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PUBLIC SERVICE
COMMISSION

Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

**Louisville Gas and Electric
Company**
State Regulation and Rates
220 West Main Street
PO Box 32010
Louisville, Kentucky 40232

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April 1, 2016

**RE: *The Application of Louisville Gas and Electric Company for Approval
of a Permanent Statistical Meter Sampling Plan***
Case No. 2000-00278
And
***The Application of Louisville Gas and Electric Company to Implement a
Gas Regulator Inspection Program***
Case No. 2012-00491

Dear Executive Director:

Enclosed please find Louisville Gas and Electric Company's 2015 Gas Meter Performance Control Plan and Residential Gas Regulator Performance Control Program pursuant to the Commission's Orders in the above mentioned proceedings.

Should you have any questions concerning the enclosed, please contact me at your convenience.

Sincerely,

Rick E. Lovekamp

Enclosure

LG&E

Gas Meter Sampling Plan Results

Louisville Gas and Electric Company (LG&E) Year 2015 Gas Meter Sampling Plan Results

I. Introduction

The 2015 LG&E Gas Meter Performance Control Program required 8,642 gas meters within 151 control groups be tested and their accuracy performance documented.

Any sampled meter which proof tested beyond +/- 2% (fast or slow) was considered to be a failed meter. Of the control groups sampled during 2015, seven control groups failed the sampling criteria. This report summarizes the results of the 2015 LG&E Gas Meter Sampling Program.

II. Meter Performance

The meter groups were separated into three capacity classifications. Meters with capacities up to and including 500 CFH, which consist of primarily residential meters, represented the largest group with 104 control groups and 7,605 meters to be tested. Meters with capacities which range from 501 CFH to 1500 CFH (Commercial), made up the second largest group with thirty-nine control groups and 897 meters to be tested. Meters with capacities 1501 CFH (Industrial) and above comprised the balance of the sampling with eight control groups and 140 meters to be tested.

A summary of each control group, along with statistical analysis data, is shown in Appendix A. The sample groups are arranged from low to high capacity. The definitions of selected statistical categories including the reasons for not testing a particular meter are included.

In the 2015 sampling program, 142 of the 151 control groups passed the sampling criteria, while there was one lot reported as no meter test prior, one prior year failed meter lot, and seven 2015 failed meter lots.

Residential Class - Up to and including 500 cfh

Strong Performing Groups

The stronger performing meter groups in this capacity continue to be the American AL175, AC250, and the AL425 models. Of the 1,834 meters in the twenty-nine control groups of AL175 meters, only sixteen individual meters failed the sampling criteria, a 0.87% failure rate. The twenty-five AC250 control groups had a total of nine individual meter failures out of the 1,724 meters tested, a 0.52 % failure rate. The fifteen AL425 control groups totaling 480 meters experienced eight individual meter failures, a 1.67% failure rate.

The American Meter Company AC250 residential model was the primary type of residential gas meter LG&E purchased as additional stock, which continues to improve the overall accuracy of the installed meter population.

Residential Reduced Sampling Requirements

Test results from 2015 were analyzed for the below groups to verify each model did not exceed the Limit Numbers For Reduced Inspection, Table VIII, under the American Standard – Sampling Procedures and Tables For Inspection By Attributes guidelines.

Model – American AL175 CFH – 033 and 33A
Oldest 10 Control Groups Tested = 614 Meters Tested
Limit Number For Reduced Testing - 25
Actual Deviate Meters - 11

Model – American AL425CFH - 015
Oldest 10 Control Groups Tested = 320 Meters Tested
Limit Number For Reduced Testing - 14
Actual Deviate Meters - 8

Model – American AC250 CFH - 078
Oldest 10 Control Groups Tested = 584 Meters Tested
Limit Number For Reduced Testing - 25
Actual Deviate Meters - 5

The below models will remain on Reduced Sampling in year 2016

American Model AL175 Model Code 033 and 33A
American Model AL425 Model Code 015
American Model AC250 Model Code 078

Weaker Performing Residential Group

The Rockwell 175 CFH meters, size codes 024, 24T, and 24B, continue to be one of the weaker performing models. Of the twenty-eight Rockwell R175 control groups consisting of 2,860 meters sampled this year, 137 of the individual meters failed the sampling criteria for a 4.79% failure rate.

Beginning in 2010, the 024 Rockwell R175 meters were divided into two sub-groups when remanufactured, becoming either size code 024T (top badge) or 024B (bottom badge). The 024T size code is the oldest vintage of the R175 models by original manufacturing year in the LG&E meter population and the 024B being the newer vintage. Due to the R175 model in general being a poorer performer in proof retention, this group of meters was sub-grouped to help LG&E determine at some future date if either sub-group should no longer be remanufactured and placed back into service.

As stated in the 2014 report, due to the performance record, as of 2015 the R175 (meter size codes 024, 024T, and 024B) will no longer be refurbished and will be removed from service.

