

Excavation Damage: Lessons from PPTS

A Presentation to the API Pipeline Conference

By

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In collaboration with

Allegro Energy Consulting and the PPTS Data Mining Team

**April 10, 2008
Orlando, FL**

What is the Pipeline Performance Tracking System?

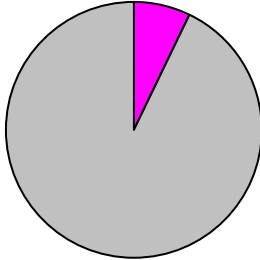
- ❖ **“PPTS”**: voluntary; open to all liquids pipeline operators
- ❖ **No membership req’d, no fee imposed**
- ❖ **Industry-run and maintained**
- ❖ **Collecting info since 1999**
- ❖ **Records spills of 5 gallons or more on land, all spills to water (compare old OPS @ 50 barrels)**
- ❖ **In 2006, PPTS participants operated about 85% of OPS miles and total barrel-miles**

1. Measure 2. Learn 3. Manage 4. Improve

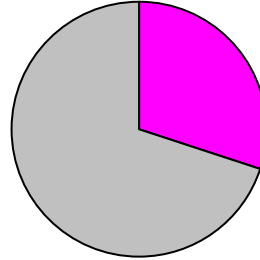
Disproportionate Share of High Consequence Events

Excavation Damage Accounts for:

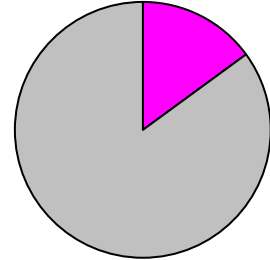
7% All Events



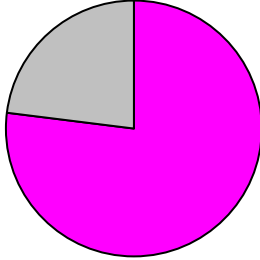
30% Bbls Out



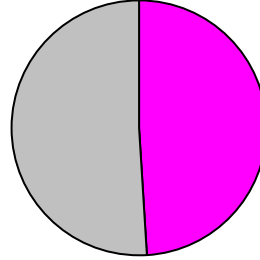
15% Fire/Explosion



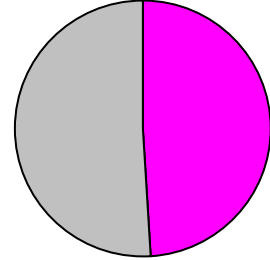
77% Fatalities



49% Injuries



49% Evacuations



Includes third party damage and operator excavation

Third Party Basics

❖ **Definition**

- For PPTS, a person or persons not involved with operating or maintaining the pipeline is a "third party"
- For PPTS, a release caused by excavation carried out by the operator's employee ("first party") or contractor ("second party") is classified as "operator error"

