August 31, 2012

Mr. Jeff Derouen
Executive Director
Public Service Commission
P O Box 615
Frankfort, KY 40602

Dear Mr. Derouen:

On July 13, 2012, the Public Service Commission ("Commission") filed proposed regulation revisions to 807 KAR 5:001, 807 KAR 5:006 and 807 KAE 5:011 with the Legislative Research Commission. Pursuant to an email dated August 1, 2012, a hearing was held on August 27, 2012 where Columbia Gas of Kentucky ("Columbia") had an opportunity to express some of its concerns regarding various provisions of the rule changes. On August 31, 2012 the Commission convened a meeting to address concerns raised at the hearing and possible compromises. In conjunction with the comments made by Judy Cooper at the hearing and subsequent meeting, Columbia hereby submits written comments regarding the proposed regulation revisions.

Columbia thanks the Commission for affording the opportunity to participate in the Advisory Working Group. Columbia was an active member of that working group and believes that the process worked well for most of the changes proposed. Columbia appreciates the collaborative nature of this review process and encourages the Commission to continue to adopt this process in the future. Given the collaboration of the Advisory Working Group and the Commission's willingness to address concerns raised at the hearing, most of Columbia's primary concerns have been resolved if its understandings of the compromises reached are accurate. However, Columbia remains concerned with the proposed revisions to 807 KAR 5:006 Section 7 and 26,.

807 KAR 5:006 Section 7 Billings, Meter Readings and Information

The proposed changes to 5:006 Section 7 (5) (C) require a new inspection of working condition and verification of meter readings if remote reading technology is utilized. This new requirement is problematic for several reasons. First, the definition of "remote reading technology" is unclear. Columbia has installed what it refers to as "remote reading technology" but on a limited basis where meters are located in difficult areas to access. The benefits of this technology are a convenience to the customer, safety to the utility employee and a savings in avoided trip expense for meters located inside the customer's premise or otherwise difficult to access locations. Columbia uses a radio based encoder receiver transmitter ("ERT") which is an Itron supplied device that attaches to the existing meter. The ERT simply transmits the reading that the mechanical meter registers. This is the same technology the Delta uses and Columbia agrees with the Comments submitted by Delta with regard to this matter on August 20, 2012. Comments at the hearing on August 20, 2012, provided by other utilities much smaller than Columbia indicated that the annual cost to those utilities to comply with the proposed

regulation would cost customers hundreds of thousands of dollars. Likewise, Columbia will incur significant costs to comply with the new requirement if it is adopted and it will take time to establish procedures and employ additional resouces. Such annual and recurring costs would ultimately be borne by utility customers if the new requirement, or something similar, is placed into effect. Periodic verification of an automated reading is not an industry standard nor is it required by any other state or regulatory jurisdiction. The monitoring and checks inherent in Columbia's billing system to identify high, low or zero consumption meter readings are much the same as those described by Delta Natural Gas Company. An unusual or absent meter reading in any month would generate an on-site visit to obtain a meter. Thus, any new regulation requiring periodic verification will not improve performance.

Further, a deficiency in the reliability of the technology has not been identified. Therefore, Columbia sees no reason to create unnecessary expenses to correct a problem that doesn't exist. Attached to these comments is a memo regarding accuracy supplied by Itron. For the reasons set forth in the paragraphs above, this requirement should be eliminated.

From the meeting today, Columbia's understanding is that this requirement it not being added so much to address a concern for verification of meter readings or meter accuracy, but to address a concern that a utility may not be fully complying with the safety inspection requirements set forth in 5:006 Section 26. Columbia does not believe the proposed revision to 5:006 Section 7 (5) (c) is pertinent to the concern as it heard it described today and reiterates its request that it be deleted.

807 KAR 5:006 Section 26 Inspection of Systems

Columbia notes that Section 7 (5) (c) references Section 26 as specifying the applicable verification schedule. 807 KAR 5:006 Section 26 is organized by type of utility – electric, gas, water, telephone and sewer. However, no new language is added to pick up the reference from Section 7 (5) (c) for any type of utility except natural gas. The Regulatory Impact Analysis for 5:006 specifies that, " (t)amendments will also clarify the accuracy requirements for all types of meters, and clarify the inspection process and when facilities need to be inspected". Yet, there is no mention of a schedule or requirement for electric, water, sewer or telephone utility.

