2008 Vol. V

CGA DIRT Analysis & Recommendations

This report may be referenced as the DIRT Annual Report for 2008.

DIRT
Damage Information Reporting Tool

To download the report or to access additional analysis, visit www.cga-dirt.com

Released August, 2009

CGA
Common Ground Alliance

Dear Damage Prevention Stakeholders:

The fifth Annual Report analyzing data submitted into the Damage Information Reporting Tool (DIRT) provides the most comprehensive report to date with approximately 63% of the total damages in the U.S. being voluntarily submitted into DIRT for 2008. Overall, more than 180 organizations throughout the United States and Canada submitted 135,621 records. By collecting a larger percentage of data, the CGA is able to provide a more comprehensive look at the progress being made in underground damage prevention efforts throughout North America.

Based on the data collected since 2004, progress is indeed being made with the total estimate of damages continuing to decline. The CGA estimates a decrease of approximately 50% in the total number of damages occurring in the US since 2004 with the total number of damages occurring in 2008 estimated to be 200,000. The overall decrease in the estimate of the number of damages is due in part to less construction activity, but mostly I suspect, to increased awareness of the total damage prevention process and to your efforts, the damage prevention stakeholders – simply amazing.

In addition to tracking the total number of reports submitted each year, the CGA has begun tracking the quality of data being submitted into DIRT. In 2007, the CGA first implemented the Data Quality Index (DQI) in order to measure the 'completeness' for each record submitted. The overall average DQI improved from 50% in 2007 to 57% in 2008. Although this is an improvement, the DQI alerts us to necessary progress yet to be made.

In order to truly conduct more meaningful analysis, we need to increase quality of data submitted for 2009. All stakeholders are strongly encouraged to align their individual damage and near miss data collection process to DIRT so that data submitted yields relevant conclusions. Some data, such as "Root Cause," is weighted more heavily in establishing the DQI and is imperative in conducting complete analysis. The CGA has tools to assist stakeholders with collecting and submitting more complete data such as the Field Form and User's Guide as well as support from CGA committee members and staff.

I want to reiterate that all stakeholders involved with damage prevention should be proud of the progress being made. The 2008 report reflects a significant reduction in events with "No Notification Made" from the 2004 estimate. Aside from the reasons already identified earlier in this letter, it would appear that the implementation of 811 in May 2007 has had a substantial positive impact on damage reduction overall. We continue to raise the bar and can now measure our progress thanks to those of you submitting data.

Thank you for your continued commitment to damage prevention.

Sincerely,

Robert R. Kipp
President, Common Ground Alliance

1421 Prince Street – Suite 410 – Alexandria, VA – 22314 – 703-836-1709 – www.commongroundalliance.com

Introduction

The Damage Information Reporting Tool (DIRT) is the result of the efforts made by the Common Ground Alliance (CGA) to gather meaningful data about the occurrence of facility events. An event is defined by the CGA DIRT User's Guide as "the occurrence of downtime, damages, and near misses." Gathering information about these types of events gives the CGA the opportunity to perform analyses of the contributing factors and recurring trends, as well as identify potential educational opportunities with the overall goals of reducing damages and increasing safety for all stakeholders.

The Annual DIRT Reports provide a summary and analysis of the events submitted during the prior year, and as additional years of data are collected, also provides the ability to monitor trends over time. The 2008 Report focuses on the data gathered throughout the United States and Canada during the 3-year period from 2006 to 2008. The number of events reported during this timeframe has steadily increased, from 104,196 records in 2006 to 135,621 in 2008. This data can be helpful for all stakeholders in review of current issues facing the industry not only in their region, but other regions as well.

In addition to the number of records submitted, another important factor is the completeness of those records. Complete records allow for better overall analysis and provide for a more inclusive review of the contributing factors behind the events themselves. As a way to gauge the overall level of completion for the records submitted, the Damage Reporting and Evaluation Committee (DR&EC) implemented the Data Quality Index, or DQI, in 2008. The DQI has improved between 2007 and 2008, which may be due to increased public awareness about the DIRT system, or an increased familiarity with inputting data. For further discussion about the DQI and a detailed breakdown of the DQI for 2008 data, see pages 17 and 18 of this report.

Data Analysis Disclaimer: Industry stakeholders have voluntarily submitted their underground facility event data into DIRT. The data submitted is not inclusive of all facility events that occurred during the Report year. The analysis of said data may not be representative of what is actually occurring in any particular geographic area(s) or for any particular industry group(s). Please use caution when drawing conclusions based upon the data or the Report.

Report Index

This report may be referenced as the DIRT Annual Report for 2008

Discussion of Important Data Elements

The 2008 Report follows a similar format to the 2007 Report. One difference is that the analysis is limited to the three-year period from 2006 through 2008, due to the number of records submitted in those years, which all exceeded 100,000. This provides a better basis with which to perform the analysis, as compared to the earlier DIRT reports which analyzed fewer records.

Each submitted record contains numerous data elements that are vital to understanding and interpreting the incidents reported in DIRT. The majority of the submitted events for the 2008 Report were missing one or more data elements, either using "Unknown/Other" or "Data Not Collected" for a required field, or leaving blank a non-required field. When there are small percentages of known data for a specific field, it becomes difficult to perform a meaningful analysis. It is of vital importance that stakeholders align their data collection and reporting practices with those found on the DIRT form. More complete event records lead to a higher overall DQI, and therefore a better, more complete analysis. In the analysis of individual fields, and in the multi-field analyses, records with missing data are filtered out, leaving only the events with complete data. Events that are incomplete are illustrated to the left of the main chart as a separate chart and identified as "**DNC, Unknown/ Other**."

The frequent occurrence of records with missing data elements led to the development of the DQI, which provides a quantitative benchmark for stakeholders or organizations to review the quality of the facility event records that they submit on an ongoing basis. Hopefully this would lead stakeholders to identify opportunities to improve their data collection and reporting practices. Please see the DQI section later in this report for further details.

Detailed charts and graphs for each individual field on the DIRT form, including those not included in the analysis as mentioned above, can be found online at http://cga-dirt.com/annual.

If you have any questions in regards to the data or analysis presented in this Report, or would like to post a question or comment, please email the DIRT Reporting Task Team at: dirt-report@damagereporting.org.

Facility Events - Multiple Reports Submitted for the Same Event

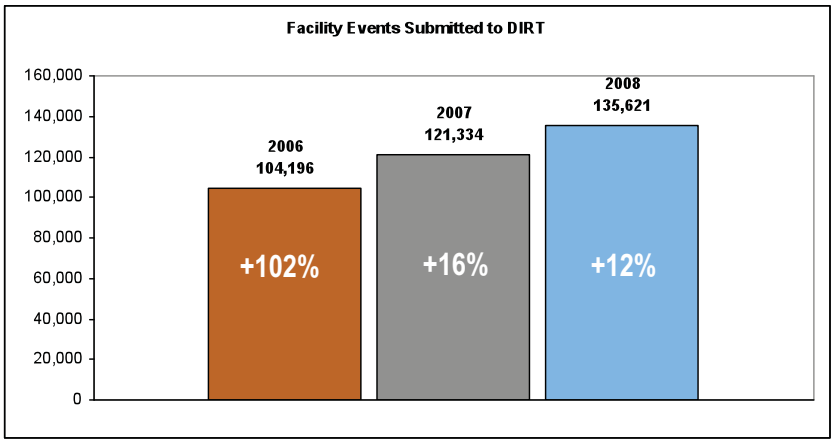
The potential exists that more than one report may be submitted for the same event, such as one by the excavator and one by the facility owner. There can be a benefit to this scenario. For example, data may be included on one submission that was omitted on the other. In addition, the way that different Stakeholders interpret the Root Cause of the same event may yield interesting insights. In the data set for the year 2008 it is estimated that less than 1.4% of events reported were of this nature. The DIRT system compares each field within each report submitted against the fields of all other reports in DIRT, and calculates the probability that it matches an already submitted event. It becomes more difficult to determine if the DIRT system includes multiple reports for the same event as fewer fields are completed.

Data Element Analysis

1. Facility events submitted by year

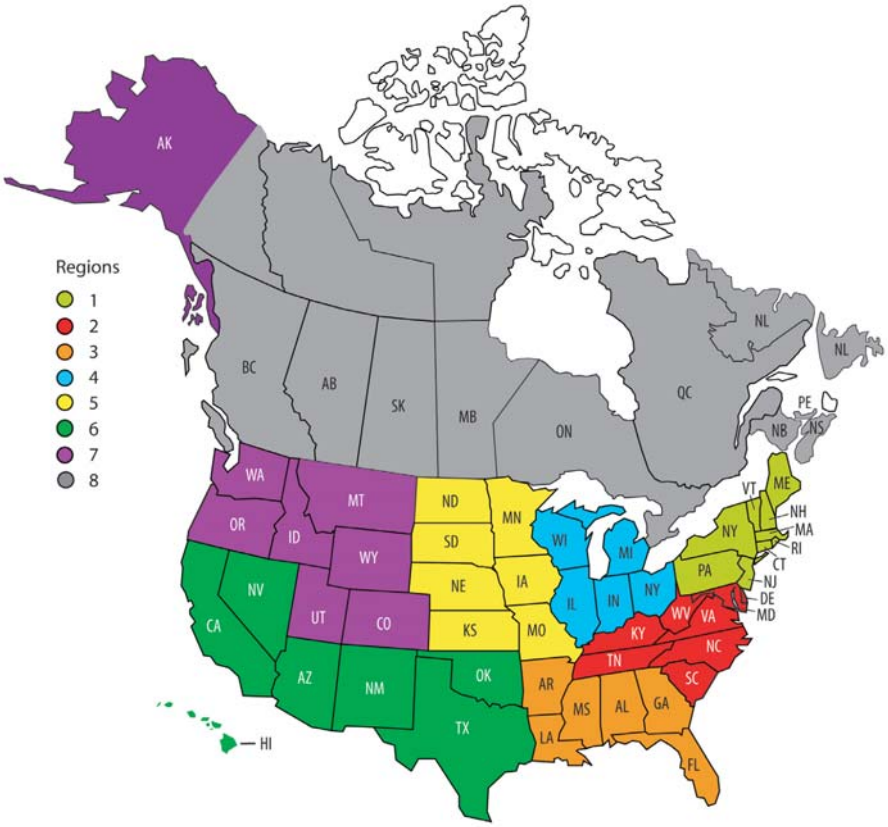
The number of facility events submitted to DIRT continued to increase each year since data collection began. The years 2006 through 2008 are shown below.

