

INDIANA GAS COMPANY, INC.

d/b/a VECTREN ENERGY DELIVERY OF INDIANA, INC.

A CENTERPOINT ENERGY COMPANY

(VECTREN NORTH)

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INDIANA UTILITY
REGULATORY COMMISSION

IURC CAUSE NO. 45468

DIRECT TESTIMONY

OF

KATE D. PORTER

DIRECTOR OF SAFETY MANAGEMENT SYSTEMS AND QUALITY

ON

**PROGRAMS DEVELOPED TO COMPLY WITH PHMSA'S DISTRIBUTION INTEGRITY
MANAGEMENT REGULATIONS**

**SPONSORING PETITIONER'S EXHIBIT NO. 6,
ATTACHMENTS KDP-1 THROUGH KDP-3**

Glossary of Acronyms

AGA	American Gas Association
CERC	CenterPoint Energy Resources Corporation
CenterPoint	CenterPoint Energy, Inc.
DIMP	Distribution Integrity Management Program
DOT	Department of Transportation
GIS	Geographic Information System
ICAM	Integrity Compliance Activity Manager
IM	Integrity Management
IURC	Indiana Utility Regulatory Commission
LDIW	Low Ductility in the Inner Wall
NPRM	Notice of Proposed Rulemaking
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Material Safety Administration
SME	Subject Matter Expert
SMS	Safety Management Systems
Vectren North	Indiana Gas Company, Inc. d/b/a Vectren Energy Delivery of Indiana, Inc.
Vectren South	Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc.

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DIRECT TESTIMONY OF KATE D. PORTER1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**4 A. My name is Kate D. Porter. My business address is 1111 Louisiana Street, Houston,
5 Texas, 77002.

6

7 **Q. By whom are you employed?**8 A. I am employed by CenterPoint Energy Resources Corporation ("CERC"), a wholly-
9 owned subsidiary of CenterPoint Energy, Inc. ("CenterPoint"). CERC provides
10 centralized support services to CenterPoint's operating units, which includes Vectren
11 Corporation ("Vectren"), a wholly-owned subsidiary of CenterPoint.

12

13 **Q. On whose behalf are you testifying in this proceeding?**14 A. I am testifying on behalf of Indiana Gas Company, Inc. d/b/a Vectren Energy Delivery
15 of Indiana, Inc. ("Petitioner", "Vectren North" or "the Company"), which is a subsidiary
16 of Vectren.

17

18 **Q. What is your role with respect to Petitioner Vectren North?**19 A. I am currently the Director of Safety Management Systems ("SMS") and Quality, and
20 in transition from my former role as Gas Distribution Integrity Manager for CERC,
21 which, as explained above, provides centralized support services to Vectren, which is
22 the parent company for Petitioner as well as two other utility subsidiaries of Vectren –
23 Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana,
24 Inc. ("Vectren South") and Vectren Energy Delivery of Ohio, Inc. ("Vectren Ohio"). In

1 that role, I was also responsible for gas distribution integrity within the CERC footprint,
2 including Minnesota, Arkansas, Oklahoma, Texas, Louisiana and Mississippi. In my
3 current role I am responsible for the Safety Management System program execution
4 including Quality Assurance, Quality Control, Management of Change, Quality
5 Management, Project Management and Continuous Improvement.

6

7 **Q. Please describe your educational background.**

8 A. I have a Bachelor of Science in Industrial Engineering from the University of Houston.
9 Additionally, I am a licensed professional engineer.

10

11 **Q. Please describe your professional experience.**

12 A. I have been employed directly with CERC for 12 years and acted as a consultant for
13 CenterPoint Energy an additional two years in various engineering, supervisory and
14 management roles. My experience includes direct execution and subsequent
15 management of teams engaged in engineering design for public improvement, system
16 improvement, integrity testing and customer additions on both transmission and
17 distribution piping systems. In that role I managed both capital and O&M budgets.
18 Additionally, I have experience in risk model development with various industry
19 partners and vendors. I was in this more recent Distribution Integrity Manager role for
20 two and a half years and have presented at industry conferences on risk model
21 development and specific risk mitigations.

22

23 **Q. What are the duties and responsibilities as Gas Distribution Integrity Manager?**

24 A. The Gas Distribution Integrity Manager is responsible for overseeing the ongoing
25 development and implementation of the Company's Gas Distribution Integrity

1 Management Program. This role is also responsible for this activity in Indiana, Ohio,
2 Minnesota, Arkansas, Oklahoma, Texas, Louisiana and Mississippi.

3

4 **Q. What are the duties and responsibilities as Director of SMS and Quality?**

5 A. The Safety Management Systems Director is responsible for overseeing the ongoing
6 development and implementation of the Company's Safety Management Systems
7 Program. This role includes oversight of Quality Assurance and Quality Control,
8 Management of Change, Quality Management Program, Continuous Improvement
9 and Project Management.

10

11 **Q. Have you ever testified before the Indiana Utility Regulatory Commission**
12 **("IURC" or "Commission") or any other state regulatory commission?**

13 A. Yes. I have provided testimony on behalf of Vectren South in its recent general gas
14 rate case proceeding under IURC Cause No. 45447.

15

16 **Q. What is the purpose of your testimony in this proceeding?**

17 A. I will describe the Company's Distribution Integrity Management Program (DIMP) and
18 various other programs and projects related to distribution integrity. This will serve to
19 demonstrate the reasonableness of the activities that contribute to the capital
20 expenditures and expenses resulting from that work and included in this rate case.

21

22 **Q. Are you sponsoring any attachments in this proceeding?**

23 A. Yes. I am sponsoring the following attachments in this proceeding:

- 24 • Petitioner's Exhibit No. 6, **Attachment KDP-1**: CenterPoint Energy Distribution
25 Integrity Management Program Plan Governance Manual

1 • Petitioner's Exhibit No. 6, Attachment KDP-2: CenterPoint Energy Distribution
2 Integrity Management Plan Appendix

3 • Petitioner's Exhibit No. 6, Attachment KDP-3: CenterPoint Energy Distribution
4 Integrity Management Plan Indiana Appendix

5

6 **Q. Were these attachments prepared by you or under your supervision?**

7 A. Yes, they were.

8

9

10 **II. BACKGROUND**

11

12 **Q. Please provide an overview of Vectren North's physical natural gas distribution**
13 **system in North Central, Central, and Southeastern Indiana and describe how**
14 **the composition of the system has changed over time.**

15 A. The distribution system includes distribution mains, service lines, meters, regulation
16 and control facilities, and related equipment. The table below shows the amount of
17 each listed piping component of the Vectren North distribution systems as of
18 December 2019.¹

19 Table 1. Quantities of System Components

Facility	Quantity
Distribution mains	12,982 miles
Service lines	615,215 lines

20

¹ The number of distribution main miles and the number of services lines are per the Company's Annual Report for Calendar Year 2019, Gas Distribution System, submitted to the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration in March 2020.

Over time, industry standards for facility size, materials, installation techniques, and operating procedures, as well as regulatory requirements, have evolved. These changes, along with facilities added to serve the needs of growing communities, continuously improve system safety and reliability. Consequently, the Company has installed distribution facilities of various materials and sizes over time. For example, distribution mains and services have included cast iron, bare steel,² coated steel, and plastic pipe. To illustrate the point, the table below shows the composition of the Vectren North system as of December 2019,³ as compared to its composition in December 2006.⁴

Table 2. Quantities of Materials

Facility	2006 Quantity	2019 Quantity
Distribution mains, cast/wrought iron	195 miles	34 miles
Distribution mains, unprotected bare steel	810 miles	142 miles
Distribution mains, protected bare steel	None	206 miles
Distribution mains, coated steel	4,659 miles	4,373 miles
Distribution mains, plastic	6,669 miles	8,227 miles
Service lines, cast/wrought iron ⁵	None	21 lines
Service lines, bare and coated steel	147,211 lines	25,631 lines
Service lines, plastic	470,604 lines	446,085 lines
Service lines, copper	138 lines	2 lines
Service lines, other	None	143,476 lines

² "Bare steel" refers to pipe that is not coated with a material such as a fusion-bonded epoxy coating.

³ Per the Department of Transportation distribution system report referenced in footnote 1.

⁴ Per the Company's Annual Report for Calendar Year 2006, Gas Distribution System, submitted to PHMSA in March 2007.

⁵ Increase does not reflect installation of cast or wrought iron service lines but is due to data quality improvement projects developed as a result of the system knowledge component of Distribution Integrity Management.

1 **Q. What federal agency is responsible for pipeline safety regulation?**

2 A. The Department of Transportation's Pipeline and Hazardous Material Safety
3 Administration ("PHMSA") has responsibility for regulating the safe construction and
4 operation of pipelines and the transportation of hazardous materials. Within PHMSA,
5 the Office of Pipeline Safety has responsibility for the natural gas pipeline industry.

6

7 **Q. What are the primary federal pipeline safety regulations?**

8 A. In 1970, the Office of Pipeline Safety adopted 49 CFR Part 192 to regulate the
9 construction, operation, and maintenance of natural gas pipelines. These regulations
10 address the design, construction, operation, maintenance, corrosion control, and
11 testing of pipelines, service lines, meters, regulators, and related equipment. Over
12 time, as legislation is passed, the regulations are changed to reflect new requirements.

13

14 **Q. What role does the state have in pipeline safety regulation?**

15 A. In general, PHMSA has jurisdiction over all transmission facilities; however, it may
16 allow states to exercise jurisdiction over intrastate transmission and distribution
17 facilities under certain conditions. Each state exercising jurisdiction over intrastate
18 transmission and distribution facilities is required to adopt pipeline safety rules at least
19 as stringent as those found in 49 CFR Part 192. Indiana has exercised its jurisdiction
20 over distribution facilities and adopted 49 CFR Part 192 as minimum safety standards.
21 The Commission has responsibility for administering and enforcing these pipeline
22 safety rules as it relates to the gas distribution system. The Pipeline Safety Division
23 has direct responsibility for oversight of the Company's Distribution Integrity
24 Management Program through audit and other various interactions.

25

1 **Q. In addition to statutes, regulations, and rules, do PHMSA and the Commission**
2 **issue other documents that impact Vectren North's operations?**

3 A. Yes. PHMSA occasionally issues advisories and other various forms of guidance such
4 as FAQ's and bulletins to provide immediate notice of areas of concern regarding
5 pipeline construction or operations. Advisories may become future regulations, but, at
6 a minimum, each pipeline operator is required to consider an advisory's possible
7 effects on its system. In addition, IURC issues its own orders, rules, and audit findings
8 and recommendations.

9

10 **Q. How does the Company comply with new pipeline safety regulations?**

11 A. As required by the regulations, the Company develops and implements any necessary
12 changes to programs, procedures and practices when new pipeline safety regulations
13 are issued. Following publication of 49 CFR Part 192 subpart (P) – Gas Distribution
14 Pipeline Integrity Management in December of 2009, effective February 2010, Vectren
15 North created its Distribution Integrity Management Program. The Company
16 continues to re-evaluate and update its DIMP plan in a continuous improvement cycle.