Columbia's understanding from the meeting today, is that the Commission intended the proposed revisions to apply to electric, natural gas and water utilities. The existing language of 5:006 Section 26 (5) requires natural gas utilities to make systematic inspections of their distribution systems pursuant to 49 CFR Part 192. The Commission receives funds from the Federal Department of Transportation for natural gas inspectors to ensure compliance with this regulation. Part 192.3 defines a customer service line as a distribution line that ends at the outlet of the customer meter or at the connection to a customer's piping, whichever is further downstream, or at the connection to customer piping if there is no meter. All of Columbia's customer have a natural gas meter. That meter is examined every three years as part of the

inspection required by 49 CFR Part 192. Thus, the requirement for "manual inspection and visual examination for proper working condition" proposed in Section 26 (5) (a) 2 is already included in the requirements of Section 26 (5). The proposed addition is unnecessary and duplicative. For the reasons set forth in the paragraphs above, this proposed revision should be deleted.

807 KAR 5:006 Section 14 Utility Customer Relations

Currently, this subsection 2 of this section requires that the extension for partial payment plans extending for a period longer than 30 days be in writing and advise the customer that service may be terminated without additional notice if the customer fails to meet the obligations of the plan. The proposed revisions add the requirements that the date and amount of payment due be stated on the notice and that the notice be signed by a utility representative. Columbia already includes the date and mount of payment on its written confirmation that is sent to the customer the day after the payment agreement is agreed to with the customer. However, Columbia does not include a signature of a company representative nor does it believe that such signature is necessary for the reasons detailed below.

First, the notice to the customer comes on Columbia letterhead and is clearly marked as a Columbia Gas of Kentucky document. Second, all calls to Columbia's customer service center are recorded and retained for a minimum of 18 months. Should a customer have any questions regarding the payment arrangement, Columbia could easily retrieve the recorded conversation and respond to any questions the customer may have about the specific plan. Any representative at the customer service center can view and retrieve the agreed partial payment plan using the customer's account number where the agreement is noted on the account in addition to the recorded call. Third, requiring customer service representatives who negotiate these arrangements to identify their full names places an unnecessary risk on them and their families. Additionally, the signature requirement would add programming expense and processing time without any discernable benefit. The proposed rule will have an unintended consequence of discouraging utilities from negotiating payment plans of longer than 30 days. As such, Columbia recommends that the word "representative" be deleted but that the other proposed insertions be retained.

Columbia's understanding of the compromise proposed at the meeting today, is that the Commission intends to add language that would provide an alternative for the recording and/or electronic retention of the partial payment agreement with the customer as satisfactory documentation of the agreement. Columbia believes change would address its concerns with the revisions originally proposed and if this understanding is correct, then Columbia is in agreement.

807 KAR 5:001 Section 13 Confidential Material

Columbia objects to the proposed revision to the regulation limiting the protection of confidential period to 2 years. Columbia does not see any added benefit to limiting the protection of confidential material to 2 years. Columbia routinely reports certain information to the Commission that contains forecasts that extend beyond 2 years and for which confidential protection has been granted. Columbia recommends that if the Commission sees the need to impose a limitation on the time period for which confidential treatment is granted, then that period should be no less than 5 years. Further, it is unclear whether this 2 year time period would apply to material that has been previously granted confidential treatment. Such action would likely create significant confusion and expense for the companies and apply a new standard of interpretation for information previously submitted under a different expectation. As such, if the limitation is imposed, Columbia strongly recommends that the limitation <u>not</u> be applied retroactively.

In addition, Columbia believes that the burden of persuading the Commission to release the confidential information into the public domain should be on the party making the request. Such a burden of persuasion that the information does not qualify for confidential treatment is consistent with other requirements of a petitioner before the Commission.

At the meeting today, all participants were asked to consider a proposal of LG&E/KU that would delete the 2 year period proposed in 807 KAR 5:001 Section 13 (10) (a) and instead, replace it with a requirement that the party requesting confidentiality specify in the original petition for confidentiality the period of time for which confidential treatment should be granted, including an unlimited period of time. All other existing parts of 807 KAR 5:001 Section 13 would remain substantially as they are stated today, except to provide for this new requirement in the intial petition for confidentiality. Columbia indicated that this would be an agreeable compromise.

