



## THE SECRETARY OF TRANSPORTATION

WASHINGTON, DC 20590

October 9, 2014

The Honorable John D. Rockefeller IV  
Chairman  
Committee on Commerce, Science, and Transportation  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

On behalf of the U.S. Department of Transportation (DOT), I am pleased to submit this report to Congress in fulfillment of the requirements of Section 3 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (Act). The Act requires us to conduct a study on the impact of excavation damage on pipeline safety, and to report the results of the study no later than January 3, 2014.

Specifically, the we were asked to include: (A) an analysis of the frequency and severity of different types of excavation damage incidents; (B) an analysis of exemptions to the one-call notification system requirements in each State; (C) a comparison of exemptions to the one-call notification system requirements in each State to the types of excavation damage incidents in the State; and (D) an analysis of the potential safety benefits and adverse consequences of eliminating all exemptions for mechanized excavation from State one-call notification systems.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is the DOT agency responsible for administering the Department's national regulatory program to assure the safe transportation of gas, petroleum, and other hazardous materials by pipeline. To conduct this study, PHMSA held discussions with affected stakeholders, analyzed available incident data, and conducted a public forum on March 14, 2013, to discuss exemptions in State one-call damage prevention programs.

PHMSA's reportable incident data showed there were 1,630 pipeline incidents caused by third-party excavation damage from 1993 to 2012. These incidents resulted in 141 deaths, 440 injuries, and approximately \$369,736,529 in property damage. The data provides limited insight into whether the pipeline operators were notified of the excavations before damages occurred, and does not indicate whether entities causing pipeline damages were exempt from one-call laws of the States where the incidents occurred or if exemptions were the cause of the incidents.

The Common Ground Alliance (CGA) issues an annual report based on underground facility damage data submitted voluntarily and anonymously to its Damage Information Reporting Tool (DIRT). The 2012 DIRT Report included an analysis that compared State damage rates with information on one-call exemptions. The analysis suggests that exemptions for property owners from calling the one-call notification system, especially when coupled with exemptions for hand tools, can lead to higher percentages of damages. It also suggests that exemptions for agriculture

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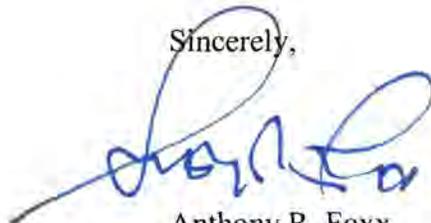
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Based on the study, stakeholder feedback, and other pipeline safety initiatives, PHMSA believes:

- 1) The lack of sufficient data to adequately study how exemptions to State damage prevention laws impact pipeline safety was a key issue affecting this study. Available information is incomplete, inconsistent, and inadequate; more data and extensive analyses are needed to fully understand and address the impacts of exemptions on pipeline safety. Due to the considerable variability among State damage prevention laws, data must be collected on a State-by-State basis. The necessary data must identify the root causes of excavation damages to pipelines, especially whether exemptions—real or assumed—are the root cause.
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The final study, titled "*A Study on the Impact of Excavation Damage on Pipeline Safety*," is enclosed. I have sent a similar letter to the Ranking Member of the Senate Committee on Commerce, Science, and Transportation; the Chairman and Ranking Member of the House Committee on Transportation and Infrastructure; and the Chairman and Ranking Member of the House Committee on Energy and Commerce. If I can provide further information or assistance, please feel free to call me.

Sincerely,



Anthony R. Foxx

Enclosure



## THE SECRETARY OF TRANSPORTATION

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October 9, 2014

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Ranking Member  
Committee on Commerce, Science, and Transportation  
United States Senate  
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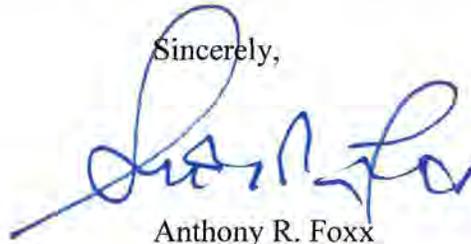
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Anthony R. Foxx

Enclosure



## THE SECRETARY OF TRANSPORTATION

WASHINGTON, DC 20590

October 9, 2014

The Honorable Bill Shuster  
Chairman  
Committee on Transportation and Infrastructure  
U.S. House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

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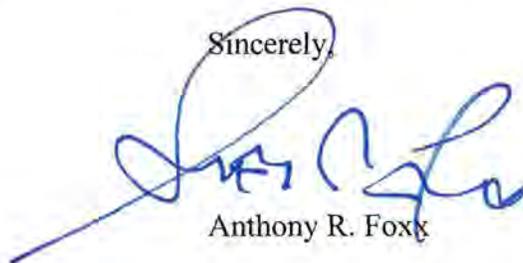
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Anthony R. Foxx

Enclosure



## THE SECRETARY OF TRANSPORTATION

WASHINGTON, DC 20590

October 9, 2014

The Honorable Nick Rahall, II  
Ranking Member  
Committee on Transportation and Infrastructure  
U.S. House of Representatives  
Washington, DC 20515

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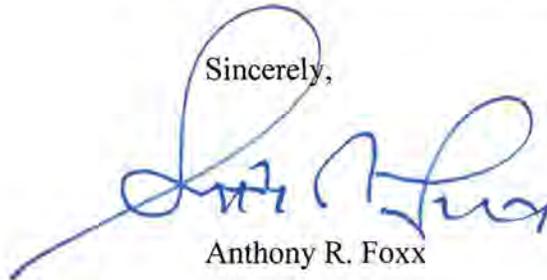
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U.S. House of Representatives  
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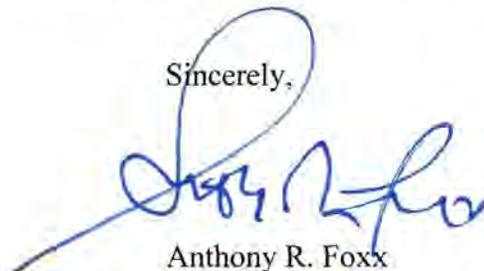
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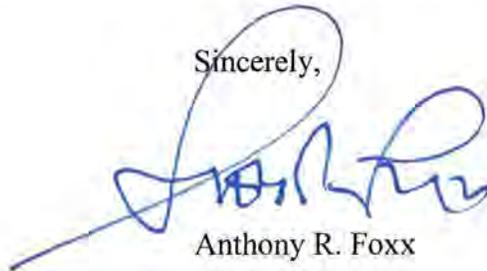
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U.S. Department of Transportation

Pipeline and Hazardous Materials Safety Administration

# A Study on the Impact of Excavation Damage on Pipeline Safety

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## Executive Summary

The U. S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) is the Federal regulatory authority for gas and hazardous liquid pipeline safety. The Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (Public Law 112-90, January 3, 2012) directed the Secretary of Transportation to conduct this study on the impact of excavation damage on pipeline safety, including the impact of removing all exemptions for mechanized equipment from State one-call laws. Exemptions enable excavators to dig without notifying pipeline and other underground facility operators of their intent and without getting the locations of underground facilities determined and marked so that the excavator can avoid damaging the facilities.

This study includes (1) an analysis of the frequency and severity of different types of excavation damage incidents, (2) an analysis of the one-call notification system requirements in each State, (3) a comparison of exemptions to the one-call notification system requirements in each State to the types of excavation damage incidents in that particular State, and (4) an analysis of the potential safety benefits and adverse consequences of eliminating all exemptions for mechanized excavation from State one-call notification systems.

Based on preliminary discussions with affected stakeholders and preliminary reviews of available data, PHMSA conducted this study recognizing there was little data available specific to the impacts of exemptions in State one-call laws on pipeline safety.

Data from PHMSA's reportable incident data files indicate whether pipeline incidents are caused by third-party excavation damage. From 1993 through 2012 there were 1,630 pipeline incidents caused by third-party excavation damage. These excavation-related pipeline incidents resulted in 141 deaths, 440 injuries, and approximately \$369,736,529 in property damages. The reportable incident data provides limited insight into whether the pipeline operators were notified of the excavations before damages occurred. However, the data do not support a thorough evaluation of whether entities causing pipeline damages were exempt from one-call laws of the States where the incidents occurred, or if exemptions were the cause of the incidents.

Given this information, PHMSA conducted a public forum to discuss exemptions in State one-call damage prevention programs. The purpose of the forum was to gather information relevant to this study, such as State or regional data, from stakeholders.

From the forum, it was identified that the Common Ground Alliance (CGA) issues an annual report based on underground facility damage data submitted voluntarily and anonymously to its Damage Information Reporting Tool (DIRT). The CGA is a member-driven association

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dedicated to ensuring public safety, environmental protection, and the integrity of services by promoting effective practices for the prevention of excavation damage to underground utilities/facilities. The 2012 DIRT Report included an analysis that compared State damage rates with information on one-call exemptions. The analysis suggests that exemptions for property owners, especially when coupled with exemptions for hand tools, can lead to higher percentages of damages caused by lack of one-call notification. It also suggests that exemptions for agriculture do not lead to higher rates of damages due to lack of notice.

For the States that were analyzed, the DIRT results also indicate that the damage rates for States with five or more notification exemptions is 108 percent greater than the rate for States with fewer than five notification exemptions. A similar analysis, performed by the United States Infrastructure Corporation (USIC) and based on information gathered during USIC's investigations of over 100,000 damages, also found that larger numbers of exemptions from State one-call laws coincided with increased damage rates.

Other stakeholders also contributed information during the forum, including but not limited to the Virginia State Corporation Commission, the Rhode Island Public Utilities Commission, the New Hampshire Utilities Commission, Pennsylvania One Call, and the Kansas Corporation Commission. Information gathered from these stakeholders varied considerably – some found that existing exemptions are supported by data, while others indicated that their data shows exemptions should be reconsidered. Overall, stakeholder input with respect to exemptions, was wide-ranging. Further detailed information concerning stakeholder input is provided in this report.

The lack of sufficient data to adequately study how exemptions to State damage prevention laws impact pipeline safety was a key issue affecting this study. Available data is incomplete, inconsistent, and inadequate; more data and extensive analysis is needed to fully understand and address the impacts of exemptions on pipeline safety. Due to the considerable variability among State damage prevention laws, data must be collected on a State-by-State basis. The necessary data must identify the root causes of excavation damages to pipelines, especially whether exemptions – real or assumed – are the root cause.

PHMSA believes that State one-call damage prevention laws should apply to all excavators. No entities should be exempt from the one-call notification process. Activity-based exemptions may be acceptable, but should be determined by individual States and should be supported by sufficient data showing specifically that they do not result in increased damages to underground facilities.

More targeted stakeholder education may be needed, particularly for groups that are exempted from excavation notification requirements and for those who may assume they are exempted. Many stakeholders expressed concerns that it is unlikely those affected by specific

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exemptions are fully aware of the State's damage prevention requirements. Additionally, stakeholders expressed concerns that some excavators may assume they are covered by exemptions and therefore fail to notify facility operators before digging, possibly endangering themselves and others.

## Introduction: Study on the Impact of Excavation Damage on Pipeline Safety

The Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) is the Federal regulatory authority for natural gas and hazardous liquid pipeline safety. PHMSA's mission is to protect people and the environment from the risks of hazardous materials transportation by establishing national policy, setting and enforcing standards, educating, and conducting research to prevent incidents. The Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (Public Law 112-90, January 3, 2012) (2011 Act) directed the Secretary of Transportation to conduct this study on the impact of excavation damage<sup>1</sup> on pipeline safety, including the impact of removing from State one-call laws all exemptions for excavating with mechanized equipment. As noted in the language of the 2011 Act:

49 U.S.C. Section 6103(d) Excavation Damage —

(1) Study — The Secretary of Transportation shall conduct a study on the impact of excavation damage on pipeline safety.

(2) Contents — The study shall include—

(A) an analysis of the frequency and severity of different types of excavation damage incidents;

(B) an analysis of exemptions to the one-call notification system requirements in each State;

(C) a comparison of exemptions to the one-call notification system requirements in each State to the types of excavation damage incidents in that State; and

(D) an analysis of the potential safety benefits and adverse consequences of eliminating all exemptions for mechanized excavation from State one-call notification systems.

(3) Report — Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Committee on Transportation and Infrastructure and the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the results of the study.

PHMSA conducted the study required by the 2011 Act. The results of the study are provided herein.

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<sup>1</sup> As defined by the Common Ground Alliance in Best Practices v10.0, "damage" is defined as "Any impact or exposure that results in the need to repair an underground facility due to a weakening or the partial or complete destruction of the facility, including, but not limited to, the protective coating, lateral support, cathodic protection, or housing for the line, device, or facility." 49 CFR Parts 192.614 and 195.442 require that each operator of a buried pipeline must carry out a written program to prevent damage to that pipeline from excavation.

## Background

### PHMSA Regulatory Jurisdiction Relative to State One-Call Laws

PHMSA has Federal regulatory authority over most natural gas and hazardous liquid pipeline operators to ensure the safety of our Nation's energy pipeline system. As noted on PHMSA's Stakeholder Communications website<sup>2</sup>, the energy transportation network of the United States consists of over 2.5 million miles of pipelines operated by approximately 3,000 companies, large and small. Based on data generated from annual reports<sup>3</sup> from pipeline operators, the network includes approximately:

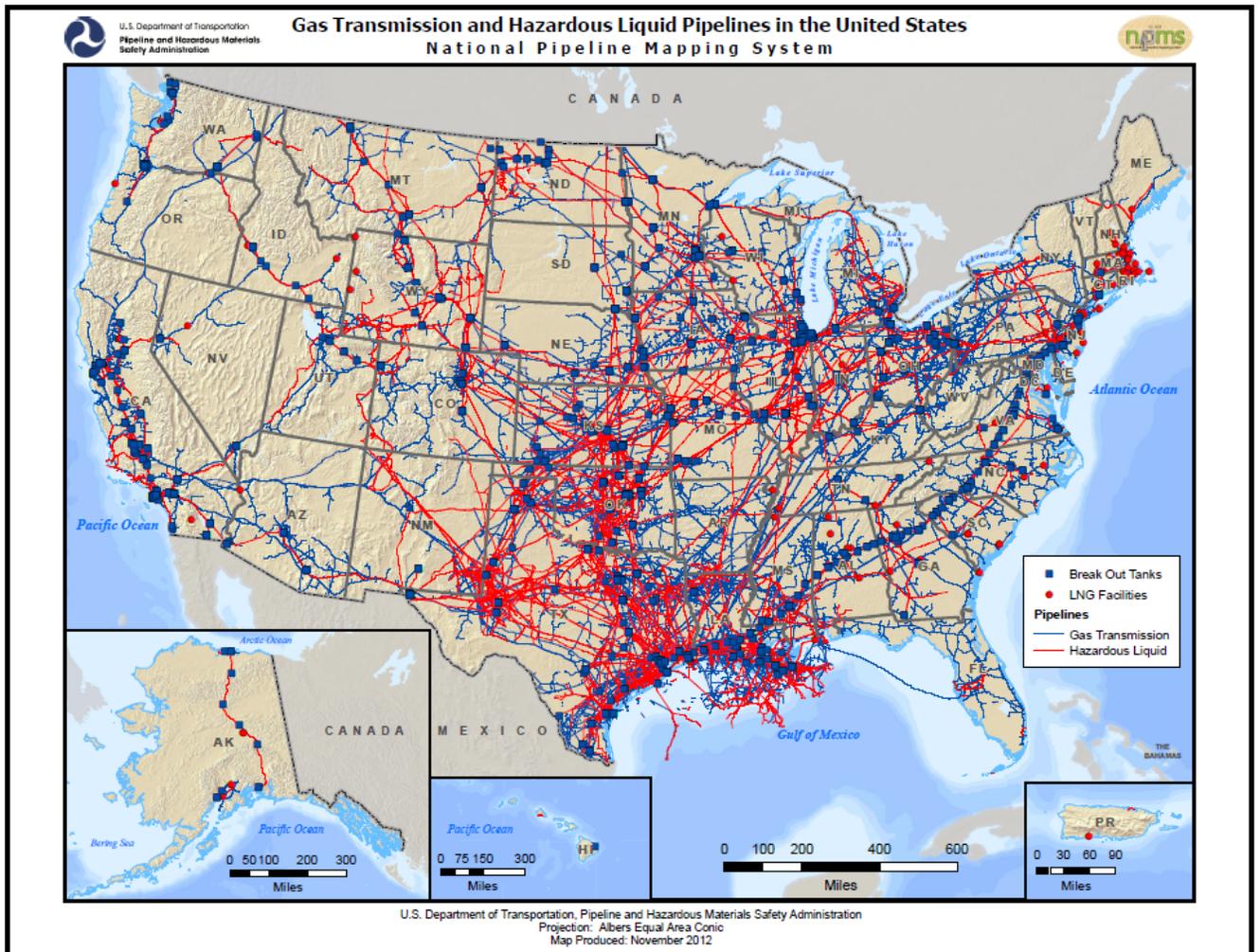
- 182,000 miles of hazardous liquid and carbon dioxide pipelines;
- 325,000 miles of onshore and offshore gas transmission and gathering systems pipelines;
- 2,145,000 miles of gas distribution mains and services pipelines;
- 129 liquefied natural gas (LNG) Facilities connected to our gas transmission and distribution systems; and

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<sup>2</sup> <http://primis.phmsa.dot.gov/comm>

<sup>3</sup> PHMSA Annual Report Mileage Summary Statistics as of June 28, 2013 (see [PHMSA Portal Site data](#)).

## Study on the Impact of Excavation Damage on Pipeline Safety



Federal pipeline safety regulations in 49 CFR Parts 190 through 199 address pipeline design, construction, operations and maintenance, emergency response, and various other considerations deemed critical to pipeline safety. Under regulations in Parts 192 and 195, pipeline operators are required to develop and implement continuing damage prevention programs and public awareness programs. Each operator is required to meet the damage prevention program requirements, in part, through participation in qualified one-call systems. PHMSA does not have regulatory jurisdiction over non-pipeline underground facility operators or damage prevention one-call centers.

On April 2, 2012, PHMSA issued a notice of proposed rulemaking (NPRM)<sup>4</sup> that seeks to revise the pipeline safety regulations in 49 CFR Parts 196 and 198 to:

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<sup>4</sup> Docket No. PHMSA-2009-0192

## Study on the Impact of Excavation Damage on Pipeline Safety

- Establish criteria and procedures for determining the adequacy of State pipeline excavation damage prevention law enforcement programs;
- Establish an administrative process for making adequacy determinations;
- Establish the Federal requirements PHMSA will enforce in States with inadequate excavation damage prevention law enforcement programs; and
- Establish the adjudication process for administrative enforcement proceedings against excavators where Federal authority is exercised.

Pursuant to the Pipeline Inspection, Protection, Enforcement, and Safety (PIPES) Act of 2006, establishment of review criteria for State excavation damage prevention law enforcement programs is a prerequisite should PHMSA find it necessary to conduct an enforcement proceeding against an excavator in the absence of an adequate damage prevention enforcement program in the State in which the violation occurs.

The development of these criteria and the subsequent determination of the adequacy of State excavation damage prevention law enforcement programs are intended to encourage States to develop effective excavation damage prevention law enforcement programs to protect the public from the risk of pipeline ruptures caused by excavation damage.

One criterion for evaluating the effectiveness of State damage prevention enforcement programs included in the NPRM is:

*Does the state limit exemptions for excavators from its excavation damage prevention law? A state must provide to PHMSA a written justification for any exemptions for excavators from state damage prevention requirements. PHMSA will make the written justifications available to the public.*

If this criterion is included in PHMSA's final rule on this proposed rulemaking, PHMSA will include the examination of exemptions as part of its oversight of State one-call enforcement programs.

