



ARIZONA CORPORATION COMMISSION

Office of Pipeline Safety (AZOPS)



2024 DAMAGE PREVENTION PERFORMANCE REPORT

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EXECUTIVE SUMMARY

This report examines and measures the trend of pipeline damages caused by excavation activities of all Intrastate Gas and Hazardous Liquid pipeline systems in the State of Arizona owned and operated by transmission and/or local distribution companies (LDC) with a total combined pipeline length of 45,037 miles and 1,456,602 services.

A total of 676 pipeline hits/damages is the accumulative pipeline damages reported by operators during year 2024, after completing the analysis “3rd Party Excavator Error” is the leading cause of pipeline damage for year 2024, the second cause is “No AZ811 Tickets” followed by “Incorrect Marking” and “Error by LDC’s personnel” being the last cause.

The definition of “Operator” and “Pipeline System” under R14-5-201 of the Arizona Administrative Code, Title 14, Chapter 5 are as follows:

“Operator” means a person that owns or operates a pipeline system or master meter system.

“Pipeline System” means all parts of the physical facilities of a public service corporation or provider through which gas, LPG, LNG, or a hazardous liquid moves in transportation, including but not limited to pipes, compressor units, metering stations, regulator stations, delivery stations, holders, fabricated assemblies, and other equipment, buildings, and property so used.

INTRODUCTION

Since 2012, the Arizona Corporation Commission’s Office of Pipeline Safety (“AZOPS”) directed Intrastate Operators to submit quarterly reports of pipeline damages (data) caused by excavation according to the following information:

1. The total number of locate requests received by the Operators.
2. The total number of excavation damages.
3. The date, location, and name of the company or person responsible for the damage.
4. The cause of each damage classified into four root causes.
 - No AZ811 ticket requested by excavator.
 - Incorrect marking of pipeline facilities.
 - Error by excavator.
 - Error by operator or operator contractor.

The objective of gathering these reports is to identify the leading cause of “pipeline hits” and to suggest improvement in the areas that have more “pipeline damages” by a process of identification and tracking to reduce the number of pipeline damages within the State of Arizona.

For the development of the 2024 Damage Prevention Performance Report an analysis of the information data was performed; the data analyzed corresponds to (21) operators as shown in the following list:

	Operator
1	Abbott Nutrition Supply Chain
2	Alliant Gas
3	Ameresco Ninety First Avenue Renewable Biogas
4	West Phoenix Power Plant
5	CPN Pipeline Company
6	City of Benson
7	City of Mesa Municipal System
8	City of Safford Utilities Division
9	City of Willcox Municipal System
10	Colorado City Gas Department
11	Copper Market Incorporated
12	Duncan Rural Service Corp.
13	Tucson Electric Power Company
14	NUCOR Steel Kingman, LLC
15	Pimalco Gas
16	Plains Marketing, L.P.
17	Southwest Gas Corporation
18	Swissport Fueling Incorporated
19	UniSource Energy Services
20	Brightmark Caballero RNG, LLC
21	Tuba City USD No. 15
22	Origin Mining Company, LLC

Table 1

The 22 operators listed above have a total combined pipeline length of 45,037 miles and 1,456,602 services. It is important to note that this information data is derived from 2024 annual reports.

In addition, for transparency purposes Tuba City USD NO. 15 and Origin Mining Company, LLC did not provide their damage prevention quarterly reports during 2024. However, the pipeline damage numbers for these operators included in this analysis were obtained from the 2024 annual report. Information contained within this report may be available upon a data request.

METHODOLOGY

The AZOPS gathered all reports corresponding to Q1, Q2, Q3 and Q4 for year 2024 and analyzed the data received by operators. Table 2 below shows a summary report for 2024.

2024 SUMMARY REPORT						
Miles of Pipelines	45,037					
No. of Services	1,456,602					
		1st Q	2nd Q	3rd Q	4th Q	Totals
AZ811 Tickets Received	221,396	237,019	229,385	218,076	905,876	
Pipeline Damages	157	175	179	165	676	
No AZ811 Ticket	66	71	56	52	245	
Incorrect Marking	24	17	21	20	82	
3rd Party Excavator Error	55	75	80	80	290	
Error by LDCs Personnel	12	12	22	13	59	
Average Number of Pipeline Damaged Per 1000 Ticket Request	0.71	0.74	0.78	0.76	0.75	

Table 2

Figure 1 below shows pipeline damage versus AZ811 tickets received during each quarter in 2024.