17

18 **Q. How did Distribution Integrity regulations change the way the Company**
19 **managed system integrity?**

20 A. The new regulations defined a new process to be followed to better ensure pipeline
21 integrity. This was acknowledged by PHMSA when it adopted 49 CFR Part 192
22 Subpart (P), the Distribution Integrity Management regulations. "These [new]
23 regulations require that operators of these pipelines develop and follow individualized
24 integrity management ("IM") programs, in addition to PHMSA's core pipeline safety
25 regulations. The IM approach was designed to promote continuous improvement in

1 pipeline safety by requiring operators to invest in risk control measures beyond core
2 regulatory requirements.”⁶ PHMSA went on to say: “IM provides for a more systematic
3 and comprehensive approach to preventing failures. Accordingly, PHMSA considers
4 this the most effective means to effect further reductions in the number of pipeline
5 incidents.”⁷ As a result of the new regulations, the Company implemented the
6 continuous improvement, data-driven, risk-based DIMP in addition to and beyond
7 continuing compliance with core pipeline safety regulations.

8

9 **Q. Please describe the major aspects of the Company's DIMP.**

10 A. The Company's DIMP establishes processes and systems for all of the integrity
11 management program elements required by 49 CFR Part 192 Subpart (P). The
12 regulations require that a distribution integrity management program must
13 demonstrate an operator's knowledge and understanding of its physical distribution
14 system. The DIMP also must identify threats to the integrity of the distribution system.
15 The regulations also require that, under the DIMP plan, the operator must evaluate the
16 risks to the distribution system and "...must determine the relative importance of each
17 threat and estimate and rank the risks posed to its pipeline. This evaluation must
18 consider each applicable current and potential threat, the likelihood of failure
19 associated with each threat, and the potential consequences of such a failure.”⁸
20 Finally, the operator must implement measures to reduce those risks identified as high
21 relative to the others through the evaluation process.

22

⁶ 74 Fed. Reg. 63906 (Dec. 4, 2009).

⁷ 74 Fed. Reg. 63907 (Dec. 4, 2009).

⁸ 49 CFR §192.1007(c) (2015).

1 **Q. What else does the Company's DIMP cover?**

2 A. The DIMP includes provisions for performance measurement, subject matter expert
3 ("SME") validation, program evaluation and improvement, and reporting.

4

5 **Q. Please describe the implementation of the company's DIMP processes.**

6 A. As required for compliance with 49 CFR Part 192, Subpart (P), the Company annually
7 steps through a cycle of (1) system knowledge acquisition; (2) threat identification; (3)
8 risk evaluation and ranking; (4) review of corrective action performance metrics; and
9 (5) implementation of new corrective actions to address risk where those currently in
10 place are not effectively preventing or mitigating risk. This is followed by a review at
11 multi-year intervals of the program as a whole, with program redesign occurring where
12 new technologies are available to enhance risk mitigation activity.

13

14 DIMP starts with the Company developing a comprehensive knowledge of its system
15 gained from various sources. These sources include: leak history, mapping data,
16 facilities inventory, records of facilities damage, One Call information, incident data,
17 new construction data, records of material or mechanical fitting failures, and the
18 expertise of personnel responsible for the design, construction, operation, and
19 maintenance of the system, environmental data sets, industry knowledge, and various
20 other sources. Using this information, threats to the integrity of the distribution system
21 are identified as combinations of a cause based on PHMSA threat (e.g., corrosion,
22 excavation, pipe, weld, or joint) and a facility category (i.e., mains, service lines, or
23 above-ground facilities).⁹ Risk is evaluated for each threat and a statistical,

⁹ Distribution facilities are defined as either mains or service lines. 49 CFR § 192.3 (2015). The Company further identifies above-ground facilities as that portion of the service line above the stopcock.

1 performance-based analysis is conducted to determine which threat-facility
2 combinations pose the greatest risk to the system. Those threat-facility combinations
3 which are identified as high risk are then investigated and analyzed using industry
4 software tools and SME knowledge to better understand the risk drivers, incorporating
5 the full scope of system knowledge described above. As a result of this analysis and
6 investigation, preventive and mitigative activities and programs are either: 1) deemed
7 effective; 2) modified where deemed deficient or ineffective; or 3) developed where
8 absent, to more effectively reduce system risk.

9

10 **Q. Please describe any recent changes to the Company's DIMP.**

11 A. There has been an extensive program review and a revision of the DIMP manual
12 issued in the last year. The most significant changes to the manual include the
13 following:

- 14 • Updated Workflows: Distribution Integrity activities occur on an annual cycle,
15 governed by processes and tasks. After reviewing what elements contributed
16 most to enhance risk reduction over the past several years, these processes
17 and tasks were updated. In addition to this update, the governance software
18 Integrity Compliance Activity Manager (ICAM) was implemented to track the
19 workflows.
- 20 • Increased Geographical Analysis: Every year, a System Threat Risk Model is
21 executed and analyzed to determine which threats, acting upon which
22 facilities, pose the highest risks to the system. This provides the bases for in-
23 depth investigations that occur at the company district level which ultimately
24 lead to identifying facility replacement as a required risk mitigation and
25 prevention activity. The threats examined are the following:

- 1 ○ Excavation damage
- 2 ○ Incorrect operations
- 3 ○ Natural forces
- 4 ○ Equipment failure
- 5 ○ Other outside forces
- 6 ○ Pipe, weld or joint failure
- 7 ○ Corrosion
- 8 ○ Other

9 The facilities are divided into three categories:

- 10 ○ Main
- 11 ○ Service
- 12 ○ Above Ground
- 13 • Updated the Asset-Level Risk Model and added Geospatial Leak Clustering
- 14 Analysis for pipe review: In late 2019, the Company updated configuration of
- 15 the Geofields asset-level risk model. Additionally, a heat map incorporating
- 16 historical leak data was generated as an overlay to Geofields. These results
- 17 were loaded into Esri's Geographic Information System (GIS) for review. This
- 18 assists with validation and analysis of the threats that drive the risk on any
- 19 given asset. This leads to more effective selection of mitigative and preventive
- 20 measures.

21 In addition to the above, some programs and activities developed to address risk have

22 been added and/or modified.

23

1 **Q. Has the Company completed the identification and relative risk ranking of**
2 **threats to its distribution system as well as taken steps to reduce the risks to**
3 **the distribution system?**

4 A. Yes. The Company completed its initial identification and risk ranking and established
5 specific programs and activities to reduce risks to its distribution system. The
6 regulations require continual monitoring and evaluation. As previously noted, the
7 Company continues the iterative process of relative risk ranking and adjusts its plans
8 accordingly. This continuous improvement cycle will continue in the future, with
9 projects, programs and activities continuously adjusting to most effectively prevent or
10 mitigate to the highest relative risks on the system. In 2021 we will be implementing
11 the absolute probabilistic risk model JDIMP, an asset level risk model developed by
12 JANA Corp, an industry recognized leader, to increase performance in asset
13 replacement identifications. This incorporates more recently developed machine
14 learning-based algorithms to move from relative to absolute risk modeling
15 methodologies.

16

17 **Q. Has the Company identified specific projects, programs or activities to improve**
18 **the integrity of its distribution system?**

19 A. Yes.

20

21 **Q. Please describe the process the Company uses to identify DIMP projects.**

22 A. Annually, the Company's distribution integrity management team reviews and
23 analyzes data associated with Company distribution system assets. This includes, but
24 is not limited to, leak-related information, asset data, system performance data,
25 industry findings and PHMSA advisory bulletins. The Company also considers the

1 knowledge and experience of local operations and engineering personnel, as well as
2 relative risk data, to further refine areas of focus within the system.

3

4 This means the Company uses both leading and lagging indicators to determine its
5 next steps. For example, reviewing leak-related information to develop performance
6 trends provides a valuable, yet lagging view of what is happening in the system.
7 Conversely, referencing PHMSA advisory bulletins or other outside sources provides
8 a leading indicator of requirements that may affect Company assets.

9

10 **Q. How were the projects described in this testimony identified?**

11 A. As a result of implementing the DIMP processes, the Company has identified specific
12 components of its distribution system that require additional maintenance activity or
13 accelerated replacement in order to comply with 49 CFR Part 192 Subpart (P). As of
14 today, the currently identified components include: cast iron mains and services, bare
15 steel mains and services, vintage plastic mains and services, vintage steel mains and
16 services, and inside meters, along with various other smaller component replacements
17 identified and made through the course of the year. These pipeline integrity
18 management projects are described more fully below. Replacement of these assets
19 leads to improved system safety and a reduction in maintenance costs associated with
20 operating these assets.

21

22

23 **III. CAST IRON REPLACEMENT INTEGRITY MANAGEMENT PROJECT**

24

25 **Q. Please describe the Cast Iron Replacement integrity management project.**

1 A. In 2008, the Company began a project to replace 175 miles of cast iron mains. As of
2 December 2019, the Company reported 34 miles of cast iron mains and 21 cast iron
3 services remaining. Between 2020 and 2024, the Company expects the Cast Iron Main
4 Replacement project will replace the remaining 34 miles of cast iron mains and 21 cast
5 iron services. The capital expenditures associated with this work and planned for
6 construction in 2020 and 2021 are included in the capital forecast presented by
7 Petitioner's Witness Steven A. Hoover.
8

9 **Q. What makes cast iron mains and services a risk to system integrity?**

10 A. Cast Iron is susceptible to graphitization, fracture/cracking and cold breaks along the
11 body of the pipe and at the joints, leading to higher leak rates and potentially higher
12 consequence failure modes (especially where full circumferential cracks or breaks are
13 present) than those found in other materials. This elevated risk is noted in the National
14 Traffic Safety Board ("NTSB") recommendation P-91-12, issued following a 1990
15 Allentown, PA explosion, which calls for operators to "implement a program, based on
16 factors such as age, pipe diameter, operating pressure, soil corrosiveness, existing
17 graphitic damage, leak history, burial depth, and external loading, to identify and
18 replace in a planned, timely manner cast iron piping systems that may threaten public
19 safety."
20

21 **Q. Is the Cast Iron Replacement project responsive to a regulatory requirement?**

22 A. Yes. Following the above NTSB recommendation, PHMSA's predecessor issued two
23 alerts, ALN-91-02 and ALN-92-02, again outlining the risk of operating cast iron,
24 restating the NTSB recommendation, and calling for replacement and surveillance of
25 cast iron assets. In 2011, the PHMSA issued a call to action in response to several

1 national incidents, which urged operators to accelerate the repair, rehabilitation and
2 replacement of highest relative risk assets. Following this call to action, both bare steel
3 and cast iron were identified as materials associated with elevated relative risk and,
4 as such, national tracking mechanisms were developed to monitor the ongoing
5 decrease of in-service inventory. This was reinforced again in PHMSA's advisory
6 bulletin ADB-2012-05. For the assets included in this replacement category, material,
7 age, interactive natural forces, and pipe joining methods all point toward this as a high
8 relative risk category for the Vectren North footprint. As such, under the DIMP, there
9 must be programs and activities in place to effectively remediate the risk in a
10 reasonable timeframe. This is accomplished through a combination of leak survey and
11 facility replacement.

12
13 **Q. What determines the timing of the Cast Iron Replacement project?**

14 A. The Company develops schedules to address identified risks and sets timelines based
15 on industry guidelines and Company assessment of the level of risk. In order to
16 effectively manage a risk, it must be remediated prior to reaching a likelihood-
17 consequence level beyond which preventive and mitigative measures will no longer
18 achieve desirable outcomes. This requires a schedule that results in removal of high
19 relative risk assets prior to arrival at a condition where they are no longer operable at
20 the desired level of safety. This schedule must also be reasonably achievable given
21 resource and other construction restraints. To accomplish this, cast iron assets must
22 be placed on multi-year replacement schedules, with annual asset replacement
23 selections driven by risk analysis, which will be completed as of the time the above
24 conditions have been met.