The Actaris 250 Metris gas meter, size codes 018 and 18T, had six control groups tested this year and experienced twenty-four failures out of 705 meters tested, which was a 3.40% failure rate. These models are not being refurbished and will be removed from service.

Commercial Class - 501 cfh up to and including 1500 cfh

In general, the commercial class control groups performed well in 2015. There were five failed lots, all were Rockwell #3 EMCO's: 2006, 2008, 2010, 2011, and 2013. In the Rockwell #3 EMCO 2006 lot, there were a total of five meters, with a sample of two, and had one meter fail. All five were removed from service in 2015 as an exhaust group. In the Rockwell #3 EMCO 2008 lot, there were a total of twenty-one meters, with a sample of eight, and had four meters fail. In the Rockwell #3 EMCO 2010 lot, there were a total of forty-three meters, with a sample of eight, and had two meters fail. In the Rockwell #3 EMCO 2011 lot, there were a total of forty-nine meters, with a sample of eight, and had three meters fail. In the Rockwell #3 EMCO 2013 lot, there were a total of sixty-nine meters, with a sample of thirteen, and had four meters fail.

The American AL800 gas meters within the nine control groups tested had zero meters failure out of the 105 meters measured, for a 0.00% failure rate.

The American AL1000 contained seven groups tested, there were eleven individual meter failures out of the 296 meters measured, for a 3.72% failure rate.

The 2015 Gas Meter Sample Plan contained the balance of a 2014 failed meter group of 2005 AL1400 gas meters. The balance of American AL1400 meters experienced zero meter failures within the remaining six control groups tested.

The Rockwell #3 EMCO had the poorest performing groups, with five of the seven groups failing. The Rockwell #3 EMCO control groups experienced fifteen individual meter failures within the seven control groups of forty-nine meters tested for a 30.61% failure rate.

The eight Rockwell R750 control groups demonstrated acceptable performance with seven individual meter failures within the 292 meters tested for a 2.40% failure rate.

The one Rockwell 800 meter was removed and passed its accuracy test.

Beginning in 2003, all Commercial Class Control Groups, regardless of whether they meet the Limit Numbers For Reduced Inspection, Table VIII, under the American Standard – Sampling Procedures and Tables For Inspection By Attributes guidelines, have been placed on the Single Sampling Plan For Normal Inspection due to the small volume of meters in the Commercial Class Control Groups.

Industrial Class - Over 1500 cfh

The eight control groups in this capacity range performed well with one group failing; 2012 #10MEMCO. The 2012 #10MEMCO failed meter lot contained total of twenty-six meters, with a sample of eight, and had three individual meters fail, a 37.5% failure rate. The balance of the seven control groups contained eighty-four meters with five failures for a 5.95% failure rate.

Beginning in 2003, all Industrial Class control groups, regardless of whether they meet the Limit Numbers For Reduced Inspection, Table VIII, under the American Standard – Sampling Procedures and Tables For Inspection By Attributes guidelines, have been placed on the Single Sampling Plan For Normal Inspection due to the small volume of meters in the Industrial Class control groups.

Failed Groups of #3EMCO and #10MEMCO

In 2016, LG&E will be evaluating a plan to remove all #3XEMCO, #4XEMCO, and #10MEMCO from service.

Prior Meters

One residential meter, the 1985 Rockwell R200; a discontinued model by LG&E.

One commercial meter with an install year of 2005 that was not changed in 2015 due to customer request, meter is planned to be exchanged in 2016 as part of a main replacement.

One industrial meter, the 2010 Rockwell #4XEMCO; meter planned to be removed in 2016 as part of a high pressure service replacement.

The above three meters will be classified as “Prior Meters” in service year 2016, and multiple annual attempts will continue to be made to remove these meters from service.

III. Safety

As part of the LG&E Meter Sampling change-out activities, safety inspections were performed and “red-tags” were issued when deficiencies were found which resulted in a customer’s appliance being left off, branch line from the customer’s gas service left off, or the entire customer’s gas service left off until the deficiency was corrected by the customer or by LG&E. The results of these safety inspections that are directly associated with LG&E’s Meter Sampling Program are summarized in Table 2 below.

Table 2: Year 2015 Safety Inspection Results

Type of Problem/Appliance	# of "Red Tags"
FLEXLINE THRU FURNACE WALL	40
WATER HEATER NOT PROPERLY VENTED	33
BRASS FLEXLINE WATER HEATER	8
FURNACE LEAKING	6
HOUSE LINE LEAK	6
FIREPLACE LEAKING	4
COOKSTOVE LEAKING	3
BRASS FLEXLINE COOKSTOVE	2
BRASS FLEXLINE FURNACE	2
WATER HEATER LEAKING	2
DRYER LEAKING	1
SPACE HEATER NOT VENTED	1
OTHER	2
Grand Total	110

Additionally 958 Surveillance Notices were issued to correct outside deficiencies. Said deficiencies will be corrected by either the customer or by LG&E depending on ownership. The results of these surveillances directly associated with LG&E’s Meter Sampling Program are summarized in Table 3 below.

