

# State-Federal Gas Distribution Team



National Association of Pipeline Safety  
Representatives

PHMSA Office of Pipeline Safety

Matt Smith

Illinois Commerce Commission



# Distribution Team Mission Statement

The NAPSR / PHMSA Distribution Team is a collaboration of State and Federal Regulators to support improvements in the integrity of the Nations' gas distribution pipeline systems through the conduct of investigations and research to develop educational materials as well as improving our inspection methods and guidance for evaluation of Operator's Distribution systems

## Disclaimer

The document is intended to provide clarity to the public regarding existing pipeline safety standards. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way, but pipeline operators must comply with the underlying safety standards.

The materials contained in this work product are for educational and awareness purposes only.



# Why Focus on Distribution?

Transmission 2022 Total Miles – 301,625

Transmission 2022 Total Operator Count – 1092

Hazardous Liquids 2022 Total Miles – 229,282

Hazardous Liquids 2022 Total Operator Count – 563

Gas Gathering 2022 Total Miles – **111,562** (2021 – 17,141)

Gas Gathering 2022 Total Operator Count – **516** (2021 – 381)

2022 Total Miles – **642,296** (Add 234,000 Type R)

Distribution 2022 Total Miles of Main and Services – **2,337,587**

Distribution 2022 Total Operator Count - 1335



# Pipeline Miles by Commodity Distribution

## 2022

- Hydrogen gas – 1 (2018)
- Landfill gas – 22.4
- Propane gas – **17,794**
- Synthetic gas – 535
- Other gas – 178
- Natural gas – 1,353,921 (main only)

## 2021

- Hydrogen gas – 1 (2018)
- Landfill gas – 21.8
- Propane gas – 1,514
- Synthetic gas – 666
- Other gas – 72
- Natural gas – 1,339,062 (main only)



# Pipeline Miles by Commodity Distribution vs. Transmission

## 2022 Distribution

- Hydrogen gas – 1 (2018)
- Landfill gas – 22.4
- Propane gas – 17,794
- Synthetic gas – 535
- Other gas – 178
- Natural gas – 1,353,921 (main only)

## 2022 Transmission

- Hydrogen gas – 851
- Landfill gas – 0
- Propane gas – 0
- Synthetic gas – 0
- Other gas – 329
- Natural gas – 194,071



# Focus of Distribution Team

- Originally formed as the DIMP Team
- Threats that impact Distribution systems need to be evaluated and addressed by NAPSIR & PHMSA
- As Regulations are updated, inspection tools and inspection techniques need to be modified
- Enforcement and Inspection Guidance needs to be current and shared
- Provide support, information, and guidance to NAPSIR and NARUC



# PHMSA is Team Based for Specific Duty Areas

- Breakout Tank Team
- Construction Team
- Control Room Management Team
- Corrosion Control Team
- **Distribution Team**
- Gas Rule Implementation Team (GRIT)  
GT Integrity Management Team
- HL Integrity Management Team
- Incident Report Data Quality Team
- Inspection Assistant (IA) Team
- LNG Team
- LPG Team
- O&M and Emergencies Procedures Team
- Operator Qualification (OQ) Team
- Pipeline Asset Manager (PAM) Team
- PHMSA Data Mart (PDM) – Pipeline Team
- Pipeline Inspection & Enforcement (PIE) Team
- Plastics Team
- Public Awareness and Damage Prevention Team
- Risk Ranking Index Model (RRIM) Team
- Underground Natural Gas Storage Facility Tea





# NAPSR Committees and Task Groups

<http://www.napsr.org/home.html>

- APGA Security Integrity Foundation (SIF)
- API 1104
- API RP 1162
- API RP 1185
- Gathering Line Task Group
- ASME B31Q Committee
- ASTM F17
- CGA
- Compendium Task Group
- Corrosion Control Team (PHMSA IBR Standards Review)
- Distribution Inspection Form Task Group
- **Distribution Team Task Group**
- Drug & Alcohol Inspection Task Group
- Gas Transmission Final Rule Implementation Team (GRIT)
- Gas and Liquid Pipeline Advisory Committees
- GPTC
- Grant Allocation/Strategic Planning Committee
- GTI
- Legislative Committee
- Liaison Committee
- LPAC
- NARUC
- NFPA 58
- NFPA 59
- PHMSA Community Technical Assistance Grants
- PIPA
- Pipeline Safety Research and Development (R&D)
- PHMSA TQ NAPSR Liaison
- PPDC
- Plastics Task Group
- OQ Task Group





# Distribution Team Scope

- Develop consensus inspection, guidance, and continuing education materials to support States and PHMSA in successfully inspecting distribution systems.
- Evaluate the results of gas distribution inspections and the industry's experience complying with Part 192 Distribution Regulations and take actions to improve the safe operation of distribution systems and to address risks to the integrity of distribution systems



# Distribution Team Objectives

- Analyze inspection results data and industry Performance Measures to identify risks
- Develop continuing education materials
- Develop and maintain inspection forms and inspection Guidance
- Maintain Frequently Asked Questions (FAQs) to provide consensus expectations of operator's programs
- Support PHMSA and NAPSRS as Subject Matter Experts
- Support consistent implementation of distribution Regulations
- Provide feedback to stakeholders on Best Practices and Lessons Learned and support stakeholders