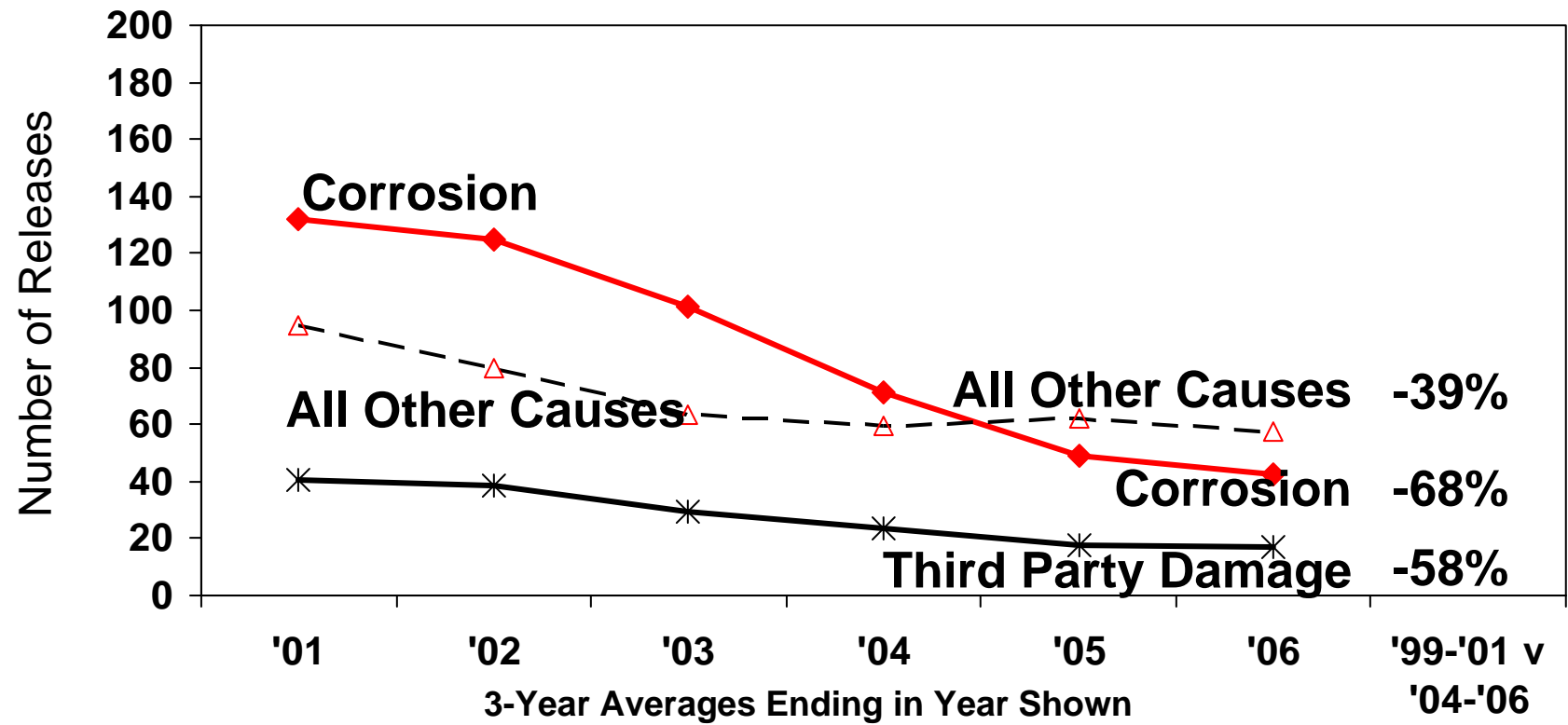
❖ **Examples**

- farmers, homeowners, construction crews and excavators, people who in the course of their normal activities may come in contact with a pipeline and, by damaging the pipe, could cause a spill or worse

❖ **Info asked in PPTS**

- Excavation damage "at the time" (immediate failure); "Prior" damage (latent failure); "Other" damage (vandalism, sabotage, vehicle)
- Damaging party/activity (agriculture, homeowner, other pipeline, etc.)
- Type of activity (drilling v trenching, etc.)
- Depth of cover

Third Party Damage Has Fallen Almost 60%



All Other Causes: equipment failures, material/pipe seam failures, nat'l force damage, operator error, "other."

