The NYSEG / RG&E Damage Prevention Vehicle Program: 2009-2016

Allen Peterson, Manager Gas Operations
Damage Prevention Vehicle Presentation Goals

The program has grown from one to 30 inspectors over the past eight years, and gone from R&D to full production. The goal of this presentation is to review the program as it exists today in its three major components:

1. Review of Damage Prevention Vehicle inspection process.
2. Review of data management process
3. Review of results and effectiveness
NYSEG and RG&E gas mains and services are struck and damaged by third parties more than >100 times each per year.

Both companies monitor these damage rates, work with those who hit us, support safe excavation public awareness and report damages to the NYSDPS.

In 2009 the PSC lowered the allowable damage rate to 2 damages per 1000 tickets and established significant penalties if the targets are not met. In 2016, they were lowered again to 1.77.

The Damage Prevention Vehicle (DPV) program was started as an R&D project to assess the technical and economic feasibility of using DPV inspectors to support third-party compliance with NYS Code Rule 753 (Dig Safely law) and keep the NYSEG/RGE damage rates below 2/1000 Dig Safely tickets.
Field Inspection Process

- Contractor function since 2011. This allows for maximum flexibility in DPV numbers and locations.
- Presently 21 DPVs and one dispatcher, increasing to 28 DPVs and two dispatchers.
- Each DPV is a ‘Cop on the Beat’ with a fixed geographic territory.
- Dispatcher logs on to DigSafely site each day and downloads daily work assignment (tickets) to each DPV I-Pad:
  - Dispatch priority based upon risk of damage.
  - Dispatcher calls ticket holders to get day of excavation.
- DPV visits the site:
  - Checks for CR 753 compliance
  - Reviews CR 753 requirements with excavator
  - Offers training and educational assistance
  - Stays on site as long as needed.
- DPV enters data in his/her Ipad for upload to the DPV data management website.
- Goes on to next location.
Field Inspection: Details

Inspectors Do:

• Receive a full week of classroom training and ~1 week of ride-along time.
• Plan their own daily visits and call for utility backup as needed.
• Interact with excavator, tailored to the job and the people involved.
• Inform excavators if they are in violation.
• Discuss PSC fines, utility invoices and 3-strike rule (if needed).
• Respond to damages.
• Hand out free 811 T-shirts as appropriate.
• Put down tolerance zone markers.

Inspectors Do NOT:

• Locate facilities or refresh marks.
• Shut down jobs.
• Conduct damage investigations
Data management is fully electronic:

1. Dispatcher goes to DigSafe and gets tickets
2. Managers review data to plan upcoming work
3. Dispatcher loads tickets to DPV I-Pad
4. DPV uploads visit data to DPV website
5. DPV visits tickets and enters data in I-Pad
6. Managers review data to plan upcoming work
7. DPV uploads visit data to DPV website
8. DPV visits tickets and enters data in I-Pad
9. Managers review data to plan upcoming work
Data Management

Log In screen and ticket list:
Data Management

Ticket display and dig box:

Ticket: 04065-187-024-00 Type: Emergency

State: NY County: TOMPKINS Place: GROTON /V
Addr: From: 208 To: Name: SPRING ST
Cross: From: To: Name: CORNER NWCE
Offset:

Locate: LOCATE ENTIRE PROPERTY, FRONT, SIDES, AND REAR AND IN THE STREET AND ON BOTH SIDES OF THE STREET THROUGH ENTIRE PROPERTY.
NearSt: CORNER PROPERTY
Means of Excavation: BACKHOE AND EXCAVATOR Blasting: N
Site marked with white: Y Boring/Directional Drilling: N
Within 25ft of edge of Road: Y

Mark Type: WATER SVC INVESTIGATION/REPAIR Duration: 2 DAYS
Depth of excavation: 8 FEET Site Dimensions: Length: 30 FEET Width: 4 FEET
Start Date and Time: 06/06/2015 07:44 Must Start By: 06/20/2015

Contact Name: LACEY GRIEF
Company: GRIEF CONSTRUCTION Add1: 175 W GROTON RD
City: GROTON State: NY Zip: 13073 Phone: 607-494-3826 Email: LACEY0912@YAHOO.COM
Field Contact: LACEY GRIEF Cell Phone: 607-279-1905
Working for: HOMEOWNER

Comments: EMERGENCY, CREWM IS ON WAY TO Site NOW, THIS IS A THREAT TO LIFE/PROPERTY/VITAL UTILITY.
CALLER STATES AREA WILL BE MARKED IN WHITE BY 04/04/2015
Lookup Type: MANUAL

Boundary: n 42.588580 s 42.386385 w -76.370094 e -76.367123

Members: NYSEG / ITHACA GAS TWEED-ITHACA
SHOW PINS SHOW ON MAP PREVENTION FORM DIRECTIONS
Data Management

View Pins

Displays all remaining visits on a map. Pins are color coded based on excavator-specified work date and time.