25

1

2 **IV. BARE STEEL REPLACEMENT INTEGRITY MANAGEMENT PROJECT**

3

4 **Q. Please describe the Bare Steel Replacement integrity management project.**

5 A. In 2008, the Company began a project to replace 791 miles of bare steel mains and
6 691 bare steel services. As of December 2019, the Company reported 348 miles of
7 bare steel mains and 6,076 bare steel services remaining¹⁰. Between 2020 and 2024,
8 the Company expects the Bare Steel Main Replacement project will replace the
9 remaining 348 miles of bare steel mains and 6,076 bare steel services. The capital
10 expenditures associated with this work and planned for construction in 2020 and 2021
11 are included in the capital forecast presented by Petitioner's Witness Hoover.

12

13 **Q. What makes bare steel mains and services a risk to system integrity?**

14 A. Older, uncoated steel pipes can be vulnerable to time-dependent forces such as
15 corrosion, causing higher leak rates than seen in coated steel or plastic pipes.

16

17 **Q. Is the Bare Steel Replacement project responsive to a regulatory requirement?**

18 A. Yes. As stated above in reference to cast iron, in 2011, the PHMSA issued a call to
19 action which included both bare steel and cast iron as materials associated with
20 elevated relative risk and, as such, national tracking mechanisms were developed to
21 monitor the ongoing decrease of in-service inventory. Material, age, coating,
22 manufacturing technique, installation method, cathodic protection practices and

¹⁰ Increase does not reflect installation of bare steel service lines but is due to data quality improvement projects developed as a result of the system knowledge component of Distribution Integrity Management.

operating history are all indicators of risk on the asset. For the assets included in this replacement category, material, age, lack of coating, legacy installation methods in some cases using mechanical couplings without adequate restraint to prevent separation of pipe segments, and the inability to effectively maintain cathodic protection on the asset along with (in many cases) the long asset life history of no cathodic protection all point toward this as a high relative risk category for the Vectren North footprint. As such, like with cast iron, under the DIMP there must be programs and activities in place to effectively remediate the risk in a reasonable timeframe. Since it has been determined that Cathodic Protection cannot fully remediate the corrosion risk on these assets, this is accomplished through a combination of leak survey and facility replacement.

Q. What determines the timing of the Bare Steel Main Replacement project?

A. Like with cast iron, the Company develops schedules to address identified risks and sets timelines based on industry guidelines and Company assessment of the level of risk. In order to effectively manage a risk, it must be remediated prior to reaching a likelihood-consequence level beyond which preventive and mitigative measures will no longer achieve desirable outcomes. This requires a schedule that results in removal of high relative risk assets prior to arrival at a condition where they are no longer operable at the desired level of safety. This schedule must also be reasonably achievable given resource and other construction restraints. To accomplish this, bare steel assets must be placed on multi-year replacement schedules, with annual asset replacement selections driven by risk analysis, which will be completed as of the time the above conditions have been met.

1

2 **V. VINTAGE PLASTIC REPLACEMENT INTEGRITY MANAGEMENT PROJECT**

3

4 **Q. Please describe the Vintage, or Legacy, Plastic Replacement integrity**
5 **management project.**6 A. This project replaces main and service lines made of materials identified by PHMSA
7 in a series of advisory bulletins as being susceptible to slow crack growth and brittle-
8 like cracking.¹¹ The capital expenditures associated with this work and planned for
9 construction in 2020 and 2021 are included in the capital forecast presented by
10 Petitioner's Witness Hoover.

11

12 **Q. What makes legacy plastic mains and service lines a risk to system integrity?**13 A. Legacy plastic pipe is more vulnerable to failure than modern plastic because of the
14 resins used in manufacturing combined with operating conditions introducing external
15 stress such as the force of frost heaving. Legacy plastic pipe materials are subject to
16 slow crack growth and brittle-like cracking which can cause failure at much lower
17 stress levels than those required for modern resin yield failures. Given the operating
18 environment of these assets they have been exposed to more than 40 years of ground
19 movement stresses potentially including frost heave, subsidence, excavation and
20 settlement, making them subject to this material (pipe, weld or joint) failure. Certain
21 Aldyl A resins, already susceptible to slow crack growth due to inferior resin
22 composition, had production batches which were produced and installed prior to 1974

¹¹ ADB-99-01, ADB-99-02, ADB-02-07, and ADB-07-01. These bulletins identified the manufacturers with the most susceptible resins and manufacturing processes. They addressed the replacement of both service lines and mains made of these materials, but the Company has not yet begun work on replacing such mains.

1 that are specifically of interest because of the lower ductility in the inner wall ("LDIW")
2 of the pipe due to improper manufacturing techniques. This compounding risk factor
3 makes operation of this material significantly more risky than other plastics. The
4 company has implemented a LDIW program to test for and plan the replacement of
5 this pipe when discovered in the course of other work. The Company estimates that
6 approximately 93 miles of plastic main are of a vintage which is susceptible to this type
7 of defect. The Company is actively seeking opportunities to remove this pipe during
8 other work and is concurrently replacing it as part of a company-wide risk mitigation
9 program. The topic of legacy plastics is addressed at length in the NTSB Safety
10 Recommendation P98-1-5 issued April 30, 1998 and then several subsequent
11 PHMSA advisories, as noted in footnote 11.

12
13 **Q. Is the Legacy Plastic Replacement project responsive to a regulatory**
14 **requirement?**

15 A. Yes. Distribution Integrity Management regulations require that all known threats are
16 taken into consideration when analyzing risk on a system. There are certain risks
17 driven by the likelihood of threat, for example corrosion or excavation damage, and
18 the more likely the threat, the higher the risk. However, certain risks are driven by the
19 consequence of the threat. With legacy plastics, this is the case. Because the resin
20 does not meet modern standards, the consequence when any failure mode is
21 introduced is elevated relative to more modern plastics. Slow crack growth can occur
22 at different rates as the soil temperature changes, making risk management
23 challenging. Additionally, certain vintage plastic resins are also subject to brittle-like
24 failure which can lead to an even more accelerated failure. This is considered a pipe,
25 weld or joint failure under the eight DOT causes and is identified through multiple

1 NTSB and PHMSA advisories as mentioned above.

2

3 **Q. What determines the timing of the Legacy Plastic Replacement project?**

4 A. As with cast iron and bare steel, the time frame designated removes the risk element
5 from the distribution system as quickly as reasonably practicable given the
6 construction and resource constraints present, and at a rate necessary to remove the
7 risk element before it reaches a likelihood-consequence threshold at which preventive
8 and mitigative measures will no longer achieve the desired outcome.

9

10

11 **VI. LEGACY STEEL REPLACEMENT INTEGRITY MANAGEMENT PROJECT**

12

13 **Q. Please describe the Ineffectively Coated, or Legacy, Steel Replacement integrity**
14 **management project.**

15 A. This project replaces main and service lines of certain vintage known to have been
16 manufactured, constructed and/or operated using legacy practices that are no longer
17 considered sufficient for effective risk management. Some of the practices include but
18 are not limited to wrinkle bends, mechanical couplings without adequate restraint to
19 prevent separation of pipe segments, nonstandard or field fabricated fittings, lap
20 welded or electric resistance welded pipe, ineffective field coatings and/or periods of
21 operation without cathodic protection. The capital expenditures associated with this
22 work and planned for construction in 2020 and 2021 are included in the capital forecast
23 presented by Petitioner's Witness Hoover.

24

25 **Q. What makes legacy steel mains and service lines a risk to system integrity?**

1 A. These legacy assets on the system are susceptible to threats, in various combinations
2 based on location and date of install, which present an elevated risk of Equipment
3 failure, Corrosion failure or Pipe, Weld or Joint failure as indicated by increased leak
4 rates relative to the remaining coated steel on the system.

5

6 **Q. Is the Legacy Steel Replacement project responsive to a regulatory**
7 **requirement?**

8 A. PHMSA's advisories ADB 08-02 and ALN 89-01 are both advisories which may be
9 referenced associated with mechanical couplings and electric resistance welded pipe,
10 respectively. In addition, prior to 1970, many construction and maintenance methods,
11 which are today considered necessary for appropriate risk management, were not in
12 place. For example, cathodic protection practices were not as widely in use as they
13 are today, and in some cases not present at all. This means that the assets installed
14 prior to 1970 were operated for some period of life with substandard coating and
15 protection based on modern practices. As a result, it is not possible to maintain
16 cathodic protection sufficient to prevent ongoing corrosion and as a result the asset
17 risk must be mitigated through leak survey and replacement.

18

19 **Q. Are there any other integrity management related projects planned for the test**
20 **year?**

21 A. Yes, the Company is planning Picarro Advanced Leak Detection Technology
22 implementation, Material Tracking and Traceability pilots and implementation, and a
23 Proactive Legacy Crossbore Program implementation. I will explain all of these in
24 further detail next.

25

1

2 **VII. ADVANCED LEAK DETECTION (PICARRO)**

3

4 **Q. Are leak detection activities required under the pipeline safety regulations?**

5 A. Yes. Leak detection activities are required under 49 CFR §§192.701 and 192.723.

6 They are also required by the IURC.

7

8 **Q. Please describe Advanced Leak Detection Technology.**

9 A. The Company has selected the Picarro Surveyor™ as its advanced leak detection
10 technology. The Surveyor™ uses a laser analyzer that can detect methane and
11 ethane in parts per billion. Traditional leak detection technology can only detect up to
12 parts per million, making the Surveyor™ one thousand times more sensitive. The
13 addition of an anemometer for wind speed and direction measurements, sub-meter
14 GPS and software utilizing analytics completes the technology package. As the
15 vehicle carrying the Surveyor™ travels over its specified area, leak indications are
16 created and mapped. A technician will visit each indication individually and validate
17 whether or not a leak exists. The technician will grade the leak and the normal repair
18 process will follow based on the leak grade.

19

20 This use of the vehicle and Surveyor™ allows for natural gas detection over a larger
21 area instead of just directly over the buried assets or adjacent to the above-ground
22 assets.

23

24 **Q. Why is it important to use advanced leak detection to find leaks?**

25 A. From a Distribution Integrity Management perspective, three of the most impactful

1 programs and/or activities in place to address risk are Leak Survey, Damage
2 Prevention and Facility Replacement. The introduction of advanced leak detection
3 marks a significant advancement in the ability to detect a leak on the distribution
4 system. Because of the nature of incident development on a distribution system, the
5 ability to detect a leak earlier in its formation and/or migration presents a significant
6 reduction in the consequence of system failures barring only excavation damage and
7 a portion of other outside force damage. Furthermore, the system knowledge gained
8 in the repair of the detected leak helps the distribution company to more quickly identify
9 and prevent new risks on the system. Due to this ability to detect leaks earlier in their
10 formation, there can be an increase in leak counts during initial rollout and the first few
11 leak survey cycles of full implementation.

12
13 In addition to enabling the Company to locate and respond to natural gas leaks much
14 faster, Picarro Surveyors are more efficient in terms of accuracy and coverage area. As
15 a result, Picarro Surveyors also play a key role in the Company's methane emissions-
16 reduction efforts.