### **Related Federal Law**

The 2011 Act amended Title 49 of the United States Code (49 U.S.C.) to improve safety and environmental protection in pipeline transportation. Included were changes that address pipeline damage prevention.

The Act directed that 49 U.S.C. Section 6103(a) be amended, effective January 3, 2014, to read as follows:

(a) Minimum Standards –

(1) In general – In order to qualify for a grant under [49 U.S.C.] section 6106, a State one-call notification program shall, at a minimum, provide for –

## Study on the Impact of Excavation Damage on Pipeline Safety

- (A) appropriate participation by all underground facility operators, including all government operators;
  - (B) appropriate participation by all excavators, including all government and contract excavators; and
  - (C) flexible and effective enforcement under State law with respect to participation in and use of, one-call notification systems.
- (2) Exemptions prohibited – A State one-call notification program may not exempt municipalities, State agencies, or their contractors from its one-call notification system requirements.

Additionally, the Act directed that 49 U.S.C. Section 60134(a) be amended, effective January 3, 2014, to read as follows:

- (a) IN GENERAL.—The Secretary may make a grant to a State authority (including a municipality with respect to intrastate gas pipeline transportation) to assist in improving the overall quality and effectiveness of a damage prevention program of the State authority under subsection (e) if the State authority—
- (1) has in effect an annual certification under section 60105 or an agreement under section 60106;
  - (2)(A) has in effect an effective damage prevention program that meets the requirements of subsection (b); or
  - (B) demonstrates that it has made substantial progress toward establishing such a program, and that such program will meet the requirements of subsection (b); and
  - (3) does not provide any exemptions to municipalities, State agencies, or their contractors from the one-call notification system requirements of the program.

Thus, the 2011 Act directed that the Secretary of Transportation may not award one-call or damage prevention assistance grants to States that exempt municipalities, State agencies, or their contractors from the State's one-call notification system requirements. PHMSA has identified the States impacted by these requirements and notified them of their grant eligibility status, and PHMSA has offered to support State efforts to address their current program exemptions.

### One-Call Process

“Call before you dig” and “one-call” are phrases synonymous with the practice of notifying the operators of underground facilities before excavating so that the operators may determine if they have facilities in the area of the planned excavation and, if so, accurately determine and mark the locations of those facilities so that the excavator can avoid damaging them while excavating.

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All States have damage prevention laws requiring that excavators notify underground facility operators before digging. A one-call notification center serves as a clearinghouse for excavators to request that underground facilities be located and marked before beginning excavation. Although there are exceptions, generally the excavator may make a single call to the one-call center, which will subsequently notify all member underground facility operators that have facilities in the excavation area. Each State is served by at least one one-call center. However, there is no national “call before you dig” or “one-call” law that requires excavators to notify facility operators in advance of digging.

In 2007, PHMSA, the damage prevention community, and the Federal Communications Commission established a nationwide, toll-free, three-digit telephone number—“811”—that enables an excavator to more easily reach the appropriate one-call center regardless of where the excavation is to occur.

Each State’s damage prevention law is unique in the particular State’s approach to requiring excavators to provide notification of their intent to excavate to affected facility operators. Most laws require the excavator to notify the facility operators 2 to 3 days before beginning excavation. Many States require hand-digging or “soft excavation” when excavating near underground facilities. However, State one-call damage prevention laws can vary considerably.

PHMSA’s goal is to support and encourage strong State damage prevention laws and programs. PHMSA has a broad array of initiatives underway to better understand and improve damage prevention. More information about these initiatives can be found at <http://primis.phmsa.dot.gov/comm/DamagePrevention>.

### One-Call Exemptions

State damage prevention laws may have language that exempts certain types of excavation activities or entities from full participation in the one-call process. Some exemptions may have a direct impact on pipeline safety.

The types of exemptions in one-call laws can include:

- Exemptions for certain types of excavating entities from the notification requirements. Examples include: State, county, and municipal government entities; pipeline and other underground facility operators; property owners; ranchers; and farmers. Often, there are certain requirements that must be met for the exemption to be valid, such as a limited depth of excavation.
- Exemptions for certain types of excavating activities from the notification requirements. Examples include: landscaping, gardening, tilling of soil for agricultural purposes (i.e. farming), routine road grading, maintenance, mining, and grave digging. Virtually all States exempt emergency excavations from their normal one-call notification requirements.

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These exemptions may specify other criteria, such as a maximum depth at which the excavation can occur.

- Exemptions from membership and/or participation in the one-call center. Some States have what is recognized as “mandatory participation.” In these States, entities that own or operate underground facilities must become members<sup>5</sup> of the one-call center that covers the geographic areas in which the operators have facilities. Other States may have what is recognized as “voluntary membership.” In these States, underground facility operators may, but are not required to, be members of the one-call center. There are variations for each of these approaches. For example, States that have mandatory membership requirements may exempt certain types of facility operators from participating as members.

If an underground facility operator is not a member of the one-call center, either through exemption or because the State does not require mandatory membership, that operator will not receive a notification from the one-call center when an excavator notifies the center about plans to excavate. Thus, the operator will have to conduct its own notification process, independent of the one-call center’s process, and the excavator will have to notify the operator individually. In this case, it will be incumbent upon the excavator to determine which operators may have facilities in the area and/or which operators to contact.

Examples of facility operators that may be exempt from mandatory membership requirements include municipal utilities, farmers and other property owners operating systems located entirely within the boundaries of the property they own, State transportation departments, and railroads. Other exemptions may be granted *de facto* in the definition that some States apply to “underground facility.”

## PHMSA’s Approach to Performing Exemptions Study

### Available Data Relative to State One-Call Exemptions

Based on preliminary discussions with affected stakeholders and preliminary reviews of available data, PHMSA determined that data and information were not sufficient to support an adequate evaluation of the impacts on pipeline safety of excavator notification exemptions to

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<sup>5</sup> Typically, a “member” of a one-call system is an underground facility operator having facilities located within the geographic area covered by the one-call system. Members provide and maintain current information regarding the geographic locations of their underground facilities, as prescribed by the one-call system. Members provide contact information to which inquiries may be directed as to the locations of the operator’s underground facilities. Members receive notification tickets from the one-call system when an excavator provides notice to the system that an excavation is planned in an area where the member has facilities. Member facility operators must respond to such notification tickets within a time and in a manner specified by state law.

## Study on the Impact of Excavation Damage on Pipeline Safety

State damage prevention laws. Data do not exist regarding exemptions as the cause of damage incidents.

The existence or lack of an exemption may or may not impact an excavator's decision to call before digging. Excavator awareness of the requirement (or lack of requirement) to call before digging cannot be effectively measured and overlaid with pipeline damage information. Information collection efforts cannot capture this level of detail. Information needed to address the requirements for this Study would require significant data mining, extensive analysis as well as thorough understanding of State one-call laws and regulations.

Data from PHMSA's reportable incident data files identify if pipeline incidents are caused by third-party excavation damage. The reportable incident data provide limited insight into whether the pipeline operators were notified of excavations before pipeline damages occurred. However, the data do not support a thorough evaluation of whether excavators causing pipeline damages were exempt from the one-call laws of the States in which the incidents occurred, or if such exemptions were the cause of the incident.

Based on this information, PHMSA conducted a public forum to discuss exemptions to State damage prevention laws. The forum provided stakeholders an opportunity to provide input and an opportunity for PHMSA to gather feedback and information about exemption-related pipeline damages.

The primary goals of the forum were to:

- (1) Provide a baseline understanding of existing exemptions and PHMSA's initiatives to address reauthorization requirements;
- (2) Discuss existing damage data, gaps in existing data, and data analysis to date;
- (3) Gain perspectives from those impacted by damage prevention exemptions, including:
  - a. Commonly exempted entities, such as agriculture, local government, railroads
  - b. State and local agencies
  - c. Pipeline operators
  - d. One-call centers
  - e. Utility locators
  - f. The public
- (4) Discuss strategies for a path forward.

Appendix A provides more information regarding the public forum.

PHMSA further extended its efforts to review available, relevant information provided by various damage prevention stakeholders. Appendix B documents the specific input received from damage prevention stakeholders, including:

- The pipeline industry and industry trade organizations;

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- The Common Ground Alliance (CGA);
- States, especially those that have gathered pipeline excavation damage incident data; and
- Other stakeholders.

Additionally, Appendix C provides relevant information gleaned from the CGA Damage Incident Reporting Tool (DIRT).

### Study Methodology

To address the exemptions study requirements outlined in the 2011 Act, PHMSA:

- Identified and consolidated available pipeline excavation damage data. This included:
  - Identifying excavation damage incidents by State from PHMSA's reportable incident<sup>6</sup> data files.
  - Consolidating input from pipeline industry trade organizations.
  - Evaluating CGA DIRT data.
  - Reviewing and consolidating relevant pipeline excavation damage data and other input shared by States.
- Examined incident report narrative details to determine to what extent the incidents could be tied to one-call exemptions.
- Utilized the results of those steps to:
  - Analyze the frequency and severity of different types of excavation damage incidents; and,
  - Compare exemptions to the one-call notification system requirements in each State to the types of excavation damage incidents in that State.
- Performed an analysis of exemptions to the one-call notification system requirements in each State.
- Performed an analysis of the potential safety benefits and adverse consequences of eliminating all exemptions for mechanized excavation from State one-call notification systems.

The steps noted above involved, to a large degree, a review of anecdotal input, feedback, and data from one-call system stakeholders. Also, in conducting this study PHMSA focused primarily on the impact of notification exemptions and less on one-call center membership exemptions, as excavator notification exemptions are more likely to have a direct impact on pipeline safety. However, it is recognized that one-call membership exemptions can have an impact on pipeline

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<sup>6</sup> Pipeline incidents and accidents (incidents) are reported to PHMSA by pipeline operators in accordance with reporting criterion in place at the time of the incident. Reporting criteria has changed over time.

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safety. Two examples of such exemptions include those for unregulated gas gathering lines and sewer lines.

PHMSA currently does not regulate some gas gathering lines. Since some States align their one-call membership requirements for pipeline operators with Federal pipeline safety regulations, operators of unregulated gathering pipelines in those States may be exempt from State one-call membership requirements.

One-call membership exemptions for sewer operators may contribute to unintentional cross bores of natural gas pipelines. Cross bores are defined as an intersection of an existing underground utility or underground structure by a second utility, resulting in direct contact between the transactions of the utilities that compromises the integrity of either utility or underground structure. Cross bores can occur, for example, when a natural gas pipeline, usually a gas service line, is installed by means of directional drilling that inadvertently bores through a sewer line. Cross bores are more likely to occur when sewer operators are exempt from one-call membership requirements and don't have to mark their lines. When gas line installers are not aware of the existence of the sewer lines they can cross bore the gas line and create an obstruction in the sewer line. Subsequently, tools used to clear the obstructed sewer line can damage the obstructing gas line, often without the knowledge of the person clearing the sewer line.<sup>7</sup>

### **Analysis of the Frequency and Severity of Excavation Damage Incidents**

*49 U.S.C. Section 6103 (d)(2) The study shall include — (A) an analysis of the frequency and severity of different types of [pipeline] excavation damage incidents;*

Data from PHMSA's reportable incident files were used to analyze incidents of excavation damage occurring to pipelines. The only types of incidents of concern to the study were those caused by third-party excavation damage. Pipeline excavation damages caused by the pipeline operator (first-party) or the operator's contractor (second-party) were not considered in the analysis. Under Federal pipeline safety requirements, regulated pipeline operators and their contractors must participate in qualified one-call systems. Exemptions would not impact any excavation incidents caused by these entities.

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<sup>7</sup> More information about cross bores can be found on the Cross Bore Safety Association website at <http://www.crossboresafety.org/>.

## Frequency of Third-Party Excavation Damage Incidents

Incident data reported to PHMSA is aggregated by pipeline type: gas distribution, gas transmission, gas gathering and hazardous liquid. The data shown in Tables 1a, 1b, and 1c are from PHMSA data files dated June 28, 2013.<sup>8</sup> These data pertain only to regulated pipelines.

Pipeline Type	Total Number of 3 <sup>rd</sup> -Party Incidents Reported	Number of Significant 3 <sup>rd</sup> -Party Incidents	Percent Significant <sup>9</sup>
Gas Distribution	924	544	58.9
Gas Transmission (Onshore Only)	290	147	50.7
Gas Gathering	14	6	42.9
Hazardous Liquid (Onshore Only)	402	357	88.8

Table 1b shows, for the reporting period noted, the average frequency of third-party excavation damage incidents (average number of incidents reported annually) and the average annual number of those incidents that were significant. All numbers have been rounded to the nearest whole number.

Pipeline Type	Average Annual Number of 3 <sup>rd</sup> -Party Incidents	Average Annual Number of Significant 3 <sup>rd</sup> -Party Incidents
Gas Distribution	46	27
Gas Transmission (Onshore Only)	15	7
Gas Gathering	Less than 1	Less than 1
Hazardous Liquid (Onshore Only)	20	18

<sup>8</sup> Source: All Reported Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/AIIPSI.html?nocache=4193>).

<sup>9</sup> PHMSA defines Significant Incidents as incidents reported by pipeline operators that meet certain specifically defined consequences, including fatalities, injuries requiring hospitalization, a minimum value for property damage, value or volume of product lost, or releases resulting in unintentional fire or explosion.

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Table 1c shows the percentages of all reported pipeline incidents and all reported significant incidents caused by third-party excavation damage, and it indicates that there is a downward trend in the percentages of reported incidents caused by third-party excavation damage. Table 1c shows incident data for 20-, 10-, 5-, and 3-year periods.

<b>Table 1c: Percentage of Reported Pipeline Incidents Caused by Third-Party Damage</b>				
Data Period	Number of All Reported Pipeline Incidents <sup>(A)</sup>	Percentage Caused by Third-Party Damage	Number of Significant Incidents <sup>(B)</sup>	Percentage Caused by Third-Party Damage
<b>Gas Distribution Pipelines</b>				
20 years (1993 – 2012)	2,620	35.2	1,556	34.9
10 years (2003 – 2012)	1,414	30.0	732	29.6
5 years (2008 – 2012)	640	21.4	315	21.5
3 years (2010 – 2012)	338	18.9	167	22.1
<b>Gas Transmission Pipelines (Onshore Only)</b>				
20 years (1993 – 2012)	1,519	15.4	922	12.1
10 years (2003 – 2012)	922	12.0	559	9.2
5 years (2008 – 2012)	457	9.0	275	6.9
3 years (2010 – 2012)	272	8.9	168	7.4
<b>Gas Gathering</b>				
20 years (1993 – 2012)	223	6.2	135	4.4
10 years (2003 – 2012)	157	1.9	101	0.9
5 years (2008 – 2012)	74	0.0	46	0.0
3 years (2010 – 2012)	28	0.0	16	0.0
<b>Hazardous Liquid Pipelines (Onshore Only)</b>				
20 years (1993 – 2012)	5,592	7.0	2,630	13.1
10 years (2003 – 2012)	3,572	3.7	1,186	9.6
5 years (2008 – 2012)	1,753	3.5	606	9.0
3 years (2010 – 2012)	1,049	3.3	380	7.6

## Study on the Impact of Excavation Damage on Pipeline Safety

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A - All Reported Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/AllPSI.html?nocache=4193>).

B – Significant Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/SigPSI.html?nocache=2106>)

The reducing trends shown in the number and percentage of pipeline incidents attributed to third-party excavation damage coincide with the extensive excavation damage prevention awareness and education efforts implemented by various stakeholders over the last 15 years. PHMSA continues to partner with stakeholders to identify and promote efforts that reduce excavation damage to pipelines and other underground facilities. In completing this study regarding the impacts on pipeline safety of exemptions to State damage prevention laws, PHMSA is helping to address one more aspect of reducing excavation damage.

### **Severity of Third-Party Excavation Damage Incidents**

Tables 2a through 2e identify the severity of reported third-party excavation damage incidents involving pipelines. The severity is measured as consequences in terms of fatalities, numbers of injuries, and estimated costs in property damage resulting from the incidents.

## Study on the Impact of Excavation Damage on Pipeline Safety

<b>Table 2a: Consequences of Reported Third-Party Excavation Damage Incidents*</b>						
<b>Gas Distribution Pipelines</b>						
Year	# Third-party Damage Incidents	% of Total Annual Number of Incidents	Fatalities	Injuries	Property Damage	% Total Annual Property Damage
1993	48	39.6%	9	23	\$7,024,355	45.9%
1994	47	33.3%	8	42	\$8,127,272	15.2%
1995	47	48.4%	4	20	\$6,470,046	59.0%
1996	46	41.8%	38	72	\$9,391,085	57.7%
1997	38	37.2%	5	14	\$6,501,913	52.0%
1998	61	44.5%	12	31	\$11,581,980	60.7%
1999	51	43.2%	14	31	\$18,708,158	72.1%
2000	66	42.8%	3	14	\$7,325,272	31.3%
2001	61	49.1%	1	18	\$5,440,371	38.6%
2002	34	33.3%	2	7	\$9,340,723	39.2%
2003	69	48.9%	4	33	\$10,338,725	49.1%
2004	58	33.7%	1	6	\$10,815,002	28.8%
2005	64	37.6%	2	7	\$9,488,992	1.9%
2006	45	32.1%	5	13	\$6,930,039	29.1%
2007	52	34.4%	2	6	\$6,703,769	25.8%
2008	33	22.7%	2	14	\$6,731,971	17.3%
2009	40	25.4%	1	7	\$4,835,241	15.1%
2010	20	16.0%	2	3	\$2,507,209	12.0%
2011	28	22.5%	2	10	\$3,789,440	17.1%
2012	16	17.9%	1	5	\$7,975,105	31.6%
<b>Relevant Totals</b>	<b>924</b>		<b>118</b>	<b>376</b>	<b>\$160,026,668.00</b>	

\* All Reported Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/AIPLSI.html?nocache=4193>). The costs presented here are nominal (that is, as reported by the Operator at the time of the incident) and are not adjusted to account for commodity cost fluctuations or general inflation.

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<b>Table 2b: Consequences of Reported Third-Party Excavation Damage Incidents*</b>						
<b>Gas Transmission Pipelines (Onshore Only)</b>						
Year	# Third-party Damage Incidents	% of Total Annual Number of Incidents	Fatalities	Injuries	Property Damage	% Total Annual Property Damage
1993	15	16.1%	0	2	\$682,930	2.9%
1994	9	12.1%	0	6	\$26,563,205	60.5%
1995	12	22.2%	0	2	\$1,414,000	14.5%
1996	26	34.2%	1	1	\$2,543,387	19.4%
1997	15	22.0%	0	3	\$743,786	6.3%
1998	18	20.4%	1	2	\$3,922,598	9.4%
1999	11	22.4%	1	2	\$956,284	5.4%
2000	15	19.7%	3	7	\$1,907,100	11.2%
2001	20	26.6%	0	0	\$4,349,580	31.6%
2002	11	15.0%	1	1	\$1,038,455	4.0%
2003	13	13.9%	1	2	\$2,668,275	5.4%
2004	22	21.3%	0	0	\$2,540,239	7.1%
2005	19	11.8%	0	1	\$2,295,446	0.7%
2006	18	13.8%	3	0	\$3,711,074	9.0%
2007	16	14.4%	1	0	\$2,490,431	4.0%
2008	12	9.8%	0	0	\$1,374,488	0.5%
2009	9	8.5%	0	0	\$3,958,999	7.0%
2010	11	10.2%	2	7	\$2,885,780	0.7%
2011	9	7.8%	0	0	\$1,170,990	1.2%
2012	9	8.7%	0	2	\$1,892,265	3.7%
<b>Relevant totals</b>	<b>290</b>		<b>14</b>	<b>38</b>	<b>\$69,109,312.00</b>	

\* All Reported Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/AIIPSI.html?nocache=4193>). The costs presented here are nominal (that is, as reported by the Operator at the time of the incident) and are not adjusted to account for commodity cost fluctuations or general inflation.