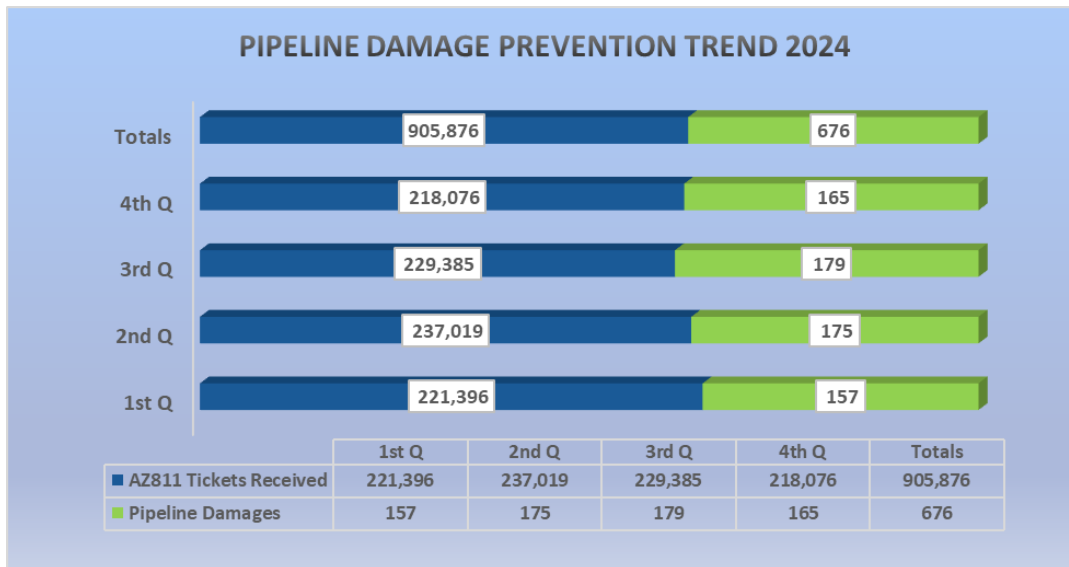


Figure 1. Damage Prevention Trend 2024

Figure 2 below shows a total of 676 pipeline hits/damages as the accumulative pipeline damage reported by operators during year 2024; “3rd Party Excavator Error” is the leading cause of pipeline damage for year 2024, the second cause is “No AZ811 Tickets” followed by “Incorrect Marking” and “Error by LDCs Personnel” being the last cause.

