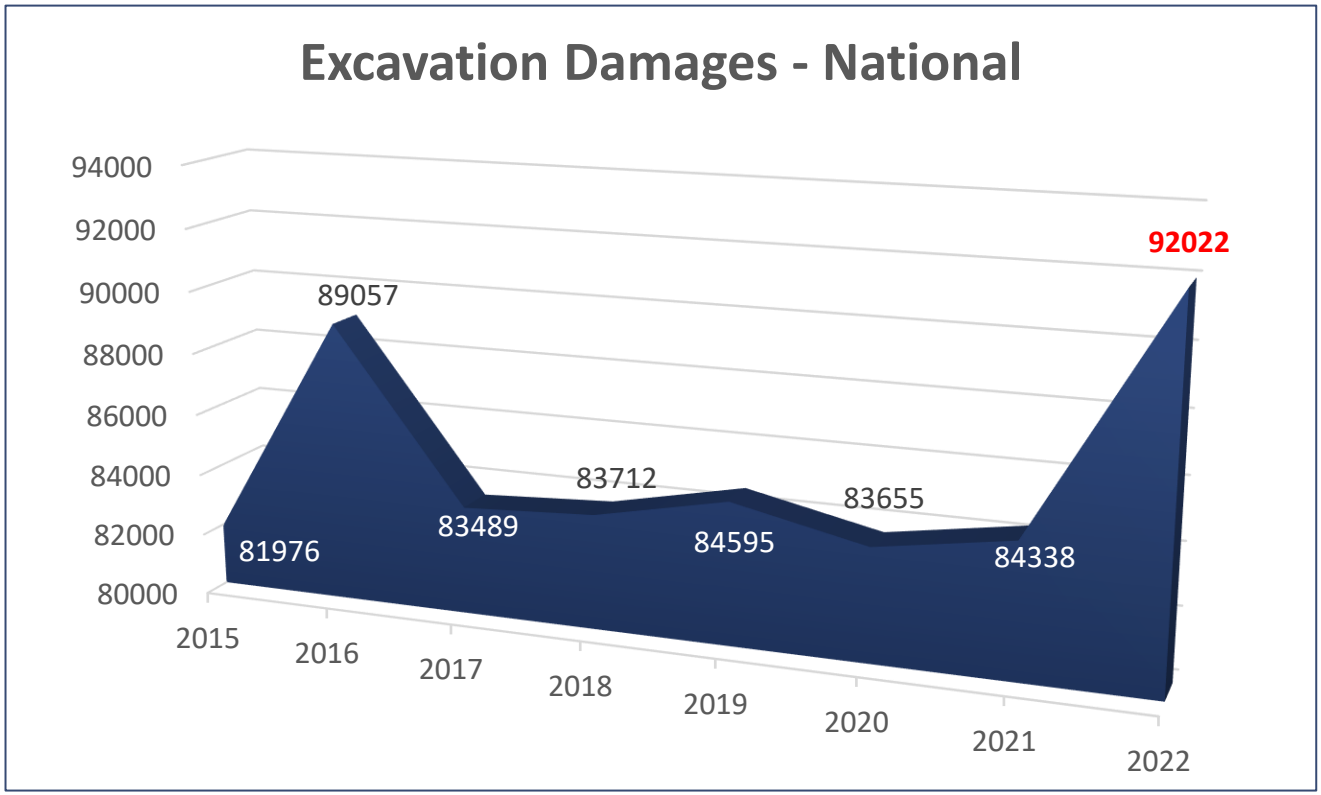
Pilot Program – Leveraging DIMP To Reduce Excavation Damages

David Appelbaum, PHMSA State Programs
Alabama Gas Pipeline Safety Seminar
December 6-8, 2023