Columbia provided additional comments at the meeting today on Electronic Filing and Notice Requirements.

Thank you,

Brooke Leslie, Counsel

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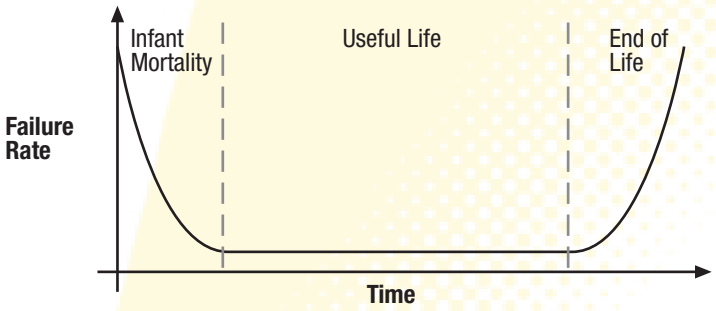
Predicting ERT Module Life

How long does a gas ERT module last? This is a complex question without an easy answer, however life expectancy in an electronic hardware product can be predicted and represented by Mean Time Between Failures (MTBF) -calculated statistically & by analyzing field performance data.

Reasons for Failure

Hardware failures are typically illustrated by a bathtub curve such as the one shown below. The chance of failure is high during the infant life of the module. The failure rate during the rated useful life of the product is fairly low. Once the end of the life is reached, failure rate of modules increases again.



Failures during an ERT module's life can usually be attributed to the following causes:

Design failures

This class of failures takes place due to inherent flaws in an electronic design. In an Itron's gas ERT module, this class of failure is practically non-existent. Itron's enormous field experience of millions of ERTs are a testimony to Itron's efforts to design a truly world class product.

Infant Mortality

This class of failure includes newly manufactured hardware and can be attributed to manufacturing issues. Itron's state of the art manufacturing facilities and its best in the class manufacturing practices helps ensure that any infant mortality failures rarely occur, in our products that are shipped to customers.

Random Failures

Random failures can occur at any point during the life of an ERT module. Redundancy in design and several Accelerated Life Tests (ALT) conducted by Itron's product development group, ensures that these failures are very rare in Itron's Gas ERT modules.

Wear Out

Once an ERT module has reached the end of its useful life, general degradation of components may cause the modules to fail. It is usually prudent, before this stage arrives, to analyze if any maintenance, including changing the battery, would be useful. It is important that this analysis is done before an ERT module reaches this stage so that system and performance degradation are avoided. A comparison of a battery change program vs. an ERT change out program with extended life will determine the best solution from both an operational and a financial standpoint.

Predicting Future Failures

Mean Time Between Failure calculations are done using two different methodologies: statistical and field data.

Statistical MTBF: This is the process used to determine the MTBF of a product based upon its design, choice and behavior of components, their layout, and the design threshold levels. This is achieved by performing a prediction analysis based upon the performance of the product in simulated accelerated test environments and temperature cycling. Itron has one of the best-equipped test facilities in the nation and follows one of the most stringent testing regimens of any industrial electronics designer and manufacturer.

Itron's test facility in Minnesota is a dedicated test laboratory. Design Verification Testing (DVT) is performed on all new products and anytime a significant change is made to the design, materials or manufacturing process of an existing product. Some of the tests performed during DVT assess the product's conformance to customer requirements, design requirements and regulatory agency requirements (UL, ANSI, FCC, etc.). At the same time, the new or significantly changed products are subjected to several types of accelerated life tests. These tests include temperature cycling (with or without added humidity), steady-state elevated temperature and humidity testing, and multivariate, highly accelerated life testing (HALT). Most programs include controlled samples of existing product to verify the validity of the tests.

Itron's Gas ERT modules are designed for a useful life of 20 years. Various DVT ensures that these products meet these criteria.

Statistical MTBF analysis is a useful tool to evaluate whether the product is adequately designed to meet the requisite performance criteria.