# Distribution Team Composition

## PHMSA

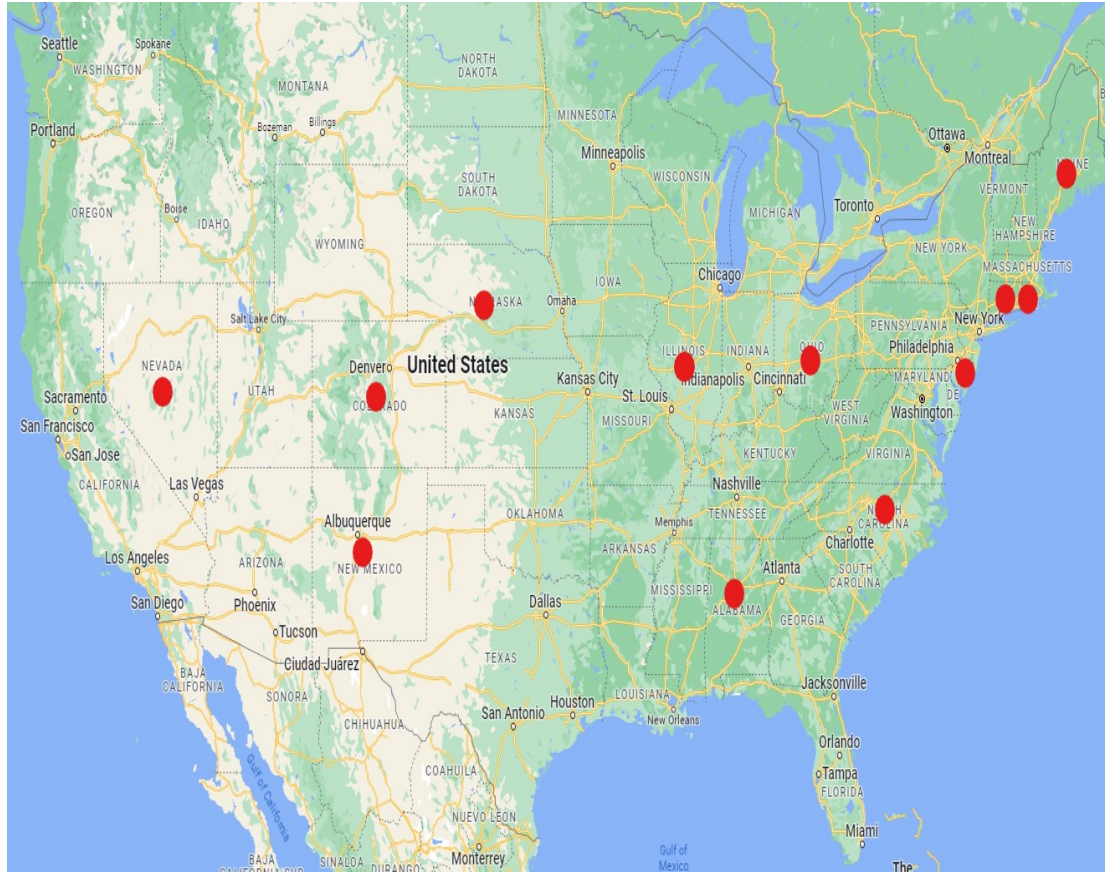
- Zach Barrett (**Sponsor**) – Director State Programs
- Chris McLaren (Lead) – Field Operations
- Michael Thompson – State Programs
- Sayler Palabrica – Standards & Rulemaking
- Jason Grant – Enforcement
- Katherine Roth – Engineering & Research
- Vincent Holohan – Engineering & Research
- Lori Hutwagner – Data Analyst, Southern Region
- Heather David – Accident Investigation Division
- Lane Miller – Training and Qualifications
- Clifford Dolchok – Western Region
- Ian Curry – Legal



# Distribution Team Composition

## NAPSR

- Matt Smith (Lead) – Illinois
- Kelly Everson – Nevada
- Dan Nivison – Connecticut
- Michael Purcell – Ohio
- James Stanovack – New Mexico
- Brooks Tate – North Carolina
- Daniel Trapp – Alabama
- Nathan Dore – Maine
- Andre Moses – New Jersey
- Kevin Bumgardner – Nebraska
- Jessica Nesvold – Colorado
- Collin Slade – Rhode Island



# Educational Materials

- The Distribution Team uses PowerPoint presentations to disseminate educational material to stakeholders
- Allows each State program to present material to its staff or to operator groups during state seminars
- Eases the workload on individual States to investigate and evaluate topics of concern to NAPSRS
- Provides for consistency in the message
- Provides a level of detail necessary for stakeholders to understand concerns and applicability of topic





# Some Completed Activities

The Distribution Team has completed activities in the past few years to support Stakeholders and publish work product, including:

- Aldyl-A and vintage plastic pipe evaluations
- Cast Iron investigations and research
- Cross-bores
- Biogas and alternate fuels
- 192.605c5\_Abnormal Operating Procedures
- 192.739(a) Reliability
- 192.749 Vault Maintenance
- 192.756 Fusion Equipment Maintenance
- Bentonite Clay and Fusion Welds
- Butt Fusion Cooling Times
- GD AR Cause Instructions latent TPD
- Indoor Regulators (NTSB)
- Meter Break-away Fittings
- SRCR Reporting
- Water Fittings in Gas service
- Weak Link in trenchless technologies 192.329\_376



# Some Current Activities

The Distribution Team's current activities include:

- Farm Tap FAQ Modifications
- DIMP FAQ Modifications
- High Pressure Distribution
- Business Districts  
192.721\_723
- Documentation Required for Construction
- Excavation Damage Root Causes – Contract Locators
- Hydrogen as a Fuel Gas
- MAOP Records - NAPSRS Resolution
- Vent-less Slam Shut Regulators
- Sulfur/Dithiazine Depositions
- 192.181 Valve Installation
- NAPSRS Presentation





# Hydrogen and Alternate Fuels

- Interest in the US on hydrogen blending with natural gas to help achieve carbon neutrality.
- Lots of studies on the impact of hydrogen blending.
- Not a lot of actual projects with hydrogen blending flowing, that we know of, currently. Believe there will be much more in a couple of years.
- Currently gathering a list of planned/active projects.
  - Sent out a NASPR survey to all program managers on projects in their state.
  - Working on compiling that data and fitting it into our tracking spreadsheet.



# High Pressure Distribution

- The purpose of the group is how to consistently inspect “high pressure distribution lines”.
  - Specifically, 15 – 19.99% SYMS pipelines
- From a state perspective, we were seeing a lot of transmission lines being derated to below 20% SMYS but the function did not change.
- The team’s goal became to help inspectors properly classify these pipelines by developing a PowerPoint to give guidance on the complete transmission line definition and various code references.
- Wound up writing a white paper on the GPAC proposed distribution that helped the NAPS board submit a stay of enforcement on PHMSA on the distribution center definition.
- Currently, the group is holding out on future work due to the anticipated decision letter from PHMSA on the request to stay.
- The future goal is to still create a PowerPoint that helps NAPS inspectors with the classification/inspection of high pressure distribution pipelines.