Note: **The events submitted in 2006 were a 102% increase over the 51,600 events submitted in 2005.**



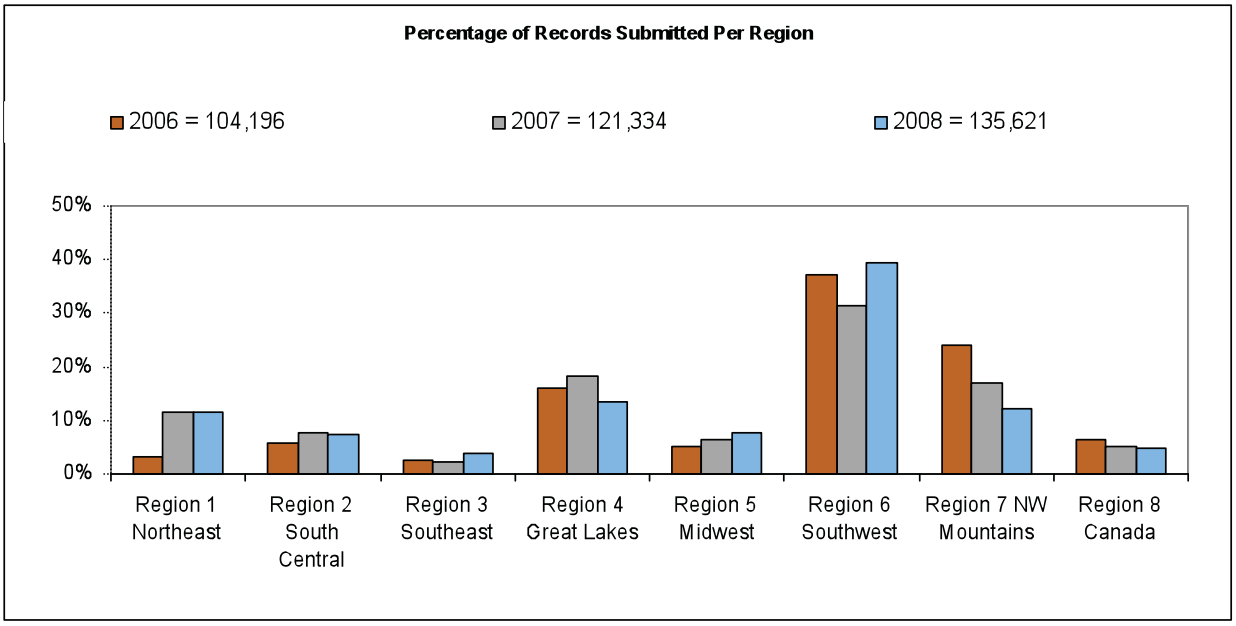
2. Facility events within OCSI Region

Facility event information was submitted to DIRT and compiled for the eight Regions illustrated on the map below, which correspond to the Regions defined by One Call Systems International (OCSI).



Events were submitted and recorded within all eight Regions in 2008. Region 6 continues to submit a large quantity of data, with over 40% in 2008. In response to suggestions to examine data on a Regional level, the DR&EC is providing analysis of several elements in the detailed graphs and charts available online at http://cga-dirt.com/annual.

-Region 6 Southwest	(40%) 53,621 events
-Region 4 Great Lakes	(13%) 18,175 events
-Region 7 NW Mountains	(12%) 16,469 events
-Region 1 Northeast	(11%) 15,582 events

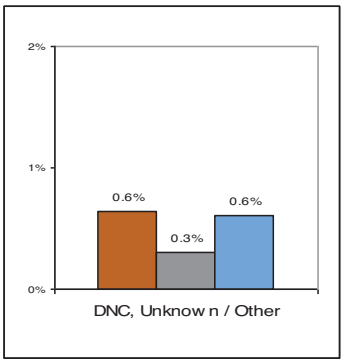


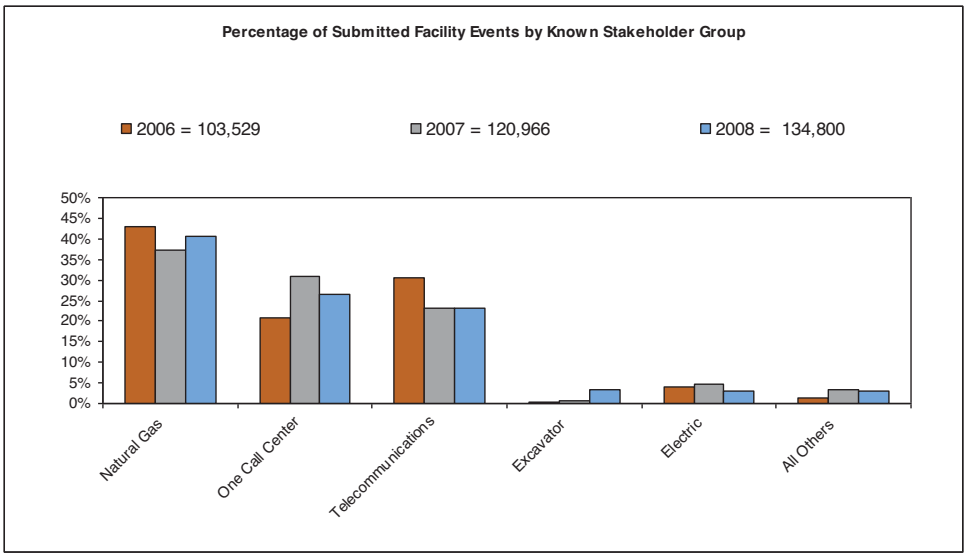
3. Submitted facility events by known stakeholder (part A)

The three stakeholder groups submitting the largest number of event records were Natural Gas, One Call Center, and Telecommunications. The number of events submitted by the excavator stakeholder group markedly increased in 2008 compared to previous years.

(99%) 134,800 Known Stakeholder Events

-Natural Gas	(41%) 54,852 events
-One Call	(27%) 35,873 events
-Telecommunications	(23%) 31,314 events
-Excavator	(3%) 4,660 events
-Electric	(3%) 3,952 events
-Others	(3%) 4,149 events
	134,800 events



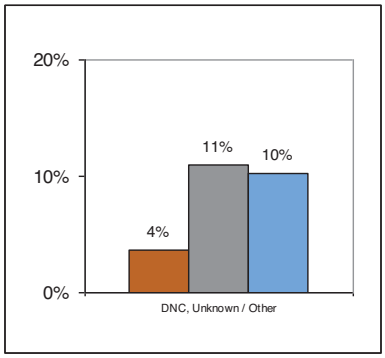


4. Submitted facility events by known type of facility operation affected (Part C)

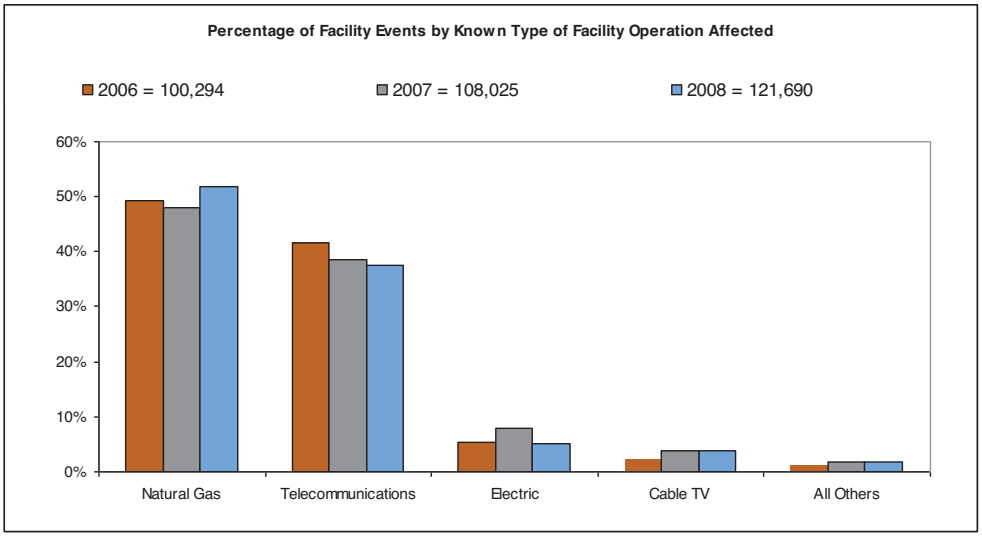
Telecommunication and Natural Gas facilities continue to be affected in the majority of events entered in DIRT (approximately 88% in 2008).

(90%) 121,690 Known Facility Operation Affected Events

-Natural Gas	(52%) 63,019 events
-Telecommunications	(37%) 45,732 events
-Electric	(5%) 6,287 events
-Cable TV	(4%) 4,543 events
-Others	(2%) 4,218 events
	121,690 events



***Note*: 10% of 2008 events did not identify type of operation affected (above graph).**



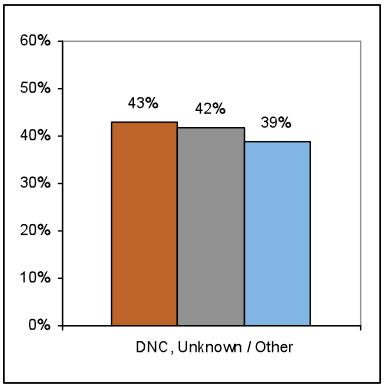
5. Frequency of events by known excavation equipment group (Part D)

The percentage of known data in this category has continued to increase steadily over previous years. In 2008, the percentage of events involving backhoes, trackhoes, and trenchers have declined. Conversely, the percentage of events involving the use of drilling equipment and handtools increased slightly.