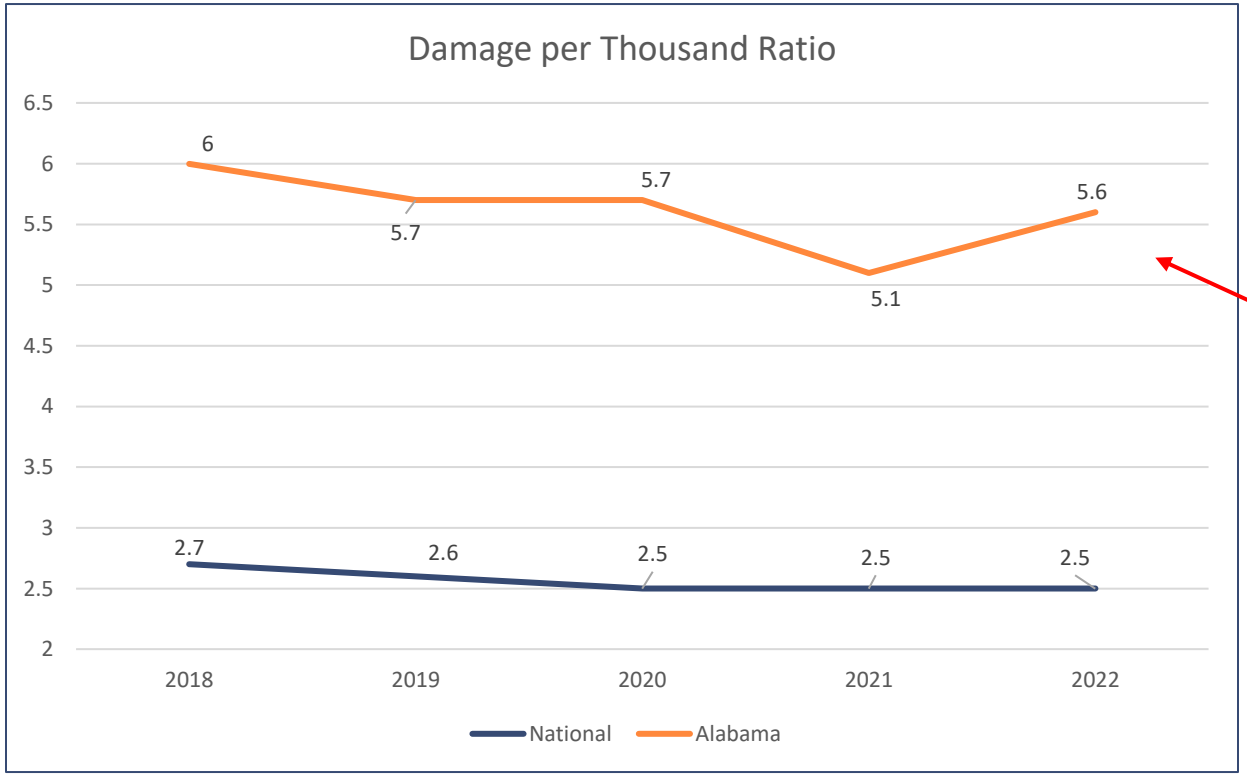
Problem-Excavation Damages

1. Excavation