## To Protect People and the Environment From the Risks of Hazardous Materials Transportation



# Business District Definition

- Added IA questions regarding operator defining a business district
- Reviewed data from IA
- Questions used 329 times (P – 55, R – 139, O – 135)
- 9 Unsat and 8 Concern
- Developed a definition as part of LDAR NPRM



# Emergency Valve Designation

- Incidents related to significant delays shutting down gas pipelines in a timely manner
- Operators failed to use emergency valves
- 192.181 (a) - Each high-pressure distribution system **must have valves** spaced so as to reduce the time to shut down a section of main in an emergency. The valve spacing is determined by the operating pressure, the size of the mains, and the local physical conditions.
- Regulation has been required since 1971
- Operators have failed to install valves per 192.181
- Procedures are lacking
- Continuing to determine a path forward



# Facility Documentation Team

- Determining operator's requirements to maintain documentation to be compliant with Parts 191 and 192
- The list of documentation is being gathered and compared to regulation requirements
- A review of code language, enforcement guidance and IA questions will be reviewed



# Contract Locators

- Concerns raised regarding timeliness and quality of locates by contractors
- Collected data from various sources
  - Indications point to contract locator errors
- Provided presentation to NAPS R
- Gathering information from states
- Plan to draft a white paper with proposals to improve the issue



# Excavation Damage Root Causes

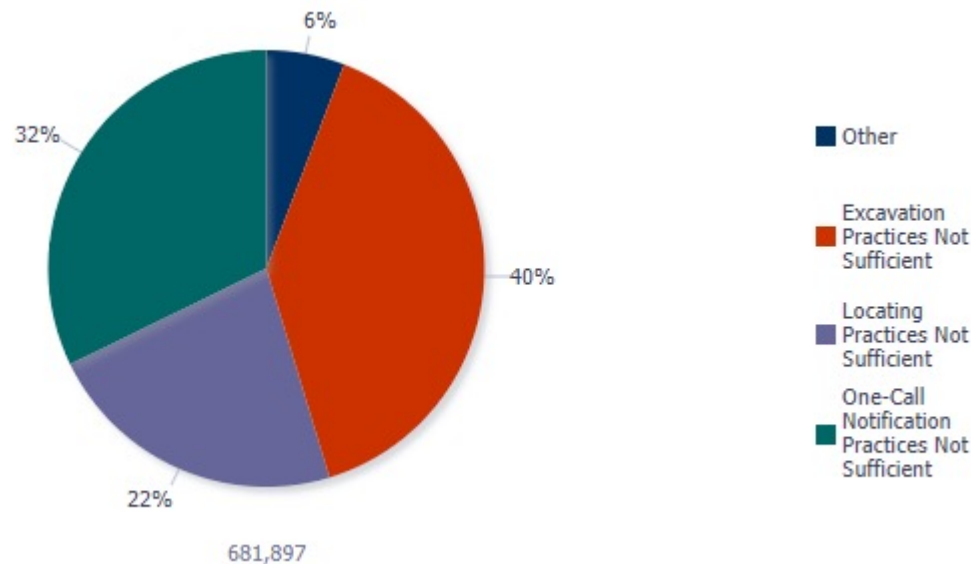
- Excavation damage numbers **increasing** while rate of damages per tickets goes ticks up (number of tickets increasing)
- Some State Safety Programs are encountering issues with facility owners failing to locate their facilities
- On the [National Pipeline Performance Measures](https://www.phmsa.dot.gov/data-and-statistics/pipeline/national-pipeline-performance-measures) webpage - <https://www.phmsa.dot.gov/data-and-statistics/pipeline/national-pipeline-performance-measures>
  - Excavation Damage - Incidents, Leaks, and Damages





# Excavation Damage Root Causes

- Root Causes (2015-Present)
  1. Excavation Practices Not Sufficient
  2. One-Call Notification Practices Not Sufficient
  3. Locating Practices Not Sufficient
  4. Other



