

**2018 State Damage Prevention Program Grant Final Report**

**CFDA Number: 20.720**

**Award Number:** 693JK31840014PSDP

**Project Title:** State Damage Prevention (SDP) Program Grants – 2018

**Date Submitted:** December 10, 2019

**Submitted by:** Washington Utilities and Transportation Commission

**Specific Objective(s) of the Agreement**

- Fund a comprehensive analysis of the Damage Incident Reporting Tool (DIRT) reports to improve the understanding of incident causes and how this information can improve worker safety.
- Participate in public awareness audits of pipeline operator’s education campaigns to compare the information received on annual reports and incidents reported to DIRT and the UTC.
- Evaluate past and present enforcement actions to determine the level of impact enforcement has on compliance. (Elements 3, 7)

**Workscope**

Element 3 (Operator Internal Performance Measurement): A process for reviewing the adequacy of a pipeline operator’s internal performance measures regarding persons performing locating services and quality assurance programs. (Applicable)

Element 7 (Enforcement): Enforcement of State damage prevention laws and regulations for all aspects of the damage prevention process, including public education, and the use of civil penalties for violations assessable by the appropriate State authority. (Applicable)

**Accomplishments for the grant period (Item 1 under Agreement Article IX, Section 9.02 Final Report: “A comparison of actual accomplishments to the objectives established for the period.”)**

**Fund a comprehensive analysis of the Damage Incident Reporting Tool (DIRT) reports to improve the understanding of incident causes and how this information can improve worker safety.**

The Commission secures data from CGA’s DIRT system to record and analyze data indicating damage to PHMSA-jurisdictional underground facilities. These reports include damages that had a locate ticket as well as no-locate damages. The data for this analysis was limited to DIRT reports submitted in 2018.

The governing statute for Washington requires operators and excavators who cause damage to submit a DIRT report. The submission of these reports can be sporadic and as such, has been a focal point of our program’s training targeted at excavators.

The DIRT reporting system has limited control and validation of data entry. This presents a significant challenge when evaluating the data to allow the viewer to reach valid and accurate conclusions. The number of codes available under “Damage Cause” can contribute to confusion on behalf of the individual tasked with data entry due to specificity/lack of differentiation issues. While CGA’s DIRT Damage Cause list was revised and synthesized for 2019, it is too early to tell if this reduction in cause codes results in more accurate data.

The reporting system does provide for a limited analysis of damages, but without making more fields mandatory entry, and adding some data validation steps to ensure the report conforms to a universal

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standard, program staff must dedicate a significant number of hours each month to review the previous month’s reports. This review includes validating ticket numbers, addresses and counties, as well as identifying/remediating erroneous information in the report’s fields.

Staff reviewed the damage reports and combined them into similar groups. Of the 1663 reports of damage for 2018, 74% (1,234) is the result of two factors: lack of following the notification and locate procedures or improper excavation practices. Another 18% (306) are linked to a locate type issue. Together, these three elements comprise 92.6% of the damage reports submitted. These groupings are identified in the table below.

Half of the remaining 8% falls under the “Root Cause not listed above”. The program was unable to evaluate these 4% further due to the inability to access the additional comments required under this damage cause type. Staff recommends that the damage cause “Root Cause not listed above” be amended or deleted from the options available in order to require filers to provide more accurate information. Program staff found that despite the DIRT tool indicating that clarifying comments were required for this damage cause, successful report submission without clarifying comments was nonetheless possible.

