

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE



2016 GAS SAFETY PERFORMANCE MEASURES REPORT (CASE 17-G-0245)

Pipeline Safety Section
Office of Electric, Gas & Water
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COMPANY ACRONYMS

Local Distribution Companies (LDCs)	Acronym in Report
Central Hudson Gas & Electric Corporation	Central Hudson
Consolidated Edison Company of New York, Inc.	Con Edison
Corning Natural Gas Corporation	Corning
National Fuel Gas Distribution Corporation	NFG
KeySpan Gas East Corporation d/b/a National Grid	NGrid LI
The Brooklyn Union Gas Company d/b/a National Grid	NGrid NY
Niagara Mohawk Power Corporation d/b/a National Grid	NGrid Upstate
New York State Electric & Gas Corporation	NYSEG
Orange & Rockland Utilities, Inc.	O&R
Rochester Gas & Electric Corporation	RG&E
St. Lawrence Gas Company, Inc.	St. Lawrence

EXECUTIVE SUMMARY

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

Overall, the data indicates that LDC performance has substantially improved across the state over the fourteen year period Staff has been reporting gas utility performance to the Commission. The total damage prevention measure reversed the decline in performance from the previous year and is 72.2% better than it was in 2003. The 30-minute emergency response time has improved from 76.8% in 2003 to 82.8% in 2016 and the year-end backlog of potentially hazardous leaks has decreased 95.0%, from 1,154 to 58. As LDCs continue their outreach efforts, adopt better practices in responding to leak and odor calls, and work to replace leak-prone infrastructure, Staff expects further performance improvements will occur.

¹ This report examines the results of LDC performance in specific safety areas that include damage prevention, emergency response, and leak management, for 2016. The New York State Department of Public Service, Gas Safety Section has been producing this annual report since 2004.

This report will be transmitted to an executive level operating officer of each LDC. Staff recommends that all LDCs re-evaluate their current policies regarding their specific public outreach and excavator training efforts, and should provide their assessments within 45 days of receiving Staff's letter. In their responses, LDCs should provide specific details on enhancements, including anticipated implementation timeframes, that will be added to or replace current processes in order to improve performance with respect to the areas Staff found to be deficient. A high level discussion of the 2016 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 measure is further broken down into four root cause categories: damages due to (1) mismarks (inaccurate marking by the LDC of its facilities); (2) company and company contractor error; (3) third party excavator error; and (4) no-calls (failure to provide notice of intent to excavate to the one-call notification system).

Overall, damage prevention performance across the state improved 13.3% during 2016. NGrid Upstate² was one of the larger contributing factors to this improvement in performance with a nearly 20.0% decrease in their number of damages going from 300 in 2015 to 240 in 2016.

All four categories improved in performance during 2016 with the categories directly under the LDCs control,

² Company names and their respective acronyms can be found on Page 2 of this report.

damages due to mismarks (18.8%) and company and company contractors error (20.0%), showing the greatest improvement. Damages due to no-calls (13.7%) and excavator error (9.3%) also showed significant improvements.

Emergency Response

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

Statewide performance for the 45 minute and 60 minute goals improved in 2016, whereas the 30 minute goal decreased slightly. 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 a gas leak or odor call, continued public awareness initiatives on the 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 (Type 1, 2A, and 2). This report also examines each LDC's total leak backlog. Total leak backlogs include 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 a public safety hazard has not developed. While Type 3 leaks are not expected to become a safety concern, LDCs should work to reduce these known leaks on their systems because it reduces lost gas, reduces maintenance costs, drive up emergency calls, 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 gas migration into a building because the 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 statewide year-end 2016 backlog improved by 10 repairable leaks when compared to 2015, and is down 95.0% when compared to 2003. For total leak backlogs, the statewide year-end 2016 backlog was down to a total of 2,037 leaks (10.6%) from year-end 2015, and is down 35.3% when compared to 2008.

Non-Compliances Identified by Staff

For the second year, LDCs are being evaluated on their safety compliance with the Commission's 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 gas 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 the 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 to five year frequency, not to exceed five years.

In 2016, non-compliances were identified in all eleven of the major LDCs' operating service territories. Staff is concerned with any non-compliances of the minimum pipeline safety regulations and recommends that all of the LDCs strive to eliminate these occurrences. Mechanisms have been incorporated into most rate plans, which attach an associated regulatory liability for each non-compliance identified.

Next Steps

This report will be transmitted to an executive level operating officer of each LDC. Staff recommends that all LDCs re-evaluate their current policies regarding their specific public outreach, and excavator training efforts. The LDCs will be directed to submit these self-evaluations to the Safety Section of the Office of Electric, Gas, and Water within 45 days of receiving this report from Staff. The LDCs' analysis should include specific details on how the LDC plans to improve performance, should evaluate the effectiveness of their past efforts, and should outline incremental efforts going forward.

INTRODUCTION

Gas safety performance measures were developed as a means of evaluating and improving local distribution companies' (LDCs) gas delivery system safety performance in areas identified as presenting the highest risks. Performance measures are tools that Staff and the LDCs can use to monitor the safe operation and maintenance of distribution systems. These measures indicate how companies are performing from year to year, as well as 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 gas pipelines both nationally and within New York State.

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, in Case 13-M-0314, the NYS Public Service Commission (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 releasing the completed audit report and provided guidance on LDC response to the recommendations. Implementation plans to address each recommendation were subsequently 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.

On March 10, 2017, the Commission issued an Order approving the submitted implementation plans and directed the LDCs to implement those plans. The Order also addressed several legal and procedural matters raised by NFG.

Non-Compliances Identified through Audit Process

A more recent addition reviewed within this report are instances of non-compliances identified through the 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 in these regulations. The 2015 Gas Safety Performance Measures Report, Case 16-G-0254, was the first year in which the non-compliance data was presented.

In response to the 2015 Gas Safety Performance Measures Report, on August 31, 2016, NFG sought correction of its 2014 non-compliance data, and sought the removal of the previous calendar year's data. NFG referenced Staff's August 4, 2016, negative revenue adjustment (NRA) determination letter as the basis for the 2014 data correction, and stated that NFG deemed it "highly inappropriate to include numbers from prior years, which were not covered by [a] Joint Proposal" or "were not subject to the same degree of scrutiny as were the 2014 measures." The concerns that NFG raised will be examined in a future Commission Order.

While NFG is one of the better performers within the compliance measure, overall, LDC non-compliance with the minimum pipeline safety regulations have been frequent since 2010, and any single non-compliance can cause or contribute to a major incident. Although negative revenue adjustments through LDC Joint Proposals in Rate Proceedings have only recently been pursued by Staff to encourage in the overall compliance with these regulations, it is important to have public transparency with the extent of Staff's audit findings, and to track improvements, as well as repeat violations, over time.

Performance and Analysis for 2016

Throughout this report, with the exception of the compliance measure, the figures display performance results from

2012 through 2016 for each LDC,³ with the grey columns in the bar graphs representing 2012 through 2015, and the black columns representing the 2016 results. For the compliance measure, the results from 2011 through 2015 are displayed based on the timing of when audits are completed. The blue horizontal lines on the bar graphs represent the overall statewide performance levels for the specific identified measure.

Damage Prevention

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

The 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;⁴ (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; (3) member operators clearly and accurately mark the location of their buried facilities in or near the excavation site; 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 three-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 territory provides a useful basis for assessing performance in this area. The data used in this

³ Historical calendar year data and associated Case numbers can be found in **Appendix A** of this report.

⁴ New York has two one-call systems, one for New York City and Long Island, and the second for the remainder of the state.

analysis are contained in **Appendices B** and **C**. The method used to normalize each LDC's data is the number of facility damages per 1,000 one-call tickets for that LDC.

The numbers of damages are 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 facilities correctly. Hence, for damages due to mismarks, the report examines the number of damages caused by mismarks per 1,000 tickets received for each LDC.

Once a one-call ticket is requested by an excavator by calling a toll free number or 811, 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 damage, primarily because of the need to educate third party contractors in safe and best excavation practices. Most large excavators are well aware of the existence of the one-call centers 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, maintaining the facility markings, and maintaining clearances with powered equipment. 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; therefore, all consent offers to reduce a penalty include a commitment from the excavator to taking the training offered.

Damage caused by LDC personnel or by LDC hired contractors are also included in the damage analysis as a

separate category. These personnel should have sufficient training, qualifications, and experience to work carefully near their own facilities. LDCs should also have better control over hired contractors who perform work for the LDC than they do over third party contractors. Thus, this category should be the smallest contributor to the total damages. 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 no ticket exists because the excavator failed to provide notice of their intent to excavate. 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 measures evaluate actual damages to LDCs' underground facilities. Based on the data reported in 2016, 99.8% of one-call tickets had no associated damage to natural gas facilities. This is consistent with the Common Ground Alliance's (CGA)⁵ 2016 Damage Information Reporting Tool (DIRT) report which found that when a call is made prior to excavation, damage occurs less than 1.0% of the time.

⁵ 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.