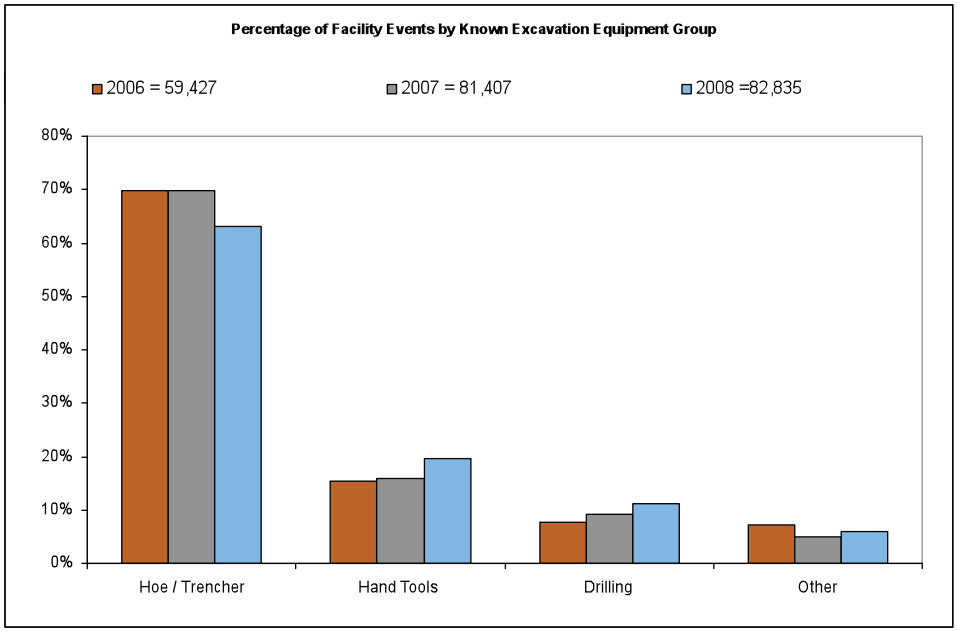
Group	Excavation Equipment Type
Hoe / Trencher	Backhoe, Trackhoe, Trencher
Hand Tools	Hand Tools, Probe
Drilling	Auger, Bore, Directional Drill, Drill
Other	Grader, Scraper, Road Milling Equipment, Explosives, Vacuum Equipment, Farm Implement

(61%) 82,835 Known Excavation Equipment Group Events

-Hoe / Trencher	(63%)	52,239 events
-Hand Tools	(20%)	16,335 events
-Drilling	(11 %)	9,348 events
-Other	(6%)	4,913 events
		82,835 events



***Note*: 39% of 2008 events did not identify type of excavation equipment (above graph).**



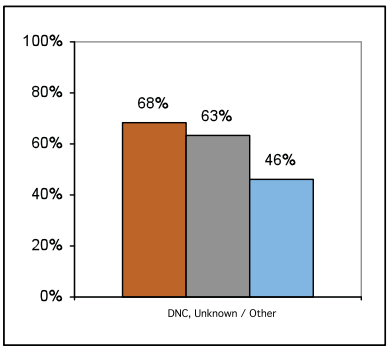
6. Facility events reported by known root cause group (Part I)

In 2008, Excavation Practices Not Sufficient and Notification NOT Made accounted for nearly 74% of all events with a known root cause reported. While these two categories continue to make up a majority of the root causes reported, it is interesting to note that the percentage of events listing Locating Practices Not Sufficient as the root cause has increased in every year, now accounting for over 22% of the events reported.

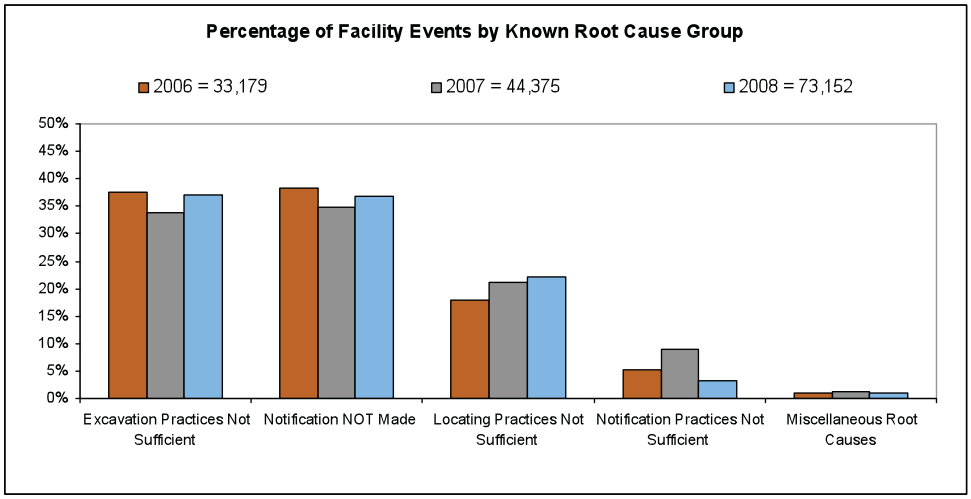
Group	Root Cause Type
Excavation Practices Not Sufficient	Failure to maintain clearance, Failure to support exposed facilities, Failure to use handtools where required, Failure to test-hole(pot-hole), Improper backfill practices, Failure to maintain marks, Excavation practices not sufficient (other)
Notification NOT Made	No notification made to the one call center
Locating Practices Not Sufficient	Incorrect facility records/maps, Facility marking or location not sufficient, Facility was not located or marked, Facility could not be found or located
Notification Practices Not Sufficient	Notification to one call center made but not sufficient, Wrong information provided to one call center
Miscellaneous Root Cause	Abandoned, One call center error, Deteriorated, Previous Damage

(54%) 73,152 Known Root Cause Type Events

-Excavation Practices Not Sufficient	(37%)	27,100 events
-Notification NOT Made	(37%)	26,868 events
-Locating Practices Not Sufficient	(22%)	16,241 events
-Notification Practices Not Sufficient	(3%)	2,286 events
-Miscellaneous Root Cause	(1%)	657 events
		73,152 events



***Note*: 46% of 2008 events did not identify root cause of the facility event (above graph).**



As stated previously, the percentage of facility events falling into the "Locating Practices Not Sufficient" root cause group has increased every year. Depending upon on which reporting stakeholder submits data for a facility event, the root cause percentages can vary significantly, as indicated in the chart below. Records with "Unknown/Other" and "Data Not Collected" were excluded. This eliminated approximately 98% of the records submitted by One Call Centers from inclusion in the extremely important root cause analysis.

For 2008, approximately two-thirds of the events submitted by Excavators fell into the "Locating Practices Not Sufficient" root cause group. The percentage of events submitted by excavators increased in 2008, which contributed to the percentage of events in the "Locating Practices Not Sufficient" group increasing for the entire data set.

The Natural Gas and Telecommunication stakeholders submitted the largest percentage of facility events. They recorded less than 20% of events in the "Locating Practices Not Sufficient" group, with "Notification NOT Made" and "Excavation Practices Not Sufficient" accounting for nearly 80% of their reported facility events. Events submitted by One Call Centers largely fell into "Notification Not Made" and "Locating Practices Not Sufficient." The DR&EC will continue to

review and analyze the relationship between stakeholders and the root cause recorded for the 2009 dataset. See Recommendations - 2008 Section for additional information.

Root Cause by Reporting Stakeholder				
	Natural Gas	Telecommunications	One Call Center	Excavator
Excavation Practice Not Sufficient	35.3%	45.3%	8.3%	21.6%
Notification NOT Made	39.8%	35.8%	44.6%	6.9%
Locating Practice Not Sufficient	19.8%	17.6%	32.7%	66.5%
Notification Practice Not Sufficient	4.1%	1.1%	11.6%	3.0%
Miscellaneous Root Cause	1.0%	0.2%	2.7%	2.0%

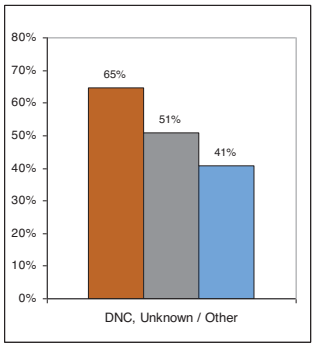
7. Frequency of events by known excavator group (Part D)

This data is very similar to the data collected in previous years. Contractors and developers continue to be involved in a majority of the reported facility events. Additional analysis of these groups is provided within the multiple field analysis portion of this Report.