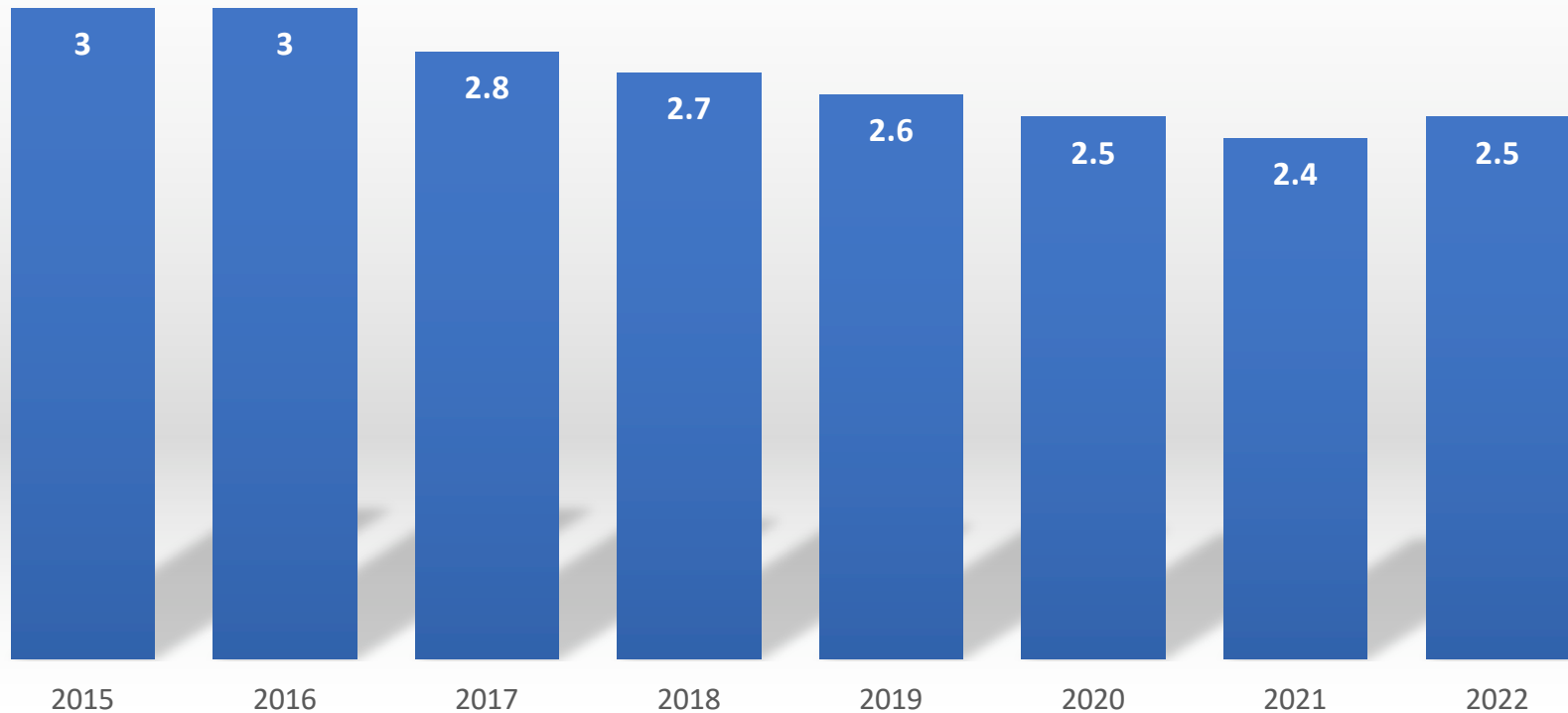
# Excavation Damage Root Causes

Calendar Year	Number of Excavation Tickets	Number of Excavation Damages	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	Locating Practices Not Sufficient	Excavation Practices Not Sufficient	Other
<b>2022</b>	<b>36,129,521</b>	<b>90,689</b>	<b>2.5</b>	29,476	21,724	37,934	1,555	<b>33%</b>	<b>24%</b>	<b>42%</b>	2%
2021	35,638,077	84,554	2.4	29,286	19,495	33,889	1,884	35%	23%	40%	2%
2020	33,273,361	83,698	2.5	29,314	18,920	33,077	2,387	35%	23%	40%	3%
2019	33,149,218	84,626	2.6	26,949	20,152	33,494	4,045	32%	24%	40%	5%
2018	31,354,082	83,734	2.7	26,712	19,220	33,160	4,650	32%	23%	40%	6%
2017	30,348,335	83,506	2.8	26,374	18,609	32,433	6,090	32%	22%	39%	7%