Table 3: Year 2015 Customer Surveillance Notices Issued

Type Of Customer Notice Issued	Number Issued
Corrosion / Rust On Outside Meter Loop & Associated Piping	787
Gas Piping Not Properly Supported	91
Tree / Shrubbery Growing Inside / Against Meter Loop	20
Meter Not Protected From Vehicular Damage	13
Meter Loop Too Low - In Contact With Soil / Pavement	4
No Plastic Sleeve Around Riser Going Through Pavement	4
Other	39

IV. Year 2015 Residential Meter Sampling Savings

Table 4 highlights the estimated savings between a periodic change schedule and the LG&E Gas Meter Performance Control Program for the purchase of new/remanufactured residential class gas meters.

Table 4: 2015 Residential Class Meter Sampling Program Estimated Savings

Meter Purchase Savings: Residential Gas Meters	
Periodic Program Costs (10-year Program):	
Number of Meters under Periodic Program [1]	32,541
Unit Remanufacture Cost – Average Blended Cost	\$32.77
Residential Meter Costs Under Periodic Program	\$1,066,369
Sampling Program Costs:	
Number of Meters under Sampling Program	7,605
Number of poor performing meters scrapped	3,567
Number of Meters for Remanufacture	4,038
Remanufactured Meters	4,038
Average Unit Remanufacture Cost – All Models	\$32.77
Remanufactured Meter Costs	\$132,325
Replacement Meters for Meters Scrapped	3,567
Average Replacement Meter Cost (per unit)	\$49.50
Replacement Meter Costs	\$176,567
Total Residential Meter Costs Under 2015 Program	\$308,892
Meter Cost Savings From 2015 Program	\$757,477

[1] Based On Residential Meters On Line Beginning in Year 2015

APPENDIX A

Control Group Data/Analysis

Statistical Definitions

MEAN

The mean is the average of all numbers.

STANDARD DEVIATION

The standard deviation is a measure of how widely values are dispersed from the average value (the mean).

SAMPLE MINIMUM AND MAXIMUM

The minimum and maximum are the values of the least and greatest elements a sample.

Notes and Acronyms Explanation

Prior

Prior indicates that a gas meter is out of compliance with its life expectancy. Meter lots will be listed as “prior” until all remaining meters in a particular lot are removed.

Exhaust

Exhaust indicates that the gas meter lot has reached its life expectancy and all meters were removed.

Missing

Missing indicates that a gas meter in the lot cannot be found and will be excluded from future sample selections.

Exh/Miss (Exhaust/Missing)

Exh/Miss indicates that the gas meter group has reached its life expectancy and contained a meter that is missing.

Exh/CGI (Exhaust/Can't Get In)

Exh/CGI indicates that the gas meter group has reached its life expectancy and contained a gas meter with no access.

FM (Failed Meter Group)

FM indicates failed meter group followed in parenthesis by the date the meter group failed.

NT-Prior (No Test, Prior)

NT-Prior indicates meter removed, but no test for a meter that was out of compliance with its life expectancy.

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY <=500CFH

SINGLE SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
Schlumberger	018	250	2000	665	80	Single	80	80	10	11	0	0	0	0.41	0.60	-1.25	2.00	Pass	
Schlumberger	018	250	2001	345	50	Single	50	50	7	8	0	0	0	-0.10	0.58	-1.15	1.35	Pass	
Schlumberger	018	250	2002	2914	125	Single	125	125	14	15	3	0	3	-0.49	0.74	-2.50	1.25	Pass	
Schlumberger	018	250	2003	4044	200	Single	200	200	21	22	9	0	9	-0.61	0.79	-4.55	1.20	Pass	
Schlumberger	018	250	2004	4009	200	Single	200	200	21	22	6	4	10	-0.33	1.07	-2.65	7.00	Pass	
Schlumberger	018T	250	2002	284	50	Single	50	50	7	8	1	1	2	-0.49	0.74	-2.25	2.55	Pass	
Rockwell	024	R175	1986	2816	125	Single	125	125	14	15	3	11	14	0.76	1.37	-5.50	4.55	Pass	
Rockwell	024	R175	1987	2708	125	Single	125	125	14	15	3	6	9	0.50	1.12	-3.95	4.20	Pass	
Rockwell	024	R175	1988	1914	125	Single	125	125	14	15	3	3	6	0.33	1.28	-10.10	2.45	Pass	
Rockwell	024	R175	1989	2840	125	Single	125	125	14	15	0	5	5	0.70	0.86	-1.45	2.65	Pass	
Rockwell	024	R175	1990	2441	125	Single	125	125	14	15	2	9	11	0.50	1.05	-2.40	3.50	Pass	
Rockwell	024	R175	1991	2724	125	Single	125	125	14	15	1	9	10	0.75	1.01	-3.10	3.25	Pass	
Rockwell	024	R175	1992	3021	125	Single	125	125	14	15	3	3	6	0.10	1.11	-2.95	2.60	Pass	
Rockwell	024	R175	1993	3275	200	Single	200	200	21	22	8	8	16	0.21	1.17	-3.15	2.60	Pass	
Rockwell	024	R175	1994	2390	125	Single	125	125	14	15	1	8	9	0.46	1.20	-6.55	3.15	Pass	
Rockwell	024	R175	1995	2222	125	Single	125	125	14	15	2	2	4	0.32	1.07	-3.75	3.10	Pass	
Rockwell	024	R175	1996	837	80	Single	80	80	10	11	1	1	2	0.09	0.94	-2.15	3.05	Pass	
Rockwell	024	R175	1997	278	32	Single	32	32	5	6	4	3	7	-0.42	2.63	-12.25	2.60	Fail	
Rockwell	024	R175	1998	598	80	Single	80	80	10	11	3	3	6	0.04	1.28	-6.30	3.80	Pass	
Rockwell	024	R175	1999	1134	80	Single	80	80	10	11	2	5	7	0.17	3.04	-24.85	2.75	Pass	
Rockwell	024	R175	2000	656	80	Single	80	80	10	11	0	0	0	0.24	0.75	-1.50	1.80	Pass	