<b>CGA DIRT Damage Cause</b>	<b># Reports</b>		
No notification made to One-Call Center / 811	570	1234	
No notification made to One-Call Center / 811   Called for locate but would not allow locator access	1		
No response from operator/contract locator	7		
Did not wait 2 full business days	1		
Did not wait 2 full days after calling in ticket	1		
Excavator dug prior to valid start date/time	32		
Excavator dug after valid ticket expired	61		
Excavator dug outside area described on ticket	21		
Excavator dug prior to verifying marks by test-hole (pot-hole)	132		
Marks faded, lost or not maintained	69		
Excavator failed to maintain clearance after verifying marks	89		
Excavator failed to protect/shore/support facilities	14		
Excavator failed to shore excavation/support facilities	9		
Excavator provided incorrect notification information	2		
Improper backfilling	2		
Improper excavation practice not listed above	223		
Marked inaccurately due to Abandoned Facility	4		306
Not marked due to Abandoned facility	2		
Marked inaccurately due to Incorrect facility record/maps	25		
Not marked due to Incorrect facility records/maps	48		
Unlocatable facility	12		
Not marked due to Locator error	77		
Marked inaccurately due to Locator error	129		
Marked inaccurately due to Tracer wire issue	8		
Not marked due to Tracer wire issue	1		
Root Cause not listed above (comment required)	68		
One-Call Center error	2		
Previous damage	19		
Site marked but incomplete at damage location	18		
Deteriorated facility	1		
None;	1		

**Use of DIRT Analysis for Targeted Training:**

To address the need for training and the number of damages occurring in some areas of the state, the program contracts with two entities to deliver training to excavators and locators. NUCA (National Utility Contractors Association) of Washington provides one full day of Dig Safe training for 40 participants and Planet Underground Interactive's Staking University provides a two-day locator training course for 25 participants. These classes are paid for by penalties collected by the damage prevention program for violations of the state's dig law, which enables participants to attend at no cost. To date, a total of 40 classes worth \$169,000 have been held and an additional four classes are scheduled through spring 2020. Both training courses have proven extremely popular and consistently experience maximum attendance. Class participants are required to complete a certification test at the end of the class and receive a certification of completion. Course completion is one of the tools used as part of our damage prevention enforcement program.

In-depth analysis of DIRT reporting has helped UTC staff more precisely target high-payoff training needs. Identifying areas of greater damage rates, when evaluated in conjunction with other contextual factors has helped staff plan and distribute resources more efficiently.

**Training and Damages by County**

Staff evaluates DIRT reports and sorts damage incidents by county in terms of total damages, as well as hits per 1,000 locate requests. Training classes are scheduled in the areas of greatest need. The maps listed as Attachment A and B identify the counties where classes have been held since 2018, as well as total damage incident numbers by county.

As expected, the damages reflected in DIRT reporting plotted in more densely populated areas, particularly those areas experiencing increased construction activity. Of interest, our analysis of DIRT data indicated that training conducted early in 2018 drove down that area's typical damage rates for 2018. This trend was most notable in Chelan, Mason, and Kittitas Counties.

Further analysis revealed that limiting our evaluation of damages to assessing the rate of hits per 1,000 locates, did not tell the full story. Due to smaller sample sizes, counties with relatively low population and request totals experienced a much higher damage rate per 1,000 locates. Accordingly, staff supports the approach of including an analysis of damages per 1,000 services in a given area. We feel it is necessary to consider additional factors, such as population density, service territory, and hits per 1,000 services into account in order to gain a more accurate understanding of damage rates. Ultimately, staff determined that DIRT should be supplemented with more detailed analysis.

The information on damages per 1,000 locate requests is relevant to this discussion because the training areas selected have historically been based upon this methodology.

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**Participate in public awareness audits of pipeline operator's education campaigns to compare the information received on annual reports and incidents reported to DIRT and the UTC.**

While no on-site public awareness inspections were scheduled, staff conducted paper audits of annual reports and incident reporting. This analysis did not reveal any noteworthy actionable trends and resulted in the program developing a comprehensive public awareness survey. This voluntary survey was sent to a total of ten operators. Of the ten survey requests sent, the program received eight responses:

- 4 local distribution companies
- 2 municipalities
- 1 interstate gas
- 1 interstate hazardous liquid

Most responses were consistent among the respondents and yielded what staff expected for many of the questions. However, a few responses provided additional insight for improvement in the damage prevention program in the state. Analysis and discussion of those responses follow below:

*What percentage of the public awareness/outreach effort is spent on each stakeholder identified in the plan?*

Most notable is the relative time spent on excavator outreach, particularly the equal effort spent on homeowners and excavators. Staff’s analysis of damages within Washington indicates that excavators are twice as likely to cause damage to underground utilities when compared to homeowners.