A total of 1,565 instances of damage occurred on natural gas LDC facilities in 2016, 181 less than in 2015. Including the increase of 25,592 in one-call tickets (3.2%) during 2016, the results show an improvement (13.3%) in total damage performance per 1,000 one-call tickets. A single damage, however, could lead to a catastrophic event, which is why it's critical that LDCs and excavators strive to minimize damage to facilities by improving in this measure.

The Department enforces the Commission's damage prevention regulations, 16 NYCRR Part 753, Protection of Underground Facilities. Over the past five years approximately 1,872 citations have been issued, which has led to training sessions being completed by excavators with both New York 811 and Dig Safely NY; approximately \$1,715,791 in penalties having been collected.

Figure #1 below displays the collective statewide 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 2016.

Metric	2012	2013	2014	2015	2016
Number of Tickets	685,263	741,729	797,366	801,920	827,512
Mismarks	0.49	0.41	0.42	0.48	0.39
Co. & Co. Contractor Error	0.12	0.09	0.09	0.10	0.08
Excavator Error	1.17	1.13	0.96	1.08	0.98
No-calls	0.48	0.52	0.49	0.51	0.44
Total Damages (per 1,000)	2.26	2.15	1.96	2.18	1.89

Figure #1 - Damages per 1,000 Tickets Statewide

All four areas measured in this metric contributed to the overall improvement in the total damage performance measure for 2016.⁶ The largest improvement in 2016 when compared with that of 2015 came from damages due to mismarks (18.8%) and company and company contractor error (20.0%). For damages due to no-calls and excavator error, there were also improvements in performance of 13.7% and 9.3%, respectively. The total number of tickets increased approximately 3.2% during 2016 as compared to 2015. This increase in the total number of tickets was primarily from a revision of Con Edison's historical one-call tickets due to an over-counting issue which was identified during the Operations Audit. Essentially, Con Edison was over reporting its yearly one-call ticket counts by including both refresh tickets and the one-call tickets made in its non-gas

⁶ The 'total' damage performance may not equal the sum of the four metrics due to rounding.

franchise service territory. By including tickets that were being excluded by all other LDCs, Con Edison's performance in prior years appeared better than it actually was by artificially improving all of their damage performance categories. For example, Con Edison's reported one-call ticket count was overstated by approximately 131,010 tickets in 2015 alone. Without the Con Edison adjustment, comparison of 2016 to previous years would have been severely distorted. Thus, for the previous years (2012 through 2015) Con Edison's one-call ticket counts and corresponding performance data were adjusted to account for this over reporting. Specific LDC numerical performance in each of the damage prevention areas are located in **Appendices B** and **C**.

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

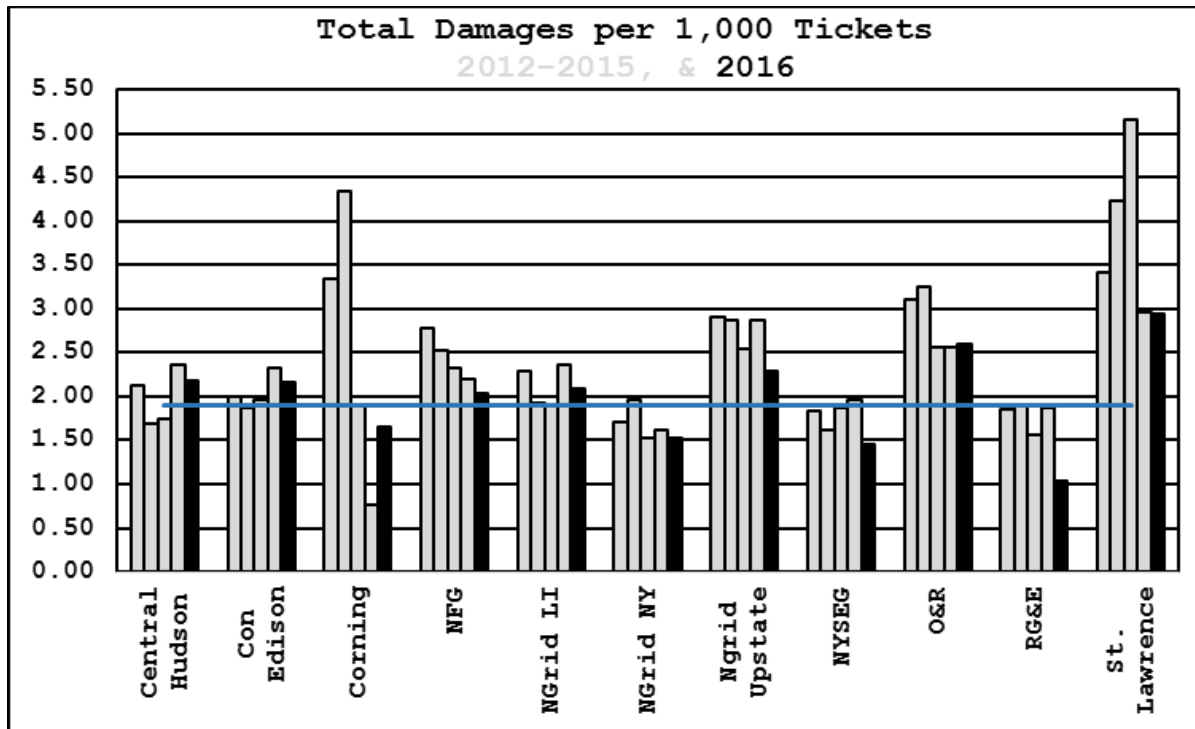


Figure #2 - Total Damages per 1,000 Tickets

As seen in **Figure #2**, nine LDCs improved and two LDCs declined in 2016. Among those improving, significant gains were made by RG&E (44.3%), NYSEG (26.2%), NGrid Upstate (20.4%), and NGrid LI (11.2%). These improvements reflect decreases in the total number of damages (49, 29, 60, and 25, respectively) from 2015 to 2016. O&R's (1.5%) performance decline was slight in 2016. Corning's total number of damages went from 4 to 7 between 2015 and 2016. Similarly, St. Lawrence's total number of damages stayed consistent at 12. These total damage counts, combined with the corresponding volume of one-call tickets, can have a greater impact from year-to year on performance when compared with other LDCs.

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

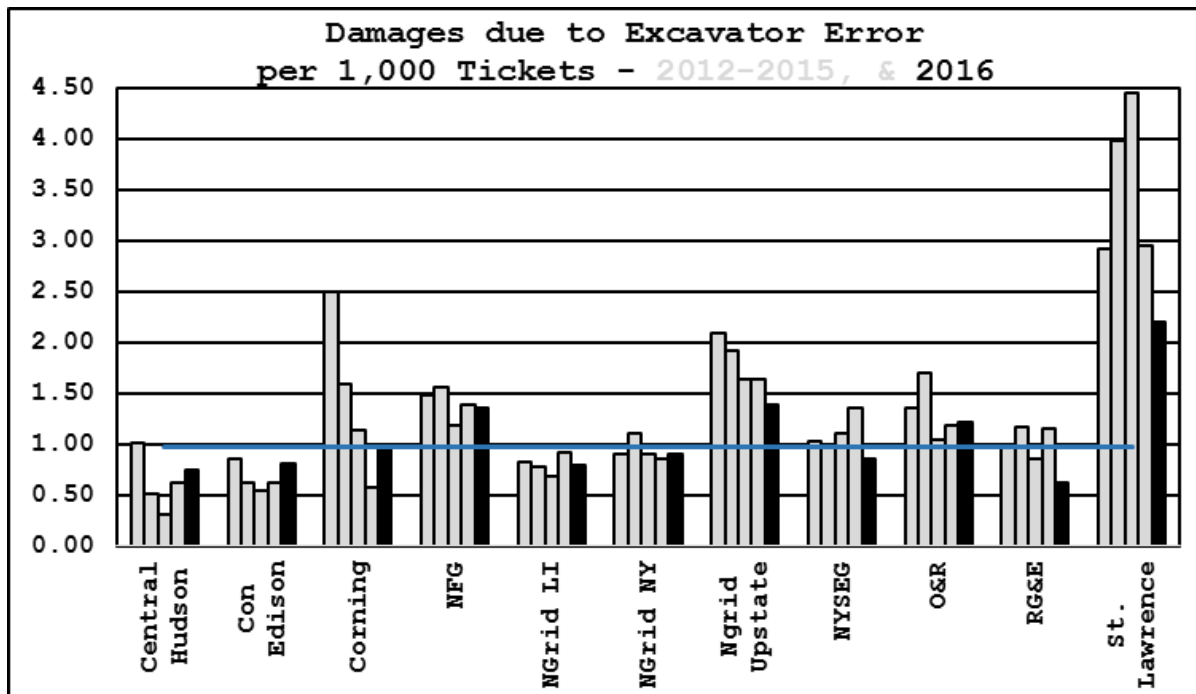


Figure #3 - Excavator Error Damages per 1,000 Tickets

As seen in **Figure #3**, six LDCs improved and five LDCs declined in 2016. Of those LDCs showing improvement, the most

significant changes were made by RG&E (46.6%), NYSEG (37.0%), St. Lawrence (25.4%), NGrid Upstate (15.1%), and NGrid LI (14.0%). The LDCs that declined in performance were Corning (64.3%), Con Edison (29.6%), Central Hudson (22.7%), NGrid NY (5.3%), and O&R (2.1%). Corning once again experienced the most drastic change as compared with that of 2015.