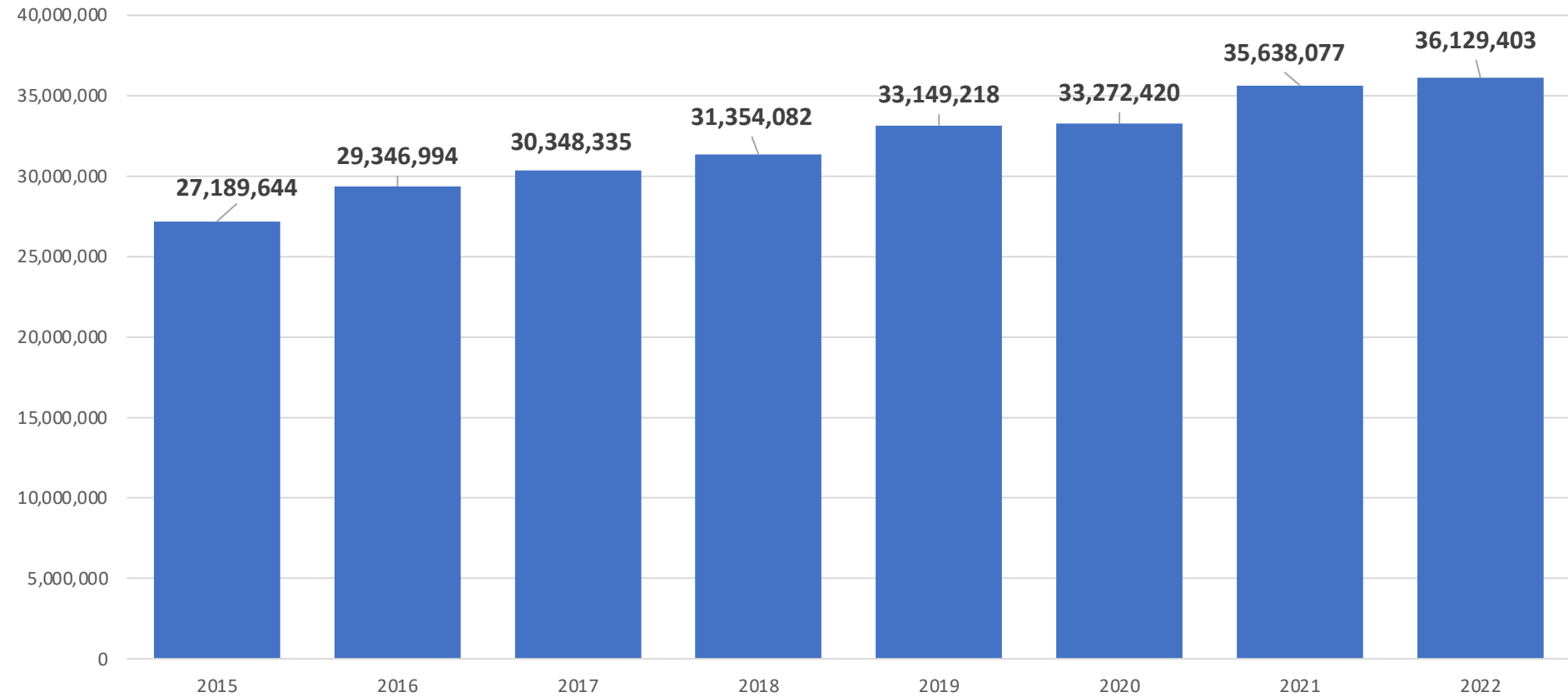


# Damage Rate Increases

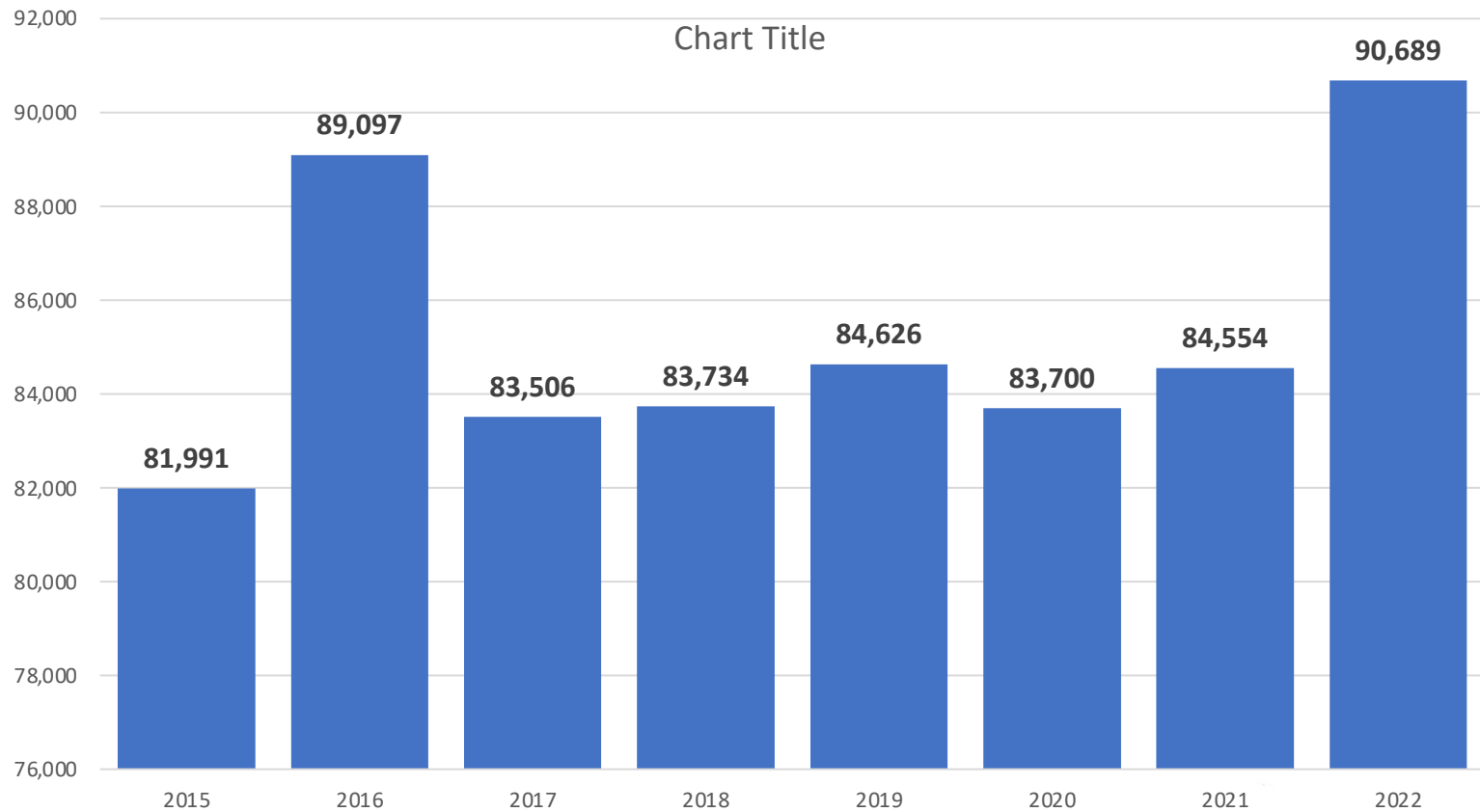
Damages per Thousand Tickets



# 811 Tickets



# Excavation Damages



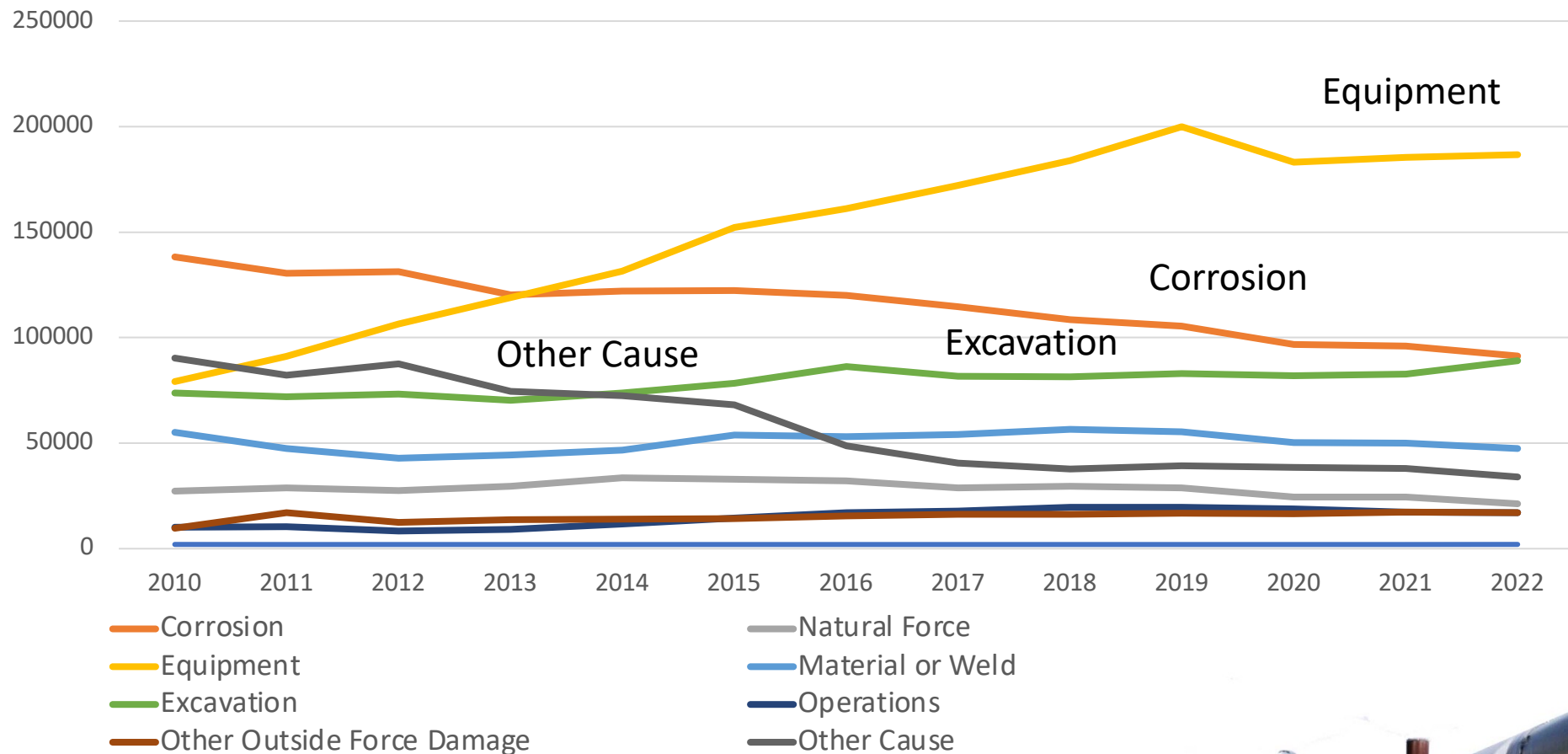
# Inspection Results Data Analysis

- The Distribution Team analyzes inspection results from the PHMSA Inspection Assistant (IA) Program
- Almost half of State programs use IA
- Evaluates inspection data for inconsistencies in reporting results among PHMSA and States to improve consistency
- Look for gaps in inspection tools where regulations are not adequately covered
- Currently reverse engineer incidents to determine inspection questions related to an incident's cause(s) to seek improvement in conduct of inspections and support failure investigations
- Use evaluation results to identify topic areas to emphasize or focus inspections on certain inspection questions or modules