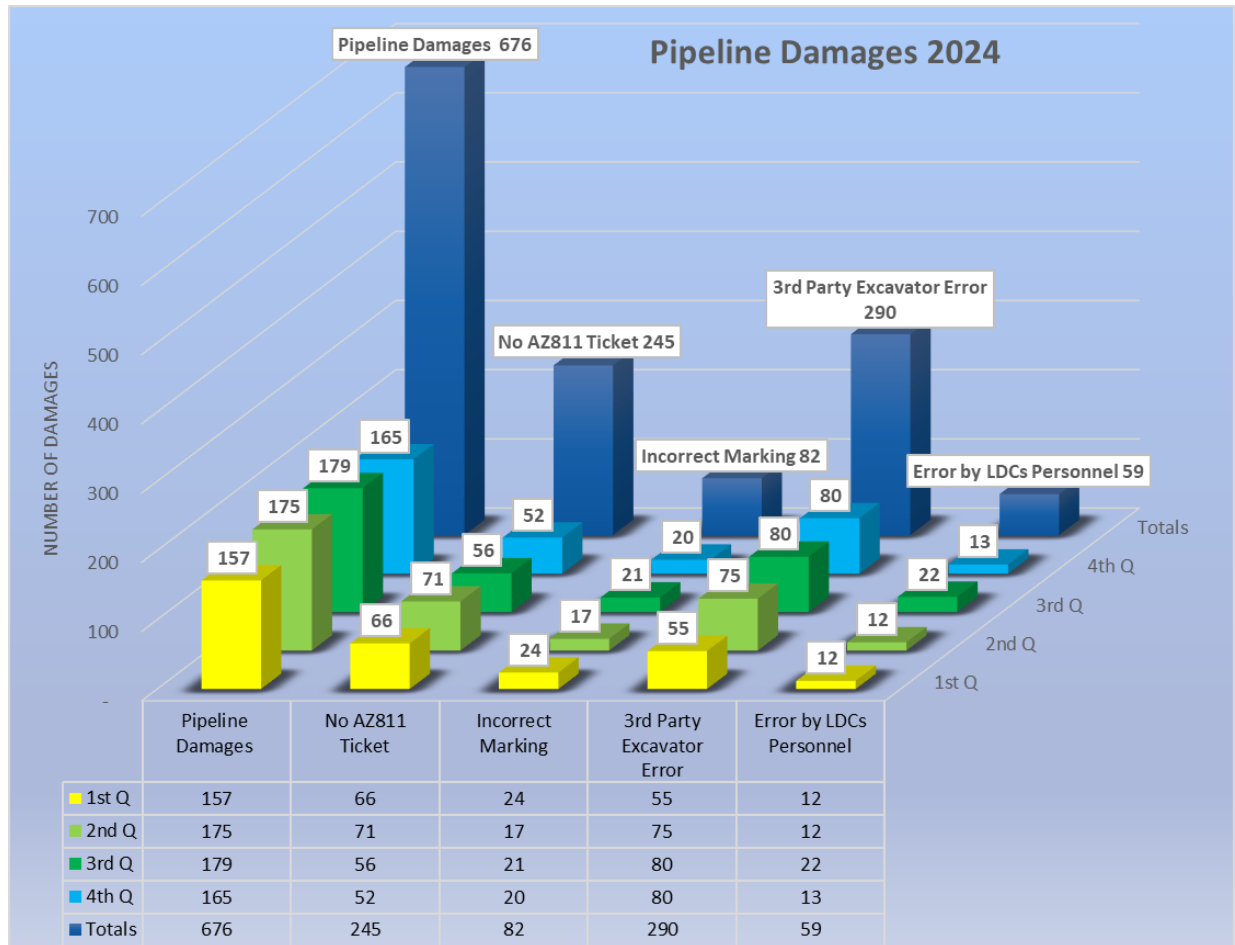


Figure 2. Pipeline Damages by Cause 2024

HISTORICAL DATA

The next chart (Figure 3) shows the average number of pipelines damaged per 1,000 ticket requests and the number of AZ811 tickets received per year since 2012. The graphic shows that the average of pipeline damaged per 1,000 tickets decreased 0.20 in 2024 with respect to year 2023. However, this factor has fluctuated over the years with an overall downward trend since the reporting started back in year 2012. Likewise, the number of the AZ811 tickets has had an upward trend since 2012.

The number of excavation damage occurrences per 1,000 locate tickets is an established benchmark within the damage prevention industry and it is an important indicator of damage prevention program performance. This factor continues to be below 1 (one) in the State of Arizona in year 2024.