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 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 a period of time 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.

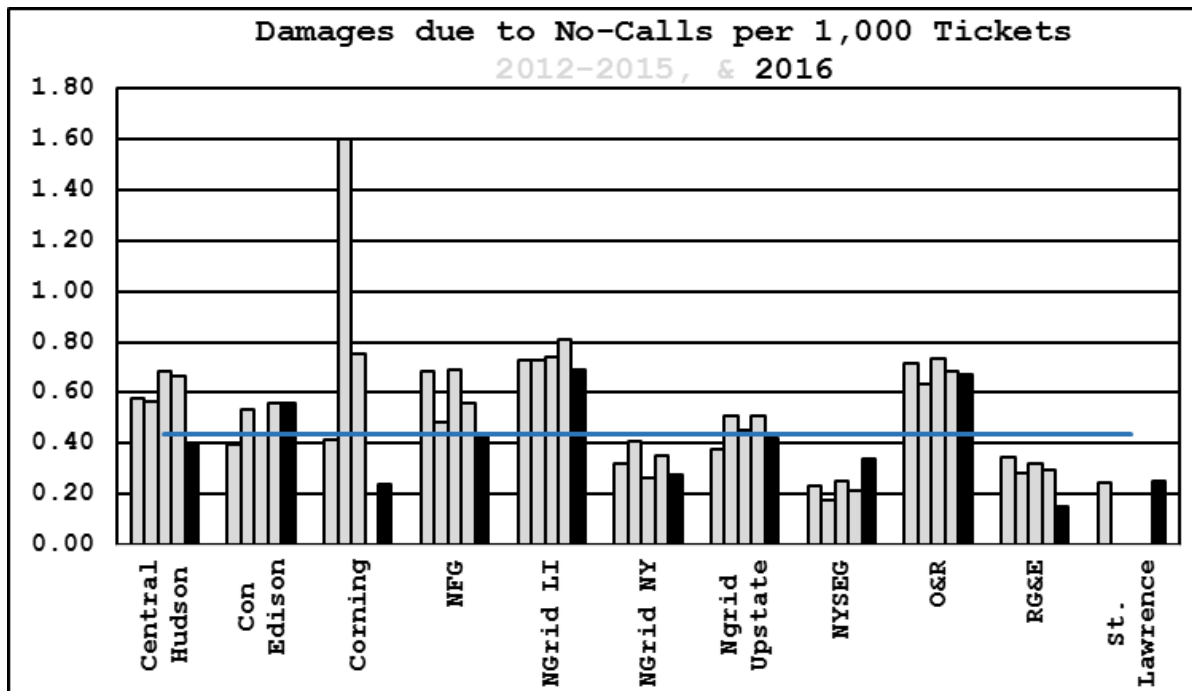


Figure #4 - No-call Damages per 1,000 Tickets

As seen in **Figure #4**, seven of the LDCs improved and four declined in their performance during 2016. Among those LDCs who improved, RG&E (50.8%), Central Hudson (39.7%), NFG (20.7%), NGrid NY (20.3%), NGrid Upstate (17.4%), and NGrid LI (15.3%) saw the largest improvements during 2016 when compared with that of 2015. RG&E experienced an improvement going from 18 no-call damages in 2015, to 9 in 2016, NFG from 53 to 43, NGrid NY from 63 to 54, NGrid Upstate from 53 to 44, NGrid LI from 127 to 113, and Central Hudson from 14 to 9, respectively. Two of the four LDCs that experienced declines in performance were Con Edison (1.6%) and NYSEG (59.1%). Con Edison remained consistent from 2015 to 2016 with having 52 no-call damages reported in each of the years. For NYSEG, it went from 12 no-call damages in 2015 to 19 in 2016.

Use of the three digit 811 dialing program, enforcement action taken by Staff for violations of 16 NYCRR Part 753, and outreach and training efforts taken by LDCs and

the one-call centers are all contributing factors in raising excavator awareness regarding their obligation to utilize the one-call system. Ultimately the use of the one-call system lies solely on the excavators themselves, however, it is recommended that all LDCs re-evaluate their current policies regarding their specific public outreach and excavator training efforts.

To aid in the enforcement of 16 NYCRR Part 753, LDCs voluntarily forward information about contractors who damaged underground facilities without having mark-out requests. In a more recent effort, LDCs have also committed to report the majority of their damages regardless of cause, which has been a contributing factor to the overall improvement in statewide performance. Once notified, Staff then has the ability to evaluate the details of each damage and pertinent information regarding the excavator, and takes 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, inter alia, the excavator attends free training provided by both of the one-call centers. All LDCs are encouraged to continue in their efforts to notify Staff of these contractors.

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

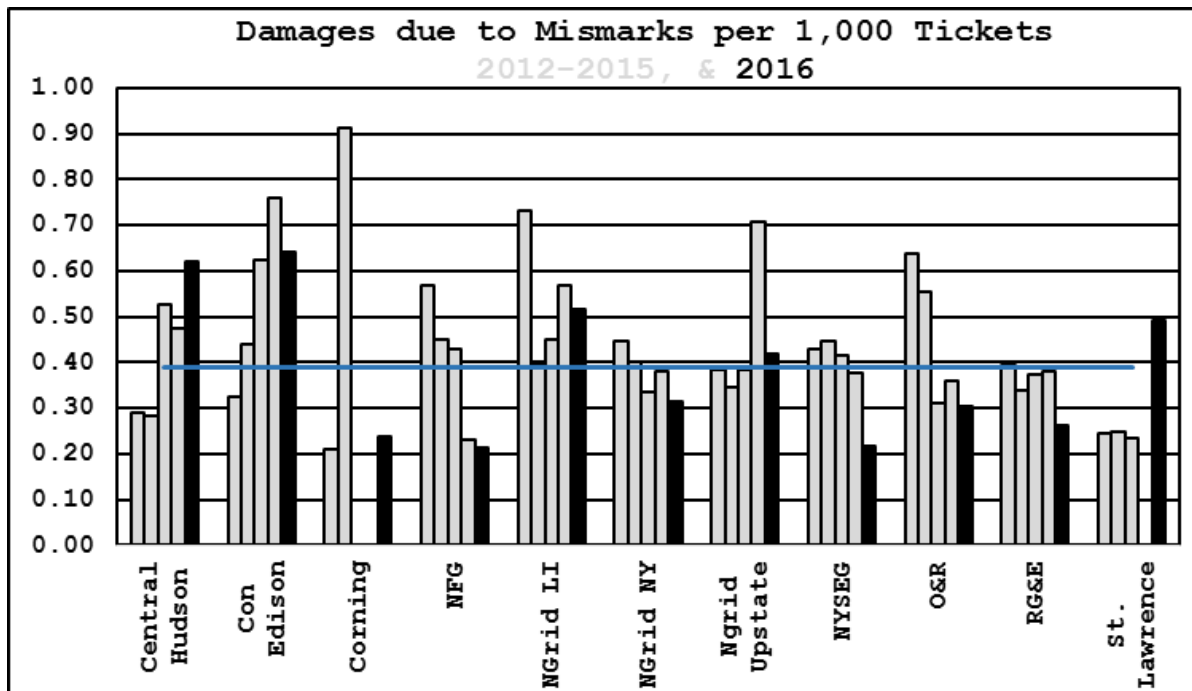


Figure #5 - Mismark Damages per 1,000 Tickets

As seen in **Figure #5**, seven LDCs improved, and four declined during 2016 in accurately marking their own facilities. The statewide performance level for this area improved 18.8% from the previous year and experienced 65 fewer mismark damages; going from 388 in 2015, to 323 in 2016.

For those LDCs that improved, NYSEG experienced a 42.6% improvement (going from 21 mismark damages in 2015 to 12 in 2016), NGrid Upstate improved 40.9% (74 to 44), RG&E improved 31.6% (23 to 16), NGrid NY improved 17.9% (68 to 60), Con Edison improved 15.6% (71 to 59), O&R improved 15.8% (10 to 9), NGrid LI improved 9.1% (89 to 85), and NFG improved 6.7% (22 to 21).

Minor declines in performance were experienced by both Corning (going from 0 mismark damages in 2015 to 1 damage in 2016), and St. Lawrence (0 to 2). Central Hudson experienced a slightly larger decline in performance (31.4%) going from 10 mismark damages in 2015 to 14 in 2016.

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.

