0	0	0	0	0	14,557	0	0	0	0	0	14,318
YTD Use	0	0	0	0	0	14,557	14,557	14,557	14,557	14,557	14,557	28,875
Applicable Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19
Month \$	\$0	\$0	\$0	\$0	\$0	\$60,993	\$0	\$0	\$0	\$0	\$0	\$59,992
YTD \$	\$0	\$0	\$0	\$0	\$0	\$60,993	\$60,993	\$60,993	\$60,993	\$60,993	\$60,993	\$120,986

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	0	0	0	0	0	7,438	0	0	0	0	0	20,126
YTD Use	0	0	0	0	0	7,438	7,438	7,438	7,438	7,438	7,438	27,564
Month \$	\$0	\$0	\$0	\$0	\$0	\$31,165	\$0	\$0	\$0	\$0	\$0	\$84,328
YTD \$	\$0	\$0	\$0	\$0	\$0	\$31,165	\$31,165	\$31,165	\$31,165	\$31,165	\$31,165	\$115,493
Month Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19
YTD Rate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19	\$4.19

Use Avoidance

Month Use	0	0	0	0	0	7,119	0	0	0	0	0	(5,808)
YTD Use	0	0	0	0	0	7,119	7,119	7,119	7,119	7,119	7,119	1,311

Cost Avoidance

Month \$	\$0	\$0	\$0	\$0	\$0	\$29,828	\$0	\$0	\$0	\$0	\$0	(\$24,336)
YTD \$	\$0	\$0	\$0	\$0	\$0	\$29,828	\$29,828	\$29,828	\$29,828	\$29,828	\$29,828	\$5,493

Meter Detail Report

Meter: WM Penn Water

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	2,418	2,690	2,397	2,435	2,241	2,415	2,648	2,315	2,646	2,130	2,284	2,233
YTD Use	2,418	5,108	7,505	9,940	12,181	14,596	17,244	19,559	22,205	24,335	26,619	28,852
Month \$	\$4,294	\$4,739	\$4,278	\$4,323	\$4,019	\$4,287	\$4,481	\$4,123	\$4,679	\$3,807	\$4,057	\$3,665
YTD \$	\$4,294	\$9,033	\$13,311	\$17,634	\$21,653	\$25,940	\$30,421	\$34,544	\$39,223	\$43,030	\$47,087	\$50,752
Month Rate	\$1.78	\$1.76	\$1.78	\$1.78	\$1.79	\$1.78	\$1.69	\$1.78	\$1.77	\$1.79	\$1.78	\$1.64
YTD Rate	\$1.78	\$1.77	\$1.77	\$1.77	\$1.78	\$1.78	\$1.76	\$1.77	\$1.77	\$1.77	\$1.77	\$1.76

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	2,418	2,690	2,397	2,435	2,241	2,415	2,648	2,315	2,646	2,130	2,284	2,233
YTD Use	2,418	5,108	7,505	9,940	12,181	14,596	17,244	19,559	22,205	24,335	26,619	28,852
Applicable Rate	\$2.49	\$2.65	\$2.65	\$2.65	\$1.79	\$1.78	\$1.69	\$2.70	\$2.76	\$2.71	\$2.66	\$2.47
Month \$	\$6,021	\$7,142	\$6,364	\$6,465	\$4,019	\$4,287	\$4,481	\$6,259	\$7,293	\$5,767	\$6,082	\$5,520
YTD \$	\$6,021	\$13,163	\$19,527	\$25,991	\$30,010	\$34,297	\$38,778	\$45,038	\$52,330	\$58,097	\$64,179	\$69,699

Actual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	4,411	2,298	2,298	2,298	2,393	2,393	2,393	2,025	1,776	1,999	2,245	4,890
YTD Use	3,297	5,595	7,893	10,191	12,584	14,977	17,370	19,395	21,171	23,170	25,415	30,305
Month \$	\$10,984	\$6,101	\$6,101	\$6,101	\$2,887	\$2,887	\$2,887	\$5,475	\$4,895	\$5,412	\$5,978	\$12,088
YTD \$	\$10,984	\$17,085	\$23,186	\$29,287	\$32,174	\$35,061	\$37,948	\$43,423	\$48,318	\$53,730	\$59,708	\$71,796
Month Rate	\$2.49	\$2.65	\$2.65	\$2.65	\$1.21	\$1.21	\$1.21	\$2.70	\$2.76	\$2.71	\$2.66	\$2.47
YTD Rate	\$3.33	\$3.05	\$2.94	\$2.87	\$2.56	\$2.34	\$2.18	\$2.24	\$2.28	\$2.32	\$2.35	\$2.37

Use Avoidance

Month Use	(1,993)	392	99	137	(152)	22	255	290	870	131	39	(2,657)
YTD Use	(1,993)	(1,601)	(1,502)	(1,365)	(1,517)	(1,495)	(1,240)	(950)	(80)	51	90	(2,567)