Study on the Impact of Excavation Damage on Pipeline Safety

<b>Table 2c: Consequences of Reported Third-Party Excavation Damage Incidents*</b>						
<b>Gas Gathering Pipelines</b>						
Year	# Third-party Damage Incidents	% of Total Annual Number of Incidents	Fatalities	Injuries	Property Damage	% Total Annual Property Damage
1993	0	0.0	0	0	\$0	0.0
1994	1	14.2%	0	0	\$417,975	32.3%
1995	0	0.0	0	0	\$0	0.0
1996	0	0.0	0	0	\$0	0.0
1997	1	20.0%	0	0	\$200,000	47.6%
1998	1	9.0%	0	0	\$600,000	20.9%
1999	0	0.0	0	0	\$0	0.0
2000	0	0.0	0	0	\$0	0.0
2001	6	50.0%	0	0	\$7,830,542	78.7%
2002	2	22.2%	0	0	\$24,000	1.8%
2003	1	25.0%	0	0	\$45,000	2.5%
2004	1	5.0%	0	0	\$100,000	0.3%
2005	0	0.0	0	0	\$0	0.0
2006	1	6.2%	0	0	\$29,141	0.2%
2007	0	0.0	0	0	\$0	0.0
2008	0	0.0	0	0	\$0	0.0
2009	0	0.0	0	0	\$0	0.0
2010	0	0.0	0	0	\$0	0.0
2011	0	0.0	0	0	\$0	0.0
2012	0	0.0	0	0	\$0	0.0
<b>Relevant totals</b>	<b>14</b>		<b>0</b>	<b>0</b>	<b>\$9,246,658.00</b>	

\* All Reported Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/AllPSI.html?nocache=4193>). The costs presented here are nominal (that is, as reported by the Operator at the time of the incident) and are not adjusted to account for commodity cost fluctuations or general inflation.

Study on the Impact of Excavation Damage on Pipeline Safety

<b>Table 2d: Consequences of Reported Third-Party Excavation Damage Incidents*</b>						
<b>Hazardous Liquid Pipelines (Onshore Only)</b>						
Year	# Third-party Damage Incidents	% of Total Annual Number of Incidents	Fatalities	Injuries	Property Damage	% Total Annual Property Damage
1993	41	17.9%	0	0	\$3,115,344	10.7%
1994	27	11.0%	0	1	\$2,460,493	3.9%
1995	29	15.4%	0	4	\$3,321,530	10.2%
1996	30	15.4%	1	6	\$9,722,059	11.4%
1997	27	15.7%	0	3	\$4,140,076	7.5%
1998	17	11.1%	0	1	\$13,790,000	21.7%
1999	22	13.1%	1	0	\$9,226,500	10.6%
2000	28	19.1%	1	3	\$7,000,330	4.6%
2001	21	16.1%	0	1	\$3,515,000	13.8%
2002	22	4.7%	0	0	\$2,945,120	5.7%
2003	18	4.1%	0	0	\$5,681,045	8.4%
2004	21	5.5%	5	3	\$7,043,076	4.2%
2005	11	2.9%	0	1	\$3,389,365	1.1%
2006	12	3.3%	0	0	\$3,497,059	4.6%
2007	13	3.9%	0	2	\$9,530,754	15.6%
2008	15	4.0%	0	0	\$6,820,211	4.6%
2009	13	3.8%	0	0	\$3,929,919	5.3%
2010	12	3.4%	1	1	\$16,329,861	1.5%
2011	16	4.6%	0	0	\$12,230,547	4.9%
2012	7	1.9%	0	0	\$3,665,602	3.0%
<b>Relevant totals</b>	<b>402</b>		<b>9</b>	<b>26</b>	<b>\$131,353,891.00</b>	

\* All Reported Pipeline Incidents (<http://primis.phmsa.dot.gov/comm/reports/safety/AllPSI.html?nocache=4193>). The costs presented here are nominal (that is, as reported by the Operator at the time of the incident) and are not adjusted to account for commodity cost fluctuations or general inflation.

For comparison, the total resulting impacts of those incidents, as shown in tables 2a through 2d, are noted in Table 2e below.

## Study on the Impact of Excavation Damage on Pipeline Safety

<b>Table 2e: Comparison of Consequences of Third-party Excavation Damage Incidents Over 20 Years</b>				
Pipeline Type	# Third-party Damage Incidents	Fatalities	Injuries	Property Damage
Gas Distribution	924	118	376	\$160,026,668.00
Gas Transmission	290	14	38	\$69,109,312.00
Gas Gathering	14	0	0	\$9,246,658.00
Hazardous Liquid	402	9	26	\$131,353,891.00
<b>Totals</b>	<b>1630</b>	<b>141</b>	<b>440</b>	<b>\$369,736,529.00</b>

Table 2e shows that the highest proportion of impacts resulting from third-party excavation damage to pipelines, based on the number of deaths, injuries, and cost of property damage, can be associated with gas distribution pipeline systems.

- The number of gas distribution incidents caused by third-party excavation damage exceeds that of gas transmission incidents caused by third-party excavation damage by about 218 percent and exceeds the number of hazardous liquid incidents caused by third-party excavation damage by about 130 percent.
- The number of fatalities resulting from gas distribution pipeline incidents caused by third-party excavation damage is about 742 percent higher than the number of fatalities resulting from gas transmission pipeline incidents caused by third-party excavation damage and about 1,211 percent higher than the number of fatalities resulting from hazardous liquid pipeline incidents caused by third-party excavation damage.
- The number of injuries resulting from gas distribution pipeline incidents caused by third-party excavation damage is about 889 percent higher than the number of injuries resulting from gas transmission pipeline incidents caused by third-party excavation damage and about 1,346 percent higher than the number of injuries resulting from hazardous liquid pipeline incidents caused by third-party excavation damage.
- Finally, the property damage cost resulting from gas distribution pipeline incidents caused by third-party excavation damage is about 131 percent higher than the property damage cost resulting from gas transmission pipeline incidents caused by third-party excavation damage and about 21 percent higher than the property damage cost resulting from hazardous liquid pipeline incidents caused by third-party excavation damage.
- The comparative numbers for gas gathering pipeline systems are too low to be of relevant significance.

## Study on the Impact of Excavation Damage on Pipeline Safety

Figure 1 shows that excavation damage and other outside force damage are the two single largest contributors to natural gas distribution pipeline incidents. Third-party damage is the largest cause of excavation damage, causing 30 percent of all gas distribution pipeline incidents over the 10-year period.

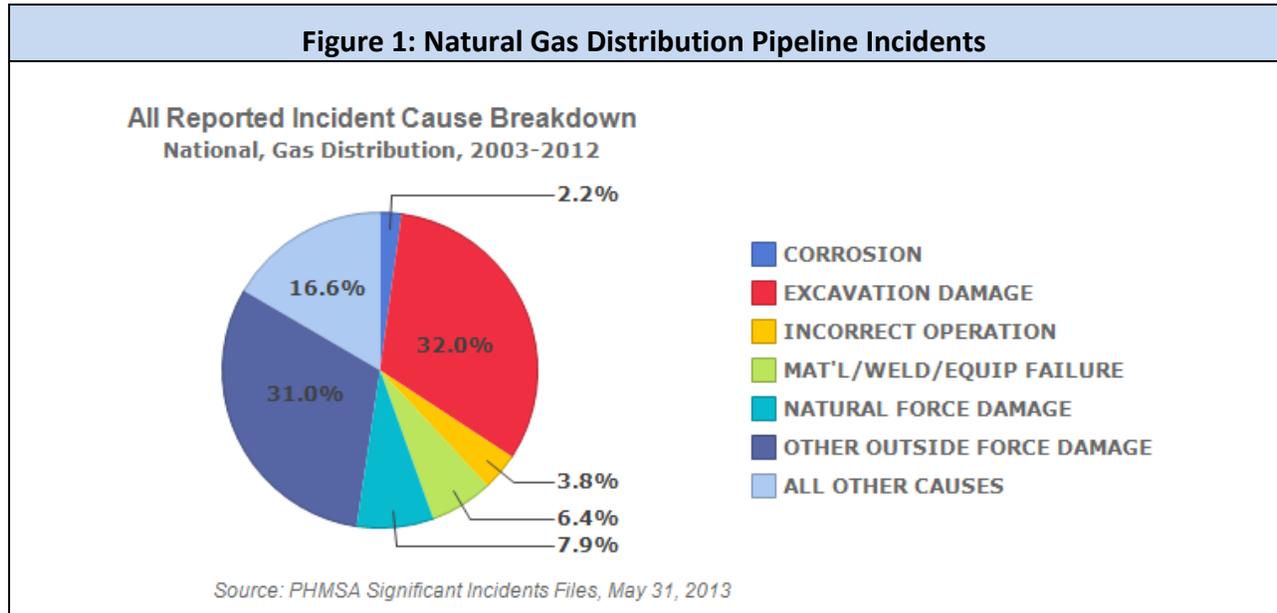
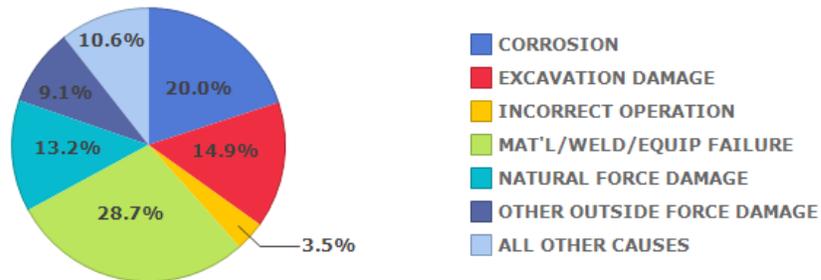


Figure 2 shows that excavation damage is the cause of a much smaller portion of incidents for gas transmission, gas gathering, and hazardous liquid pipelines, than for distribution pipelines.

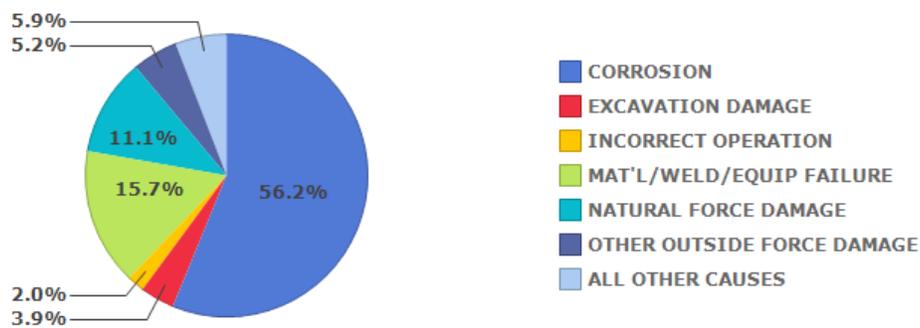
**Figure 2: Gas Transmission, Gas Gathering, and Hazardous Liquid Pipeline Incidents**

**All Reported Incident Cause Breakdown  
National, Gas Transmission, 2003-2012**



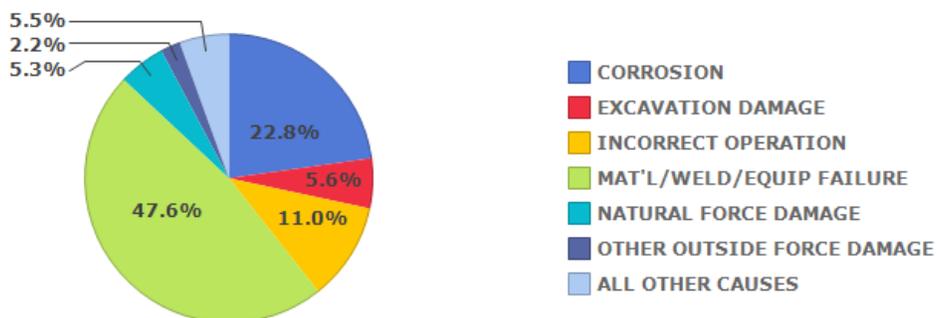
Source: PHMSA Significant Incidents Files, May 31, 2013

**All Reported Incident Cause Breakdown  
National, Gas Gathering, 2003-2012**



Source: PHMSA Significant Incidents Files, May 31, 2013

**All Reported Incident Cause Breakdown  
National, Hazardous Liquid, 2003-2012**



Source: PHMSA Significant Incidents Files, May 31, 2013

## **Analysis of Exemptions to State One-Call Notification System Requirements**

*49 U.S.C. Section 6103(d)(2) The study shall include — (B) an analysis of exemptions to the one-call notification system requirements in each State;*

### **State One-Call Excavation Damage Prevention Laws**

All 50 States, the District of Columbia, and Puerto Rico have established excavation damage prevention laws. Those laws require, to varying degrees of specificity, that underground facility operators, including pipeline operators, participate in the one-call process to be notified when an excavation is planned near their facilities and locate and mark the locations of their facilities to prevent excavation damage. State laws also require, again to varying specificity, excavators to call a one-call center prior to digging to notify facility operators of planned excavations. Some States also have established administrative rules and regulations to add specificity and detail to their laws.

State damage prevention laws often include exemptions for either the excavator, the facility operator, or, in some cases, both.

### **Facility Operator Membership Exemptions**

State damage prevention laws impose requirements on underground facility operators for membership or participation in the one-call system. Most States make membership mandatory, while some impose requirements on the facility operators that are essentially equivalent to mandatory membership or participation.

The majority of State laws specify membership exemptions for particular groups or types of facility operators. Also, some one-call membership exemptions are established by limiting the definition of “underground facility”. However, under Federal Pipeline Safety Regulations [49 CFR § 192.614](#) and [§ 195.442](#), “Damage Prevention Program”, for gas and hazardous liquid pipelines respectively, each pipeline operator must carry out a written program to prevent damage to the pipeline from excavation activities, which includes participation in a qualified one-call system<sup>10</sup>. Therefore, PHMSA did not include an analysis of membership exemptions in this study.

### **Excavator Exemptions**

The damage prevention laws of all States, except Arizona and Wisconsin, provide certain exemptions from the requirement to provide an excavator notice for particular types and/or

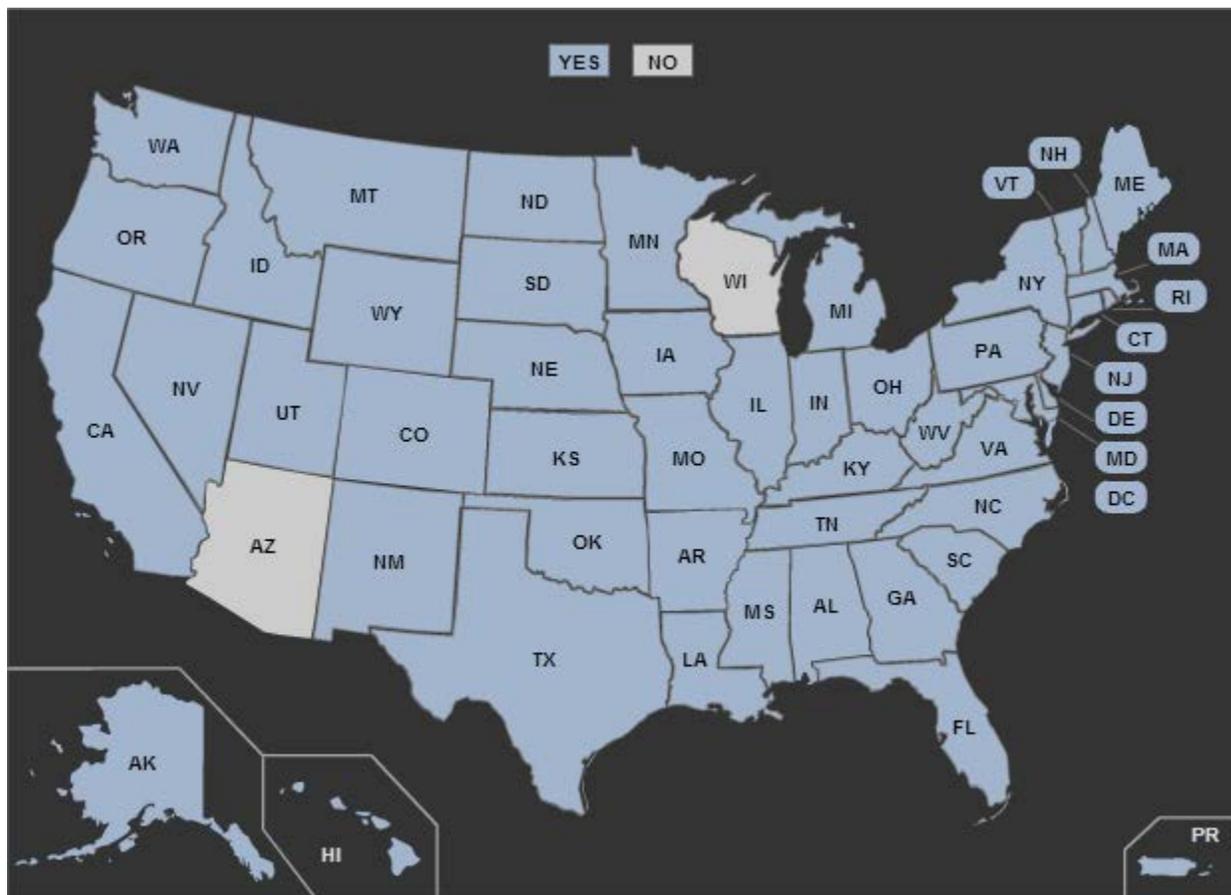
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<sup>10</sup> To be considered “qualified” a one-call system must meet the requirements of section (b)(1) or (b)(2) of § 192.614 or § 195.442, as applicable .

## Study on the Impact of Excavation Damage on Pipeline Safety

methods of excavation or for specific groups of excavators. These exemptions allow an excavation to begin without the need to notify the one-call center or facility operator and are the exemptions most likely to directly impact pipeline safety. These exemptions frequently include, for example, excavations performed by State or local government entities, excavations for agricultural or farming operations, excavations during emergencies, and excavations performed by hand-digging to a specified maximum depth.

**Figure 4: States with Excavator One-Call Notification Exemptions**



Source: PHMSA Stakeholder Communications Website (<http://primis.phmsa.dot.gov/comm/DamagePreventionSummary.htm>)

Following is a list of excavator groups and types of excavation often exempted, as determined from an assessment of State damage prevention laws.

Excavator Groups Exempted
<ul style="list-style-type: none"> <li>• Pipeline operators</li> <li>• Other facility operators</li> </ul>

Excavation Types Exempted
<ul style="list-style-type: none"> <li>• Road and/or ditch grading</li> <li>• Mining, forestry, quarrying and other industrial</li> </ul>

## Study on the Impact of Excavation Damage on Pipeline Safety

<ul style="list-style-type: none"><li>• Railroads</li><li>• State governments</li><li>• Local governments</li><li>• Property owners</li><li>• Agricultural, ranching, farming stakeholders</li></ul>	<p>activities</p> <ul style="list-style-type: none"><li>• Routine farming activities, like tilling</li><li>• Landscape maintenance</li><li>• Cemetery operations</li><li>• Hand or “soft” digging</li><li>• Digging to limited depth</li></ul>
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Thus, various State laws exempt:

- Certain types or groups of excavators from the requirement to call before digging to have underground facilities located and marked;
- Certain types of excavation from the requirement to call before digging; and
- Some types or groups of underground facility operators from the requirement for one-call membership/participation.

