



Gas Pipeline Safety

What happened to my pipeline and why? Leaks, Damages and Other failures.

David Hancock, 2024

OUR STARTING POINT

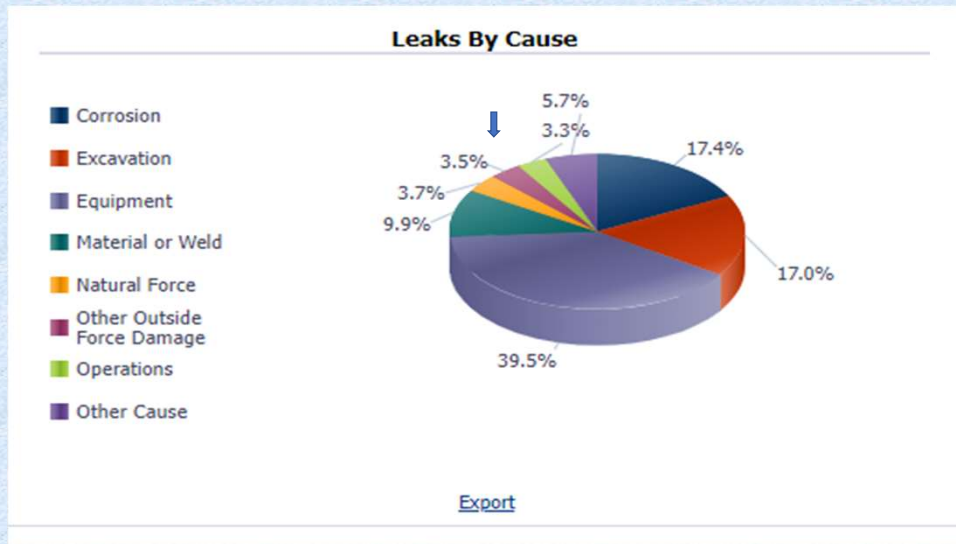
- **§192.617 Investigation of failures and Incidents.**
- (a) Post-failure and incident procedures. Each operator must establish and follow procedures for investigating and analyzing failures and incidents as defined in §191.3, including sending the failed pipe, component, or equipment for laboratory testing or examination, where appropriate, for the purpose of determining the causes and contributing factor(s) of the failure or incident and minimizing the possibility of a recurrence.

FAILURE

- *Defined in ASME/ANSI B31.8S*
- *A general term used to imply that a part in service: has become completely inoperable, is still operable but is incapable of satisfactorily performing its intended function; or has deteriorated seriously, to the point that it has become unreliable or unsafe for continued use.*
- **In short, an event which threatens the function of the pipeline.**

