

STATE OF NEW YORK  
DEPARTMENT OF PUBLIC SERVICE

CASE 18-G-0260 - In the Matter of Staff's Analysis of Local  
Distribution Company Performance Related to  
the Pipeline Safety Measures.

2017 PIPELINE SAFETY  
PERFORMANCE MEASURES REPORT

Pipeline Safety Section  
Office of Electric, Gas & Water  
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EXECUTIVE SUMMARY

The pipeline safety performance measures that make up this report are the result of collaborative efforts beginning in the 1990's between New York's major natural gas local distribution companies (LDCs) and the Department of Public Service (DPS). Revised in 2003, these measures improve identification and tracking in areas that are critical to pipeline safety. Most of the data used in the report was gathered and submitted by the LDCs using processes developed from these collaborative efforts.<sup>1</sup> Included in this report for the third year are the results of audits that verify compliance with the minimum pipeline safety regulations. These non-compliances are reported based on Department of Public Service Staff (Staff) record and field audits of the LDCs throughout the calendar year.

The total damage prevention measure improved significantly, approximately 22.5%, from the previous calendar year, due largely to increase participation by contractors. The 30-minute, 45-minute, and 60-minute emergency response time measures improved slightly, with the total year-end leak backlog improving roughly 13.7% from the previous calendar year. The year-end backlog for potentially hazardous leaks increased slightly going from 58 in 2016, to 65 in 2017. In 2016, non-compliances were identified in all 11 of the major LDCs' operating service territories. Overall, the data indicates that performance has substantially improved for LDCs across the state

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<sup>1</sup> This report examines the results of LDC performance in specific safety areas that include damage prevention, emergency response, and leak management, for 2017. The New York State Department of Public Service, Pipeline Safety Section has been producing this annual report since 2004.

over the fifteen-year period Staff has been reporting performance to the New York State Public Service Commission (Commission). As LDCs continue their outreach efforts, adopt better practices in responding to leak, odor, and emergency reports, and work to replace leak-prone infrastructure, Staff expects further performance improvements will occur.

This report will be transmitted to an executive level operating officer of each LDC. A high-level discussion of the 2017 results for each performance measure follows below.

#### Damage Prevention

The first measure, damage prevention, gauges the success of LDCs in minimizing damage to buried natural gas facilities caused by excavation activities. The damage prevention measure is further broken down into four root cause categories: damages due to (1) mismarks, or the inaccurate marking by the LDC of its affected underground facility; (2) company and company contractor error; (3) third party excavator error; and (4) no-calls, or failure by contractors to provide notice of intent to excavate to the one-call notification systems.

Overall, damage prevention performance across the state improved significantly, 22.5%, during 2017. This was due, in part, to an increase of 112,755 total one-call tickets; 76,566 of which were requested by a single contractor, in the KeySpan Gas East Corporation d/b/a National Grid (NGrid LI), and The Brooklyn Union Gas Company d/b/a National Grid (NGrid NY), service territories. This contractor, New York Paving Inc., committed 12 separate violations of 16 NYCRR Part 753.<sup>2</sup>

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<sup>2</sup> See Case 16-G-0440, KeySpan Gas East Corp. d/b/a National Grid - Contractor Damage, Order Determining Penalty and Directing

Another contributing factor to this improvement was New York City implementing its "white-lining" requirements whereby excavators can be penalized for requesting areas to be marked where no work is occurring. For example, if a contractor was replacing trees in various locations on the same street, the contractor would now provide notice for each of the locations, rather than a single one-call ticket, to avoid penalty. In comparison to 2016, the total number of damages in 2017 remained relatively constant going from 1,565 to 1,562.

However, all four categories improved in performance during 2017 with damages due to third-party error (20.4%) and no-call damages (15.4%), showing the greatest improvement. Damages due to mismarks (6.5%) and company and company contractor error (2.1%) also showed moderate improvements.

#### Emergency Response

The second measure, emergency response, reflects the LDCs' ability to respond promptly to reports of leak, odor, and emergency notifications by examining the percentage of reports that were responded to within various response time intervals. The performance measure contains three specific response goals: (1) respond to 75% of emergency reports within 30 minutes, (2) 90% within 45 minutes, and (3) 95% within 60 minutes.

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Payment (issued March 9, 2017); Case 16-G-0465, The Brooklyn Union Gas Company d/b/a National Grid NY - Contractor Damage, Order Determining Penalty and Directing Payment (issued March 9, 2107); Case 17-G-0379, KeySpan Gas East Corp. d/b/a National Grid - Contractor Damage, Order Determining Penalty and Directing Payment (issued August 11, 2017); and Case 17-G-0769, KeySpan Gas East Corp. d/b/a National Grid - Contractor Damage, Order Determining Penalty and Directing Payment (issued January 26, 2018).

LDC performance for each of the response time goals improved in 2017. In general, the LDCs have continued to use technologies such as global position systems (GPS) to quickly identify the most appropriate employee to respond to leak, odor, or emergency reports, continued public awareness initiatives to affected properties of natural gas, and have continued placing, or added personnel, in certain geographical areas during the times of day that have historically high volumes of emergency notifications.

#### Leak Management

The third measure, leak management, examines LDCs' performance in effectively reducing leak inventories and keeping potentially hazardous leaks to a minimum. Potentially hazardous leaks include any leak that requires repair pursuant to 16 NYCRR Part 255 (Types 1, 2A, and 2). This report also examines each LDC's total leak backlog. Total leak backlogs include potentially hazardous leaks and Type 3 leaks, which do not have a prescribed repair timeframe and are, by definition, considered to be non-hazardous. Pursuant to 16 NYCRR Part 255, Type 3 leaks require reevaluation during the next required leakage survey or annually, whichever is sooner, to ensure that a public safety hazard has not developed. While Type 3 leaks are not expected to become a safety concern, LDCs should work to eliminate these known leaks on their systems because it reduces lost gas, maintenance costs, the total number of emergency reports, is an environmental concern, and the persistent odor can negatively impact public awareness efforts.

For leaks requiring repair, the end of the calendar year generally coincides with the beginning of the frost season. During this timeframe, there is a greater chance of natural gas

migration into a building because the natural gas cannot vent as readily through the soil to the atmosphere due to the blanket of frost. In general, all LDCs have demonstrated improvement in these measures over the past several years. The overall year-end 2017 backlog declined slightly by seven repairable leaks when compared to 2016, and is down 39.8% when compared to 2013. For total leak backlogs, the overall year-end 2017 backlog was down 2,354 leaks (13.7%) from year-end 2016, and is down 39.7% when compared to 2013.

#### Non-Compliances Identified by Staff

For the third year, LDCs are being evaluated on their compliance with the Commission's minimum pipeline safety regulations. This measure looks at non-compliance issues as identified by Staff during audits of the LDCs. Each year, Staff conducts statistically-based audits, inspections, and investigations of the LDCs to determine their compliance with the pipeline safety regulations. Each non-compliance identified represents an area where an LDC failed to meet these minimum requirements as prescribed.

The data varies greatly from year to year, which is due, in part, to Staff's five-year audit cycle. These audits of the pipeline safety regulations occur on varying frequencies determined by the risk each regulation audited poses to public safety. The regulations are identified either as high risk, in which an audit is conducted annually, or other risk, which is evaluated on a two, three, four, or five-year frequency, not to exceed five years.

In 2017, non-compliances were identified in all 11 of the major LDCs' operating service territories with improvements having been realized in each of the previous three calendar

years. This is due, in part, to the mechanisms that have been incorporated into most of the LDC's respective rate plans, which attach an associated regulatory liability for the non-compliances identified. Regardless, the goal for each LDC should remain the complete elimination of all non-compliances.

Next Steps

This report will be transmitted to an executive level operating officer of each LDC. A detailed discussion of the 2017 results for each performance measure follows below.



INTRODUCTION

The pipeline safety performance measures were developed as a means of evaluating and improving LDCs natural gas delivery system performance in areas identified as presenting the highest safety risks. Performance measures are tools that Staff and the LDCs can use to ensure the operation and maintenance of distribution systems. These measures show how companies are performing from year to year, as well as the trends over time.

In developing the performance measures, Staff first identified areas in the LDCs' systems or operations that carry the greatest potential for harm to the public if performance is sub-standard. Staff then worked with LDCs to develop methods for capturing and tracking appropriate data so they could be used as a practical management tool. This process led to the identification of three performance measures:

Damage Prevention: This measure examines damages to the LDCs' buried facilities resulting from excavator activities, which is a leading cause of incidents involving natural gas pipelines both within New York State and nationally.

Emergency Response Time: This measure examines the amount of time that it takes an LDC to reach the scene of a reported gas leak or odor complaint.

Leak Management: This measure examines LDC performance in managing leak inventory levels for potentially hazardous leaks and in total.

Operations Audit

On August 15, 2013,<sup>3</sup> the Commission issued a request for proposals for an independent consultant to perform a focused operations audit of the accuracy of the performance measure data submitted by nine of the eleven LDCs mentioned in this report. The consultant's objectives were to assess the completeness and accuracy of the measures submitted, assess comparability amongst the utilities, and determine the suitability of each of the performance measures identified.

On April 20, 2016, the Commission issued an Order<sup>4</sup> releasing the completed audit report and provided guidance on LDC response to the recommendations. Implementation plans to address each recommendation were due by May 20, 2016. In general, the consultant reported that the LDCs have complied with the intent of these performance measures and have, for the most part, accurately reported their respective data. Some of the consultants' recommendations focused on lack of written policies and procedures to address and collect data, instances where the methodology used to calculate the data has drifted over time, and minor inconsistencies among LDCs with the compilation of their respective data.

An example of where the data has drifted over time is the classification of resend, revised, retransmitted, reissued, or relocate one-call notifications. For the data submitted in this year's report, there are inconsistencies with how each of the LDCs are reporting these types of one-call tickets. Also,

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<sup>3</sup> Case 13-M-0314, Central Hudson Gas & Electric Corporation, et al. - Operational Audit, Letters to LCDs (issued August 15, 2013).

<sup>4</sup> Case 13-M-0314, supra, Order Releasing Report and Providing Guidance on Response (issued April 20, 2016).

the terminology used between the one-call centers are inconsistent - which may have led to these tickets having been accounted for differently amongst the LDCs. Per the most recent guidance provided to each LDC by Staff in December 2015, retransmits, refreshes, reissues, or re-calls, are defined as any one-call ticket which has the same requesting party and location of the proposed scope of work. These types of one-call tickets are to be excluded from the one-call ticket count for the purposes of the damage prevention measure.

On March 10, 2017, the Commission issued an Order<sup>5</sup> approving the submitted implementation plans and directed the LDCs to implement those plans. The issue identified with how retransmit, refresh, reissue, or re-call tickets are counted should resolve itself within the next few years as LDCs make changes to their existing programs. Thus, the data represented in this year's report may vary per LDC based on the treatment of these specific types of one-call tickets and depend upon how well the 2015 guidance was followed.

#### Non-Compliances Identified through Audit Process

A more recent addition reviewed within this report are instances of non-compliances identified through Staff's audit process of the Commissions' pipeline safety regulations. Each year, Staff conducts audits and investigations of the LDCs to determine their compliance with the regulations. The non-compliances identified represents where an LDC failed to meet these minimum requirements as prescribed by the regulations.

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<sup>5</sup> Case 13-M-0314, supra, Order Approving Implementation Plans (issued March 10, 2017).

The 2015 Gas Safety Performance Measures Report<sup>6</sup> was the first year in which the non-compliance data was presented and reviewed.

LDC non-compliance with the minimum pipeline safety regulations could cause or contribute to a major incident. For this reason, it's important that Staff's audit findings are publicly transparent and continue to track improvements, as well as repeat violations, over time. A further deterrent to non-compliances are negative revenue adjustments which have been incorporated into most of the LDCs' respective past and current rate plans.

#### Performance and Analysis for 2017

Throughout this report, except for the compliance measure, the figures display performance results from 2013 through 2017 for each LDC,<sup>7</sup> with the grey columns in the bar graphs representing 2013 through 2016, and the black column representing the 2017 results. For the compliance measure, the results from 2012 through 2016 are displayed based on the timing of when audits are completed. The blue horizontal lines on the bar graphs represent the overall LDC performance levels for the specific identified measure.

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<sup>6</sup> Case 16-G-0254, Local Distribution Companies - Gas Safety Performance, 2015 Gas Safety Performance Measures Report (filed June 21, 2016).

