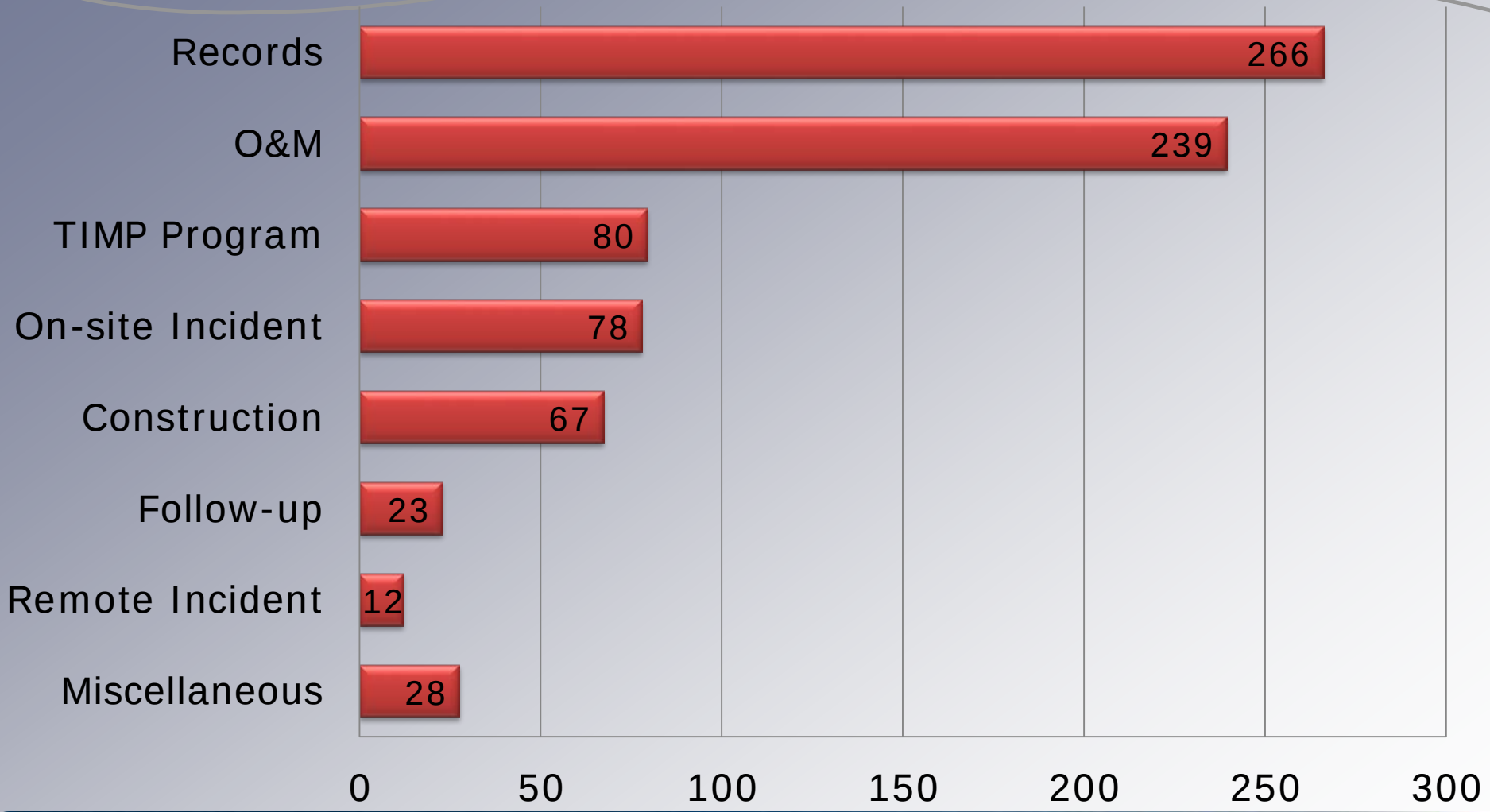
2016 Communication Meeting

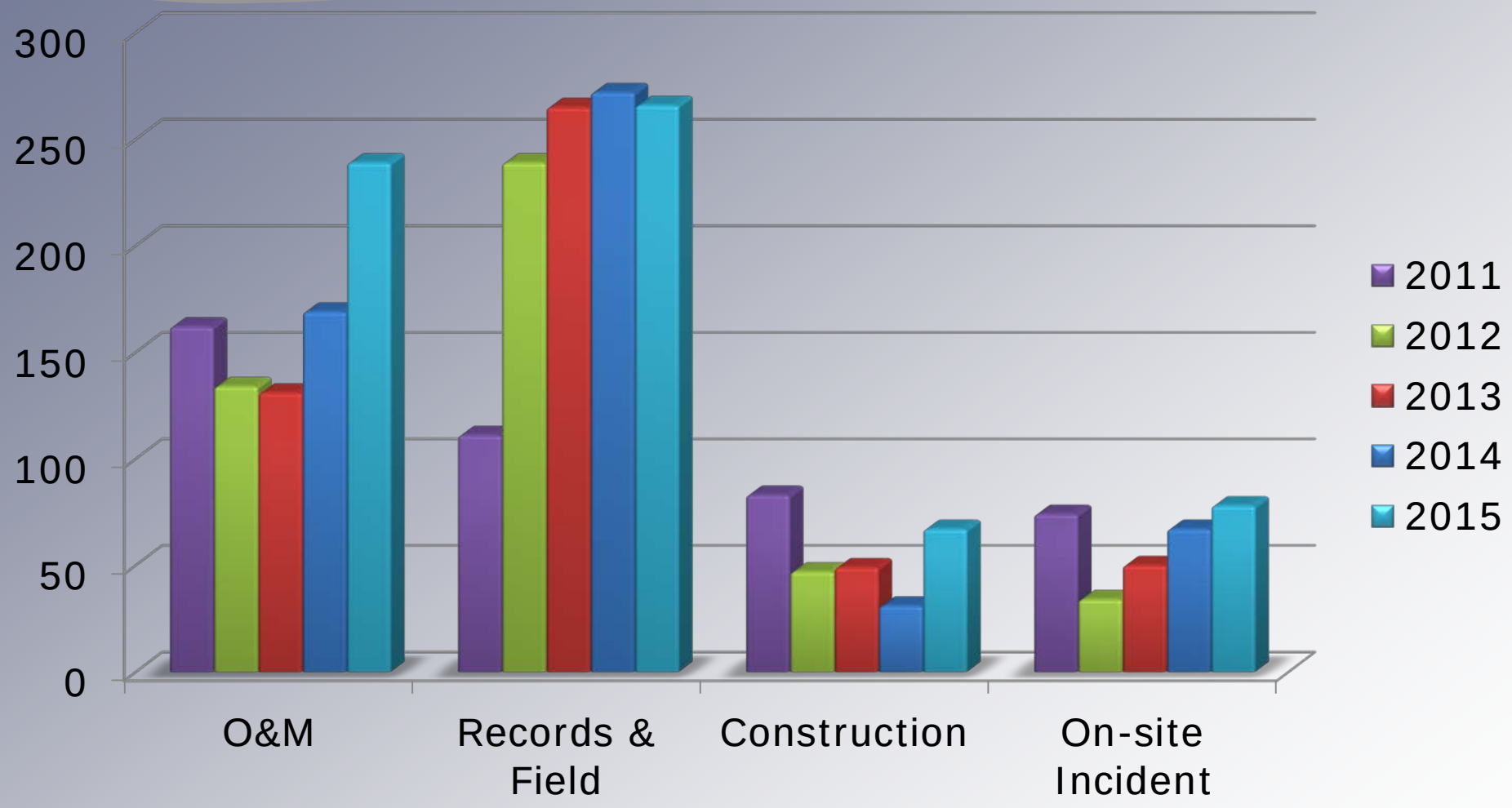
Presented by:
Michigan Public Service Commission