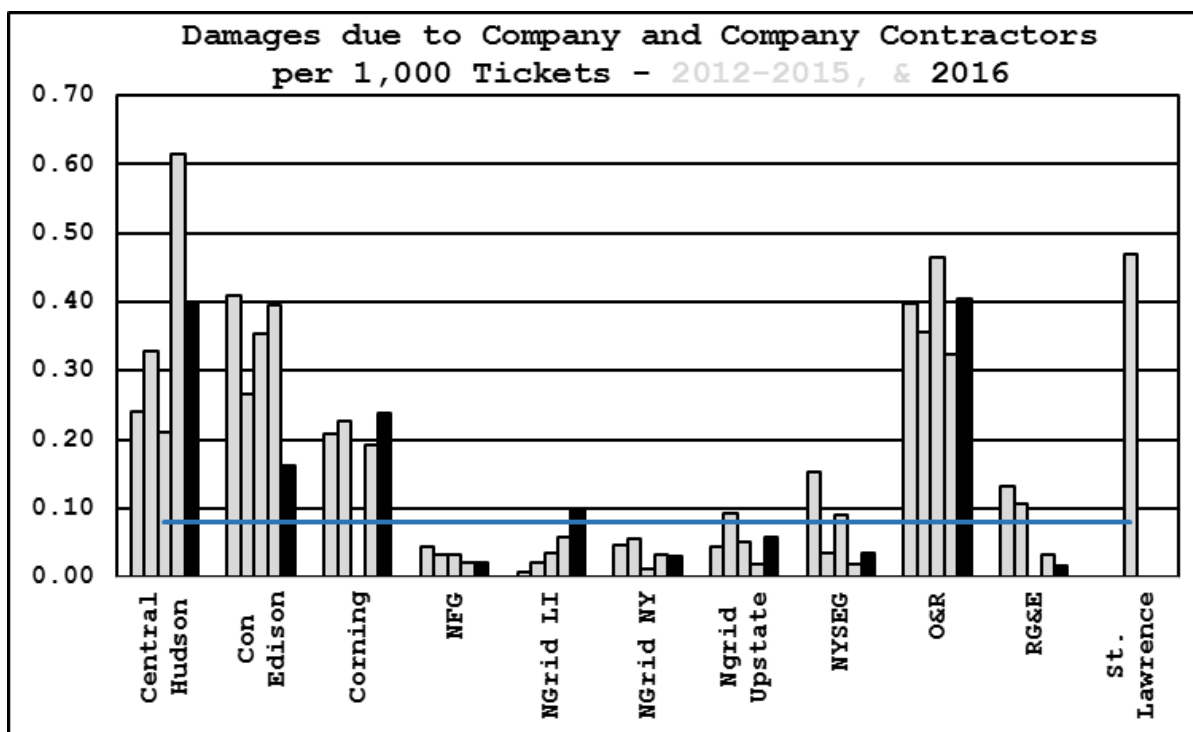


Figure #6 - Damages due to Company and Company Contractors per 1,000 Tickets

As seen in **Figure #6**, five LDCs improved, one remained the same, and five declined in 2016. The largest improvements in company and company contractor damages came from Con Edison (58.8%) going from 37 damages in 2015 to 15 in 2016, RG&E (50.8%) going from 2 to 1, Central Hudson (35.0%) going from 13 to 9, and NGrid NY (7.0%) which remained consistent at 6 damages

from 2015 to 2016. When the 6 NGrid NY damages are normalized with its reported increase of 13,316 one-call tickets (7.5%), the resultant performance improvement is realized. For the second consecutive year, St. Lawrence had zero company and company contractor damages.

The largest declines in performance came from NGrid Upstate (198.4%) going from 2 damages in 2015 to 6 in 2016, NSYEG (101.0%) going from 1 to 2, NGrid LI (69.2%) going from 9 to 16, O&R (24.8%) going from 9 to 12, and Corning (23.2%) which remained consistent at 1 damage from 2015 to 2016.

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 contractor forces near their own buried gas lines, which increases the opportunity for damages to occur. Even with this increased excavation activity, however, statewide performance in this metric improved slightly from that of 2015. On the other hand, and as these annual performance measure reports have pointed out for many years, LDCs should also have better control over contractors they hire to perform work for them than they do over third party contractors, and these personnel 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 better prepared than third party contractors to promptly control the situation and make repairs. 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 total statewide damage 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. For the second consecutive year, the data suggest that even the larger LDCs can experience sizable volatility in performance. As the actual numbers of damages get smaller, these swings 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 five years ago. **Figure #7** displays the collective statewide performance regarding the damage prevention measures from calendar years 2012 and 2016.

Metric	2012	2016
Number of Tickets	685,263	827,512
Mismarks	0.49	0.39
Co. & Co. Contractor Error	0.12	0.08
Excavator Error	1.17	0.98
No-calls	0.48	0.44
Total (per 1000)	2.26	1.89

Figure #7 - Damage comparison between 2012 and 2016

Emergency Response

16 NYCRR §255.825(d) requires that LDCs provide a monthly report to Staff that includes a breakdown of the total number of gas leak and emergency calls received during the month and responded to 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 minutes. The following have been established as acceptable 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.⁷

The intent of the reporting requirement and the performance measure is to evaluate company responses to gas leak, odor, and emergency calls that are generated by the public and other authorities (e.g. 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.⁸

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

Figure #8 displays the collective annual statewide emergency response time (ERT) performance for each goal since

⁷ The LDCs are expected to review the circumstances of each instance exceeding 60 minutes and, where possible, work towards their elimination.

⁸ Qualified personnel are defined as company representatives who are properly trained and equipped to investigate gas leak and odor reports in accordance with accepted company procedures and 16 NYCRR §255.604; operator qualification requirements.

2012, with the 2016 performance presented in black. The total number of emergency calls decreased (13.6%) going from 218,581 in 2015 to 188,764 in 2016. In 2016, the 30 minute statewide performance level declined slightly (0.4%), with the 45 minute, and 60 minute levels both improving slightly (both were 0.2%) when compared to that of 2015. All three categories exceeded their minimum goals of 75%, 90%, and 95%, respectively.

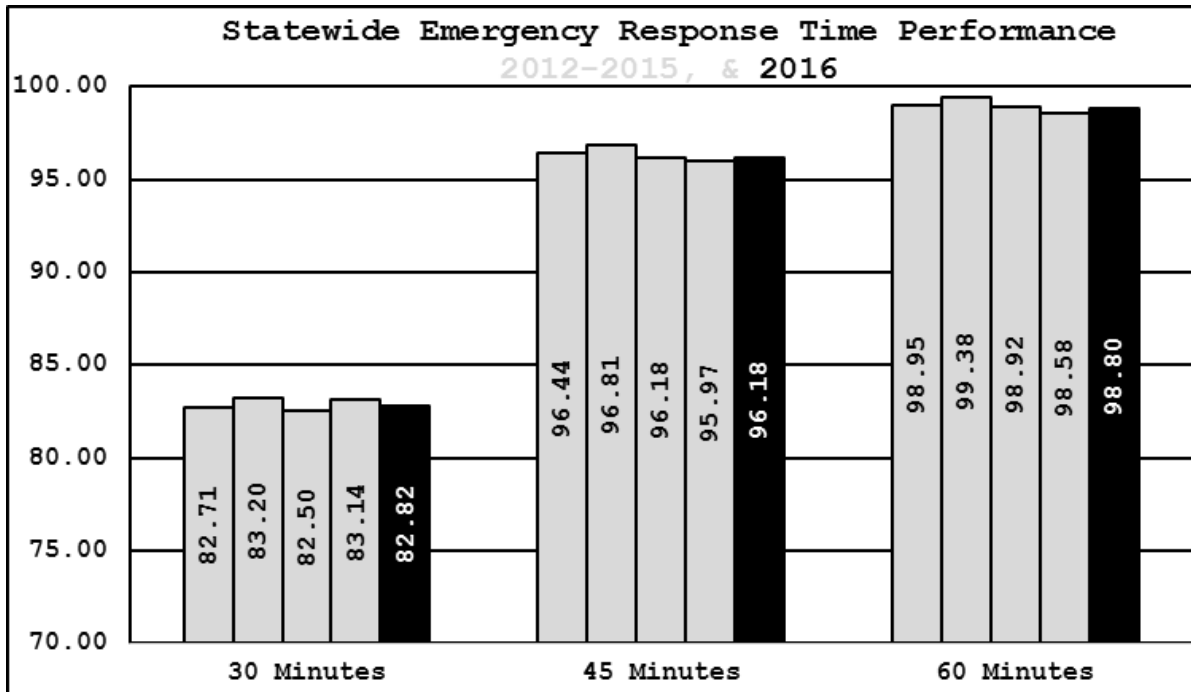


Figure #8 - Statewide Emergency Response Time Performance

Figure #9 presents data for calendar years 2012 through 2016 arranged by LDC and percentage of response times achieved within 30 minutes. Performances that did not meet the minimum goal of 75% are shown in red.

LDCs	2012	2013	2014	2015	2016
Central Hudson	79.7	78.5	78.7	77.0	77.7
Con Edison	87.6	88.9	87.9	88.2	89.1
Corning	88.0	81.9	79.9	79.1	83.8
NFG	91.6	92.7	92.5	93.3	91.4
NGrid LI	73.8	77.7	75.5	78.0	77.2
NGrid NY	76.0	76.7	75.6	75.9	76.2
NGrid Upstate	84.1	80.2	79.1	82.7	82.3
NYSEG	80.4	80.1	80.8	80.6	82.0
O&R	87.5	86.5	87.9	89.0	88.9
RG&E	88.9	84.7	87.4	81.4	77.8
St. Lawrence	74.5	71.3	84.4	83.6	78.5

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 previous fourteen years, leak and odor calls statewide have decreased from 227,905 in 2003 to 188,764 in 2016; or a 17.2% decrease. However, this marks the third consecutive year of higher call volumes overall which is a level not seen since 2005. These increase are due, in part, to the LDC's public awareness programs and the Horseheads Proceeding,

Case 11-G-0565,⁹ whereby LDCs assessed risks to their underground gas facilities posed by third party excavations and incorporated best practices for educating the public on the reporting of natural gas odors. Con Edison experienced a dramatic increase in odor calls after the East Harlem incident in 2014 and the East Village incident in 2015, a trend that is continuing. Part of the decline in calls may be attributed to the reduction of leak backlogs, which will be discussed below in the leak management section.