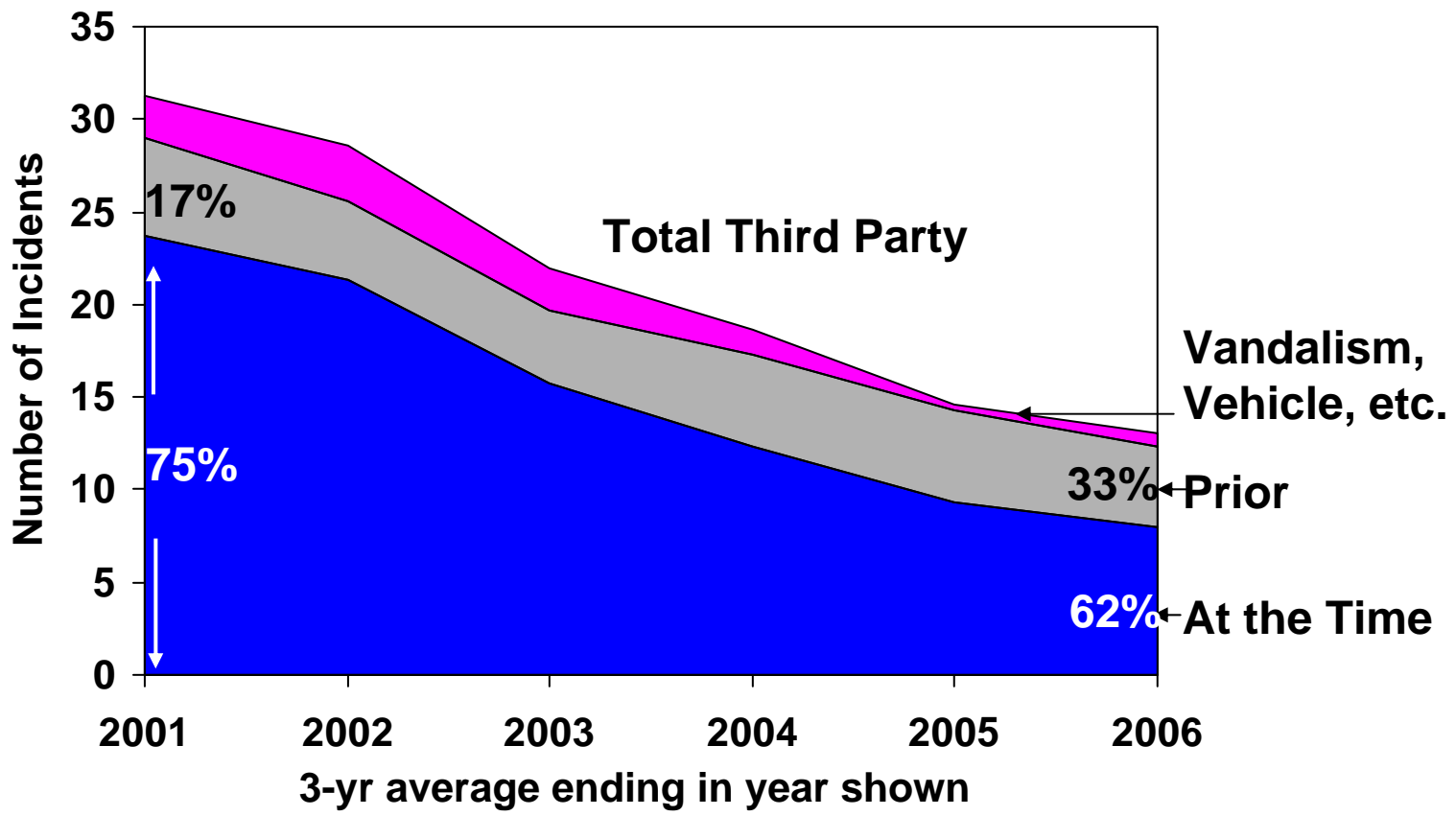
Source: Pipeline Performance Tracking System. 1999-2006

What Do We Know About Third Party Damage?

- ❖ **89% of all TP incidents occur on ROW (not facilities)**
- ❖ **Damage "At the time" = 62% (but falling); "Prior" Damage = 33%; "Other" i. e. vandalism/vehicle = 5% [*]**
- ❖ **For damage at the time,**
 - **"One-Call Partners" account for 23%**
 - **And Operators/Contractors account for 16%**
 - **One Call only used 30% of time**
 - **Depth of cover not so shallow: 35% are deeper than 36"**