# Distribution Data Analysis

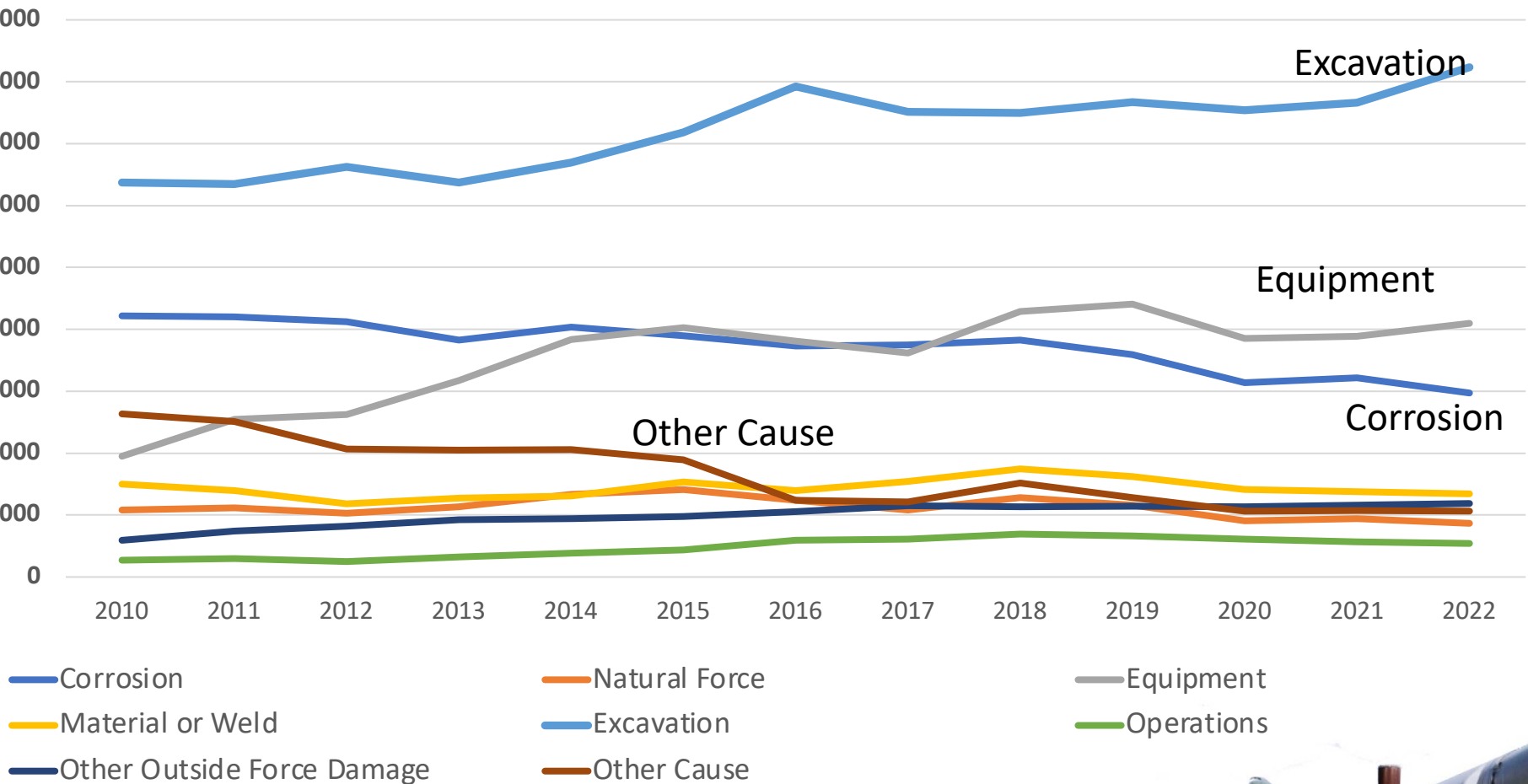
## Leaks by Cause Annual Report





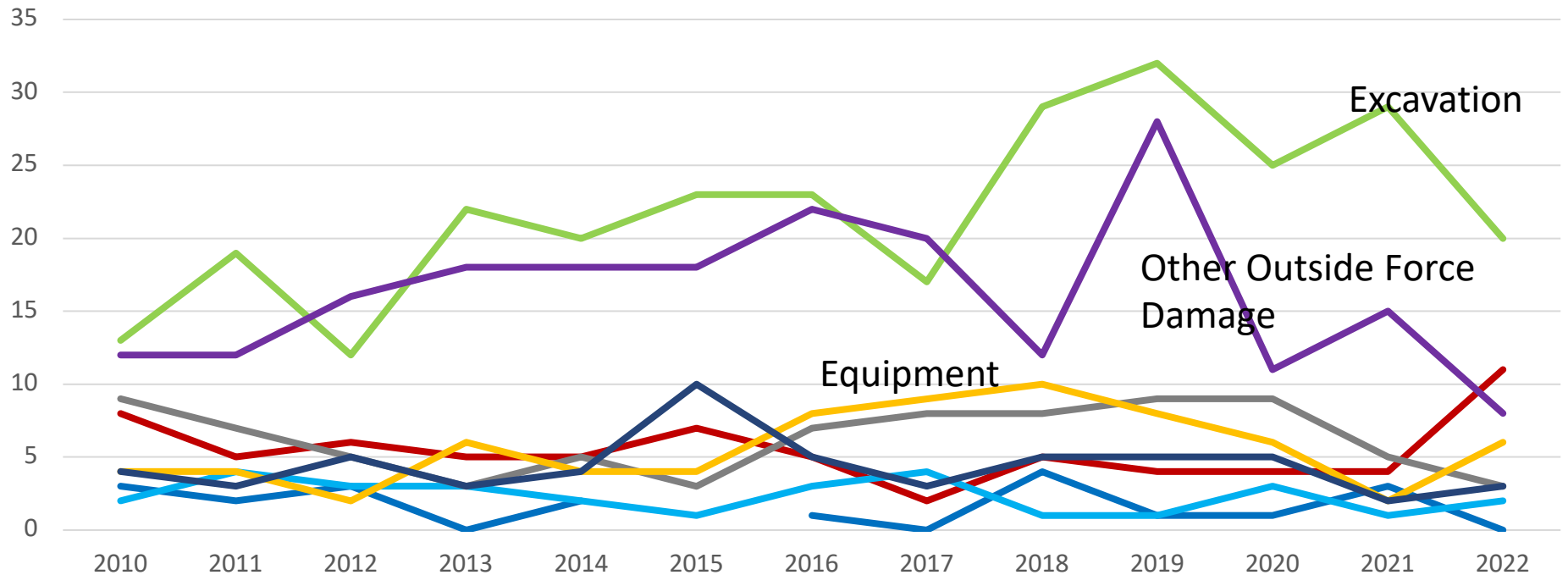
# Distribution Data Analysis

## Hazardous Leaks by Cause Annual Report



# Distribution Data Analysis

## Cause Significant Incidents



ALL OTHER CAUSES  
EQUIPMENT FAILURE  
INCORRECT OPERATION  
NATURAL FORCE DAMAGE

CORROSION  
EXCAVATION DAMAGE  
MATERIAL FAILURE OF PIPE OR WELD  
OTHER OUTSIDE FORCE DAMAGE

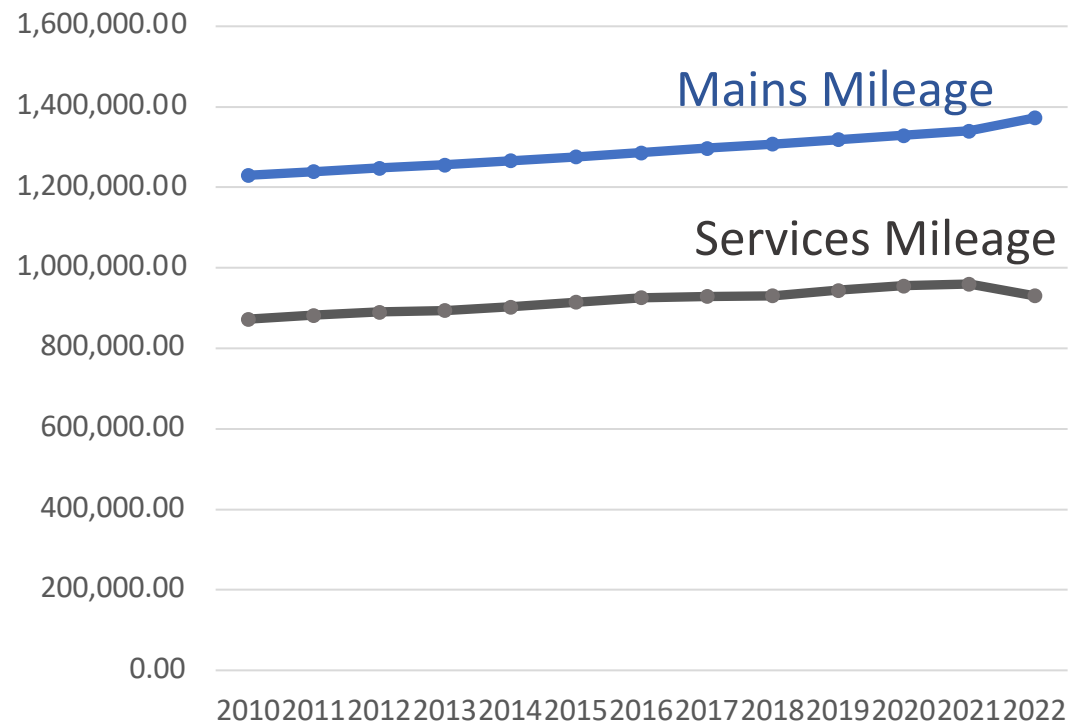


# Distribution Data Analysis

## Gas Distribution Mileage

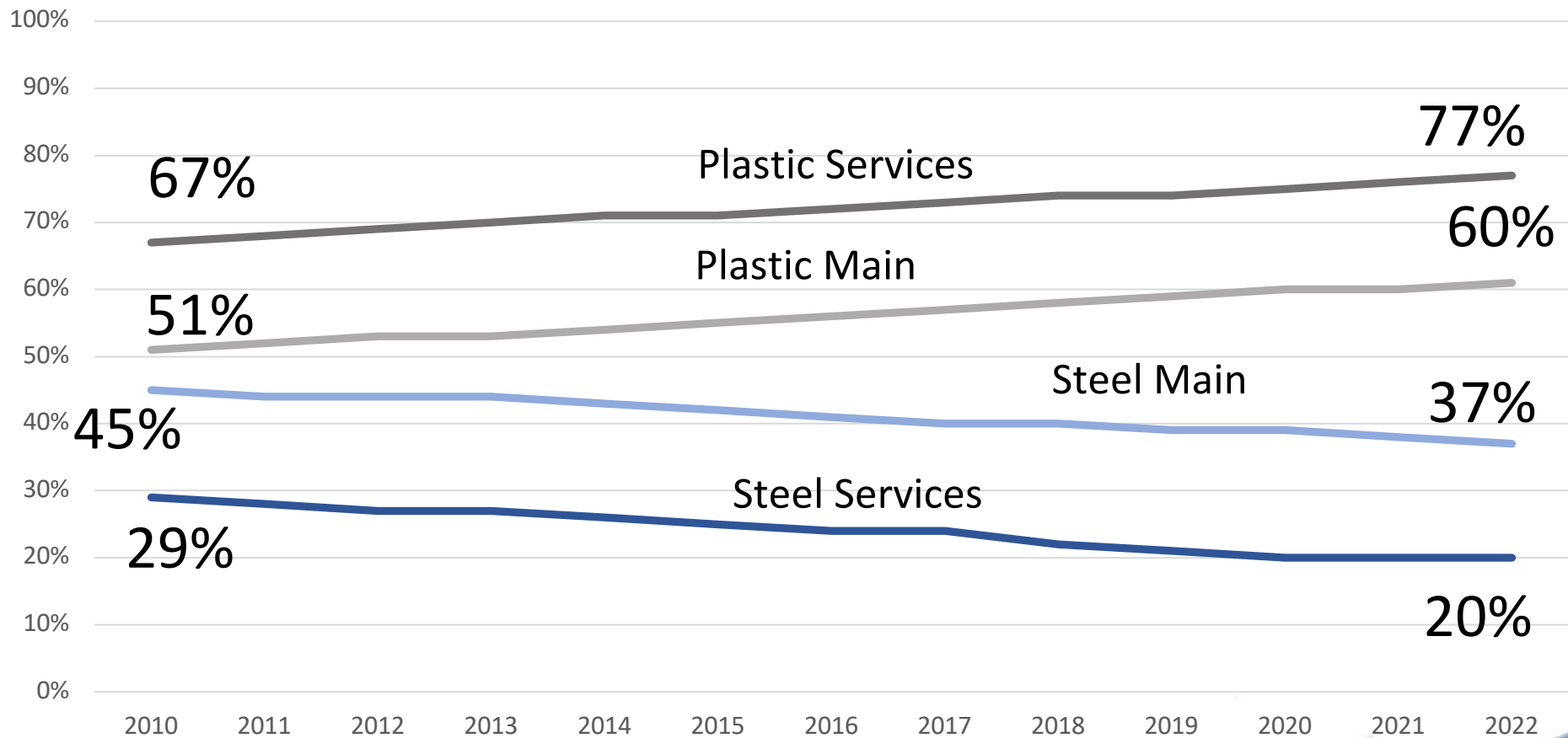
Annual Reports 2022

	Pipe Material	Total Miles	% of Miles
Main	STEEL	512,762.8	37.6%
	PLASTIC	841,015.7	61.2%
	OTHER MATERIALS	1,207.4	0.1%
	IRON	17,490.9	1%
	COPPER	5.1	0.0%
Services	STEEL	188,406.4	19%
	PLASTIC	743,510.9	77%
	OTHER MATERIALS	25,587.2	3%
	IRON	75.6	0.1%
	COPPER	7,559.0	1%



# Distribution Data Analysis

Percent Steel versus Percent Plastic  
2010-2022 Annual Report

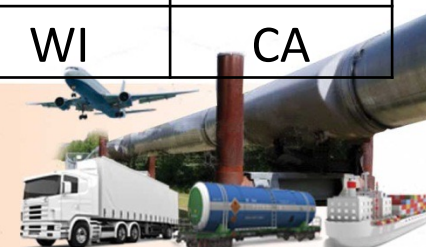


# Distribution Data Analysis

## Top 10 States based on 2022 Annual Reports

Mains			
Total Miles	Percent Steel	Percent Plastic	Percent Leaks Mile
TX	IL	NV	DC
CA	NE	AK	MA
IL	LA	ME	WV
MI	OR	DE	MD
OH	MS	VT	RI
NY	CA	UT	PA
PA	OH	MN	NY
GA	KS	WI	CT
IN	KY	MT	VA
TN	MO	VA	TX

Services			
Total Miles	Percent Steel	Percent Plastic	Percent Leaks Mile
CA	LA	ME	AR
MI	MT	MT	TX
TX	WY	NV	HI
IL	MS	MN	IL
OH	AL	VT	LA
GA	NM	AK	MS
NY	CA	KS	OK
IN	HI	AZ	WV
NJ	NE	VA	FL
WI	OK	WI	CA



# Inspection (IA) Results Data Analysis

## Top Code Sections Cited for UNSAT

Cited Code	General Description
192.616(c)	Public Awareness
192.605(a)	Procedures
192.353(a)	Meters and Regulators - Location
192.481(b)	Monitoring Atmospheric Corrosion Control