17
18
19 **VIII. TRACKING AND TRACEABILITY**

20
21 **Q. Please describe the Tracking and Traceability project.**

22 A. The tracking and traceability project will implement a tablet-based work order
23 documentation solution, coupled with a hand-held bar code reader and high-accuracy
24 GPS, to capture information for new pipeline facilities based on requirements initially
25 proposed in Notice of Proposed Rulemaking ("NPRM") ID PHMSA-2014-0098-0024.

1

2 **Q. What were the tracking and traceability requirements proposed in the NPRM?**

3 A. Per the Federal Register Vol 83 No 224 Plastic Pipe Rule, "In the NPRM published
4 May 21, 2015 (ID PHMSA-2014-0098-0024), PHMSA proposed to amend 49 CFR
5 §192.3 to define "traceability information" and "tracking information" and to amend 49
6 CFR §§192.321 and 192.375 to establish standards requiring operators to properly
7 and consistently track and trace pipe and components within their system. The
8 proposed tracking information included the location of each section of pipe, the
9 individual who joined the pipe, and components within the pipeline. The proposed
10 traceability information included the location of pipe and components; manufacturer;
11 production; lot information; size; material; pressure rating; temperature rating; and as
12 appropriate, other information such as type, grade, and model. PHMSA proposed to
13 amend 49 CFR §192.63 to require operators to adopt the tracking and traceability
14 requirements in ASTM F2897-11a, "Standard Specification for Tracking and
15 Traceability Encoding System of Natural Gas Distribution Components (Pipe, Tubing,
16 Fittings, Valves, and Appurtenances)," issued in November 2011, (ASTM F2897-
17 11a), and proposed that operators must record the tracking and traceability data and
18 retain it for the life of the pipe."

19

20 **Q. Were the requirements implemented as proposed in the NPRM?**

21 A. No. PHMSA has delayed the implementation of the tracking and traceability
22 requirements to allow time for improvements in scanning and field asset data collection
23 technologies to advance. They will be revisited in a subsequent final action or new
24 rulemaking. However, PHMSA stated in the above mentioned Plastic Pipe Rule "[i]n
25 the interim, PHMSA expects all distribution operators to already be collecting some

1 form of tracking and traceability information, since the Distribution Integrity
2 Management Program (DIMP) regulations in 49 CFR §192.1007(a)(5) require that
3 operators capture and retain data on the location where new pipeline is installed and
4 the material of which it is constructed.”

5

6 **Q. Based on the delayed implementation, are the pilot and subsequent solution**
7 **implementation required at this time?**

8 A. Yes. Tracking and Traceability represents an area of significant change. The Material
9 Tracking and Traceability project is currently on a 4-year time horizon for
10 implementation. As mentioned above, PHMSA has delayed the requirement.
11 However, through DIM regulation, PHMSA expects all distribution operators to already
12 be collecting some form of tracking and traceability information wherever it is available,
13 as is reflected in safety audits. PHMSA has also encouraged operators to begin
14 understanding these additional requirements prior to the rule implementation. For
15 these reasons, the Company has already begun a Tracking and Traceability integrity
16 management project to work toward compliance.

17

18

19 **IX. PROACTIVE LEGACY CROSSBORE INSPECTIONS USING JANA PREDICTIVE**
20 **MACHINE LEARNING MODEL**

21

22 **Q. What is a crossbore?**

23 A. A crossbore is an intersection of an existing underground utility or structure by a
24 second utility resulting in direct contact that compromises the integrity of either utility.
25 Crossbores are also described as “sewer transections” as the intersection is typically

1 with storm or sanitary sewer lines.

2

3 **Q. Do crossbores present a unique risk to the natural gas industry?**

4 A. Yes. In the case of natural gas, a facility operated by a natural gas utility crossbored
5 into a sewer utility facility represents a specific high risk scenario. If the natural gas
6 facility is compromised due to a plumber cleaning out a lateral, a tree root, collapse of
7 the transected sewer main or any other failure mechanism, a leak may occur which
8 then migrates through a sewer lateral into a home. This is a high risk threat that is
9 widely recognized in the industry.

10

11 **Q. Are there means to prevent and mitigate risk due to crossbores?**

12 A. Yes. For new construction, crossbore safeguards have long been in place to prevent
13 introduction of new sewer crossbores. Additionally, test plans have been developed
14 so that where historical (legacy) crossbores are found, neighboring areas may be
15 checked for additional crossbores.

16

17 **Q. What is the Proactive Legacy Crossbore Inspection Program?**

18 A. Proactive Legacy Crossbore Inspection Programs have long been identified as a
19 leading practice in the industry. Utilizing very basic criterion to select inspection
20 locations, such as in the test plan listed above, can result in locating some crossbores.
21 However, it tends to under-evaluate the likelihood of finding a crossbore in areas
22 where one hasn't previously been found, but which otherwise possesses several key
23 indicators. JANA has developed the Spotlight Crossbore Risk Model which utilizes
24 both internal and external data sets to identify areas with a higher likelihood of
25 crossbore and then trains the model using previous inspection results to further refine

1 predictive capabilities. A Proactive Legacy Crossbore inspection program is currently
2 under development pending the results of this model. Charges will likely not hit for this
3 specific project until 2022.

4

5

6 **X. SAFETY MANAGEMENT SYSTEM**

7

8 **Q. Please describe The Company's Safety Management System (SMS).**

9 A. Many industries that address public safety risks have adopted such systems. For
10 example, industries such as aviation, nuclear generation, and pharmaceutical
11 manufacturing have safety management systems in place to help manage risk within
12 their processes by reducing the likelihood of an incident occurring through a structured
13 system of process mapping, operational controls, metrics, communication,
14 governance, and continuous improvement. The objective of these management
15 systems is to identify risk within business processes and implement mitigating actions
16 to reduce that risk. This is accomplished through a structured risk assessment
17 process, with control and measurement points identified, and a practice of on-going,
18 continuous improvement. This process is supported by an effective governance model
19 that supports communication throughout the various levels of the organization and
20 empowers employees to take action to surface and mitigate those risks identified.

21

22 As SMS applies to pipeline safety, the Company conducts an annual risk assessment
23 to look at processes, such as construction, maintenance, inspection, integrity
24 management, operator qualification and others, and determine where risks exist within
25 these processes that could lead to a pipeline safety incident. The Company uses the

1 risk assessment to identify the highest risks, which then undergo a bowtie analysis to
2 identify mitigating measures to reduce those risks. Some great examples of mitigating
3 measures that the Company already implemented are the projects identified through
4 our damage prevention and public awareness programs to mitigate specific pipeline
5 system risks. The Company has identified operational controls, such as procedures,
6 documentation, training, or inspections, to measure the effectiveness of these
7 mitigating measures. From these results, the Company is able to identify areas where
8 improvements can be made in our processes to further reduce these risks. The
9 Company uses its continuous improvement tools and methodology to drive further
10 enhancements in its pipeline safety programs.

11
12 **Q. Please describe Safety Management System program results since inception.**

13 A. The Company has significantly reduced the risk of our system over the last 5 years.
14 The Company continues to educate its workforce and external stakeholders on the
15 SMS, its requirements and their role in it. The Company has encouraged its gas
16 contractors and other stakeholders to participate in the risk management processes,
17 near miss reporting, and lesson learned activities. The Company continues to build a
18 culture of collaboration and accountability. This culture engages each member of its
19 workforce to identify risks, mitigate risks, and proactively become Champions of
20 Safety.

1 **XI. CONCLUSION**

2

3 **Q. Please summarize your position on the Company's integrity management**
4 **program and related integrity management projects.**

5 A. Pipeline safety regulations require the Company to develop and implement an integrity
6 management program for its distribution system. The regulations require that the
7 integrity management program include specific elements, that the Company assess
8 threats to pipeline integrity and that the Company take action to remediate or mitigate
9 such threats. The Company has developed such a plan, conducted the assessments in
10 a manner consistent with the regulations, and has undertaken specific projects to
11 manage pipeline integrity. All of this has been performed under the oversight of the
12 IURC.

13

14 **Q. Please summarize your position on the timing of the capital expenditures related**
15 **to the integrity management program and related integrity management projects.**

16 A. The Company's management of pipeline integrity prior to the implementation of 49 CFR
17 Part 192 subparts (O) and (P) was consistent with applicable regulations and was based
18 on sound engineering practices and standards. For many years the Company has been
19 replacing higher risk facilities. The integrity management projects discussed in my
20 testimony represent an acceleration of pipeline integrity expenditures in order to comply
21 with the new regulations based on the Company's knowledge and experience from
22 designing, constructing, operating, and maintaining its system.

23

24 **Q. Do you have a final summary?**

1 A. Yes. The Company's integrity management program, related integrity management
2 projects, and project schedules are reasonable. The costs associated with the integrity
3 management program are directly related to the safe operation of the distribution
4 system, in compliance with state and federal law, and should be recovered from
5 ratepayers as requested in this rate case.

6

7 **Q. Does this conclude your prepared direct testimony?**

8 A. Yes, it does.

VERIFICATION

I, Kate D. Porter, affirm under the penalties of perjury that the forgoing representations of fact in my Direct Testimony are true to the best of my knowledge, information and belief.



Kate D. Porter

Dated: December 18, 2020



Distribution Integrity Management Program
GOVERNANCE

ORIGINAL EFFECTIVE DATE: AUGUST 2, 2011

Revision Date: March 27, 2020

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REVISIONS

[illegible]

1. INTRODUCTION

In 2018 CenterPoint Energy (CenterPoint Energy) made the decision to revise their approach to distribution integrity management, predicated on a number of realizations following the completion of multiple cycles of the Distribution Integrity Management Program (DIMP). These include:

- The concept of risk within DIMP is the risk of an incident; which includes but is not wholly based on the risk of failure as distribution piping leaks (failures) (as supported by the AGA Foundation Study indicating that Leak Management was one of the primary goals for integrity)
- The realization that beyond relative risk, average risk, and code based performance metrics, other newly available new risk models as methods of analysis were required to drive improvement including advanced geospatial processing capabilities, asset level risk models, and larger data sets to support meaningful metrics to track activities to address risk.
- Recognizing that the regulations, being performance based, required additional process to define the workflow to bridge the gap between threat, risk, performance and the requirement for additional actions.
- Organizational issues may be leading indicators to issues that could contribute to risk.

This new written plan replaces CenterPoint Energy's previous written plan and matches the newly adopted framework and methodologies described in this document. The new DIMP will go into effect with the 2019 cycle utilizing Cycle Year 2018 data in April 2019, following data collection, verification and annual DOT reporting.

1.1. PURPOSES AND OBJECTIVES

Following the promulgation of the rules for transmission integrity management, industry and the regulators turned an eye toward distribution integrity management. The first study in this arena was performed by the AGA Foundation. In this study, it was determined that the core to distribution integrity management was based in 1) improved leak management and 2) excavation damage prevention. As PHMSA got closer to developing a rule, they requested that the Gas Piping Technology Committee develop a guide. Following the completion of this guidance, PHMSA released 49 CFR 192 Subpart "P".

DIMP is employed by CenterPoint Energy to meet one overarching objective: to manage the mechanisms in place to recognize areas for improvement and to implement corrective actions designed to make the gas distribution system safer. All pipeline and appurtenances are subject to this program including mains, valves, fittings, regulator stations, service lines, risers, service meter and regulator sets, and all systems operating pressure less than 20% SMYS.