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY <=500CFH

SINGLE SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
Rockwell	024	R175	2001	728	80	Single	80	80	10	11	0	1	1	0.30	0.80	-1.80	2.60	Pass	
Rockwell	024	R175	2002	1052	80	Single	80	80	10	11	3	0	3	0.26	1.42	-8.30	1.95	Pass	
Rockwell	024	R175	2003	1716	125	Single	125	125	14	15	4	1	5	0.03	1.62	-10.35	2.80	Pass	
Rockwell	024	R175	2004	2123	125	Single	125	125	14	15	1	4	5	0.27	1.31	-10.70	2.35	Pass	
Rockwell	024	R175	2005	2773	125	Single	125	125	14	15	1	2	3	0.26	1.03	-7.80	2.85	Pass	
Rockwell	024	R175	2006	3018	125	Single	125	125	14	15	2	1	3	0.47	0.88	-3.80	2.80	Pass	
Rockwell	024	R175	2007	2462	125	Single	125	125	14	15	2	2	4	0.20	1.00	-4.70	2.55	Pass	
Rockwell	024	R175	2013	1	1	Single	1	1	0	1	0	0	0	1.00		1.00	1.00	Pass	
Rockwell	024B	R175	2009	60	32	Single	32	32	2	3	0	0	0	0.17	0.98	-1.95	1.90	Pass	
Rockwell	024B	R175	2011	682	80	Single	80	80	10	11	0	0	0	0.11	0.83	-1.80	2.00	Pass	
Rockwell	024B	R175	2013	1409	125	Single	125	125	14	15	0	0	0	0.55	0.61	-1.35	1.95	Pass	
Rockwell	024T	R175	2011	577	80	Single	80	80	10	11	0	0	0	0.52	0.72	-2.00	1.95	Pass	
Rockwell	024T	R175	2013	849	80	Single	80	80	10	11	0	1	1	0.66	0.75	-0.85	2.35	Pass	
Rockwell	079	R200	1985	2	1	Single	2	1	0	1	0	0	0	0.75		0.75	0.75	Pass	Prior
<500 CFH Totals				59567	3566		3567	3566			68	93	161						
35 Control Groups																			

LOUISVILLE GAS AND ELECTRIC COMPANY
 GAS METER SAMPLING PLAN - 2015
 CAPACITY 501-1500CFH
 SINGLE SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Meters Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
American	014	AL1000	2006	118	20	Single	20	20	3	4	2	0	2	-0.69	1.15	-3.75	0.80	Pass	
American	014	AL1000	2007	167	32	Single	32	32	5	6	0	0	0	-0.04	0.86	-1.85	1.65	Pass	
American	014	AL1000	2008	237	32	Single	32	32	5	6	3	0	3	-0.16	1.22	-3.35	1.75	Pass	
American	014	AL1000	2009	279	32	Single	32	32	5	6	1	0	1	-0.20	0.78	-2.45	0.90	Pass	
American	014	AL1000	2010	344	50	Single	50	50	7	8	4	0	4	-0.34	1.08	-4.05	1.80	Pass	
American	014	AL1000	2011	467	50	Single	50	50	7	8	0	0	0	-0.44	0.69	-1.95	1.35	Pass	
American	014	AL1000	2013	706	80	Single	80	80	10	11	1	0	1	-0.11	0.75	-3.05	1.80	Pass	
American	019	AL1400	2005	7	6	Single		6											FM (2014)
American	019	AL1400	2006	3	2	Single	2	2	0	1	0	0	0	-1.63	0.46	-1.95	-1.30	Pass	
American	019	AL1400	2007	8	2	Single	2	2	0	1	0	0	0	-1.55	0.28	-1.75	-1.35	Pass	
American	019	AL1400	2008	7	2	Single	2	2	0	1	0	0	0	-1.83	0.25	-2.00	-1.65	Pass	
American	019	AL1400	2010	2	2	Single	2	2	0	1	0	0	0	-1.78	0.25	-1.95	-1.60	Pass	
American	019	AL1400	2011	9	2	Single	2	2	0	1	0	0	0	-1.10	0.28	-1.30	-0.90	Pass	
American	019	AL1400	2013	24	8	Single	8	8	1	2	0	0	0	-0.79	0.98	-1.80	1.05	Pass	
Rockwell	053	R800	2013	1	1	Single	1	1	0	1	0	0	0	0.80		0.80	0.80	Pass	
Rockwell	056	3XEMCO	2005	5	5	Single	2	2	0	1	0	0	0	1.03	1.38	0.05	2.00	Pass	Exhaust
Rockwell	056	3XEMCO	2006	5	2	Single	2	2	0	1	1	0	1	-1.88	1.59	-3.00	-0.75	Fail	
Rockwell	056	3XEMCO	2007	22	8	Single	8	8	1	2	0	1	1	-0.02	1.94	-1.50	4.25	Pass	
Rockwell	056	3XEMCO	2008	21	8	Single	8	8	1	2	4	0	4	-1.34	2.03	-5.15	1.15	Fail	
Rockwell	056	3XEMCO	2010	43	8	Single	8	8	1	2	2	0	2	-0.58	2.67	-6.30	1.85	Fail	
Rockwell	056	3XEMCO	2011	49	8	Single	8	8	1	2	3	0	3	-1.36	1.84	-4.15	1.20	Fail	