It is encouraging to see that all LDCs have made efforts over the years to reach the statewide goals 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.

Leak Management

The purpose of evaluating LDCs' leak management programs is to gauge performance in reducing the number of leaks that occur, eliminating potentially hazardous leaks that are found, and reducing the backlog of total leaks. The natural gas safety regulations contained in 16 NYCRR Part 255 include requirements for classifying leaks according to their relative hazard, considering factors such as whether gas migration is detected near buildings, in manholes, vaults or catch basins, or under paved versus unpaved areas, etc. All leaks classified as potentially hazardous must be monitored and repaired according to the gas safety regulations, and any hazardous conditions must be immediately eliminated. All other leaks must be reevaluated

⁹ In the Matter of a Natural Gas Incident at 198 Joseph Street, Horseheads, on January 26, 2011, in the Service Territory of New York State Electric & Gas Corporation; Case 11-G-0565.

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 with the increased chance of 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). 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. This measure does not substitute for, and is not a reflection upon, any LDC's compliance with the gas safety regulations.

The data reported by the LDCs include leaks found; leaks repaired on mains and services categorized by leak type classification; leaks repaired on mains by type of pipe material; leaks repaired on services by type and pipe material; and the backlog of leaks by classification type.

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 pipe that are difficult to protect against corrosion, and certain brittle plastic materials. Incentive programs to replace deteriorating and leak prone infrastructure and/or reducing leak backlogs have been incorporated into past and current rate and joint proposal

agreements with LDCs. The Public Service Commission has recently begun an initiative to review how this pipe may be replaced at a higher rate. 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 whose exact locations are known, general leak concerns and odor calls should decrease with time.

The statewide year-end backlog of potentially hazardous leaks decreased from 2015 to 2016, going from 68 to 58, and is down 95.0% 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)¹⁰ on December 31st of 2012 through 2016. Numerical leak data is contained in **Appendix F**.

¹⁰ 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.

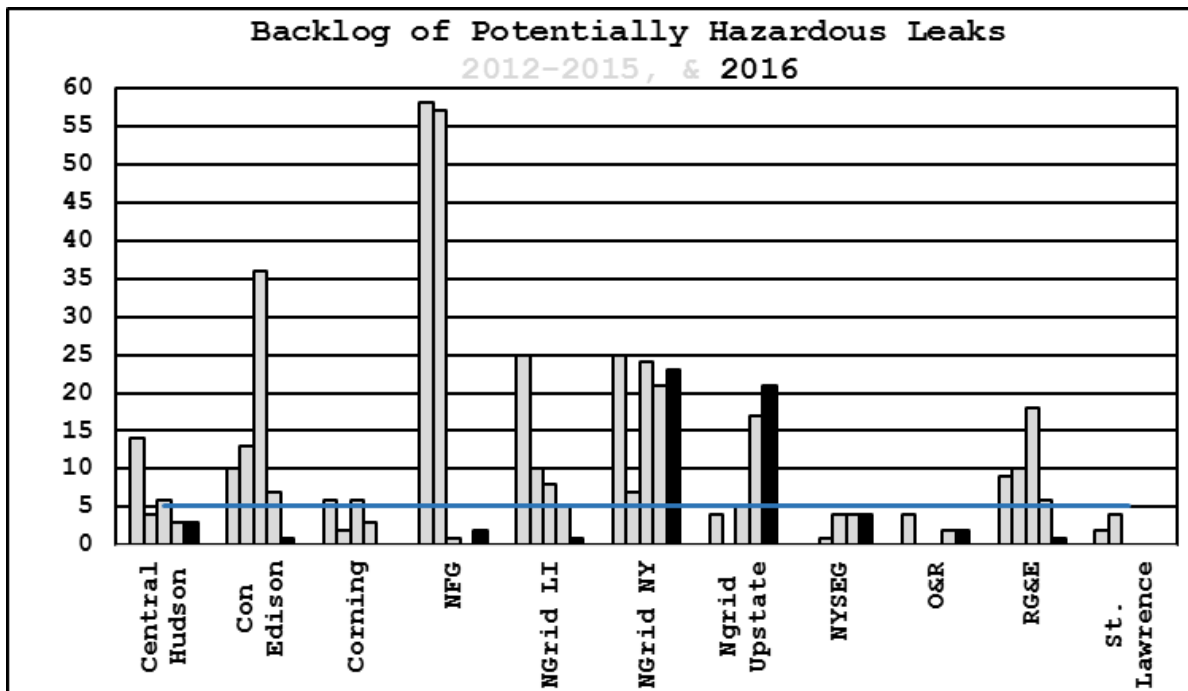


Figure #10 - Potentially Hazardous Leak Backlog
From 2012 through 2016

As seen in **Figure #10**, all LDCs ended 2016 within 6 leaks of where they finished in 2015. LDCs that improved in their performance when compared to 2015 were Corning (going from 3 to 0), Con Edison (7 to 1), RG&E (6 to 1), and NGrid LI (5 to 1). Four LDCs maintained their potentially hazardous leak backlog in 2016; NYSEG (4), Central Hudson (3), O&R (2), and St. Lawrence (0). The LDCs that declined slightly in their performance were NGrid Upstate (going from 17 in 2015 to 21 in 2016), NGrid NY (21 to 23), and NFG (0 to 2).

LDC performance as it relates to total leak backlogs include all potentially hazardous leaks, as identified above, in 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 have allowed this backlog to grow in recent years but did not.

Figure #11 displays the backlog of total leaks (Type 1, 2A, 2, and 3) on December 31st of 2012 through 2016. Numerical leak data is contained in **Appendix G**.

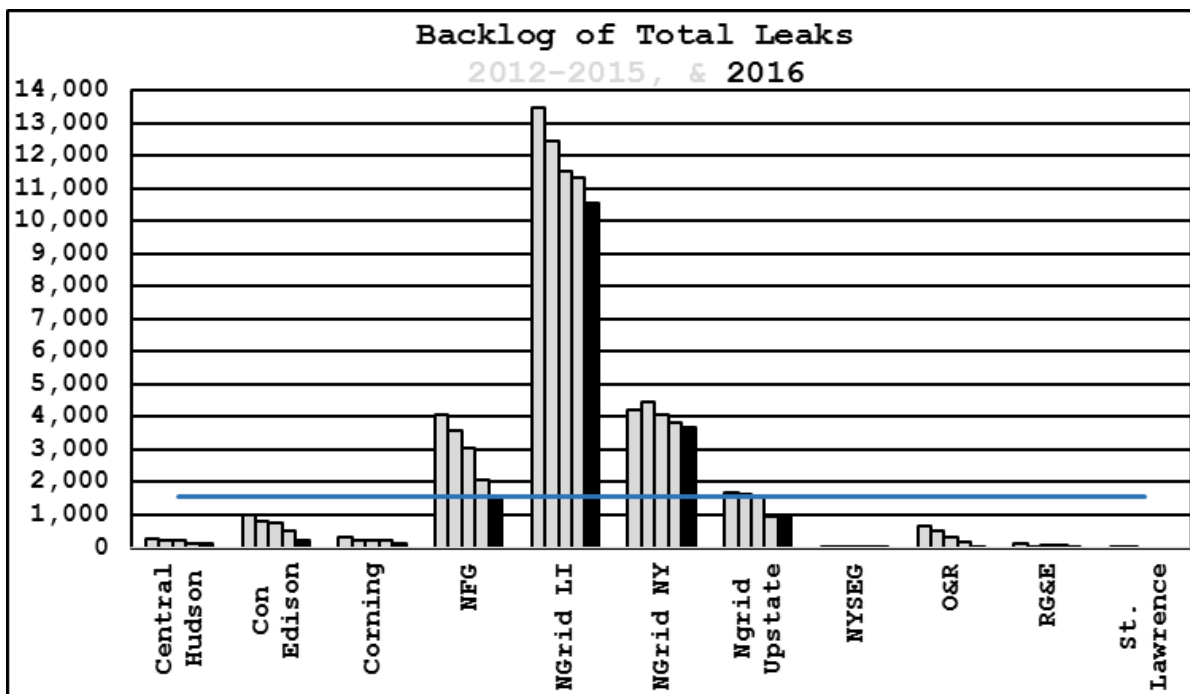


Figure #11 - Total Leak Backlog from 2012 through 2016

As seen in **Figure #11**, and for the second consecutive year, eight of the LDCs have maintained a lower year-end total leak backlog when compared with that of 2015. The remaining three LDCs all have greater than 1,000 total leaks in backlog, with the most notable being NGrid LI (10,556). This is nearly three times that of the next highest LDC, NGrid NY (3,676) and accounts for 61.3% of the statewide total.