Relevant to one-call exemptions, it is possible that pipeline incidents have resulted from:

- Excavators being exempt from the one-call requirements;
- Excavators assuming they were exempt from the one-call requirements.
- Certain types of excavation being exempt from one-call requirements; or
- The pipeline operator being exempt from one-call participation and not notified of the excavation. However, this is generally not the case for regulated pipelines.

Table 3 illustrates the different types of excavator notice exemptions that are incorporated in various State damage prevention laws. These are exemptions for particular types of excavations, for excavations by particular groups of excavators, or excavations that limited by other specific criteria. Note that the Arizona statute does not provide exemptions per se. However, Arizona Revised Statute 40-360.28 provides that civil penalties for violations of the statute are not applicable to certain excavations made under specific conditions.

Study on the Impact of Excavation Damage on Pipeline Safety

**Table 3: Types of Excavator Notice Exemptions**

State	For Emergencies	By Pipeline Operators	By Other Facility Operators	By Railroads on Railroad Property	By State or Local Governments	For Road or Ditch Grading	For Agriculture, Farming, or Ranching	For Mining, Forestry, or Industrial Activity	By Property Owners on Their Property	Limited to a Specific Depth	Performed by Hand-Digging or "Soft"-Digging	For Routine Landscape Maintenance	For Cemetery Openings	For/By Other Specified Excavations/Excavators
Alabama		X			X		X		X	X		X		
Alaska							X			X				
Arizona*														
Arkansas	X				X		X					X		
California									X					
Colorado	X						X		X		X	X		
Connecticut							X				X			
Delaware	X						X		X	X				
Florida	X	X	X	X	X		X	X	X	X	X			X
Georgia	X			X	X		X			X				
Hawaii		X	X						X					X
Idaho				X	X		X	X		X				X
Illinois				X			X	X			X			X
Indiana		X						X	X	X	X			
Iowa					X		X					X		X
Kansas	X			X	X		X							X
Kentucky	X	X	X					X	X		X			X
Louisiana		X	X						X					
Maine						X		X					X	X
Maryland	X								X		X			
Massachusetts								X			X			
Michigan											X			
Minnesota	X					X	X	X					X	
Mississippi							X			X	X			
Missouri	X						X			X	X			X

Study on the Impact of Excavation Damage on Pipeline Safety

**Table 3: Types of Excavator Notice Exemptions**

State	For Emergencies	By Pipeline Operators	By Other Facility Operators	By Railroads on Railroad Property	By State or Local Governments	For Road or Ditch Grading	For Agriculture, Farming, or Ranching	For Mining, Forestry, or Industrial Activity	By Property Owners on Their Property	Limited to a Specific Depth	Performed by Hand-Digging or "Soft"-Digging	For Routine Landscape Maintenance	For Cemetery Openings	For/By Other Specified Excavations/Excavators
Montana						X				X	X			
Nebraska				X		X	X				X		X	X
Nevada														X
New Hampshire							X				X			X
New Jersey							X			X	X	X		X
New Mexico									X		X			
New York	X						X				X			X
North Carolina	X				X	X	X		X		X			X
North Dakota	X			X		X	X			X		X	X	
Ohio								X	X	X				
Oklahoma					X		X	X	X		X	X	X	
Oregon	X						X		X	X				
Pennsylvania					X	X	X	X		X	X			
Rhode Island							X				X			
South Carolina					X	X	X		X	X	X			X
South Dakota		X				X	X	X		X			X	
Tennessee							X							X
Texas	X	X	X	X	X	X	X	X	X	X			X	
Utah	X						X		X					
Vermont	X					X	X				X	X		
Virginia	X			X		X	X	X	X	X	X			
Washington	X					X	X		X	X				X
West Virginia	X				X	X	X	X		X		X		
Wisconsin														

**Table 3: Types of Excavator Notice Exemptions**

State	For Emergencies	By Pipeline Operators	By Other Facility Operators	By Railroads on Railroad Property	By State or Local Governments	For Road or Ditch Grading	For Agriculture, Farming, or Ranching	For Mining, Forestry, or Industrial Activity	By Property Owners on Their Property	Limited to a Specific Depth	Performed by Hand-Digging or "Soft"-Digging	For Routine Landscape Maintenance	For Cemetery Openings	For/By Other Specified Excavations/Excavators
Wyoming							X							
Wash. DC						X				X		X		
Guam	X													
Puerto Rico		X	X				X		X	X			X	X
<b>Totals</b>	22	9	6	9	13	15	37	16	21	23	24	11	8	19

\* The Arizona statute does not provide exemptions per se. However, the statute provides that civil penalties for violations of the statute are not applicable to certain excavations made under specific conditions.

### Comparison of Exemptions to One-Call Notification System Requirements in Each State to the Types of Excavation Damage Incidents in that State

49 U.S.C. Section 6103(d)(2) The study shall include — (C) a comparison of exemptions to the one-call notification system requirements in each State to the types of [pipeline] excavation damage incidents in that State;

Over the last several years, as awareness and acknowledgement of the benefits of stronger damage prevention laws and enforcement have increased, many States have revised their laws. The changing landscape of State one-call damage prevention laws and a general lack of damage data make a comparison of exemptions to the damage prevention law in a State to the types of pipeline excavation damages in that State extremely difficult.

However, an analysis of data from PHMSA’s reportable incident data files indicates a number of excavation damages occurred without notification to the one-call center or pipeline operator prior to the incident. Going forward, more extensive data collection would be required going forward to determine if the excavator or the type of excavation that caused damage was exempt from the State damage prevention law at the time of the incident, and if the exemption was the root cause of the incident. Unfortunately, that level of data is not currently available.

Table 4 shows that a relatively high percentage of third-party excavation damage incidents occurred without the operator receiving prior notification of excavation. However, this analysis

## Study on the Impact of Excavation Damage on Pipeline Safety

does not shed light on whether the lack of notification was the result of an exemption to the State one-call laws in effect at the time that the incident occurred.

<b>Table 4: Analysis of Pipeline Incident Data Relative to One-Call*</b>			
Pipeline Type	Data		
Gas Distribution	Period		
	1986 – February 2004	March 2004 – 2009	2010 to Present
	Approximate Number (percentage) of Third-Party Damage Incidents Reported “Without Notification” to Operator		
	254 (41%)	87 (35%)	21 (31%)
Gas Transmission	Period		
	1986 – 2001	2002 – 2009	2010 – Present
	Approximate Number (percentage) of Third-Party Damage Incidents Reported “Without Notification” to Operator		
	190 (60%)	73 (59%)	22 (68%)
Hazardous Liquid	Period		
	1986 – 2001	2002 – 2009	2010 – Present
	Approximate Number (percentage) of Third-Party Damage Incidents Reported “Without Notification” to Operator		
	363 (78%)	79 (66%)	23 (65%)

\* Source: PHMSA Reported Incident Data March 29, 2013. These data span decades of collection, evolving methods of oversight and multiple reporting formats. Thus they are reported here in different associated time periods.

PHMSA’s incident reports do not include adequate information to determine if one-call exemptions were the root cause of pipeline incidents. A proper analysis would consider whether the failure to call is a direct result of an exemption or for reasons unrelated to the exemption, such as a lack of awareness about the requirement to call before digging, a disinclination to wait the required period, or a disregard of safe digging practices. Only a root cause analysis of each incident could provide such answers.

## **Analysis of the Potential Safety Benefits and Adverse Consequences of Eliminating All Exemptions for Mechanized Excavation from State One-Call Notification Systems.**

*49 U.S.C. Section 6103(d)(2) The study shall include — (D) an analysis of the potential safety benefits and adverse consequences of eliminating all exemptions for mechanized excavation from State one-call notification systems.*

More information is needed to enable regulators and States to make informed decisions in determining if any or all exemptions for mechanized excavation activities should be removed from the State damage prevention laws. Analysis of PHMSA incident data, as noted above, reveals:

- During the last 20 years, there have been 1630 reported incidents with third-party damage as the reported cause.
- Those incidents resulted in 141 fatalities, 440 injuries and \$369,736,529 in property damage.
- Generally, the numbers of incidents caused by third-party damage have been decreasing over the past several years.
- The results of third-party excavation damages to gas distribution pipelines are significantly more severe than the results of damages to gas transmission and hazardous liquid pipelines in terms of the number of fatalities and injuries and cost for property damage.
- A significant portion of the reported third-party damage incidents indicated no notification was made prior to digging. Failure to notify is associated with a higher percentage of third-party damage incidents involving gas transmission and hazardous liquid pipelines than for gas distribution pipelines.

PHMSA incident reports do not include information relating to one-call exemptions. It cannot be determined how many, if any of the reported pipeline incidents can be attributed to a one-call exemption. Without this information, it is not possible to determine the safety benefits or adverse consequences of eliminating all notification exemptions for mechanized equipment from State one-call damage prevention laws.

Stakeholder input is consistent with these findings. While stakeholders' positions on the matter of exemptions vary significantly, those who contributed to this study agree that it is not possible to draw conclusions on a national basis using existing available data.

Notification before digging is commonly considered the most important step in reducing damage to underground facilities. According to the Common Ground Alliance DIRT Report, a notification before excavation prevents damage 99 percent of the time (see Appendix C).

## Study on the Impact of Excavation Damage on Pipeline Safety

PHMSA and many other damage prevention stakeholders strongly encourage excavators to call 811 before every excavation. However, there is no empirical evidence available to understand the impact of the exemptions to this requirement, or the impact of removing such exemptions.

An examination by the CGA of the relationship between exemptions and damages suggests that States with five or more exemptions have damage rates 108 percent higher than States with fewer than five exemptions. The United States Infrastructure Corporation (USIC) conducted a similar analysis and had similar findings (See Appendix B). The USIC also used data to attempt to determine the potential financial impact of damages, by comparing States with six or more exemptions to those with fewer than six exemptions. The USIC analysis suggests that damage related to exemptions could cost a minimum of \$50 million per year.

Quantifiable information to examine the impact of removing all exemptions for mechanized equipment across all States was not available for this study. A number of States have examined, or are beginning to examine, the impact of exemptions on pipeline safety. Most States will require more data to fully understand and address this issue.

Many stakeholders provided input and stated positions related to damage rates and impacts related to the removal of all one-call notification exemptions. PHMSA attempted to incorporate this input into the study findings but the positions vary considerably among States and among stakeholders.

For example, the American Farm Bureau Federation (AFBF) does not support the blanket removal of exemptions without supporting data, analysis, and input from the regulated community. AFBF considers that removal of all exemptions would not be effective as the requirements to call before digging were likely to be ignored by many farmers. AFBF considers that there may be some instances where farmers should call before digging, but many instances where calls may not be necessary.

Similarly, the American Association of Railroads (AAR) believes that exemptions for certain activities in the railroad rights-of-way should be allowed. AAR considers that railroad operators should be exempt from excavation notification laws when performing routine track maintenance using mechanical excavation in the track structure. Railroads own approximately 200,000 miles of track (not including yard track) that requires maintenance several times a year and AAR considers that calling for locates on that much track several times a year would be a burden for rail operators and locators. Additionally, AAR noted that some of the places where maintenance occurs has limited access and it could be very challenging logistically to perform locates on all track.

## Study on the Impact of Excavation Damage on Pipeline Safety

In contrast, pipeline operators maintain that all exemptions represent a threat to safety, and the absence of empirical data to support this position does not negate the seriousness of the issue.

## Findings and Conclusions

### More Data is Needed to Adequately Assess the Impact of Exemptions on Pipeline Safety

Data relative to pipeline damage caused by exemptions to one-call damage prevention laws are incomplete, inconsistent, and inadequate to fully analyze the impact on pipeline safety of exemptions to State damage prevention laws. Input from a variety of stakeholders and PHMSA's research reveals that there are insufficient data available to support a thorough analysis of the impact of one-call exemptions on pipeline safety.

State one-call laws vary widely and include exemptions both from the requirement to participate in the one-call process as a facility owner and from the requirement to give notice before digging for certain types of activities or entities. PHMSA focused its efforts on exemptions from the requirement to notify before digging and examined all State one-call laws. PHMSA also reviewed incident data and received input from a broad array of stakeholders relating to facility damage data. Stakeholder perspectives vary considerably on the appropriateness of one-call exemptions. However, and in general, their perspectives are not necessarily based on data but instead are oftentimes based on organizational priorities and related political considerations.

More data and significant analysis are needed to fully understand the impact of exemptions on pipeline safety. Data must be collected on a State-by-State basis because of the considerable variability among State damage prevention programs. The required data/analysis must identify the true root cause of excavation damage, especially whether exemptions – actual or assumed – are the root cause. There are several ways this information could be collected:

- PHMSA pipeline incident reports could require information relating to one-call exemptions. However, PHMSA reportable incidents represent only a small portion of the total number of underground facility damages and it may be difficult to draw valid conclusions based solely on PHMSA data.
- Industry collection and sharing of damage data could become more robust. PHMSA appreciates the input provided by pipeline operators and trade associations for the development of this study. However, PHMSA received very little data or evidence from those groups to support the needed analysis. Pipeline company and pipeline trade organization representatives universally expressed support for the collection of more

## Study on the Impact of Excavation Damage on Pipeline Safety

data specific to the impact of exemptions on third-party incidents. There are several opportunities for the industry to gather such data, whether through trade association initiatives, as part of integrity management programs, or through separate individual company data collection efforts.

- The CGA's DIRT could be revised to gather exemption data. Currently, damage data is submitted to DIRT voluntarily and anonymously and data quality is not consistent among submitters. These factors may present challenges in collecting meaningful data related to the impact of state one-call exemptions on pipeline safety.
- One-call centers could collect exemption-related damage data. Not all States currently require damage reporting, but many one-call centers are notified when damage occurs. As part of the process of collecting information about that damage, the one-call centers could collect exemption-related information.
- Other potential sources for collecting damage data that include exemption information are:
  - State agencies (especially those State pipeline regulatory agencies that currently require damage reporting);
  - The locating industry (locators perform large numbers of damage investigations each year); and
  - Excavators (through enhanced use of the CGA DIRT or through a separate data collection effort).

### **Activity-Based Exemptions May Be Acceptable, but Should Be Supported By Sufficient Data**

PHMSA believes that State one-call damage prevention laws should apply to all excavators. No entities should be exempt from the one-call notification process. Activity-based exemptions may be acceptable, but they should be determined at the State level, should be based on circumstances unique to each State, and should be data-driven. That is, all exemptions should be validated by data showing that specific exemptions do not result in an increased frequency of damage to underground facilities.

### **Targeted Education is Needed**

Targeted stakeholder education may be needed, particularly for groups that are exempted from excavation notification requirements and for those who may assume they are exempted. Many stakeholders expressed concerns that it is unlikely those affected by specific exemptions are fully aware of the State's damage prevention requirements. Additionally, stakeholders expressed concerns that some excavators may assume they are covered by exemptions; thus failing to notify facility operators before digging and possibly endangering themselves and others.

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Agricultural activities and road maintenance are two examples of activities that may require targeted education. Under current State laws, exemptions are frequently provided for certain types of excavation associated with those activities, such as farm tilling or grading of roads – sometimes with depth restrictions. Exemptions for major road work, deep agricultural excavation, or other deeper-digging activities are less common.

While the “call before you dig” message is universal and encourages notification before all excavation activities, it appears that certain stakeholder audiences may need targeted outreach to promote a better understanding of the requirements under State damage prevention laws.

## **Appendix A: Pipeline and Hazardous Materials Safety Administration Public Forum on Damage Prevention Exemptions**

On March 14, 2013, the Pipeline and Hazardous Materials Safety Administration (PHMSA) conducted a public forum<sup>1</sup> to discuss exemptions in State one-call damage prevention programs. Participants in the forum were damage prevention stakeholders, including facility owners, excavators, State and local government officials and other key stakeholders. The primary goals of the forum were to:

- (1) Provide a baseline understanding of existing exemptions and PHMSA's initiatives to address reauthorization requirements;
- (2) Discuss existing damage data, gaps in existing data, and data analysis to date;
- (3) Gain perspectives from those impacted by damage prevention exemptions, including:
  - a. Commonly exempted entities, such as agriculture, local government, railroads
  - b. State and local agencies
  - c. Pipeline operators
  - d. One-call centers
  - e. Utility locators
  - f. The public; and
- (4) Discuss strategies for a path forward.

The exemptions forum included presentations and discussions by four stakeholder panels.

- Panel 1: Damage Data – Sources

This panel included representatives for: the American Gas Association (AGA), the American Petroleum Institute (API), the Association of Oil Pipelines (AOPL), the Interstate Natural Gas Association of America (INGAA), the Common Ground Alliance (CGA), the United States Infrastructure Corporation, Inc. (USIC), Colorado 811, the Virginia State Corporation Commission (VA SCC), and the New York State Department of Public Service (NY DPS).

- Panel 2: Impact of Exemptions on Key Stakeholder Groups – 1<sup>st</sup> Session

This panel included representatives for: the National Association of Pipeline Safety Representatives (NAPSR), the Iowa Utilities Board (IUB), Colorado 811, Kentucky811, the National Utility Contractors Association (NUCA) of Ohio, the Associated General

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<sup>1</sup> The online webcast archive and presentations from the forum are available online at: <http://primis.phmsa.dot.gov/meetings/MtgHome.mtg?mtg=85&nocache=3917>

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Contractors of America (AGC), and the National Utility Locating Contractors Association (NULCA).

- Panel 3: Impact of Exemptions in Key Stakeholder Groups – 2<sup>nd</sup> Session

This panel included representatives for: the City of Allentown, Pennsylvania, the National Association of Counties (NACo), the American Public Works Association (APWA), the American Farm Bureau Federation (AFBF), and the Association of American Railroads (AAR).

- Panel 4: Impact of Exemptions on Pipeline Operators

This panel included representatives from the following stakeholder entities: Atmos Energy, API/AOPL, INGAA, and the American Public Gas Association (APGA).

Following are summaries of the discussions from each of the panels. These summaries are not intended to be a complete account of the panelists' presentations. To view a complete recording of each of the panelists' presentations, visit PHMSA's meeting website at <http://primis.phmsa.dot.gov/meetings/MtgHome.mtg?mtg=85>.

### **Panel 1: Damage Data – Sources**

J.D. Maniscalco, Executive Director of Colorado 811, shared information from the CGA Damage Information Reporting Tool (DIRT) that he considered might be useful for this study, including the prevalence of exemptions at a regional level. He discussed exemptions pertaining to one-call membership, agricultural activity, hand-digging, and homeowners. A key message from Mr. Maniscalco was that because the DIRT data is voluntarily submitted and is not complete, conducting a thorough national analysis with DIRT data alone is challenging.

Massoud Tahamtani, Director of VA SCC's Division of Utility and Railroad Safety, presented recent data from Virginia that demonstrates the impact of exemptions on the rate excavation damage to natural gas pipelines. The data show that some exemptions are less of a threat to pipeline safety than others. For example, an exemption in Virginia's damage prevention law for specific excavation activities undertaken by the Virginia Department of Transportation (VDOT) does not appear to present a significant threat to natural gas pipeline safety. However, a Virginia exemption for homeowners appears to present more of a threat to natural gas pipeline safety. A key message was that adequate data of good quality are required in order to assess the impact of exemptions on pipeline safety. Quality data can help determine which exemptions may be problematic and which are not. Mr. Tahamtani presented data to show that in Virginia, in the last 4 years (2009 – 2012):

- 396 gas pipeline damage incidents occurred while excavating under exemptions. This caused 7.5 percent of the total gas pipeline damages in Virginia.

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- The exemption for homeowners was the cause of 7.2 percent of those gas pipeline damage incidents. All other exemptions combined constituted only 0.3 percent of those gas pipeline damage incidents.