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY 501-1500CFH

SINGLE SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Meters Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
Rockwell	056	3XEMCO	2013	69	13	Single	13	13	2	3	2	2	4	0.23	1.98	-2.20	4.60	Fail	
Rockwell	058	R750	2005	151	151	Single	32	32	5	6	1	0	1	0.00	0.77	-2.40	1.35	Pass	Exhaust
Rockwell	058	R750	2006	164	32	Single	32	32	5	6	0	0	0	0.02	0.78	-1.70	1.70	Pass	
Rockwell	058	R750	2007	202	32	Single	32	32	5	6	0	0	0	0.40	0.79	-1.70	2.00	Pass	
Rockwell	058	R750	2008	216	32	Single	32	32	5	6	2	0	2	0.09	1.18	-3.25	1.90	Pass	
Rockwell	058	R750	2009	236	32	Single	32	32	5	6	0	0	0	0.36	0.69	-0.85	1.80	Pass	
Rockwell	058	R750	2010	245	32	Single	32	32	5	6	0	1	1	0.38	0.89	-1.70	3.00	Pass	
Rockwell	058	R750	2011	318	50	Single	50	50	7	8	3	0	3	0.00	1.17	-3.70	2.00	Pass	
Rockwell	058	R750	2013	337	50	Single	50	50	7	8	0	0	0	0.27	0.51	-1.55	1.45	Pass	
American	076	AL800	2004	1	1	Single	1	1	0	1								Pass	NT-Prior
American	076	AL800	2005	9	8	Single	2	2	0	1	0	0	0	-0.60	1.56	-1.70	0.50	Pass	Exh/CGI
American	076	AL800	2006	18	8	Single	8	8	1	2	0	0	0	-0.11	0.87	-1.80	1.05	Pass	
American	076	AL800	2007	22	8	Single	8	8	1	2	0	0	0	0.02	0.55	-0.60	0.95	Pass	
American	076	AL800	2008	38	8	Single	8	8	1	2	0	0	0	-0.31	0.76	-1.80	0.80	Pass	
American	076	AL800	2009	65	13	Single	13	13	2	3	0	0	0	-0.21	0.96	-1.55	2.00	Pass	
American	076	AL800	2010	82	13	Single	13	13	2	3	0	0	0	-0.51	0.71	-1.35	1.05	Pass	
American	076	AL800	2011	117	20	Single	20	20	3	4	0	0	0	-0.12	0.79	-1.70	1.75	Pass	
American	076	AL800	2013	156	32	Single	32	32	5	6	0	0	0	0.18	0.78	-1.35	2.00	Pass	
500-1500 CFH Totals				4970	895		761	767			29	4	33						
39 Control Groups																			

LOUISVILLE GAS AND ELECTRIC COMPANY
 GAS METER SAMPLING PLAN - 2015
 CAPACITY >1500CFH
 SINGLE SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Meters Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes	
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum			
Rockwell	028	4XEMCO	2010	47	46	Single	8	8	1	2	0	0	0	0.07	0.84	-1.20	1.25	Pass	Exh/CGI	
Rockwell	028	4XEMCO	2011	65	13	Single	13	13	2	3	0	0	0	-0.45	0.66	-1.70	0.70	Pass		
Rockwell	028	4XEMCO	2012	74	13	Single	13	13	2	3	0	1	1	0.40	1.45	-2.00	3.35	Pass		
Rockwell	028	4XEMCO	2013	156	32	Single	32	32	5	6	0	4	4	0.42	1.61	-1.55	4.95	Pass		
Rockwell	061	10MEMCO	2010	17	17	Single	8	8	1	2	0	0	0	-0.53	0.53	-1.45	0.15	Pass	Exhaust	
Rockwell	061	10MEMCO	2011	15	2	Single	2	2	0	1	0	0	0	0.23	0.53	-0.15	0.60	Pass		
Rockwell	061	10MEMCO	2012	26	8	Single	8	8	1	2	0	3	3	3.01	4.71	-0.50	13.40	Fail		
Rockwell	061	10MEMCO	2013	31	8	Single	8	8	1	2	0	0	0	0.18	0.57	-0.90	0.75	Pass		
>1500 CFH Totals				431	139		92	92			0	8	8							
8 Control Groups																				