<i>What percentage of the public awareness/outreach effort is spent on each stakeholder identified in the plan?</i>	Homeowner %	Landowner %	Excavator %	First Responders %
<b>Median Score</b>	25%	10%	25%	25%
<b>Low rating</b>	10%	5%	20%	5%
<b>High rating</b>	60%	19%	75%	30%

*What is the frequency of outreach to each identified stakeholder?*

Of those who responded, annually was the predominant answer. It appears that a more frequent outreach approach to the at-risk groups may be an opportunity for improvement.

*Does your company use in-house utility locators or contract utility locators?*

Type of Locator	Operator
In-House Locators	IHL, IG, M, M, LDC
Contract Locators	LDC, LDC, LDC

The lack of requirement to report second-party damage related to locates makes this analysis more difficult than most. It relies heavily on the reporting practices of excavators to report that locate marks were inaccurate. Staff believes this may be an under-reported issue when comparing damage reports and complaints filed with Washington’s safety committee for review.

During 2018, 306 reports referenced a damage cause related to locate validity.

Damage Cause	Number of Reports
Marked inaccurately due to Abandoned Facility	4
Not marked due to Abandoned facility	2
Marked inaccurately due to Incorrect facility record/maps	25
Not marked due to Incorrect facility records/maps	48
Unlocatable facility	12
Not marked due to Locator error	77
Marked inaccurately due to Locator error	129
Marked inaccurately due to Tracer wire issue	8
Not marked due to Tracer wire issue	1
<b>Total Reports</b>	<b>306</b>

18% of reports linked to a locate issue requires further evaluation and follow-up by the program. Accordingly, staff has included emphasis on this during excavator and locator training. Encouraging more excavators to take photos, file complaints with the Washington Safety Committee as well as filing CGA DIRT reports will help to ascertain actual root cause.

*Do you use positive response for locate requests?*

Of the eight responses, only one operator responded with a “no” answer. When asked for follow-up, the response was that “it is not a requirement of Washington’s law.”

While technically correct, the one call system is set to allow voluntary use of the positive response feature. The program believes that the use of positive response is a beneficial practice and supports current efforts in the state legislature to get positive response codified in an updated dig law.

*Describe the internal QA/QC review for DIRT reports (on-time, accurate, complete).*

*Are DIRT reports reviewed by additional company representatives to evaluate for trends, and opportunities for training?*

All respondents stated office staff is responsible for entering the DIRT reports into the CGA system. The subsequent answers to the questions lead to some additional questions on process and our findings may help describe why some of the reporting is incomplete.