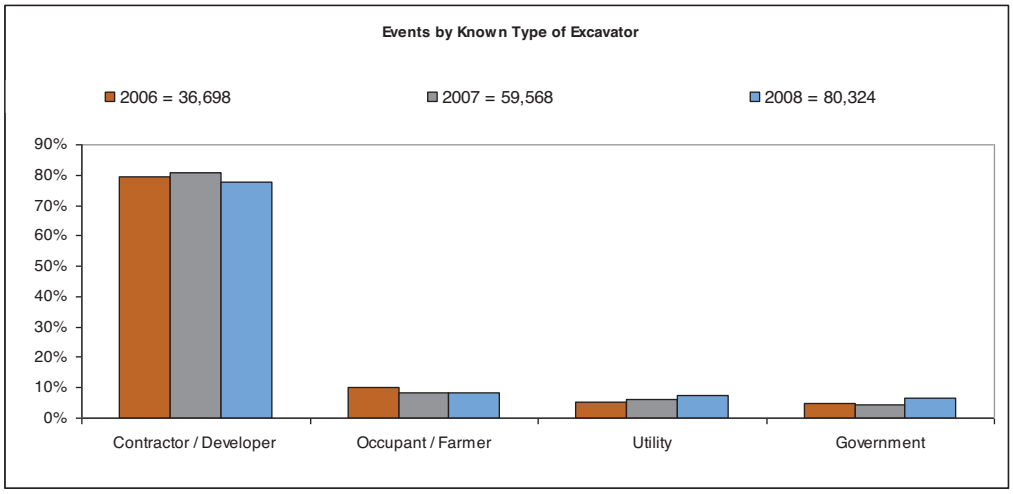
Group	ExcavatorType
Contractor / Developer	Contractor, Developer
Occupant / Farmer	Occupant, Farmer
Utility	Utility
Government	State, County, Municipality
Other	Railroad

(59%) 80,324 Known Excavator Group Events

Contractor / Developer	(78%)	62,351 events
Occupant / Farmer	(8%)	6,664 events
Utility	(7%)	5,890 events
Government	(7%)	5,395 events
Other	(<1%)	24 events
		80,324 events



***Note*: 41% of 2008 events did not identify type of excavator group (above graph).**



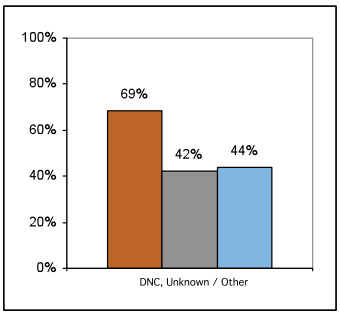
8. Facility events by known type of work performed group (Part D)

The Sewer/Water and Energy/Telecommunications work performed groups continue to be involved in the majority of the facility events. All other work performed groups remained consistent with the previous year, with the largest change being Landscaping, which declined from 13% to 10%.

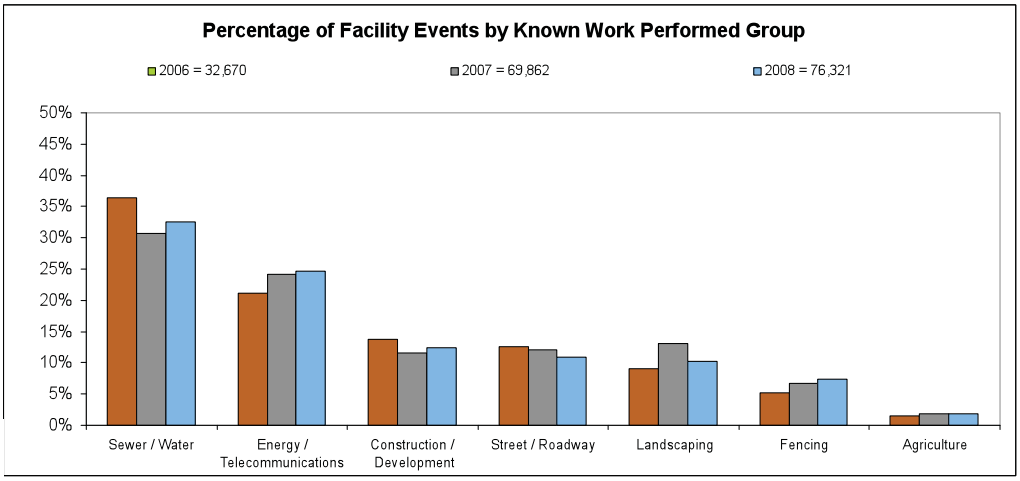
Group	Type of Work Performed
Sewer / Water	Sewer, Water
Energy / Telecommunications	Natural Gas, Electric, Steam, Liquid Pipe, Telecom, Cable TV
Construction / Development	Construction, Site Development, Grading, Drainage, Driveway, Demolition, Engineering, Railroad, Waterway
Street / Roadway	Roadwork, Curb/ Sidewalk, Storm Drainage, Milling, Pole, Traffic Signals, Traffic Signs, Streetlight, Public Transit
Landscaping	Landscaping
Fencing	Fencing
Agriculture	Agriculture, Irrigation

(56%) 76,321 Known Type of Work Performed Events

Sewer / Water	(32%)	24,789 events
Energy / Telecommunications	(25%)	18,827 events
Construction / Development	(12%)	9,427 events
Street / Roadway	(11%)	8,351 events
Landscaping	(10%)	7,830 events
Fencing	(7%)	5,648 events
Agriculture	(2%)	1,449 events
		76,321 events



***Note*: 44% of 2008 events did not identify type of work performed (above graph).**



Multi-Field Analysis

1. Analysis of excavation equipment group and root cause group for two excavator groupings

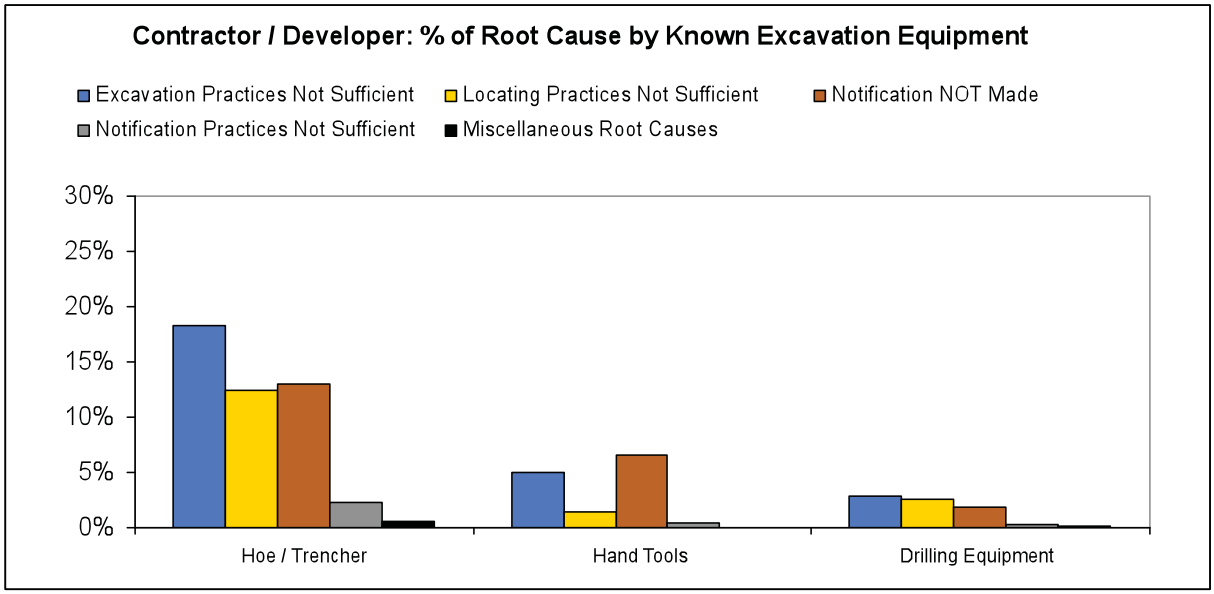
The following charts illustrate the root causes of events for the two groupings of (1) Contractor / Developer and (2) the combined Occupant / Farmer and Utility excavator types based upon which excavation equipment was used during the event.

2008 Contractor / Developer- (55% Known Data) 34,479 of 62,351 events*

Facility Events Submitted	**62,351**
Share of Total Events	46%

Events with Root Cause and Affected Facility Type	**34,479**
Share of Facility Events Submitted with Known Data	55%

The Contractor / Developer excavator group shows "Excavation Practices Not Sufficient" as a major root cause, particularly when the excavation equipment used is Hoe/Trencher. When Hand Tools is the excavation equipment used, "Notification NOT Made" emerges as the leading root cause. Hand Tools are traditionally used for shallow excavation, and in many states excavators are not required to call the One Call Center when using Hand Tools. Hand Tools are also often used in close proximity to a marked facility in order to verify its location and/or to minimize the risk associated with using mechanical equipment. These conditions may be contributing factors in making "Notification NOT Made" and "Excavation Practices Not Sufficient" the leading root causes of events involving Hand Tools.



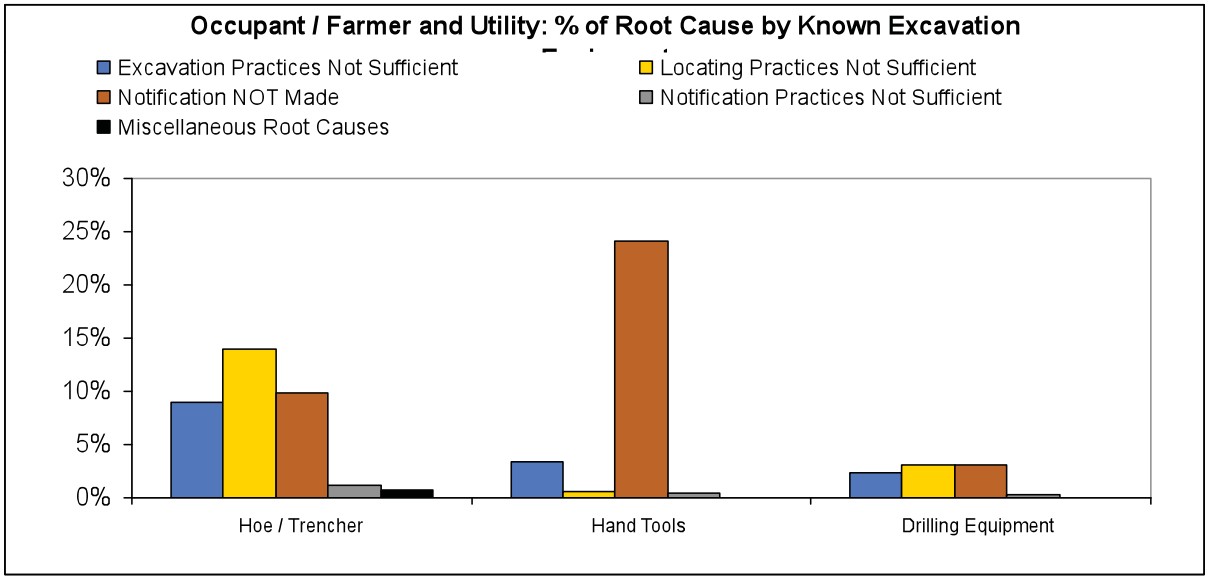
***62,351 events were in the Contractor / Developer excavator group.**
34,479 of these had a known excavation equipment type AND a known root cause for the facility event.