Christina Sames, AGA's Vice President of Operations and Engineering, presented information from several sources. In general, AGA perceives all exemptions as contrary to the ubiquitous "always call before you dig" message. However, certain exemptions may be less threatening to pipeline safety, but only if supported by data to demonstrate that the exemptions are warranted. Data presented by Ms. Sames demonstrated considerable local variability in the rates of damage related to different types of exemptions. A key message was that the impact of exemptions cannot be adequately determined at the national level. Such a determination must be done on a State-by-State basis as there are probably multiple variables for each State that influence damage rates. In order to better understand exemptions, more and better data is needed.

Peter Lidiak, Pipeline Director at API – and representing both API and AOPL – discussed the results of an informal survey of API members. The informal survey sought information about the impacts of exemptions on pipeline safety. The results of the survey showed that pipeline damages related to exemptions for agriculture, governmental agencies, property owners, railroads, hand tools, and depth all threaten pipeline safety to some degree. Mr. Lidiak stressed the importance of using all available data, including anecdotal information from pipeline operators. He also stressed the fact that not only explicit exemptions, but also perceived exemptions, may contribute to pipeline damage. A key message was that more data is needed to better understand the impacts of exemptions on pipeline safety.

Scott Currier, Director of Operations, Safety, and Integrity for INGAA, presented the results of a brief examination of PHMSA incident data, anecdotal information from INGAA members, and CGA DIRT data. The examination revealed that exemptions do impose a risk on pipeline safety. However, there are significant regional and State variances in damage prevention practices and it is difficult to directly correlate damages and exemptions. A key point of Mr. Currier's presentation was that more data is needed to better understand the risks associated with exemptions.

Bob Kipp, President of the CGA, discussed exemptions in the context of CGA DIRT data and the CGA Damage Prevention Best Practices. In particular, he noted that at the national level, the available data and anecdotal information does allow for some trending. Mr. Kipp encouraged States to regulate the collection of damage data better. He discussed that the CGA Best Practices suggest that States should be in charge of their own damage prevention laws and data. However, he stressed that the CGA definition of "excavator" does not exclude any

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excavating parties. A key point of Mr. Kipp's presentation was that isolating the impact of exemptions on pipeline safety is difficult using data that is currently available.

Jemie Wang, Vice President of Strategic Projects for USIC, provided the perspective of the largest contract locator in the United States. While USIC does have extensive data about damages in some parts of the U.S., the data are not ideal for this study. Mr. Wang expressed concern about the ability to conduct a sound analysis of the impact of exemptions on pipeline safety with available data. Currently available data from USIC and other sources do not explicitly allow for a thorough study. Mr. Wang emphasized the challenge of statistically correlating damages to exemptions, especially given the lack of comprehensive data on damages and explicit root cause analysis for damage incidents.

Kevin Speicher, Chief of Gas and Petroleum Safety for NY DPS, discussed exemptions in New York State in general terms. He described what exemptions exist in New York, ways excavators misinterpret the exemptions, and ways the nuances of the New York State damage prevention law may impact excavation damage rates. He then discussed a general lack of data in New York for the period 2005-2012 and compared it to CGA DIRT data for the same period. His general conclusion was that NY DPS data did not seem to be complete enough to contribute to the study.

### **Panel 2: Impact of Exemptions on Key Stakeholder Groups – 1st Session**

Randy Knepper, Chairman of NAPSR, provided a perspective on the impact of exemptions on State pipeline safety regulators. Overall, NAPSR is not in favor of broad, categorical exemptions for excavators. However, exemptions that are narrow or limited in scope may have no impact on pipeline safety. Examples he cited were exemptions for rock quarries, cemeteries, tilling of soil, and emergency excavations. He stressed the importance of geographic considerations in determining the impact of exemptions. Mr. Knepper said that some data is available for individual States, but NAPSR does not have national data. He stressed that some States have no data, others have limited data, and still others have extensive and comprehensive data.

Don Stursma, Manager of the Safety and Engineering Section for IUB, described the exemptions in Iowa's damage prevention law. He focused particularly on the agricultural exemption. He highlighted the difference between deep and shallow agricultural excavation, including the difference between tilling and tiling. He focused on the importance of education and public awareness in preventing excavation damage. A key message from Mr. Stursma was that more data is needed to determine the effects of exemptions on pipeline safety. Another key message was that State one-call laws are carefully-crafted compromises between many parties. In order to influence State laws, a factual basis for eliminating exemptions is needed.

J.D. Maniscalco, of Colorado 811, explained that data reporting in Colorado was required in the wake of a high-profile damage incident. He went on to explain that a sharp focus on what is

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practical with regard to addressing exemptions is needed. Mr. Maniscalco used the example of an exemption for landscapers in Colorado to support his position. Data that he showed demonstrated a decrease in damages caused by landscapers after the exemption went into effect. Mr. Maniscalco suggested that the decrease in damages appears to result from a change in excavator habits because of improved public awareness. Other factors that contributed to the decrease may have been underreporting and the fact that the data only represented a four-year time period. He said Colorado has experienced an overall trend of reduction in excavation damages in the past several years. Mr. Maniscalco also stated that one-call organizations are prepared to handle the increased call volume if exemptions are removed. His presentation emphasized that it is difficult to isolate the impact of exemptions alone without considering other influencing factors.

Tim Vaughan, Director of Regulatory and External Affairs for Kentucky 811, focused on the governmental affairs side of exemptions and how one-calls are involved. He said that at the State level, exemptions are “sacred cows” for the organizations that benefit from them. Lobbies for damage prevention stakeholders are powerful. In many cases, it is not the content of the law that is important to lobbies; instead, it is whether or not the lobby retains its exemption under the law. Mr. Vaughan also said that the Federal government can leverage States to amend their laws and that often the only leverage stakeholders have is the high visibility of major damage incidents.

Jennifer Reams, representing NUCA of Ohio, provided the excavation contractor’s perspective on the impact of exemptions on pipeline safety. She stated that she is generally opposed to exemptions because the risk of damages to underground utilities increases with more exemptions. She said that every exemption provides another opportunity for a completely preventable serious pipeline incident to occur. Ms. Reams stated that exemptions do not meet the intent of the nine elements of effective damage prevention programs<sup>2</sup> and do not contribute to pipeline safety.

Scott Berry, representing AGC, said that safety of excavators and contractors is AGC’s number one concern. He said with regard to exemptions that one size does not fit all and it is difficult to say that all exemptions should be limited. He said that States should be responsible for defining their own damage prevention laws. AGC’s position is a presumption against exemptions. Categorical exemptions are a problem for worker safety. Mr. Berry said that exemptions should only be acceptable if backed up by data. Each exemption must be carefully weighed, and each State should do this independently. An immediate blanket ban on all exemptions is not

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<sup>2</sup> Nine elements of effective damage prevention were identified and addressed in the Pipeline Inspection, Protection, Enforcement, and Safety (PIPES) Act of 2006. (Pub. L. 109–468.) Amended 49 USC § 60134, State damage prevention programs.

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supported by AGC. Mr. Berry stated that removing exemptions does not necessarily mean that everyone will call before they dig. Exemptions are one of many factors in excavation safety.

Greg Jeffries from NULCA stated that NULCA is not in favor of any exemptions in State damage prevention laws.

### **Panel 3: Impact of Exemptions in Key Stakeholder Groups – 2<sup>nd</sup> Session**

Ed Pawlowski, Mayor of Allentown, Pennsylvania, discussed an excavation damage-related pipeline incident in Allentown that occurred in May of 1994 at a senior living facility. The Mayor went on to describe several other serious pipeline incidents, not all of which were caused by excavation damage. The 1994 incident at the senior living facility resulted in stronger pipeline damage prevention laws in Pennsylvania. The Mayor is concerned about increased pipeline mileage and activity as the result of extracting natural gas from the Marcellus Shale formation. He is opposed to the exemption for the Pennsylvania Department of Transportation and all other exemptions in Pennsylvania. Mayor Pawlowski is working with other mayors to form a National Coalition of Mayors. The purpose of the coalition is to focus on stronger local, State, and Federal laws and regulations.

Julie Ufner, Associate Legislative Director at NACo, stated that NACo has no official position on exemptions. Local governments don't want to be part of the damage prevention problem, but some exemptions make practical sense. Cost is a factor. States should determine what exemptions makes sense and should leverage available best practices, technical assistance, and public awareness efforts.

Noel Thompson, formerly of APWA, stated that there is no official APWA policy on exemptions. However, he made some remarks about the impact of population growth and urban sprawl over the past 5 or 6 decades. Mr. Thompson's general position is that all excavators should call before digging. He also said he would support requirements for tracer wire or other locatable technologies on newly-installed facilities. He also said that sewer operators should not be exempt from one-call requirements.

Andrew Walmsley, Director of Congressional Relations for AFBF, discussed exemptions from the perspective of farmers. Mr. Walmsley said that exemptions have not been an issue with AFBF members in the past, but exemptions could become a much larger issue. In general, Mr. Walmsley said that the AFBF is opposed to any regulation of agricultural activity without supporting data, analysis, and input from the regulated community. He said that there may be some instances where farmers should call before they dig, but some instances where calls may not be necessary. Mr. Walmsley said that there should not be a blanket approach to exemptions across the United States, and exemption policies should be supported by data. He said that the AFBF stands ready to work with other damage prevention stakeholders to develop

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common sense solutions to exemptions for agricultural activities. He said one way AFBF can help is by distributing public awareness information through land grant universities.

Bob Fronczak, Assistant Vice President, Environment and Hazardous Materials for AAR, stated that railroad operators are not looking to get out of one-call responsibilities completely. Railroad operators want an exemption for routine track maintenance using mechanical excavation in the track structure, including subgrade, grade, ballast and track and associated ditches. Railroad operators are also property owners. As such, they have a permit system for anyone wanting to install underground utilities on their property. Mr. Fronczak said that railroads own approximately 200,000 miles of track (not including yard track) that requires maintenance several times a year. He said that calling for locates on that much track several times a year would be a burden for rail operators and locators. He said that some of the places where maintenance occurs have limited access, and it could be a logistical challenge to perform locates on all track.

### **Panel 4: Impact of Exemptions on Pipeline Operators**

Tim Owen with Atmos Energy Corporation stated there are probably some good exemptions, but there are also probably some exemptions that threaten pipeline safety. He also talked about the complexity associated with exemptions; some exemptions are not worded in plain language and some have complex effects and implications. Mr. Owen said that the impact of these exemptions is very difficult to quantify. He also emphasized perceived exemptions (i.e., exemptions that do not actually exist, but ones that excavators believe do exist). Mr. Owen also said that public education and awareness are critical to creating a culture change that will reduce excavation damage to pipelines.

Buzz Fant, representing API and AOPL, stated that excavation damage is the leading cause of pipeline incidents that result in death, injury, and property damage. He said that exemptions have resulted in many hits and near-misses, and every failure to use the one-call system is a potential threat to pipeline integrity. He also said that some exemptions are necessary, but they are still threats to pipeline safety because of confusion. He discussed several cases of pipeline damage due to exemptions or perceived exemptions. He used exemptions pertaining to farming and road grading as examples. Mr. Fant said that exemptions strain pipeline operators by requiring more frequent patrolling, monitoring in known areas where exempted excavation activities are occurring, persuading excavators who are exempt to call before digging, and uncovering pipelines to ensure their integrity after the lines have been crossed by exempted excavation activities. He also listed activities that should not be exempted. Mr. Fant advocated the use of model one-call provisions for improving damage prevention programs.

Terry Boss, Senior Vice President of Environment, Safety and Operations for INGAA, said that excavation damage is a primary cause of serious accidents. He said excavation damage to

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pipelines also impacts the public because the incidents are often spectacular, jarring, and tragic. Mr. Boss said that one-call exemptions are one of many root causes of excavation damage. He stated that exemptions that are problematic include those for State departments of transportation, municipalities, agriculture, and railroads. He said that more data is needed to help address the problem and that PHMSA pipeline incident reports should include exemption data. However, he noted that incident reports must truly identify the root cause of an incident and simply noting if the excavator involved in the incident was exempt was not enough. Mr. Boss also made the following explicit recommendations on behalf of INGAA:

- National data should be used to clarify the one-call exemption situation
- Excavation damage exemption data should be recorded in
  - PHMSA Incident Reports
  - CGA DIRT Reports
- A “State report card” should be developed, including
  - State excavation damage exemption analysis (lagging Indicator)
  - National excavation damage exemption analysis (leading Indicator)
  - Voluntary participation of excavation-exempt categories (leading indicator)
- PHMSA should prioritize efforts to change excavation damage exemptions

Bert Kalisch, President and Chief Executive Office of APGA, said that ideally, all excavators and pipeline operators should participate in the one-call system with no exemptions. However, exemptions that can be shown via data to present no threat to pipelines may be okay. Exemptions that are shown to be problematic for pipeline safety should not be allowed.

## **Appendix B: Stakeholder Input Regarding Impacts of State One-Call Exemptions**

Several damage prevention stakeholders provided PHMSA with data and anecdotal information regarding the impacts of State one-call exemptions. Stakeholders that shared information included the pipeline industry and industry trade organizations, the Common Ground Alliance (CGA), States, and others.

### **Compilation of Input/Feedback from Stakeholders**

#### ***Common Ground Alliance (CGA)***

Aside from the extensive information provided by the CGA Damage Information Reporting Tool (DIRT) Report<sup>1</sup>, in response to a request from the Association of Oil Pipelines (AOPL) in 2010 the CGA conducted a poll of the various one-call center directors for information and data.

Although very limited, the results from the CGA's inquiry included:

- Many one-call centers do not have solid data at State level to support conclusions related to exemptions. One exception is Colorado, which does have statewide reporting and provided some statistics. Colorado 811 reported that in 2008 27 percent of damages were caused by landscape/fence excavators. The Colorado One Call Law outlines specific exemptions that relate to landscapers.
- Dig Safely New York provided CGA with a document, "Property Owner Damages", that showed that for 2007 through mid-2010, 64 damage incidents occurred to gas distribution lines of a single local gas distribution company (LDC) in New York. Of particular concern noted was that "the tilling of soil for agricultural purposes" is exempt from the definition of excavation in the New York State law. Additionally, homeowners are exempt from calling based on the language of the law. Dig Safely New York noted that the data was just a sample of only one operator and that there are many more operators. They also noted that the LDC damages could have just as easily been on transmission pipelines.

#### ***Rhode Island Public Utilities Commission (RI PUC)***

RI PUC noted: "The State of RI has been tracking gas line damages since 1986. Since that time we have [encountered] 1,544 gas line damages, of this amount not one [damage] has been attributed to farming, our only exemption we have in our State damage prevention law. We feel well thought out exemptions can be provided with no loss in safety."

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<sup>1</sup> (see Appendix C)

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### *Virginia State Corporation Commission (VA SCC)*

VA SCC noted that in the last 4 years (2008-2012) 396 incidents of damage to gas pipelines occurred in Virginia as a result of excavations being performed under exemptions. That number equals 7.5 percent of the total number of gas pipeline damage incidents in the State. The incidents were mostly caused by the exemption for homeowners, which resulted in 7.2 percent of all of the gas pipeline damage incidents in the State. All other exemptions made up the remaining 0.3 percent of gas pipeline damage incidents. Currently, Virginia has nine exemptions to its one-call law.

### *Texas Railroad Commission (TX RRC)*

TX RRC responded that it does not have any data on the limited entities or activities that are exempt from the specific pipeline damage prevention laws and rules that TX RRC administers and enforces, as excavators are not required to submit excavation damage reports to the Commission's online filing system.

### *Minnesota Public Utilities Commission (MN PUC)*

MN PUC noted that good data is lacking and is essential to any attempt to study the impact exemptions to State one-call laws would have on excavation damage and especially on pipeline safety. MN PUC provided information and data from a recent analysis it had conducted of 1,311 incidents of gas facility damage in the State resulting from excavation-related activities. The information showed that 23.3 percent of all damage incidents in the analysis were caused by the use of hand tools for digging – shovels were the tools used in 14 percent of the incidents. It also showed that 8.7 percent of the damage incidents involved the use of hand tools and no call by the excavator for facilities to be located or to notify the pipeline operator before digging. Minnesota law excludes digging with hand tools in its definition of "excavation". Language has been proposed to revise the law to exclude (exempt) digging with hand tools only to a specified excavation depth of 18 inches.

### *Public Utilities Commission of Nevada (PUCN)*

PUCN responded to PHMSA's inquiry with information and data. PUCN noted that the Nevada Department of Transportation (NDOT) exemption from acting in the role of an underground facility operator is the only exemption in Nevada's one-call law. No other entity has an exemption from being a facility operator if it owns, operates or maintains underground facilities, and no entity (including homeowners, farmers/ranchers, miners, etc.) has an exemption from being considered an excavator if they conduct digging.

The NDOT exemption from the operator requirements is resulting in NDOT's own facilities being damaged, often by its own crews. NDOT doesn't report damages to PUCN, and PUCN is

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of the opinion that NDOT doesn't effectively record or track damages its own crews cause to its own facilities. PUCN considers that local NDOT offices may be purposely not recording or tracking those damages. Thus, PUCN has no clear idea as to how often NDOT facilities are being damaged due to NDOT not receiving excavation notices and marking their facilities. Otherwise, PUCN has adequate data of whose facilities are being damaged and what parties are causing the damage.

Below is a chart provided by PUCN relative to damages to gas and electric system in Nevada from 2009 to 2012. Damage caused by occupants (Home/Property Owner, Tenant, Renter, Agent for Owner, etc.) consistently accounted for over 13 percent of all damages. Damages caused by the use of hand tools consistently accounted for over 22 percent of all damages over the period, and on average accounted for over half of occupant damages. However, occupant excavations and hand-digging are not exempted under Nevada's damage prevention law.

Analysis Year	Total Gas & Electric Damages	Occupant Damages	Occupant Damages% of Total	Hand Tools Damages	Hand Tool Damages % of Total	Occupant Hand Tools Damages	% of Occupant Damages	% of Hand Tools Damages
2009	515	98	19.03%	126	24.47%	45	45.92%	35.71%
2010	338	45	13.31%	76	22.49%	25	55.56%	32.89%
2011	345	53	15.36%	107	31.01%	34	64.15%	31.78%
2012	340	45	13.24%	81	23.82%	26	57.78%	32.10%

### *Washington Utilities and Transportation Commission (WUTC)*

WUTC notified PHMSA that exemptions are not a big issue relative to damage prevention within the State. Washington's House Bill (HB) 1634 regarding underground utilities, which was passed during the 2011 legislative session, included no testimony or discussion regarding exemptions. HB1634 does include a new section (Section 5) that addresses exemptions to the law. No data regarding the impacts of exemptions was provided.

### *Illinois Commerce Commission (ICC)*

Illinois law specifies five excavation-type activities where a locate request is not required, including: farm tillage, railroad rights-of-way maintenance and operations, coal mining, land surveying operations (when not using power equipment), and roadway surface milling

In support of PHMSA's study, ICC conducted a survey of pipeline operators within the State (but outside of the City of Chicago) to determine the extent of damages resulting from those exemptions for the three-year period of 2010 to 2012. ICC received 12 responses to the survey. ICC reported that initially farm tillage looked to be a fairly significant cause of damage, but closer evaluation of the explanations provided in the feedback showed that many entities

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included field tiling activities as farm tillage. Illinois law does not consider field tiling as farm tillage and field tiling is not exempt.

The following table reflects ICC's evaluation of the responses where it appeared that a true exemption caused the damage. ICC reported that it appears they have a problem with land surveying operations and are currently in the early stages of seeing what can be done to eliminate that exemption.