<b>Describe the internal QA/QC review for DIRT reports (on-time, accurate, complete).</b>	<b>Are DIRT reports reviewed by additional company representatives to evaluate for trends, and opportunities for training?</b>
The Damage Prevention Supervisor audits all of the excavation damages and submits the DIRT reports.	We use internally developed reports rather than the DIRT provided ones
Compliance Specialist	Individual compliance specialist
On-time - daily audit conducted of all line strike/near miss report company wide Accurate - speak with field operations to verify information on internal incident management system Complete - speak with field operations to verify information on internal incident management system	Developed internal damage prevention metrics to identify trends. Providing educational materials to excavators involved in line strike and/or near miss
Public Awareness and Damage Prevention Coordinator reviews quarterly. Corrections are made as discovered and communicated what needs to be fixed and why with the District Management.	Public Awareness and Damage Prevention Coordinator creates damage reports quarterly to analyze root causes, trends, and areas of improvement. Higher frequency of supplemental outreach/training is then focused in the highest damage districts (per 1,000 locates). Information is shared with Senior, Executive, and District Management.
A damage prevention analyst reviews each damage for accuracy and completeness before reporting on the DIRT website.	When the damage prevention analyst identifies inadequacies that resulted from a lack of understanding of the DIRT reporting processes, the person supplying the data and explains the process. The damage prevention analyst reports on trends and opportunities to the supervisor of damage prevention.
The gas manager completes and reviews all Dirt Reports	
It is a self QA/QC review. The damage prevention administrator reviews every damage for accuracy and completeness of damage data collected from the field and validates the root cause. The damage prevention administrator does a batch upload of the month’s damages by no later than the 10th of the month to make sure meeting the 45 day timeframe.	The damage prevention administrator reviews data on a regular basis to see who is doing the damage homeowner vs contractor and what the root causes are. The administrator works with the public awareness specialist on key messaging based on these trends.
DIRT report filled out by crew, reviewed by office staff for accuracy and timeliness and submitted online.	Internal discussion between office and crew. Root cause damages are logged. Threat assessments and action plans are identified through annual DIMP. Incidences are discussed during monthly meetings as training opportunities.

The responses to these questions and the previous analysis helped shape additions to the training curriculum for operators in 2020 with respect to completing DIRT reports, comparing DIRT report with actual incident reports submitted by the operator, and increasing excavator awareness on the importance of submitting timely and accurate DIRT reports. Additionally, as a result of this analysis, in late 2019 the program developed a more efficient tool for excavators to report damages, and better control the data with validation.

**Evaluate past and present enforcement actions to determine the level of impact enforcement has on compliance. (Elements 3, 7)**

The Commission’s Damage Prevention program receives, processes, and adds reports of damage to utilities to its Damage Prevention database system, which allows for the tracking and analysis of various factors related to damage caused to utilities. The program focuses primarily on excavation damage caused to underground natural gas utilities that occur due to violations of the state dig law. Damages and enforcement history are tracked per excavator, which has allowed the program to be more accurate and efficient in identifying first-time and recidivist excavators in order to more appropriately address training and enforcement for each report of damage received.

Staff analyzed 2019 data (to date) in order to determine the effectiveness of the first level of our enforcement program, warning letters mailed to the excavator responsible for the damage. The letters are sent to first-time violators of the dig law when the excavator is reported to have caused damage to an underground natural gas facility without first submitting a utility locate request. If reports of subsequent violations occur that are attributed to the excavator, the Commission investigates the damage incident and, if appropriate, recommends penalty action for repeat violations. Staff examined the data in an attempt to determine the effectiveness of the warning letters it sends in an attempt to educate, encourage compliance, and as a first step in enforcement.

Definitions and clarifications of terms used:

- “No-locate damage” refers to 2018 damage incidents only
- “2018 letter”: warning letter sent for a no-locate damage caused in 2018.
- “2018 Penalty”: penalty assessed for a no-locate damage that occurred in 2018.
- “2018 letter and 2018 penalty”: count of excavators who received a 2018 letter and a 2018 penalty, which was for a subsequent no-locate damage.
- “Pre-2018 letter” refers to a warning letter sent for a no-locate damage caused prior to 2018.

Warning Letters		
Excavator Type	2018 letters	2018 Letter and 2018 Penalty
Business	319 (61%)	8 (2.5%)
Homeowner	204 (39%)	0 (0%)
Total	523 (100%)	8 (1.5%)

Staff’s analysis revealed that of the 523 warning letters sent to first-time violators, only 8 excavators were penalized for an additional violation within the same year. Of the 523 letters, 319 were sent to businesses, and 204 were sent to homeowners who had damaged an underground utility on their property without first submitting a utility locate request. Of the 523 letters, only eight excavators—all businesses/contractors--were assessed a penalty later in that same year for additional damage event(s) that occurred without first submitting a valid utility locate request.