Field MTBF. The real proof of reliability is the analysis of field performance data. Field MTBF is the result of determining the reliability of a product based upon its operational performance in the field in real life conditions. Itron has proven track record of exceptional, ever improving high field performance over last two decades. It has a well-established process, designed to collect regular field data and perform regression analysis of the failure data of ERT modules.

As a part of the field MTBF analysis, Itron Quality Assurance in Minnesota analyzes a sample of ERT modules returned under warranty. The analysis of returned modules is used to track and report the annual failure rate of early-life units. Reliability models and predictions are developed from this data. Itron performs complete, root-cause failure analysis of the first thirty (30) units returned from each customer and product combination and 5% of all subsequent returns.

Using these two MTBF methodologies, Itron calculates an expected return estimate for its current Gas ERT modules.

The field data shows that current ERT failure rate continues to be well within 0.5% per year.

It is clear from this analysis that Itron's Gas ERT modules consistently perform in the field and are designed to work reliably, without failure for years. This is backed up by solid field analysis data.

Ensuring Quality Products

At Itron, statistical & field MTBF analysis is coupled by a strong, in-house, long term continuous product testing in real life conditions.

In order to monitor the quality of ERT modules, Itron field-tests endpoints during the product development process and through out the product life .

Outside of Itron's manufacturing facility in Minnesota there is a huge collection of gas meters and other meters that is referred to as the "Meter Farm". The Meter Farm serves a vital testing ground for Itron's ERT Modules. ERT modules are taken off the production line, at a rate of one gas module per shift and one electric module per week, and placed on these meters – exposed to real life conditions.

The meters are then read periodically and the ERTs checked for accuracy, providing a near real-world indication of how they will perform over time. Some of these ERT Modules have been part of these tests since 1991. If an inaccuracy or failure is detected, technicians immediately investigate the cause of the inaccuracy or failure.

Since the introduction of the Meter Farm in August of 1991, 3,005 40G ERTs have been installed and monitored. These 3,005 meter/ERT combinations have accumulated a total usage of over 696 million counts.

The modules were read quarterly, with only 12 units identified as being inaccurate. Inaccurate, for the purpose of this stringent testing, is defined as a discrepancy of 2 or more counts regardless of the total consumption measured by the meter/ERT combination.

The 12 units identified as inaccurate exhibit a total inaccuracy of 4,208 counts (absolute value of deltas), therefore the overall inaccuracy of the AMR test site population is approximately 0.000604%, or approximately 6 counts per million. The demonstrated accuracy of 40G ERTs on the AMR test site can thus be reported as 99.999396%, using the absolute inaccuracy of the entire population

Operational Considerations

Because Itron is able to predict the life of an ERT module with a fairly high degree of accuracy, our customers can make informed operational and financial decisions regarding their AMR system.

Our data indicates that the first generation of ERT modules, the 25G, had a life expectancy (including the life of the battery) of about 9 years. When the first generation 40G was introduced in 1992, it was expected to have a useful life (including the life of the battery) of about 14 years. Our current generation 40G has a predicted life (including the life of the battery) of 17 to 20 years. Of course Itron's reliability data and life expectancy predictions must be balanced with the specific customer environment. Batteries tend to last longer in colder climates; therefore, if ERT modules are deployed in a warmer climate or on an indoor meter, the battery in the module may last at the lower range of the life expectancy range. If ERT modules are deployed in colder regions they are likely to last at the higher end of the range. The important thing is to use Itron's data to develop an operational program that ensures continued high performance of your AMR system. You must consider your individual installed base profile and determine if and when a battery change out program is applicable or an ERT replacement program may be more cost-effective to ensure performance. Itron representatives will be able to help develop a program to meet your needs.

Conclusion

Very few industrial electronic products in the world have a 20 year designed life. To ensure that Itron's ERT modules continue to perform at a reliable rate for their useful life we design, develop, manufacture and monitor our products carefully. In addition, we field test our products and continue to monitor them in real world weather conditions. All of this quality design and testing ensures our customers that they are purchasing quality products that have proven reliability and can be sure that Itron ERT modules and batteries are the most thoroughly tested and durable in the industry. A fact that has been proven through years of field experience, with millions of ERT modules installed in some of the toughest real-world conditions for almost two decades.

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