Exempted Activity:	Number of Damages		
	2010	2011	2012
Farm tillage	1	3	2
Railroad ROW maintenance & operations	0	0	1
Coal mining	0	0	0
Land surveying operations (when not using power equipment)	0	3	5
Roadway surface milling	<10 (drip pipe)	4+ <10 (drip pipe)	<10 (drip pipe)

Under Illinois law, the City of Chicago is not exempt per se from one-call requirements, but it is not required to participate in the State's one-call enforcement process. Chicago also operates a separate one-call system for the metropolitan area. Based on data submitted to the ICC from gas distribution operators, excavation damage rates within Chicago are two-to-three-times higher than in the rest of the State. Chicago excavation damage rates are also increasing in contrast to the remainder of the State.

### *Connecticut Public Utilities Regulatory Authority (PURA)*

Connecticut's damage prevention law includes exemptions only for hand-digging and for agricultural tilling. All classes of excavators, including State and municipal entities, are required to call, and all utilities are required to respond to locate notifications.

PURA is actively working on legislation to make further improvements to Connecticut's law. One proposal is to eliminate the exemption for agricultural tilling. Despite having no record of damages from agricultural tilling, the potential for damage to underground utilities still exists. PURA does not expect agricultural tilling to require that a normal mark-out be performed each time tilling is to be performed. Instead, PURA expects to propose a different

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process for tilling and other areas of continual excavations, such as quarries, cemeteries, clam beds, etc.

Since most of those areas do not impact utilities, PURA envisions a process where these types of excavators would receive a ticket valid for an entire calendar year. Instead of marking out facilities, utilities would be required to notify the excavator that either they do or do not have utilities in the area. If there are utilities located in the area, then the utility and the excavator would have to develop a written plan for the types of excavation activities that could safely occur during that calendar year.

### *United States Infrastructure Corporation, Inc. (USIC)*

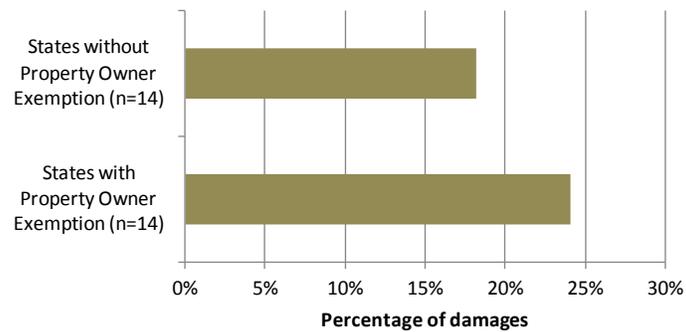
In 2012 alone, USIC performed over 43 million utility locate requests and investigated over 100,000 utility damages, the mass majority of which were not due to shortcomings in USIC's locating. The experience of USIC, both anecdotal and data-driven, is that dig notification exemptions:

- Have negative public safety effects
- Increase the likelihood of otherwise preventable damages
- Bear a significant economic cost in property and personal damage
- Should be justified by their advocates with compelling cost/benefit analyses

USIC performed an analysis using internal company data for calendar year 2012 on the impact of property owner exemptions. This analysis found that, within USIC's business footprint, there was an indication that property owner exemptions increase the likelihood of damage to underground utilities due to excavation. More specifically, 24 percent of utility damages in States with this exemption had a root cause of "No Dig Notification", versus 18 percent of damages in States without the exemption.

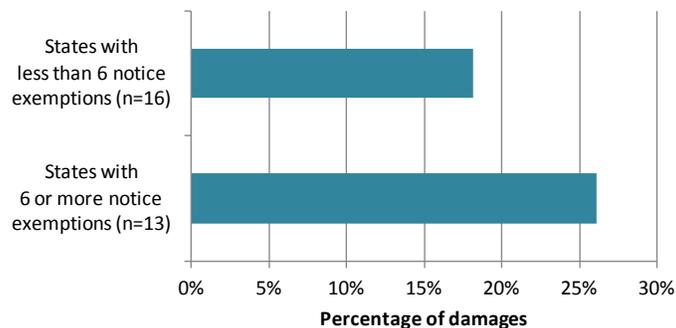
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### % of Damages Without a Dig Notification (Property Owner Exemp., 2012)



A second analysis performed by USIC based on internal 2012 data looked at dig notification exemptions more generally. This analysis again considered damages with a root cause of “No Dig Notification” as a percent of all damage investigations. States that had 6 or more exemptions for any reason had a 26 percent rate of damages with this cause, as opposed to only 18 percent for States with 5 or fewer exemptions.

### % of Damages Without a Dig Notification (All Exemptions, 2012)



While a 6 or 8 percentage point gap may seem small, this translates into over 10,000 policy-preventable utility damage incidents, based on the number of States with these exemptions and an estimate of 330,000 total damage incidents from the 2011 CGA DIRT Report. The repair and property damage cost of each damage incident can vary widely from several hundred dollars to hundreds of thousands of dollars. If we assume the average total cost per damage is \$5,000 for facility restoration, customer downtime and other costs, the total cost of these preventable damages alone amounts to more than \$50 million dollars per year. And that may be a conservative estimate as it compares States with 6 or more exemptions to states with less than 6 exemptions.

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This cost estimate does not consider the cost due to injuries and fatalities associated with underground utility damages. The economic and personal costs of these injuries are considerable, and equally preventable. Extrapolating internal USIC data to the CGA estimate for total damage incidents for 2012, USIC estimated that this cost is a very conservative minimum of \$5 - \$10 million per year to companies and individuals. This figure does not include the costs absorbed by medical insurance companies to which there is little direct visibility.

It is USIC's position that dig notification exemptions have very real and quantified negative consequences to the Nation's underground facilities and those who live and work around them. USIC believes that proponents of these exemptions should be obligated to provide compelling data and analyses demonstrating not only the claimed need for the dig notification exemptions but also the costs of the exemptions.

### **Docketed Comments**

#### ***American Farm Bureau Federation***

... Farm Bureau is the country's largest general farm organization with approximately 6 million member families who grow and raise nearly every type of crop and livestock across all 50 states and Puerto Rico. Farm Bureau realizes the importance of protecting the safety of our farmers and ranchers, but we are also concerned that some individuals in the pipeline community are advocating for a blanket prohibition of exemptions for agriculture. Requiring farmers and ranchers to notify a one-call system before performing any field work would be impractical and burdensome especially if a farmer were to be required to wait up to two days for a pipeline to be marked before entering a field to begin work.

Farm Bureau believes that, based on the current definition, normal agricultural and farm tillage practices would be considered excavation. In order for a state to qualify for a one-call grant under 49 U.S.C. 6106, it must not provide exemptions for municipalities, State agencies or their contractors. Requiring State compliance to receive grants may well lead to states retracting all exemptions to the one-call notification system, a development that would be uniquely harmful for agriculture. Farm Bureau believes that given the nature of farming and ranching, farmers and ranchers should be exempt from the requirements of one-call prior; failing to provide them relief from this requirement is unreasonable and not workable for today's farmers and ranchers.

Farm Bureau believes it would be impractical to have every farmer in a state call a one-call center before doing any field work, including ordinary farm tillage, planting, harvesting or fertilizer injection, and then be required to wait up to two days before entering their fields.

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Being forced to wait up to two days could mean the difference between either getting a crop in the ground or facing significant losses for a farmer. It would put undue burden not only on the farmer, but would also have the potential to overwhelm one-call facilities and the pipeline companies that would be forced to mark or flag the thousands of miles of pipelines that could potentially be impacted in a state.

Without an exemption for normal farming practices, utility companies, one-call centers and farmers will all become subject to unnecessary work. In Louisiana, for example, a state trooper cited a farmer for replacing a fence post without calling his local one-call notification center. In response, the farmer called the one-call center to re-mark all underground lines every eight days, so that he could complete his farm work immediately when the conditions required him to do so. With thousands of miles of pipeline in more than 922 million acres of United States farmland, the potential demand on one-call centers and pipeline companies will be extraordinary.

States vary widely in both their agricultural production and utility services. Imposing a Federal order for one-call notification without exemptions could create additional burdens and dedication of resources for states while not necessarily improving excavation safety. Currently, 41 of 50 states include an exemption for “normal farming practices” or “tilling for agricultural purposes,” allowing farmers to complete the operations vital to their farm in a timely manner. These states include Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia and Wyoming. The one-call notification service should stay within the control of the states.

Farm Bureau understands the importance of protecting the safety of our farmers and ranchers and those in their community. With this as a priority, Farm Bureau will continue to work on education efforts. Looking to the future, Farm Bureau believes State one-call notification centers, along with the pipeline community, should work with their State Farm Bureaus and land-grant extension services to promote safety and awareness regarding pipeline damage prevention. Through these organizations, current resources and future opportunities abound for the promotion of proper excavation.

Farm Bureau requests that the one-call notification system stay within the jurisdiction of the states to control and administer and that they be authorized to include an explicit exemption for agriculture, not only to reduce the burden placed on a farmer, but also the resources of a state and of pipeline operators.

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### *North Houston Pole Line Corp.*

North Houston Pole Line Corporation, an excavator, submitted several communication examples wherein the company was notified by various Texas municipal utility districts that those utility operators do not mark their underground water and sewer lines. No specific comments were made to the docket by the company.

The example notifications were in response to the excavators request for the operators to mark their lines. In at least one example, the company was informed by the utility district operator that efforts to locate the utility's lines could be done at the excavator's expense and, furthermore, that the excavator would be responsible for any damages to district facilities and would be charged for such damages.

[Under Texas Utilities Code Chapter 251, "Underground Facility Damage Prevention and Safety", § 251.002 (2), a "Class B" underground facility means an underground facility that is used to produce, store, convey, transmit, or distribute: (A) water; (B) slurry; or (C) sewage.

Under Texas Utilities Code § 251.107, each operator of a "Class A" underground facility must participate in a one-call notification center. Under Texas Utilities Code § 251.157, "Class A" underground facility operators are required to mark the approximate locations of their facilities when contacted by the notification system. No mention is made of similar requirements for "Class B" underground facilities. Thus, it is logical to assume that the membership and locating and marking requirements under Texas Utilities Code Chapter 251 do not apply to Class B facilities.]

### *Kansas*

#### REPORT ANALYSIS:

##### I. Predominantly known causes of damages to underground pipeline facilities in Kansas.

In Kansas, K.A.R. 82-14-3(v) and (w) of The KUUDPA<sup>2</sup> establishes the damage reporting requirements for operators of underground utilities in Kansas and requires a minimum amount of data for each damage that occurs to be reported to the Pipeline Safety Division of the Commission semi-annually.

Based on the 2012 damage report data, there were approximately 1,105 damages to natural gas pipelines in Kansas with essentially three types of parties recorded at fault:

1. Operators;
2. Excavators; and
3. Other - data either not specified or collected in the damage reports.

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<sup>2</sup> K.S.A. 66-801, *et seq.*, and K.A.R. 82-14-1 through 82-14-5.

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Of the 2012 damages with known parties at fault, damage reports indicate excavators were at fault about 80% of the time with operators being at fault about 20% of the time.

Also based on this data, the highest known root cause of underground pipeline damages in Kansas is attributed to excavation practices not being sufficient. Approximately 228 damages fall into this category and account for about 32% of the damages reported in 2012 with a known party at fault. Approximately 109 of the 228 damages (or about 50%) in this category are due to the failure of excavators to maintain clearance of the facilities while excavating in the marked tolerance zone. Finally, about 68 of the 228 damages (or approximately 30%) of those damages are further due to failure of the excavator to use hand tools when necessary to expose the facility.

The second highest known root cause of underground pipeline damages in Kansas is attributed to no valid notification being made to the call center by excavators, coming in at approximately 11.9% of all damages in 2012. However, it should be noted there has been a gradual drop in the percentage from 15.2% in 2010, when Kansas began assessing penalties along with its normal compliance actions.

The third highest known root cause of underground pipeline damages in Kansas is attributed to the fault of operators, showing approximately 8.2% of damages due to bad or no locates.

### II. The effect of Exemptions from The Kansas Underground Utility Damage Prevention Act (KUUDPA), if any, on known damages to underground pipeline facilities in Kansas.

K.S.A. 66-1802 (c) and (d) of KUUDPA provides exemptions to the one-call notification system requirements in Kansas. There are basically three of them, as follows:

1. Tilling the soil for normal agricultural purposes is exempt from the definition of “excavation”;
2. Operations related to exploration and production of crude oil or natural gas or both are exempt from the definition of “excavation”; and
3. Exempted from the definition of “excavator” is any **occupant** of a dwelling who:
  - i. Uses such dwelling as a primary residence; and
  - ii. Excavates on the premises of such dwelling.

The data collected relating to the first exemption shows that less than half of 1% of damages to underground pipeline facilities in Kansas was caused by farmers tilling for “normal” agricultural purposes. Therefore, Staff considers this exemption as having little-to-no effect on overall damages and presents no further analyses of it.

Although there is no data readily available to analyze the second exemption listed above, Staff also considers this exemption as having little-to-no effect on overall damages at this time.

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There was only one damage of the 1,105 damages reported in 2012 that occurred in the Kansas county (Barber County) where the most extensive oil and gas activity was occurring.

The only exemption in Kansas that Staffs considers taking a closer look at is the third exemption, the “occupant” (or often referred to as the “homeowner”).

There were 144 damages to underground pipeline facilities in Kansas by Occupants reported during 2012, which account for approximately 13% of all the damages incurred that year. The operators’ damage reports indicate 85% of the Occupants that damaged a pipeline took advantage of the exemption and did not provide notice of intent to excavate before digging. While that number is much higher than we’d like to see, Staff conducted further analysis of the 144 damages related to Occupant excavation as discussed below.

Although PHMSA has all the Incident damage reports from each state, Staff would like to make note of the fact that since 1993, when the Kansas Underground Utility Damage Prevention Act was put into effect, there have been no “incidents” in Kansas related to excavation activities of Occupants (or homeowners).

In 2012, Staff notes that there were no reported excavation damages to transmission lines caused by Occupants. The damages were primarily to low-pressure service lines (71% of Occupant damages) with a lower percentage of damages to distribution mains.

The predominant known excavation work being done fell in the following categories:

1. Sewer work;
2. Landscaping; and
3. Fence work, accounting for the highest percentage (13% of all Occupant damages).

Staff notes that of the Occupants damaging underground facilities while doing sewer work, five out of 10 (or 50%) had provided notice of intent to excavate to the one-call center anyway and the damages were caused by “reasonable care” issues.

As far as damages caused by landscaping, none of the Occupants had provided notice of intent to excavate. However, one significant discovery Staff made was that only 12% of landscaping damages from ALL excavators had provided notice of intent to excavate. Staff considers the bigger issue to be with landscaping overall (which is not a Kansas exemption) and not just with Occupants. It appears that operators may need to provide additional public awareness messages to landscapers in general in an effort to reduce damage from this category of excavator.

In examining the fence work damages to underground pipelines, Staff notes that about 72% of damages showed the root cause as being no notice of intent was provided to the one-call center. Staff also notes, however, that fence work (setting poles for fences in particular) is

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typically done on the outside of property lines where utilities have dedicated private and public easements.

Overall, Staff considers the Occupant exemption in place as it is written does not have a significant enough impact on damages to underground pipeline facilities in Kansas to warrant removing the exemption from Kansas law. Considering the minimal impact associated with damages caused by homeowner excavation activity in Kansas, Staff believes the best solution to mitigate Occupant damages is to have operators enhance their Public Awareness efforts directed at homeowners and landscapers.

Recommendation and Conclusion [in Kansas report]:

Based on all the data and information provided in the Analysis section above, the following conclusions and/or recommendations are being made:

1. An analysis of excavator exemptions found in KUUDPA indicates the exemptions have minimal effects on damages suffered by natural gas piping and have resulted in no reportable incidents since the inception of KUUDPA in 1993; and
2. This Report should be submitted to PHMSA in order to provide a perspective on the impact of underground damages to pipeline facilities in Kansas for use in the PHMSA report to Congress.

### *Virginia Department of Transportation*

... VDOT is furnishing the following comments relative to Virginia's exemptions, to include the following VDOT exemptions per the referenced sections of the Code of Virginia.

Currently, VDOT is exempt from the Virginia statutory requirement that everyone who owns furnishes or transports materials or services by means of a utility line and has the right to bury underground such utility lines shall join a "notification center" for the area. Under Virginia's "one-call" law, the notification center is required to maintain a database that includes the geographic areas in which its member operators desire transmissions of notices of proposed excavation, and which has the capability to transmit, within one hour of receipt, notices of proposed excavation to member operators (Section 56-265.16:1 of the Code of Virginia).

Another one-call exemption is set out in section 56-265.15:1 of the Code of Virginia, which permits excavation without contacting the notification center for "an excavation or demolition during an emergency ... provided all reasonable precaution has been taken to protect the underground utility lines." Section 56-265.15:1 further requires that "[i]n the case of the State highway systems or streets and roads maintained by political subdivisions, officials of the Department of Transportation or the political subdivision where the use of such highways, roads, streets or other public way is impaired by an unforeseen occurrence shall determine the necessity of repair beginning immediately after the occurrence."

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Another type of excavation that is exempt from the requirement to contact the notification center prior to excavation, under Section 56-265.15:1 of the Code of Virginia is "[a]ny excavation for routine pavement maintenance, including patch type paving or the milling of pavement surfaces, upon the paved portion of any street, road, or highway of the Commonwealth provided that any such excavation does not exceed a depth of twelve inches (0.3 meter)."

The VDOT exemption should remain in place for the following reasoning:

According to the Virginia State Corporation Commission, Division of Utility and Railroad Safety, which maintains data on all damages to underground utilities in Virginia, there is no data indicating that VDOT's exemption has caused any safety concerns or damage to pipelines operating within the State.

VDOT underground facilities are located within VDOT right of way, or VDOT easements in rare situations, and excavation is not allowed within VDOT controlled right of way or easements without either a land use permit or project related construction/contract authorization which provides VDOT the opportunity to alert those excavating to the location of the VDOT underground facilities. If the VDOT facilities are damaged, VDOT takes the responsibility to address the incident and repairs accordingly while ensuring the safety of the traveling public and all others. Additionally, VDOT voluntarily locates the underground infrastructure pertaining to ancillary roadway facilities such as signal and lighting conduit/cable facilities when notified by excavators operating within proximity to these facilities through the VDOT call center. The number for the VDOT call center is included in the "Professional Excavators Manual" furnished by the Virginia State Corporation Commission, Division of Utility and Railroad Safety.

The additional cost imposed upon VDOT if the agency were not afforded an exemption from Virginia's one-call notification requirements would be significant; would be borne by the taxpayers who fund VDOT operations, maintenance and construction; and would far outweigh the cost of denying one-call grants to the State. For excavation within VDOT controlled right of way, a permit is required and VDOT will be made aware of such excavation, and thus, the one-call requirement would be duplicative in those cases. Therefore there would be no benefit to VDOT or the public if VDOT was required to participate in the one-call notification center for excavation within VDOT right of way. For excavation outside of the VDOT controlled right of way, there is little benefit to VDOT being notified in advance of such excavation. Excavation outside of VDOT right of way very rarely will result in damage to VDOT underground facilities, as nearly all VDOT underground facilities are located within VDOT controlled right of way. Furthermore, in the rare event that there is damage to a VDOT facility outside of the VDOT controlled right of way due to excavation, VDOT will address the incident and repairs while ensuring safety.

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VDOT and other State DOTs are currently struggling to find financial resources to keep pace with the needed maintenance and construction of the roadways. Any effort at the Federal level to eliminate VDOT's exemption from State one-call requirements would add unnecessary effort and expense to a process in Virginia which has proven effective in achieving the same objectives sought by the one-call grant requirements. Given the data provided from the Virginia State Corporation Commission, which provides no evidence of harm caused by VDOT's exemption, VDOT urges PHMSA to give reasonable and fair consideration to this exemption and others as deemed appropriate by the stakeholders in each respective state. VDOT strongly believes that one-call exemptions, particularly those afforded to State agencies such as VDOT, should continue to fall under the purview of each individual state and that each state should be permitted to decide what exemptions are appropriate, based upon confirmed data and experiences encountered within that state.