This performance-based plan is a comprehensive and systematic approach to meet the regulatory requirements of 49 C.F.R § 192 Subpart P and builds upon the current operational activities in use by CenterPoint Energy. Integrity Management is a dynamic and evolving program subject to continuous improvement. The continuous improvements may reflect operating and industry experience or come from conclusions reached through the integrity management process and may incorporate tools and techniques as they become available. The program uses risk evaluation, performance, analysis and investigation to determine when and where improvements may be necessary.

The primary responsibility of the DIMP is to provide a data driven insight into integrity related programs and operational activities. The results of data analysis are communicated to the personnel with responsibility for

the various programs and activities to address risk (PAAR). This communication will solicit organizational feedback targeted on threats, data collection and/or programs and activities that may require corrective action based on the analysis of the various datasets managed in system knowledge.

DIMP utilizes Integrity Compliance Activity Manager (ICAM). ICAM is a Process/Workflow Management platform that supports quality management, meets the objectives of a safety management system and documents the execution of the integrity program for compliance.

Threats and their associated risk may be further evaluated through the analysis of facilities and/or materials, both hazardous and non-hazardous leaks and the effectiveness of the programs and activities designed to manage them. The O&M manual and additional standard operating procedures including Construction and Services Manual, Engineering Design Manual, Material Standards, Gas Operations EOP, Operator Qualification (OQ) Program, Public Awareness Program, and System Operations, and Control Room Management Manual contain written instruction for how operations and maintenance activities are conducted on the system in accordance with Federal and State pipeline safety regulations. The activities address various threats to a pipeline's integrity; thus, management and proper execution of these activities to manage their associated threats reduces the risk to the system.

Additionally, programs described in this plan are executed to address the potential consequences associated with the unintended release of gas from pipelines and other system components, including but not limited to the over-pressurization of pipeline systems. These activities or programs have been designed and executed over the years in support of compliance with 49 CFR §192 and/or developed internally as additional actions to address system safety.

Each section of CenterPoint Energy's DIMP plan is formatted in the following manner:

1. Regulatory
2. Overview
3. Methodology
4. Workflow
5. Recordkeeping

The intent of each section is summarized as follows:

Section	Intent
Regulation	State the actual code language
Overview	Describes each element and its general requirements
Methodology	Describes at a high level what is done in each element, where information is located and what outputs can be expected.
Workflow	Describes visually, at a high level, how work flows to and from different elements. Items in the workflow can be elements, areas, processes, tasks, or task answers.
Recordkeeping	Describes what information is collected and how it is communicated. Includes the categories of Decisions, Documentation, Communications

The Workflow Management platform (ICAM), is employed to manage, schedule, track, document and report the execution of the processes that define the integrity management program. The functionality of the platform includes:

- Manage objective based processes as defined by CenterPoint Energy, through execution of the appropriate tasks necessary to address and document these objectives.
- Schedule, track, report and document the Who, What, When and Where associated with each process, as well as, the Whys or more importantly the Why Not's associated with all decisions and changes.
- Provide for recordkeeping.
- Ensure program sustainability, protect against workforce attrition and support the critical requirement for knowledge continuity.

1.2. REGULATORY OVERVIEW

The Pipeline and Hazardous Material Safety Administration (PHMSA) regulates the transportation, transmission and distribution of gas. These regulations and actions by operators have resulted in an admirable safety record for the gas distribution systems across the country. Nevertheless, incidents can and do occur, some of which involve significant consequences, including fatality and injury. The goal of DIMP is to build upon the safety programs in place and further enhance the safety of the gas distribution system.

The basis of the CenterPoint Energy approach to integrity management is that in general, ongoing safety activities adequately address the threats that are significant to the pipeline systems. In accordance with DIMP, CenterPoint Energy performs analyses to understand where improvements through the modification of or creation of new programs and activities to address risk are warranted to improve the safety of the system. PHMSA has acknowledged that implementing DIMP is a continuous improvement process that will evolve over time as system knowledge improved and performance is analyzed and acted upon.

1.3. THE APPROACH

In compliance with 49 CFR §192 Subpart P regulation, CenterPoint Energy supports their integrity activities with 1) this written DIMP plan, 2) its execution, 3) the collection of organizational feedback, 4) the analysis of results and 5) the stakeholder feedback driven suggestions for corrective actions designed to manage risk and to improve the safety of their systems.

**ALL PROCESSES, EXECUTION RECORDS, RESULTS AND SUPPORTING INFORMATION IN THE
PROCESS/WORKFLOW PLATFORM ARE INCORPORATED BY REFERENCE AS A "CONFIDENTIAL"
PORTION OF THE INTEGRITY MANAGEMENT PROGRAM**

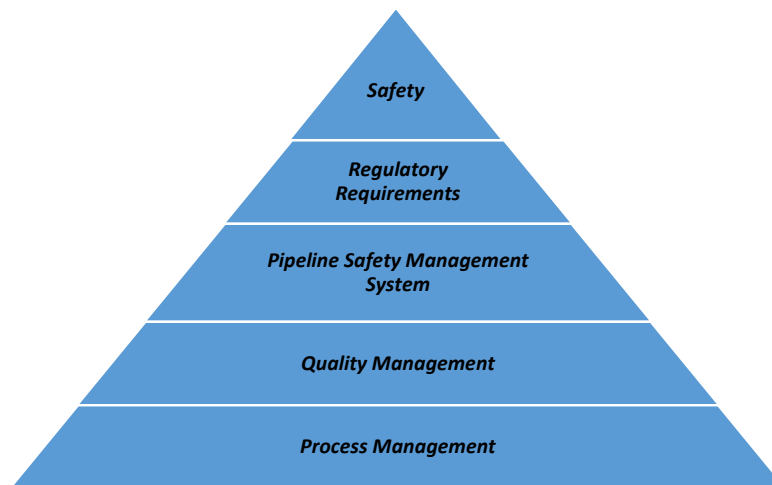
1.4. OVERVIEW

The primary objective of the Integrity Management Program is to prevent loss of containment through unintentional release of gas. The risk associated with any pipeline systems is based on 1) the condition of the pipeline, 2) the environment in which it operates and 3) how it is operated, and 4) what we do to better understand these criteria to effectively manage them.

The DIMP has been modified to manage the safety of the pipeline assets by implementing a PROACTIVE / SYSTEMIC "THREAT" SPECIFIC APPROACH to risk evaluation, performance, investigation / organizational feedback, analysis, and corrective action...

The DIMP approach has been designed to support consistency, repeatability, and program sustainability. The approach to the measurement of performance detailed in this written plan incorporates the Plan, Do, Check, Act methodology. CenterPoint Energy utilizes process management to verify quality controls and quality assurance, as a means of demonstrating that the plan has been executed and is effective. The integrity management program is inherently integrated with the O&M plan as these functions are critical to system integrity and must all be considered a requirement for operation of a safer system.

The following diagram demonstrates the structure of the approach beginning with the foundation of Process Management, to support the tenants of a Quality Management methodology, designed to address the requirements of API 1173 as a Pipeline Safety Management System underpinning the requirements for regulatory compliance, with the goal being improved Safety.



1.5. PROCESS MANAGEMENT

The DIMP utilizes the ICAM process management platform to control and document consistent objective-based process execution with the intention of managing quality control, quality assurance and program sustainability to drive improvement in the safety of the entire system. The execution of this plan is managed within the ICAM platform, specifically designed to manage, schedule, track, document and report the execution of the program. The use of ICAM supports consistency, repeatability, and program sustainability. As necessary, changes will be made to plans, procedures and/or activities to address risk. CenterPoint Energy will execute the elements, including management approvals, origin date, and the effective date of execution. Closed process reporting demonstrates that CenterPoint Energy has executed the processes.

ICAM is not a traditional data repository like GIS, but rather an activity information repository that captures who, what, when, where and why integrity management activities are performed.

The platform documents meetings, lessons learned, improvements, and provides documentation supporting decision making. ICAM specifically addresses the documentation requirements as stated in the rule

Preamble: "Generally, documentation demonstrating compliance includes documentation to show how the operator has fulfilled the requirements of each element of §192.1007."

The elements incorporated in the CenterPoint Energy DIMP include:

1. Company / State System Knowledge
2. Company / State Threat Identification
3. Company / State Risk Evaluation
4. Company / State Performance
5. District Performance Analysis
6. Investigation / Organizational Feedback by District
7. Investigation / Organizational Feedback Integration & Analysis
8. Investigation / Organizational Feedback Corrective Action Management Review
9. Management of Change when applicable as this is generally managed thru company MOC process
10. Programs and Activities to Address Risk
11. Regulatory Reporting

Systematic, decision-making processes to decide which measures are to be implemented, involving input from relevant parts of the organization such as operations, maintenance, engineering, damage prevention and corrosion control. Specifically, the implementation of process management will:

- Influence implementation of a structured risk management approach
- Facilitate the culture necessary to ensure the success of risk management

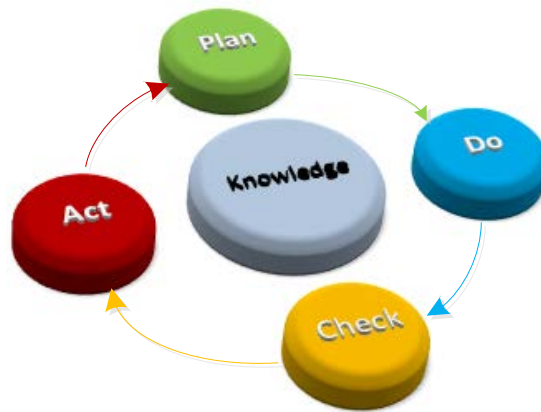
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1.6. QUALITY MANAGEMENT PRINCIPLES

The quality management methodology of Plan, Do, Check, Act as it applies to system safety beyond required assessment includes:

- Plan: Establishing the objectives and processes necessary to deliver results in accordance with the organization's policies and the expected goals. By establishing output expectations, the completeness and accuracy of the process is also a part of the targeted improvement. The combination of processes implemented to inform, direct, manage, and monitor the activities of the organization toward the achievement of its objectives is referred to as Governance that will 1) coordinate the activities and communication of information within the organization, and 2) ensure effective organizational performance management and accountability
- Do: Execution of the plan designed in the previous step.
- Check: Review of the results compared with established objectives. Comparing those results to the expected goals to ascertain any differences; looking for deviation in implementation from the plan may be referred to as control. Control is an objective examination of evidence for the purpose of providing an independent assessment on integrity management and risk management for the organization.

- Act: Continuously improve process performance, including corrective actions on significant differences between actual and planned results.