Cost Avoidance

Month \$	(\$4,963)	\$1,041	\$263	\$364	\$1,132	\$1,400	\$1,594	\$784	\$2,398	\$355	\$104	(\$6,568)
YTD \$	(\$4,963)	(\$3,922)	(\$3,659)	(\$3,296)	(\$2,164)	(\$764)	\$830	\$1,615	\$4,012	\$4,367	\$4,471	(\$2,097)

Meter Detail Report

Meter: Matopas Hills Gas

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	4,159	3,879	4,000	1,519	263	428	767	-	204	534	2,051	4,349
YTD Use	4,159	8,038	12,038	13,557	13,820	14,248	15,015	15,015	15,219	15,753	17,804	22,153
Month \$	\$ 48,538	\$ 45,264	\$ 46,682	\$ 17,722	\$ 3,064	\$ 4,989	\$ 8,951	\$ -	\$ 2,381	\$ 6,232	\$ 23,936	\$ 50,755
YTD \$	\$ 48,538	\$ 93,802	\$ 140,484	\$ 158,206	\$ 161,270	\$ 166,259	\$ 175,210	\$ 175,210	\$ 177,591	\$ 183,823	\$ 207,759	\$ 258,514
BP Length	35	29	29	29	32	29	31	31	30	29	29	33
HDD	866	752	668	228	92	-	-	-	-	64	327	767
CDD	-	-	-	6	-	212	355	390	275	41	-	-
Month Rate	\$ 11.671	\$ 11.669	\$ 11.671	\$ 11.667	\$ 11.650	\$ 11.657	\$ 11.670	\$ -	\$ 11.672	\$ 11.670	\$ 11.670	\$ 11.670
YTD Rate	\$ 11.671	\$ 11.670	\$ 11.670	\$ 11.670	\$ 11.669	\$ 11.669	\$ 11.669	\$ 11.669	\$ 11.669	\$ 11.669	\$ 11.669	\$ 11.669

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	5,085	5,454	4,081	1,695	643	307	260	252	278	678	1,037	2,163
YTD Use	5,085	10,539	14,619	16,314	16,958	17,265	17,525	17,777	18,055	18,732	19,769	21,933
Month \$	\$ 68,800	\$ 73,787	\$ 55,212	\$ 22,936	\$ 8,705	\$ 4,153	\$ 3,524	\$ 3,407	\$ 3,759	\$ 9,167	\$ 14,025	\$ 29,272
YTD \$	\$ 68,800	\$ 142,586	\$ 197,798	\$ 220,734	\$ 229,439	\$ 233,592	\$ 237,117	\$ 240,524	\$ 244,283	\$ 253,450	\$ 267,476	\$ 296,747
BP Length	35	29	29	29	30	31	30	29	32	29	28	31
HDD	949	1,033	760	287	76	8	-	-	-	85	158	376
CDD	-	-	-	3	98	321	384	435	373	64	7	-
Month Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530
YTD Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530

SimActual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	3,376	3,341	2,835	2,040	988	453	376	331	373	712	1,436	2,047
YTD Use	3,376	6,717	9,552	11,592	12,580	13,033	13,409	13,740	14,113	14,825	16,261	18,308
Month \$	\$ 45,677	\$ 45,204	\$ 38,358	\$ 27,601	\$ 13,368	\$ 6,129	\$ 5,087	\$ 4,478	\$ 5,047	\$ 9,633	\$ 19,429	\$ 27,696
YTD \$	\$ 45,677	\$ 90,881	\$ 129,239	\$ 156,840	\$ 170,207	\$ 176,336	\$ 181,424	\$ 185,902	\$ 190,949	\$ 200,582	\$ 220,011	\$ 247,707
BP Length	35	29	29	29	30	31	30	29	32	29	28	31
HDD	949	1,033	760	287	76	8	-	-	-	85	158	376
CDD	-	-	-	3	98	321	384	435	373	64	7	-
Month Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530
YTD Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530

Use Avoidance

Month Use	1,709	2,113	1,246	(345)	(345)	(146)	(116)	(79)	(95)	(34)	(399)	116
YTD Use	1,709	3,822	5,067	4,722	4,378	4,232	4,116	4,037	3,942	3,907	3,508	3,625

Cost Avoidance

Month Use \$	\$ 23,123	\$ 28,583	\$ 16,854	\$ (4,665)	\$ (4,663)	\$ (1,976)	\$ (1,563)	\$ (1,071)	\$ (1,287)	\$ (467)	\$ (5,404)	\$ 1,576
YTD \$	\$ 23,123	\$ 51,705	\$ 68,560	\$ 63,895	\$ 59,232	\$ 57,256	\$ 55,693	\$ 54,622	\$ 53,334	\$ 52,868	\$ 47,464	\$ 49,040