Safety in all aspects of its operations is a VDOT core value. VDOT is a member of the Virginia State Corporation Commission's Underground Utility Damage Prevention Advisory Committee and actively participates in all aspects of damage prevention relating to utility facilities. VDOT urges PHMSA to consider the Virginia State Corporation Commission's handling and enforcement of the Underground Utility Damage Prevention Act through a pro-active approach as an example of how all states should address the issue of underground utility damage.

### *New Hampshire Public Utilities Commission*

... The New Hampshire Public Utilities Commission is furnishing the following comments relative to New Hampshire's one-call exemptions with reference to New Hampshire Statutory Authority RSA 374 Underground Utility Damage Prevention System and New Hampshire Chapter PUC 800 Underground Utility Damage Prevention Program Rules.

The New Hampshire Underground Damage Prevention Program has been in existence for over 30 years and is considered a well-established and mature program. The New Hampshire "excavation" exemptions are very specific and limited in nature and do not broadly exempt most notifications. We believe the exemptions in the New Hampshire's statutes and administrative rules are sound and are not the root cause of gas pipeline damages. The New Hampshire Public Utilities Commission's Safety Division maintains an extensive database of every probable violation reported with or without damage. Since 2008, both Excavators and Operators (all utilities including gas operators) have been required to report damages directly to the Safety Division on a monthly basis. Prior to 2008 only Operators (all utilities including gas operators) were required to report monthly and Excavators could voluntarily report.

Currently New Hampshire's exemptions in the one-call system are found in RSA 374:48 Definitions III Excavation: "Excavate", "excavating", or "excavation" means any operation conducted on private property or in a public way, right-of-way, easement, public street, or

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other public place, in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of any tools, equipment, or explosive, and includes but is not limited to drilling, grading, boring, milling, trenching, tunneling, scraping, tree and root removal, cable or pipe plowing, fence or sign post installation, pile driving, wrecking, razing, rending, or moving any structure or mass material, but does not include the tilling of soil for agricultural purposes, landscaping and maintenance of residential property performed with non-mechanized equipment, landscaping activities performed with mechanized equipment that are intended to cut vegetation, including lawn edging, aeration, and de-thatching, excavations permitted or grandfathered under RSA 155-E, or replacement of department-of-transportation-installed delineator posts in the same location.

The same exemptions are also found in the New Hampshire Administrative Rules, Puc 802.05

"Excavation" means "excavation" as defined in RSA 374:48, III, namely, any operation conducted on private property or in a public way, right-of-way, easement, public street, or other public place, in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of any tools, equipment, or explosive, and includes but is not limited to drilling, grading, boring, milling, trenching, tunneling, scraping, tree and root removal, cable or pipe plowing, fence or sign post installation, pile driving, wrecking, razing, rending or moving any structure or mass material, but does not include the tilling of soil for agricultural purposes, landscaping and maintenance of residential property performed with non-mechanized equipment, landscaping activities performed with mechanized equipment that are intended to cut vegetation, including lawn edging, aeration, and de-thatching, excavations permitted or grandfathered under RSA 155-E, or replacement of department-of-transportation-installed delineator posts in the same location.

In both the Statute and Administrative Rules the five exemptions are located in the sentence starting with the statement, " but does not include the". The five exemptions specified are as follows:

**1. Tilling of soil for agricultural purposes:** New Hampshire is not a large agricultural state ranking only 48 nationally. The majority of the State's 4,000 plus agricultural farms are located outside of the natural gas franchise territories. An extensive review of our data covering a ten year period from 2003-2012 has not yielded a single incident where pipelines have been damaged or safety compromised due to this exemption. This review includes both intrastate and interstate pipelines. New Hampshire believes the exemption for tilling of soil for agricultural purposes makes sense and the data supports the continuation of this exemption.

**2. Landscaping and Maintenance of residential property performed with non-mechanized equipment:** It should be noted that all landscaping on commercial property is not exempt. It should also be noted that landscaping of residential property with mechanized equipment such

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as renting a motorized ditchwitch, or motorized rototiller are not exempt. This particular excavation and very limited exemption does not include the following activities:

- Installing a mailbox
- Installing a fencepost or fencing
- Installing lighting or conduit for lighting
- Installing ground rods for electrical meters
- Installing footings and other foundations
- Installing a new septic system
- Removal of stumps or tree roots

The following examples are exempt activities under this exemption:

- Seeding and reseeding existing or newly established lawns.
- Planting shrubbery, plants and or trees by hand.
- Pumping out an existing septic system and removing the cover with a shovel.

It should be noted that using a shovel is considered a form of reasonable care when excavating. An extensive review of our data covering a ten year period from 2003-2012 has not yielded a single incident where pipelines have been damaged or safety compromised due to this exemption. This review includes both intrastate and interstate pipelines. New Hampshire believes the exemption for landscaping and maintenance of residential property with non-mechanized equipment makes sense and the data supports the continuation of this exemption.

**3. Landscaping activities performed with mechanized equipment that are intended to cut vegetation, including lawn edging, aeration and dethatching:** The following examples are exempt activities under this exemption:

- Using a lawn mower on commercial or residential property.
- Using a weed wacker for trimming on commercial or residential property.
- Aerating tees and greens on golf courses.
- Aerating and dethatching of lawns using mechanized equipment.

An extensive review of our data covering a ten year period from 2003-2012 has not yielded a single incident where pipelines have been damaged or safety compromised due to this exemption. This review includes both intrastate and interstate pipelines. New Hampshire believes the exemption for specific landscaping activities using mechanized equipment makes sense and the data supports the continuation of this exemption.

**4. Excavation permitted or Grandfathered under RSA 155-E:** This exemption relates to gravel pits and other aggregate types of operations that were in existence prior to August 1979. The aggregate operations would include specific pits or quarries that extract fill, gravel, rock, sand

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and construction grade granite as well as crushed rock. The majority of the State's aggregate and quarry operations are outside of the natural gas service territories. An extensive review of our data covering a ten year period from 2003-2012 has not yielded a single incident where pipelines have been damaged or safety compromised due to this exemption. This review includes both intrastate and interstate pipelines. New Hampshire believes the exemption for specific gravel pit activities using mechanized equipment which are ongoing daily makes sense and the data supports the continuation of this exemption.

### **5. Replacement of Department-of-Transportation installed delineator posts in the same**

**location:** This has been interpreted to only exempt existing delineator posts that are put in the same location and same depth. This exemption does not include the following activities:

- Establishing or maintenance of road box.
- Installing or maintaining guardrail.
- Installing or maintain signage.
- Installing new delineator posts on newly built highways.
- Installing footings and other foundations in highway right of ways.
- Grading of highways.
- Installation or maintain drainage structures.
- Installation or maintenance of curbing.
- Paving or milling of existing roadways.
- Installation of utilities within highway right of ways.
- Test bores and soil samples.
- Blasting and Explosive Devices.
- Directional Drilling, Boring or other Trenchless Technologies.

An extensive review of our data covering a ten year period from 2003-2012 has not yielded a single incident where pipelines have been damaged or safety compromised due to this exemption. This review includes both intrastate and interstate pipelines. New Hampshire believes the exemption for existing delineator posts makes sense and the data supports the continuation of this exemption.

The volume of (One-Call) excavation notifications for the ten year period from 2003-2012 is approximately 500,000 notifications.

### ***American Gas Association (AGA)***

...excavation damage continues to be a leading cause of incidents involving natural gas pipelines. AGA believes a component hindering the effectiveness of damage prevention initiatives is the existence of exemptions under State one-call programs. These exemptions exist in various forms, but typically allow a party to perform some type of excavation without first

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having to dial 811 to have underground utility lines marked. Many exemptions are legacy in nature and have been in place since the inception of that particular State's one-call law.

...in PHMSA's public workshop held on March 14, 2013 ... AGA focused on the following positions:

- Certain exemptions may be warranted, but only if data exists showing the exemptions pose no risk to pipeline safety.
- Data needs to be collected at the State level to determine which specific exemptions truly represent no risk to pipeline safety. Data collected nationally may be useful in a general analysis, but since one-call laws are different for each state, data is ideally collected at the State level. In addition, it is AGA's observation that a one-call exemption may result in no excavation damages in one state, but may result in numerous excavation damages in another state.
- Exemptions are an inherent contradiction to the message that the Common Ground Alliance (CGA) and our industry have advocated for over a decade - "Always Call Before You Dig."
- Exemptions send a message that certain types of excavation do not pose a risk to underground facilities and do not jeopardize the safety of the public or the excavator.
- Even if an excavation damage caused by an exempt excavator does not result in injury or reportable incident, it's still a pipeline safety risk, wastes resources and undermines our mission of getting all excavators to call before they dig every time.
- There is no charge to the excavator for contacting 811 and safety can only be enhanced if a call is made and lines are marked.
- Even if a particular exemption at the State level has never resulted in damage to a pipeline, there is still a possibility that the exemption resulted in damage to an electric, communications, or other underground utility line (this data may not be reportable to a governmental entity). Any damage to an underground facility represents a potential threat to public safety.

AGA does not collect data from its member companies on the number of pipeline damages that incur annually as a result of exempt excavation activity. However, for the purpose of its presentation at the workshop, AGA did send out a brief survey to ten of its member companies (all with over 800,000 natural gas customers). The highlights of the survey are summarized below:

- The companies represent operators with pipelines in 15 different states.
- The number of annual damages per operator caused by 3rd party excavators exempt from dialing 811 ranged from 5 to 150.

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- Those damages caused by exempt excavations range from 0.1 % to 6% of their total excavation damages on an annual basis.
- Results varied on the type of exempt excavators causing the most damages. One company indicated local municipalities in its service territory caused approximately two-thirds of the damages incurred from exempt excavators. Another company indicated hand tools were the cause of over 90% of its damages from exempt excavators (with a 2 to 1 ratio of those caused by homeowners vs. those caused by contract excavators). Two other companies indicated that their State DOT was the highest at-fault party among damages caused by exempt excavators.
- Exempt excavators causing damage to pipelines included State DOT, homeowners, farmers, municipalities, railroad, and other parties digging under a general exemption (i.e. - depth restrictions or hand tools).

In 2013, the [CGA] issued a "DIRT Natural Gas Distribution Facilities Report" which provided analyses and observations based upon the 2011 damages to gas distribution facilities, as collected by CGA's Damage Information Reporting Tool. It found that 29% of the damages caused to natural gas distribution facilities are due to "notification not made" to 811. The report could not determine what percentage of those damages involved exempt excavators since this granularity does not currently exist in the CGA data. Still, AGA believes it is indisputable that foregoing the call to 811 increases the possibility of pipeline damage occurring.

In only the past five years, 3rd party excavation damage has caused 32 serious pipeline incidents resulting in 11 fatalities, 39 injuries and nearly \$9 million in property damage. The pipeline industry spends millions of dollars annually in educating the public on the importance of calling 811. Each exemption to a State's one-call law contradicts the basic message we are working diligently to send to the public. In the interest of public safety, AGA would encourage PHMSA to continue providing incentives to State programs to limit exemptions allowed for one-call notification.

### *Pennsylvania One-Call System (POCS)*

William Kiger, President of Pennsylvania One Call Systems (POCS) provided information and comments regarding exemptions to the Pennsylvania Underground Utility Protection Law.

#### Section 1 of the PA One-Call Law provides definitions:

"**Excavation work**" means the use of powered equipment or 28 explosives in the movement of earth, rock or other material, and includes but is not limited to anchoring, augering, backfilling, blasting, boring, digging, ditching, drilling, driving-in, grading, plowing-in, pulling-in, ripping, scraping, trenching and tunneling, **but does not include** soft excavation technology such as vacuum, high pressure air or water, tilling of soil for agricultural purposes to a depth of less

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than eighteen inches, the direct operations necessary or incidental to the purposes of finding or extracting natural resources, political subdivisions performing minor routine maintenance up to a depth of less than eighteen inches measured from the top of the edge of the cartway or the top of the outer edge of an improved shoulder, in addition to the performance of incidental de minimis excavation associated with the routine maintenance and the removal of sediment buildup, within the right-of-way of public roads or employees of the Department of Transportation performing within the scope of their employment work up to a depth of twenty-four inches beneath the existing surface within the right-of-way of a State highway.

Mr. Kiger's comments: *"Minor routine maintenance" permits State and Local Government workers to work within their R/W's [rights-of-way]. Reports say PennDOT pays up to \$4M annually in damages to Utilities, Municipalities. Scrapes and gouges in pipelines may not be determined for years after. It also falsely allows these workers to stretch this exemption with many other projects. PennDOT call volume has dropped to 10% of it's volume of 10 years ago. There are a number of Districts within the Department with no notifications in the past 13 months. Some very populated Counties with few notifications during this period.*

"**Facility owner**" means the public utility or agency, political subdivision, municipality, authority, rural electric cooperative or other person or entity who or which owns or operates a line. The **term does not include** the Department of Transportation within a State highway right-of-way. The term does not include any of the following: (1) A person serving the person's own property through the person's own line if the person does not provide service to any other customer. {**HOMEOWNER EXEMPTION**} (2) A person using a line which the person does not own or operate if the use of the line does not serve more than a single property.

Mr. Kiger's comments: *DoT has lost many opportunities to interact with the 3500 member facility owners. They have had a seat on POCS Board since 1996. In 1985 POCS offered automation of their Permit System as we had the City of Pittsburgh who's Permit revenue went from \$7,000 to \$350,000 back in the late 70's in just 4 years. The City also were able to eliminate their inspectors that were no longer necessary since the Public Works office had details of most excavations happening within the borders. In the nearly 30 years they have missed significant revenue and saved the cost of the new system they are deploying decades later. Oversight of the 45,000 miles of state roads have suffered significantly while they have put off participation all these years. Estimated annual cost was \$250,000. That could be made up by additional permit revenue.*

"**Line or Facility**" The **term shall not include** crude oil or natural gas production and gathering lines or facilities unless the line or facility is a regulated onshore gathering line as defined in regulations promulgated after January 1, 2006, by the United States Department of Transportation pursuant to the Pipeline Safety Act of 1992 (Public Law 102-508, 49 U.S.C. § 60101 et seq.), if the regulated gathering line is subject to the damage prevention program requirements of 49 CFR § 192.614.

Mr. Kiger's comments: *POCS has negotiated during 4 legislative efforts over the past 25 years with this Stakeholder group. Each occasion reached an agreement that was never held on their part. Pennsylvania has 384,000 conventional oil & gas wells. These wells are situated*

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*in much the same areas the new 5,000 shale gas wells are. Shale industry publications predict 120,000 shale wells by 2020. The network of gathering and well lines exceed 100,000 miles of conventional gathering lines many of which are no longer in remote areas. These lines have been installed since 1857 when the first well was drilled. Pipeline Industry Safety Standards have not been implemented or used in more than 50% of those lines.*

*Since 1974 these lines should have been filed with the County Recorders of Deeds as the original Act required. It also required that changes be filed within 5 Business days. Only a fraction of the 1,000+ Owner/operator's filed. The 1986 Act amendment required them to join for all lines greater than 3", again few complied.*

*911/Emergency management agencies do not know when a leak or damaged line is reported who's line it is, so they notify the "Regulated Gas" provider(s) in the area and that Provider must respond and make the site safe and determine whether the line is theirs or not. When it's not theirs th[e]y must contact this stakeholder group and by process of elimination determine whose it is all the while standing-by keeping the site area safe and possibly making at least temporary repairs to stop the flow of gas.*

*This group also does little to mark and maintain markers for their lines and in many cases only have a general idea of where their lines are. Records have been lost or never existed in the first place for those lines some from the late 1800's.*

*Environmental issues go undetected for long periods because they are not required to surveil their lines when they do know where they are. Again we are talking about 100,000 miles of lines in approximately 50 of the 67 counties. Ongoing maintenance practices are not part of a regular process. In small diameter pipe this is difficult and costly, therefore not common in this industry.*

*Federal Regulations have not followed the rest of the Pipeline Industries effort to maintain high safety and maintenance standards. The current DOT regulations written by an "Industry" user group further watered down previous regulations and any time issues are raised the "Industry" pushes a technical amendment which they says is an unnecessary word or "No one uses or has that situation. An example was the word "Incorporated" where they suggested it had no meaning in rural areas where they perceive their lines are. Pennsylvania has no unincorporated territory, so all pipelines during the timeframe that language was in the regulations fell under federal oversight and should have qualified them as "lines" under PA Law for those decades 1987 through 2008.*

*Farm Taps – a practice the industry has used in negotiating property use for their wells and pipelines and mineral rights with the land owners providing them free gas service as a component of the arrangement. In the last decade or so they have put meters in and monitors on the gas provided turning the lines into "lines" under PA Law, from that point on. Act 287 as amended requires all Facility Owners to participate if their lines serve a customer or consumer.*

*Inspection of these pipelines is seldom done and reporting is not required in unpopulated areas. No updates are done as Urban, suburban and rural growth over takes these unpopulated areas. Act 13 of 2011 stipulated these lines be protected by One Call until the Industry group convinced someone there was a technical error and they added a sub-clause*

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*reference in the Act changing the participation requirement the sponsors intended to just having a Damage Prevention plan, again no oversight or inspection = no plan.*

**"Minor routine maintenance"** means shaping of or adding dust palliative to unpaved roads, removal and application of patches to the surface or base of flexible base, rigid base or rigid surface roads by either manual or mechanized method to the extent of the existing exposed base material, crack and joint sealing, adding dust palliative to road shoulders, patching and cutting of shoulders and shoulder bases by either manual or mechanized methods to the extent of the existing exposed base, and cleaning of inlets and drainage pipes and ditches.

Mr. Kiger's comments: *While we have significantly reduced the prescriptive requirements they do not appear to be followed in practice. Damage from this type of work where the PW equipment operators do not follow the prescription or simple are not diligent in the operation of the equipment or previous work has reduced the original cover on lines installed properly within the Public Rights of way they are responsible to manage for the Public. Many times damage results from repairs to guide rail and ditch cleaning beyond the 18 or 24 inch prescription because the scope of the repair was not completely understood by the operator as they received the assignment. The operators expand this exemption beyond its prescribed depth not wishing to wait the proper notice period or come back to the site after the 3 day notification period.*

Section 6 of the PA One-Call Law states: **Except as otherwise** provided in this act, this act shall not be deemed to amend or repeal any other law, Commonwealth regulation or any local ordinance enacted pursuant to law concerning the same subject matter, it being the legislative intent that any such other law or local ordinance shall have full force and effect where not inconsistent with this act.

Mr. Kiger's comments: *Really not sure of the damage or scope of this provision of the Law but the Local government fought for this provision.*

### [POCS Damage Tracking]

POCS tracks damages and has for more than 30 years. [See Attached Chart 1995 to Present]

POCS has also developed its own Damage Collection System called PDD for Pennsylvania Damage Database allowing participants reporting damage to use Ticket data or Geospatial coordinates to incorporate that information into the report along with maps, drawings, photos, with the Damage Report. Once all the data is compiled the user can via XML protocol submit to DIRT, Insurance, State Enforcement agency in a single data entry session. Reports for the various Stakeholder[s] are available on demand. A current Grant from PHMSA is helping us promote the PDD program and an initial through the PA PUC helped us with the original concept design. This will also be the reporting system for the proposed law which currently stipulates online reporting through PDD whose data will be forwarded to the Commission once the back-office work is complete.

