

PPTS OPERATOR ADVISORY: LANDOWNER/TENANT ACTIVITY IMPACT ON THIRD PARTY DAMAGE

Executive Summary

This Advisory focuses on one aspect of Third Party damage, those incidents involving farming and agricultural businesses and homeowners, including tenants or renters. We group these incidents together because these entities are not traditional “excavators” and preventing damage appears to require precisely targeted outreach strategies.

The numbers reported here are drawn from PPTS, a voluntary reporting database for hazardous liquids pipeline operators. Participants in PPTS operate about 85% of the hazardous liquid pipeline mileage under the jurisdiction of the Pipeline and Hazardous Materials Safety Administration.

In the 8-year period 1999-2006, 123 incidents were reported to PPTS that involved damage caused by third parties excavating around a pipeline. Of these, 44 or 35% were caused by Landowner/Tenant Activity, which includes farming and agriculture (32 incidents), and homeowners/renters or activities relating to their property (12 incidents).

These Landowner/Tenant activities accounted for 36% of the volume spilled along Rights-of-Way and resulted in 1 fatality, 4 injuries, and 3 incidents involving a fire and/or explosion. Notably, in 75% of the incidents involving farming activities and in 67% of the incidents involving homeowners, their tenants or their property, the operator ascribed the cause to “Failure to Use One-Call.” This is much higher share than for other groups, and indicates a need to further improve outreach to these parties concerning the one call system.

“Trenching, grading, and backfilling” are major landowner activity threats to pipelines. They caused 26 of the 44 incidents attributable to Landowner/Tenant Activity, including the incidents that involved an injury. The laying of drain tile, digging a pond, or the construction of terraces are examples. In 17 of the 21 incidents where the depth of cover was known, the cover was only 16-36”. The number of incidents has declined markedly over the 8 years, but there is still cause for concern. While infrequent, these incidents still carry the potential for injury or death.

The following Advisory includes the Data Mining Team’s Considerations for Operators. Some highlights of these Considerations:

- Utilize GIS with other mapping tools to assess with precision where your pipelines traverse farms and enhance your outreach efforts with these entities.
- Innovate in outreach programs to improve their effectiveness with these unique audiences.
- Participate in local business groups and community planning organizations to increase awareness and communication and to address encroachment issues.
- Reread, with fresh eyes, your required Public Awareness program materials to ensure that state one call requirements are clearly covered. Also ensure landowners are aware of the hazards regardless of state rules.
- Lend emphasis to improving state programs in areas you operate and support aggressive enforcement of One-Call statutes, including legal redress of violations.
- Evaluate whether your company's ROW maintenance and surveillance processes are consistently identifying landowner/tenant activity for potential encroachment.
- Examine the root cause of incidents involving landowner/tenants company-wide. Search for any trends not readily apparent in company incidents by participating in industry forums and using industry data.

Landowner/Tenant Activity – Major Component of Third Party Damage

For PPTS, a “third party” is a person or persons not involved with operating or maintaining the pipeline. Examples of third parties would be farmers, homeowners, excavators or another utility operator’s construction crews. These are people who, in the course of their normal activities, may come in contact with a pipeline and cause damage that results in damage or a spill.

Between 1999 and 2006, 123 Third Party Damage incidents were reported to PPTS that occurred along the right-of-way and met the requirements for detailed reporting (a release of 5 barrels or more, or one involving a death, injury, fire, or explosion). Of these, 35% (44 in total or 5.5 per year), were caused by Landowner/Tenant Activity. These Landowner/Tenant Activity incidents

- **Significantly impacted the environment:**
 - Accounted for 44,300 barrels released;
 - Accounted for 36% of all reported volume released along the right-of-way (ROW) in accidents involving third party excavation/mechanical damage.

- **Affected public safety:**
 - Accounted for 1 fatality;
 - Accounted for 4 injuries (1 injury in each of 4 incidents; 1 of the incidents involving an injury also included the single fatality);
 - Accounted for 3 incidents involving fire and/or explosion.