LARA Public Service Commission
Department of Licensing and Regulatory Affairs

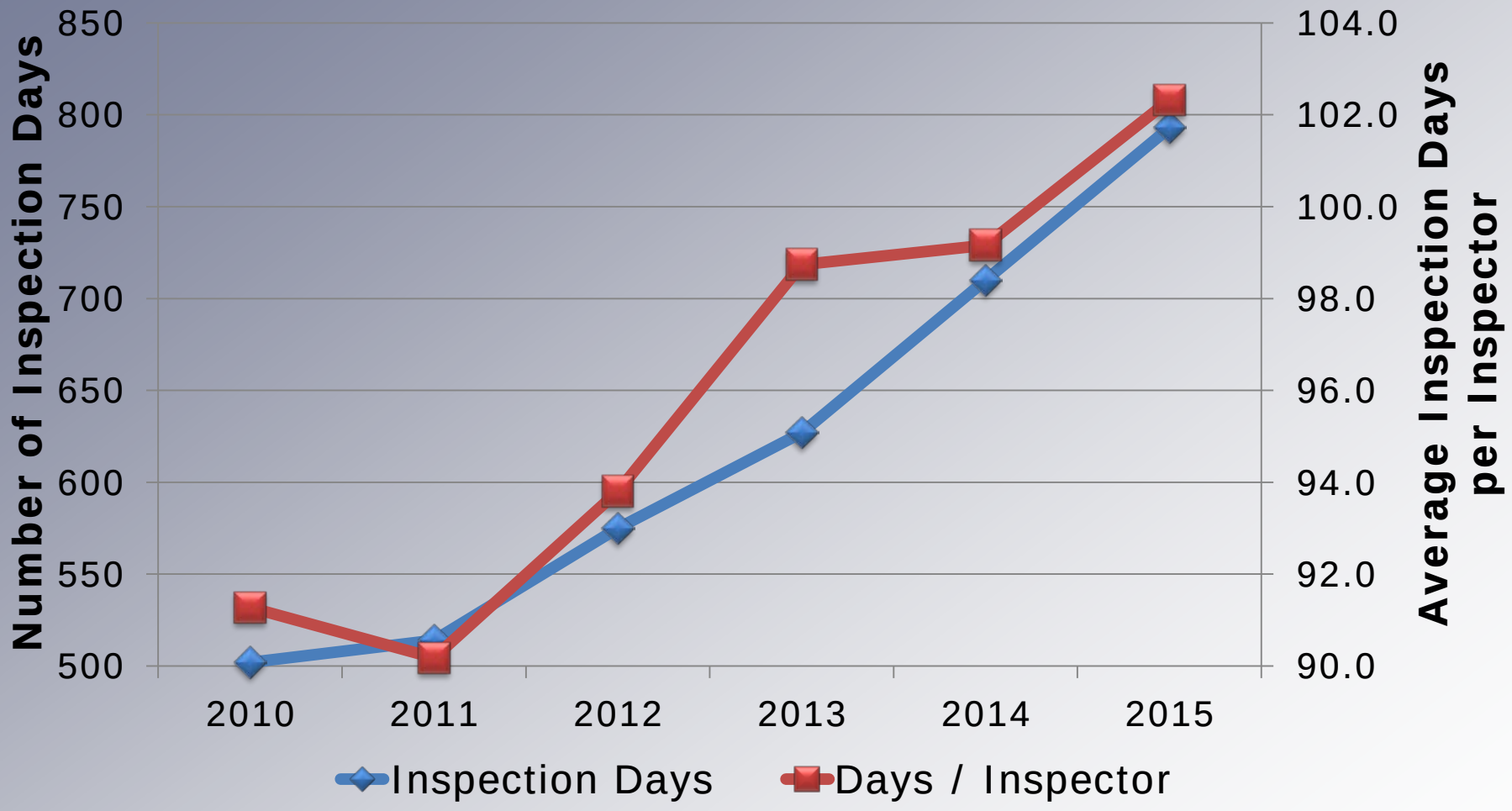
2015 Inspection Days



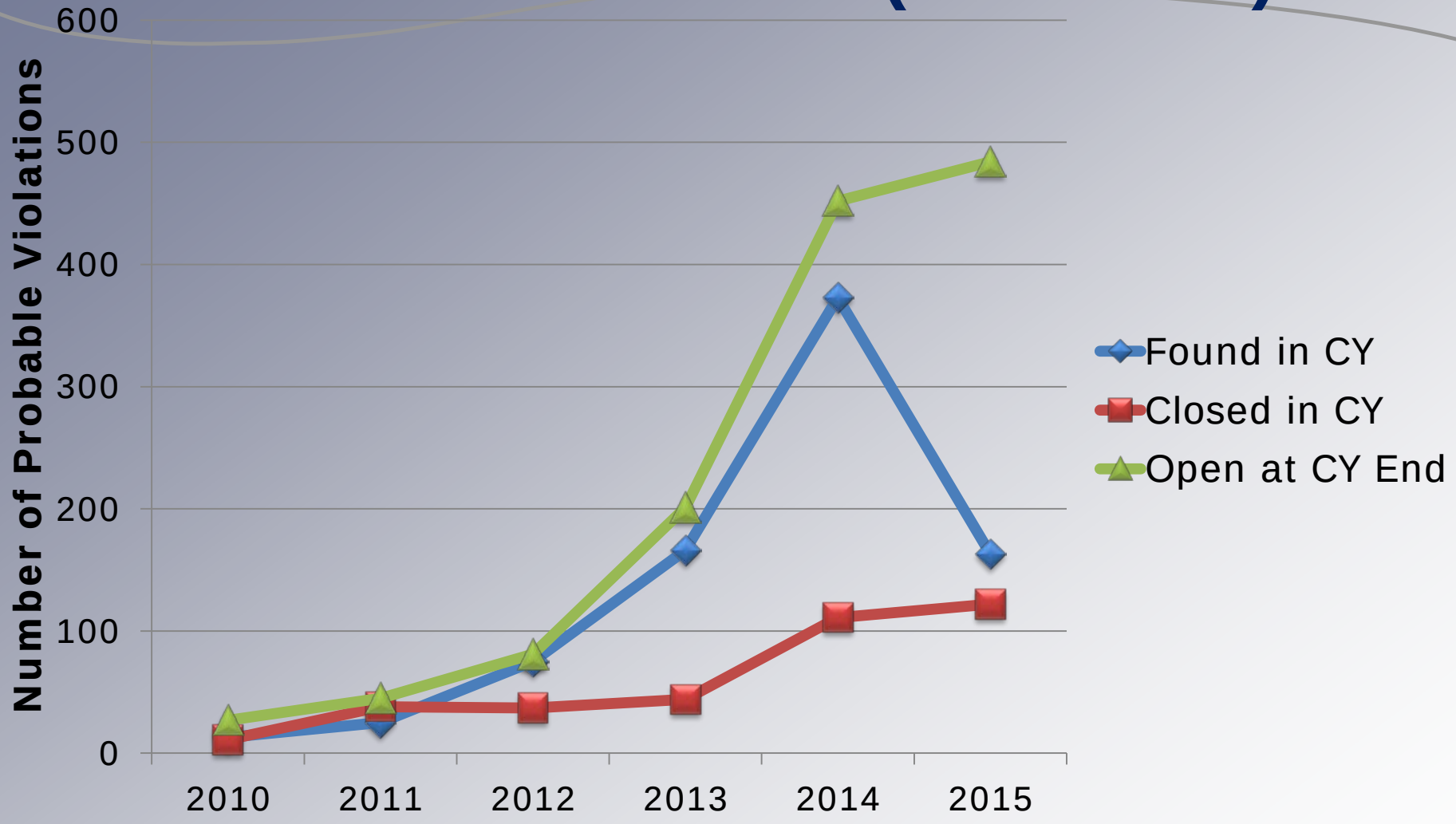
Inspection Day Activity



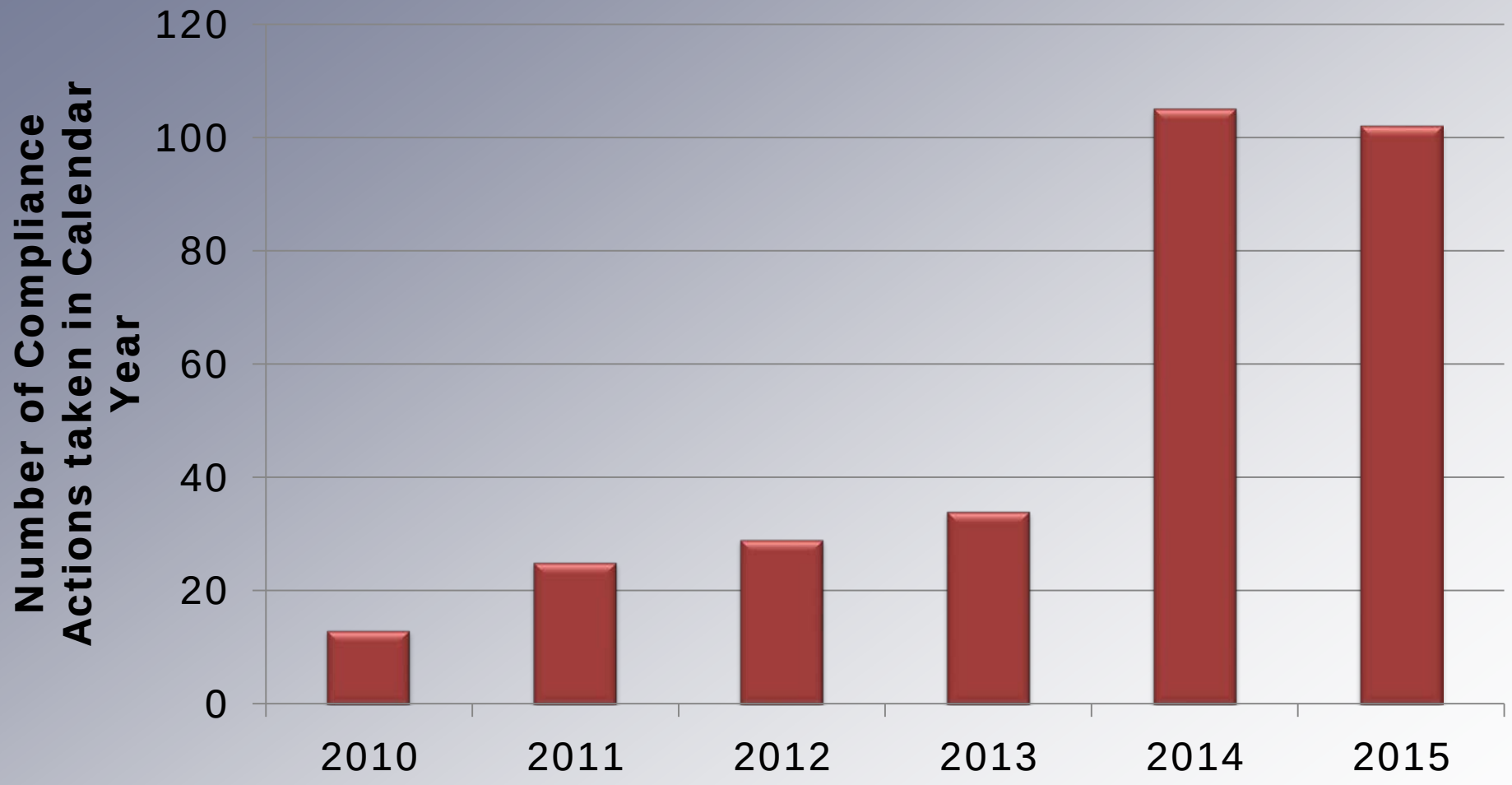
Inspection Days



Probable Violations (Intrastate)



Compliance Actions



Damage Reporting

- PA 174 requires the MPSC to maintain information on reported damaged facilities. This information will be made publicly available on the Commission's website.
- Damage data has been submitted for calendar year 2015 to the MPSC by 71 underground facility owners and facility operators.
- Data will be used to focus on future improvements to reduce underground damages.
- The data collected is consistent with DIRT allowing the MPSC to share damage information with other entities.

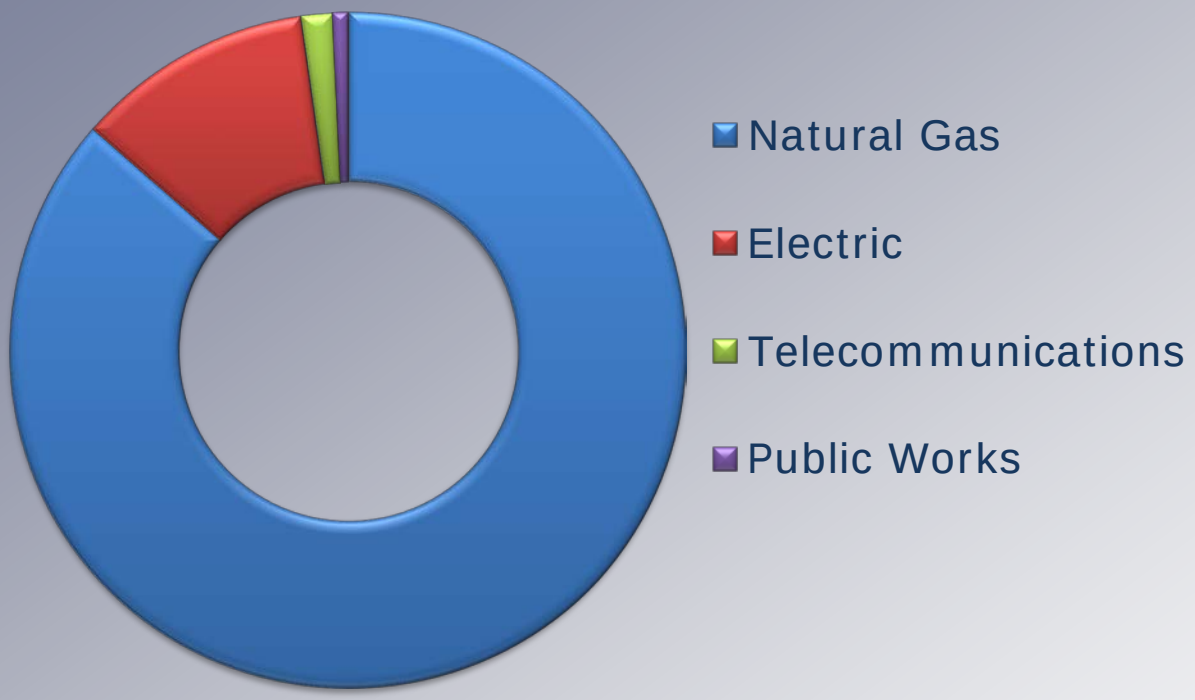
Damage Reporting

- Common issues with data files received
  - Incomplete data submitted
  - Commas in CSV file
  - Header row contains incorrect field names
  - Incorrect field order or missing fields
  - Formatting as currency for cost reporting

Damage Reporting

- 4096 damage incidents reported
  - 42% of damages reported that there was no MISS DIG notification.
  - 2 damages reported that there were exemptions under Act 174 for facility marking.
  - 61% of hand tool damages reported had no MISS DIG notification.