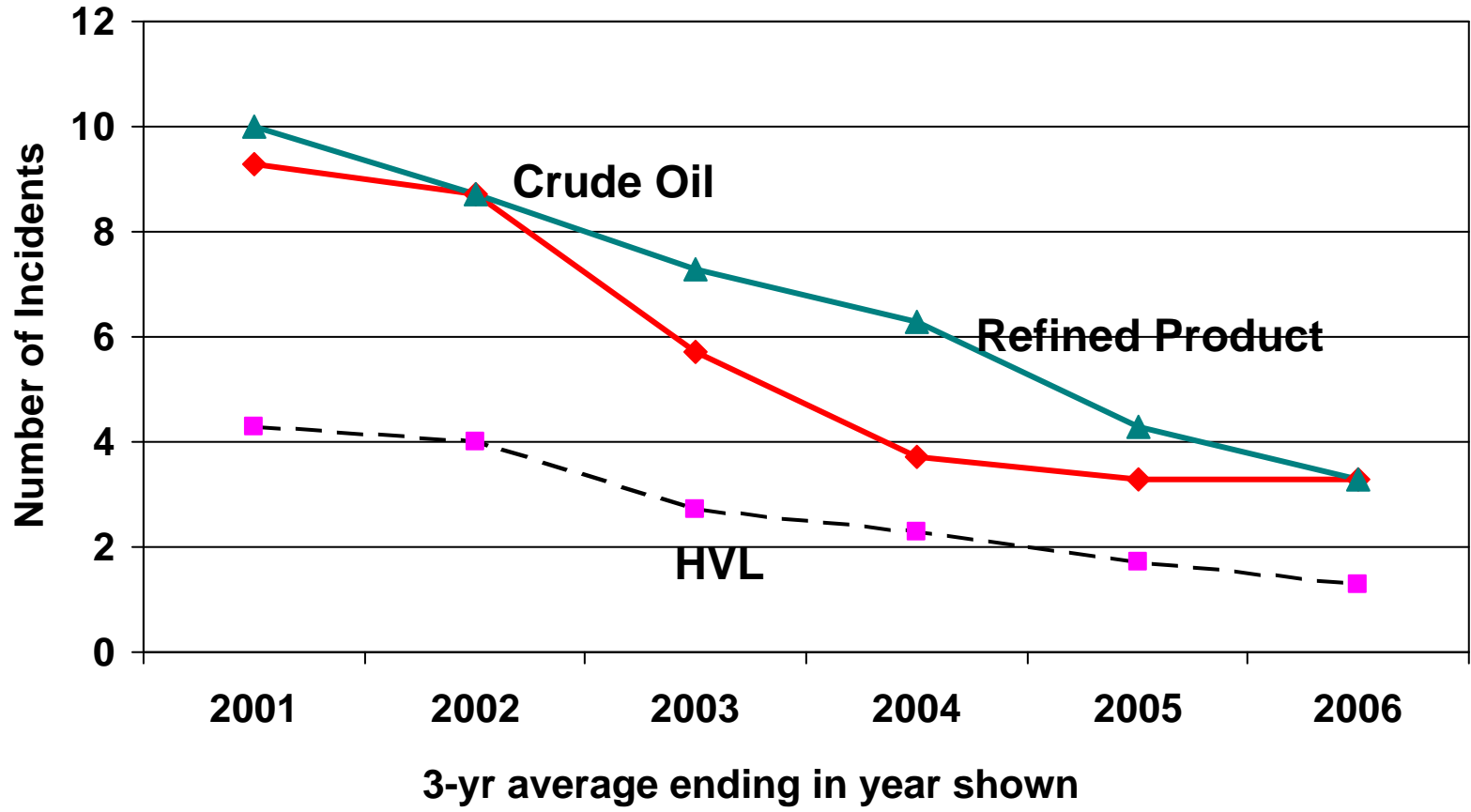
***For Onshore pipe, 5 bbls or more (or death, injury, fire, explosion: "D/I/F/E")**

From 2004-06, Fewer than 10 Incidents per Year from Third Party Damage "at the Time"