2008 Occupant / Farmer and Utility- (58% Known Data) 7,225 of 12,554 events*

Facility Events Submitted	12,554
Share of Total Events	9%

Events with Root Cause and Affected Facility Type	7,225
Share of Facility Events Submitted with Known Data	58%

For the Occupant / Farmer and Utility excavator groups utilizing Hoe / Trencher and Drilling Equipment, the leading root cause is "Locating Practices Not Sufficient." However, when these excavator groupings utilize Hand tools, they show a trend similar to the Contractor / Developer excavator group discussed above, with "Notification NOT Made" being the overwhelming root cause. Please see discussion in Recommendation #2007-3.



***12,554 events were in the Occupant / Farmer and Utility excavator group.**
7,225 of these had a known excavation equipment type AND a known root cause for the facility event.

2. Analysis of root cause and facilities affected type for four types of work groupings

Group	Type of Work
Dry / Wet Utility	Sewer, Water, Natural Gas, Electric, Steam, Liquid Pipe
Fencing / Landscaping	Fencing, Landscaping
Construction	Construction, Site Development, Grading, Drainage, Driveway, Demolition, Enginering, Railroad, Waterway
Roadwork	Roadwork, Curb / Sidewalk, Storm Drainage, Milling, Pole, Traffic Signals, Streetlight, Public Transit

The following charts illustrate the root causes of events for the four groupings of Dry / Wet Utility, Roadwork, Fencing / Landscaping, and Construction types, based upon the type of facility affected for the events reported for 2007 and 2008. The Dry / Wet Utility and Roadwork types indicate "Excavation Practices Not Sufficient" as the root cause in the majority of events submitted. It is interesting to note that both the "Excavation Practices Not Sufficient" and "Notification NOT Made" root causes have slightly declined for both facility types (Distribution and Service/Drop) as "Locating Practices Not Sufficient" has increased.

For the two groupings of Fencing / Landscaping and Construction work types, the reported percentages remain similar to the previous year with only slight changes. The root cause distribution for these groups is significantly different from that of the Dry / Wet utility and Roadwork types, with "Notification NOT Made" as the major root cause, particularly forthe Fencing / Landscaping group. As illustrated above in the second graph of the Multi-Field Analysis section (page 11), the Occupant / Farmer and Utility excavator groups using Hand Tools illustrate a similar trend, reporting "Notification NOT Made" as the most significant root cause. Again in most states, excavators using Hand Tools are exempt from the requirement to notify the One Call Center prior to excavation.

Dry / Wet Utility

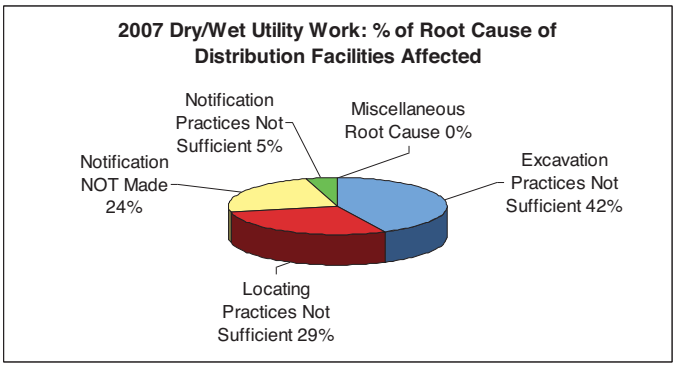
2007	
Facility Events Submitted	38,315
Share of Total Events	32%

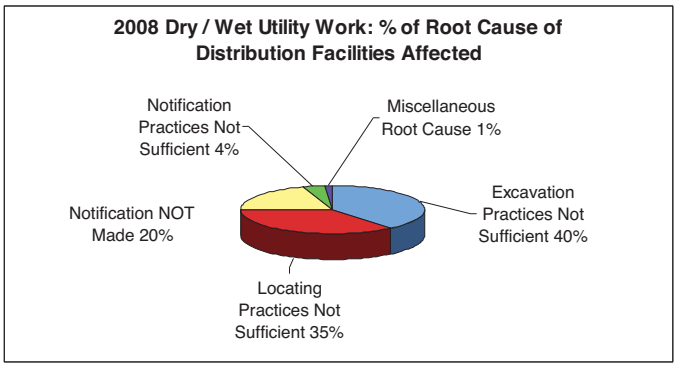
2008	
Facility Events Submitted	**43,316**
Share of Total Events	32%

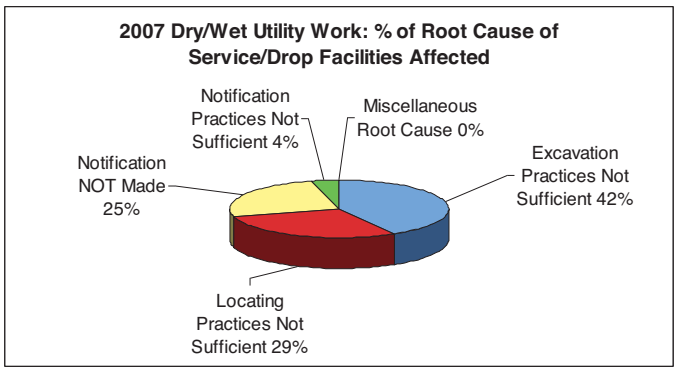
Events with Root Cause and Affected Facility Type	19,154
Share of Facility Events Submitted with Known Data	50%

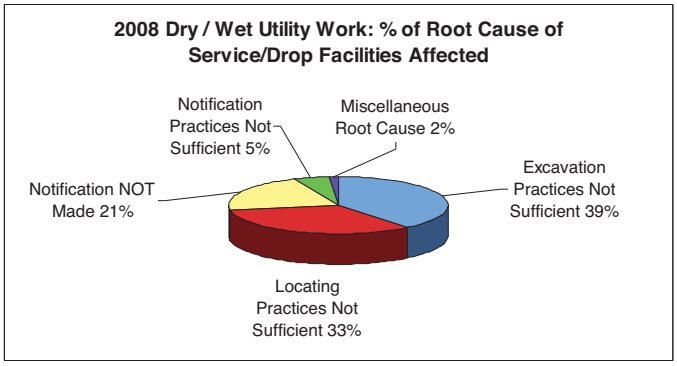
Events with Root Cause and Affected Facility Type	**32,386**
Share of Facility Events Submitted with Known Data	75%

*Excavation Practices Not Sufficient is the major root cause for all facilities, ranging from 39-40%.









Roadwork

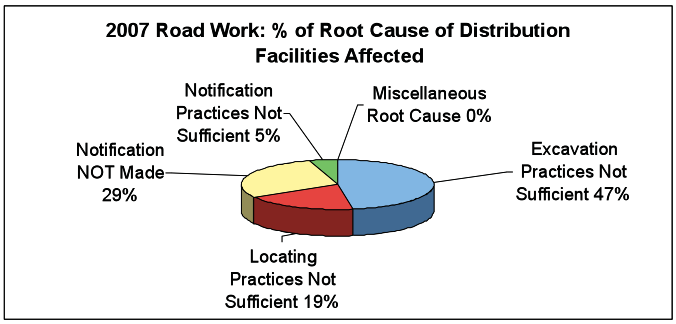
2007	
Facility Events Submitted	**8,445**
Share of Total Events	7%

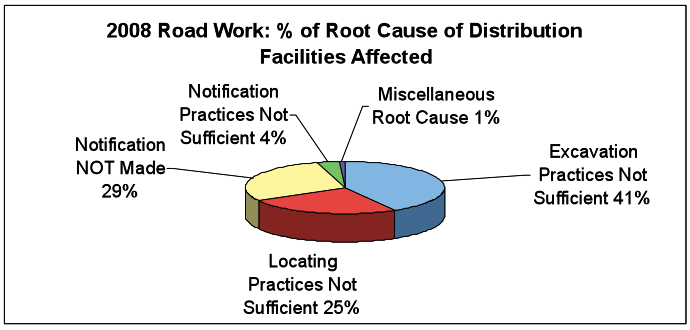
2008	
Facility Events Submitted	**8,350**
Share of Total Events	6%

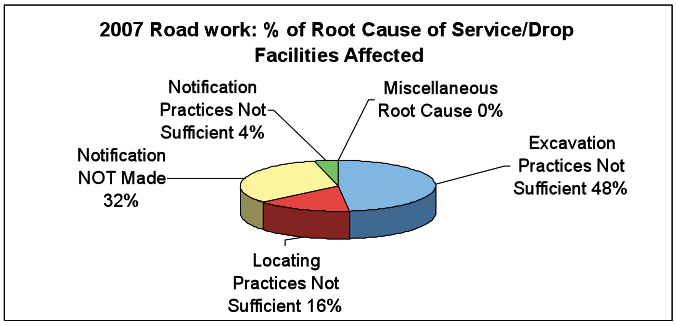
Events with Root Cause and Affected Facility Type	**4,217**
Share of Facility Events Submitted with Known Data	50%

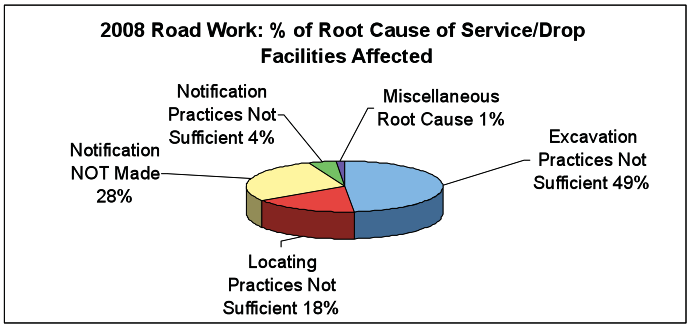
Events with Root Cause and Affected Facility Type	**6,481**
Share of Facility Events Submitted with Known Data	78%

*Excavation Practices Not Sufficient is the major root cause for all facilities, ranging from 41 – 49%.