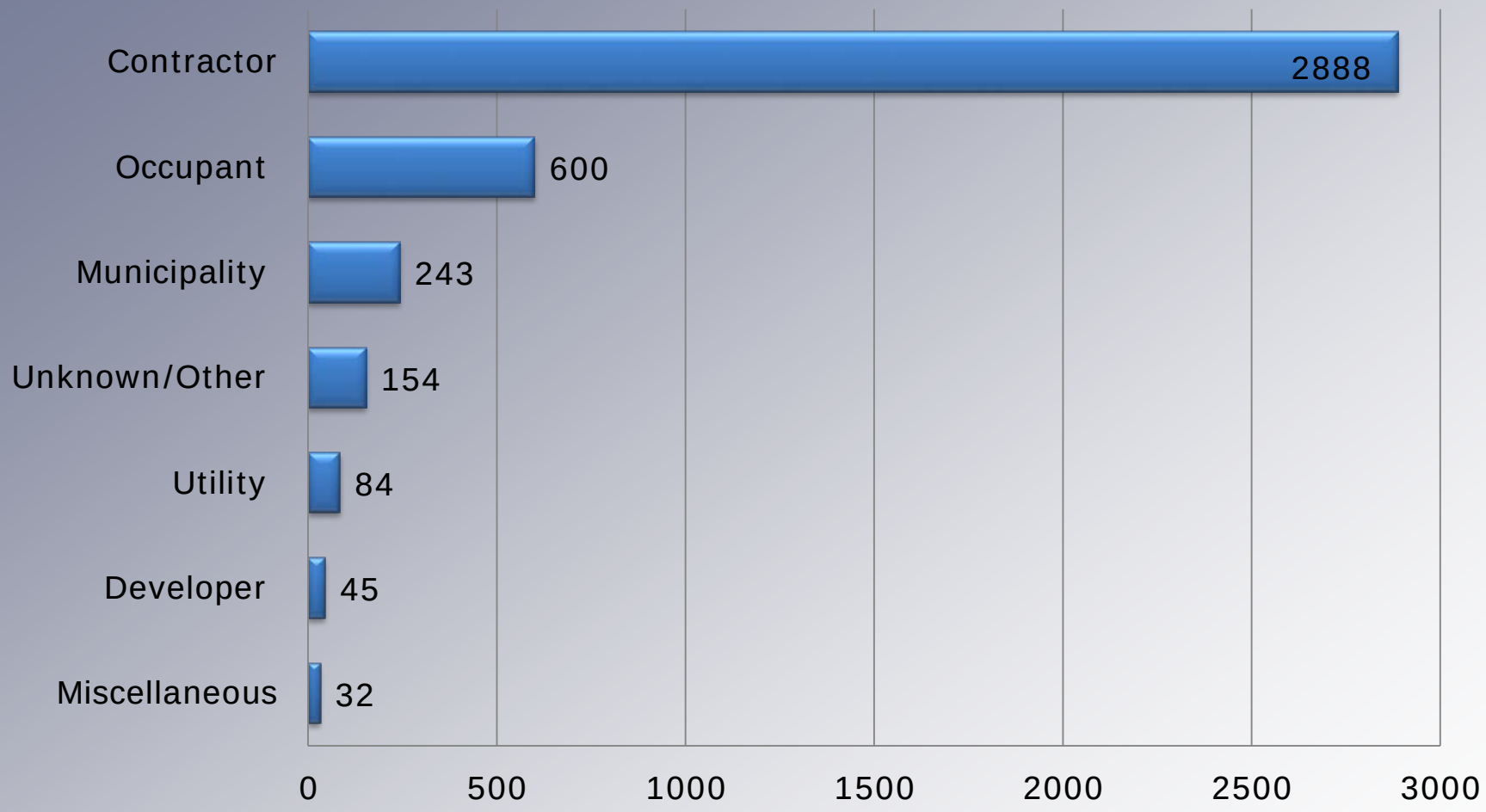
Excavation Damages by Reporting Industry



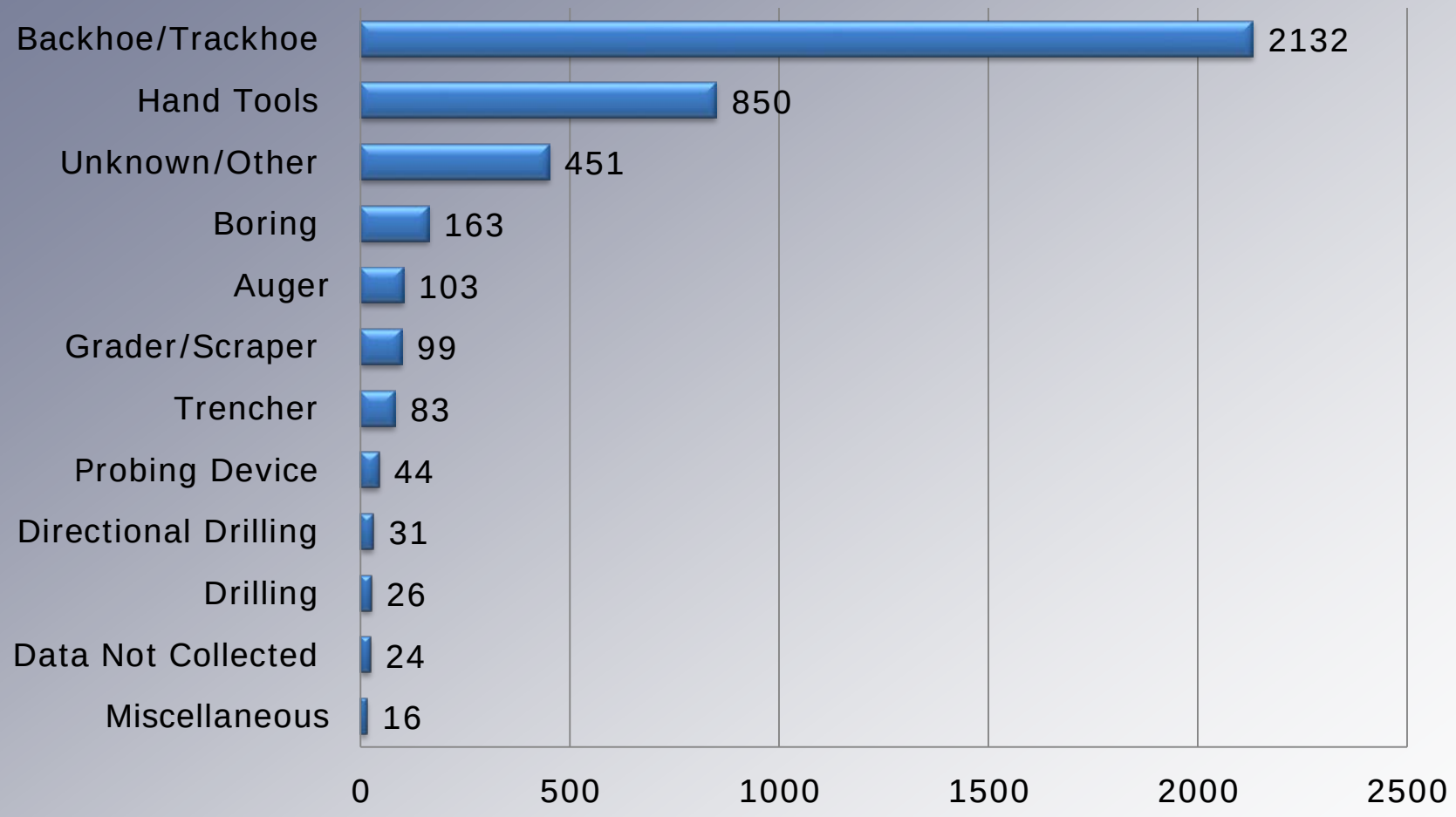
Disproportionate industry reporting is evident

- Over 90% of natural gas distribution customers are accounted for in reports received.
- Less than 50% of electric distribution customers are accounted for in reports received.
- Reporting for major utility operators for other industries is lacking.