<sup>7</sup> Historical calendar year data and associated Case numbers can be found in Appendix A of this report.

Damage Prevention

Damage to underground natural gas facilities due to excavation activity is one of the leading causes of natural gas pipeline failures and accidents, both statewide and nationwide.

Damage-prevention procedures are designed to work as follows: (1) excavators provide notice of their intent to excavate to a one-call system and waits two working days for underground facilities to be marked;<sup>8</sup> (2) the one-call system transmits an excavation notice (one-call ticket or ticket) to the member operators whose facilities may be affected by that excavation activity; (3) the affected operators clearly and accurately mark the location of their buried facilities in or near the excavation area; and (4) excavators work carefully around the marked facilities in order to avoid damaging them. Damages to underground facilities can be categorized by identifying where in this four-step process the root cause of an incident lies.

Evaluating the number of damages in relation to the volume of construction and excavation activity in an LDC's natural gas operating service territory provides a useful basis for assessing performance in this area. The data used in this analysis are contained in Appendices B and C. The method used to normalize each LDCs' data is the number of damages per 1,000 one-call tickets for that LDC. As previously mentioned, inconsistencies were identified through the Operations Audit for the treatment of retransmit, refresh, reissue, and re-call tickets. Thus, the data represented in this year's report may

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<sup>8</sup> New York State has two one-call systems, one for New York City and Long Island, New York 811, and the second for the remainder of the state, Dig Safely New York.

vary per LDC based on the treatment of these specific types of one-call tickets.

The numbers of damages are then categorized as damages resulting from mismarks, excavator error, company and company contractor error, and no-calls. Each one-call ticket received provides an LDC the opportunity to mark its affected facilities accurately. Hence, for damages due to mismarks, the report examines the number of damages caused by mismarks per 1,000 tickets received for each LDC and so on for each of the other categories.

Once a one-call ticket is requested by an excavator by calling the toll free 811 phone number, and the facilities are marked, the excavator can, if working carefully, avoid damage to underground facilities. Third party excavator error damages are historically the largest component of total damages, primarily because of the need to educate third party contractors in safe and best excavation practices. Most large excavators are aware of the existence of the one-call systems and the requirement to provide notification of planned excavation work. Many excavators are not as well-versed in the additional requirements - such as respecting tolerance zones, verifying locations of underground facilities by means of hand-dug test holes, notifying operators of unverifiable marked facilities, maintaining the markings, and maintaining clearances with powered equipment and the verified facility. Educating excavators on how to avoid underground facility damage once mark-outs have been requested requires more in-depth training and outreach. The Commission cannot order such training for non-utility excavator personnel. This is one of the reasons why, through its enforcement process, the Commission considers reducing penalties contingent upon successful completion of a

free training provided by the one-call center covering the area where the damage occurred, or Dig Safely New York's certified excavator program.

Damage caused by LDC personnel or by contractors hired by the LDC are also included in the damage analysis as a separate category. These personnel should have sufficient training, qualifications, and experience to work carefully near the LDC's facilities. LDCs should also have better control over contractors hired by them to perform work than they do over unaffiliated excavators. Thus, this category should be the smallest contributor to the total damages and, in theory, the easiest to improve. The current measure tracks damages caused by all utility operations within a particular LDC. That is, for an electric and gas combination utility, damage to gas facilities caused by electric crews or electric company contractors are combined.

Damages due to no-calls are instances where the excavator failed to provide notice of their intent to excavate to the State's one-call notification systems. This metric provides an indication of the general level of awareness excavators have about the one-call notification systems. A high percentage of damage in this category indicates that additional and more effective efforts are needed to make excavators aware of the dangers of working around buried facilities and the importance of using the one-call systems.

It is important to note that the damage prevention measure evaluates actual damages to an LDCs' underground natural gas facilities. Based on the data reported in 2017, 99.8% of one-call tickets had no associated damage to natural gas facilities. This is consistent with the Common Ground

Alliance's (CGA)<sup>9</sup> 2016 Damage Information Reporting Tool (DIRT)<sup>10</sup> report which found that when a call is made prior to excavation, damage occurs less than 1.0% of the time.

A total of 1,565 instances of damage occurred to natural gas LDC facilities in 2017, three less than in 2016. Including the increase of 150,537 one-call tickets (18.2%) during 2017, the results show an improvement (15.3%) in total damage performance per 1,000 one-call tickets. As previously mentioned in this report, this improvement was due, in part, to an increase of 76,566 total one-call tickets which were requested by New York Paving Inc. in the NGrid LI and NGrid NY service territories New York City implementing its "white-lining" requirements.

Staff supports the LDCs' and excavators' efforts by enforcing the Commission's damage prevention regulations prescribed within 16 NYCRR Part 753; Protection of Underground Facilities. Over the past five years approximately 2,049 citations have been issued, which has led to training sessions being completed by excavators with either New York 811 or Dig Safely New York. Approximately \$2,809,817 in penalties have been collected for this same five-year period.

Figure 1 below displays the collective overall performance regarding the damage prevention measures. Note the increase in the number of one-call tickets, and the improvement in all four performance measure categories for 2017.

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<sup>9</sup> The Common Ground Alliance is a national association of stakeholders involved in damage prevention that identifies and disseminates best practices, conducts public awareness programs, and collects and analyzes data regarding damages to underground utility facilities.

<sup>10</sup> <http://commongroundalliance.com/media-reports/dirt-report-2016>



Metric	2013	2014	2015	2016	2017
Number of Tickets	741,729	797,366	801,920	827,512	978,049
Mismarks	0.41	0.42	0.48	0.39	0.37
Co. & Co. Contractor Error	0.09	0.09	0.10	0.08	0.08
Excavator Error	1.13	0.96	1.08	0.98	0.78
No-calls	0.52	0.49	0.51	0.44	0.37
Total Damages (per 1,000)	2.15	1.96	2.18	1.89	1.60

Figure 1 - Damages per 1,000 Tickets

All four areas measured in this metric contributed to the overall improvement in the total damage performance measure for 2017.<sup>11</sup> The largest improvement in 2017, when compared with that of 2016, came from third party (20.4%) and no-call (15.4%) damages. For damages due to mismarks and company and company contractor error, there were also improvements in performance of 6.5% and 2.1%, respectively. Specific LDC performance for each damage prevention area is located in Appendices B and C.

LDC performance in total damages per 1,000 tickets, is displayed in Figure 2 below.

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<sup>11</sup> The "total" damage performance may not equal the sum of the four-metrics due to rounding.

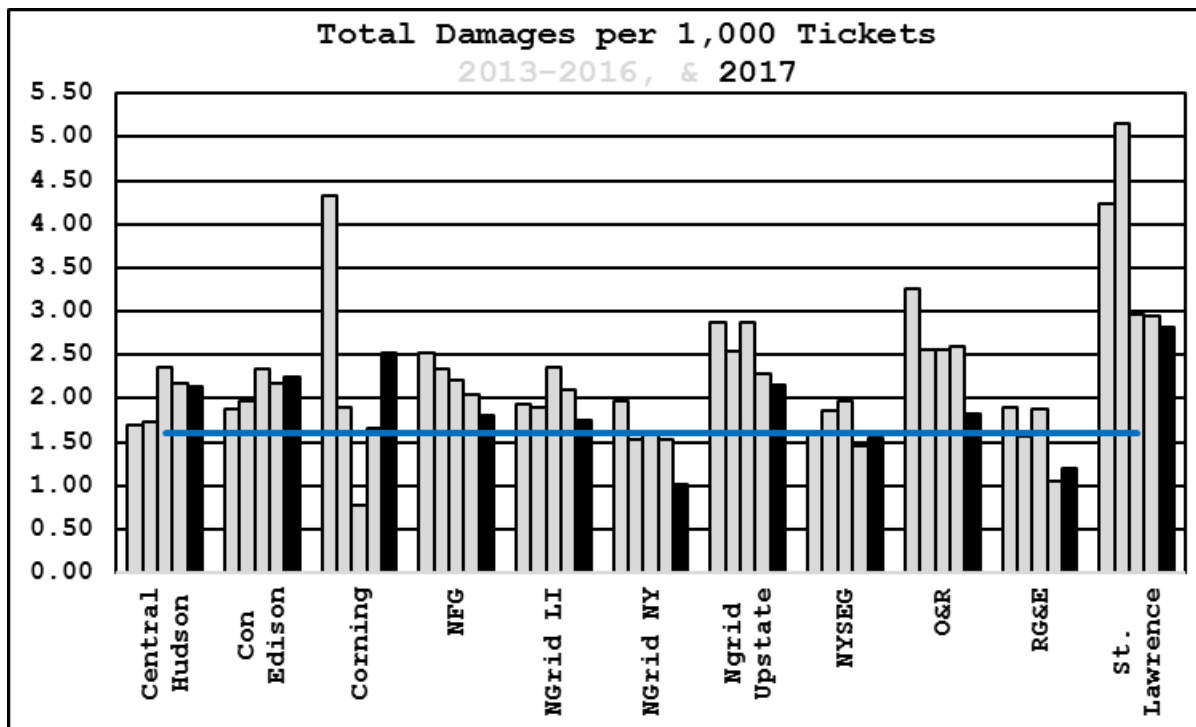


Figure 2 - Total Damages per 1,000 Tickets

As seen in Figure 2, seven LDCs improved and four LDCs had worse performance in 2017 when compared to 2016. Among those improving, significant gains were made by NGrid NY (34.0%), Orange & Rockland Utilities, Inc. (O&R) (29.7%), NGrid LI (15.9%), and National Fuel Gas Distribution Corporation (NFG) (11.7%). The improvements for NGrid LI and NGrid NY were largely driven by the total number of one-call ticket. For O&R and NFG, there were increases in the total number of one-call tickets (2,123, and 1,257) from 2016 to 2017, as well as decreases in the total number of damages (19 and 21), respectively.

LDC performance in damages due to third party excavator error per 1,000 tickets is displayed in Figure 3.

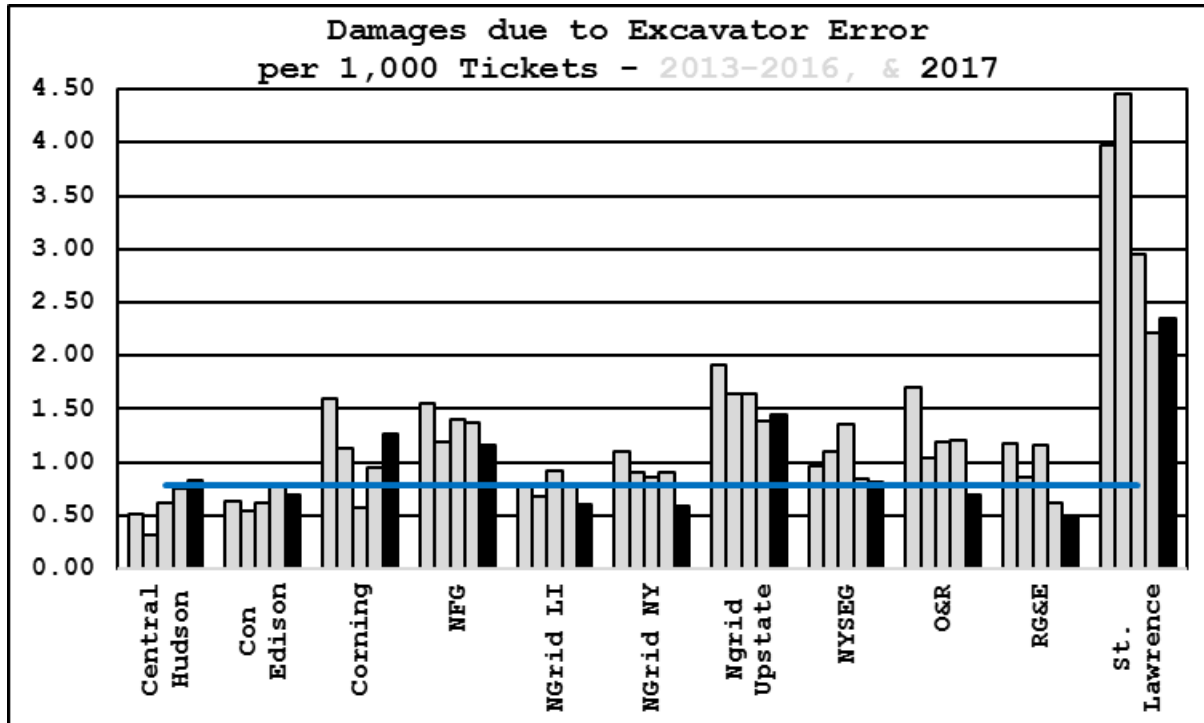


Figure 3 - Excavator Error Damages per 1,000 Tickets

As seen in Figure 3, seven LDCs improved and four LDCs had worse performance in 2017 when compared to 2016. Of those LDCs showing improvement, the most significant changes were made by O&R (43.0%), NGrid NY (35.3%), NGrid LI (23.9%), Rochester Gas & Electric Corporation (RG&E) (19.8%), NFG (14.6%), and Consolidated Edison Company of New York, Inc. (Con Edison) (13.3%). In 2016, these six LDCs had a combined total of 584 damages. In 2017, that number decreased to 524, which was a total of 60 less damages due to excavator error. As LDCs continue their public outreach, education, and training efforts, the general public and excavators will be more informed as to the required safe digging protocols prescribed within the one-call regulations found in 16 NYCRR Part 753.