The notable performance improvements within this measure includes O&R (84.7%) going from 170 total leaks in 2015

to 26 in 2016, RG&E (81.7%) going from 60 to 11, NYSEG (66.7%) going from 39 to 13, Con Edison (54.3%) going from 523 to 239, Corning (42.0%) going from 200 to 116, and Central Hudson (19.1%) going from 126 to 102. St. Lawrence maintained its zero total leak backlog from 2015 in 2016.

As the replacement of leak prone pipe increases over the next several years, it is to be expected that the totals of leaks will continue to decrease. In its most recent rate filing (Case 16-G-0058), NGrid LI has committed to reducing its total leak backlog by at least 750 leaks in each of the following years: 2017, 2018, and 2019. This minimum commitment leaves their backlog at approximately 8,500 leaks, resulting in a 19.6% performance improvement within this measure during this period.

Non-Compliances Identified through Audit Process

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

company procedures. Similar to 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.¹¹ Since the 2016 record audits are in progress, **Figure #12** below only displays the total number of non-compliances from 2011 through 2015. The total number of non-compliances are then normalized by the number of operating head-quarters, OHQs, within a given LDC. For each OHQ, Staff conducts a separate audit of all functions as identified by their five year audit plan. The associated data per LDC and the number of OHQs are located in **Appendices H and I**.

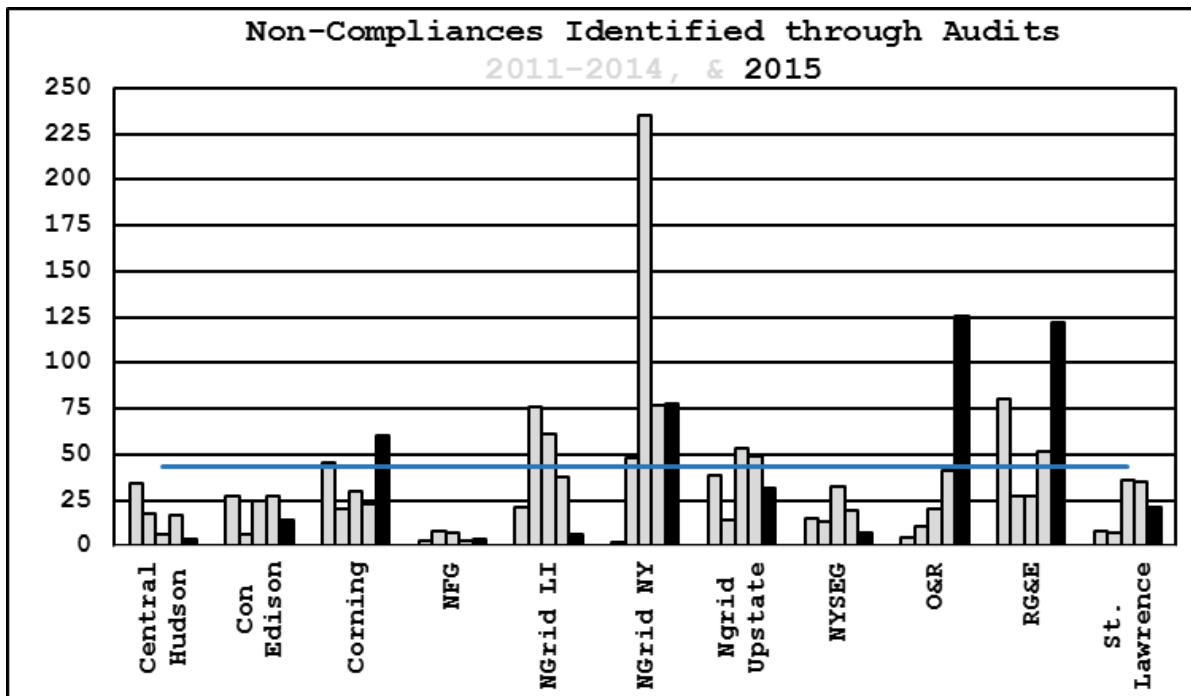


Figure #12 - Non-Compliances from 2011 through 2015

¹¹ This typically includes records generated during the specific calendar year and field activities conducted during the specific calendar year.

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**.

In 2015, non-compliances were identified in all eleven of the LDCs' operating service territories. Among those LDCs with notable changes in 2016, O&R was identified as having failed, on 172 separate occurrences, to review and update at intervals not exceeding 15 months but once each calendar year its written operating and maintenance procedures. RG&E was identified as having failed, on 34 separate occurrences, to conduct and/or document an operational load tests and vent inspections for service regulators which were inactive for a period of two or more years and reactivated to service. RG&E was also identified as having failed, on 34 separate occurrences, to conduct and/or document the inspection of the buried high pressure service line valves or exposed exterior high pressure service line valves in conjunction with the service regulation inspections.

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. The non-compliances identified were found based on a randomly selected statistical

sample and can indicate, among other things, a lack of Company control, an issue with internal quality assurance, or a culture within the Company that is willing to accept a certain level of non-compliance with the regulations. This culture is further demonstrated by the LDCs' repeated inability to comply with the minimum pipeline safety regulations, which is why mechanisms are being included in joint proposals to attach an associated liability for each non-compliance identified.

Conclusion

Natural gas is a safe and reliable energy commodity if 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 gas 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 fourteen years, LDCs have worked to improve performance in the key areas of safety identified in this report. There has been a 70.9% improvement in total damage performance; the 30-minutes emergency response time has improved from 76.8% to 82.8%; and the year-end backlog of potentially hazardous leaks has decreased 95.0%, from 1,154 to 58. Over the past nine years the total leak backlog has decreased 35.3%, going from 26,638 to 17,233. As LDCs continue their outreach efforts, adopt better practices in responding to leak and odor calls, and work to replace aging leak prone infrastructure, Staff expects further improvements will occur.

Staff will continue to evaluate LDCs' performance via the measures contained in this report and will send letters to those LDCs mentioned as having improvement opportunities. Staff

will request of LDCs needing improvement to provide the Pipeline Safety Section of the Office of Electric, Gas, and Water specific details on how the LDC plans to improve. It is recommended that those LDCs evaluate their current and past practices, as well as reach out to the other LDCs that experienced higher performance levels to determine the incremental and, if necessary, entirely new approaches to pursue in order to achieve improvement.

Those LDCs that were able to make significant improvements are further encouraged to respond to this report and share the best practices that enabled them to make these gains in performance. 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. Staff continues to incorporate lessons learned in investigating the cause of natural gas incidents in New York State and across the country.

Recommendations

It is recommended that all LDCs re-evaluate their current policies regarding their specific public outreach, and excavator training efforts. Staff will send a letter to each LDC to this effect, requesting a response within 45 days. The LDCs will be directed to respond with improved action plans identifying their self-assessment and outlining incremental efforts on how they will improve in the future, with specific timeframes for implementation. All LDCs should take into consideration (1) the analysis and recommendations in this report; and (2) the effectiveness of efforts made in response to previous performance measure reports.

Appendix A

Historical Case Numbers¹²

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

¹² 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	2012	2013	2014	2015	2016
Central Hudson	20,714	21,305	19,002	21,136	22,522
Con Edison	80,273	85,990	95,784	93,510	92,054
Corning	4,794	4,386	5,291	5,193	4,214
NFG	87,916	88,621	88,724	95,284	97,457
NGrid LI	139,274	188,412	174,833	156,964	164,892
NGrid NY	109,298	125,030	172,673	177,824	191,140
NGrid Upstate	88,109	86,500	96,672	104,422	104,991
NYSEG	65,086	56,039	55,299	55,468	55,180
O&R	25,130	25,193	25,809	27,790	29,697
RG&E	60,579	56,232	59,014	60,274	61,289
St. Lawrence	4,100	4,021	4,265	4,055	4,076

Number of Damages due to Mismarks

LDCs	2012	2013	2014	2015	2016
Central Hudson	6	6	10	10	14
Con Edison	26	38	60	71	59
Corning	1	4	0	0	1
NFG	50	40	38	22	21
NGrid LI	102	75	79	89	85
NGrid NY	49	50	58	68	60
NGrid Upstate	34	30	37	74	44
NYSEG	28	25	23	21	12
O&R	16	14	8	10	9
RG&E	24	19	22	23	16
St. Lawrence	1	1	1	0	2

Damages due to Mismarks per 1,000 Tickets

LDCs	2012	2013	2014	2015	2016
Central Hudson	0.29	0.28	0.53	0.47	0.62
Con Edison	0.32	0.44	0.63	0.76	0.64
Corning	0.21	0.91	0.00	0.00	0.24
NFG	0.57	0.45	0.43	0.23	0.22
NGrid LI	0.73	0.40	0.45	0.57	0.52
NGrid NY	0.45	0.40	0.34	0.38	0.31
NGrid Upstate	0.39	0.35	0.38	0.71	0.42
NYSEG	0.43	0.47	0.42	0.38	0.22
O&R	0.64	0.56	0.31	0.36	0.30
RG&E	0.40	0.34	0.37	0.38	0.26
St. Lawrence	0.24	0.25	0.23	0.00	0.49