There are many different words with similar meaning, so to avoid confusion, the continuous improvement cycle may look like this:

- Plan, procedure, policy, governance // which dictates the
 - Do, execute, perform, implement // which provides the information necessary to
 - Check, trend, measure, analyze, investigate // that suggests, indicates, warrants
 - Act, adjust, corrective action, improvement, create, modify, train, communicate, re-equip, data management // which closes the loop by requiring updates to the plan, procedure, policy, governance

1.7. PIPELINE SAFETY MANAGEMENT SYSTEM (PSMS)

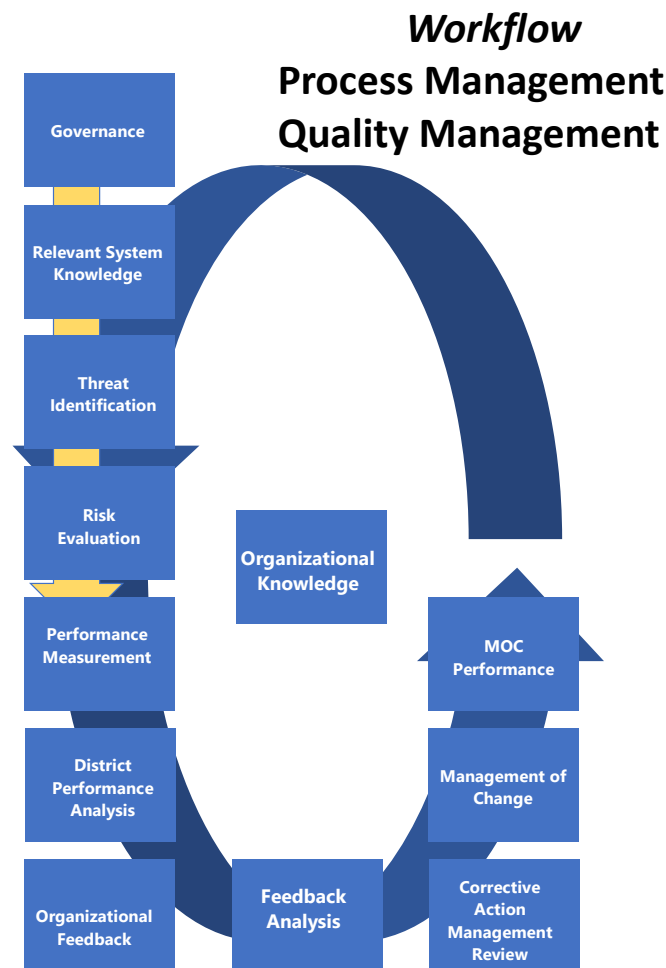
The PSMS was developed by API (API 1173) with the expectation that it would apply to the pipeline life cycle; conception, design, procurement, construction, commissioning, operations, maintenance, integrity and abandonment. The formal PSMS is predicated on the application of the methodology to each of these areas as stated in the discussion below. For the purposes of this integrity program, the focus will be on analysis of operations and maintenance, data and execution per policy.

The following principles comprise the basis of the API 1173 safety management system recommended practice and by which, conformance will be achieved through this approach:

- Commitment, leadership, and oversight from top management are vital to the overall success of a PSMS. – the CenterPoint Energy DIMP has commitment from top management to support the approach and the use of the ICAM process management platform to benefit from the use of quality management principles for transmission pipeline asset integrity management.

- Stakeholder engagement provides for the input from the various personnel associated with the operations and maintenance of the system. Organizational feedback from these parties supports improved understanding of areas that might contribute to risk.
- A safety-oriented culture is essential to enable the effective implementation and continuous improvement of safety management system processes and procedures. – the CenterPoint Energy DIMP has implemented the ICAM process management platform to manage, schedule, track, document, and report the execution of the processes detailed in this plan. Additionally, the documentation of who, what, when, where and why, or why not, will provide the leading performance metrics to be used to determine effectiveness of the various associated programs.
- Risk management is an integral part of the design, construction, operation and maintenance of a pipeline. The CenterPoint Energy DIMP will implement risk management with processes configured to address the following, utilizing the quality management principles of Plan, Do, Check, Act:
 - Policy Management
 - Policy Execution
 - Data / Information Management
 - Documentation / Records Management
 - Data / Information Analysis
 - Incorporation of “Lessons Learned”
 - Effectiveness Measurement
 - Implementation of corrective action
- Pipelines are designed, constructed, operated, and maintained in a manner that complies with Federal, state, and local regulations. – The CenterPoint Energy DIMP will integrate the requirements of several code sections. This integration results in a performance based, continuous evaluation, of the effectiveness of the PAAR.
- Pipeline operators conform to applicable industry codes and consensus plans with the goal of reducing risk, preventing releases, and minimizing the occurrence of abnormal operations. -- The CenterPoint Energy DIMP will integrate the collection and analysis of meaningful performance metrics to gauge the effectiveness of program execution and corrective actions.
- Defined operational controls are essential to the safe design, construction, operation and maintenance of pipelines. – As applied to this plan, the primary operational component involves the collaboration between integrity, policy management and operational execution personnel as they relate to those programs designed to “Identify, Prevent & Mitigate” threats.
- Prompt and effective incident response minimizes the adverse impacts to life, property and the environment. – For the purposes of this plan, incident response is not included. However, the findings of any incident response will be considered in the determination of threats to the system. A risk-based prioritization of investigation into these threats will be implemented to determine where improvement may be required in either policy, policy execution or the modification of the current threat specific PAAR designed to identify, prevent or mitigate threats.

- The creation of a learning environment for continuous improvement is achieved by collection and analysis of organizational feedback at the field level, driven by risk and/or performance evaluation.
- Periodic evaluation of risk management effectiveness and pipeline safety performance improvement, including audits, are essential to assure effective PSMS performance. – The CenterPoint Energy DIMP is predicated on a continuous improvement cycle.



- Pipeline operating personnel throughout the organization must effectively communicate and collaborate with one another. Further, communicating with contractors to share information that supports decision making and completing planned tasks (processes and procedures) is essential.
- Managing changes that can affect pipeline safety is essential. -- Additionally, stakeholder engagement will be continued through the communication of any corrective action process as required. These communications will be documented in ICAM as part of the management of change process. This includes notification of performance measures associated with the understanding of

changes to policy, modification of programs and/or the creation of new programs to address specific conditions effecting safety.

1.8. REGULATORY REQUIREMENTS

Pursuant to the code of federal regulations 49 CFR §§192 Subpart P, gas distribution pipeline operators are required to implement a performance based approach to managing the integrity of their systems. DIMP begins with system knowledge and continues with requirements similar to transmission integrity, including threat identification, risk evaluation and performance measurement. Where the regulations for transmission and distribution begin to diverge, is in the gap between these elements and the requirement to make improvements and/or to determine additional measures beyond those already required by code. It is incumbent upon the DIM department to bridge the gap with the following:

- Develop a process for identifying additional measures to address identified threats to each pipeline segment, prioritized by their associated risk.
- Have a systematic, documented decision-making process in place to decide which measures are to be implemented, involving input from relevant parts of the organization.
- Demonstrate that they have identified and implemented (or scheduled) additional measures to identify threats, support the prevention of pipeline failure and to mitigate the consequences of a pipeline failure, should it happen.

The CenterPoint Energy Distribution Integrity Management approach fundamentally revolves around the code required and internally developed PAAR that are currently in place and how they, in an aggregated manner, manage the threats and the associated consequences (risk) that have been identified as having the potential to threat incidents or hazardous leaks. This approach is depicted by the following graphic:



DIMP is focused on identifying conditions that can result in hazardous leaks or other unintended releases of gas and taking the appropriate actions to minimize the likelihood of the occurrence of a hazardous condition and the consequence should a failure occur. Periodic evaluation and improvement opportunities are incorporated throughout the plan sections that are executed on an annual basis.

CenterPoint Energy O&M written procedures describe how to conduct operations and maintenance activities on the systems in accordance with Federal and State pipeline safety regulations. These activities address the threats that affect a pipeline's integrity.

1.9. SAFETY

The goal of integrity management is to reduce risk in support of a safer system. The CenterPoint Energy DIMP objective is to identify those assets, environments or areas of potential organizational failure that may contribute to increased risk and to take corrective actions in a prioritized manner.

2. CENTERPOINT ENERGY OVERVIEW

CenterPoint Energy is a natural gas local distribution utility headquartered in Evansville, IN, with operations in Arkansas, Louisiana, Minnesota, Mississippi, Oklahoma, Texas, Indiana, and Ohio. The Company and its acquisitions have been collecting and aggregating data for over 40 years pursuant to Part 192 requirements. CenterPoint Energy is governed under this single DIM Plan, supported by related Gas Standards and other published documentation prepared to support both operations and compliance with the requirements of 49 CFR 192. The changes to the Distribution Integrity Management Program will be made as required following the scheduled evaluation of its effectiveness and documented accordingly.

CenterPoint Energy is committed to operating its pipelines and associated facilities in a safe and reliable manner to protect the public, employees, customers, and the environment. This written Distribution Integrity Management Plan applies to gas distribution pipelines operated by CenterPoint Energy in the State(s) of Arkansas, Indiana, Louisiana, Minnesota, Mississippi, Ohio, Oklahoma, and Texas. Gas distribution pipelines include the associated mains, services, service regulators, customer meters, valves, and other appurtenance attached to the pipe, metering stations, regulator stations, delivery stations, propane air facilities (Minnesota), holders, and fabricated assemblies. This plan does not cover:

- Gathering lines – pipelines and associated facilities that transport gas from a current production facility to a transmission line or main.
- Transmission lines – pipelines and associated facilities, other than a gathering line, that: (1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not downstream from a distribution center; (2) operates at a hoop stress of 20 percent or more of the specified minimum yield strength; or (3) transports gas within a storage field.
- LNG Facilities – plant and associated facilities.
- Storage Facilities – natural gas underground storage facilities

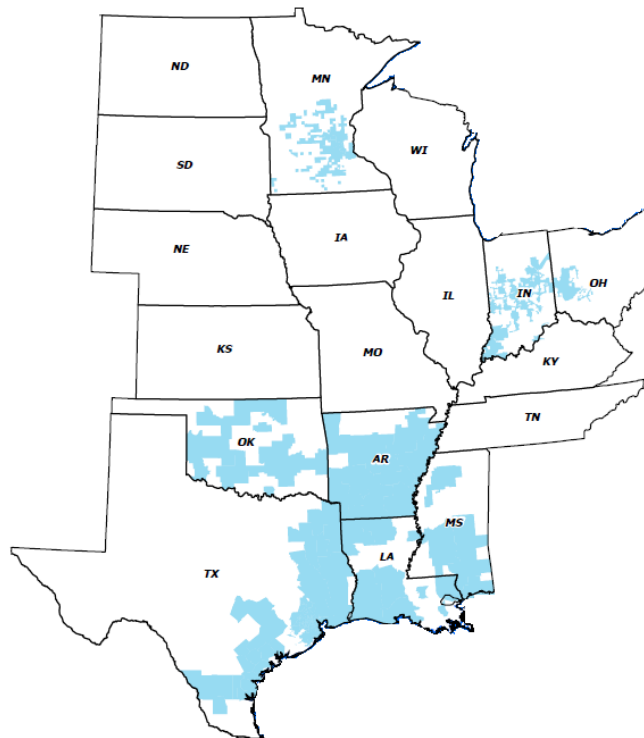
3. CENTERPOINT ENERGY OPERATIONS

A graphic overview of CenterPoint Energy's operating footprint is provided in Figure 3, while Table 3 shows Operating Areas and Districts. District level data analysis will be utilized to evaluate the relevance of threats and their impact on increased risk. A district is defined as an established geographical operational region within the CenterPoint Energy footprint. This subdivision is used in some areas because district divisions will be reflective of different historical operating companies throughout CenterPoint Energy's history.