Typically, the LDCs that have declined in performance from the previous year are encouraged to perform an analysis of their specific damage prevention programs and outreach efforts

to identify ways to improve and reduce damages. Due to minor inconsistencies having been identified among LDCs during the Operations Audit with the compilation of their respective data, no self-analysis will be recommended for this year to allow for this data to be leveled-out. Once new performance levels are established, and yearly comparisons re-evaluated, future self-analysis will be recommended for those LDCs who further decline in their performance.

LDC performance in damages due to no-calls per 1,000 tickets is displayed in Figure 4 below.

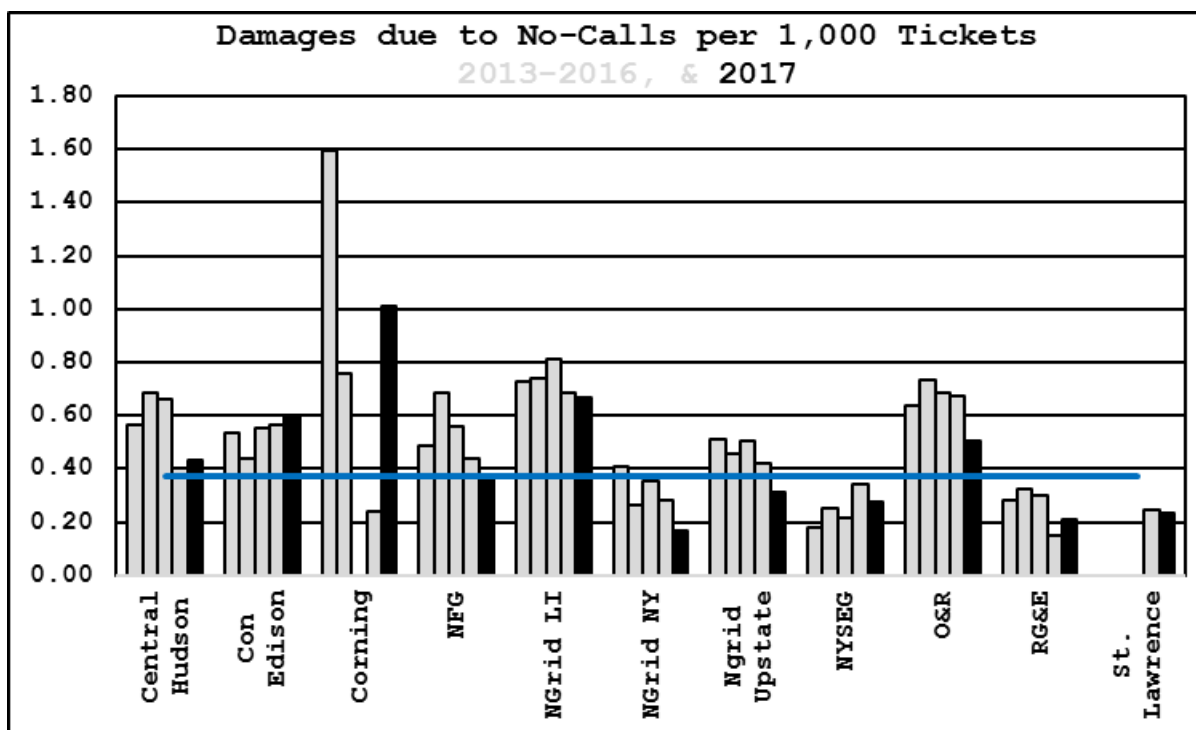


Figure 4 - No-call Damages per 1,000 Tickets

As seen in Figure 4, seven of the LDCs improved and four had worse performance in 2017 when compared to 2016. Among those LDCs with improved performance, NGrid NY (41.3%), Niagara Mohawk Power Corporation d/b/a National Grid (NGrid Upstate) (25.7%), O&R (25.3%), New York State Electric & Gas Corporation

(NYSEG) (19.9%), and NFG (17.4%), saw the largest improvements during 2017 when compared with that of 2016. NGrid NY experienced an improvement going from 54 no-call damages in 2016, to 47 in 2017, NGrid Upstate from 44 to 32, O&R from 20 to 16, NYSEG from 19 to 17, and NFG from 43 to 36.

Use of the three-digit 811 dialing system, consistent enforcement actions taken by Staff for violations of 16 NYCRR Part 753, and public outreach, education, and training efforts taken by LDCs and the one-call centers are all contributing factors in raising excavator awareness regarding their obligations to not only utilize the one-call system, but to excavate safely around underground facilities.

To aid in the enforcement of 16 NYCRR Part 753, LDCs voluntarily forward information about excavators who damaged underground facilities without having mark-out requests. In a more recent effort, LDCs have also begun reporting most of their damages regardless of cause, which has been a contributing factor to the overall improvement in performance. Once notified, Staff can evaluate the details of each damage, perform on-site investigations and interviews of the incident, conclude the root cause or causes of the damage, obtain any pertinent information, and pursue enforcement actions where appropriate. This enforcement effort, coupled with higher reporting frequencies and associated penalties, are deterrents to non-compliance. Where appropriate, enforcement cases are resolved by a "Consent Order" agreement in which the financial penalty may be reduced if the excavator attends either a free training provided by the one-call center covering the area where the damage occurred, or Dig Safely New York's certified excavator program. All LDCs are encouraged to continue in their efforts to notify Staff of these incidents.

LDC performance in damages due to mismarks per 1,000 tickets is displayed in Figure 5 below.

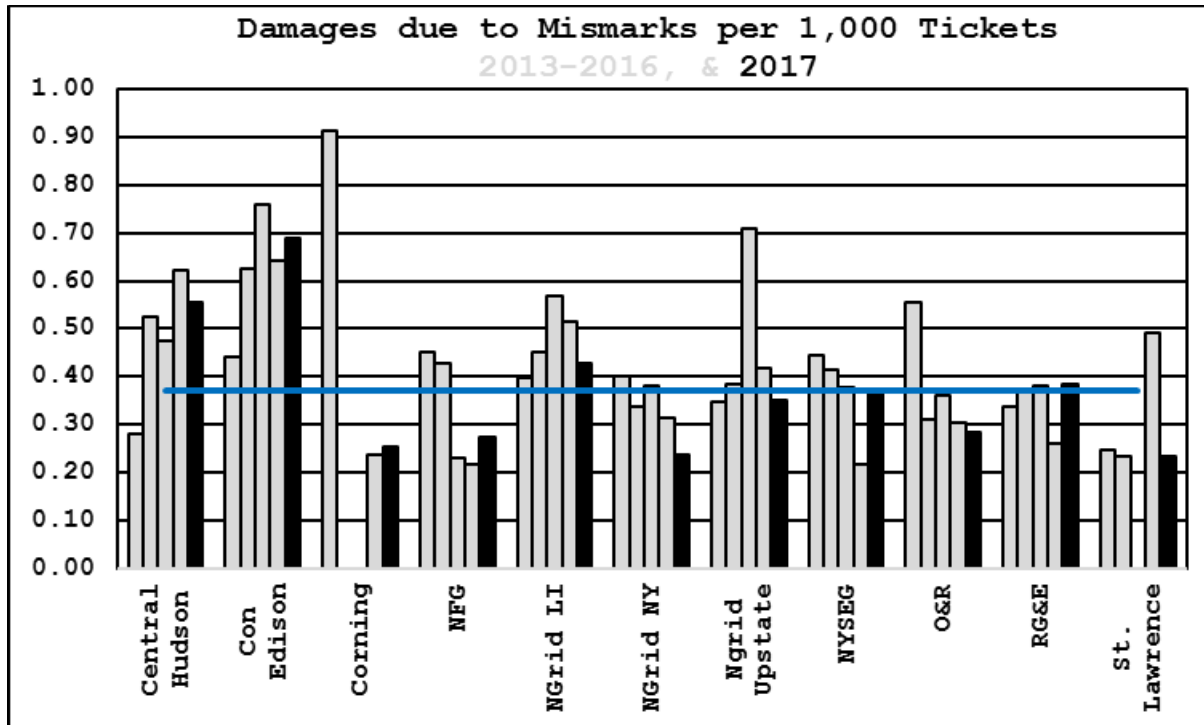


Figure 5 - Mismark Damages per 1,000 Tickets

As seen in Figure 5, six LDCs improved, and four had worse performance during 2017 in accurately marking their own facilities. The overall performance level for this area improved 5.1%. However, there was an increase in the total number of mismark damages from the previous year; going from 323 in 2016, to 357 in 2017. When this 34-mismark damage increase is normalized with the 150,537 one-call ticket increase, the results show an overall improvement for this area.

For those LDCs that improved, St. Lawrence Gas Company, Inc. (St. Lawrence) experienced a 52.2% improvement (going from two mismark damages in 2016 to one in 2017), NGrid NY improved 24.7% (60 to 67), NGrid LI improved 17.3% (85 to 79), NGrid Upstate improved 16.4% (44 to 36), and Central Hudson

Gas & Electric Corporation (Central Hudson) improved 11.0% (maintaining 14).

Staff typically expects to see general improvements in damages due to mismarks as LDCs continually adopt best practices to locate their facilities, replace older leak prone pipe that is less accurately identified on facility records with new pipe whose exact locations are known, and develop better controls over their locating contractors.

LDC performance in damages due to company and company contractors per 1,000 tickets is displayed in Figure 6 below.

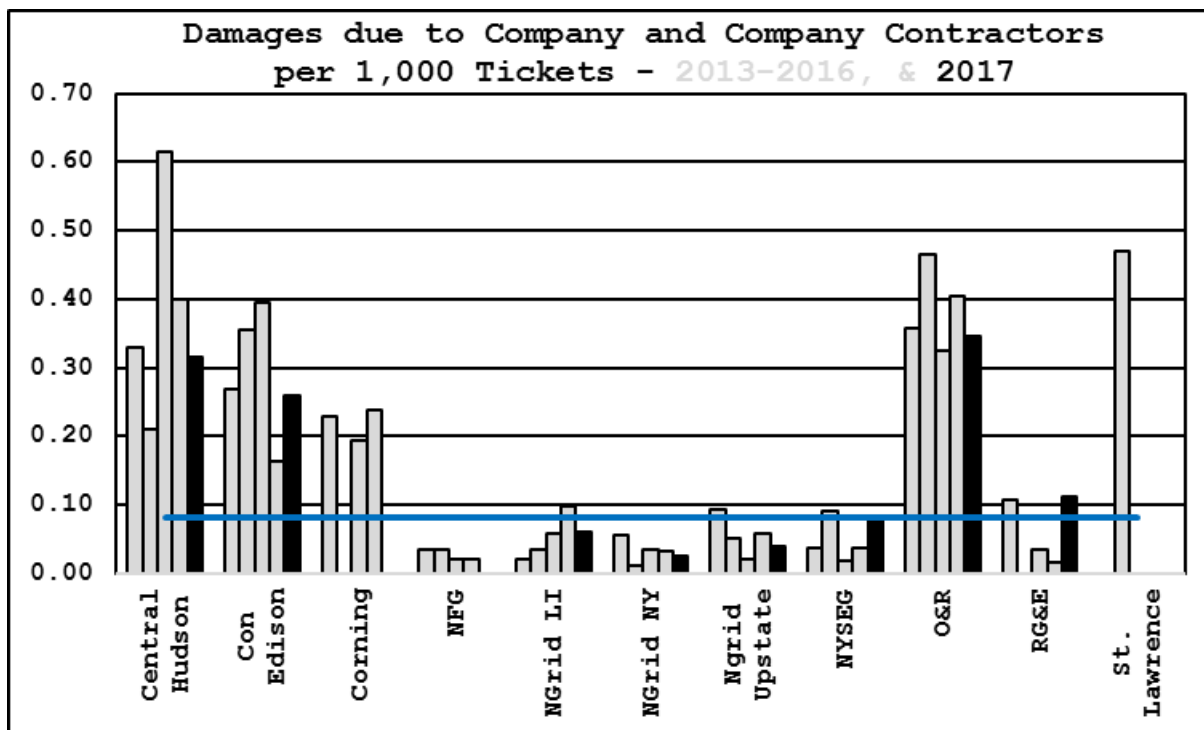


Figure 6 - Damages due to Company and Company Contractors per 1,000 Tickets

As seen in Figure 6, seven LDCs improved, one remained the same, and three had worse performance in 2017. The largest improvements in company and company contractor damages came from NFG (100%) going from two damages in 2016 to zero in 2017,

Corning (100%) going from one to zero, NGrid LI (38.8%) going from 16 to 11, NGrid Upstate (31.9%) going from six to four, NGrid NY (21.3%) going from six to seven, Central Hudson (20.9%) going from nine to eight, and O&R (14.5%) going from 12 to 11. For the third consecutive year, St. Lawrence had zero company and company contractor damages.