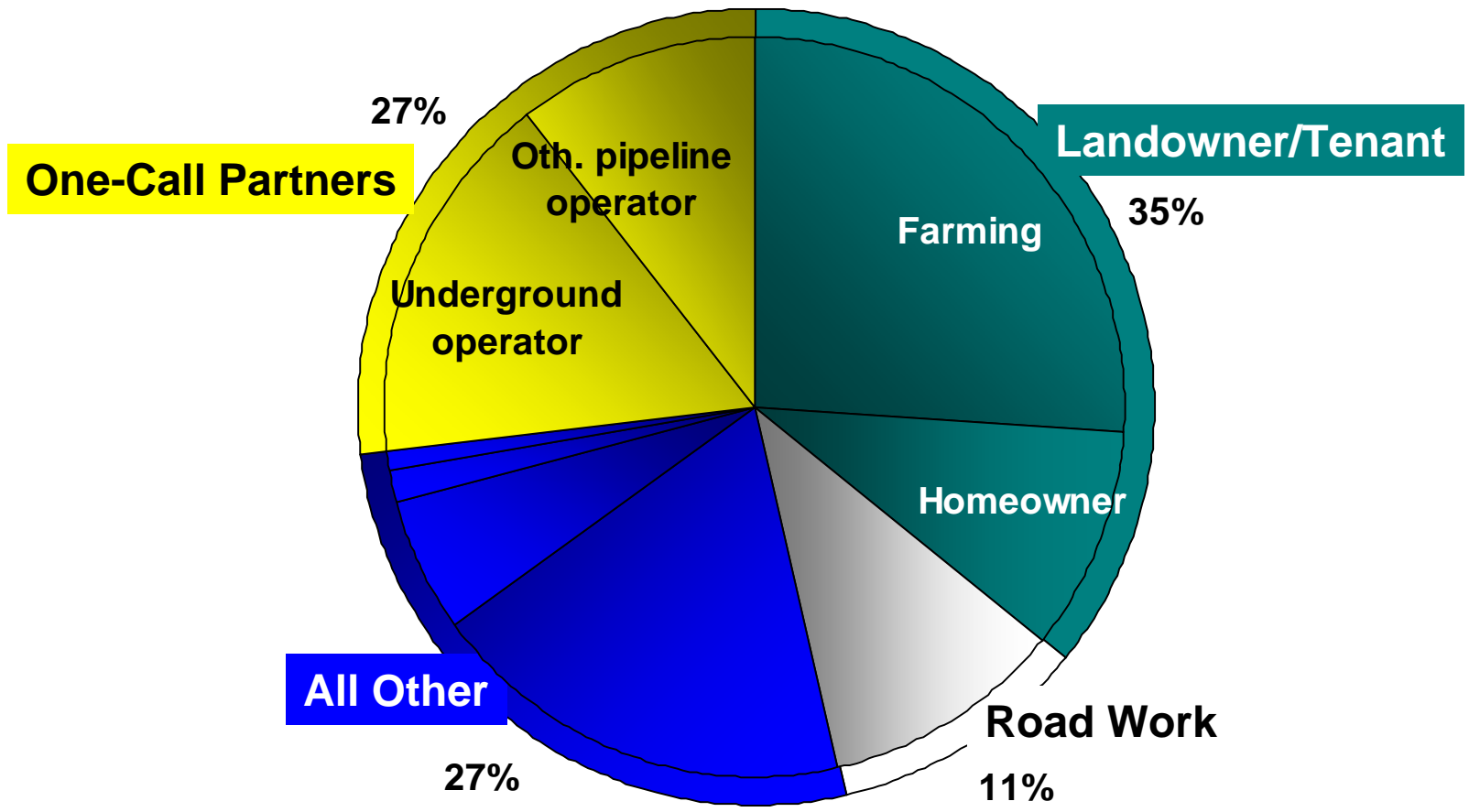
* Includes onshore pipeline incidents ≥ 5 barrels or D/I/F/E

Damage "At the Time" by Commodity: Single digits each year



Onshore pipe incidents of 5 barrels or more (or D/I/F/E)
caused by third party damage at the time of the release