Appendix B (Continued)

Number of Damages due to No-calls

LDCs	2012	2013	2014	2015	2016
Central Hudson	12	12	13	14	9
Con Edison	32	46	42	52	52
Corning	2	7	4	0	1
NFG	60	43	61	53	43
NGrid LI	101	137	129	127	113
NGrid NY	35	51	46	63	54
NGrid Upstate	33	44	44	53	44
NYSEG	15	10	14	12	19
O&R	18	16	19	19	20
RG&E	21	16	19	18	9
St. Lawrence	1	0	0	0	1

Damages due to No-calls per 1,000 Tickets

LDCs	2012	2013	2014	2015	2016
Central Hudson	0.58	0.56	0.68	0.66	0.40
Con Edison	0.40	0.53	0.44	0.56	0.56
Corning	0.42	1.60	0.76	0.00	0.24
NFG	0.68	0.49	0.69	0.56	0.44
NGrid LI	0.73	0.73	0.74	0.81	0.69
NGrid NY	0.32	0.41	0.27	0.35	0.28
NGrid Upstate	0.37	0.51	0.46	0.51	0.42
NYSEG	0.23	0.18	0.25	0.22	0.34
O&R	0.72	0.64	0.74	0.68	0.67
RG&E	0.35	0.28	0.32	0.30	0.15
St. Lawrence	0.24	0.00	0.00	0.00	0.25

Number of Damages due to Excavator Error

LDCs	2012	2013	2014	2015	2016
Central Hudson	21	11	6	13	17
Con Edison	69	54	52	58	74
Corning	12	7	6	3	4
NFG	131	138	105	133	133
NGrid LI	115	148	119	145	131
NGrid NY	98	138	157	152	172
NGrid Upstate	185	166	159	171	146
NYSEG	67	54	61	75	47
O&R	34	43	27	33	36
RG&E	59	66	51	70	38
St. Lawrence	12	16	19	12	9

Appendix B (Continued)

Damages due to Excavator Error per 1,000 Tickets

LDCs	2012	2013	2014	2015	2016
Central Hudson	1.01	0.52	0.32	0.62	0.75
Con Edison	0.86	0.63	0.54	0.62	0.80
Corning	2.50	1.60	1.13	0.58	0.95
NFG	1.49	1.56	1.18	1.40	1.36
NGrid LI	0.83	0.79	0.68	0.92	0.79
NGrid NY	0.90	1.10	0.91	0.85	0.90
NGrid Upstate	2.10	1.92	1.64	1.64	1.39
NYSEG	1.03	0.96	1.10	1.35	0.85
O&R	1.35	1.71	1.05	1.19	1.21
RG&E	0.97	1.17	0.86	1.16	0.62
St. Lawrence	2.93	3.98	4.45	2.96	2.21

Number of Damages due to Co. & Co. Contractor Error

LDCs	2012	2013	2014	2015	2016
Central Hudson	5	7	4	13	9
Con Edison	33	23	34	37	15
Corning	1	1	0	1	1
NFG	4	3	3	2	2
NGrid LI	1	4	6	9	16
NGrid NY	5	7	2	6	6
NGrid Upstate	4	8	5	2	6
NYSEG	10	2	5	1	2
O&R	10	9	12	9	12
RG&E	8	6	0	2	1
St. Lawrence	0	0	2	0	0

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

LDCs	2012	2013	2014	2015	2016
Central Hudson	0.24	0.33	0.21	0.62	0.40
Con Edison	0.41	0.27	0.35	0.40	0.16
Corning	0.21	0.23	0.00	0.19	0.24
NFG	0.05	0.03	0.03	0.02	0.02
NGrid LI	0.01	0.02	0.03	0.06	0.10
NGrid NY	0.05	0.06	0.01	0.03	0.03
NGrid Upstate	0.05	0.09	0.05	0.02	0.06
NYSEG	0.15	0.04	0.09	0.02	0.04
O&R	0.40	0.36	0.46	0.32	0.40
RG&E	0.13	0.11	0.00	0.03	0.02
St. Lawrence	0.00	0.00	0.47	0.00	0.00

Appendix B (Continued)

Number of Total Damages

LDCs	2012	2013	2014	2015	2016
Central Hudson	44	36	33	50	49
Con Edison	160	161	188	218	200
Corning	16	19	10	4	7
NFG	245	224	207	210	199
NGrid LI	319	364	333	370	345
NGrid NY	187	246	263	289	292
NGrid Upstate	256	248	245	300	240
NYSEG	120	91	103	109	80
O&R	78	82	66	71	77
RG&E	112	107	92	113	64
St. Lawrence	14	17	22	12	12

Total Damages per 1,000 Tickets

LDCs	2012	2013	2014	2015	2016
Central Hudson	2.12	1.69	1.74	2.37	2.18
Con Edison	1.99	1.87	1.96	2.33	2.17
Corning	3.34	4.33	1.89	0.77	1.66
NFG	2.79	2.53	2.33	2.20	2.04
NGrid LI	2.29	1.93	1.90	2.36	2.09
NGrid NY	1.71	1.97	1.52	1.63	1.53
NGrid Upstate	2.91	2.87	2.53	2.87	2.29
NYSEG	1.84	1.62	1.86	1.97	1.45
O&R	3.10	3.25	2.56	2.55	2.59
RG&E	1.85	1.90	1.56	1.87	1.04
St. Lawrence	3.41	4.23	5.16	2.96	2.94

Appendix C¹³

Central Hudson	2012	2013	2014	2015	2016	Statewide
Number of Tickets	20,714	21,305	19,002	21,136	22,522	827,512
Mismarks	0.29	0.28	0.53	0.47	0.62	0.39
No-Calls	0.58	0.56	0.68	0.66	0.40	0.44
Excavator Error	1.01	0.52	0.32	0.62	0.75	0.98
Co. & Co. Contractor Error	0.24	0.33	0.21	0.62	0.40	0.08
Total	2.12	1.69	1.74	2.37	2.18	1.89

Con Edison	2012	2013	2014	2015	2016	Statewide
Number of Tickets	80,273	85,990	95,784	93,510	92,054	827,512
Mismarks	0.32	0.44	0.63	0.76	0.64	0.39
No-Calls	0.40	0.53	0.44	0.56	0.56	0.44
Excavator Error	0.86	0.63	0.54	0.62	0.80	0.98
Co. & Co. Contractor Error	0.41	0.27	0.35	0.40	0.16	0.08
Total	1.99	1.87	1.96	2.33	2.17	1.89

Corning	2012	2013	2014	2015	2016	Statewide
Number of Tickets	4,794	4,386	5,291	5,193	4,214	827,512
Mismarks	0.21	0.91	0.00	0.00	0.24	0.39
No-Calls	0.42	1.60	0.76	0.00	0.24	0.44
Excavator Error	2.50	1.60	1.13	0.58	0.95	0.98
Co. & Co. Contractor Error	0.21	0.23	0.00	0.19	0.24	0.08
Total	3.34	4.33	1.89	0.77	1.66	1.89

¹³ The "Total" damage performance may not equal the sum of the four metrics due to rounding.

Appendix C⁹ (Continued)

NFG	2012	2013	2014	2015	2016	Statewide
Number of Tickets	87,916	88,621	88,724	95,284	97,457	827,512
Mismarks	0.57	0.45	0.43	0.23	0.22	0.39
No-Calls	0.68	0.49	0.69	0.56	0.44	0.44
Excavator Error	1.49	1.56	1.18	1.40	1.36	0.98
Co. & Co. Contractor Error	0.05	0.03	0.03	0.02	0.02	0.08
Total	2.79	2.53	2.33	2.20	2.04	1.89

NGrid LI	2012	2013	2014	2015	2016	Statewide
Number of Tickets	139,274	188,412	174,833	156,964	164,892	827,512
Mismarks	0.73	0.40	0.45	0.57	0.52	0.39
No-Calls	0.73	0.73	0.74	0.81	0.69	0.44
Excavator Error	0.83	0.79	0.68	0.92	0.79	0.98
Co. & Co. Contractor Error	0.01	0.02	0.03	0.06	0.10	0.08
Total	2.29	1.93	1.90	2.36	2.09	1.89

NGrid NY	2012	2013	2014	2015	2016	Statewide
Number of Tickets	109,298	125,030	172,673	177,824	191,140	827,512
Mismarks	0.45	0.40	0.34	0.38	0.31	0.39
No-Calls	0.32	0.41	0.27	0.35	0.28	0.44
Excavator Error	0.90	1.10	0.91	0.85	0.90	0.98
Co. & Co. Contractor Error	0.05	0.06	0.01	0.03	0.03	0.08
Total	1.71	1.97	1.52	1.63	1.53	1.89

Appendix C⁹ (Continued)

NGrid Upstate	2012	2013	2014	2015	2016	Statewide
Number of Tickets	88,109	86,500	96,672	104,422	104,991	827,512
Mismarks	0.39	0.35	0.38	0.71	0.42	0.39
No-Calls	0.37	0.51	0.46	0.51	0.42	0.44
Excavator Error	2.10	1.92	1.64	1.64	1.39	0.98
Co. & Co. Contractor Error	0.05	0.09	0.05	0.02	0.06	0.08
Total	2.91	2.87	2.53	2.87	2.29	1.89