With the Commission's support, the LDCs have increased their proactive replacement of leak-prone pipe in recent years. This leads to more excavation activity by company and company contractors near their own buried natural gas lines, which increases the opportunity for damage. Even with this increased excavation activity, overall performance in this area improved slightly (2.1%) from that of 2016.

On the other hand, LDCs should have better control over contractors they hire to perform work for them than they do over third-party contractors. These employees should have the training, qualifications, and experience to work carefully near their own facilities. The LDCs point out that often these damages are to facilities that are in the process of being replaced. When damaged, their own crews and contractors are more prepared than third-party contractors to promptly control the situation. While true, Staff believes that LDCs should not minimize this category of damages. These damages still have the potential to harm workers and members of the public, and should be avoided. All damages are not only safety concerns, but have the potential to lead to service outages and other disruptions, such as road closures and evacuations.

As noted above, this metric has the lowest raw number of damages, is the smallest contributor to the total number of damages, and is the smallest contributor to the overall damage prevention measure. Further, the graphs' vertical scale in



Figure 6 makes the year-to-year changes appear more dramatic than those shown in Figures 2, 3, 4, and 5. This graph's vertical scale exaggerates the fluctuations for the smaller LDCs. It has been noted several times that the smaller LDCs (such as Corning and St. Lawrence) can have dramatic variations from year to year. The data suggest that even the larger LDCs can experience sizable volatility in performance. As the actual numbers of damages get smaller, these variations become larger.

While there is value in evaluating recent trends in performance, it is worth taking a step back to look at this year's data in relation to that of 2013. Figure 7 displays the overall performance regarding the damage prevention measures from calendar years 2013 and 2017.

Metric	2013	2017
Number of Tickets	741,729	978,049
Mismarks	0.41	0.37
Co. & Co. Contractor Error	0.09	0.08
Excavator Error	1.13	0.78
No-calls	0.52	0.37
Total (per 1000)	2.15	1.60

Figure 7 - Damage comparison between 2013 and 2017

Emergency Response

Commission regulation 16 NYCRR Part 255.825(d) requires that LDCs provide a monthly report to Staff that includes a breakdown of the total number of leak, odor, and emergency reports received and responded to during the month in intervals of 15 minutes during normal business hours, weekdays

outside business hours, and weekends and holidays. The report also indicates the percentage of calls responded to within 30, 45, and 60-minute intervals. The following have been established as overall response time standards: 75% within 30 minutes, 90% within 45 minutes, and 95% within 60 minutes. Each company has a very small number of instances of response times exceeding 60 minutes.<sup>12</sup>

The intent of the reporting requirement and the performance measure is to evaluate company responses to natural gas leak, odor, and emergency notifications that are generated by the public or other authorities (for example, police, fire, and municipalities). For the purposes of reporting, the response times are measured from the time the call is sent from the company dispatch to the time of arrival of qualified company personnel at the location.<sup>13</sup>

Any LDC that does not meet one of the targeted response standards at 30 minutes, 45 minutes, or 60 minutes must provide additional data showing when the targeted response level is achieved.

Figure 8 displays the overall annual emergency response time (ERT) performance for each target since 2013, with the 2017 performance presented in black. The total number of emergency notifications decreased 4.8%, going from 188,764 in 2016 to 179,787 in 2017. In 2017, all three categories improved

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<sup>12</sup> The LDCs are expected to review the circumstances of each instance exceeding 60 minutes and, where possible, work towards their elimination.

<sup>13</sup> Qualified personnel are defined as company representatives who are properly trained and equipped to investigate leak, odor, and emergency reports in accordance with accepted company procedures and 16 NYCRR §255.604; operator qualification requirements.

from the previous calendar year, as well as having exceeded the minimum standards of 75%, 90%, and 95%. While these gains weren't significant, all being less than 1.0%, the continued focus by each of the LDCs in these categories is notable and should be commended.

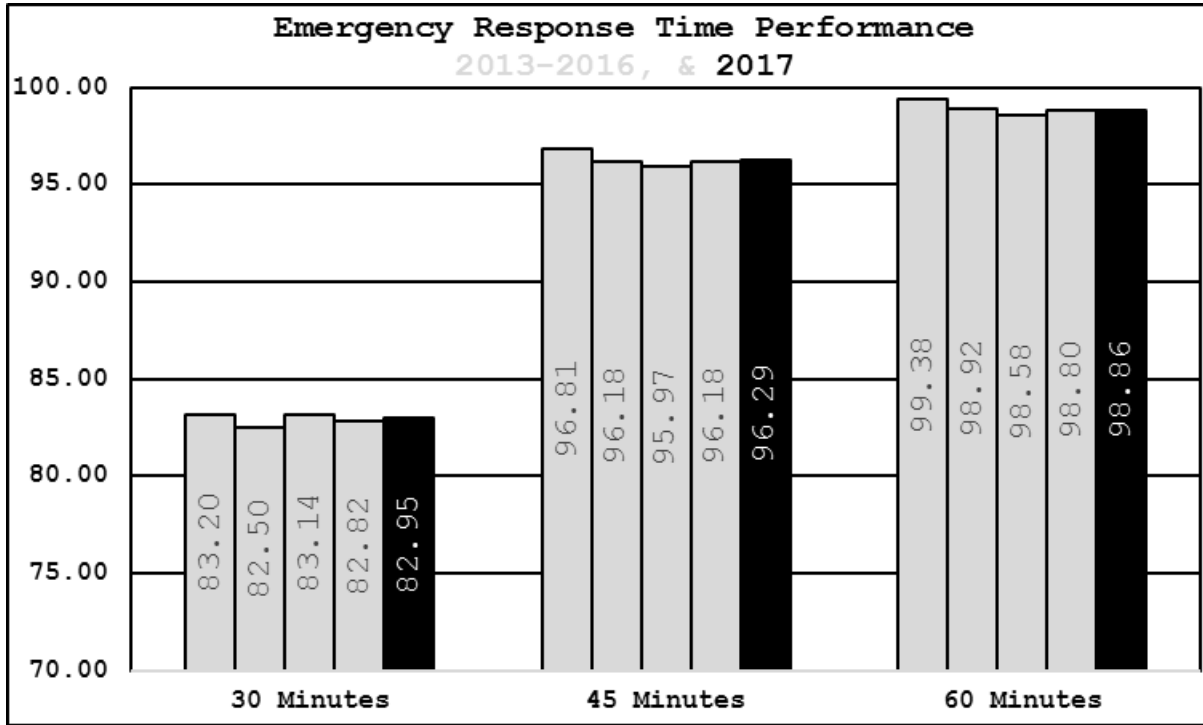


Figure 8 - Emergency Response Time Performance

Figure 9 presents data for calendar years 2013 through 2017 arranged by LDC and percentage of response times achieved within 30 minutes.

<b>LDCs</b>	2013	2014	2015	2016	2017
Central Hudson	78.5	78.7	77.0	77.7	79.2
Con Edison	88.9	87.9	88.2	89.1	90.0
Corning	81.9	79.9	79.1	83.8	86.6
NFG	92.7	92.5	93.3	91.4	94.0
NGrid LI	77.7	75.5	78.0	77.2	74.3
NGrid NY	76.7	75.6	75.9	76.2	77.3
NGrid Upstate	80.2	79.1	82.7	82.3	80.4
NYSEG	80.1	80.8	80.6	82.0	79.0
O&R	86.5	87.9	89.0	88.9	89.0
RG&E	84.7	87.4	81.4	77.8	75.5
St. Lawrence	71.3	84.4	83.6	78.5	79.6

Figure 9 - Emergency Response Times for 30 Minutes (%)

All LDCs met the 30 minute, 45 minute, and 60 minute goals. The data for the 45 and 60 minute emergency response times are provided in Appendix D.

Over the past 15 years, leak, odor, and emergency notifications across the LDCs have decreased from 227,905 in

2003 to 179,787 in 2017; or by 21.1%. Since 2013, there has been an overall increase in notifications due, in part, to the LDCs' public awareness programs; the Horseheads Proceeding,<sup>14</sup> whereby LDCs assessed risks to their underground facilities posed by third-party excavations and incorporated best practices for educating the public on the reporting of natural gas odors; the East Harlem incident in 2014,<sup>15</sup> and the East Village incident in 2015.<sup>16</sup> Recent declines in notification volumes may be attributed to the reduction of leak backlogs, which will be discussed below in the leak management section, and aggressive leak prone pipe removal programs approved by the Commission.

It is encouraging to see that all LDCs have made efforts over the years to reach the standards jointly established for this measure. Staff expects all LDCs to continue to evaluate and monitor their performance and identify areas where best practices can be implemented to further exceed the benchmarks.

#### Leak Management

The purpose of evaluating LDCs' leak management programs is to gauge how LDC's are responding to and addressing leaks on their systems, eliminating potentially hazardous leaks that are found, and reducing their backlogs of total leaks. The

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<sup>14</sup> Case 11-G-0565, New York State Electric & Gas Corporation - Gas Incident, Order Directing Implementation of Best Practices of New York Gas Facilities (issued April 17, 2015).

<sup>15</sup> Case 14-G-0201, Consolidated Edison Company of New York, Inc. - Gas Incident, Order Approving Settlement Agreement (issued February 16, 2017).

<sup>16</sup> Matter 15-000737, Consolidated Edison Company of New York, Inc. - Gas Incident, 121 2<sup>nd</sup> Avenue, Manhattan (occurred on March 26, 2015).

natural gas pipeline safety regulations contained in 16 NYCRR Part 255, include requirements for classifying leaks according to their relative hazard, considering factors such as whether natural gas migration is detected near buildings, in manholes, vaults, catch basins, under paved versus unpaved areas, etc. All leaks classified as potentially hazardous must be monitored and repaired according to the pipeline safety regulations and any hazardous conditions must be immediately eliminated. All other leaks must be reevaluated during the next required leakage survey or annually, whichever is less, but have no mandatory repair timeframes.

Unrepaired potentially hazardous leaks are an increased safety risk to the public. The risk is further exacerbated when there is frost in the ground, which increases the chance of natural gas migration into buildings. The frost acts as a blanket that does not allow the gas to readily vent to the atmosphere through the soil, potentially allowing the natural gas to find underground pathways and enter structures. Although a leak backlog on any particular day is a snapshot in time, the end of the calendar year is significant since it generally coincides with the beginning of the frost season. Thus, all data analyses are presented as of December 31 for each calendar year. The data as reported by the LDCs related to Leak Management are contained in Appendices E, F, and G. The leak management measure looks at the year-end backlog of potentially hazardous leaks and in total leaks. This measure does not substitute for, and is not a reflection upon, any LDC's compliance with requirements prescribed within the pipeline safety regulations.

The data reported by the LDCs include leaks found; leaks repaired on mains and services categorized by leak type

and pipe material; and the backlog of leaks by classification as either hazardous or non-hazardous.