Damages not Improving



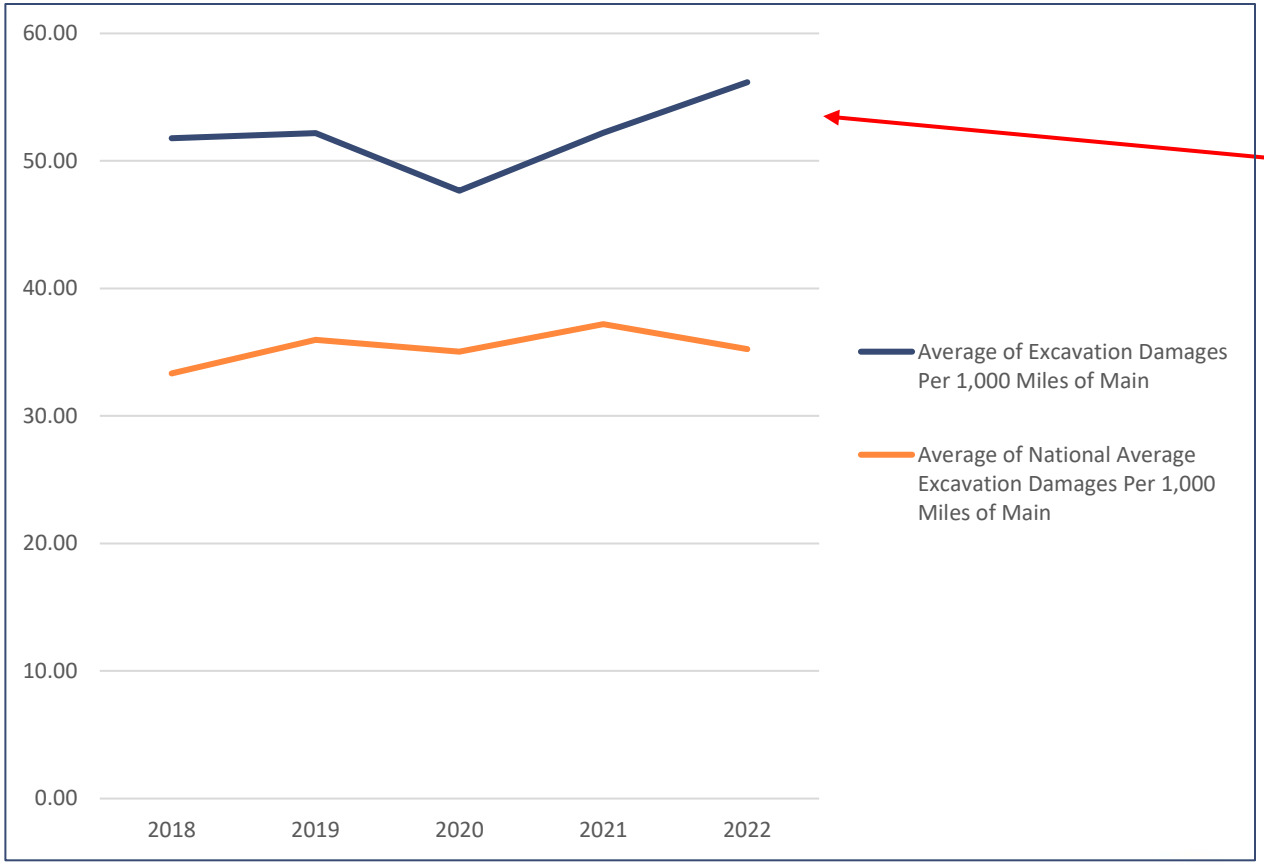
Alabama (2018-2022)