Fencing/Landscaping

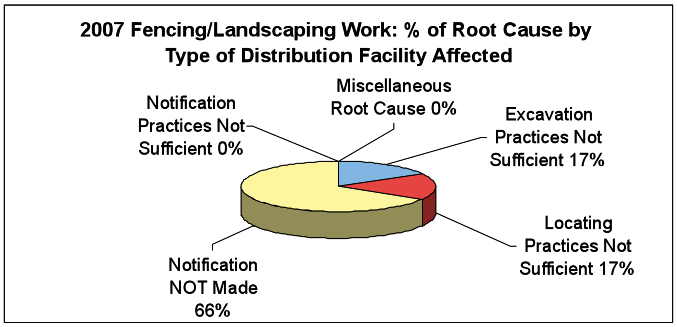
2007	
Facility Events Submitted	**18,421**
Share of Total Events	15%

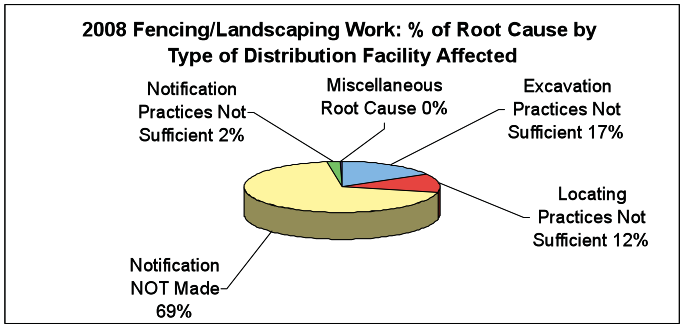
2008	
Facility Events Submitted	**13,476**
Share of Total Events	10%

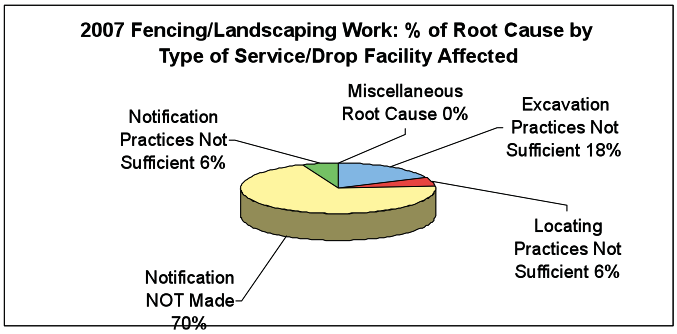
Events with Root Cause and Affected Facility Type	**9,389**
Share of Facility Events Submitted with Known Data	51%

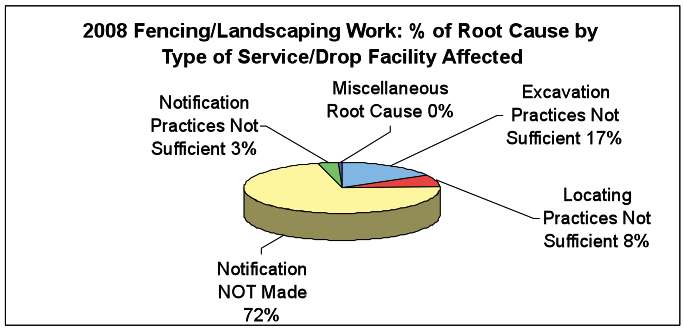
Events with Root Cause and Affected Facility Type	**11,038**
Share of Facility Events Submitted with Known Data	82%

*Notification NOT Made is the major root cause for all facilities, ranging from 69 - 72%.









Construction

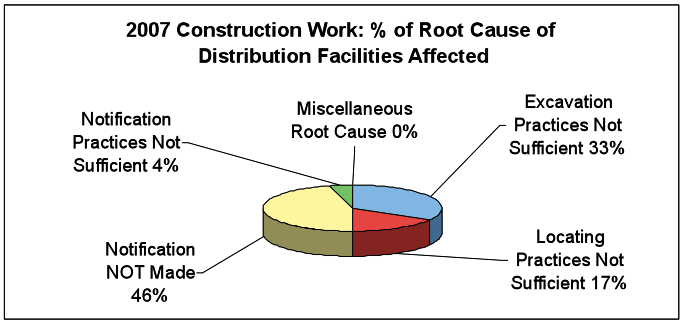
2007	
Facility Events Submitted	**8,097**
Share of Total Events	7%

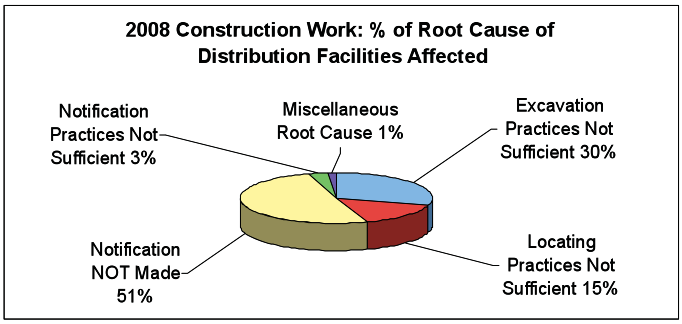
2008	
Facility Events Submitted	**9,424**
Share of Total Events	7%

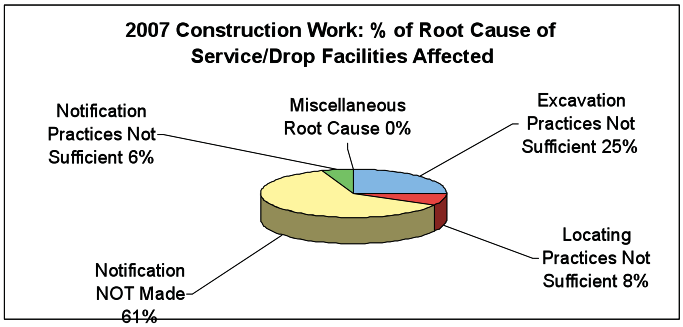
Events with Root Cause and Affected Facility Type	**5,220**
Share of Facility Events Submitted with Known Data	64%

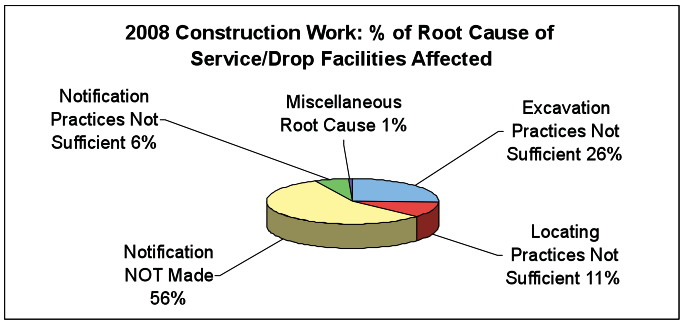
Events with Root Cause and Affected Facility Type	**7,525**
Share of Facility Events Submitted with Known Data	80%

*Notification NOT Made is the major root cause for all facilities, ranging from 51 - 56%.