Analysis of leakage data can also provide an indication of the pipe material's susceptibility to leakage. As a means of continuously improving leak management programs, Staff encourages the identification and removal of leak prone pipe, such as cast iron, bare, or poorly coated steel pipes that are difficult to protect against corrosion, and certain brittle plastic materials. Incentive programs to remove deteriorating and leak prone infrastructure and/or reducing leak backlogs have been incorporated into the LDCs' past and current rate plans. The long-term goal is to eliminate pipeline infrastructure that, due to its vulnerability to leaks, presents greater safety risks to the public. As the aging pipe infrastructure is replaced by more modern materials that have shown to be less likely to leak.

The overall year-end backlog of potentially hazardous leaks had worse performance from 2016 to 2017, going from 58 to 65, but is down 94.4% when compared to 1,154 in 2003. This demonstrates that LDCs have sustained a continued effort of paying more attention to managing leak surveys and are completing them earlier in the year, to allow for time to repair discovered leaks before heading into the frost season.

Figure 10 displays the backlog of potentially hazardous leaks (Type 1, 2A, and 2)<sup>17</sup> on December 31<sup>st</sup> of 2013

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<sup>17</sup> A backlog of leaks requiring repair is defined as active leaks in the system consisting of: Type 1, requiring immediate effort to protect life and property, continuous action to eliminate the hazard, and repairs on a day-after-day basis or the condition kept under daily surveillance until corrected; Type 2A, monitored every two weeks and repaired within six months; and Type 2, monitored every two months and repaired within one year.

through 2017. The numerical leak data for this category is contained in Appendix F.

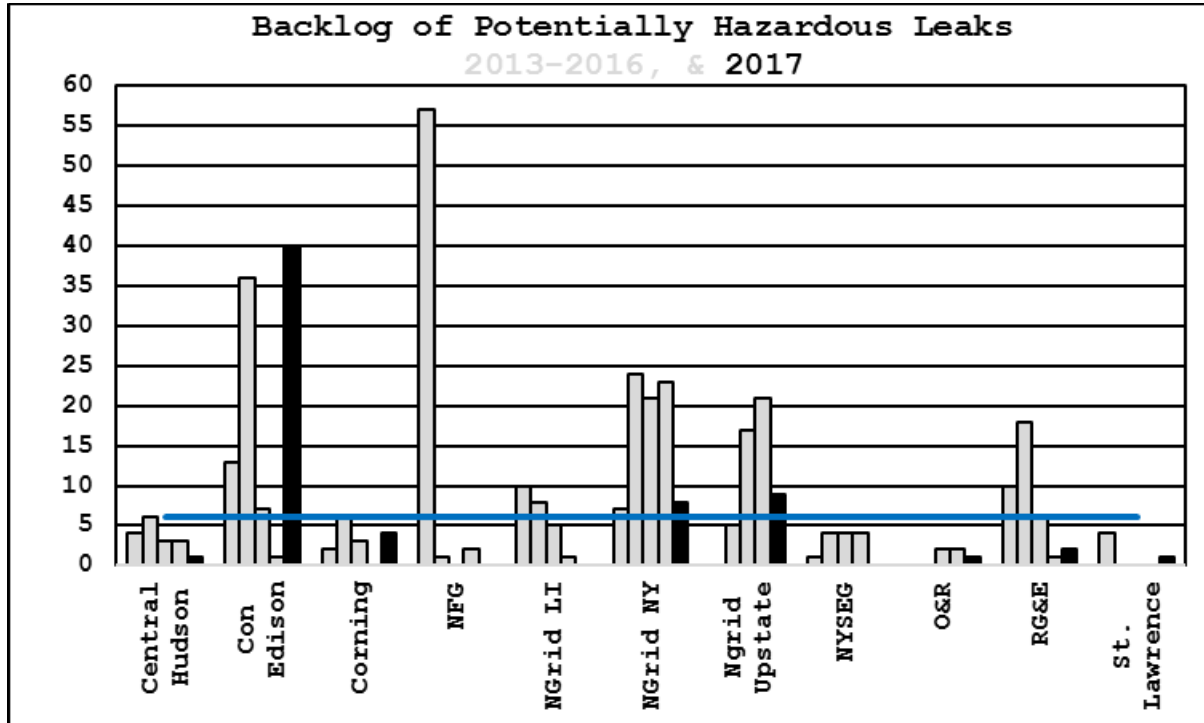


Figure 10 - Backlog of Potentially Hazardous Leaks

As seen in Figure 10, Con Edison is the only LDC that ended 2017 with greater than nine potentially hazardous leaks in its backlog. Pursuant to its most recent rate plan,<sup>18</sup> Con Edison no longer has an associated negative revenue adjustment for failure to maintain a certain number of these types of leaks. Con Edison's backlog of 40 potentially hazardous leaks in 2017 is the highest since 2007 when it had a backlog of 42 potentially hazardous leaks.

LDC performance as it relates to total leak backlogs include all potentially hazardous leaks, as identified above, in

<sup>18</sup> Case 16-G-0061, Consolidated Edison Company of New York, Inc. - Gas Rates, Order Approving Electric and Gas Rate Plans (issued January 25, 2017).



addition to the remaining Type 3 leaks. Type 3 leaks are defined as not being potentially hazardous at the time of detection and are reasonably expected to remain that way. However, Type 3 leaks must be reevaluated during the next required leakage survey or annually, whichever is less, though they have no mandatory repair timeframe.

Without a mandatory repair timeframe, LDCs could allow this backlog to grow while still meeting the minimum pipeline safety regulations. In recent years, and like that of potentially hazardous leak backlogs, negative revenue adjustments have been incorporated into most of the LDCs' rate plans for total leak backlogs.

Figure 11 displays the backlog of total leaks (Type 1, 2A, 2, and 3) on December 31<sup>st</sup> of 2013 through 2017. The numerical leak data is contained in Appendix G.

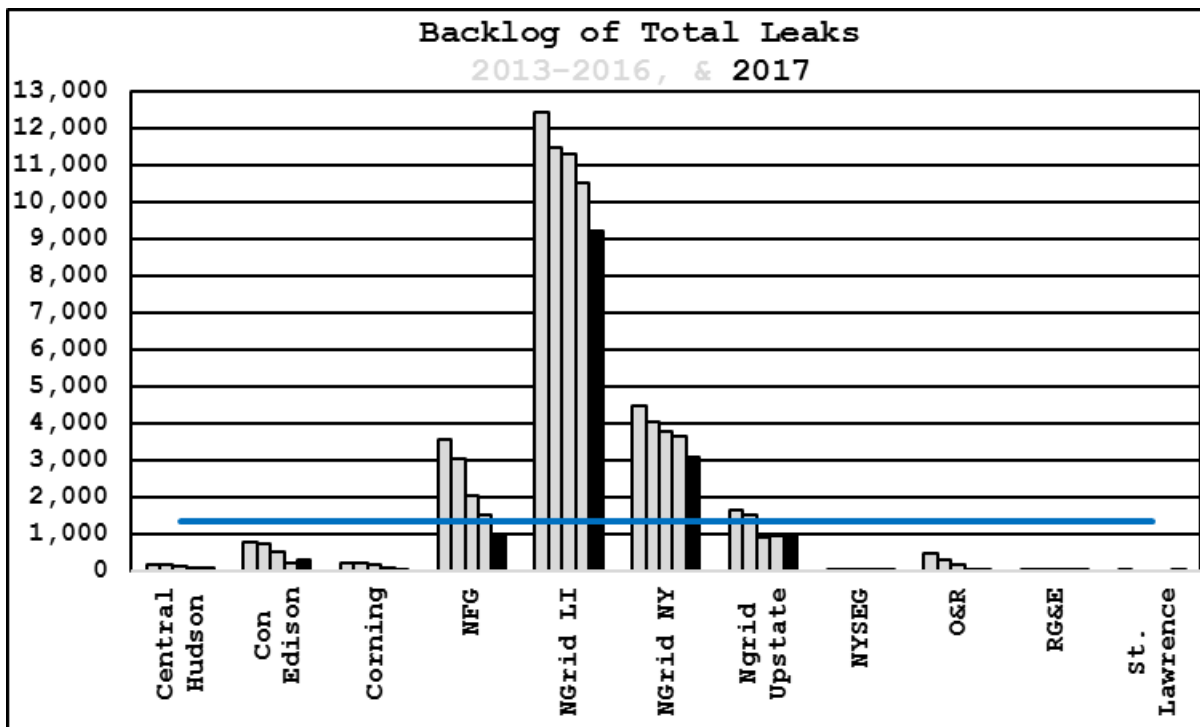


Figure 11 - Backlog of Total Leaks

As seen in Figure 11, NGrid LI continues to be an outlier in this category but has once again improved from the previous calendar year. NGrid LI improved approximately 12.5% when comparing 2017 to 2016, which resulted in 1,324 fewer backlogged leaks. Regardless, this performance is nearly three times that of the next highest LDC, NGrid NY, and accounts for 62.0% of the overall total leak backlog.

The notable performance improvements within this measure includes O&R (76.9%) going from 26 total leaks in 2016 to 6 in 2017, Corning (37.1%) going from 116 to 73, NYSEG (38.5%) going from 13 to 8, NFG (32.9%) going from 1,533 to 1,028, and NGrid NY (15.2%) going from 3,676 to 3,118. NGrid Upstate, RG&E, and St. Lawrence all maintained similar total leak backlogs from that of 2016 to 2017.

A significant decline in performance (30.5%) was noted for Con Edison who went from a backlog of 239 total leaks in 2016, to a backlog of 312 total leaks in 2017. This decline in performance was due, in part, to Con Edison discovering 1,023 additional leaks (18.2%) when compared with that of 2016. As the accelerated removal of leak prone pipe continues over the next several years, it's to be expected that the backlog of total leaks will continue to improve.

#### Non-Compliances Identified through Audit Process

For the third year, LDCs are being evaluated on their compliance with the Commission's minimum pipeline safety regulations as identified during Staff audits. Each year, Staff conducts audits, inspections, and investigations of the LDCs to determine compliance with regulations. Each non-compliance identified represents an area where an LDC failed to meet the minimum requirements as prescribed.

Staff conducts compliance audits on a calendar year basis. These audits typically include a review of record and field activities. For the record audits, Staff reviews the previous calendar year's documentation and reports on any instances of non-compliance with the regulations. Throughout the remainder of the year, Staff accompanies LDC crews to perform field audits of the actual work being performed and compares those tasks with the requirements of the regulations and the LDCs' applicable procedures. Like the record audit, any instances of non-compliance are documented and then reported.

For this measure, the year identified will consist of both the record and the field audits of a calendar year.<sup>19</sup> Since the 2018 audits of 2017 records are in progress, Figure 12 below only displays the total number of non-compliances from 2012 through 2016. The total number of non-compliances are then normalized by the number of operating head-quarters (OHQ) within a given LDC. For each OHQ, Staff conducts a separate audit of all functions as identified in its five-year audit plan for that year. The associated data per LDC and the number of OHQs are located in Appendices H and I.

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<sup>19</sup> This typically includes records generated and field activities performed during the specific calendar year.