Table 3: DIMP Regions and Districts

State	Districts
Texas	North, South-East, South-East Houston, North-West Houston, Texas Coast, South
Mississippi	Mississippi
Oklahoma	Oklahoma
Arkansas	North, Central, and South
Louisiana	North, South
Minnesota	North, Central, and South
Indiana	North and South
Ohio	Ohio

Figure 3: CenterPoint Energy Distribution Area



 Natural Gas Distribution

4. ROLES & RESPONSIBILITIES

This section describes the roles and responsibilities of CenterPoint Energy personnel with primary accountability for the ongoing management of its DIMP. The DIMP incorporates all personnel at all levels who are required to engage pipeline operations, maintenance, integrity or management considering the company objective is to manage safe gas distribution assets. Therefore, proper execution of each employee's responsibility is crucial to the success of the program.

The following personnel have direct responsibility for the DIMP oversight:

Vice-President of System Integrity & Operational Support:

The Vice President of Gas Engineering and System Integrity, is responsible for the implementation of, management of, and compliance with the Company's program.

Additional personnel roles are described in Table 4:

Table 4 – CenterPoint Energy Personnel Roles Matrix

Title	Role
System Integrity & Reliability Director, Distribution Integrity Manager	Overall Program Management and Implementation
	Program Technical Accuracy
Regional Operation Director, Regional Engineering Director	Coordinate Program Implementation
	Assign Specific Tasks for Program Implementation in Field
System Integrity & Reliability Department, Distribution Integrity Engineer	Conduct Assigned Program Tasks Throughout Company (ICAM)
Work Order Management, GIS Department	Maintain Company's Databases and Data Assets

Roles and Responsibilities

The Distribution Integrity Management Program implementation is managed, scheduled, tracked, documented, communicated and reported in the ICAM/D platform. Each process within ICAM/D requires a responsible party.

5. DEFINITIONS

The definitions provided in 49 CFR, §192.3, §191.3, and §192.1001 apply to this IM Plan

Tier 1 Facility means Mains, Services, Above Ground Facilities.

Tier 2 Facility means Components such as meters, risers, pipe.

Performance Metric means those data sets utilized to determine effectiveness (trends / points).

Performance Measure means the actual values of the performance metrics.

Risk means Probability of an incident X Consequence of that incident (not failure).

Threat means definitions in PHMSA Form 7100 and incorporated by reference as part of this plan.

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, lateral support, cathodic protection or the housing for the line, device, or facility.

Hazardous Leak means a leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous.

Integrity Management Plan or IM Plan means a written explanation of the mechanisms or procedures the operator will use to implement its integrity management program and to ensure compliance with this subpart.

Integrity Management Program or IM Program means an overall approach by an operator to ensure the integrity of its gas distribution system.

Mechanical Fitting means a mechanical device used to connect sections of pipe. The term "Mechanical Fitting" applies only to:

- (1) Stab Type fittings;
- (2) Nut Follower Type fittings;
- (3) Bolted Type fittings; or
- (4) Other Compression Type fittings.

Program and Activities to Address Risk (PAAR) means any risk mitigating measure to address risks that are significant to the pipeline system. Both Programs and Activities have a measurable performance metric associated with them.

Subject Matter Experts (SMEs) are identified by the Regional Engineering and Operations Directors and are defined as persons knowledgeable about design, construction, operations, maintenance activities, or other characterizes of a pipeline system. Designation as an SME does not necessarily require specialized education or advances qualifications. Some SMEs may possess such expertise, but detailed knowledge of the pipeline system gained by working with it over time can also make someone an SME. SMEs may be employees, consultants, contractors, or any suitable combination of these. SMEs will be documented during annual Distribution Integrity meetings.

Best Practices are methods and techniques that have consistently shown results superior to those achieved by other means which are used as benchmarks to strive for continuous improvement. These can be derived from different resources including industry groups and CenterPoint Energy policies.

Consequence means factors, in terms of risk analysis, that are assigned a numeric value to represent the severity of the outcome of a failure in the case of an integrity breach involving a facility group.

Geographical Information System means a geospatial database system that allows for management, storing, presentation, and analysis of data based on the location.

Operations and Maintenance Plan (O&M Plan) means a set of in-house written procedures, which may be updated from time to time, used to ensure persons safely and uniformly perform operations and maintenance activities on CenterPoint Energy's gas assets.

6. INTEGRITY MANAGEMENT

Pursuant to 49 CFR §192.1007, the required elements of an integrity management plan must contain procedures for developing and implementing seven elements. The sequencing of these has been adjusted to more accurately reflect the workflow associated with the execution of this integrity program. Some elements have been renamed while additional elements have been added including District Performance Analysis, Investigation / Organizational Feedback and Management of Change. Table 6 shows how the elements in 192.1007 are addressed through the various sections in this plan.

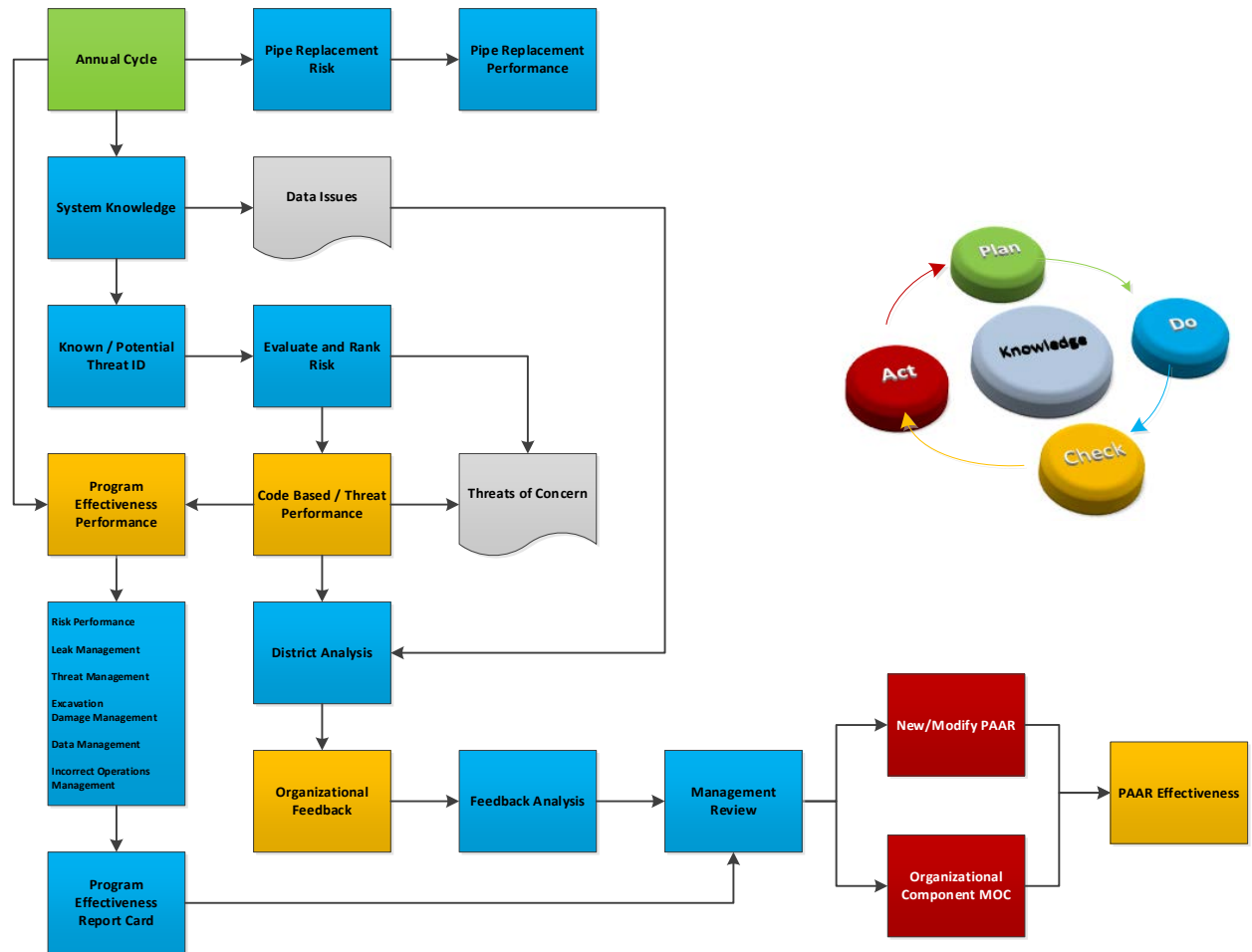
Table 6 – Elements Addressed

49 CFR 192.1007	<i>CenterPoint Energy Distribution Integrity Program</i>
Knowledge	System Knowledge
Identify Threats	Threat Identification
Evaluate and Rank Risk	Risk Evaluation
Measure Performance, Monitor Results, Evaluate Effectiveness	Performance, District Performance Analysis, Investigation / Organizational Feedback Collection and Analysis
Periodic Evaluation and Improvement	Management of Change, Periodic Evaluation
Identify and Implement Measures to Address Risk	Program and Activities to Address Risk
Report Results	Regulatory Reporting

6.1. WORKFLOW

PHMSA revised § 192.1007 to eliminate the proposed requirement that operator procedures describe “the processes” for developing and implementing its IM program. The section now requires that operators have procedures “for developing and implementing the required elements.” CenterPoint Energy has adopted Process Management as the foundation of its integrity management program in support of applying quality management principles to meet the objectives of a safety management system and to document compliance with the regulations (as show in the diagram below).

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6.2. RECORDKEEPING

In the NPRM, the section regarding record retention (NPRM § 192.1015; Final Rule § 192.1011) required the following records: A written IM program; documents supporting threat identification; a written procedure for ranking the threats; documents to support any decision, analysis, or process developed and used to implement and evaluate each element of the IM program; records identifying changes made to the IM program, or its elements, including a description of the change and the reason it was made; and records on performance measures. PHMSA has removed this list of documents and simplified the language of the regulation to require operators to maintain documentation demonstrating compliance.

CenterPoint Energy has determined that the proposed recordkeeping requirements would provide greater benefit to the integrity management program; therefore, Records will be retained for a minimum of 10 years after their creation. The processes associated with system knowledge require decisions, documentation, and when necessary, the communication of results to appropriate personnel.

A Quality Management Approach to Integrity Management

The quality of the DIMP execution is supported by the ICAM process management platform, specifically designed to schedule, track, document, communicate and report the activities associated with each element. These processes capture adequate detail to clearly describe the way each requirement was met. The closed processes also provide a description of who, what, when, where, and how CenterPoint Energy has executed the elements.