192.147(a)	Flanges and Flange Accessories
192.355(b)(2)	Meters and Regulators - Protection
192.615(b)(2)	Emergency Plans
192.491(c)	Corrosion Control Records
192.357(a)	Meters and Regulators - Installation
192.479(a)	Atmospheric Corrosion
192.455(a)	External Corrosion Control
192.481(a)	Atmospheric Corrosion Protection
192.465(a)	External Corrosion Control Monitoring
192.605(b)(8)	Procedures
192.1007(f)	Integrity Management Rank Risk Threats
192.614(c)	Damage Prevention Program



# NAPSR Participation with PHMSA

- Various Interpretations
- Incidental Subject Matter Expert tasks
- PIPES Act 2020, Section 113 support activities
- PIPES Act 2020, Section 114 Implementation Team
- PIPES Act 2020, Leonel Rondon Act regulatory support activities (Sections 202-206)
- Distribution related Inspection content





# Other Distribution Team Activities

- Request information from the states related to Distribution
  - NAPSRS tasks
  - Surveys
  - Contact SMEs
- Share information with the states
  - Notices sent to all states
  - If information is requested by any NAPSRS member
- Input and discussion driving Team that then creates Working Groups for specific topics



# Distribution Team Meetings

- Monthly Team teleconference meetings
- Working Groups typically meet monthly
- Tri or bi-Annual face to face meetings
  - Depending on workload and travel restrictions
- Meetings annually with AGA and APGA
- Meet with GTI annually
  - Working on similar projects



# Questions and Comments

- What are your thoughts on how we may better support the integrity and safe operation of distribution systems?
- Any topics that you would like the team to research?
- Any comments on the work product that you may have been presented