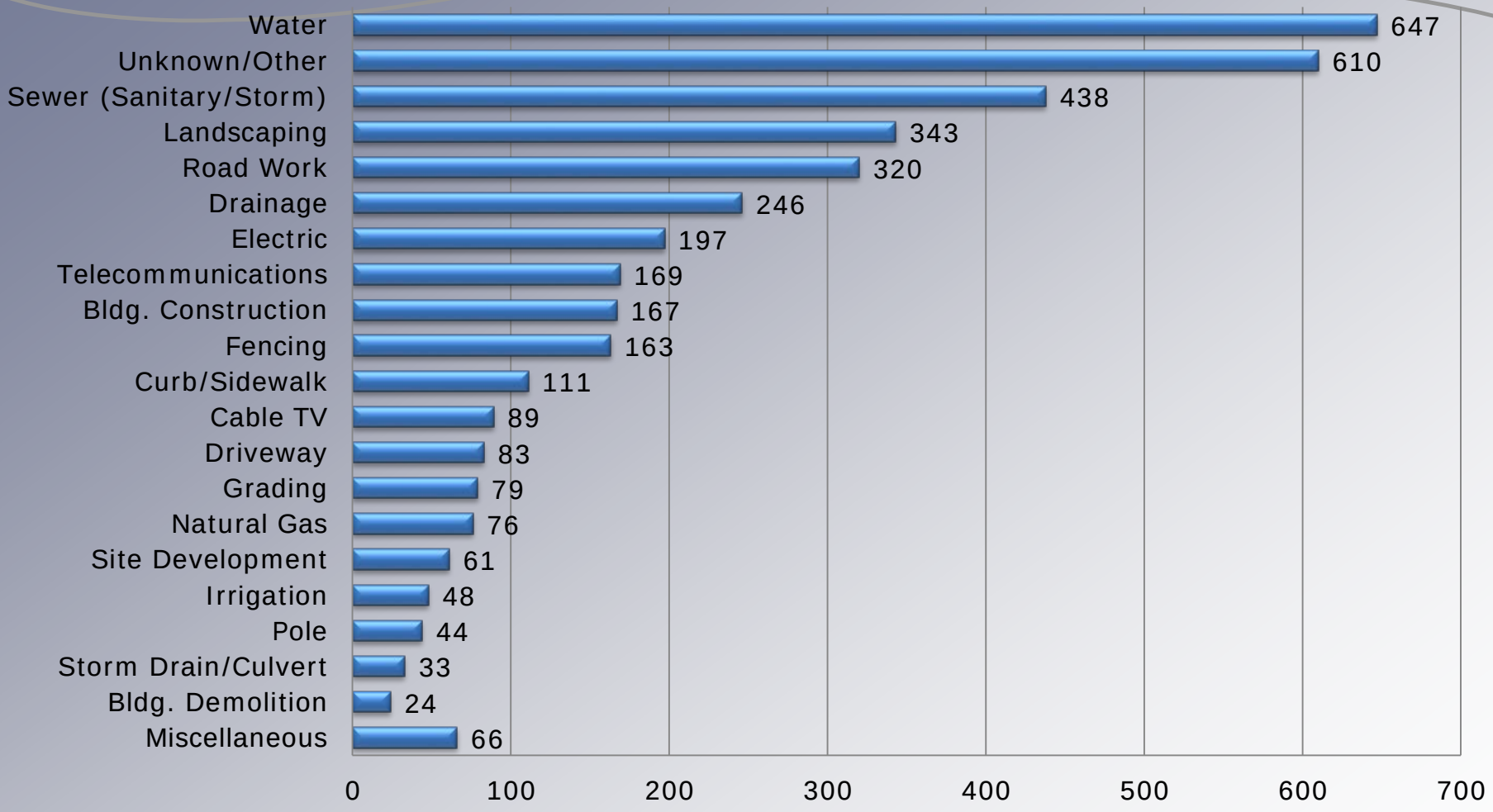
Excavation Damages by Excavator Type



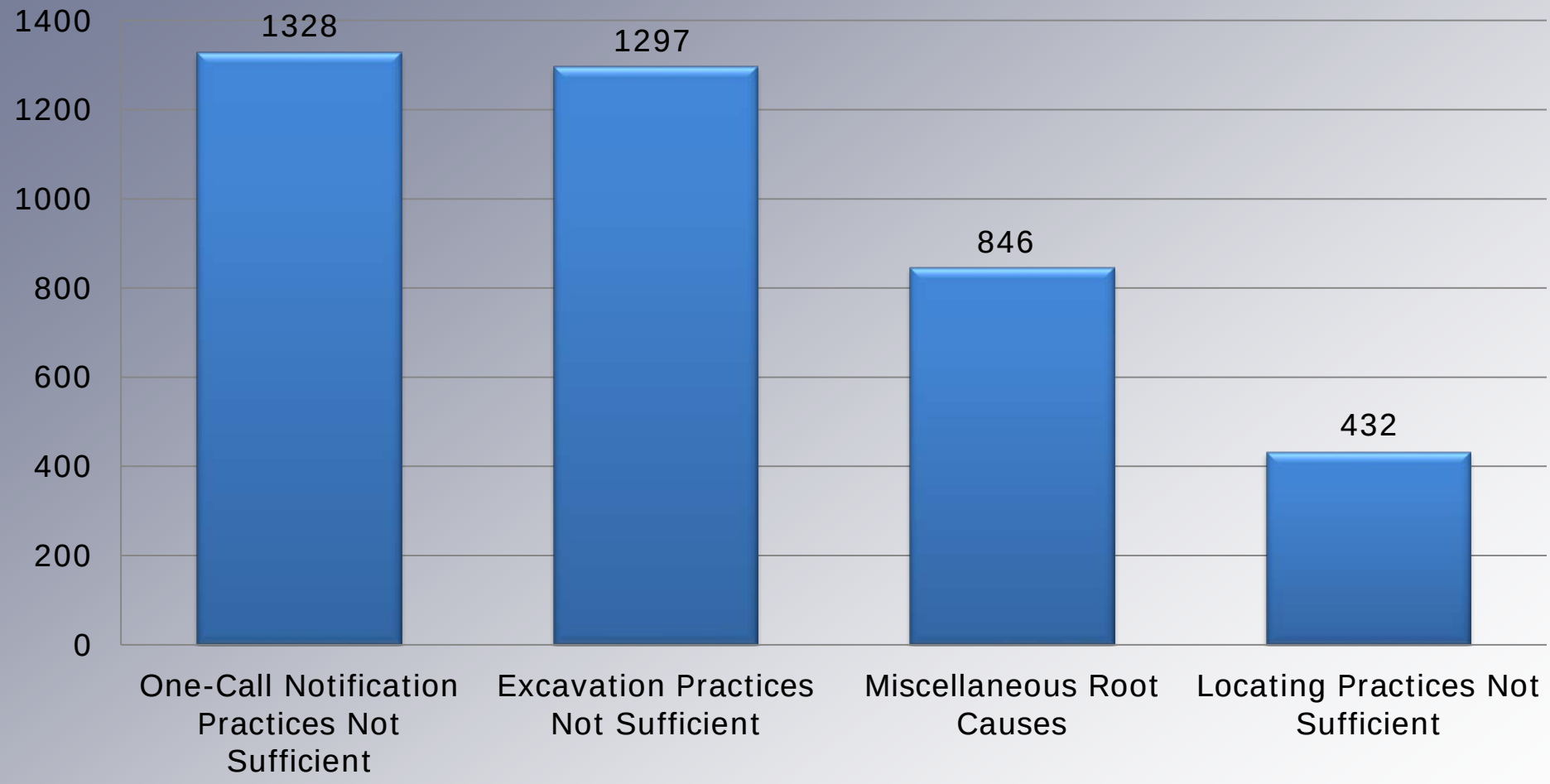
Excavation Damages by Excavation Equipment



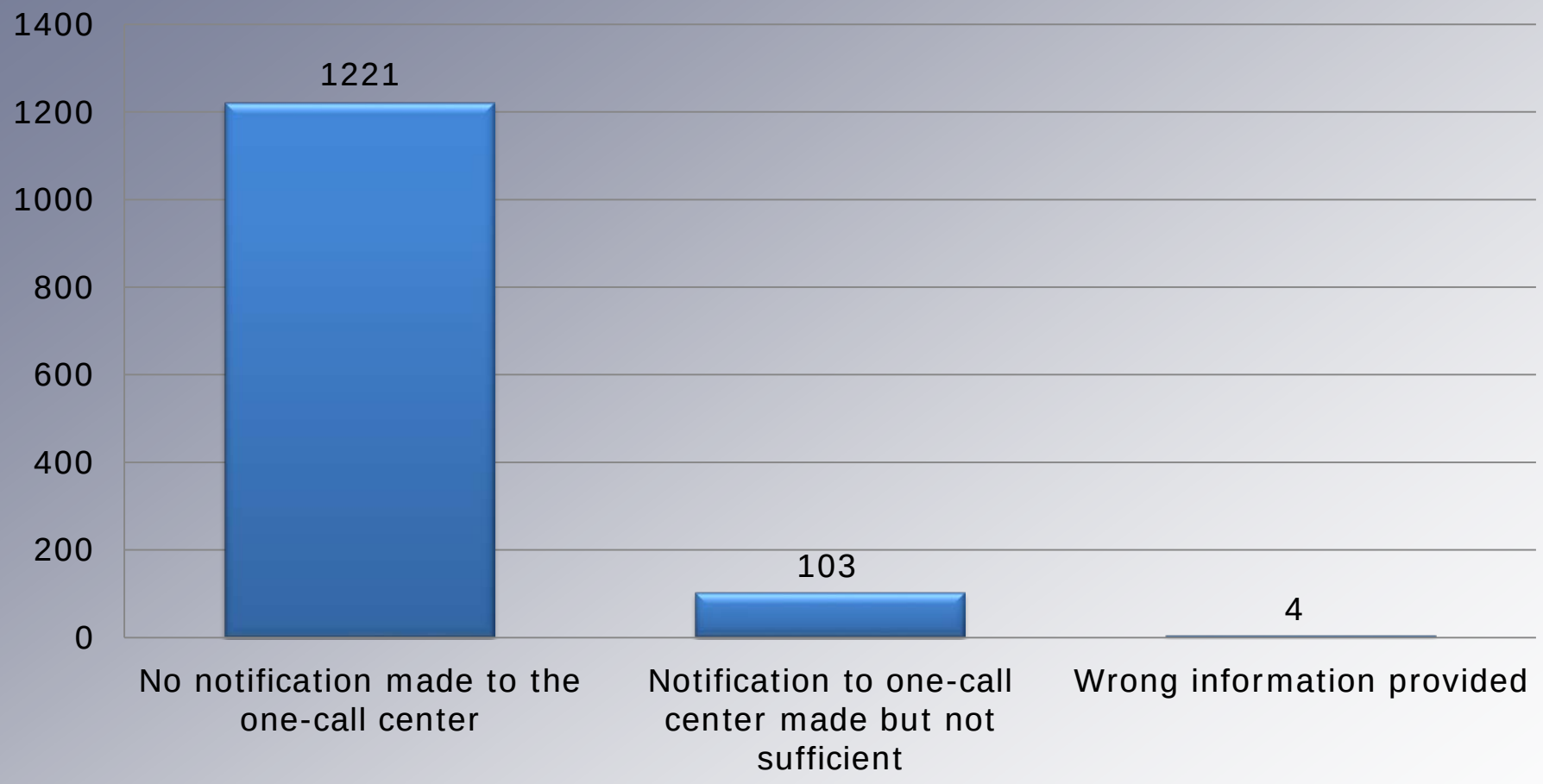
Excavation Damages by Work Type



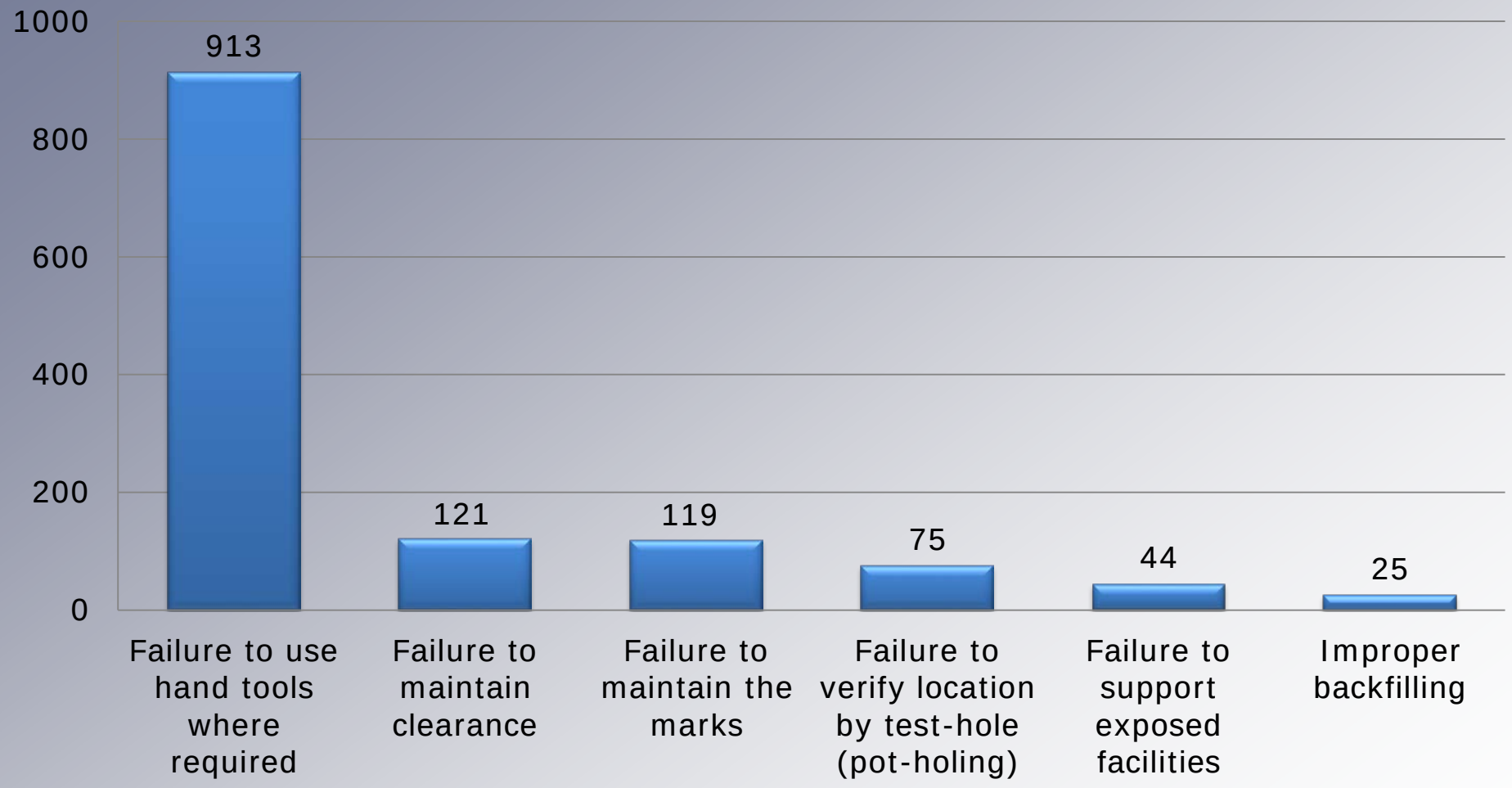
Excavation Damages by Root Cause Category (per CGA DIRT)