Damages per 1000 Locates



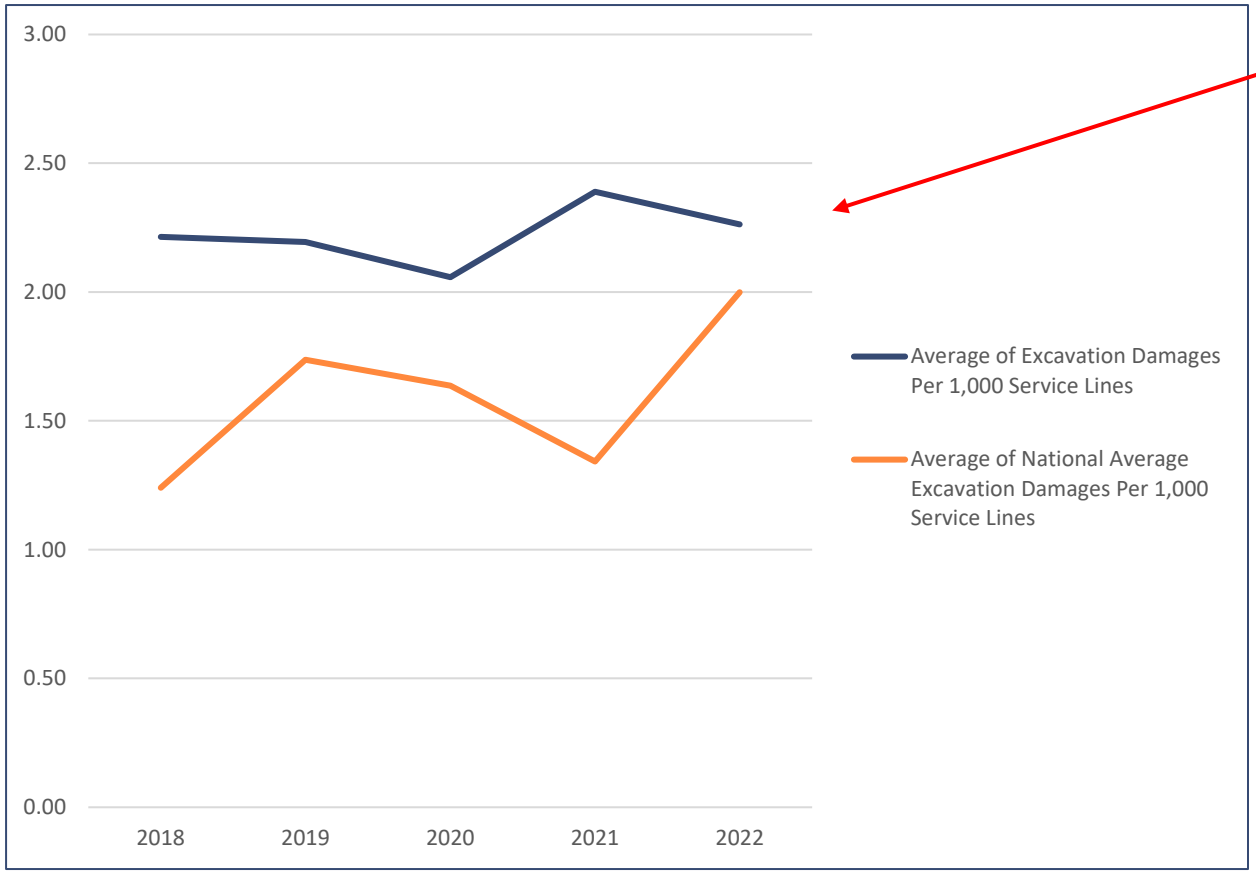
Alabama (2018-2022)

Damages per 1000 Miles of Main



Alabama (2018-2022)

Damages per 1000 Services



Gas Distribution -Top 25

- 1229 Gas Distribution (GD) operators
- 92,022 excavation damages
- 25 GD operators account for:
  - 52% (48,006) of all GD excavation damages
  - 45% (16,242,953) of all one-call tickets
- 18 of these 25 operators have damage per thousand ratios above the national average of 2.38