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY <=500CFH

REDUCED SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Meters Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
American	015	AL425	1996	237	32	Reduced	32	32	2	5	0	0	0	-0.24	0.65	-1.25	1.25	Pass	
American	015	AL425	1997	162	32	Reduced	32	32	2	5	0	1	1	0.02	0.98	-1.90	2.55	Pass	
American	015	AL425	1998	249	32	Reduced	32	32	2	5	0	2	2	-0.04	0.98	-1.30	3.45	Pass	
American	015	AL425	1999	149	32	Reduced	32	32	1	4	1	0	1	-0.34	1.81	-9.55	1.40	Pass	
American	015	AL425	2000	186	32	Reduced	32	32	2	5	0	0	0	0.08	0.51	-0.70	1.20	Pass	
American	015	AL425	2001	295	32	Reduced	32	32	3	6	2	1	3	-0.10	1.07	-3.40	3.65	Pass	
American	015	AL425	2002	116	32	Reduced	32	32	1	4	0	0	0	-0.15	0.53	-1.75	0.90	Pass	
American	015	AL425	2003	139	32	Reduced	32	32	1	4	0	0	0	-0.30	0.48	-1.00	0.60	Pass	
American	015	AL425	2004	202	32	Reduced	32	32	2	5	0	0	0	-0.07	0.60	-1.80	0.95	Pass	
American	015	AL425	2005	333	32	Reduced	32	32	3	6	1	0	1	0.07	0.87	-2.95	1.75	Pass	
American	015	AL425	2006	409	32	Reduced	32	32	3	6	0	0	0	-0.03	0.57	-1.05	1.30	Pass	
American	015	AL425	2007	378	32	Reduced	32	32	3	6	0	0	0	0.02	0.62	-1.35	1.05	Pass	
American	015	AL425	2009	571	32	Reduced	32	32	5	8	0	0	0	0.10	0.53	-1.05	1.05	Pass	
American	015	AL425	2011	543	32	Reduced	32	32	5	8	0	0	0	0.05	0.57	-0.85	2.00	Pass	
American	015	AL425	2013	642	32	Reduced	32	32	5	8	0	0	0	-0.05	0.49	-0.85	1.00	Pass	
American	033	AL175	1985	937	32	Reduced	32	32	5	8	0	1	1	0.50	0.73	-1.85	2.55	Pass	
American	033	AL175	1986	1453	50	Reduced	50	50	7	10	0	0	0	0.11	0.52	-1.05	1.35	Pass	
American	033	AL175	1987	640	32	Reduced	32	32	5	8	1	0	1	0.29	0.69	-2.20	1.65	Pass	
American	033	AL175	1988	3088	50	Reduced	50	50	7	10	0	1	1	0.35	0.61	-1.10	2.15	Pass	
American	033	AL175	1989	1825	50	Reduced	50	50	7	10	0	0	0	0.46	0.61	-1.35	2.00	Pass	
American	033	AL175	1990	5792	80	Reduced	80	80	10	13	0	2	2	0.45	0.66	-1.20	2.60	Pass	