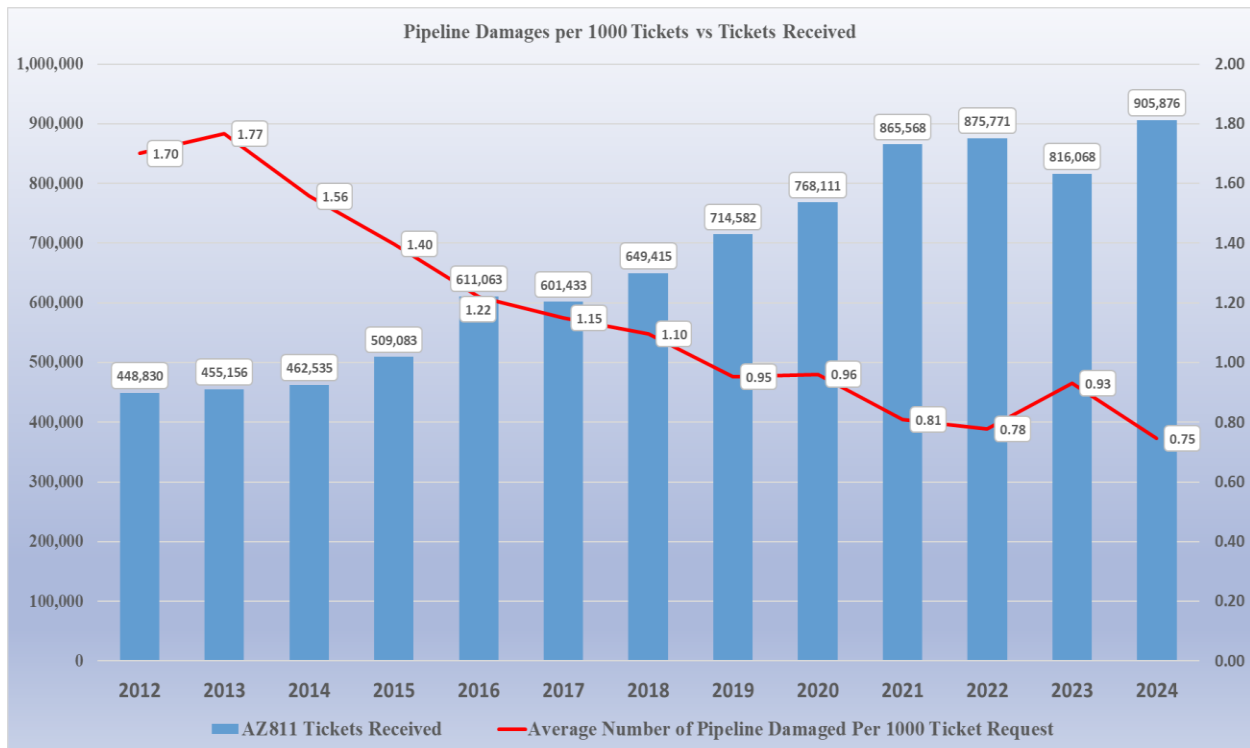


Figure 3. Average number of damaged pipelines per 1,000 tickets vs tickets received.

DATA SUMMARY

The information data was analyzed, and a comparison was made between years 2023 and 2024.

The data analysis assessment shows that there was an increase of 11% of AZ811 tickets generated for year 2024 versus year 2023. There were 816,068 AZ811 tickets received in year 2023 and within 2024 there were 905,876 AZ811 tickets received.

The number of pipeline damages reported decreased in year 2024 by 11% in comparison to pipeline damages reported in 2023, from 759 reported in 2023 to 676 reported in 2024.

From the analysis, it is acceptable to note the following description of pipeline damages by category:

- Pipeline damages by excavation due to “Third Party Excavator Error” was the number one leading cause in 2024. There were 34 less cases reported in 2024 than 2023, being 324 instances reported in 2023 and 290 instances reported in 2024, which represents 43% of the overall reported cases in 2024.
- Pipeline damages caused by “No AZ811 ticket” decreased 5%. There were 13 cases less in 2024 than 2023. There were 258 cases reported in 2023 and 245 cases reported in 2024. Although the number of pipeline damages in this category decreased in 2024; it was the second leading cause of pipeline damages in 2024, representing 36% of the total damages reported in 2024.
- Pipeline damages by excavation due to “Incorrect Marking” decreased in year 2024. There were 90 cases reported in year 2023 and 82 cases reported in year 2024, which represents a reduction of pipeline damages related to this root cause of 9%. This category was the third leading cause of pipeline damages being 12% of the total pipeline damages in 2024.
- Pipeline damages by excavation due to “Operator or Operator’s Contractor Error” decreased 32% from 2023 to 2024. There were 87 cases reported in 2023 and 59 cases in 2024, which represents only 9% of the overall reported cases in 2024.

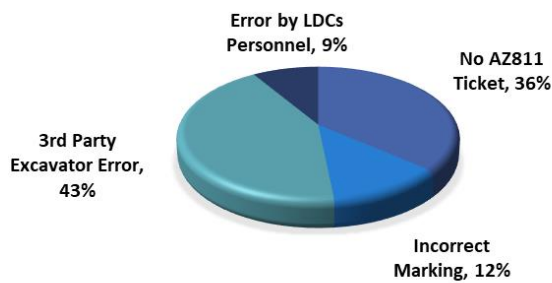


Figure 4 shows the pipeline damages by cause by percentage in 2024. “3rd Party Excavator Error” being the leading cause of excavation damages in 2024, “No AZ811 tickets” the second leading cause followed by “Incorrect Marking” and “Error by LDC’s Personnel”.

Figure 4. Pipeline damages by percentage in 2024.

Based on the data analyzed, the average number of pipeline damages due to excavation per 1,000 locate tickets decreased from 0.93 in 2023 to 0.75 in 2024, data collection has revealed that this factor has continued a positive trend since year 2019, which has been below 1.