- Yellow – Working Today
- Red – Past Work Date
- Green – Working Tomorrow

Touch the pin to get driving directions
Data Management

Entering visit data and photographs:
Data Management

Driving directions and ticket search:
# Data Management – DPV Website

## Driver Data:

![Driver Data Report Screenshot]

**Visit Report**
- **Report Start Date:** 03/01/2016
- **Report End Date:** 09/20/2016
- **Report By:** Driver
- **Report Generated:** 09/20/2016 at 12:22:18 PM

<table>
<thead>
<tr>
<th>Driver ID</th>
<th>Driver Name</th>
<th>Driver Division</th>
<th>Total Visits</th>
<th>Total Violations</th>
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**Totals:**
- **Total Visits:** 38509
- **Total Violations:** 866
- **Total Encountered Contractor:** 28757
- **Contact Rate:** 74.58%
### Ticket Data:

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<tr>
<th>Visit ID</th>
<th>Visit Date</th>
<th>Ticket Number</th>
<th>Place</th>
<th>Address</th>
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<th>Onsite Work Type</th>
<th>Rating</th>
<th>Violation</th>
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</tr>
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</table>
Results

• The program starts in late March or April. The number of active DPV’s is highest from June to October and declines based upon need during late November and December.

• The intensity of the effort is measured as the monthly number of DPV site visits per 1000 monthly DSNY Tickets.

• We compare the intensity of effort against the 3rd-party damage rate as the primary measure of program effectiveness.

• Other metrics include:
  • Nature and distribution of excavations and risk factors
  • DPV driver performance and efficiency metrics
  • Code Rule 753 violations and excavator performance
Results

Damage rates varied between year and Opco.

NYSEG’s and RG&E’s 3rd-party damage rates dropped from 1.76 to 1.28 during DPV years. This simple comparison does not prove cause and effect; more detailed analyses required.

<table>
<thead>
<tr>
<th>The NYSEG/RGE Damage Prevention Vehicle (DPV) Program: Annual Results by OPCO by (mismarks and self-hits excluded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPV Inspection Rate (% Tickets Visited)</td>
</tr>
<tr>
<td>Third Party and No-Call Damage Rate</td>
</tr>
</tbody>
</table>

| DPV Inspection Rate (% Tickets Visited) | 0 | 0 | 0 | 0 | 0 | 0.12 | 0.11 | 0.11 | 0.12 | 0.24 | 0.39 |
| Third Party and No-Call Damage Rate | 2.29 | 2.25 | 1.57 | 1.55 | 1.75 | 1.5 | 1.34 | 1.45 | 1.19 | 1.46 | 0.78 |
Results

So, data were broken out by opco and by year:

Both Opcos 2006-2016

\[ y = -1.5296x + 1.6356 \]
\[ R^2 = 0.3813 \]
Results: RGE

RGE 2006-16

\[ y = -3.589x + 1.753 \]

\[ R^2 = 0.505 \]
Results: NYSEG

NYSEG 2006-16

\[ y = -1.377x + 1.43 \]
\[ R^2 = 0.568 \]
Results: Quantitative Predictive Modeling

Opportunity for strategic value:

In addition to the mean trendline, standard software can also insert a 95% Confidence Interval (dotted line).

This can be used as the beginning of a predictive model for the assignment of DPV resources needed to achieve a targeted year-end damage rate goal.

For example, the 95% confidence interval intercept for a 2.0/1,000 damage rate at RG&E corresponds to a 250/1000 (25%) inspection rate.

Note: Having a predictable effect does not require having control (The coin-toss paradox).
Results: Contractor Contact Rates

The contractor encounter rate is critical to program effectiveness:

- Actual contractor encounter rates before 2013 were only about 20%.
- Beginning in 2013 we told DPVs to only stop at sites where contractor was present
- This tripled the contractor encounter rate to >70%
- Large and immediate effect seen, less than 5% chance that this drop is just random

Binghamton Monthly Damage Rate 2013 VS 2006-2012 Average
Conclusion – 8 Years Along

The DPV program is a mature program at full production, but we are still learning.

It is a robust and flexible contractor program that balances education, prevention and enforcement at each site.

It is a fully electronic data capture program that creates a data-rich environment.

It is responsible for approximately 50% of the variation in damage rates, by far the most important damage prevention tool we have.

It allows us to not only react quickly to events, but also to predict resources necessary to achieve a desired year-end target.

Questions?