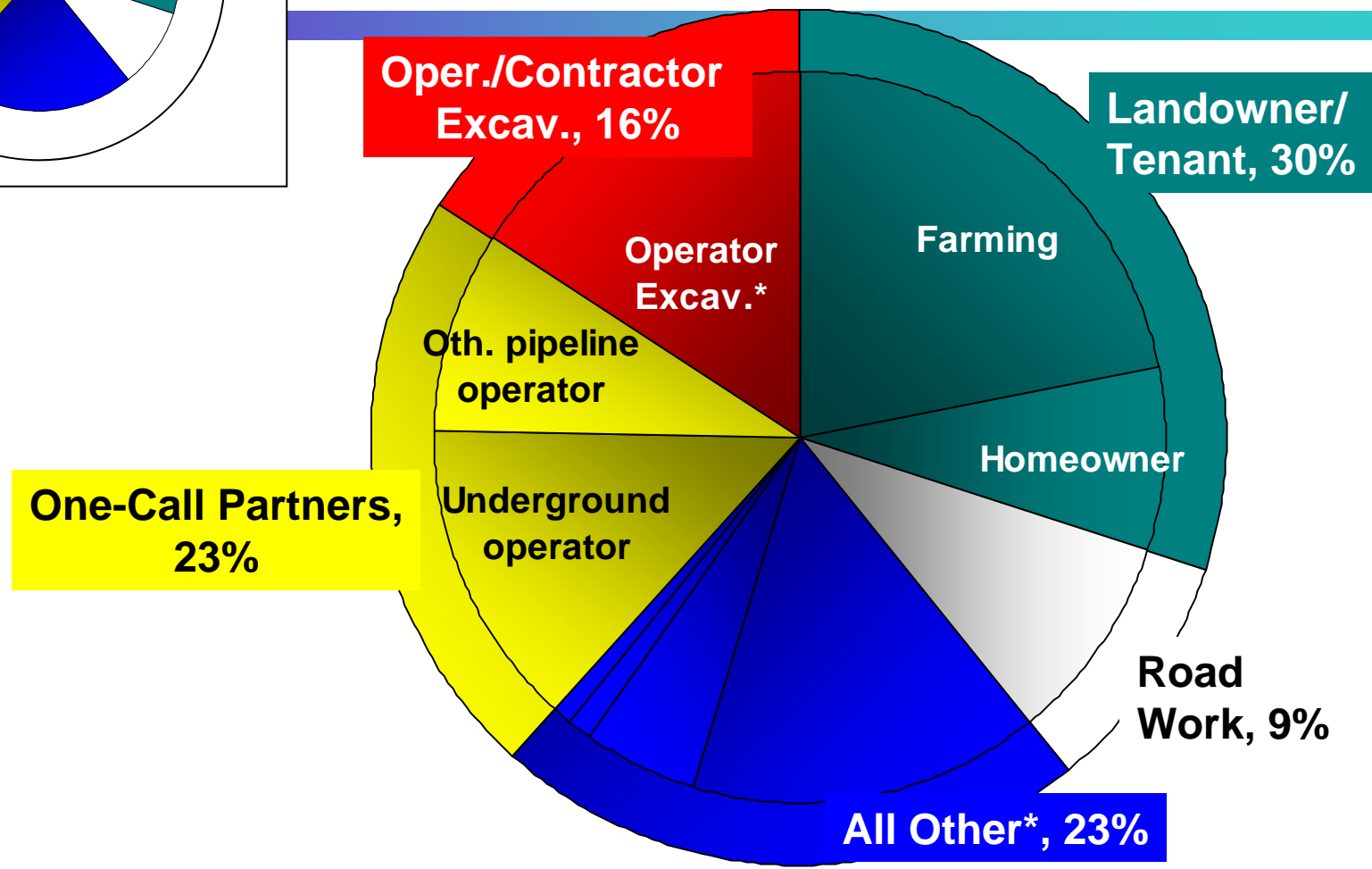
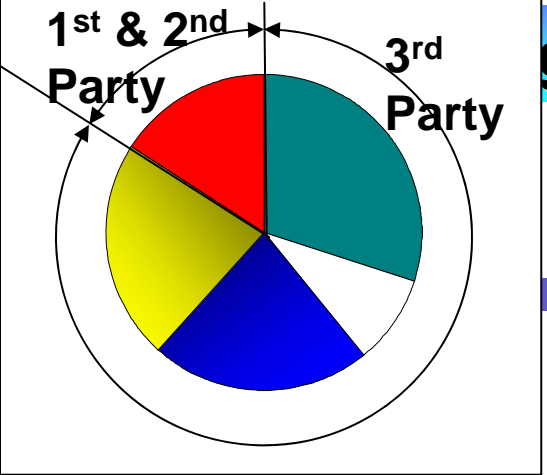
Who does the damage? Not just excavators



Onshore pipeline spills where: release occurred at the time of damage, and involving 5 barrels or more, or death, injury, fire or explosion.
Source: Pipeline Performance Tracking System, 1999-2006