The data also showed that of the 44 businesses/contractors that were penalized by the UTC for causing no-locate damage, 8 (18%) had received a warning letter earlier in 2018. The rest of the penalties assessed in 2018 for no-locate damages were to businesses to whom the Commission had mailed a warning letter in response to a no-locate damage that occurred prior to 2018.

Penalties Assessed				
Excavator Type	Number of different excavators penalized	2018 Letter and 2018 penalty	Pre-2018 Letter, one 2018 penalty	Pre-2018 letter, 2+ 2018 penalties.
Business	44	8 (18%)	32 (72%)	4 (9%)
Homeowner	0	0	0 (0%)	0 (0%)
Total	44	8 (18%)	32 (72%)	4 (9%)

While the scope of this dataset was limited to 2018, the data suggests that warning letters sent to excavators in response to the first reported no-locate damage were effective in encouraging compliance with the dig law for the remainder of the year. This is especially true of homeowners, none of whom became repeat violators in the same year. The Commission has not had to take any additional enforcement action for any subsequent no-locate damage against a homeowner who has previously received a warning letter, suggesting that the warning letters may be most effective with homeowners. This is likely due to the relative infrequency of activities by homeowners that require notification of excavation.

Program staff is considering further analysis to include previous years’ data in order to analyze trends over time using more data points and comparisons to other recorded years. Other variables that may affect the frequency of repeat violations in subsequent years may be included and more data points examined to obtain a broader understanding of the effectiveness of warning letters as an educational tool, encouragement for compliance, and a deterrent.

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**Quantifiable Metrics/Measures of Effectiveness (Item 2 under Article IX, Section 9.02 Final Report: “Where the output of the project can be quantified, a computation of the cost per unit of output.”)**

During 2019, the program implemented a comprehensive data management tool that allowed a much greater emphasis on data evaluation and a more detailed analysis of investigation and enforcement cases. This implementation occurred simultaneously with the performance of tasks associated with the grant, and helped illuminate challenges with our programs, previous method of tracking and analyzing damages. Analysis enabled by this grant was critical in uncovering these challenges and has allowed us to focus on developing some more efficient processes, as well as training opportunities for our operators and excavators.

**Issues, Problems or Challenges (Item 3 under Article IX, Section 9.02 Final Report: “The reasons for slippage if established objectives were not met.”)**

We experienced some challenges during our analysis, most of which resulted from unanticipated data collection hurdles. The wide range of damage causes available on the DIRT report, the number of report fields often left blank, late reporting, and lack of some internal validation proved challenging during our analysis.

**Final Financial Status Report**

[Per the instructions in Article IX, Section 9.04 of your agreement (included below), the financial status report should be submitted with this final report to the Agreement Administrator (AA) and the Agreement Officer’s Representative (AOR). Please see instructions below and include supporting documentation such as invoices, receipts, spreadsheets, etc. However, if there are any issues with the Financial Status Report or additional explanation is needed, please provide that information here. If there are any delays for whatever reasons, these should be communicated to the AA and AOR in advance.

*From Article IX, Section 9.04 of your agreement: “At the end of the grant period, the Recipient must submit a*

*Final Federal Financial Report, Standard Form 425 (SF-425), to report the status of all funds. In addition to the SF-425, the Recipient should provide the breakdown of costs for each object class category (Personnel, Fringe Benefits, Travel, Equipment, Supplies, Contractual, Other, and Indirect Charges). The Final Federal Financial Report must be submitted to the AOR and the AA via e-mail, no later than 90 days after the grant period end date (see Section 1.03). If possible this report should be submitted, along with the Final Report, within 30 days after the grant period end date.”*

**See Attachment C**

**Requests of the AOR and/or PHMSA**

*[In most cases, any questions or actions requested of the AOR and PHMSA (such as grant modifications) should have been addressed in advance of filing the report. If this is the case, simply state “No actions requested at this time” or explain any actions that are currently in process. However, if something has come up recently, or if you haven’t been able to discuss with the AOR yet, please describe here.]*