Gas Distribution-Top 25

2022				2021				2020				2019			
Operator Name	State of Operation	Number of Excavation Damages	Excavation Damages Per Thousand Tickets	Operator Name	State of Operation	Number of Excavation Damages	Excavation Damages Per Thousand Tickets	Operator Name	State of Operation	Number of Excavation Damages	Excavation Damages Per Thousand Tickets	Operator Name	State of Operation	Number of Excavation Damages	Excavation Damages Per Thousand Tickets
CENTERPOINT ENERGY RESOURCES CORPORATION	TX	6,500	5.5	CENTERPOINT ENERGY RESOURCES CORPORATION	TX	5,117	4.5	CENTERPOINT ENERGY RESOURCES CORPORATION	TX	4547	4.8	CENTERPOINT ENERGY RESOURCES CORPORATION	TX	4232	4.2
ATMOS ENERGY CORPORATION - MID-TEX	TX	4,050	3.1	ATMOS ENERGY CORPORATION - MID-TEX	TX	3,680	2.9	ATMOS ENERGY CORPORATION - MID-TEX	TX	3221	2.9	ATMOS ENERGY CORPORATION - MID-TEX	TX	3559	3.2
SPIRE ALABAMA INC.	AL	3,197	12.5	SOUTHERN CALIFORNIA GAS CO	CA	2,825	2.7	SOUTHERN CALIFORNIA GAS CO	CA	3141	3.3	ATLANTA GAS LIGHT CO	GA	3269	3.5
ATLANTA GAS LIGHT CO	GA	3,152	3.4	ATLANTA GAS LIGHT CO	GA	2,747	2.9	ATLANTA GAS LIGHT CO	GA	2892	3.1	SOUTHERN CALIFORNIA GAS CO	CA	3081	3.2
SOUTHERN CALIFORNIA GAS CO	CA	2,791	2.5	NORTHERN ILLINOIS GAS CO	IL	2,281	2.2	NORTHERN ILLINOIS GAS CO	IL	2272	2.3	NORTHERN ILLINOIS GAS CO	IL	2106	2.1
NORTHERN ILLINOIS GAS CO	IL	2,246	2.2	CONSUMERS ENERGY CO	MI	2,037	4.4	CONSUMERS ENERGY CO	MI	2251	5.4	CONSUMERS ENERGY CO	MI	2094	4.7
CONSUMERS ENERGY CO	MI	2,179	4.8	PIEDMONT NATURAL GAS CO INC	NC	1,891	2.3	SPIRE ALABAMA INC.	AL	1815	7.7	SPIRE ALABAMA INC.	AL	1981	7.2

Complete top 25 list available in separate spreadsheet

Propitious Approach - Pilot

- Target top 25 operators with the most damages
  - Isolate those with poor performance indicators
    - Damages per thousand ratio
    - Excavation leaks per thousand services
    - Damages per thousand miles of main
- Meet (face-to-face) with Operators (PHMSA and State Partner)
- Establish performance expectations under DIMP
- Establish cadence of accountability (quarterly)

DIMP Requirements

The gas distribution Integrity Management (DIMP) regulations require operators to develop, write, and implement an integrity management program with the following elements:

- Understand system design & material characteristics, operating conditions & environment, and maintenance & operating history
- Identify existing & potential threats
- Evaluate and rank risks
- Identify and implement measures to address risks
- Measure IM program performance, monitor results, and evaluate effectiveness
- Periodically assess and improve the IM program
- Report performance results to PHMSA and, where applicable, also to States

Lead Measures & Commitments

Based On the concept of *"A"* to *"B"* by *"C"*

- Which threats (sub root causes) have the greatest risk *(probability/frequency)* to public safety?
  1. Example – facility not marked ….
     - Locating resources strained ….
  2. Example - No one-call ticket ….
     - Homeowners
     - New fiber installations
- Which threat mitigations will have the greatest influence on reducing damages?
- Which threat mitigations can be deployed now?
- Support needed to deploy mitigations
- Establish cadence of accountability (quarterly)

The Benefits - Theory

Utilizing the regulatory requirement of DIMP will:

- Compel the operator to understand the excavation damage threat at a more granular level and take steps to fix it
  - Locator performance (contract versus in-house, OQ's)
  - Habitual Offenders, excavator performance
  - Systemic issues (tracer wire, shallow pipe)
- Promote a greater stakeholder involvement (including the regulator) in identifying and implementing mitigation steps
- Drive, where needed, improvements in state's one-call laws
- Enhance meaningful accountability
- Reduce excavation damages

Threats: Understanding the Data

Excavation Damage (Sub Root) Data

Notification Issue:

- No notification made to the One-Call Center/811
- Excavator dug outside area described on ticket
- Excavator dug prior to valid start date/time
- Excavator dug after valid ticket expired
- Excavator provided incorrect notification information

Excavation Issue:

- Excavator dug prior to verifying marks by test-hole (pothole)
- Excavator failed to maintain clearance after verifying marks
- Excavator failed to protect/shore/support facilities
- Improper backfilling practices
- Marks faded or not maintained
- Improper excavation practice not listed above