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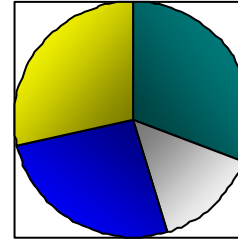
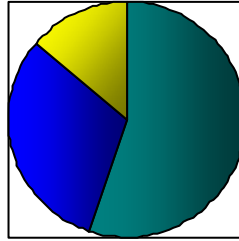
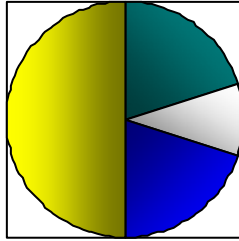
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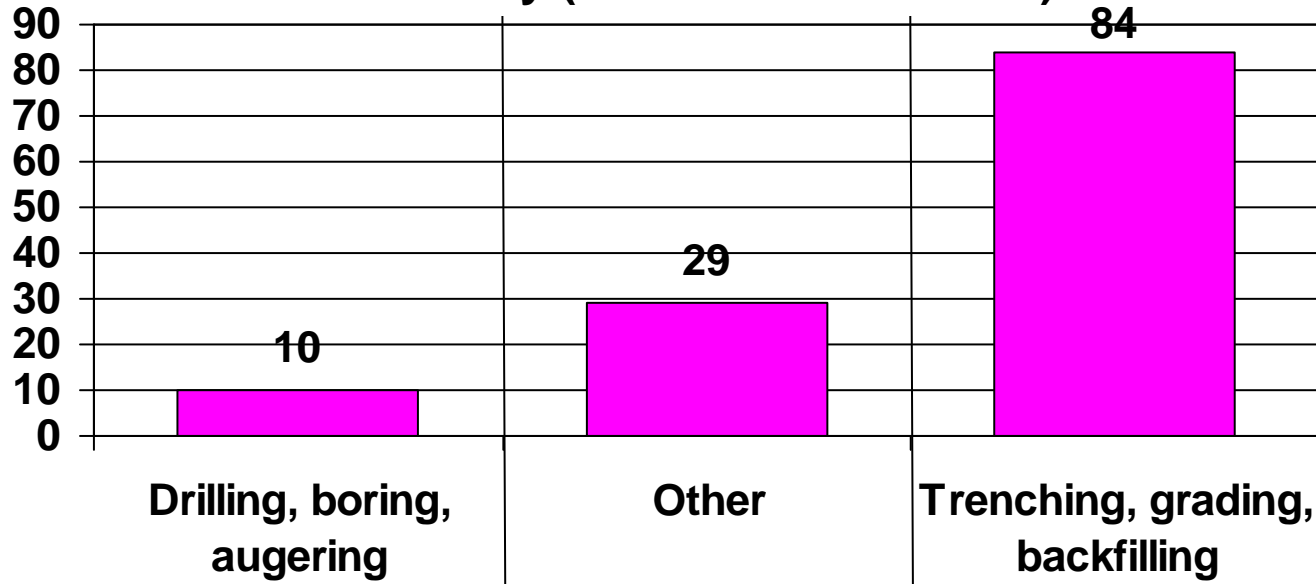
Damaging Activity: 2/3 Trenching/Grading, Drilling is Deeper