Meter Detail Report

Meter: WM Penn Gas

Reference

	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005	Jun 2005	Jul 2004	Aug 2004	Sep 2004	Oct 2004	Nov 2004	Dec 2004
Month Use	1,670	1,331	1,316	734	442	278	226	209	223	405	740	1,275
YTD Use	1,670	3,001	4,317	5,051	5,493	5,771	5,997	6,206	6,429	6,834	7,574	8,849
Month \$	\$ 19,490	\$ 15,533	\$ 15,358	\$ 8,560	\$ 5,158	\$ 3,244	\$ 2,632	\$ 2,439	\$ 2,597	\$ 4,721	\$ 8,630	\$ 14,874
YTD \$	\$ 19,490	\$ 35,023	\$ 50,381	\$ 58,941	\$ 64,099	\$ 67,343	\$ 69,975	\$ 72,414	\$ 75,011	\$ 79,732	\$ 88,362	\$ 103,236
BP Length	30	28	32	30	31	31	33	31	30	30	32	29
HDD	795	747	568	169	36	-	-	-	1	197	514	738
CDD	-	-	-	6	46	307	434	345	173	4	-	-
Month Rate	\$ 11.671	\$ 11.670	\$ 11.670	\$ 11.662	\$ 11.670	\$ 11.669	\$ 11.646	\$ 11.670	\$ 11.646	\$ 11.657	\$ 11.662	\$ 11.666
YTD Rate	\$ 11.671	\$ 11.670	\$ 11.670	\$ 11.669	\$ 11.669	\$ 11.669	\$ 11.668	\$ 11.668	\$ 11.668	\$ 11.667	\$ 11.666	\$ 11.666

Baseline

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	1,747	1,824	1,407	683	369	273	253	244	244	386	490	836
YTD Use	1,747	3,571	4,978	5,661	6,030	6,302	6,555	6,799	7,044	7,430	7,920	8,756
Month \$	\$ 23,635	\$ 24,679	\$ 19,038	\$ 9,237	\$ 4,993	\$ 3,689	\$ 3,420	\$ 3,306	\$ 3,306	\$ 5,221	\$ 6,628	\$ 11,317
YTD \$	\$ 23,635	\$ 48,314	\$ 67,352	\$ 76,589	\$ 81,582	\$ 85,271	\$ 88,691	\$ 91,996	\$ 95,302	\$ 100,523	\$ 107,151	\$ 118,469
BP Length	35	29	29	29	30	31	30	29	29	31	29	31
HDD	949	1,033	760	287	76	8	-	-	-	82	161	376
CDD	-	-	-	3	98	321	384	435	353	84	7	-
Month Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530
YTD Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530

SimActual

	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015
Month Use	1,699	1,759	1,371	765	411	264	229	205	193	368	580	913
YTD Use	1,699	3,458	4,829	5,594	6,005	6,269	6,498	6,703	6,896	7,264	7,844	8,757
Month \$	\$ 22,987	\$ 23,799	\$ 18,550	\$ 10,350	\$ 5,561	\$ 3,572	\$ 3,098	\$ 2,774	\$ 2,611	\$ 4,979	\$ 7,847	\$ 12,353
YTD \$	\$ 22,987	\$ 46,787	\$ 65,336	\$ 75,687	\$ 81,248	\$ 84,820	\$ 87,918	\$ 90,692	\$ 93,303	\$ 98,282	\$ 106,129	\$ 118,482
BP Length	35	31	29	29	29	32	30	29	32	28	30	33
HDD	974	981	750	342	82	5	-	-	1	51	330	702
CDD	-	-	-	8	34	226	401	286	259	50	-	-
Month Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530
YTD Rate	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530	\$ 13.530

Use Avoidance

Month Use	48	65	36	(82)	(42)	9	24	39	51	18	(90)	(77)
YTD Use	48	113	149	67	25	33	57	96	148	166	76	(1)

Cost Avoidance

Month Use \$	\$ 647	\$ 880	\$ 489	\$ (1,114)	\$ (568)	\$ 117	\$ 321	\$ 532	\$ 695	\$ 242	\$ (1,219)	\$ (1,036)
YTD \$	\$ 647	\$ 1,527	\$ 2,016	\$ 902	\$ 334	\$ 451	\$ 773	\$ 1,305	\$ 1,999	\$ 2,241	\$ 1,022	\$ (14)

Report Delivery Receipt

Honeywell has presented the Cost Avoidance Review for Chester Housing Authority, Contract No. 40105934. This report details energy savings results for Calendar Year 2015 and indicates a total cost avoidance of \$355,528 for the calendar year compared to the annual guarantee/rolling base year savings of \$276,614. The net savings for January 2015 – December 2015 is \$78,913.

Please sign below to acknowledge receipt of this report. Your signature does not indicate acceptance of the results. If the results are not agreed upon, Chester Housing Authority has forty-five (45) days from the delivery date of this report to provide a detailed explanation and request for action, in writing, to Honeywell International, Inc., Energy Analyst, 5006 103rd Street, Lubbock, TX 79424. Otherwise, the cost avoidance results will be deemed accepted.

Received by:

Presented by:

Name (please print)

Name (please print)

Signature

Signature

Date

Date