Location Issue:

- Facility not marked due to Abandoned facility
- Facility not marked due to Incorrect facility records/maps
- Facility not marked due to Locator error
- Facility not marked due to No response from operator/contract locator
- Facility not marked due to Incomplete marks at damage location
- Facility not marked due to Tracer wire issue
- Facility not marked due to Unlocatable Facility
- Facility marked inaccurately due to Abandoned facility
- Facility marked inaccurately due to Incorrect facility records/maps
- Facility marked inaccurately due to Locator error
- Facility marked inaccurately due to Tracer wire issue

Other Data:

- Any OQ suspensions or requalification's in CY 2022
- Any systemic issues discovered or remaining (e.g., shallow pipe)
- List, with details, of habitual/repeat offenders

Assessing Data - California

Third Pilot Opportunity:

- Southern California Gas Co

Operator Business Name	Number of Excavation Damages	Excavation Damages Per Thousand Tickets	One-Call Notification Practices Not Sufficient	Locating Practices Not Sufficient	Excavation Practices Not Sufficient	Other	One-Call Notification Practices Not Sufficient	Other	Excavation Practices Not Sufficient	Locating Practices Not Sufficient
SOUTHERN CALIFORNIA GAS CO	2,791	2.53	1,741	271	744	35	62%	1%	27%	10%
PACIFIC GAS & ELECTRIC CO	1,475	0.93	689	145	623	18	47%	1%	42%	10%

National Averages for 2022:
Ratio = 2.55 (up from 2.38)
Damages = 92,022 (up from 84,277)
One-Call = 32% (down from 35%)
Excavating = 43% (up from 40%)
Locating = 24% (up from 23%)
Other = 2% (no change)
Total Tickets = 36,051,153 (up 1.16%)

Feedback: Pilot States

1. Arkansas
   - *Summit*
2. Alabama
   - *Spire*
3. California
   - *SoCalGas*
4. Texas
   - *Atmos*
   - *CenterPoint*

These five operators accounted for **19.7%** of all excavation damages to Gas Distribution in CY 2022

The two in Texas = 11.46%

Preliminary Outcomes: Common in Pilot

- Threat: Resource demands on locators. Workload exceeding reasonable (safe) resource capability *(Performance of Contract vs. In-House locators)*
  - Mitigation: Some simply need to increase and retain staff, while others should consider legislative change to increase the time to locate (i.e., two days to three, etc.)
  - Mitigation: Staffing structures that incorporate both contract and in-house locators, or conducting a cost-benefit on converting to all in-house locating
- Threat: Professional excavators not securing one-call tickets
  - Mitigation: Operator developing a policy to mandate/direct complaints to be filed when related damages occur
  - Mitigation: Operator to formalize a repeat/habitual offender program to address
- Threat: Installation of new fiber. This is a global threat and I'm including HDD and potholing in it
  - Mitigation: operators to provide states with data to support a potential National call to action
  - Mitigation: Another possible timely opportunity is for operators and/or states to work with permitting agencies, or maybe trades such as League of Cities (https://www.nlc.org/)
  - Mitigation: Focusing on ensuring proper application of potholing

Preliminary Outcomes: Common in Pilot

- Threat: Ticket size: Having no limit on the size of a locate ticket can make it challenging for locators to manage workload
  - Mitigation: Legislative at the state level, and supported from PHMSA and/or trades (e.g., CGA, AGA)
- Threat: Unlocatable Facilities/Difficult Locates/Turnback's – everyone has them but processes to address them vary significantly from one operator to the next
  - Mitigation: Opportunities included deploying advanced technologies, enhanced procedures around mapping corrections and deployment of spotting crews, to rule making for excavators when locators communicate difficult/unlocatable facilities
  - Mitigation: Proactive tracer wire replacement/remedy programs
- Threat: Abuse of emergency locates/tickets
  - Mitigation: Communication, legislative enhancement and most importantly, enforcement