- **Included activities covered by Damage Prevention:**
 - Farming activities accounted for approximately 75% of the total number of incidents in the Landowner/Tenant category;
 - “Failure to use One-Call” was identified as the apparent primary cause in almost 75% of the Landowner/Tenant incidents.

Excavation/Mechanical Damage Incidents Caused by Third Parties, 1999-2006								
Damaging Party/Activity Category	3-Yr. Avg. Ending in Year Shown						Ann'l Avg.	% of Total
	2001	2002	2003	2004	2005	2006	'99-'06	'99-'06
Landowner/Tenant (a)	8.7	8.7	6.0	4.3	3.0	2.0	5.5	35.2%
One-Call Partners (b)	6.3	6.3	3.7	4.0	2.7	2.3	4.1	27.2%
Road Constr/Maint (c)	3.0	2.0	2.3	0.7	1.3	0.7	1.6	10.4%
All Other Parties (d)	5.7	4.3	3.7	3.3	2.3	3.0	4.1	27.2%
Total	23.7	21.3	15.7	12.3	9.3	8.0	15.4	100%
Percentages do not add due to rounding.								
Includes incidents 1) involving a release of 5 barrels or more, or death, injury, fire or explosion; 2) occurring along the ROW; and 3) involving failure at the time the damage occurred. Categories include: (a) Farming/Agricultural business; Homeowner or other activity related to homeowner residence; (b) Other liquid or gas transmission pipeline operator or their contractor; Other underground facility operator or their contractor; (c) Road construction or maintenance; (d) Residential or commercial development, Railroad construction, maintenance, or repair; Waterway or reservoir construction or maintenance; Offshore oil production, maritime, shipping, or fishing activity or equipment; Inland waterway oil production, maritime, shipping, or fishing activity or equipment; Other damaging party or activity.								

The frequency of these Landowner/Tenant incidents has declined markedly over the 1999-2006 period. Because the potential consequences are so high, however, these incidents remain a continuing focus for the hazardous liquids pipeline industry (or ‘industry”).

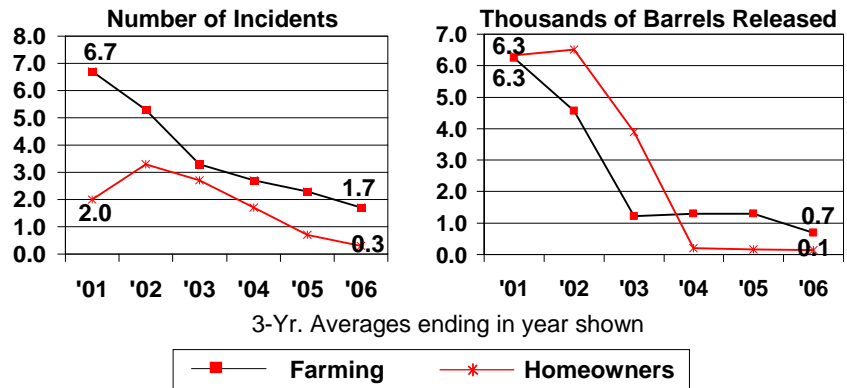
Closer Look at Third Party Damage by Landowner/Tenant Activity, 1999-2006

Breaking Down the Landowner/Tenant Category - Improvement, but still more to do

The Landowner/Tenant category is broken out further, into Farming/Agricultural Business and Homeowners [including tenants, other residents or other activity related to their properties]. As shown in the charts below, farming caused the larger share of the incidents, nearly 75%.

As also demonstrated in the charts, both incidents involving farming activity and those involving homeowner activities have improved markedly in the period since 1999. In the first three-year period (ending in 2001), there were 6.7 incidents per year caused by farming activities, and in the most recent three-year period (to 2006), there were 1.7 incidents per year, for a decline of 75%. For

Incidents Caused by Landowner/Tenant Activity, 1999-2006



homeowners, the decline was even sharper at 84% from the first three-year average to the most recent. In fact, in the three years 2004-2006, there was only one incident involving a homeowner. The decline in the number of barrels released was even steeper: an 89% decline for release volumes involving farming activities, and a 98% decline for release volumes involving homeowner activities.