The chart below (Figure 5) shows how the number of AZ811 tickets generated in 2024 increased by 89,809 representing 11% more than year 2023. Since year 2021, there has been more than 800,000 AZ811 tickets reported in the State of Arizona annually to date.

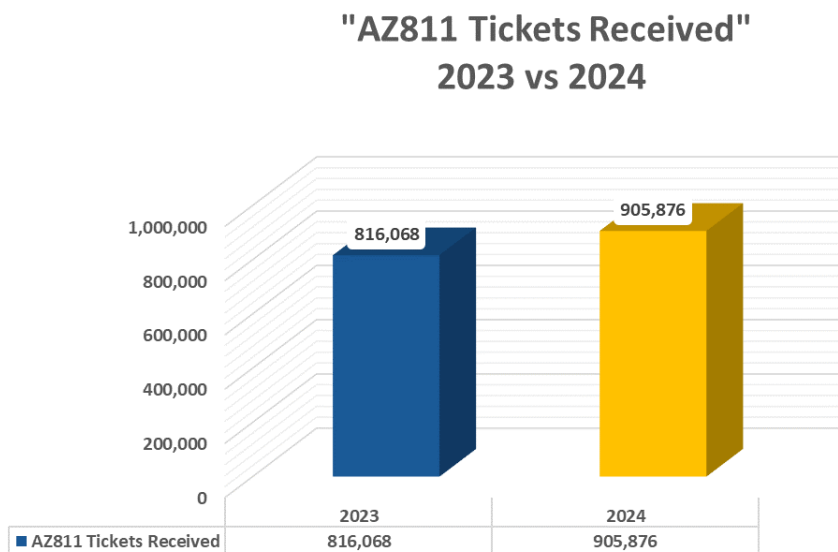


Figure 5. AZ811 tickets received 2023 vs 2024.

The following next 4 charts show a comparison on the cause of pipeline damage classified into four root causes between the year 2023 and year 2024. These categories are:

- 1. No AZ811 ticket requested by excavator (See Figure 6)
- 2. Incorrect marking of pipeline facilities (See Figure 7)
- 3. Third party excavator error (See Figure 8)
- 4. Error by operator or operator contractor (See Figure 9)

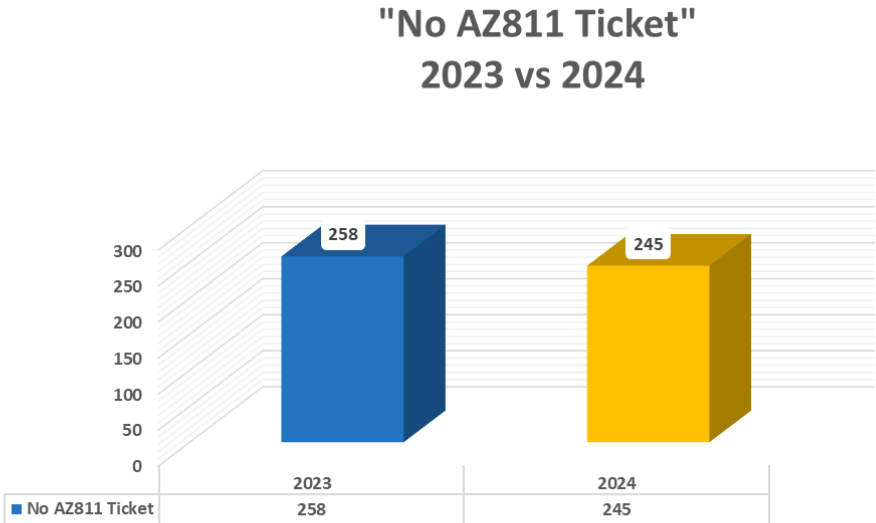


Figure 6. Pipeline Damage "No AZ811 Ticket"