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY <=500CFH

REDUCED SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Meters Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
American	033	AL175	1991	7154	80	Reduced	80	80	10	13	0	1	1	0.68	0.62	-1.30	2.30	Pass	
American	033	AL175	1992	6910	80	Reduced	80	80	10	13	0	1	1	0.64	0.62	-1.85	2.30	Pass	
American	033	AL175	1993	6947	80	Reduced	80	80	10	13	0	3	3	0.53	0.73	-1.35	3.00	Pass	
American	033	AL175	1994	7254	80	Reduced	80	80	10	13	0	1	1	0.31	0.64	-1.90	2.20	Pass	
American	033	AL175	1995	7229	80	Reduced	80	80	10	13	0	0	0	0.27	0.56	-1.30	1.55	Pass	
American	033	AL175	1996	4473	80	Reduced	80	80	10	13	0	0	0	0.10	0.62	-1.35	1.80	Pass	
American	033	AL175	1997	8481	80	Reduced	80	80	10	13	0	2	2	0.21	0.89	-1.45	4.60	Pass	
American	033	AL175	1998	5060	80	Reduced	80	80	10	13	0	1	1	-0.12	0.68	-1.75	2.75	Pass	
American	033	AL175	1999	7721	80	Reduced	80	80	10	13	0	0	0	0.11	0.68	-1.30	1.65	Pass	
American	033	AL175	2000	7002	80	Reduced	80	80	10	13	0	0	0	0.20	0.63	-1.35	1.75	Pass	
American	033	AL175	2001	3903	80	Reduced	80	80	10	13	0	0	0	0.02	0.79	-1.95	1.70	Pass	
American	033	AL175	2002	2396	50	Reduced	50	50	7	10	0	0	0	-0.01	0.71	-1.70	1.35	Pass	
American	033	AL175	2003	2438	50	Reduced	50	50	7	10	0	0	0	-0.17	0.58	-1.20	1.60	Pass	
American	033	AL175	2004	1869	50	Reduced	50	50	7	10	0	0	0	-0.35	0.62	-2.00	0.75	Pass	
American	033	AL175	2005	1997	50	Reduced	50	50	7	10	0	0	0	-0.23	0.59	-1.70	1.25	Pass	
American	033	AL175	2006	1258	50	Reduced	50	50	7	10	0	0	0	0.06	0.66	-1.10	1.80	Pass	
American	033	AL175	2007	3098	50	Reduced	50	50	7	10	0	0	0	0.05	0.46	-1.05	0.70	Pass	
American	033	AL175	2009	2592	50	Reduced	50	50	7	10	0	0	0	0.01	0.48	-1.45	0.90	Pass	
American	033	AL175	2011	3053	50	Reduced	50	50	7	10	0	0	0	-0.05	0.56	-1.75	1.35	Pass	
American	033	AL175	2013	3275	80	Reduced	80	80	10	13	0	0	0	0.17	0.47	-0.95	1.45	Pass	
American	033A	AL175	1992	4354	80	Reduced	80	80	10	13	0	1	1	0.46	0.87	-1.50	6.45	Pass	

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY <=500CFH

REDUCED SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Meters Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
American	033A	AL175	1993	1658	50	Reduced	50	50	7	10	0	0	0	0.35	0.63	-0.90	1.65	Pass	
American	033A	AL175	1994	2249	50	Reduced	50	50	7	10	0	1	1	0.30	0.76	-1.45	3.35	Pass	
American	078	AC250	1985	695	32	Reduced	32	32	5	8	0	0	0	0.42	0.62	-0.85	1.70	Pass	
American	078	AC250	1986	3392	80	Reduced	80	80	10	13	0	1	1	0.29	0.79	-2.00	2.35	Pass	
American	078	AC250	1987	3014	50	Reduced	50	50	7	10	0	1	1	-0.30	0.83	-1.30	4.45	Pass	
American	078	AC250	1988	3515	80	Reduced	80	80	10	13	0	1	1	-0.26	0.72	-1.35	4.55	Pass	
American	078	AC250	1989	2720	50	Reduced	50	50	7	10	0	1	1	-0.19	0.93	-1.05	5.35	Pass	
American	078	AC250	1990	3727	80	Reduced	80	80	10	13	0	0	0	0.13	0.56	-0.90	1.45	Pass	
American	078	AC250	1991	2293	50	Reduced	50	50	7	10	1	0	1	-0.64	0.66	-2.35	0.80	Pass	
American	078	AC250	1993	423	32	Reduced	32	32	3	6	0	0	0	0.27	0.49	-0.55	1.15	Pass	
American	078	AC250	1994	1987	50	Reduced	50	50	7	10	0	0	0	0.18	0.56	-0.95	1.50	Pass	
American	078	AC250	1995	3813	80	Reduced	80	80	10	13	0	0	0	0.26	0.63	-1.95	1.90	Pass	
American	078	AC250	1996	8644	80	Reduced	80	80	10	13	0	0	0	0.08	0.51	-1.05	1.25	Pass	
American	078	AC250	1997	7941	80	Reduced	80	80	10	13	0	0	0	0.33	0.55	-1.05	1.45	Pass	
American	078	AC250	1998	5928	80	Reduced	80	80	10	13	0	0	0	0.34	0.50	-0.65	1.65	Pass	
American	078	AC250	1999	4189	80	Reduced	80	80	10	13	0	1	1	0.31	0.51	-0.85	2.85	Pass	
American	078	AC250	2000	5069	80	Reduced	80	80	10	13	0	0	0	0.22	0.40	-0.75	1.25	Pass	
American	078	AC250	2001	4824	80	Reduced	80	80	10	13	0	0	0	0.30	0.36	-0.70	0.95	Pass	
American	078	AC250	2002	2104	50	Reduced	50	50	7	10	0	0	0	0.26	0.49	-0.85	1.15	Pass	
American	078	AC250	2003	1841	50	Reduced	50	50	7	10	0	0	0	0.13	0.49	-0.90	1.30	Pass	
American	078	AC250	2004	3490	80	Reduced	80	80	10	13	0	1	1	0.64	0.70	-1.25	2.70	Pass	