The improvement evidenced by these data has come about for a variety of reasons, chiefly among them is the industry’s broad and deep focus on reducing the number of, and opportunity for, releases caused by third party excavation and mechanical damage. The recommended practices in API RP 1162, “Public Awareness Programs for Pipeline Operators,” address communications with neighbors along the ROW, exactly the types of families and businesses that are the subject of this Advisory. The practices outlined in API RP 1162 are not voluntary; 49 CFR Part 195.440 requires that all operators apply them. Importantly, the regulation applying API RP 1162 to all regulated operators went into effect in mid-2006, but the graphs make clear that the improvement pre-dated the implementation of the regulations. The industry also published the Guidelines for Property Development (2004) that could be included in public awareness packets or handed to those excavating on a ROW. (The Guidelines are being updated as of this writing, mid-2009.)

In spite of this considerable improvement, the industry remains engaged in aggressive prevention programs, mindful that these incidents can carry a high toll in human casualties, pollution and public and business disruption. The most recent injury to a member of the public was in 2005. This incident also involved a fire, an explosion, and a mandatory evacuation. Furthermore, there was a single release of more than 1,000 barrels in 2006, the most recent year covered by this compilation.

Depth of Cover and Other Details

PPTS collects information on depth of cover and other aspects of the incident, such as the type of activity that caused the damage to the pipe. The following observations can be drawn from the data:

- Originally, the PPTS questionnaire did not include cultivation or plowing as an activity. It was added after 2001. Even with the availability of cultivation as a choice, however, it is seldom used. Cultivation activities may be represented in the “Other” category.
- “Drilling, boring, or augering” was involved in 1 incident with a 44” cover depth and 1 incident where the cover depth was not known.
- Depth of cover is an issue: As evidenced below, nine of the incidents occurred at depths less than 16" and 28 hits were less than 36". These are shallowest cover depths among all of the categories of parties causing third party damage releases. (Cover depth was not entered for 13 of the 44 incidents.)

Depth of Cover and Type of Excavation When Landowner Activity Caused Third Party Damage 1999-2006					
Depth of Cover	Cultivation and Other*	Drilling, boring, augering	Trenching, grading, backfilling		Total
<16"	6	0	3		9
16" to 36"	2	0	17		19
>36"	1	1	1		3
Total, Cover Depth Known	9	1	21		31
Cover Depth Not Known	7	1	5		13
Total Incidents	16	2	26		44

Includes incidents 1) involving a release of 5 barrels or more, or death, injury, fire or explosion; 2) occurring along the ROW; and 3) involving failure at the time the damage occurred.

The Role of One-Call

The PPTS survey form asks the “apparent primary cause” of Third Party Damage incidents, and it reflects an operator’s assessment of factors beyond whether One-Call was used. However, “Failure to utilize One-Call system” was listed as the primary cause in 75% of the incidents involving farming activity and 67% of the incidents involving homeowner activity. Among all of the different types of damaging parties, these are the highest shares where the failure to use One-Call was the apparent primary cause of the incident.

One-Call systems are designed and administered on a state-by-state basis. The patchwork of exemptions for different kinds of activities includes some instances where agricultural and/or farming activities are fully exempt from requirements to contact One-Call notification centers. However, in many states, the exemptions are limited, requiring that various farming activities utilize One-Call depending upon depth or nature of activity. Operators are required to clearly communicate the correct state requirements for One-Call to landowners, and ensure landowners are aware of the hazards regardless of state rules. One potentially important piece of information is that pipelines may have relatively shallow depth of cover in some places. An operator's awareness of farming land use and agricultural activities is one of the primary purposes of "landowner contacts." An operator should consider use of landowner contacts, no till agreements, and face-to-face visits in an operator's public awareness program as one of the supplemental activities where farming and agricultural activities are prevalent.