NYSEG	2012	2013	2014	2015	2016	Statewide
Number of Tickets	65,086	56,039	55,299	55,468	55,180	827,512
Mismarks	0.43	0.47	0.42	0.38	0.22	0.39
No-Calls	0.23	0.18	0.25	0.22	0.34	0.44
Excavator Error	1.03	0.96	1.10	1.35	0.85	0.98
Co. & Co. Contractor Error	0.15	0.04	0.09	0.02	0.04	0.08
Total	1.84	1.62	1.86	1.97	1.45	1.89

O&R	2012	2013	2014	2015	2016	Statewide
Number of Tickets	25,130	25,193	25,809	27,790	29,697	827,512
Mismarks	0.64	0.56	0.31	0.36	0.30	0.39
No-Calls	0.72	0.64	0.74	0.68	0.67	0.44
Excavator Error	1.35	1.71	1.05	1.19	1.21	0.98
Co. & Co. Contractor Error	0.40	0.36	0.46	0.32	0.40	0.08
Total	3.10	3.25	2.56	2.55	2.59	1.89

Appendix C⁹ (Continued)

RG&E	2012	2013	2014	2015	2016	Statewide
Number of Tickets	60,579	56,232	59,014	60,274	61,289	827,512
Mismarks	0.40	0.34	0.37	0.38	0.26	0.39
No-Calls	0.35	0.28	0.32	0.30	0.15	0.44
Excavator Error	0.97	1.17	0.86	1.16	0.62	0.98
Co. & Co. Contractor Error	0.13	0.11	0.00	0.03	0.02	0.08
Total	1.85	1.90	1.56	1.87	1.04	1.89

St. Lawrence	2012	2013	2014	2015	2016	Statewide
Number of Tickets	4,100	4,021	4,265	4,055	4,076	827,512
Mismarks	0.24	0.25	0.23	0.00	0.49	0.39
No-Calls	0.24	0.00	0.00	0.00	0.25	0.44
Excavator Error	2.93	3.98	4.45	2.96	2.21	0.98
Co. & Co. Contractor Error	0.00	0.00	0.47	0.00	0.00	0.08
Total	3.41	4.23	5.16	2.96	2.94	1.89

Appendix D

Emergency Response Times for 45 Minutes (%)

LDCs	2012	2013	2014	2015	2016
Central Hudson	98.7	99.1	98.7	98.6	98.5
Con Edison	99.2	99.4	99.2	99.2	99.3
Corning	98.2	97.5	95.2	95.3	97.5
NFG	97.7	98.0	97.3	98.1	98.0
NGrid LI	93.0	94.9	93.8	94.4	95.7
NGrid NY	95.0	95.9	93.9	92.4	93.1
NGrid Upstate	95.9	94.6	94.4	95.3	95.3
NYSEG	95.1	95.5	95.7	93.8	95.1
O&R	98.4	98.9	99.1	99.0	98.9
RG&E	97.8	96.9	97.6	95.4	93.3
St. Lawrence	95.6	92.9	95.0	95.3	92.8

Appendix D (Continued)

Emergency Response Times for 60 Minutes (%)

LDCs	2012	2013	2014	2015	2016
Central Hudson	99.7	99.9	99.9	99.7	99.7
Con Edison	99.9	99.9	99.9	99.9	99.9
Corning	99.8	99.4	98.5	98.1	99.5
NFG	99.4	99.5	98.5	99.3	99.4
NGrid LI	97.4	99.4	99.1	98.7	99.6
NGrid NY	98.5	99.4	98.2	96.6	97.2
NGrid Upstate	98.5	98.2	98.1	98.6	98.6
NYSEG	99.0	99.2	98.8	97.9	98.8
O&R	99.9	99.9	99.9	99.9	99.9
RG&E	99.6	99.4	99.5	98.9	97.8
St. Lawrence	99.8	99.2	98.9	97.9	98.1

Appendix E

Total Leak Repairs on Mains by Material

LDCs	Unprot. Bare	Unprot. Coated	Prot. Bare	Prot. Coated	Plastic	Cast / Wrought Iron	Copper	Other
Central Hudson	121	0	0	48	14	161	0	0
Con Edison	3,834	168	0	75	52	3,839	0	0
Corning	152	14	4	3	2	0	0	0
NFG	1,844	0	0	61	150	161	0	26
NGrid LI	737	152	25	26	65	210	0	0
NGrid NY	150	0	0	73	23	2,892	0	0
NGrid Upstate	27	68	0	33	47	476	0	0
NYSEG	55	0	0	54	19	3	0	2
O&R	186	0	0	21	46	2	0	0
RG&E	25	0	0	162	20	5	0	46
St. Lawrence	0	0	0	0	0	0	0	0

Appendix E (Continued)

Total Leak Repairs on Services by Material

LDCs	Unprot. Bare	Unprot. Coated	Prot. Bare	Prot. Coated	Plastic	Cast / Wrought Iron	Copper	Other
Central Hudson	63	0	0	65	43	67	0	0
Con Edison	2,062	154	0	354	476	0	173	0
Corning	69	11	0	2	23	0	0	1
NFG	369	0	0	57	198	0	0	11
NGrid LI	846	154	32	34	400	0	32	0
NGrid NY	250	0	0	263	301	0	248	0
NGrid Upstate	190	221	0	96	236	17	18	0
NYSEG	70	0	0	46	93	0	0	10
O&R	271	0	0	43	107	0	0	0
RG&E	15	0	0	185	57	2	2	20
St. Lawrence	0	0	0	4	0	0	0	0

Appendix F

Backlog of Potentially Hazardous Leaks

LDCs	2012	2013	2014	2015	2016
Central Hudson	14	4	6	3	3
Con Edison	10	13	36	7	1
Corning	6	2	6	3	0
NFG	58	57	1	0	2
NGrid LI	25	10	8	5	1
NGrid NY	25	7	24	21	23
NGrid Upstate	4	0	5	17	21
NYSEG	0	1	4	4	4
O&R	4	0	0	2	2
RG&E	9	10	18	6	1
St. Lawrence	2	4	0	0	0

Appendix F (Continued)

Repaired Potentially Hazardous Leaks

LDCs	2012	2013	2014	2015	2016
Central Hudson	211	273	327	352	278
Con Edison	5,540	5,267	8,283	10,700	7,857
Corning	66	45	102	194	101
NFG	1,995	1,747	2,025	2,195	1,353
NGrid LI	2,331	2,050	2,318	2,332	2,100
NGrid NY	2,287	2,839	4,457	4,236	3,876
NGrid Upstate	778	798	1,136	1,533	990
NYSEG	267	210	274	308	168
O&R	422	406	430	487	287
RG&E	195	292	284	306	224
St. Lawrence	52	4	12	8	3

Appendix G

Backlog of Total Leaks

LDCs	2012	2013	2014	2015	2016
Central Hudson	261	201	197	126	102
Con Edison	997	811	740	523	239
Corning	320	242	225	200	116
NFG	4,056	3,575	3,053	2,066	1,533
NGrid LI	13,475	12,433	11,494	11,330	10,556
NGrid NY	4,191	4,475	4,068	3,820	3,676
NGrid Upstate	1,679	1,650	1,552	936	961
NYSEG	20	18	49	39	13
O&R	682	496	330	170	26
RG&E	122	40	68	60	11
St. Lawrence	3	4	0	0	0

Appendix H

High Risk Non-Compliances Identified through Audit Process

LDCs	2011	2012	2013	2014	2015	# of OHQs
Central Hudson	46	68	19	34	12	5
Con Edison	132	22	100	83	50	5
Corning	29	7	18	10	36	1
NFG	27	44	64	25	25	9
NGrid LI	41	98	85	32	13	2
NGrid NY	4	31	179	89	55	2
NGrid Upstate	356	57	293	114	130	11
NYSEG	131	110	185	105	83	13
O&R	7	11	18	12	216	2
RG&E	78	26	22	40	42	1
St. Lawrence	6	6	13	15	17	1

Appendix I

Other Risk Non-Compliances Identified through Audit Process

LDCs	2011	2012	2013	2014	2015	# of OHQs
Central Hudson	125	20	12	50	6	5
Con Edison	4	12	24	54	20	5
Corning	17	13	12	13	24	1
NFG	1	30	2	1	8	9
NGrid LI	2	54	38 ¹⁴	44	0	2
NGrid NY	0	65	292	65	100	2
NGrid Upstate	67	96	292	424	219	11
NYSEG	64	59	238	150	11	13
O&R	2	11 ¹⁵	22	71	36	2
RG&E	2	1	5	12	80	1
St. Lawrence	2	1	23	20	4	1

¹⁴ Two of the 34 violations noted were for 16 NYCRR §255.481(a), and 16 NYCRR §255.491(b)(2). There were a total of 1,239 occurrences documented in the respective audit letter.

¹⁵ One of the 11 violations noted was for 16 NYCRR §255.744(c). There were 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