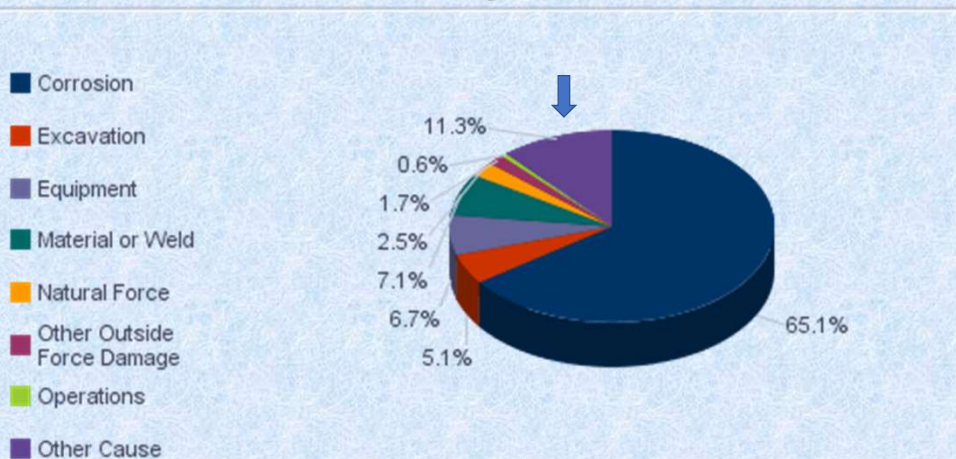
LEAK REPORTING

Distribution National Average CY 2023



West Virginia

Leaks By Cause

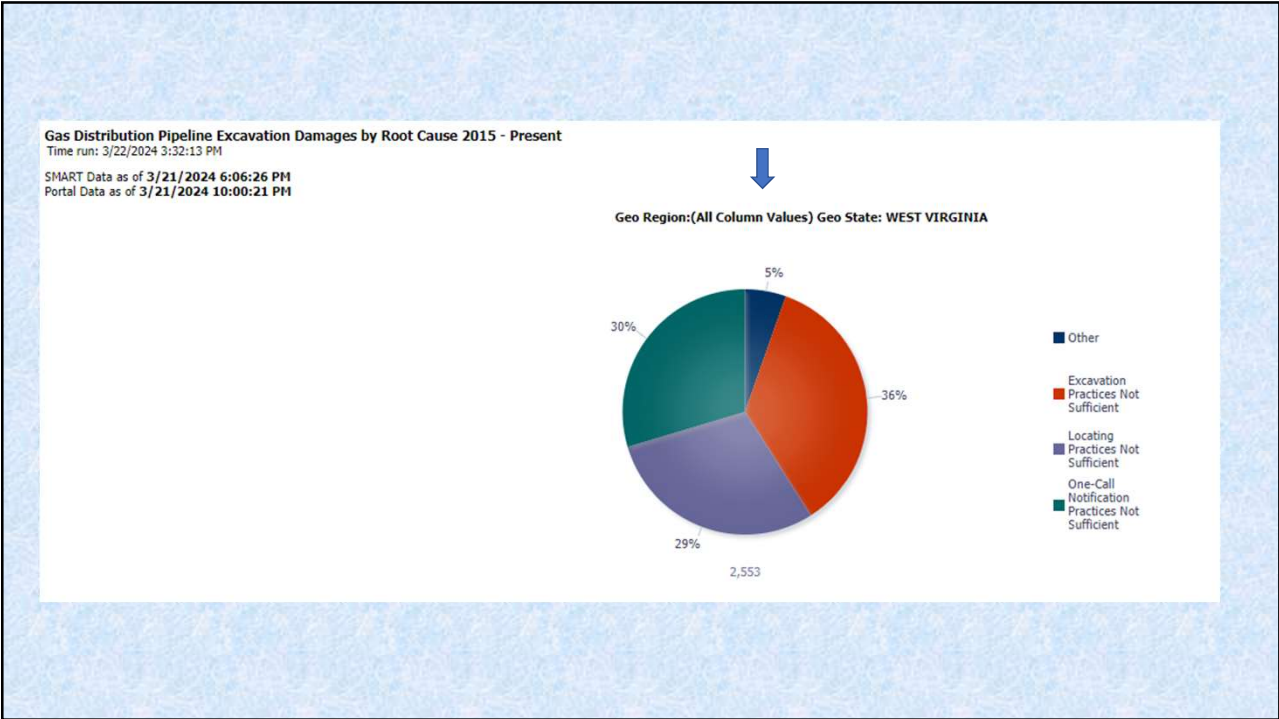


Gas Distribution Leaks by Cause
 Time run: 3/27/2024 11:02:37 AM
 SMART Data as of 3/28/2024 8:06:34 PM
 Portal Data as of 3/28/2024 10:08:33 PM

Geo Region: (All Column Values) Geo State: WEST VIRGINIA

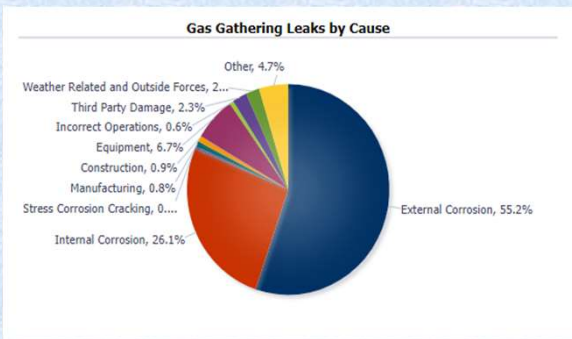
Leak Cause	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Corrosion	6,210	6,022	5,474	5,503	5,515	4,866	3,473	4,279	3,761	4,093	3,827	4,070	3,715	3,823	4,276	3,935	3,357	3,687	3,264
Natural Force	151	140	154	79	80	93	81	85	100	146	129	181	200	201	197	200	180	201	123
Equipment	160	164	207	306	261	255	266	287	293	298	290	307	256	300	423	343	205	265	337
Material or Weld	399	426	825	718	578	521	440	529	506	406	379	371	245	263	373	346	233	375	356
Excavation	580	658	573	527	604	542	489	411	386	328	332	337	288	322	313	325	327	278	254
Operations	71	31	11	23	32	10	4	56	14	16	14	13	13	9	40	47	20	25	30
Other Outside Force Damage	236	153	163	163	168	178	139	207	184	138	123	295	371	128	151	104	94	72	85
Other Cause	1,178	618	1,072	1,329	1,098	839	718	958	1,264	942	750	690	382	488	486	415	301	481	564