Considerations for Operators

Know Your Right-of-Way Neighbors

- ❖ Employ GIS to better understand the locations where your pipeline traverses farms, and focus your Public Awareness, surveillance, and ROW maintenance efforts on those farmers. Reread, with fresh eyes, your Public Awareness program to ensure the state one call requirements are clearly covered. Ensure that educational materials explain that pipelines are not all buried at uniform depths and may be close to the surface in some areas.
- ❖ Track rapidly growing areas near your pipeline particularly carefully. Become involved in local/county land use planning and permitting for new construction or development in these areas. Not only do the construction activities around new homes and businesses create a potential for a hit, there is an ongoing potential for a hit from the utilities that service them on a routine basis, and from related activities and services such as landscaping, fence-building and other site maintenance and improvements. Employ innovative outreach programs for farmers, such as placing pipeline safety information in feed and hardware stores in agricultural communities, as well as advertising in the local co-op newsletters.

Engage in policy- making decisions for stakeholder prevention programs

- ❖ Support or become involved in industry groups, One Call boards, and research efforts.
- ❖ Support continued development and use of One-Call systems. PPTS operators have reported that failure to use One-Call was the primary cause of failure in three-quarters of the releases caused by landowners/tenants.
- ❖ Proactively participate in damage prevention and One-Call programs in the states in which your system operates. Help shape reforms of regulations and statutes to eliminate unnecessary exemptions and enhance enforcement options. Support aggressive enforcement of One-Call statutes, including legal redress of violations.
- ❖ Continue to educate the public regarding safety around pipeline facilities.

Vigorously apply industry standards and company policies

- ❖ Revisit the company's mapping, excavation, damage prevention, and surveillance processes and procedures to ensure they are sufficient and understood, and that employees are trained in their use.
- ❖ Ensure aerial and ground patrol procedures and training include specifics on how to spot and report signs of trenching, grading, or backfilling near the pipeline ROW.
- ❖ Establish and follow a strong ROW maintenance and surveillance program that addresses vegetation control, signage, depth of cover, encroachment, and other issues.

Integrate information across your company and across the industry.

- ❖ After investigating incidents for root causes, share the results company-wide and apply lessons learned to other parts of the system. Use company-wide data to spot trends. Determine if lessons learned from incident investigations provide any leading indications of the effectiveness of the damage prevention and public awareness programs.
- ❖ Learn from, and share with, other operators by attending workshops and participating in forums. This is particularly important when it comes to excavation damage, because the number of incidents for each operator is typically low.
- ❖ Understand industry incident data to help you spot trends that may not be apparent in a few company incidents. Advisories posted on API's website (www.api.org/ppts) summarize and analyze the data to help operators. Share the advisories' findings across the company.

Additional excavation damage advisories have been prepared to address specific aspects of excavation damage in more detail. Understanding the detailed data is central to developing appropriate strategies for prevention. Hence, we have developed additional detailed advisories to address different aspects of excavation damage incidents (see list below).

For additional information on PPTS and its lessons for the industry, please see www.api.org/ppts/. Click on the “documents” link in the left frame to see other Operator Advisories. Of particular interest on the topic of excavation damage prevention will be the following:

Title	Date	Number
PPTS Operator Advisory: More to Do on Excavation Damage	Sept 2008	2008-4
PPTS Operator Advisory: Role of First and Second Party Damage in Excavation Incidents	May 2009	2009-1
PPTS Operator Advisory: Landowner/Tenant Activity Impact on Third Party Damage	September 2009	2009-2
PPTS Operator Advisory: Focus on One-Call Partners	September 2009	2009-3



The hazardous liquids pipeline industry undertook a voluntary environmental performance tracking initiative in 1999, recording detailed information about spills and releases, their causes and consequences.

The pipeline members of the American Petroleum Institute and the Association of Oil Pipe Lines believe that tracking and learning from spills improves performance, and demonstrates the industry’s firm commitment to safety and environmental protection by its results.

This is one in a series of Advisories based on the Pipeline Performance Tracking System, "PPTS."

NOTE: The “Considerations for Operators” in this document represent the experience of a limited number of subject matter experts from a variety of liquids pipelines operators. They were not developed under the process prescribed by the American National Standards Institute and do not represent a Standard or a Recommended Practice of the API or its member companies.