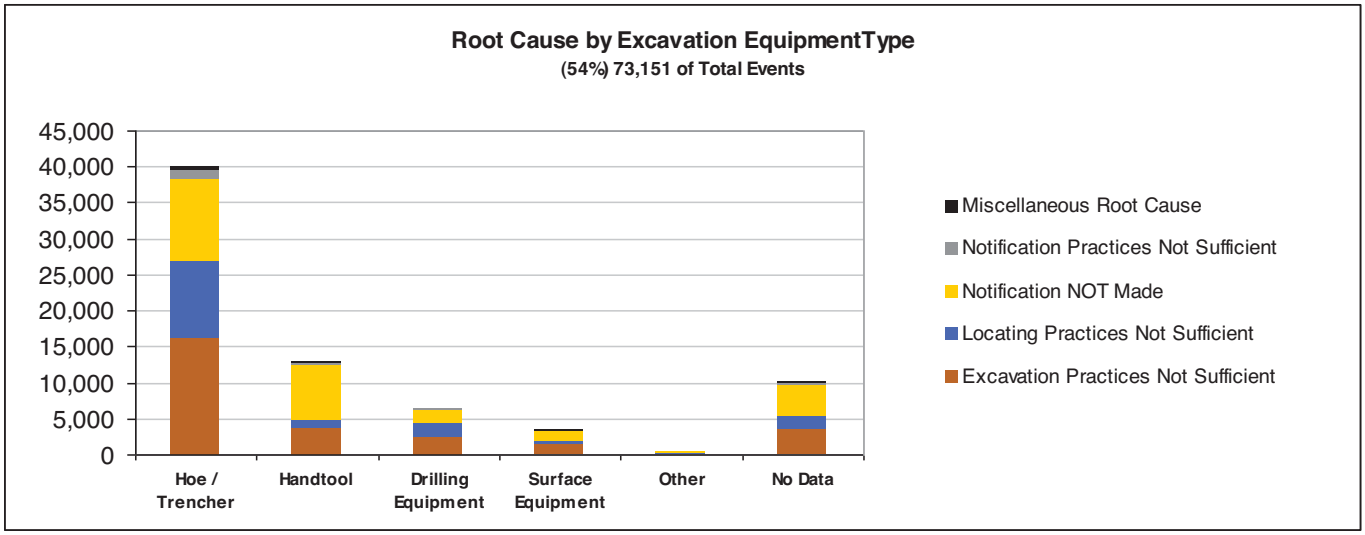




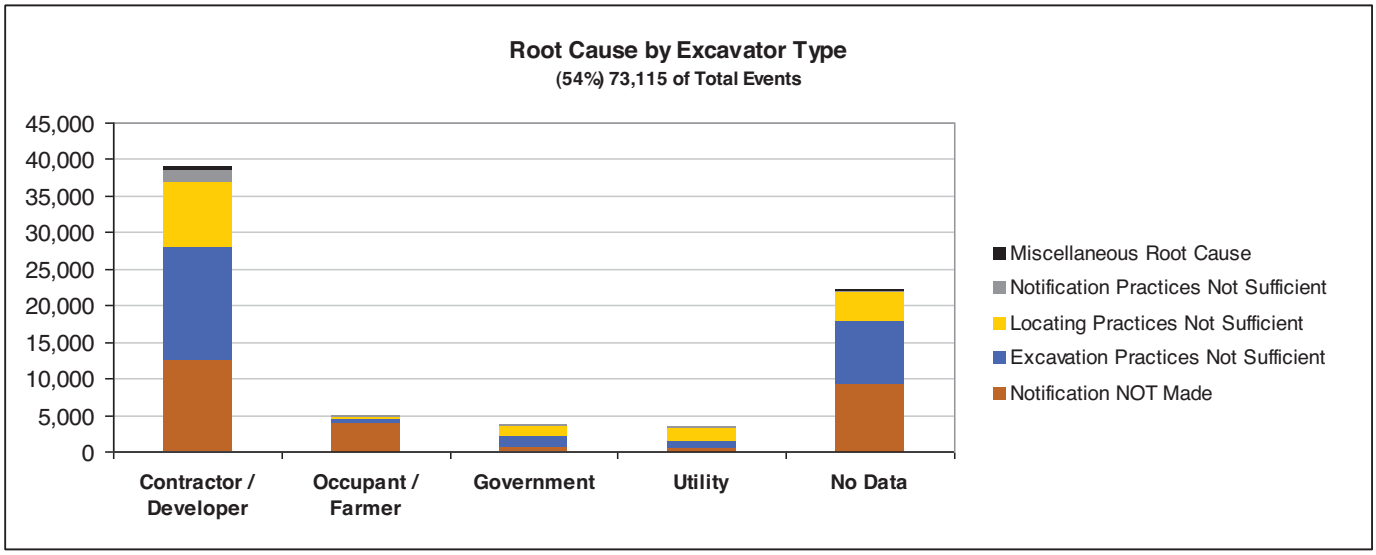


3. Root Cause by Excavation Equipment and Excavator Type- Summaries

This portion of the Multi-Field Analysis summarizes the correlation between the type of excavator, the type of equipment utilized, and the root cause reported for the event. The findings presented in the following charts remain consistent with those from the 2007 Report, illustrating that professional excavators are involved in a significant share of the incidents while operating excavation equipment.



*In this case, ***No Data*** refers to the excavation equipment type. The events listed here have a root cause included in the data reported to DIRT, but no excavation equipment type was specified.

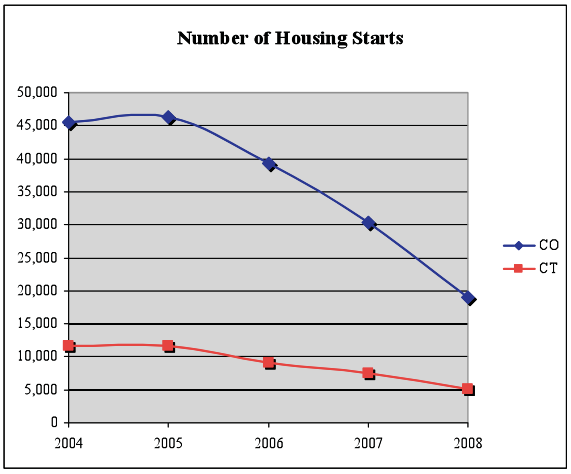


*In this case, ***No Data*** refers to the excavator group. The events listed here have a root cause included in the data reported to DIRT, but no excavator group was specified.

Report Findings Summary

2008 Estimate of Damages

Consistent with last year's report, an estimate of the total number of underground excavation damages for all of the US was constructed using population data and number of damage events from the DIRT database for Colorado and Connecticut, two states which mandate reporting of all damages. The estimate of total number of damages occurring in the US in 2008 has decreased from the 2007 estimate of 256,000 to 200,000. Additional information can be found online at http://cga-dirt.com/annual.



Another metric utilized to estimate damages is the number of new housing starts, which provides a general measure of the level of construction activity in a given area. Utilizing this metric, the estimate for 2008 is 205,000.

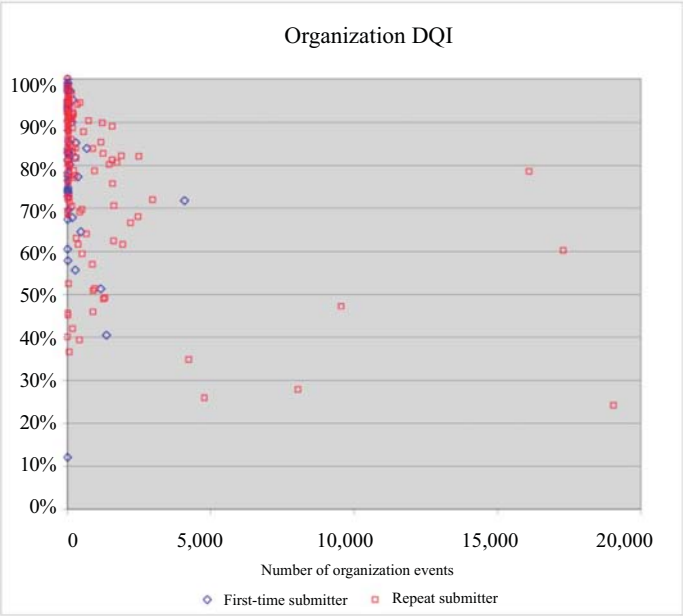
The decrease in the estimate of the number of damages is most likely due to less construction activity (see graph on the left) as well as an increased awareness of the total damage prevention process.

Data Quality Index Indications

The DQI consists of the evaluation of each organization that submitted records, in addition to the evaluation of each record submitted to DIRT. The overall average DQI improved from 50% in 2007 to 57% in 2008 (see DQI section of the 2007 Report). The breakdown of DQI for each individual part of the DIRT field form is illustrated in the table below. The weight assigned to the various DIRT parts varies based upon its value in analyzing the event for damage prevention purposes, with root cause receiving the largest weight. The DQI for a set of records can be obtained by averaging the individual DQI of each record. The "Percentage of Overall DQI" column in the table represents the average of all 135,621 events in the 2008 data set, a still disappointing (even if improved over 2007 and 2006) 57%. Each submitting organization has an average DQI, the average of these submitter DQIs is shown as the column labeled "Percentage of Organization DQI," and comes to 80%, a slight improvement over last year. There were 139 organizations who submitted data in both 2007 and 2008. Of these only 72 or 52% had improved their DQIs in 2008; the remaining 48% experienced a DQI decrease.

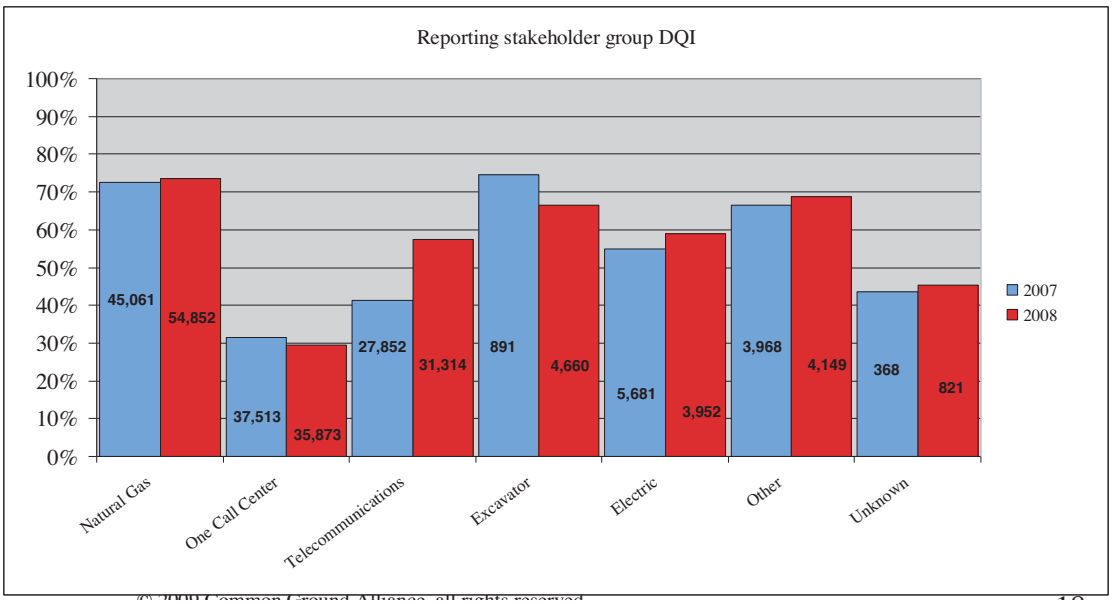
Field Form Section	Description & Weight	Percentage of Overall DQI	Percentage of Organization DQI
Part A	Who is submitting this information (5%)	**99%**	**98%**
Part B	Date and location of event (12%)	**66%**	**75%**
Part C	Affected facility information (12%)	**63%**	**87%**
Part D	Excavation information (14%)	**59%**	**83%**
Part E & F	Notification, locating & marking (12%)	**80%**	**95%**
Part G	Excavator downtime (6%)	**12%**	**49%**
Part H	Description of damage (14%)	**34%**	**74%**
Part I	Description of root cause (25%)	**55%**	**78%**
	Total weighted DQI	**57%**	**80%**

As mentioned in last year's report, the two DQI calculations differ due to a small number of organizations submitting a large quantity of records with poor DQI, which brings down the overall DQI. Conversely, a large number of submitters with few records but good DQI improved the organization DQI. It does not appear that there is a difference between the DQIs of first-time versus repeat submitters. This is illustrated in the chart below. The red dots indicate repeating stakeholder's submission of events, while the blue dots indicate first-time stakeholder's submission of events. Note that of the eight stakeholders submitting the most events, only three are above 60%, one of which is a first-time submitter, while another three are below 30%. One positive development is that the DQI contribution from both Part H and Part I, which are significantly weighted, have improved considerably over last year.