Calendar Year 2023

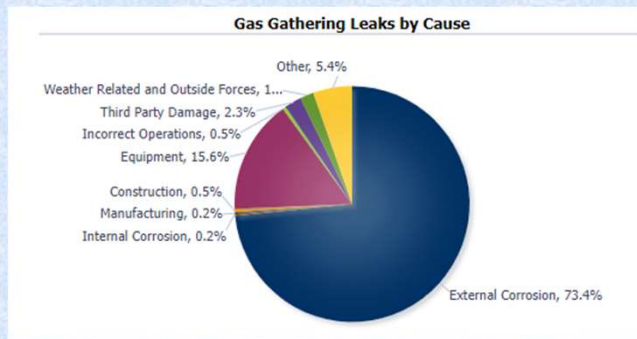


Calendar Year	Number of Excavation Tickets	Number of Excavation Damages	One-Call Notification Practices Not Sufficient	Locating Practices Not Sufficient	Excavation Practices Not Sufficient	Other	One-Call Notification Practices Not Sufficient	Locating Practices Not Sufficient	Excavation Practices Not Sufficient	Other
2023	103,747	246	63	52	102	29	26%	21%	41%	12%
2022	105,260	278	80	77	106	15	29%	28%	38%	5%
2021	101,764	306	82	102	106	16	27%	33%	35%	5%
2020	99,374	313	79	95	131	8	25%	30%	42%	3%
2019	132,829	278	94	70	101	13	34%	25%	36%	5%
2018	143,141	276	69	96	98	13	25%	35%	36%	5%
2017	91,430	225	73	79	68	5	32%	35%	30%	2%
2016	81,105	329	103	112	104	10	31%	34%	32%	3%
2015	91,544	302	113	68	92	29	37%	23%	30%	10%

GAS GATHERING NATIONAL AVERAGE 2013-2023



GAS GATHERING WV AVERAGE 2013-2023



**EXCAVATION DAMAGE REPORTING
IN TRANSMISSION, GATHERING LINES
and DISTRIBUTION LINES**

CHANGES INCLUDE:

PART Q – Gas Transmission Miles by
MAOP Determination Method
Changes include how lines are
reconfirmed and reported according to
HCA/ MCA and Class location

Operators of Gathering Lines have already seen the changes which
include Type C and R lines

TRANSMISSION AND GATHERING LINES PARTS M4 AND M5 DISTRIBUTION PART D

PARTS M4 AND M5 –EXCAVATION DAMAGE

Report gas transmission data in M4 and gas gathering data in M5.

Report the “Number of Excavation Damages” in each of the 26 root cause categories. For descriptions of the categories, refer to the Common Ground Alliance Damage Information Reporting Tool (DIRT) User’s Guide available at <https://www.phmsa.dot.gov/operator-resources/damage-information-reporting-tool-dirt-users-guide>

sub-Totals and Total Excavation Damages will be calculated automatically based on the data entered. For this purpose, “Excavation Damage” means any impact that results in the need to repair or replace an underground facility due to a weakening, or the partial or complete destruction, of the facility, including, but not limited to, the protective coating, plastic pipe tracer wire, lateral support, cathodic protection or the housing for the line device or facility.

Report also the “Number of Excavation Tickets” received during the year, (i.e., receipt of information by the operator from the notification center).

DISTRIBUTION PART D - EXCAVATION DAMAGE

PART D – EXCAVATION DAMAGE

26 Root Cause Categories will be implemented for ***CY 2024 data due on 3/15/2025***

Excavation damages are reported as a measure of the effectiveness of integrity management programs (§ 192.1007(g)).

Report the “Number of Excavation Damages” in each of the 26 root cause categories. For descriptions of the categories, refer to the Common Ground Alliance Damage Information Reporting Tool (DIRT) User’s Guide available at <https://www.phmsa.dot.gov/operator-resources/damage-information-reporting-tool-dirt-users-guide>

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DAMAGE PREVENTION AND REPORTING OF EXCAVATION DAMAGES

Transmission and Gathering Lines

Part I: Root Cause

See Root Cause definition in the Glossary

*Part I – Root Cause Select only one

Notification Issue

- No notification made to 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

Miscellaneous Root Causes

- Deteriorated facility
- One Call Center Error
- Previous damage
- Root Cause not listed (comment required)

Locating Issue

Facility not marked due to:

- Abandoned facility
- Incorrect facility records/maps
- Locator error
- No response from operator/contract locator
- Incomplete marks at damage location
- Tracer wire issue
- Unlocatable Facility

Facility marked inaccurately due to

- Abandoned facility
- Incorrect facility records/maps
- Locator error
- Tracer wire issue

From Common Ground Alliance DIRT tool

MORE THAN JUST NUMBERS

In analyzing leaks and excavation damages along with the reporting of those numbers, an operator needs to understand that an investigation is taking place before the reporting of those numbers. The accuracy of those numbers will continue to reflect upon not only the Operator for years, but upon the rest of the operators in our state. Emphasis upon these numbers has increased in recent years and will most likely continue to increase in upcoming years.