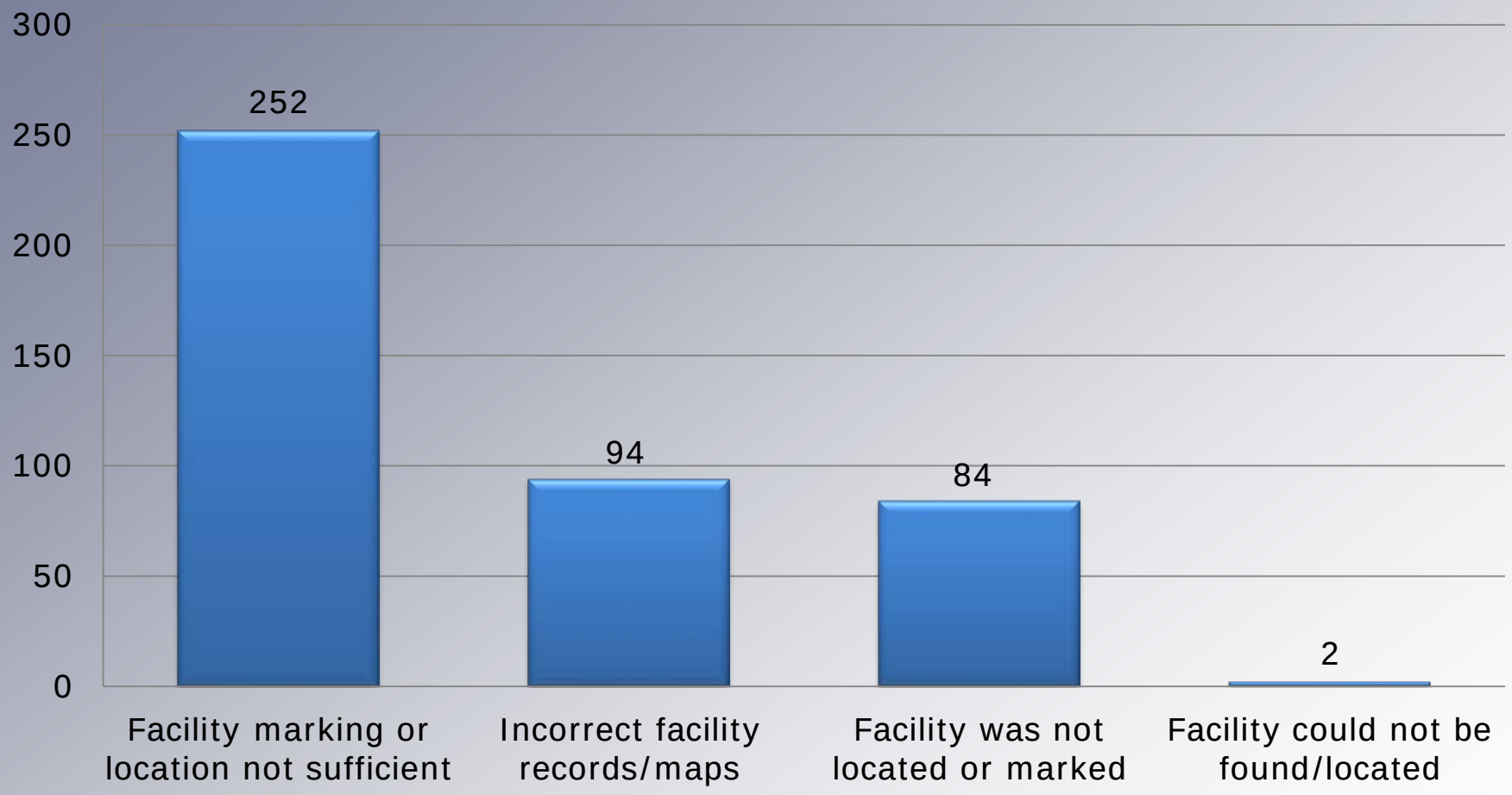
Excavation Damages by Root Cause Category
One-Call Notification Not Sufficient



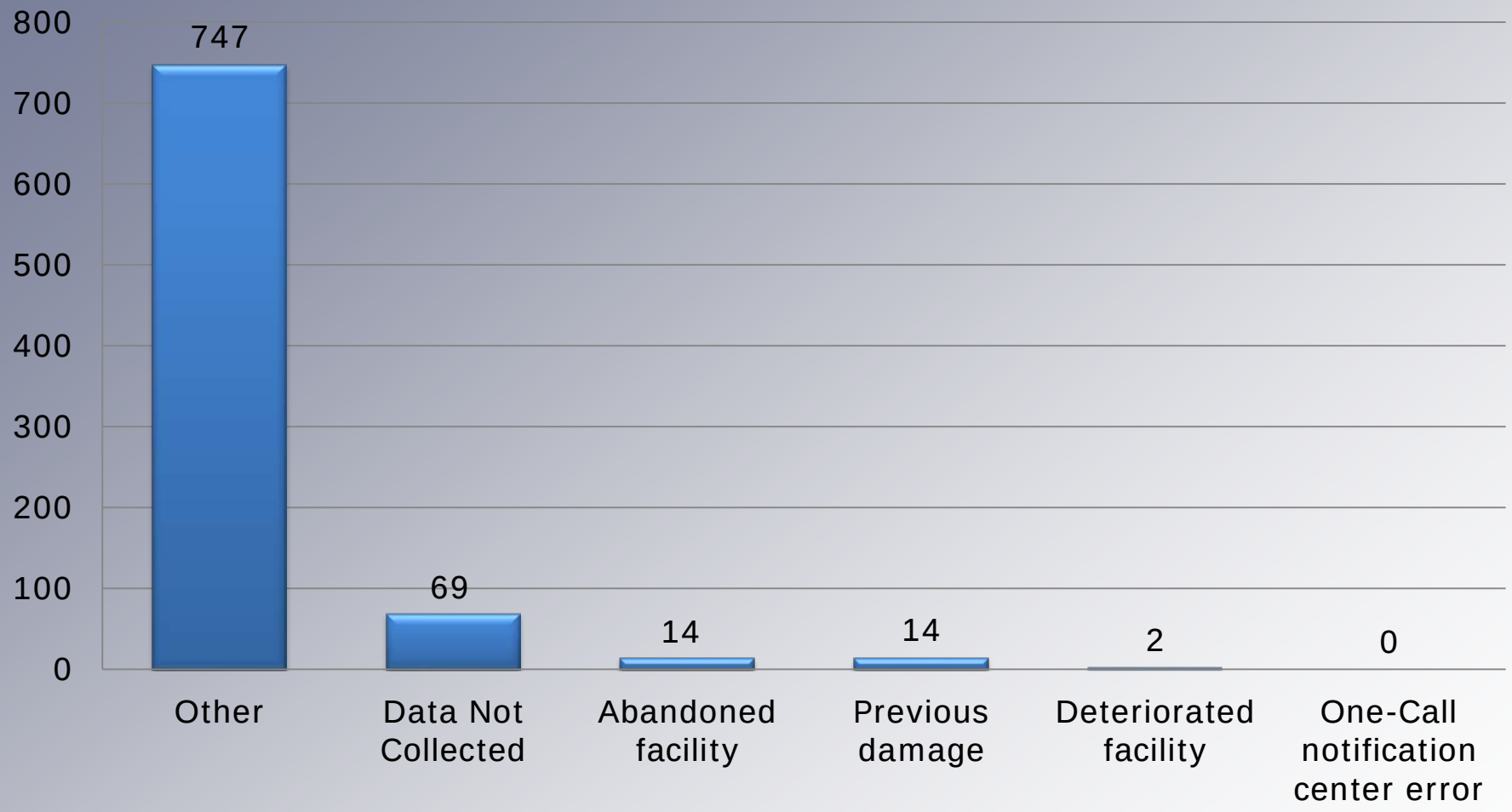
Excavation Damages by Root Cause Category
Excavation Practices Not Sufficient



Excavation Damages by Root Cause Category
Locating Practices Not Sufficient



Excavation Damages by Root Cause Category
Miscellaneous Root Causes



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Damage Prevention Complaints

- Damage prevention complaint form is available at http://michigan.gov/mpsc
- 53 complaints filed since PA 174 became effective on April 1, 2014.
- 16 complaints warranted investigation under PA 174.
- Status of Complaints:
  - 2 complaints were withdrawn after resolution was reached.
  - 6 informational letters were issued citing a probable violation, addressing 10 complaints.
  - 4 enforcement letters were issued and civil fines assessed. Fines assessed to facility operator(s) and excavator(s).

Significant Non-Compliances

Originating from a complaint and resulting in a fine:

- MCL 460.727(1): Operator failed to mark facilities by the start date and time of the excavation activity.
- MCL 460.727(5): Operator failed to provide additional assistance within three hours.
  - Operator agreed to increase resources as necessary to handle the work load by authorizing overtime for stakers and transfer qualified stakers from other locations to balance work loads.

Significant Non-Compliances

Originating from a complaint and resulting in a fine:

- MCL 460.725(5): Excavator did not use soft excavation at intervals reasonably necessary to establish the precise location of facility.
  - Depth of underground facilities is variable. Excavator should use adequate intervals to establish precise location of facility.
- MCL 460.725(9): Excavator did not provide immediate notice and stop digging when the facility did not post a positive response.
  - Excavator should check positive response and wait until all positive responses are posted prior to excavating. If a positive response is not posted by the dig start date, contact MISS DIG to request additional assistance. Facility Owners and Facility Operators are required to provide assistance within 3 hours.

Third-party and First-party Damages

(damages required to be reported under the Gas Safety Standards Rule 460.20503)

- 88 damages have been reported since April 1, 2014, the date PA 174 became effective.
- 11 damage cases were investigated and closed with letters sent to the damaging party informing them of a probable violation.
- 77 damage cases are currently under review.

Investigation Process

- Both parties are contacted (facility owner/operator and excavator) and requested to submit evidence.
- Evidence typically reviewed:
  - Review MISS DIG ticket(s).
  - Confirm if excavator used soft excavation within caution zone (48” on each side of marking).
  - Confirm marking accuracy.
  - Review operator’s maps/records for accuracy.
  - Review photographs.
  - Review reports and field notes documenting the incident.

Non-Compliances

- To date, non-compliance letters assessing a civil fine have only been issued for complaint cases.
- Once the backlog of third-party damage cases are resolved, when multiple offenses of PA 174 have occurred, civil fines will likely be assessed for third-party and first-party damage cases.

Significant Non-Compliances

Third-party and first-party damages:

- MCL 460.725(1): Excavator not providing a dig notice at least 72 hours in advance of excavation.
  - Failure to call MISS DIG.
  - Excavating outside the scope of MISS DIG ticket.
- MCL 460.725(5): Excavator not exposing all marked utilities in the caution zone by soft excavation.
- MCL 460.725(6): Excavator not providing support or bracing of facilities or excavation walls in an excavation or blasting area that are reasonably necessary for the protection of facilities.

Significant Non-Compliances

Third-party and first-party damages:

- MCL 460.725(9): Excavator not providing immediate additional notice and stopping excavation in the immediate vicinity if the excavator has reason to suspect the presence of an unmarked facility due to lack of positive response. Excavator provided notice but failed to stop excavating prior to receiving additional assistance.
- MCL 460.727(1): Operator not responding to a ticket by the start date and time of the excavation by marking facilities in the area of the proposed excavation. Failure to mark facilities prior to dig start date.
- MCL 460.727(1): Operator not marking facilities in the area of proposed excavation or blasting in a manner that permits the excavator to employ soft excavation to establish the precise location of the facilities. Marking is off by greater than 48”.