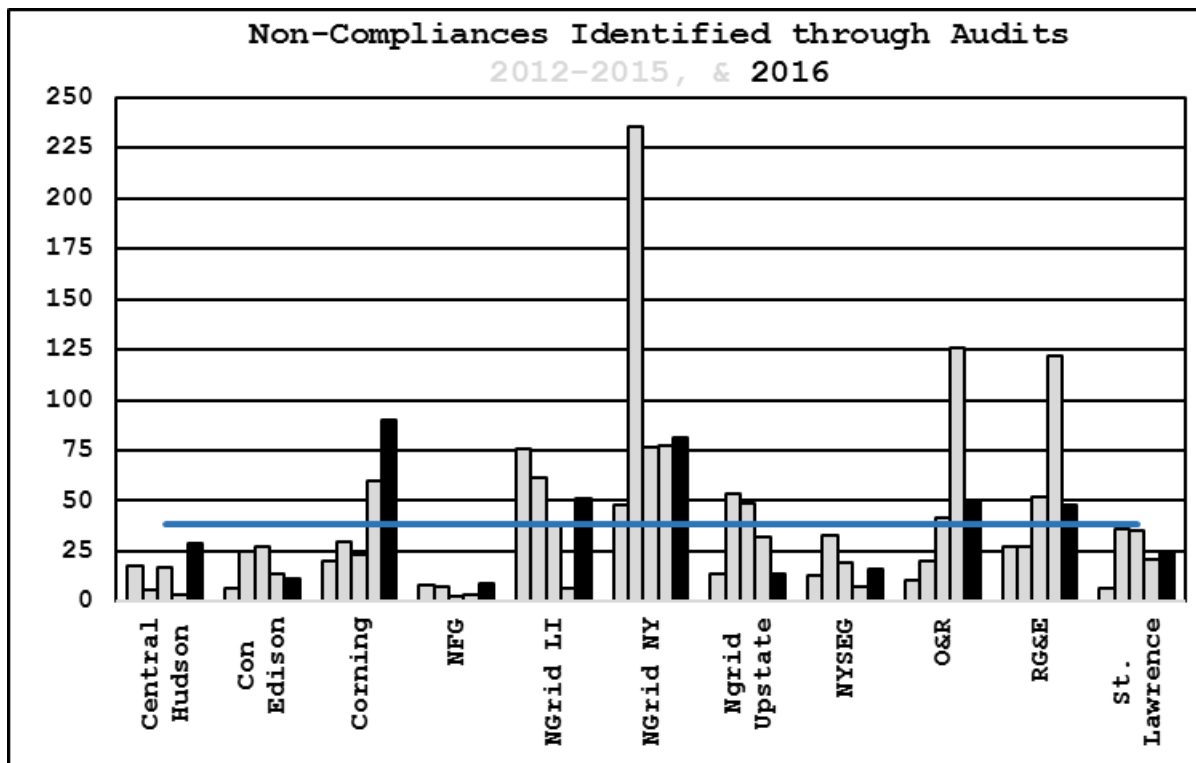


Figure 12 - Non-Compliances Identified through Audits

As seen in Figure 12, the data varies greatly from year to year; therefore, the year to year graph does not represent a direct comparison of year to year compliance. This is due, in part, to Staff’s five-year audit plan, in which sections of the pipeline safety regulations are reviewed on varying frequencies based on the likelihood of risk to public safety (life, property, and the environment). The regulations are either identified as high risk, in which an audit is conducted annually, or other risk, which is audited on a two to five-year frequency, but does not exceed five years. The specific code sections identified as high and other risk are contained within Appendices J and K.

Staff’s focus is on compliance with the minimum pipeline safety regulations, but also includes areas in which LDCs, based upon past experiences and identified risks, have

chosen to exceed these minimum standards. In 2016, non-compliances were identified in all 11 of the major LDCs' operating service territories with improvements having been realized in each of the previous three calendar years. This is due, in part, to the mechanisms that have been incorporated into most of the LDC's respective rate plans, which attach an associated regulatory liability for the non-compliances identified. Staff notes that only NFG does not have negative revenue adjustments associated with its performance related to these measures within its current rate plan (2017).

NFG had more violations of high risk and other risk code sections in 2016 compared to 2015. Comparing violations of high risk and other risk code sections in 2016 to 2012, which would have contained audits of the same code sections on a five-year schedule, NFG had seven more combined violations, or a decline in performance of 9.5%. Staff is concerned that this trend may continue because NFG will be operating without an associated regulatory liability for compliance with the pipeline safety regulations.

#### Conclusion

Natural gas is a safe and reliable energy commodity when handled and transported properly. Safety performance measures are an important management tool that provide Staff and LDCs the ability to evaluate trends in key areas of pipeline safety (damage prevention, emergency response times, leak management, and non-compliances with the Commission's regulations). The LDCs must continue to focus on these areas to further reduce risks in distributing natural gas to consumers.

Over the past 15 years, LDCs have worked to improve performance in the key areas of safety identified in this

report. The total damage performance improved 75.5% going from 6.53 to 1.60 damages per 1,000 one-call notifications; response to leak, odor, and emergency reports within 30-minutes improved from 76.8% to 83.0%; and the year-end backlog of potentially hazardous leaks has decreased 94.4%, going from 1,154 to 65, within this period. Over the past 10 years the total leak backlog has decreased 44.1%, going from 26,638 to 14,879. As LDCs continue their outreach efforts, adopt better practices in responding to leak, odor, and emergency reports, and work to remove aging infrastructure, Staff expects further improvements will occur.

Staff will continue to evaluate LDCs' performance via the measures contained within this report and encourage LDCs to evaluate their current and past practices. LDCs should reach out to the other LDCs that experienced higher performance levels to determine the incremental and, if necessary, entirely new approaches to pursue to achieve improvement.

Those LDCs that made significant improvements are further encouraged to respond to this report and share the best practices that enabled them to make these improvements. Staff will continue to meet with LDCs on a regular basis and monitor LDC performance. Performance trends will be discussed with LDCs at these meetings and will be analyzed in future performance measure reports.

Appendix A

Historical Case Numbers<sup>20</sup>

Year Analyzed	Case Number
2003	04-G-0457
2004	05-G-0204
2005	06-G-0566
2006	07-G-0461
2007	08-G-0413
2008	09-G-0454
2009	10-G-0225
2010	11-G-0242
2011	12-G-0222
2012	13-G-0213
2013	14-G-0176
2014	15-G-0248
2015	16-G-0254
2016	17-G-0245

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<sup>20</sup> The appendices to this report include the most recent year under analysis plus the four previous years. This table is provided to aid those wishing to research prior years.

Appendix B

## Number of One-call Tickets

LDCs	2013	2014	2015	2016	2017
Central Hudson	21,305	19,002	21,136	22,522	25,302
Con Edison	85,990	95,784	93,510	92,054	100,397
Corning	4,386	5,291	5,193	4,214	3,952
NFG	88,621	88,724	95,284	97,457	98,714
NGrid LI	188,412	174,833	156,964	164,892	185,313
NGrid NY	125,030	172,673	177,824	191,140	283,474
NGrid Upstate	86,500	96,672	104,422	104,991	102,770
NYSEG	56,039	55,299	55,468	55,180	61,600
O&R	25,193	25,809	27,790	29,697	31,820
RG&E	56,232	59,014	60,274	61,289	80,447
St. Lawrence	4,021	4,265	4,055	4,076	4,260

## Number of Damages due to Mismarks

LDCs	2013	2014	2015	2016	2017
Central Hudson	6	10	10	14	14
Con Edison	38	60	71	59	69
Corning	4	0	0	1	1
NFG	40	38	22	21	27
NGrid LI	75	79	89	85	79
NGrid NY	50	58	68	60	67
NGrid Upstate	30	37	74	44	36
NYSEG	25	23	21	12	23
O&R	14	8	10	9	9
RG&E	19	22	23	16	31
St. Lawrence	1	1	0	2	1

## Damages due to Mismarks per 1,000 Tickets

LDCs	2013	2014	2015	2016	2017
Central Hudson	0.28	0.53	0.47	0.62	0.55
Con Edison	0.44	0.63	0.76	0.64	0.69
Corning	0.91	0.00	0.00	0.24	0.25
NFG	0.45	0.43	0.23	0.22	0.27
NGrid LI	0.40	0.45	0.57	0.52	0.43
NGrid NY	0.40	0.34	0.38	0.31	0.24
NGrid Upstate	0.35	0.38	0.71	0.42	0.35
NYSEG	0.47	0.42	0.38	0.22	0.37
O&R	0.56	0.31	0.36	0.30	0.28
RG&E	0.34	0.37	0.38	0.26	0.39
St. Lawrence	0.25	0.23	0.00	0.49	0.23



Appendix B (Continued)

## Number of Damages due to No-calls

LDCs	2013	2014	2015	2016	2017
Central Hudson	12	13	14	9	11
Con Edison	46	42	52	52	60
Corning	7	4	0	1	4
NFG	43	61	53	43	36
NGrid LI	137	129	127	113	124
NGrid NY	51	46	63	54	47
NGrid Upstate	44	44	53	44	32
NYSEG	10	14	12	19	17
O&R	16	19	19	20	16
RG&E	16	19	18	9	17
St. Lawrence	0	0	0	1	1

## Damages due to No-calls per 1,000 Tickets

LDCs	2013	2014	2015	2016	2017
Central Hudson	0.56	0.68	0.66	0.40	0.43
Con Edison	0.53	0.44	0.56	0.56	0.60
Corning	1.60	0.76	0.00	0.24	1.01
NFG	0.49	0.69	0.56	0.44	0.36
NGrid LI	0.73	0.74	0.81	0.69	0.67
NGrid NY	0.41	0.27	0.35	0.28	0.17
NGrid Upstate	0.51	0.46	0.51	0.42	0.31
NYSEG	0.18	0.25	0.22	0.34	0.28
O&R	0.64	0.74	0.68	0.67	0.50
RG&E	0.28	0.32	0.30	0.15	0.21
St. Lawrence	0.00	0.00	0.00	0.25	0.23

## Number of Damages due to Excavator Error

LDCs	2013	2014	2015	2016	2017
Central Hudson	11	6	13	17	21
Con Edison	54	52	58	74	70
Corning	7	6	3	4	5
NFG	138	105	133	133	115
NGrid LI	148	119	145	131	112
NGrid NY	138	157	152	172	165
NGrid Upstate	166	159	171	146	149
NYSEG	54	61	75	47	50
O&R	43	27	33	36	22
RG&E	66	51	70	38	40
St. Lawrence	16	19	12	9	10

Appendix B (Continued)

## Damages due to Excavator Error per 1,000 Tickets

LDCs	2013	2014	2015	2016	2017
Central Hudson	0.52	0.32	0.62	0.75	0.83
Con Edison	0.63	0.54	0.62	0.80	0.70
Corning	1.60	1.13	0.58	0.95	1.27
NFG	1.56	1.18	1.40	1.36	1.16
NGrid LI	0.79	0.68	0.92	0.79	0.60
NGrid NY	1.10	0.91	0.85	0.90	0.58
NGrid Upstate	1.92	1.64	1.64	1.39	1.45
NYSEG	0.96	1.10	1.35	0.85	0.81
O&R	1.71	1.05	1.19	1.21	0.69
RG&E	1.17	0.86	1.16	0.62	0.50
St. Lawrence	3.98	4.45	2.96	2.21	2.35

## Number of Damages due to Co. &amp; Co. Contractor Error

LDCs	2013	2014	2015	2016	2017
Central Hudson	7	4	13	9	8
Con Edison	23	34	37	15	26
Corning	1	0	1	1	0
NFG	3	3	2	2	0
NGrid LI	4	6	9	16	11
NGrid NY	7	2	6	6	7
NGrid Upstate	8	5	2	6	4
NYSEG	2	5	1	2	5
O&R	9	12	9	12	11
RG&E	6	0	2	1	9
St. Lawrence	0	2	0	0	0

## Damages due to Co. &amp; Co. Contractor Error per 1,000 Tickets

LDCs	2013	2014	2015	2016	2017
Central Hudson	0.33	0.21	0.62	0.40	0.32
Con Edison	0.27	0.35	0.40	0.16	0.26
Corning	0.23	0.00	0.19	0.24	0.00
NFG	0.03	0.03	0.02	0.02	0.00
NGrid LI	0.02	0.03	0.06	0.10	0.06
NGrid NY	0.06	0.01	0.03	0.03	0.02
NGrid Upstate	0.09	0.05	0.02	0.06	0.04
NYSEG	0.04	0.09	0.02	0.04	0.08
O&R	0.36	0.46	0.32	0.40	0.35
RG&E	0.11	0.00	0.03	0.02	0.11
St. Lawrence	0.00	0.47	0.00	0.00	0.00

Appendix B (Continued)

## Number of Total Damages

LDCs	2013	2014	2015	2016	2017
Central Hudson	36	33	50	49	54
Con Edison	161	188	218	200	225
Corning	19	10	4	7	10
NFG	224	207	210	199	178
NGrid LI	364	333	370	345	326
NGrid NY	246	263	289	292	286
NGrid Upstate	248	245	300	240	221
NYSEG	91	103	109	80	95
O&R	82	66	71	77	58
RG&E	107	92	113	64	97
St. Lawrence	17	22	12	12	12