LOUISVILLE GAS AND ELECTRIC COMPANY

GAS METER SAMPLING PLAN - 2015

CAPACITY <=500CFH

REDUCED SAMPLING PLAN

Manufacture	Type	Model	Install Year	Original Population	Meters Removed	Sampling	Sample Size	Meters Tested	Accept Level	Reject Level	Test Results			Statistics				Lot Status	Notes
											Slow Failures	Fast Failures	Total Failures	Mean Avg	Standard Deviation	Minimum	Maximum		
American	078	AC250	2005	6906	80	Reduced	80	80	10	13	0	1	1	0.72	0.92	-0.95	7.20	Pass	
American	078	AC250	2006	5969	80	Reduced	80	80	10	13	0	1	1	0.45	0.54	-0.60	3.00	Pass	
American	078	AC250	2007	5021	80	Reduced	80	80	10	13	0	0	0	0.45	0.48	-1.30	1.60	Pass	
American	078	AC250	2009	6548	80	Reduced	80	80	10	13	0	0	0	0.20	0.53	-1.10	2.00	Pass	
American	078	AC250	2011	4568	80	Reduced	80	80	10	13	0	0	0	-0.08	0.43	-1.25	1.45	Pass	
American	078	AC250	2013	4415	80	Reduced	80	80	10	13	0	0	0	0.20	0.46	-1.35	1.20	Pass	
<500 CFH Totals				223753	4038		4038	4038			6	27	33						

69 Control Groups

LG&E

Residential Gas Regulator Performance
Control Report

LOUISVILLE GAS AND ELECTRIC COMPANY 2015 RESIDENTIAL GAS REGULATOR PERFORMANCE CONTROL PROGRAM REPORT

Introduction

Louisville Gas and Electric Company's Residential Gas Regulator Performance Control Program is a procedure designed to provide a continuous high level of performance of gas regulators while controlling inspection and replacement costs. A summary of the program results are being submitted pursuant to Case No. 2000-00278 and Case No. 2012-00491.

General Description of Program

LG&E's Residential Gas Regulator Performance Control Program leverages LG&E's Gas Meter Performance Control Program to test the protective capability of all classes of residential regulators. Under performance control, LG&E's residential gas regulator population will be classified into homogeneous control groups representing like regulators. A control group would be subject to random sample testing during LG&E's Gas Meter Performance Control Program activities. Specifically, when a meter serving a residential account is tested under the Gas Meter Performance Control Program, the associated regulator will also be tested if one is present.

2015 Sampling Criteria and Results

6,918 residential regulators were tested as part of the Residential Gas Regulator Performance Control Program. There were no regulators tested as part of the program that were excluded from the sample. There were no control groups rejected as a result of the program.

Two regulators were removed from service as a result of failing the test criteria at the time of the meter change. The reject level for that particular control group is 506, so the control group passed.

Table 1 summarizes key program data broken out by control group. The rows in the table listed in red are the control groups where the actual number of sampled regulators did not meet or exceed the required number. Per the Residential Gas Regulator Performance Control Program, the test period for those groups will be extended annually up to a maximum of 10 years until an adequate sample size is gathered. If an adequate sample has not been tested within 10 years, action will be taken the following year to acquire an adequate sampling. The control groups for which an adequate sample size was obtained last year represent approximately 98% of the regulators covered by the Residential Gas Regulator Performance Control Program.

Table 1 – Key Program Data by Control Group

Control Groups		Installed Residential Regulators as of Dec. 31, 2015	Minimum Sample Size	Actual Sample Size	Number Passing Inspection	Number Failing Inspection/ Removed from Service	Reject Failure Level
NATIONAL (or predecessor company)	61	30	8	0	NA	NA	NA
NATIONAL (or predecessor company)	496	36,573	200	834	834	0	92
AMERICAN METER CO.	1803	4	2	1	1	0	1
AMERICAN METER CO.	1883	156	32	2	2	0	6
AMERICAN METER CO.	1213B	56,805	200	1,237	1,237	0	136
AMERICAN METER CO.	1813B	221	32	4	4	0	6
ITRON (or predecessor company)	B31	56	13	1	1	0	3
ITRON (or predecessor company)	B32	3	2	0	NA	NA	NA
ITRON (or predecessor company)	B34	3,421	200	177	177	0	6
ITRON (or predecessor company)	B35	1	1	0	NA	NA	NA
ITRON (or predecessor company)	B42	204,931	200	4,599	4,597	2	506
MOONEY	MOONEY	2	2	0	NA	NA	NA
FISHER	627	3	2	0	NA	NA	NA
FISHER	730	1	1	0	NA	NA	NA
FISHER	CS400IR	3	2	0	NA	NA	NA
FISHER	CS4800IQ	1	1	0	NA	NA	NA
FISHER	HSR	2,119	125	54	54	0	15
FISHER	S102	9	5	0	NA	NA	NA
FISHER	S201	1	1	0	NA	NA	NA
FISHER	S252	41	8	0	NA	NA	NA
FISHER	S302	255	32	9	9	0	6
OVERALL RESULTS		304,636		6,918	6,916	2	