Significant Non-Compliances

- MCL 460.727(1): Excavator damaged a 6” steel gas main while drilling a well. The utility location was mismarked by approximately 41’. The staker located and marked a phone line (photo provided by operator).

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SCC Threat Criteria

*ASME B31.8S - 2004

- Criteria for high pH SCC threat
  - Operating stress >60% SMYS.
  - Operating temperature >100ºF.
  - ≤20 miles from a compressor station.
  - Age of pipe ≥10 years.
  - All coating systems other than FBE.

*version incorporated by reference in Part 192

ASME B31.8S - 2010

- Criteria for high pH and near neutral pH SCC threats.
- Near neutral pH SCC threat.
  - Operating stress level >60% SMYS.
  - Age of pipe >10 years.
  - All coating systems other than plant-applied or field-applied FBE or liquid epoxy.

The Message

- Not all industry standards/studies recognize pipelines with an operating stress of ≤60% SMYS as being at risk of SCC.
- Other common industry SCC standards:
  - CEPA RP (2007)
  - PRCI SCC Study (2010)
  - NACE RP0204 (2015)
- Two 2015 SCC ruptures in Michigan involving pipelines operating <60% SMYS (MAOP is 60% SMYS).

2015 Rupture Characteristics

Diameter	Wall Thickness	Grade	Seam Type	Manufacturer	Coating	Installation Year	MAOP % SMYS	Failure % SMYS
20	0.250	X-52	EFW	A.O. Smith	6x Wax with #7 wrap	1949	60	50
24	0.250	X-52	EFW	A.O. Smith	6x Wax with #7 wrap	1950	60	58.5

Significant Incident - 329527

- Pipeline rupture while line was static at 634 psig (~58% SMYS). MAOP is 650 psig.
- Between two compressor stations with bi-directional flow.
  - 3.8 miles from northerly
  - 17.8 miles from southerly
- Pipe characteristics:
  - 24-inch, 0.250 wall, X-52
  - A.O. Smith with EFW seam
  - Wax coating
  - Installed in 1950

Significant Incident – 329527

Fragment ejected 130 feet

Fragment ejected 310 feet

Significant Incident – 329527

Hydrostatic testing of ~22.3 miles of pipe

- 2 Sections.
- 1 hour spike and 7 hour leak.

#1

#2

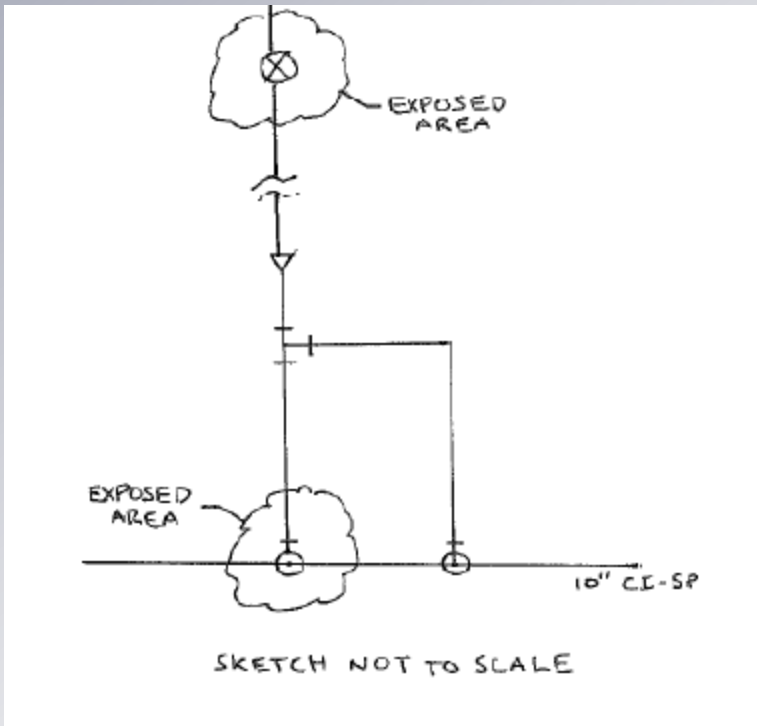
#3

Significant Incident - 350327

- Third-party damage on 300 psig distribution line.
- MISS DIG notified and facilities marked.
- Contractor did not expose the pipe in the area.
- Clock Spring pipe repair.

Significant Incident - 324027

- First party damage during cast iron main replacement.
- Service was hand exposed.
- Damage occurred while expanding excavation of the exposed service with mini excavator.
- Contributing factors:
  - Service line records failed to clearly show the correct configuration of the entire line.
  - Locating equipment was not precise enough to locate line ~16 inches away.



Sketch provided by the operator

Significant Non-Compliances

- 192.281(a): Not allowing a plastic pipe fuse to properly set prior to rough handling or pressure testing. Plastic main was being butt fused and pulled with a tractor.
- 192.285(c): Operator was requalifying joiners for stab fitting joints every 5 years without tracking the number joints made for each employee or tracking failures under 192.513.
- 192.459: Not examining the exposed portion of a buried pipeline for evidence of external corrosion if the pipe is bare or if the coating is deteriorated.
- 192.465(a): Cathodic protection system not tested once each calendar year. Late year survey followed by an early year survey within 15 months.

Significant Non-Compliances

- 192.467(d): Not conducting inspections and electrical tests to ensure that a casing and carrier pipe are electrically isolated.
- 192.475(b): Not documenting inspection of the internal surface of the pipe for evidence of corrosion.
- 192.481(a): Not inspecting regulator stands for evidence of atmospheric corrosion every three years. Meter reader performed atmospheric corrosion inspection on meters, but not the regulator stands for multiple addresses.
- 192.513(c): Not testing plastic service lines to 150% of the maximum operating pressure or 50 psig, whichever is greater. Plastic service line tested to 45 psig in a 15 psig system.

Significant Non-Compliances

- 192.605(a): Not performing bi-annual leak surveys on shorted casings as required by O&M procedures.
- R 460.20305: Not maintaining record of qualified welders that indicate the results of the tests. Test records missing the destructive test results required by API 1104.
- R 460.20501(2)(a): Not maintaining record or maps showing the locations of service lines. Portions of service lines are not shown on records or maps.

Heather David

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Significant Incident - 310925

- Third-party damage causing multi-unit condo fire.
- Electrician hit 1-1/8” copper service line with a grounding rod 6.5’ from building wall. 60 psig MAOP.
- Electrician waited 2 hours before notifying operator.

Significant Incident - 310925

- Technician detected gas inside building and was evacuating when fire started.
- Witness observed flames exiting floor drain near furnace.
- Supervisor told technician not to shut gas off at the master meter.
- Technician had poor communication with fire department.
- Damages $304,423.

Significant Incident - 319725

- Farmer hits 2” threaded nipple on above grade valve cluster.
- Leak on 10” steel distribution main. Operating at 315 psig.
- Gradual pressure reductions prevented interruptions.
- 22 hours to shut off gas and make repair.
- 12.525 MMcf gas lost.
- Valve cluster installed in December 2013.
  - Not protected from damage.
  - Girth welds were not coated.

Significant Incident – 343425

- Lighting strike causes damage to gas service line. House explosion.
- Prior to explosion - 100% gas detected under roadway.
- After explosion – Positive gas reads detected above the gas main and extending through the front yard.
- Lack of a thorough leak investigation prior to the explosion.
- Inadequate records for leak prospecting.
- No injuries.
- $102,840 damages.

Significant Incident – 343425

Significant Incident – 348525

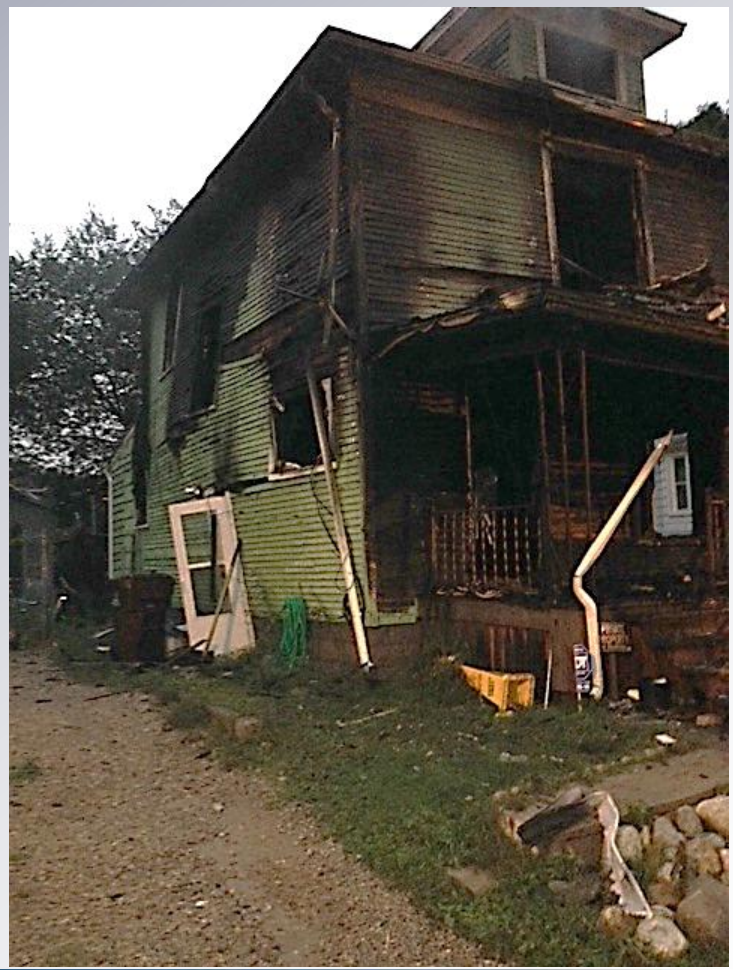
- Technician failed to close 6” blow down valve prior to reintroducing gas into the transmission line.
- Job specific purge procedure did not include an action step for opening/closing valves at an intermediate valve site.
- Procedure had a blanket statement stating “PIC must verify all work is complete, air movers removed and blowdown valves are closed before beginning return to service.”
- No drug or alcohol testing performed.
- 2.8 MMcf gas lost.

Significant Incident – 329125

- Third-party damage causes ignition.
- Milling the road 10-inches deep. Hit a plastic service line. 60 psig MAOP.
- MISS DIG ticket called by general contractor. Facilities were staked.
- No injuries.
- $304,923 damages.

Significant Incident – 343625

- House explosion caused by open fuel line.
- Work order indicated fire call, but upon arrival it was determined to be an explosion.
- Technician followed fire investigation procedure.
- Technician should have followed explosion investigation procedure because it requires additional leak investigation (i.e. check all surrounding buildings).



Significant Non-Compliances

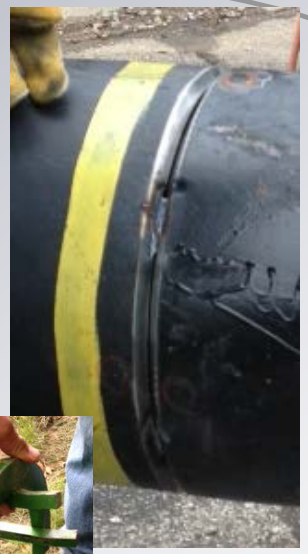
- 192.455(a): Not cathodically protecting copper main segments installed after July 31, 1971. 192.455(c)(1) exception does not apply because a corrosive environment exists.
- 192.459: Not examining the exposed portion of a buried pipeline for evidence of external corrosion if the pipe is bare or if the coating is deteriorated.
- 192.457(b)(3): Not cathodically protecting distribution lines installed before August 1, 1971, in areas in which active corrosion is found.
- 192.467(d): Not conducting inspection and electrical tests to ensure that a casing and carrier pipe are electrically isolated.
  - Operator treats all distribution casings as shorted and isolation is not verified even if test leads are present on the carrier pipe and casing.
  - Records could not be produced for a transmission casing.