## Total Damages per 1,000 Tickets

LDCs	2013	2014	2015	2016	2017
Central Hudson	1.69	1.74	2.37	2.18	2.13
Con Edison	1.87	1.96	2.33	2.17	2.24
Corning	4.33	1.89	0.77	1.66	2.53
NFG	2.53	2.33	2.20	2.04	1.80
NGrid LI	1.93	1.90	2.36	2.09	1.76
NGrid NY	1.97	1.52	1.63	1.53	1.01
NGrid Upstate	2.87	2.53	2.87	2.29	2.15
NYSEG	1.62	1.86	1.97	1.45	1.54
O&R	3.25	2.56	2.55	2.59	1.82
RG&E	1.90	1.56	1.87	1.04	1.21
St. Lawrence	4.23	5.16	2.96	2.94	2.82

Appendix C<sup>21</sup>

Central Hudson	2013	2014	2015	2016	2017	LDCs
Number of Tickets	21,305	19,002	21,136	22,522	25,302	978,049
Mismarks	0.28	0.53	0.47	0.62	0.55	0.37
No-Calls	0.56	0.68	0.66	0.40	0.43	0.37
Excavator Error	0.52	0.32	0.62	0.75	0.83	0.78
Co. & Co. Contractor Error	0.33	0.21	0.62	0.40	0.32	0.08
Total	1.69	1.74	2.37	2.18	2.13	1.60

Con Edison	2013	2014	2015	2016	2017	LDCs
Number of Tickets	85,990	95,784	93,510	92,054	100,397	978,049
Mismarks	0.44	0.63	0.76	0.64	0.69	0.37
No-Calls	0.53	0.44	0.56	0.56	0.60	0.37
Excavator Error	0.63	0.54	0.62	0.80	0.70	0.78
Co. & Co. Contractor Error	0.27	0.35	0.40	0.16	0.26	0.08
Total	1.87	1.96	2.33	2.17	2.24	1.60

Corning	2013	2014	2015	2016	2017	LDCs
Number of Tickets	4,386	5,291	5,193	4,214	3,952	978,049
Mismarks	0.91	0.00	0.00	0.24	0.25	0.37
No-Calls	1.60	0.76	0.00	0.24	1.01	0.37
Excavator Error	1.60	1.13	0.58	0.95	1.27	0.78
Co. & Co. Contractor Error	0.23	0.00	0.19	0.24	0.00	0.08
Total	4.33	1.89	0.77	1.66	2.53	1.60

<sup>21</sup> The "Total" performance level may not equal the sum of the four-metrics due to rounding.

Appendix C<sup>9</sup> (Continued)

NFG	2013	2014	2015	2016	2017	LDCs
Number of Tickets	88,621	88,724	95,284	97,457	98,714	978,049
Mismarks	0.45	0.43	0.23	0.22	0.27	0.37
No-Calls	0.49	0.69	0.56	0.44	0.36	0.37
Excavator Error	1.56	1.18	1.40	1.36	1.16	0.78
Co. & Co. Contractor Error	0.03	0.03	0.02	0.02	0.00	0.08
Total	2.53	2.33	2.20	2.04	1.80	1.60

NGrid LI	2013	2014	2015	2016	2017	LDCs
Number of Tickets	188,412	174,833	156,964	164,892	185,313	978,049
Mismarks	0.40	0.45	0.57	0.52	0.43	0.37
No-Calls	0.73	0.74	0.81	0.69	0.67	0.37
Excavator Error	0.79	0.68	0.92	0.79	0.60	0.78
Co. & Co. Contractor Error	0.02	0.03	0.06	0.10	0.06	0.08
Total	1.93	1.90	2.36	2.09	1.76	1.60

NGrid NY	2013	2014	2015	2016	2017	LDCs
Number of Tickets	125,030	172,673	177,824	191,140	283,474	978,049
Mismarks	0.40	0.34	0.38	0.31	0.24	0.37
No-Calls	0.41	0.27	0.35	0.28	0.17	0.37
Excavator Error	1.10	0.91	0.85	0.90	0.58	0.78
Co. & Co. Contractor Error	0.06	0.01	0.03	0.03	0.02	0.08
Total	1.97	1.52	1.63	1.53	1.01	1.60

Appendix C<sup>9</sup> (Continued)

NGrid Upstate	2013	2014	2015	2016	2017	LDCs
Number of Tickets	86,500	96,672	104,422	104,991	102,770	978,049
Mismarks	0.35	0.38	0.71	0.42	0.35	0.37
No-Calls	0.51	0.46	0.51	0.42	0.31	0.37
Excavator Error	1.92	1.64	1.64	1.39	1.45	0.78
Co. & Co. Contractor Error	0.09	0.05	0.02	0.06	0.04	0.08
Total	2.87	2.53	2.87	2.29	2.15	1.60

NYSEG	2013	2014	2015	2016	2017	LDCs
Number of Tickets	56,039	55,299	55,468	55,180	61,600	978,049
Mismarks	0.47	0.42	0.38	0.22	0.37	0.37
No-Calls	0.18	0.25	0.22	0.34	0.28	0.37
Excavator Error	0.96	1.10	1.35	0.85	0.81	0.78
Co. & Co. Contractor Error	0.04	0.09	0.02	0.04	0.08	0.08
Total	1.62	1.86	1.97	1.45	1.54	1.60

O&R	2013	2014	2015	2016	2017	LDCs
Number of Tickets	25,193	25,809	27,790	29,697	31,820	978,049
Mismarks	0.56	0.31	0.36	0.30	0.28	0.37
No-Calls	0.64	0.74	0.68	0.67	0.50	0.37
Excavator Error	1.71	1.05	1.19	1.21	0.69	0.78
Co. & Co. Contractor Error	0.36	0.46	0.32	0.40	0.35	0.08
Total	3.25	2.56	2.55	2.59	1.82	1.60

Appendix C<sup>9</sup> (Continued)

RG&E	2013	2014	2015	2016	2017	LDCs
Number of Tickets	56,232	59,014	60,274	61,289	80,447	978,049
Mismarks	0.34	0.37	0.38	0.26	0.39	0.37
No-Calls	0.28	0.32	0.30	0.15	0.21	0.37
Excavator Error	1.17	0.86	1.16	0.62	0.50	0.78
Co. & Co. Contractor Error	0.11	0.00	0.03	0.02	0.11	0.08
Total	1.90	1.56	1.87	1.04	1.21	1.60

St. Lawrence	2013	2014	2015	2016	2017	LDCs
Number of Tickets	4,021	4,265	4,055	4,076	4,260	978,049
Mismarks	0.25	0.23	0.00	0.49	0.23	0.37
No-Calls	0.00	0.00	0.00	0.25	0.23	0.37
Excavator Error	3.98	4.45	2.96	2.21	2.35	0.78
Co. & Co. Contractor Error	0.00	0.47	0.00	0.00	0.00	0.08
Total	4.23	5.16	2.96	2.94	2.82	1.60

Appendix D

## Emergency Response Times for 45 Minutes (%)

LDCs	2013	2014	2015	2016	2017
Central Hudson	99.1	98.7	98.6	98.5	99.0
Con Edison	99.4	99.2	99.2	99.3	99.4
Corning	97.5	95.2	95.3	97.5	98.1
NFG	98.0	97.3	98.1	98.0	98.7
NGrid LI	94.9	93.8	94.4	95.7	95.6
NGrid NY	95.9	93.9	92.4	93.1	93.8
NGrid Upstate	94.6	94.4	95.3	95.3	95.1
NYSEG	95.5	95.7	93.8	95.1	93.4
O&R	98.9	99.1	99.0	98.9	99.1
RG&E	96.9	97.6	95.4	93.3	90.9
St. Lawrence	92.9	95.0	95.3	92.8	93.7



Appendix D (Continued)

## Emergency Response Times for 60 Minutes (%)

LDCs	2013	2014	2015	2016	2017
Central Hudson	99.9	99.9	99.7	99.7	99.9
Con Edison	99.9	99.9	99.9	99.9	99.9
Corning	99.4	98.5	98.1	99.5	99.2
NFG	99.5	98.5	99.3	99.4	99.7
NGrid LI	99.4	99.1	98.7	99.6	99.5
NGrid NY	99.4	98.2	96.6	97.2	97.7
NGrid Upstate	98.2	98.1	98.6	98.6	98.5
NYSEG	99.2	98.8	97.9	98.8	98.4
O&R	99.9	99.9	99.9	99.9	99.9
RG&E	99.4	99.5	98.9	97.8	95.7
St. Lawrence	99.2	98.9	97.9	98.1	98.5

Appendix E

## Leak Repairs on Mains by Material

LDCs	Unprot. Bare	Unprot. Coated	Prot. Bare	Prot. Coated	Plastic	Cast / Wrought Iron	Copper	Other
Central Hudson	88	0	0	66	5	207	0	0
Con Edison	3,666	207	0	71	88	3,179	0	0
Corning	47	9	10	8	3	0	0	0
NFG	1,670	0	0	68	39	134	0	3
NGrid LI	584	139	0	24	73	193	0	0
NGrid NY	143	0	0	73	22	2,961	0	0
NGrid Upstate	14	55	0	35	20	375	0	0
NYSEG	48	0	0	35	29	5	0	2
O&R	113	0	0	10	49	2	0	0
RG&E	30	0	0	207	25	0	1	114
St. Lawrence	0	0	0	3	0	0	0	0

Appendix E (Continued)

## Leak Repairs on Services by Material

LDCs	Unprot. Bare	Unprot. Coated	Prot. Bare	Prot. Coated	Plastic	Cast / Wrought Iron	Copper	Other
Central Hudson	86	0	0	97	56	91	0	0
Con Edison	1,774	183	0	370	521	0	217	0
Corning	39	5	0	3	11	0	0	0
NFG	303	0	0	30	246	0	0	11
NGrid LI	671	180	47	10	504	0	31	0
NGrid NY	228	0	0	337	344	0	266	0
NGrid Upstate	134	208	0	89	186	5	19	0
NYSEG	66	0	0	40	129	0	0	11
O&R	226	0	0	41	147	0	0	0
RG&E	8	0	0	133	102	0	3	19
St. Lawrence	0	0	0	0	0	0	0	0

Appendix F

## Backlog of Potentially Hazardous Leaks

LDCs	2013	2014	2015	2016	2017
Central Hudson	4	6	3	3	1
Con Edison	13	36	7	1	40
Corning	2	6	3	0	4
NFG	57	1	0	2	0
NGrid LI	10	8	5	1	0
NGrid NY	7	24	21	23	8
NGrid Upstate	0	5	17	21	9
NYSEG	1	4	4	4	0
O&R	0	0	2	2	1
RG&E	10	18	6	1	2
St. Lawrence	4	0	0	0	1

Appendix F (Continued)

## Repaired Potentially Hazardous Leaks

LDCs	2013	2014	2015	2016	2017
Central Hudson	273	327	352	278	324
Con Edison	5,267	8,283	10,700	7,857	7,149
Corning	45	102	194	101	60
NFG	1,747	2,025	2,195	1,353	1,020
NGrid LI	2,050	2,318	2,332	2,100	1,958
NGrid NY	2,839	4,457	4,236	3,876	3,955
NGrid Upstate	798	1,136	1,533	990	858
NYSEG	210	274	308	168	196
O&R	406	430	487	287	307
RG&E	292	284	306	224	305
St. Lawrence	4	12	8	3	2

Appendix G

## Backlog of Total Leaks

LDCs	2013	2014	2015	2016	2017
Central Hudson	201	197	126	102	111
Con Edison	811	740	523	239	312
Corning	242	225	200	116	73
NFG	3,575	3,053	2,066	1,533	1,028
NGrid LI	12,433	11,494	11,330	10,556	9,232
NGrid NY	4,475	4,068	3,820	3,676	3,118
NGrid Upstate	1,650	1,552	936	961	979
NYSEG	18	49	39	13	8
O&R	496	330	170	26	6
RG&E	40	68	60	11	11
St. Lawrence	4	0	0	0	1

Appendix H

## High Risk Non-Compliances Identified through Audit Process

LDCs	2012	2013	2014	2015	2016	# of OHQs
Central Hudson	68	19	34	12	55	5
Con Edison	22	100	83	50	21	5
Corning	7	18	10	36	73	1
NFG	44	64	25	25	31	9
NGrid LI	98	85	32	13	84	2
NGrid NY	31	179	89	55	48	2
NGrid Upstate	57	293	114	130	50	11
NYSEG	110	185	105	83	60 <sup>22</sup>	13
O&R	11	18	12	216	11	2
RG&E	26	22	40	42	29	1
St. Lawrence	6	13	15	17	9	1

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<sup>22</sup> One of the 61 violations noted was for 16 NYCRR Part 255.557(c)(8). There was a total of 822 occurrences documented in the respective audit letter.