Activity by Damaging Party

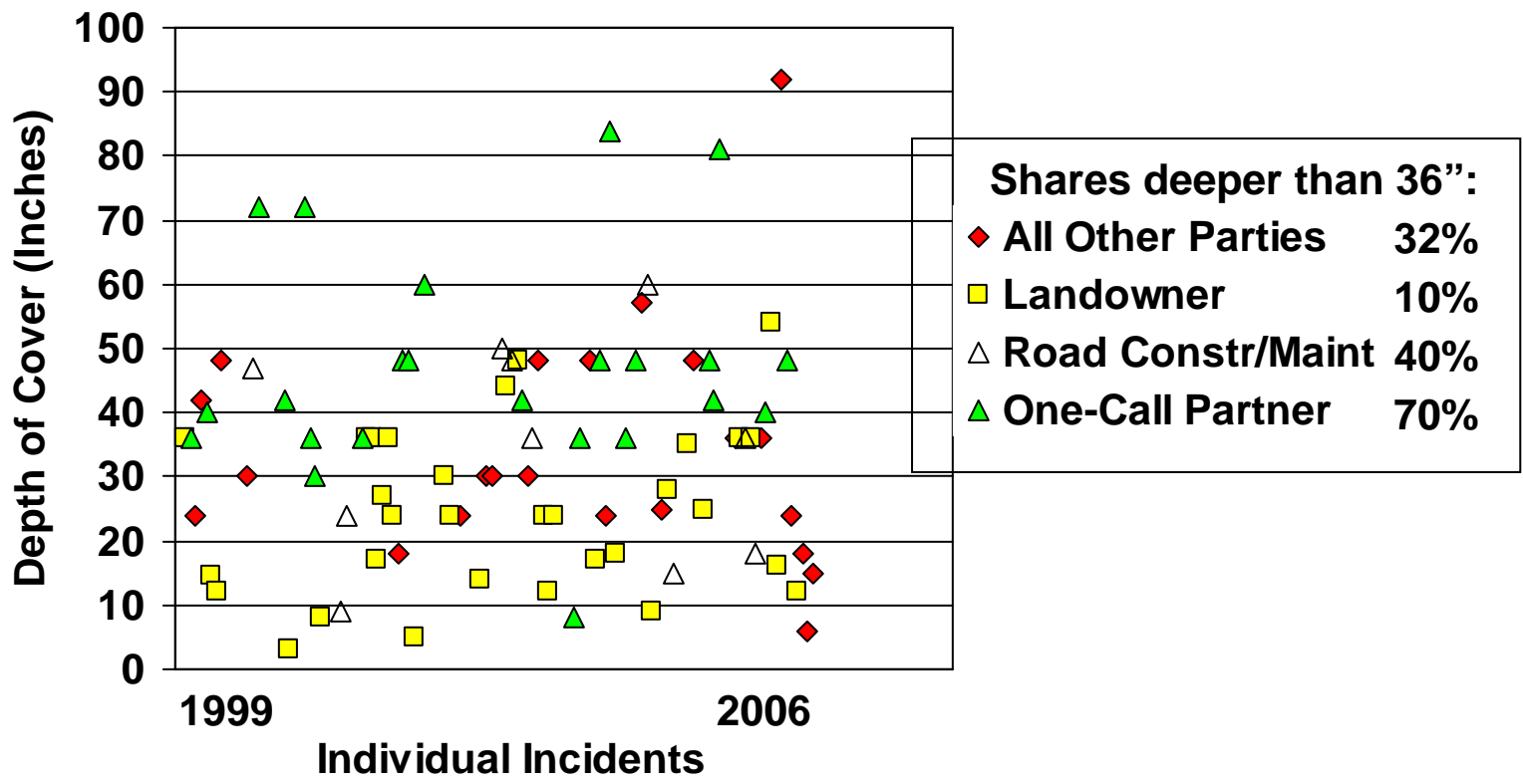


- Landowner
- Road Work
- Other Parties
- One Call Partner

Activity (Number of Incidents)



Depth of Cover by Damaging Party



Using One-Call: 70% Don't

Use of One-Call by Damaging Party Category						
Damaging Party Type	Number			Share		
	No	Yes	Total	No	Yes	Total
All Other Parties	21	12	33	64%	36%	100%
Landowner/Tenant	41	3	44	93%	7%	100%
Road Constr/Maint	10	3	13	77%	23%	100%
One-Call Partners	14	19	33	42%	58%	100%
Grand Total	86	37	123	70%	30%	100%

Operator Response to One-Call

Operator Response to One-Call		
	Number	Share
One-Call Used	37	100%
Response to One-Call (may be more than one)		
Marked or staked centerline of pipe	23	62
Provided on-site representation during excavation	15	41
Excavated own line for the third party	4	11
Pipeline operator was unaware of excavation activity	8	22
I don't know	1	3

Failure to Use One Call: Primary Cause for 53% of Incidents

Apparent Primary Cause of Release					
	All Other Parties	Land- owner	One-Call Partner	Road Constr/ Maint	Grand Total
Total Number (100%=)	33	44	33	13	123
Failure to respond or mark	6%	5%	3%	8%	5%
Failure to respect directions	9%	2%	15%	0%	7%
Failure to take reasonable care	30%	11%	21%	8%	19%
Failure to utilize One-Call	42%	73%	33%	62%	53%
Failure to wait the proper time	9%	0%	15%	8%	7%
Other	3%	9%	12%	15%	9%

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