Significant Non-Compliances

- 192.503(a)(1): Not pressure testing a new segment of pipeline. 192.503(d) exception only applies to tie-in joints and the girth welds connecting several pipe lengths are not considered tie-in joints.
- 192.605(a): Not following O&M procedures regarding:
  - Not performing shorted casing leak survey at set frequency.
  - Not installing an anode when required (low pipe-to-soil).
- 460.20304(c): Welder not able to access the welding procedure being followed on the jobsite when welding was performed.

260' DIG, 7 girth welds

Significant Non-Compliances



- 192.225(c): Welders not following welding procedure. Not competing 50% of the root pass before removing clamping device.
- 192.225(a): Not qualifying welding procedure to the material with the highest specified minimum yield strength in the group (API 1104 section 5.3.2.2).
- R 460.20305: Not maintaining a record of all qualified welders that indicates the date and results of tests.
  - Welder maintaining an ongoing qualification, unable to produce the initial qualification record.
  - Welder qualification did not indicate the results of the fillet-welded joint test.

Kyle Friske

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Significant Incident - 310829

- Accidental gas release due to malfunctioned blowdown valve.
- Pilot activated valve.
- Fisher Big Joe regulator failed to supply pilot pressure.
- Valve failed open.
- Design: -20°F.
- Fisher Big Joe's need to be heat traced when used for ESD systems.

Significant Incident - 320529

- 20-inch Pipeline Rupture.
- 1949 AO Smith EFW.
- Wax coating with wrapper.
- Near-neutral pH SCC.
- MAOP of 780 psig (60% SMYS).
- Operating at 650 psig (50% SMYS) when rupture occurred.

Significant Incident - 320529

- 60.6 miles of EMAT ILI.
- 37 Digs (54 crack-like anomalies).
- 2,700 feet new pipe at rupture.
- 545 feet replaced at 8 digs due to SCC similar to rupture.
- 2,893 feet replaced due to less severe SCC and other anomalies.

- 6.25 miles replaced immediately downstream of compressor station.
- ASME B31.8S, A3 “Spike Test” 54.35 miles, 6 segments, 1 failure.
- Total of 8.8 miles of the 60.6 miles replaced.

Significant Incident - 326629

- Third-party damage.
- 5 hours, 6MMcf
- Contractor did not request re-stake; did not hand expose.
- Traffic was allowed to pass blowing gas.
- Unknown responsibility for road closure between fire department and the operator.

- Operator did not immediately dispatch a construction crew. Gas blew 1.5 hours before ignition.
- Two motorists injured.

Significant Non-Compliances

- 192.225(a): Welding outside scope of the procedure:
  - Welding below amperage range specified in welding procedure
  - Changing non-essential variables (API 1104)
- 192.227(a): Not providing documentation to show a welder is qualified per API 1104. Test results are required. Original multiple qualification is required is welder holds a re-qual.
- R 460.20304(b): Not qualifying an in-service welding procedure per API 1104, Appendix B (eff. 2009).
- 192.273(b): Not following procedures for joining plastic pipe.
- 192.281(a): Not allowing a plastic pipe fuse to properly set prior to rough handling or pressure testing.

Significant Non-Compliances

- 192.323(d): Casing vents not being protected to prevent water from entering. Modifications must comply if a vent is altered.
- 192.455(a)(2): Not cathodically protecting isolated steel fittings. Specifically, steel couplings for plastic to cast iron tie-ins.
- 192.459: Not examining the exposed portion of a buried pipeline for evidence of external corrosion. Applicable to steel and cast iron.
- 192.457(b)(3): Not cathodically protecting distribution lines installed before August 1, 1971, in areas in which active corrosion is found.
- 192.465(a): Not monitoring cathodic protection on isolated steel fittings. Specifically, steel couplings for plastic to cast iron tie-ins.
- 192.465(a): Not monitoring cathodic protection on isolated steel service or riser in a plastic system.

Significant Non-Compliances

- 192.467(d): Not conducting inspection and electrical tests to ensure that a casing and carrier pipe are electrically isolated. There is no exception for filled casings.
- 192.475(b): Not examining the inside of a pipeline for evidence of internal corrosion. Applicable to flanged connections as well.
- 192.479(a): Not coating pipe downstream of a lockwing. Jurisdiction ends at the outlet of the meter.
- 192.481(a): Not monitoring for atmospheric corrosion for an outside riser where there is an inside meter.
- 192.491(c): Not maintaining records for corrosion control. Each inspection required by 192.459 and 192.475(b) must be documented separately.

Significant Non-Compliances

- 192.605(a): Not following procedures regarding:
  - Not implementing procedures companywide after an O&M revision.
  - Gas detectors turned off or not near the work while in an excavation.
  - Not monitoring pressures during a squeeze-off.
  - Improperly applying coating.
- 192.605(b)(8): Not periodically reviewing the work done by operator personnel to determine the effectiveness and adequacy of the procedures used in normal operation and maintenance.
- 192.619(a): ANSI class valves not commensurate with MAOP for the temperature. Class 900 valves and flanges are not good for 2220 psig over 100°F. Important to verify at outlet of compressor prior to cooling.

Significant Non-Compliances

- 192.629(a): Not purging into one end of the line in a moderately rapid and continuous flow in a way that prevents a dangerous mixture of gas in air.
- 192.707(a)(1): Missing line markers at roads for >20% SMYS pipe in distribution systems.
- 192.907(a): Not following TIMP manual:
  - Not prioritizing assessments based on risk (ASME B31.8S, Section 5.3).
  - Not requiring more restrictive criteria for ECDA and ICDA for first assessment.
  - Not performing review of RCV study.
  - Not updating TIMP manual within required timeframe after annual review.

Significant Non-Compliances

- 192.907(b): TIMP manual deficiencies:
  - Lacking detail for how and when to update risk analysis.
  - Does not include requirements for ASME B31.8S, A3.4.2 (c) and (d) (after SCC spike test: FI leak survey, reassessment evaluation, Engineering Critical Assessment).
  - Not requiring metal loss indications >20% in a long seam of ERW or EFW to be an immediate repair condition (ASME B.31.8S, section 7.2.1).
- 192.911(k): Not keeping baseline assessment / reassessment plan or risk analysis up to date when additional data is obtained (i.e. after assessments, incidents, operational changes, etc.).
- 192.917(a): Not taking into consideration the interacting nature of applicable threats in the risk analysis.

Significant Non-Compliances

- 192.929(b)(2): Not performing FI leak survey upon returning to service after SCC spike hydrotest (ASME B31.8S, A3.4.2).
- 192.947: Record deficiencies:
  - Documentation showing more restrictive criteria was used for ICDA or ECDA for first time.
  - Documentation showing that the validation process includes a check (review) that the risk results are logical and consistent with the operator's and other industry experience (ASME B31.8S 5.12).
  - Documentation of annual TIMP review.

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Significant Incident - 330130

- Gas main was replaced with plastic in April by a Contractor.
- Gas service was replaced with plastic in May by same Contractor.
- Property/Facility owner was performing routine sewer cleaning in July when their jetting line would not pass through the sewer.
- Property/Facility owner then used a root-cutting line within this sump-pump discharge sewer (6” vitrified clay).
- Gas service (4”) was tore open & released gas because the service installation by directional drilling had ‘Cross-Bored’ the sewer.
- The gas service had been longitudinally laying inside the sewer for dozens of feet.
- The sewer was not exposed prior to directional drilling of the gas service despite knowledge of the sewers existence in the area.

Significant Incident – 330130

Significant Incident – 331330

- Leak Surveying finds a gas leak through a casing under a railroad in an HCA (Class-3 location).
- Engineering promptly determines that an immediate remediation response is warranted and a Safety Related Condition Report is issued.
- Numerous efforts are made to determine the details associated with the leak along this large transmission pipeline.
- Testing involving pressure and acoustics could not locate what appeared to be a minor leak.
- Removal (accompanied by replacement) and close visual and laboratory examinations continue toward determining the cause of the leak.

11/20/2015 17:32

11/20/2015 17:34

Old Pipe

New Pipe

Significant Non-Compliances

- 192.227(a): Not qualifying a welder in accordance with section 6 of API 1104.
- 192.229(a): Failure to qualify a welder of compressor station pipe and components by destructive testing.
- 192.705(b): Not patrolling a transmission line at intervals of less than 7.5 months or at least twice each calendar year.
- 192.807(b): Failure to maintain records to support an individual's qualification for five years from completion of a covered task.
- 192.323(d): Not protecting casing vents from the weather to prevent water from entering the casing.

Eleanor Mundorf

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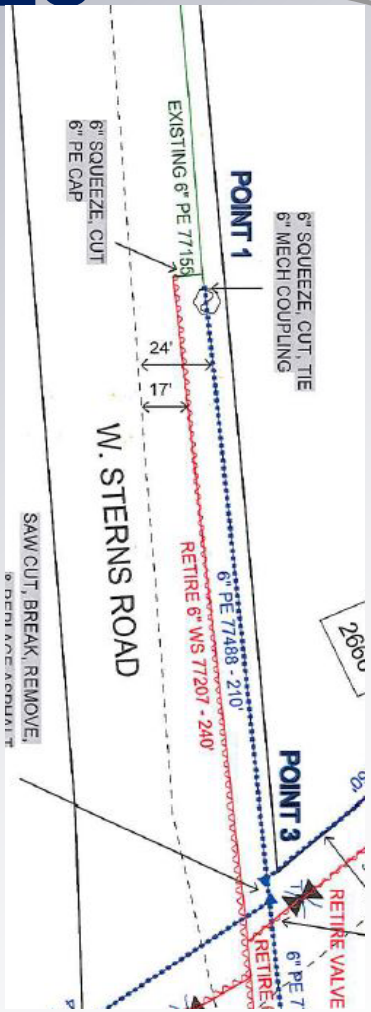
Significant Incident - 338323

- Outage involving 375 customers. Main replacement project.
- Crew decided in field to modify tie-in location to eliminate “unnecessary connections.” Did not contact engineering for approval.
- Crew did not monitor pressures in accordance with procedure.
- Crew believed there was a two-way feed.
- Construction plan did not specify one-way or two-way flow.
- Operator has changed mapping system. Open / closed valves are now represented by different colors.



Significant Incident – 347729

- Compressor station ESD due to malfunctioned actuator.
- 13.5 MMcf gas loss.
- Inadequately sized fuse in Rotork electric hydraulic actuator operator caused valve to open.
  - 5 amp fuse
  - ~8.5 amp spike at pump start-up

Significant Non-Compliances

- 192.283(c): Electrofusion procedures not available to joining crew.