Appendix I

## Other Risk Non-Compliances Identified through Audit Process

LDCs	2012	2013	2014	2015	2016	# of OHQs
Central Hudson	20	12	50	6	91	5
Con Edison	12	24	54	20	38	5
Corning	13	12	13	24	17	1
NFG	30	2	1	8	50	9
NGrid LI	54	38 <sup>23</sup>	44	0	18	2
NGrid NY	65	292	65	100	115	2
NGrid Upstate	96	292	424	219	105	11
NYSEG	59	238	150	11	147	13
O&R	11 <sup>24</sup>	22	71	36	90	2
RG&E	1	5	12	80	19	1
St. Lawrence	1	23	20	4	16	1

<sup>23</sup> Two of the 34 violations noted were for 16 NYCRR Part 255.481(a), and 16 NYCRR Part 255.491(b) (2). There was a total of 1,239 occurrences documented in the respective audit letter.

<sup>24</sup> One of the 11 violations noted was for 16 NYCRR Part 255.744(c). There was a total of 1,608 occurrences documented in the respective audit letter.



Appendix J

## High Risk Code Sections

Code Section Title	Code Reference
Material - General	255.53(a), (b), (c)
Transportation of Pipe	255.65
Pipe Design - General	255.103
Design of Components - General Requirements	255.143
Design of Components - Flexibility	255.159
Design of Components - Supports and anchors	255.161
Compressor Stations: Emergency shutdown	255.167
Compressor Stations: Pressure limiting devices	255.169
Compressor Stations: Ventilation	255.173
Valves on pipelines to operate at 125 psig or more	255.179
Distribution line valves	255.181
Vaults: Structural Design requirements	255.183
Vaults: Drainage and waterproofing	255.189
Protection against accidental over pressuring	255.195
Control of the pressure of gas delivered from high pressure distribution systems	255.197
Requirements for design of pressure relief and limiting devices	255.199
Required capacity of pressure relieving and limiting stations	255.201
Qualification of welding procedures	255.225
Qualification of Welders	255.227
Protection from weather	255.231
Miter Joints	255.233
Preparation for welding	255.235
Inspection and test of welds	255.241(a), (b)
Nondestructive testing-Pipeline to operate at 125 PSIG or more	255.243(a) - (e)
Welding inspector	255.244(a), (b), (c)
Repair or removal of defects	255.245
Joining Of Materials Other Than By Welding - General	255.273
Joining Of Materials Other Than By Welding - Copper Pipe	255.279
Joining Of Materials Other Than By Welding - Plastic Pipe	255.281
Plastic pipe: Qualifying persons to make joints	255.285(a), (b), (d)
Notification requirements	255.302

Compliance with construction standards	255.303
Inspection: General	255.305
Inspection of materials	255.307
Repair of steel pipe	255.309
Repair of plastic pipe	255.311
Bends and elbows	255.313 (a) , (b) , (c)
Wrinkle bends in steel pipe	255.315
Installation of plastic pipe	255.321
Underground clearance	255.325
Customer meters and service regulators: Installation	255.357 (d)
Service lines: Installation	255.361 (e) , (f) , (g) , (h) , (i)
Service lines: Location of valves	255.365 (b)
External corrosion control: Buried or submerged pipelines installed after July 31, 1971	255.455 (d) , (e)
External corrosion control: Buried or submerged pipelines installed before August 1, 1971	255.457
External corrosion control: Protective coating	255.461 (c)
External corrosion control: Cathodic protection	255.463
External corrosion control: Monitoring	255.465 (a) , (e)
Internal corrosion control: Design and construction of transmission line	255.476 (a) , (c)
Remedial measures: General	255.483
Remedial measures: transmission lines	255.485 (a) , (b)
Strength test requirements for steel pipelines to operate at 125 PSIG or more	255.505 (a) , (b) , (c) , (d)
General requirements (Upgrades)	255.553 (a) , (b) , (c) , (f)
Upgrading to a pressure of 125 PSIG or more in steel pipelines	255.555
Upgrading to a pressure less than 125 PSIG	255.557
Conversion to service subject to this Part	255.559 (a)
General provisions	255.603
Operator Qualification	255.604
Essentials of operating and maintenance plan	255.605
Change in class location: Required study	255.609
Damage prevention program	255.614
Emergency Plans	255.615
Customer education and information program	255.616
Maximum allowable operating pressure: Steel or plastic pipelines	255.619
Maximum allowable operating pressure: High pressure distribution systems	255.621
Maximum and minimum allowable operating pressure: Low pressure distribution systems	255.623
Odorization of gas	255.625 (a) , (b)
Tapping pipelines under pressure	255.627

Purging of pipelines	255.629
Control Room Management	255.631(a)
Transmission lines: Patrolling	255.705
Leakage Surveys - Transmission	255.706
Transmission lines: General requirements for repair procedures	255.711
Transmission lines: Permanent field repair of imperfections and damages	255.713
Transmission lines: Permanent field repair of welds	255.715
Transmission lines: Permanent field repair of leaks	255.717
Transmission lines: Testing of repairs	255.719
Distribution systems: Leak surveys and procedures	255.723
Compressor stations: procedures	255.729
Compressor stations: Inspection and testing relief devices	255.731
Compressor stations: Additional inspections	255.732
Compressor stations: Gas detection	255.736
Pressure limiting and regulating stations: Inspection and testing	255.739(a), (b)
Regulator Station Overpressure Protection	255.743(a), (b)
Transmission Line Valves	255.745
Prevention of accidental ignition	255.751
Protecting cast iron pipelines	255.755
Replacement of exposed or undermined cast iron piping	255.756
Replacement of cast iron mains paralleling excavations	255.757
Leaks: Records	255.807(d)
Leaks: Instrument sensitivity verification	255.809
Leaks: Type 1	255.811(b), (c), (d), (e)
Leaks: Type 2A	255.813(b), (c), (d)
Leaks: Type 2	255.815(b), (c), (d)
Leak Follow-up	255.819(a)
High Consequence Areas	255.905
Required Elements (IMP)	255.911
Knowledge and Training (IMP)	255.915
Identification of Potential Threats to Pipeline Integrity and Use of the Threat Identification in an Integrity Program (IMP)	255.917
Baseline Assessment Plan(IMP)	255.919
Conducting a Baseline Assessment (IMP)	255.921
Direct Assessment (IMP)	255.923
External Corrosion Direct Assessment (ECDA) (IMP)	255.925
Internal Corrosion Direct Assessment (ICDA) (IMP)	255.927

Confirmatory Direct Assessment (CDA) (IMP)	255.931
Addressing Integrity Issues (IMP)	255.933
Preventive and Mitigative Measures to Protect the High Consequence Areas (IMP)	255.935
Continual Process of Evaluation and Assessment (IMP)	255.937
Reassessment Intervals (IMP)	255.939
General requirements of a GDPIM plan	255.1003
Implementation requirements of a GDPIM plan.	255.1005
Required elements of a GDPIM plan.	255.1007
Required report when compression couplings fail.	255.1009
Requirements a small liquefied petroleum gas (LPG) operator must satisfy to implement a GDPIM plan	255.1015
Operation and maintenance plan	261.15
Leakage Survey	261.17(a), (c)
Carbon monoxide prevention	261.21
Warning tag procedures	261.51
HEFPA Liaison	261.53
Warning Tag Inspection	261.55
Warning tag: Class A condition	261.57
Warning tag: Class B condition	261.59

Appendix K

## Other Risk Code Sections

Code Section Title	Code Reference
Preservation of records	255.17
Compressor station: Design and construction	255.163
Compressor station: Liquid removal	255.165
Compressor stations: Additional safety equipment	255.171
Vaults: Accessibility	255.185
Vaults: Sealing, venting, and ventilation	255.187
Calorimeter or calorimeter structures	255.190
Design pressure of plastic fittings	255.191
Valve installation in plastic pipe	255.193
Instrument, control, and sampling piping and components	255.203
Limitations On Welders	255.229
Quality assurance program	255.230
Preheating	255.237
Stress relieving	255.239
Inspection and test of welds	255.241 (c)
Nondestructive testing-Pipeline to operate at 125 PSIG or more	255.243 (f)
Plastic pipe: Qualifying joining procedures	255.283
Plastic pipe: Qualifying persons to make joints	255.285 (c) (e)
Plastic pipe: Inspection of joints	255.287
Bends and elbows	255.313 (d)
Protection from hazards	255.317
Installation of pipe in a ditch	255.319
Casing	255.323
Cover	255.327
Customer meters and regulators: Location	255.353
Customer meters and regulators: Protection from damage	255.355
Customer meters and service regulators: Installation	255.357 (a) - (c)
Customer meter installations: Operating pressure	255.359
Service lines: Installation	255.361 (a) , (b) , (c) , (d)
Service lines: valve requirements	255.363
Service lines: Location of valves	255.365 (a) , (c)
Service lines: General requirements for connections to main piping	255.367
Service lines: Connections to cast iron or ductile iron mains	255.369
Service lines: Steel	255.371
Service lines: Cast iron and ductile iron	255.373
Service lines: Plastic	255.375

Service lines: Copper	255.377
New service lines not in use	255.379
Service lines: excess flow valve performance standards	255.381
External corrosion control: Buried or submerged pipelines installed after July 31, 1971	255.455 (a)
External corrosion control: Examination of buried pipeline when exposed	255.459
External corrosion control: Protective coating	255.461 (a) , (b) , (d) , (e) , (f) , (g)
External corrosion control: Monitoring	255.465 (b) (c) (d) (f)
External corrosion control: Electrical isolation	255.467
External corrosion control: Test stations	255.469
External corrosion control: Test lead	255.471
External corrosion control: Interference currents	255.473
Internal corrosion control: General	255.475 (a) (b)
Atmospheric corrosion control: General	255.479
Atmospheric corrosion control: Monitoring	255.481
Remedial measures: transmission lines	255.485 (c)
Remedial measures: Pipelines lines other than cast iron or ductile iron lines	255.487
Remedial measures: Cast iron and ductile iron pipelines	255.489
Direct Assessment	255.490
Corrosion control records	255.491
General requirements (Testing)	255.503
Strength test requirements for steel pipelines to operate at 125 PSIG or more	255.505 (e) , (h) , (i)
Test requirements for pipelines to operate at less than 125 PSIG	255.507
Test requirements for service lines	255.511
Environmental protection and safety requirements	255.515
Records (Testing)	255.517
Notification requirements (Upgrades)	255.552
General requirements (Upgrades)	255.553 (d) (e)
Conversion to service subject to this Part	255.559 (b)
Change in class location: Confirmation or revision of maximum allowable operating pressure	255.611 (a) , (d)
Continuing surveillance	255.613
Odorization	255.625 (e) (f)
Pipeline Markers	255.707 (a) , (c) , (d) , (e)
Transmission lines: Record keeping	255.709
Distribution systems: Patrolling	255.721 (b)
Test requirements for reinstating service lines	255.725
Inactive Services	255.726
Abandonment or inactivation of facilities	255.727 (b) - (g)
Compressor stations: storage of combustible materials	255.735
Pressure limiting and regulating stations: Inspection and testing	255.739 (c) , (d)
Pressure limiting and regulating stations: Telemetry or recording gauges	255.741

Regulator Station MAOP	255.743 (c)
Service Regulator - Min. & Oper. Load, Vents	255.744
Distribution Line Valves	255.747
Valve maintenance: Service line valves	255.748
Regulator Station Vaults	255.749
Caulked bell and spigot joints	255.753
Reports of accidents	255.801
Emergency lists of operator personnel	255.803
Leaks General	255.805 (a) , (b) , (e) , (g) , (h)
Leaks: Records	255.807 (a) - (c)
Type 3	255.817
Interruptions of service	255.823 (a) - (b)
Logging and analysis of gas emergency reports	255.825
Annual Report	255.829
Reporting safety-related conditions	255.831
General (IMP)	255.907
Changes to an Integrity Management Program (IMP)	255.909
Low Stress Reassessment (IMP)	255.941
Measuring Program Effectiveness (IMP)	255.945
Records (IMP)	255.947
Records an operator must keep	255.1011
High Pressure Piping - Annual Notice	261.19
Warning tag: Class C condition	261.61
Warning tag: Action and follow-up	261.63 (a) - (h)
Warning Tag Records	261.65