The chart below shows the DQI for reporting stakeholders for 2007 and 2008. Some Stakeholders show improvements while some are not improving. For instance, One Call Centers submit a significant percentage of all the records (26%), but their overall DQI is very low (29%), driving down the overall DQI. As indicated previously, less than 2% of records submitted by One Call Centers had a known root cause.

***Note*: The numbers in this bar chart indicate the number of records received for each stakeholder for the corresponding year.**



Prior Recommendations - Status

This section provides a status update on recommendations presented in prior reports. The DR&EC adopted three recommendation status choices:

1) Under Review — The recommendation is new or under consideration by the DR&EC.
2) In Progress — The recommendation is being acted upon.
3) Closed — The recommendation has been acted upon and is complete.

2004-7) The DR&EC should continue to develop ongoing metric(s) to help track damages and measure changes.

STATUS- In-Progress

Action Taken: Establishing ongoing base line metrics will enable the DR&EC to establish a consistent method of analyzing the number of facility events reported and facilities damaged, as well as monitor trends over time. The DR&EC is limited to metrics that are provided on an annual basis as well as the information provided by stakeholders. The OCSI continues to provide One Call activity information to be used as a possible baseline metric in response to the 2004-7 recommendation to define and collect baseline metrics. Several additional sources of information have been identified and recorded including: population migration, housing permits, housing starts, pavement miles, enforcement fines, apportioned federal highway funding, average bedrock depth, Associated General Contractors (AGC) employment and gross domestic product records. The DR&EC will continue to identify additional industry data sets to build upon the 2004-7 recommendation.

2006-1) The DR&EC should identify methods to improve the quality and completeness of event information.

STATUS – In Progress

Action Taken: The DR&EC will continue to track and report on overall DQI. It is expected that the DQI will continue to increase as stakeholders and users align their underground damage and near miss data collection and reporting processes to that of DIRT. Only with accurate and 'complete' data can meaningful analysis be made.

The DR&EC is willing to assist stakeholders and users with their data collection efforts to increase their DQI. Simply contact the DR&EC by submitting a "Feedback & Support" item on the DIRT website, www.cga-dirt.com.

The DR&EC noticed that events submitted by One Call Centers have a low DQI, and the major contributing factor is that 98% of the events had no known root cause identified. The DR&EC will seek opportunities to educate One Call Centers regarding data completion.

2007-1) The DR&EC should closely monitor whether facilities installed in a joint trench are less susceptible to damages. The share of 2007 events involving facilities known to be installed in a joint trench was 6%. However, only 21% of the 2007 events provided a Yes or No answer, and of that, 87% came from Region 6. Therefore, it is difficult to determine if

there may be unique circumstances in Region 6, or if there is a widespread correlation between facility events and joint trench installations.

STATUS – In Progress

Action Taken: In the 2008 data set the Joint-Trench field had a slightly higher (22%) percentage of records with a Yes or No answer provided, compared to 2007. The 2008 records were also more evenly distributed among the Regions. Of the records with an answer, 98.6% indicated that a joint trench was not used. The Yes answers ranged between 1% and 7% across the Regions. This may indicate that damage is less likely to occur in joint trench installations in most Regions. The DR&EC will continue to monitor this issue.

2007-2) The DR&EC should determine whether the type of locator has a direct relationship to the root cause of a damaged or near miss facility event. The DR&EC should analyze this relationship to determine the risks associated with contracting the location of facilities by a company that does not own the actual facility being located.

STATUS- In Progress

Action Taken: In the 2008 data set, there were 13,962 records which indicated a root cause in the "Locating Practices Not Sufficient" group, and also designated the type of locator involved in the incident. Of these, 73% were contract locators and 27% were utility owner locators. After further examination of this data, DR&EC noted these two groups had similar percentages of events indicating the "Locating Practices Not Sufficient" group.

Using records for which the type of locator and the root cause is known, the DR&EC calculated the root cause percentage for the "Locating Practices Not Sufficient" group for each type of locator. For 2008 it is 34.8% for contract locators and 33.5% for utility-owner locators. In 2007 it was 34.3% for contract locators and 37.1% for utility owner locators.

The type of locator does not appear to have an impact on the root cause group, "Locating Practices Not Sufficient."

2007-3) The DR&EC should determine if there is a correlation between facility events involving Service / Drop and Distribution facilities, categorized as "Notification NOT Made," and lack of a One Call notification requirement when hand digging. If a correlation is found, the Best Practices Committee should seek to identify practices that will educate involved stakeholders in an effort to decrease the number of these types of events in the future.

STATUS- In Progress

Action Taken: The DR&EC reviewed the various state laws to determine which do not require One Call notification when utilizing hand tools, and identified 22 states that did exempt notification when using hand tools (referred hereafter as "exempt" states). Of the 2008 facility events submitted to DIRT, there were 11,428 U.S. records with a known root cause involving "Hand Tools" as the equipment group – 4,458 in the 22 exempt states and 6,970 in the 28 non-exempt states. The 28 non-exempt states had a lower percentage of events with a root cause of "Notification NOT Made" at 60.2% versus 65.7% in the remaining 22 exempt states. It should still be noted that "Notification NOT Made" remains the largest single root cause of facility events with hand tools, in both exempt and non-exempt states.

The 5.5% difference is a statistically significant indicator that a One Call notice requirement, **even when only using hand tools**, may have an impact on reducing these events. Other factors, such as the level of enforcement of the applicable regulations along with other types of exemptions, education and marketing campaigns, etc. within the various states would also influence the results.

The DR&EC will continue to analyze the data for relationships such as this, and encourages the other CGA committees, such as Best Practices and Educational Programs and Marketing (Ed & M Committee), to use this information in their activities.

Recommendations 2008

2008-1) The DR&EC should continue to monitor variations in root causes reported by different reporting stakeholders. As discussed in the Data Element Analysis of Root Cause (Part I), approximately two-thirds of reports submitted by excavators listed a root cause from the "Locating Practices Not Sufficient" group. For the major utility operators, it was 20% to 25%. The disparity may be due to different points of view regarding how the actions of the excavator and facility operator contribute to an event, which events different stakeholders may choose (or not) to report, or some combination of these and other factors.

STATUS- Under Review

The DR&EC will use this information to work with CGA's Ed & M Committee to develop materials to encourage all stakeholders to report in a consistent manner.

The DR&EC will work with the CGA to foster education and training regarding root cause selection.

SUMMARY TABLE OF IMPORTANT DIRT DATA ELEMENTS

DIRT Data Summary Table		Share of known data		
		2006	**2007**	**2008**
Events Submitted		104,196	121,334	135,621
% CHANGE		102%	16%	12%
OCSI Regions submissions		8	8	8
*****See Section 1 Chart, Page 5.***				
Region 6		37%	32%	40%
Region 4		16%	18%	13%
Region 7		24%	17%	12%
Region 1		3%	12%	11%
Others		20%	21%	24%
Known stakeholder group submissions	:Events with Known Data	103,528	120,966	134,800
*****See Section 3 Chart, Page 6.***	known share of total events:	99%	100%	99%
Natural Gas stakeholder		43%	46%	41%
One Call stakeholder		21%	38%	27%
Telecommunications stakeholder		31%	23%	23%
Excavator stakeholder		0%	1%	3%
Electric stakeholder		4%	6%	3%
Others		1%	4%	3%
Type of Facility Operation Affected	:Events with Known Data	100,294	108,025	121,690
*****See Section 4 Table, Page 6.***	known share of total events:	96%	89%	90%
Natural Gas		49%	48%	52%
Telecommunications		42%	38%	37%
Electric		5%	8%	5%
Cable TV		2%	4%	4%
Others		2%	2%	2%
Type of Excavation Equipment	:Events with Known Data	59,427	70,642	82,835
*****See Section 5 Table, Page 7.***	known share of total events:	57%	58%	61%
Hoe / Trencher		70%	70%	63%
Handtool		15%	16%	20%
Drilling		8%	9%	11%
Other		7%	5%	6%
Type of Root Cause	:Events with Known Data	33,179	44,375	73,152
*****See Section 6 Table, Page 8.***	known share of total events:	32%	37%	54%
Excavation Practices Not Sufficient		38%	34%	37%
Notification NOT Made		38%	35%	37%
Location Practices Not Sufficient		18%	21%	22%
Notification Practices Not Sufficient		5%	9%	3%
Miscellaneous root causes		1%	1%	1%
Type of Excavator	:Events with Known Data	36,698	59,568	80,324
*****See Section 7 Table, Page 9.***	known share of total events:	35%	49%	59%
Contractor / Developer		80%	81%	78%
Occupant / Farmer		10%	8%	8%
Utility		5%	6%	7%
Government		5%	5%	7%
Type of Work Performed	:Events with Known Data	32,670	69,862	76,321
*****See Section 8 Table, Page 10.***	known share of total events:	31%	58%	56%
Sewer / Water		36%	31%	32%
Energy / Telecommunications		21%	24%	25%
Construction / Development		14%	11%	12%
Street / Roadway		13%	12%	11%
Landscape		9%	13%	10%
Fencing		5%	7%	7%
Agriculture		2%	2%	2%

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