Paul Shapter

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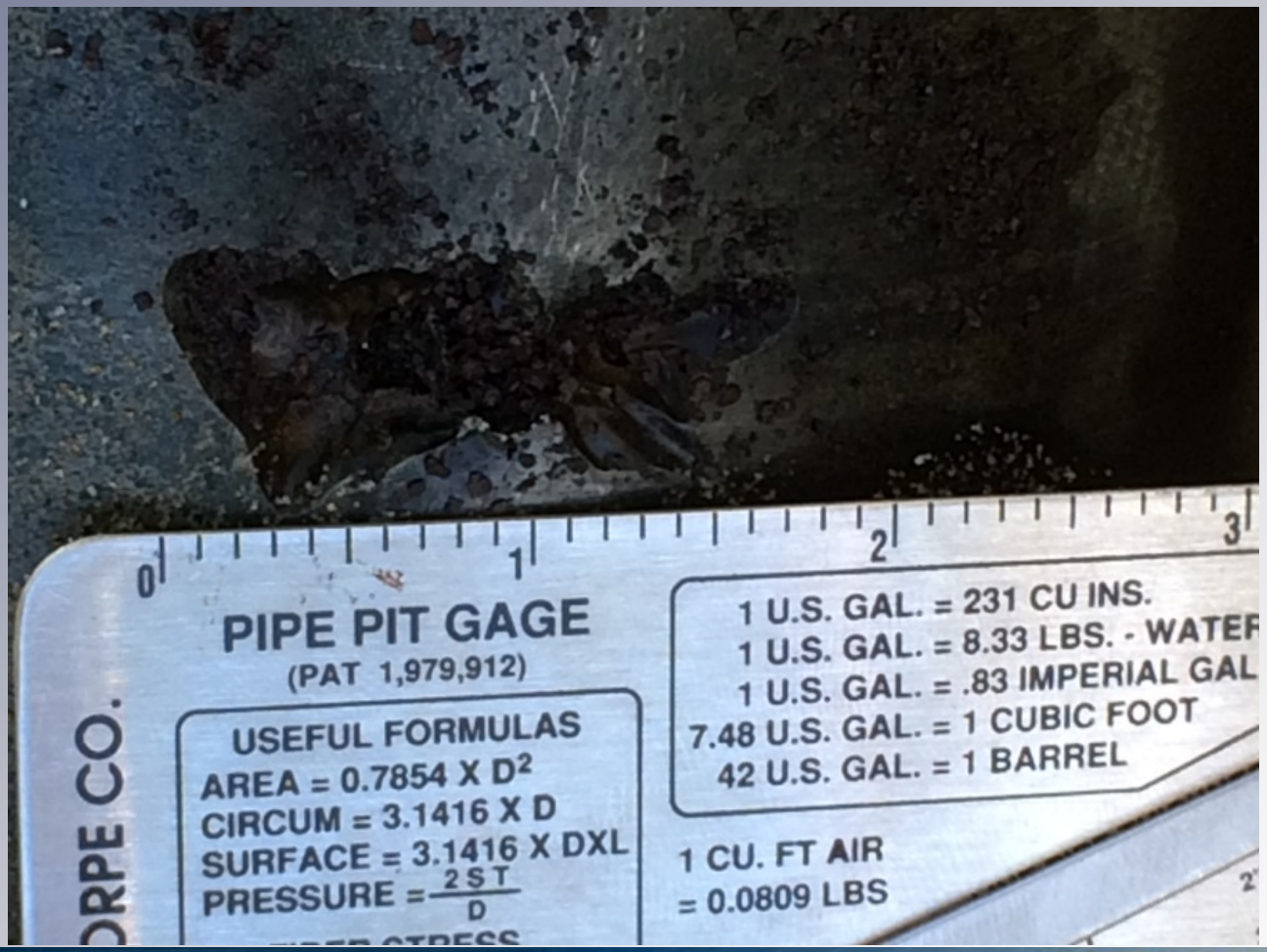
Significant Incident - 351335

- Pipeline Leak. Storage Field Lateral.
- Lab analysis determined cause to be internal corrosion.
- This was the second event. The lateral is currently shut in.
- Pipeline will be replaced.
- 3.7 MMcf gas loss.

Significant Incident – 351335



Significant Non-Compliances

- 192.475(b): Not conducting inspection for internal corrosion when the pipeline was removed.
- 192.605(a): Not conducting a review or update of the O&M within 15 months, but at least once each calendar year.

Tim Wolf

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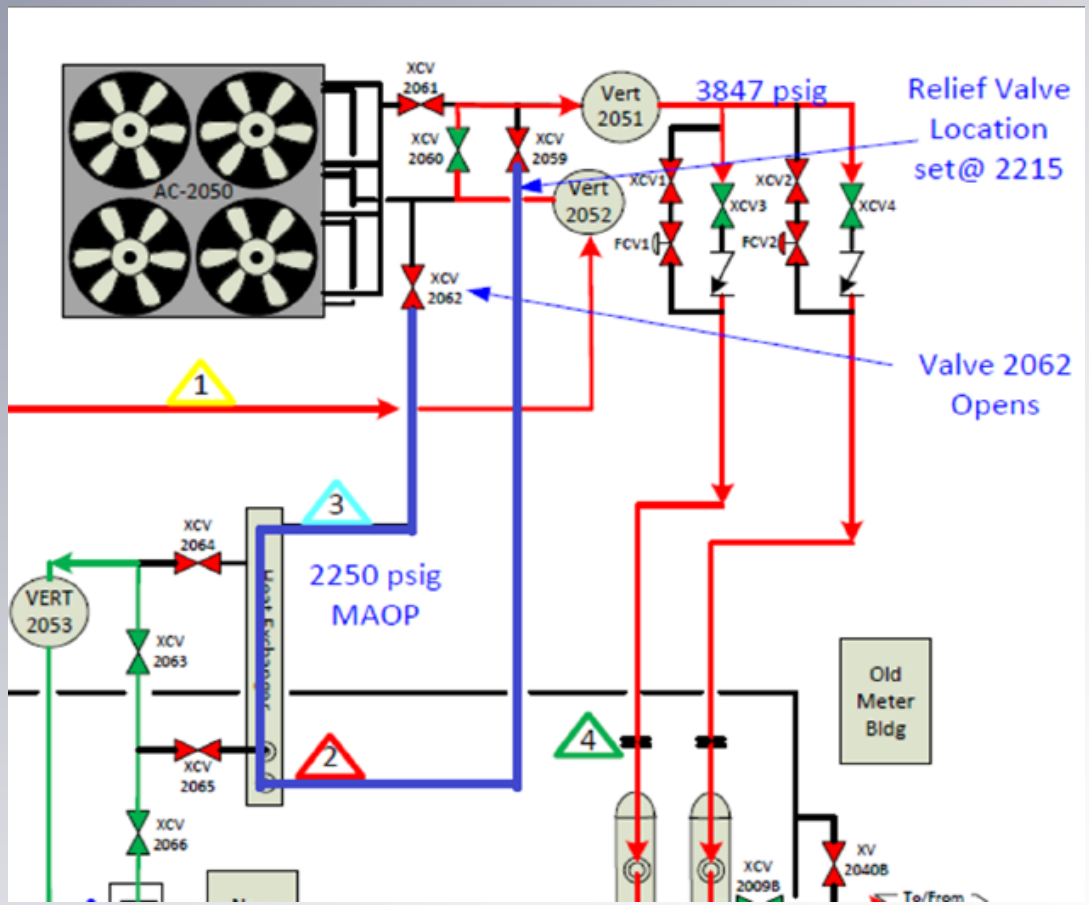
Significant Incident – 350622

- Overpressure – Safety Related Condition. Within a Compressor Station that is tied to storage.
- Station was in injection mode.
- PLC commanded a normally closed valve to open. 3847 psig gas entered 2250 psig MAOP piping. Relief valve activated but was unable to prevent the pressure surge.
- Cause still being determined.



Schematic by Operator.

Significant Incident – 323722

- Pipeline Leak. Storage Field Lateral.
- Lab analysis determined cause to be internal corrosion.
- This was the first event. The lateral was shut down and repaired. It was then returned to service.
- Several months later a second leak occurred on the same pipeline.
- 3.6 MMcf gas loss.

Significant Incident – 323722

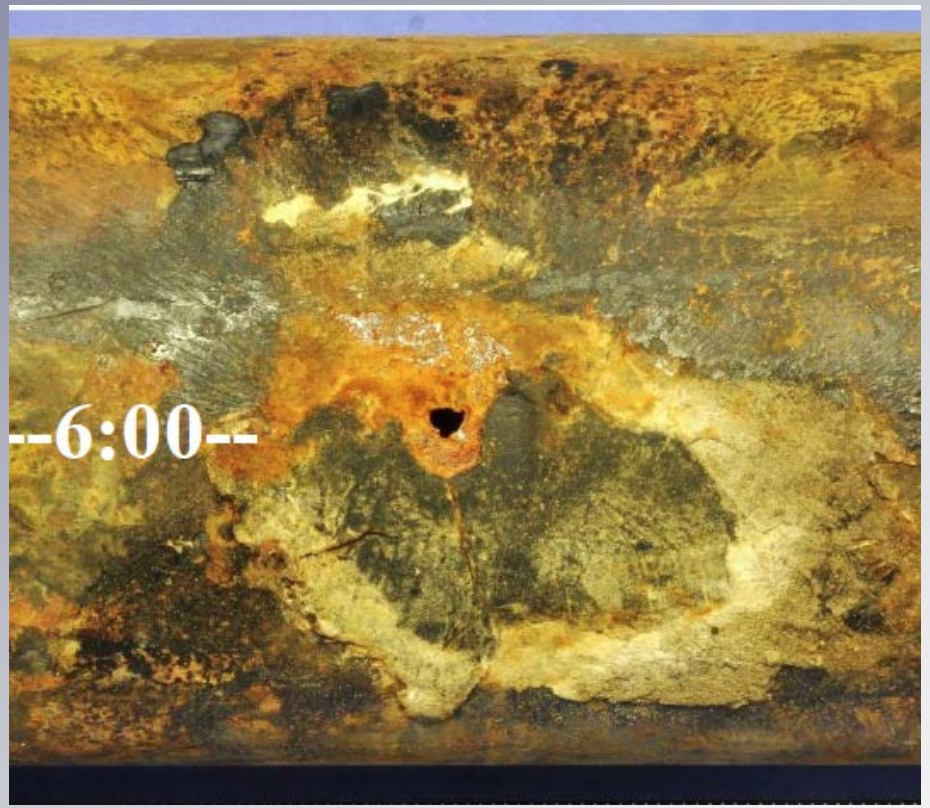


Photo from Operator Report.

Significant Incident – 332622

- Outside force damage. Resulting in a house fire.
- Homeowner struck meter with lawn mower.
- House fire spread to garage and to the neighboring structure. 2 homes were destroyed.
- No injuries.
- Damages exceeded $500,000.
- Operator failed to notify the MPSC. Resulting in late reporting to PHMSA.

Significant Incident – 332622

Photo by Media.

Significant Incident – 316922

- Third Party Damage. Highway road construction.
- Occurred on a 5-lane highway that was already restricted to two lanes (one in each direction).
- Detour was several miles out of the way. Additional traffic delays and significant media attention.
- MPSC responded because of media attention.

Significant Incident – 316922

Significant Incident – 317122

- Outside Force Damage. Regulator Station.
- Car damage to Regulator Station.
- Resulted in school closure for two days following the event.
- Damages exceeded $10,000.

Photo by Operator.

Significant Non-Compliances

- 192.323(d): Not protecting casing vents from the weather to prevent water from entering the casing.
- 192.459: Not examining the exposed portion of a buried pipeline for evidence of external corrosion if the pipe is bare or if the coating is deteriorated.
- 192.465(a): Cathodic protection system not tested once each calendar year. Exceeded the 15 month interval between surveys.
- 192.467(d): Not conducting inspections and electrical tests to ensure electrical isolation.
  - Casing and carrier pipe omitted from survey.
  - Failure to verify isolation with a foreign pipeline.

Significant Non-Compliances

- 192.475(b): Not examining the inside of a pipeline for evidence of internal corrosion.
- 192.491(c): Not maintaining records for corrosion control. Incorrect documentation of external coating inspection.
- 192.614(c)(5): Not adequate temporary marking of buried pipelines. Incorrect marking.
- 192.723(b)(2): Not conducting outside business district leak surveys at the required intervals.

Any Questions?