"Incorrect Marking" 2023 vs 2024

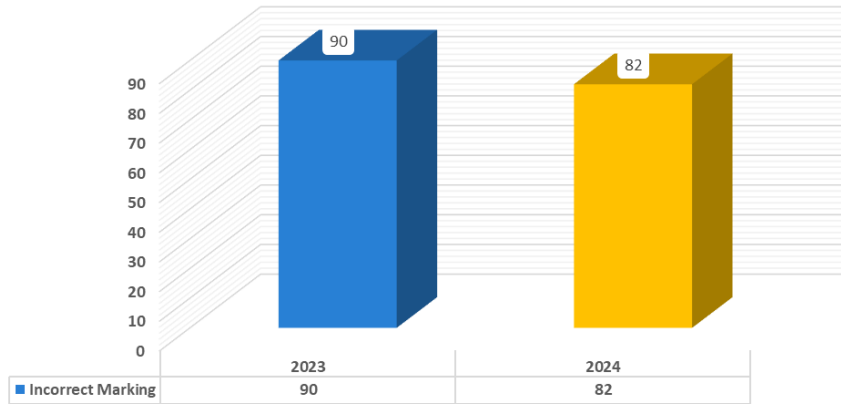


Figure 7. Pipeline Damage " Incorrect Marking"

"Third Party Excavator Error" 2023 vs 2024

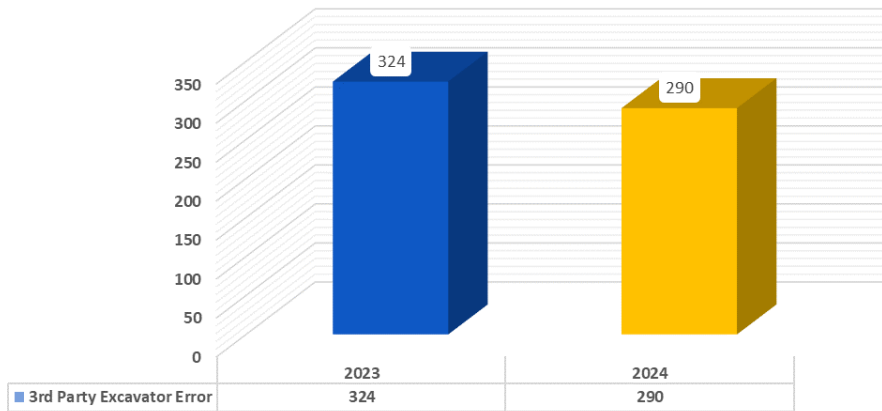


Figure 8. Pipeline Damage "Third Party Excavator Error"

"Error by LDCs Personnel" 2023 vs 2024

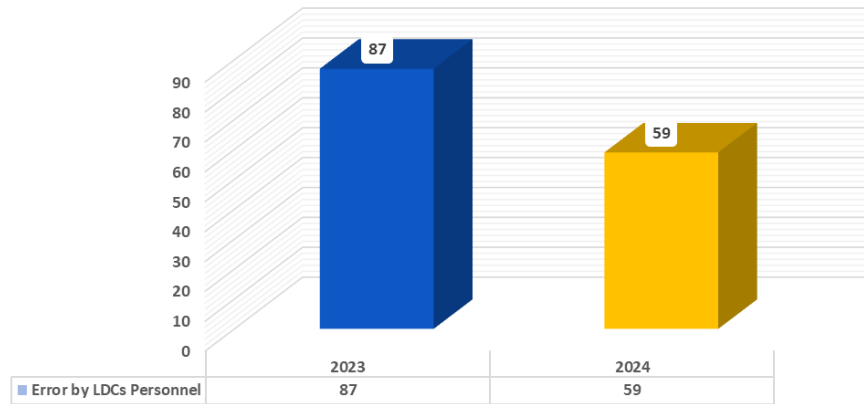


Figure 9. Pipeline Damage "Error by LDCs Personnel"