During a recent follow up effort the damage reports were reviewed with the originator on a sampling of:

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592 All Pa Damages Database Reports with Comments

Breakout by involved category:

109	Abandoned Lines	70.32%
32	Service Line	20.65%
6	Routine Road Maintenance	3.87%
5	Hand Digging	3.23%
1	Farming	0.65%
1	Well Gathering	0.65%
1	Visible Culverts	0.65%
<hr/>		
TOTAL	155	Damages as a result of exemptions or 26.18% indicate a link to a current Exemption

## Appendix C: Common Ground Alliance Damage Information Reporting Tool

The total number of pipeline incidents caused by third-party excavation damage in any given year is just a small fraction of the number of excavation damage incidents to all underground facilities. The Common Ground Alliance (CGA) is a stakeholder-driven, national organization that promotes effective damage prevention practices for all underground facilities, including pipelines. Supported by PHMSA, CGA's primary purpose is the promotion of safe underground excavation practices and the prevention of damages.

The CGA has been collecting and examining data regarding damage to underground facilities, including pipelines, through its Damage Information Reporting Tool (DIRT) since 2008 to better understand the root causes that lead to these events and to develop public awareness plans to minimize the risk of future events. Though the DIRT database does not include all damage data and data quality varies among submitters, the volume of data collected by the CGA DIRT provides a much broader base of information to help understand why third-party excavation damage events occur.

DIRT submission is voluntary and anonymous. Each year, the CGA issues an annual DIRT report that provides an analysis of the damage data submissions from the previous year. To help ensure anonymity, the DIRT Report aggregates and analyzes data at the national and regional levels, but not at State levels. In recognition and support of this study, and as noted in the Executive Summary of the CGA's 2012 DIRT Report, "With exemptions being a key area of interest in the damage prevention industry, the [DIRT] reporting team focused additional analysis on exemptions to one-call notification requirements in each state and the potential effects they may have on excavation damages." That section of the 2012 DIRT Report is provided below in its entirety.<sup>1</sup>

### Additional Analyses: Impact of Notification Exemptions

The *Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011* (passed by Congress on December 13, 2011) requires the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) to conduct a study on the impact of excavation damage on pipeline safety. This includes an analysis of exemptions to one-call notification requirements in each state and the potential adverse

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<sup>1</sup> Note that the footnote numbering in the excerpted section will not match that of the original CGA document. Additional footnotes have been added for clarification of some terms. Also, for some additional figures (exhibits) and appendices referenced in the excerpt, the reader will have to refer to the original CGA document.

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effects they may present in relation to excavation damages.<sup>2</sup> Given the importance of this issue, an analysis of the possible impact of various notification exemptions on excavation damages to underground facilities was performed using the 2012 dataset. Appendix 3<sup>3</sup> is a table listing the U.S. states versus 14 notification exemptions

A comparison of the damage rate per 1,000 tickets calculated for the 36 states examined in the damages per 1,000 one call ticket analysis above suggests that as notification exemptions increase, so do damage rates (see Exhibit 24). Half of the 36 states analyzed have less than five notice exemptions, whereas the other half have five or more notice exemptions. The average damage rate per 1,000 tickets is 108% greater for the 18 states with five or more notice exemptions (7.33 vs. 3.52). Furthermore, a 0.51 positive correlation coefficient<sup>4</sup> is calculated for this comparison.

Appendix 3 indicates that for the 50 states, there are 50 unique combinations of exemptions. It is possible that the number of notice exemptions has a greater influence on damage rates than the actual individual notice exemption(s). The inconsistency of notice exemptions across the states may also be a contributing factor. The variety of exemptions may lead to excavators wrongly assuming a notice exemption exists when in fact it does not. For example, when neighboring states have different notice exemptions, an excavator that works in these states may become confused about which exemptions apply in which states. Or it may be that as the number of notification exemptions increases, public perception of the overall importance of calling 811 decreases - i.e., "the process can't be that effective if there are so many exceptions for it."

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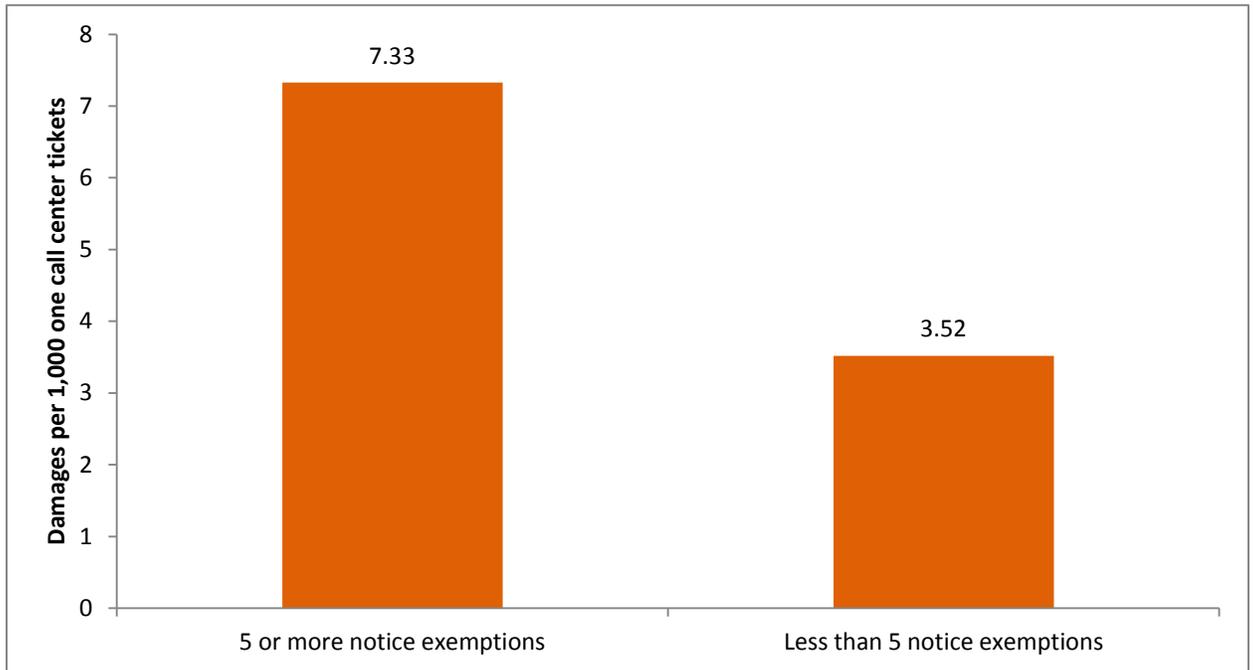
<sup>2</sup> More information concerning PHMSA's efforts related to one-call exemptions, including a web-cast of the March 14, 2013 Public Forum on the subject, can be found at: <http://primis.phmsa.dot.gov/meetings/MtgHome.mtg?mtg=85&nocache=2002>.

<sup>3</sup> PHMSA compiled this information by surveying the state PSC/PUC's and one-call centers. See: <http://primis.phmsa.dot.gov/comm/DamagePrevention.htm?nocache=715>. Any corrections or updates to this information should be submitted to: [anmarie.robertson@dot.gov](mailto:anmarie.robertson@dot.gov).

<sup>4</sup> A coefficient of correlation is a mathematical measure of how much one number can expect to be influenced by changes in another. It is closely related to covariance. A correlation coefficient of 1 means that the two numbers are perfectly correlated: if one grows so does the other, and the change in one is a multiple of the change in the other. For this particular analysis, all it means is that about half of the damage rate may be explained by the number of notification exemptions present for a given state.

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*Exhibit 24: Average damage rate per 1,000 tickets for states with five or more notice exemptions compared to states with less than five notice exemptions*



The DR&EC<sup>5</sup> examined the effect of several exemptions for which DIRT has specific corresponding data. For example, Part D of DIRT includes *Agriculture* as a *Type of work performed*, *Occupant* as a *Type of excavator*, and *Hand tools* as a *Type of excavation equipment*. Using known data (i.e. excluding Unknown/Other and Data not Collected), states were grouped according to whether they did (Yes) or did not (No) have the exemption. The percentage of damages with a root cause of *No notification made to the one call center* was calculated using the data relative to the exemption.

For example, for the Property Owner exemption, the calculation is:

Number of events with Type of Excavator = *Occupant* AND root cause = *No notification*

Divided by:

Number of events with BOTH a known *Type of Excavator* AND *Root Cause*

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<sup>5</sup> CGA Data Reporting and Evaluation Committee

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The results are shown in the following table.

<b>Exemption</b>	<b>Yes %</b>	<b>No %</b>
Property Owner (Occupant)	7.66	5.22
Hand Tools	9.30	11.05
Both Property Owner & Hand Tools <sup>6</sup>	28.8	22.0
Agriculture	0.18	0.24

Although DIRT does not capture the depth of damaged facility, a similar calculation<sup>7</sup> was performed comparing states that have a depth-limited exemption and those that do not. This calculation showed an insignificant difference, with those having a depth-limited exemption at 25.3% and those not having one at 25.6%. However, because property owners are often likely to be using hand tools at shallow depths, the exemptions for property owners, hand tools and depth can overlap and interact in many different combinations. Certain combinations of exemptions may have more of an effect on damage rates than individual exemptions. This analysis suggests that exemptions for property owners, especially when coupled with exemptions for hand tools, can lead to higher percentages of damages caused by lack of one call notification. It also suggests that exemptions for agriculture do not lead to higher rates of damages due to lack of notice.

There are some caveats to keep in mind however:

- As the number of known DIRT fields required for the calculations increases, the sample size of event records decreases. In addition, only 11 states are believed to have all or most of their damages included in the DIRT data set. Therefore, some states have very few, or even zero, events represented in the calculations.

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<sup>6</sup> States that have one or the other exemption are not included. The percentages become larger as the denominator becomes smaller, which occurs because the event records must contain three known elements: Type of excavator, Type of excavation equipment, and Root Cause.

<sup>7</sup> A straightforward calculation of *Notification Not Made* divided by *All Known Root Causes*

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- There may be some inconsistent data collection occurring. For example, in states where excavation with hand tools is exempt from one call notification, stakeholders might not capture such damages in their data, perhaps reasoning that it could not have been prevented since it's not a rule violation.
- The degree of stakeholder education and enforcement are also variables that impact damage rates. For example, a state may have a relatively large number of exemptions, but still have a low rate of damages because it does well at educating stakeholders on what does and does not require one call notification, and at enforcing its regulations.
- A calculation for an individual state might yield a substantially different result when compared to a calculation for an aggregated group including that state.

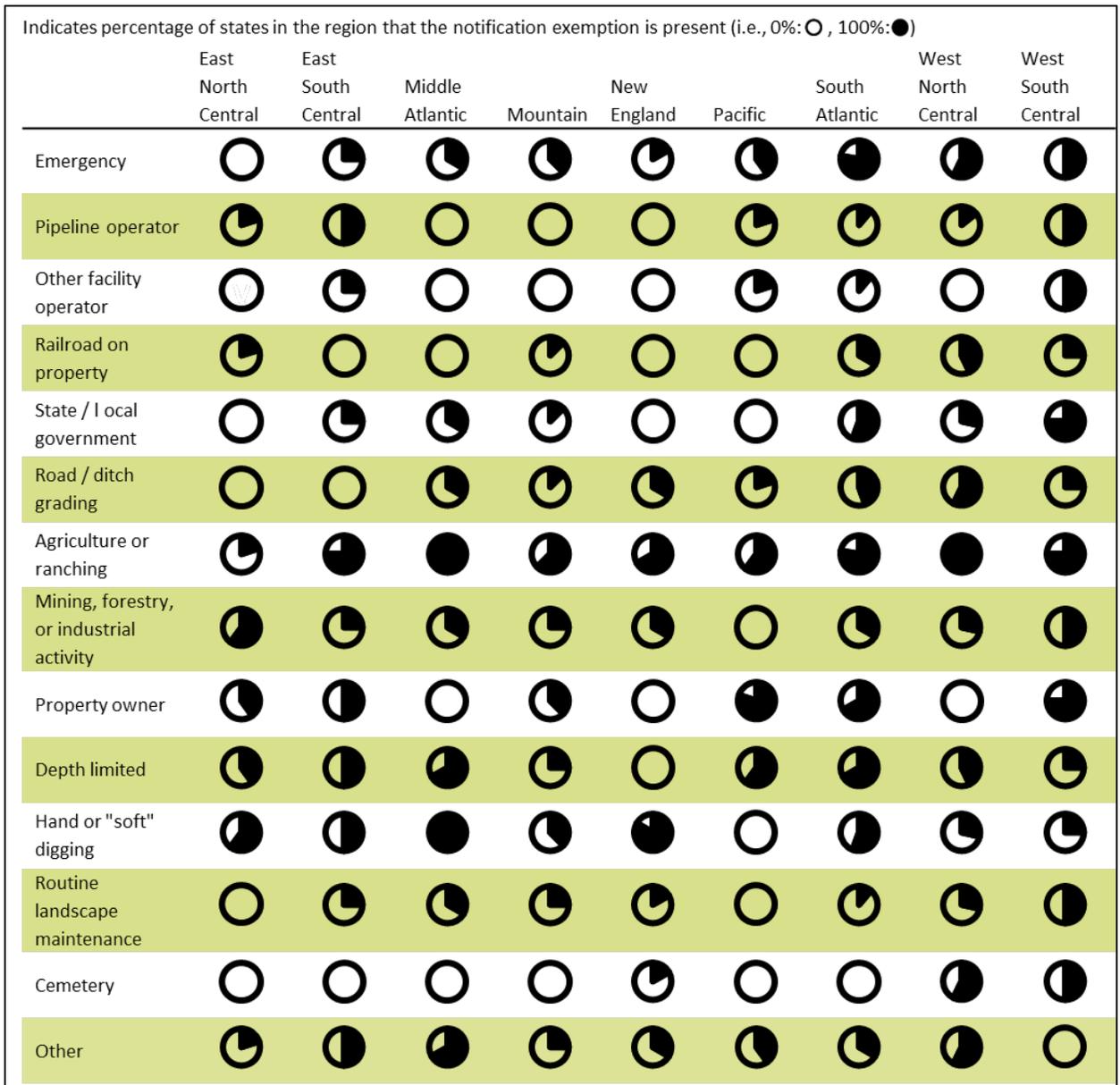
Over the years, the DR&EC has consistently avoided analyzing data with granularity beyond the regional level (formerly OCSI, now U.S. Census based). However, by examining the extent of exemptions at the census division level (see Exhibit 25), and juxtaposing it with the data presented in Exhibits 20 through 23-A, some observations can be made that may warrant further examination at a more localized level.

The Pacific division has the highest percentage of *Notification NOT made* as the root cause – 41% from Exhibit 20. From Exhibits 21 and 22 we see that it has relatively large percentages of damages involving Occupant/farmer and Hand Tools. From Exhibit 25 we see it has relatively high percentages of Property Owner and Depth-Limited exemptions, but no exemptions for Hand Tools. On the surface this appears contradictory, but it may be that the property owner and/or depth exemptions are coming into play when hand tools are being used. Or perhaps inconsistent data collection, as described in the third bullet above, also contributes to the Pacific division appearing so different from the other divisions in Exhibit 22 regarding hand tools.

The West North Central division has the lowest percentage of *Notification NOT made* as the root cause – 16% from Exhibit 20. From Exhibit 25 we see it has no property owner exemptions, few hand tool exemptions, and less than 50% depth-limited exemptions. From Exhibits 21 and 22 we see it falls in the “middle of the pack” for damages involving Occupant/farmer and hand tools.

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Exhibit 25: Percentage of notice exemptions per division



The Agriculture or Ranching row of Exhibit 25 has the most darkened circles. The Middle Atlantic division has 100% agriculture or ranching exemptions, and has the highest percentage of events involving agriculture (Exhibit 23-A). The West North Central division, covering much of the “breadbasket of America,” also has 100% agriculture or ranching exemptions, but has only 1% more events involving agriculture than the East North Central division (see Exhibit 23-A; 30% versus 29%), which has the fewest agriculture or ranching exemptions. Exhibits 23 and 23-A indicate that overall there are few damages involving agriculture as the *Type of work performed*. This seems to indicate

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that agriculture exemptions have little impact on damage rates. Facility operators and farmers may be working well together in the farming states to avoid damages. Farmers may be making one call notifications despite the exemptions, especially when uncertain of utility locations in areas where they will be working. In 2008, the CGA Education and Marketing Committee launched a targeted Agriculture Campaign in partnership with the Progressive Agriculture Foundation. This may also be contributing to low damage rates in spite of the numerous exemptions.

The analyses in this report examine the data at a high level. Therefore, and because of the caveats discussed above, this analysis should be viewed as initiating a discussion of exemptions rather than the final word. In addition, this analysis is referring to damages and damage rates in an aggregated and somewhat abstract manner. Individual events are real to the people involved, and one high-profile incident with fatalities and media and political attention could change the dynamics of this discussion.

By using the Query Wizard and Virtual Private DIRT features, stakeholders can perform their own similar calculations at a more localized level to assess the impact of specific exemptions. In addition, as the quantity and quality of data reported to DIRT increases, the DR&EC will be able to perform more meaningful analysis. For example, it may be worthwhile to separately analyze occupants and farmers and their relationships with agriculture, hand tools, notification not made, etc. However, Exhibit 27 from the Data Quality Index discussion indicates that 71% of event records do not provide the type of excavation equipment, 41% do not provide the type of work performed, 38% do not provide the type of excavator, and 27% do not provide a root cause. This means that as the data is segmented to perform these analyses, the sample sizes become smaller and therefore possibly less representative of what is actually occurring.

The DR&EC welcomes suggestions on other analyses that could be performed using the DIRT data-set, and stands ready to assist PHMSA as it moves forward with its study.

Below are the CGA Data Reporting and Evaluation Committee's recommendations to damage prevention stakeholders found in the 2012 DIRT Report. As noted in the report, "These recommendations are based on analysis of the 2012 DIRT Report and are intended to enhance damage prevention efforts and the data collection process with a focus on the overall goal of reducing damages."

The CGA recommendations may not all be directly related to exemptions to State damage prevention laws. However, three of the recommendations mention exemptions and those references have been underlined and italicized for emphasis.

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1. Improve the quality of event data and information received by reminding and referring reporting stakeholders to the DIRT User's Guide. Greater damage prevention insights may be gained simply by reducing the amount of *Unknown*, *Other*, and *Data Not Collected* responses as opposed to the perhaps more difficult task of getting non-submitters to submit.
2. Continue to promote "Call Before You Dig" in accordance with Best Practice 5-1: One Call Facility Locate Request. This includes encouraging locate requests even when notification exemptions exist. Efforts should be focused on those stakeholder groups that are less likely to make a locate request (e.g., homeowner, farmer, small landscaping and irrigation contractors) and markets where notification is less frequent (e.g., states with many notification exemptions). When possible, make it a requirement (e.g., incorporating obtaining a one call ticket into existing permitting/contract processes).
3. Consider the number of, combination of; and rationale for notification exemptions and their potential impact on rates of damage to underground facilities. Additional analysis of these relationships should be conducted.
4. Educate all stakeholders on existing damage prevention best practices.<sup>8</sup> This may include highlighting certain best practices for different stakeholder groups, markets, etc., based on the results of DIRT analyses.
5. Identify additional stakeholder-specific DIRT reports (e.g., Natural Gas facilities). Continued segmentation of the DIRT data set will further lead to the identification of damage prevention practices best suited for different stakeholder groups.
6. Urge 100% one call center submission of incoming ticket request data (i.e., electronic, fax, and voice requests) to CGA through the One Call Systems International data collection tool. This will improve the damage rate calculation and provide better understanding of the efficacy of underground excavation damage prevention efforts.
7. Determine additional external data and information sources (e.g., PHMSA notice exemptions study) that can introduce new analyses. Insights that may otherwise not be apparent may result.

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<sup>8</sup> Appendix 4 contains a table of the DIRT Root Causes and the Best Practices that most closely relate to them.