RECOMMENDATIONS TO IMPROVE PIPELINE DAMAGE PROGRAMS

1. Efforts should include encouraging pipeline operators/excavators to wait for markings to be completed, to stay within the stated work area or to make a new notice if the original work area is extended and renew notices if marks deteriorate or if work will continue beyond one call ticket expiration.
2. Participation by operators, excavators, and other stakeholders in the development and implementation of methods for establishing and maintaining effective communications between stakeholders from receipt of an excavation notification until successful completion of the excavation, as appropriate.
3. Improve on-time locate metrics. When mark-outs are late, contractors incur delays (downtime) and potentially added costs for demobilization, change in plans, etc. When these instances occur contractors must improve communication and inform AZOPS as soon as possible of these delays to prevent these situations.
4. Improve on-time locate metrics. All utility operators shall have enough qualified personnel to fulfill the AZ811 tickets requested to complete the markings in a timely manner per established requirements in the Underground Facilities Law.
5. Improve/Reduce damages due to No AZ811 notification by operators/excavators. Failure to provide notice of intent to excavate (No AZ811 ticket notification) is the second specific root cause of pipeline damages in Arizona.
6. As a best practice promote pot-holing and vacuum excavation within the pipeline industry. The excavation damages of natural gas pipeline include failure to pothole, maintain clearance, maintain marks and protect/support facilities, improper backfilling, and improper excavation practices.
7. Educate operators/excavators to reduce over-notifications to the Arizona 811 Center. Abuse of the one call system exacerbates issues with late locating and/or no response to one call tickets i.e., excavators repeatedly update locate tickets for which some or all the work has already been completed, marking of work areas larger than required.
8. Adopt new technologies to reduce damages by improving communications with the Arizona 811 Center to improve processes, locating, and excavating practices.

Continue...

RECOMMENDATIONS TO IMPROVE PIPELINE DAMAGE PROGRAMS

9. Underground facilities owners/operators shall locate and track their abandoned underground facilities.
10. Operators shall continue to increase public awareness campaigns that can effectively reach multiple audiences with the AZ811 information.
11. Public outreach through mass media shall continue over the years to come to reach all audiences at the same time, making campaigns more efficient.
12. Operators shall make damage prevention training more easily accessible, relevant, and actionable. All utility owners including natural gas operators/excavators have limited knowledge about the Arizona Underground Facilities Law beyond the need to notify before beginning work.
13. Operators shall contact the AZOPS as soon as practicable when excavators are performing activities in violation of the Underground Facilities Law to respond in a timely manner, this will provide the AZOPS a better opportunity to educate these excavators.
14. Operators must have a goal to create a program that offers clear expectations to industry and protects the integrity of underground infrastructure and the safety of people and property.
15. The AZOPS and the Arizona 811 Center joined efforts will continue to offer gas pipeline operators and contractors/excavators the required training of the Underground Facilities Law to reduce the number of pipeline damages.

CONCLUSION

For calendar year 2024, the number one root cause of pipeline damages was “3rd Party Excavator Error” in the State of Arizona with 290-line hits and the second root cause was “No AZ811 ticket” with 245-line hits, followed by “Incorrect marking” with 82-line hits and finally “LDC personnel’s error” of facilities with 59-line hits.

“3rd Party Excavator Error” was the main cause of pipeline damage by excavation in 2024. According to the analysis the number reported of pipeline damages decreased by 10% (34 cases less) in 2024. There were 324 cases reported in 2023 and 290 cases reported in 2024.

“No AZ811 ticket” decreased 5%. There were 13 cases less in 2024 than 2023. There were 258 cases reported in 2023 and 245 cases reported in 2024. Although the number of pipeline damages in this category decreased in 2024; it was the second leading cause of pipeline damages in 2024, representing 36% of the total damages reported in 2024.

“Incorrect Marking” decreased in year 2024. There were 90 cases reported in year 2023 and 82 cases reported in year 2024, which represents a reduction of pipeline damages related to this root cause of 8.9%. This category was the third leading cause of pipeline damages being 12% of the total pipeline damages in 2024.

“Operator’s Contractor Error” decreased 32.2% from 2023 to 2024. There were 87 cases reported in 2023 and 59 cases in 2024, which represents only 9% of the overall reported cases in 2024.

The number of pipeline damages decreased percentage wise in 2024 by 11% with respect to year 2023. The benefit acquired through this analysis provides a better understanding of the state damage prevention program identifying the areas for improvement.

Data shows an increase of 89,809 AZ811 tickets generated in the state of Arizona in 2024, which represents an increment of 11.0% from year 2023. There were 816,068 AZ811 tickets received in 2023, and 905,876 tickets received in year 2024.

There was a reduction of 83 pipeline damages in 2024 in comparison to year 2023 leading to an average number of pipeline damages per 1,000 ticket requests of 0.75 in 2024, representing a slight reduction in this factor of 0.18 from previous year, this factor indicates that the trend in damage prevention continues to be below 1. This indicator may be attributed to the AZOPS proactive approach to enforcing Operator Qualification requirements, the education and enforcement of the Underground Facilities Law and to the operators engaging and implementing their damage prevention and public awareness programs.