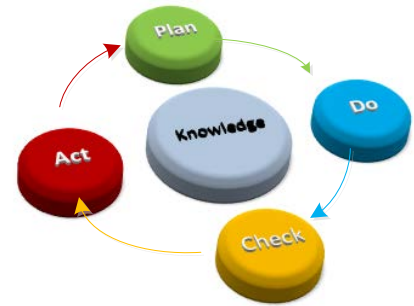
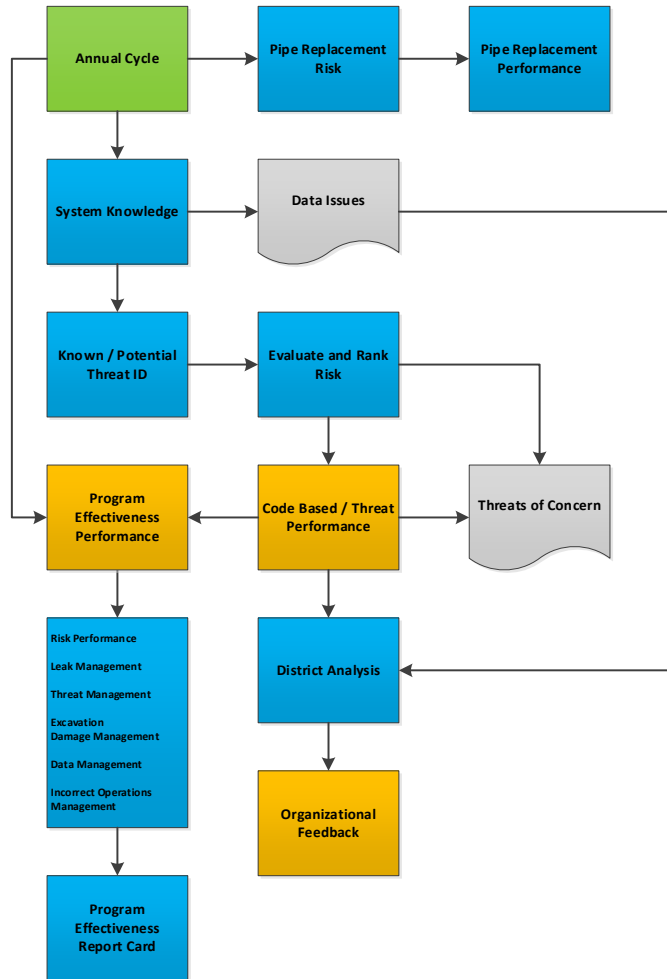
The quality management methodology of Plan, Do, Check, Act as it applies to system safety in distribution integrity is primarily focused on the "Check" and "Act" aspects... The elements of System Knowledge, Threat Identification, Risk Evaluation, Performance and District Analysis are all checks managed through process to put CenterPoint Energy in a position to know what, when and where to initiate Investigation / collection of organizational feedback to support corrective actions.

CHECK

The elements of System Knowledge, Threat Identification, Risk Evaluation, Performance and District Analysis are all checks managed through process to put CenterPoint Energy in a position to know what, when and where to initiate Investigation / collection of organizational feedback to support corrective actions (Act).

ACT

To integrate investigation results to support the determination of where corrective actions may be required. These corrective actions may be organizational and/or PAAR specific, with each being implemented through the MOC processes.



7. SYSTEM KNOWLEDGE

7.1. REGULATORY

7.1.1. CODE 49 CFR 192.1007 (A)

An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.

1. Identify the characteristics of the pipeline's design and operations and the environmental factors that are necessary to assess the applicable threats and risks to its gas distribution pipeline.
2. Consider the information gained from past design, operations, and maintenance.
3. Identify additional information needed and provide a plan for gaining that information over time through normal activities conducted on the pipeline (for example, design, construction, operations or maintenance activities).
4. Develop and implement a process by which the IM program will be reviewed periodically and refined and improved as needed.
5. Provide for the capture and retention of data on any new pipeline installed. The data must include, at a minimum, the location where the new pipeline is installed and the material of which it is constructed.

7.1.2. PHMSA INTERPRETATION

This section requires an operator to develop an understanding of its distribution pipeline. An operator must identify the characteristics of its pipeline's design and operations, and of the environment in which it operates, which are necessary to assess applicable threats and risks. This must include considering information gained from past design, operations, and maintenance by developing an understanding from reasonably available information. The rule does not require operators to retrieve many years of archived records or to conduct additional investigations (e.g., excavation) to discover information about the pipeline. Operators have considerable knowledge of their pipeline to support routine operations and maintenance, but this information may be distributed throughout the company, in possession of groups responsible for individual functions. Operators must assemble this information to the extent necessary to support development and implementation of their IM program.

PHMSA recognizes that there may be gaps in the knowledge an operator has when it develops its initial IM plan. Operators are required to provide a plan for gaining that information over time through its normal activities of operating and maintaining their pipeline (e.g., collecting information about buried components when portions of the pipeline must be excavated for other reasons). Operators must also develop a process by which the program will be periodically reviewed and refined, as needed.

7.2. OVERVIEW

A comprehensive "knowledge of the distribution system" is of fundamental importance to the success of CenterPoint Energy's Integrity Management plan. Knowledge means an understanding of specific system attributes such as design, materials and construction methods, pipeline condition, past and present operations and maintenance, local environmental factors, and failure data (e.g. leaks). CenterPoint Energy have been collecting and aggregating data for over 60 years as a part of normal operations and for 40 years pursuant to Part 192 requirements.

Currently, the level of system knowledge meets or exceeds that required to support the performance-based management approach adopted by CenterPoint Energy. Formal descriptions of programs (e.g. Leak Management) that require collection of system data are contained in their associated Gas Standards and field data collection tools. The annual collection of these data sets ensures that CenterPoint Energy System Knowledge is kept current.

System Knowledge in the broadest sense of the term refers to all the information known about the various components that make up the distribution system. A comprehensive "knowledge of the distribution system" is of fundamental importance to the success of CenterPoint Energy's DIMP.

The system knowledge managed by CenterPoint Energy required to execute the integrity management program as outlined in this plan is focused on those characteristics which are needed to identify known and potential threats, evaluate risks to the system, to identify risk reduction measures and to measure performance.

This knowledge set not only refers to assets and environment, it also refers to the data generated or collected through the execution of CenterPoint Energy developed or code required PAAR. CenterPoint Energy has been collecting these data sets for many years; however, prior to the DIMP regulation much of this data has not been utilized to its maximum potential.

Considering the limited use of these data sets it is incumbent upon CenterPoint Energy to 1) identify those various data sets, 2) make the determination as to the what the value/benefit of the data sets is in support of analytics and risk management, 3) perform a quality review of the data sets to determine the degree to which they are missing, inaccurate, incomplete or are simply not being managed properly and 4) to analyze these data sets to drive corrective action as necessary in support of continuous improvement as the integrity management program matures.

CenterPoint Energy established the Permanent Records Integrity Management Excellence (PRIME) committee in 2012, with subsequent executive approval in 2013 to move forward with project support and resources to review all construction related legacy orders to ensure that the records support the integrity and compliance of our gas operating system. The PRIME team was tasked with reviewing all records and ensuring that all related data was validated and verified to be utilized in accordance with regulatory and company mandated rules. The PRIME team collected, reviewed, scanned, and updated/posted, when appropriate in GIS, attributes for distribution mains and services across the CenterPoint footprint. As PRIME finishes review of all records, a new project charter and program will be put into place to address the data gaps still present, or not completed from the PRIME project to capture the additional pipe attributes. The PRIME team reviewed records for all states, excluding Indiana and Ohio. For those two states, refer to completed accelerated actions on records and system integrity.

As data for PAAR (O&M Activity / Program Activity / Program) begins to be collected in a location and form that supports analysis (data maturity), the data will be managed as part of the system knowledge element of CenterPoint Energy program. These data sets will be collected, quality reviewed, uploaded and posted to the various dashboards designed to support the analytics associated with performance. The quality review of data sets includes checking against missing, inaccurate, comparison to past year, or

incomplete records and other various comparisons. This activity is reviewed and tracked in ICAM during the annual cycle in order to help address data gaps, which change across cycle years.

Electronic data in existing repositories is not the only component of system knowledge. Other information that may be paper-based and/or located at various locations may be accessed as required as part of the DIMP. CenterPoint Energy will also leverage opportunities as they arise to improve data collection whenever the pipeline is excavated for operation, maintenance, or other reasons, to better understand the pipeline system. External sources of information, such as gas industry and relevant technical/scientific literature, special studies and topical reports will be acquired and utilized when appropriate.

A vast amount of system knowledge exists in the collective skill and experience of CenterPoint Energy's field personnel. They include operations, maintenance, and engineering personnel – the people who construct, inspect, maintain and oversee distribution facilities on a day-to-day basis. They may also include contractor personnel that have long-term experience with the construction or operation and maintenance of CenterPoint Energy's system or have worked on projects with unique and/or special circumstances. These field personnel have specific knowledge of topics and/or assets that will be collected as organizational feedback, where appropriate, to better understand threats and areas where any organizational issues effecting program and activity execution may exist (see Investigation).

Records associated with Field Personnel Knowledge are reviewed at a local level and mitigated through various activities. The conditions experienced and recorded through the corresponding processes are discussed during the Field Investigation portion of the plan execution. Threats (Sub or Potential) discovered through actual experience will be incorporated for analysis in the next scheduled annual implementation of the Distribution Integrity Management Program.

The primary system knowledge utilized for the identification of threats and the evaluation of risk is the leak repair data. System attributes, environmental factors and other system specific knowledge, such as design, materials and construction methods, past and present operations, abnormal operating conditions, corrosion control records, safety-related conditions, inoperable valves, severe natural force (earthquake, flooding), any data associated with PAAR performance and maintenance history may be utilized as part of analysis.

To identify existing and potential threats CenterPoint Energy utilizes the data gathered for system knowledge as outlined in §192.1007(b), including, but not limited to:

- *Incident*
- *Leak history*
- *Excavation Damage and One Call Information*
- *Mechanical Fitting Failure Data*
- *Material Failure Analysis Data*
- *Operating Pressure and Gas Quality*
- *Control Room data*
- *Uptime Environmental Polygons (AR, LA, MN, MS, OK, TX)*
- *CenterPoint Energy GIS Polygons*
- *SME Knowledge of:*
 - *Corrosion Control Records*

- *Continuing surveillance records*
- *Patrolling records*
- *Operation and Maintenance history*
- *As well as the preceding data sources*

In some instances, CenterPoint Energy may involve subject matter experts beyond its employees. This may include contractor personnel that have performed construction or operation and maintenance activities for a long period of time or for unique and/or special circumstances.

7.2.1. NEW CONSTRUCTION

The DIMP regulation prescribes two minimum data elements that must be captured and retained on any new distribution pipelines: the location where the new pipeline is installed and the material of which it is constructed. Pipeline, defined in §192.3, means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Additional data must also be collected to assess current and future threats and risks to the new pipeline's integrity. This includes information about the characteristics of the pipeline's design, operations, and the environmental factors where the pipeline is installed. In addition, an operator must also consider the data it needs to comply with the various record keeping requirements in Part 192 such as those for pipeline design, testing, construction, corrosion control, customer notification, uprating, surveying, patrolling, monitoring, inspection, operation, maintenance, emergencies, and operator qualification.

7.2.2 SYSTEM ACQUISITIONS

In the event of a system acquisition, all public DOT reported data and other available data sources will be analyzed and processed through the same analysis tools outlined in this manual for the current or subsequent annual cycle.

7.3. METHODOLOGY

CenterPoint Energy's system knowledge results from the data collected through the activities currently being implemented along with the collective knowledge and experience of its people. These activities include those required by 49 CFR 192, as well as those specifically developed to address known threats to the distribution system.

The Company has devoted significant effort in developing as thorough an understanding of the pipelines as reasonably possible. The data required for pipeline facilities is stored in combination within the centralized GIS mapping system, work management system SAP or Maximo and the FileNet or OnBase systems. FileNet and Onbase are web-based sites that electronically store the documents associated with construction activities. As mentioned, some data is stored electronically, and some is paper based.

Additionally, records are stored both on-site and stored off-site, in such places as at regional offices or long-term storage facilities. CenterPoint Energy review records that are critical for the integrity management approach and relevant to the current condition of the pipe or that may have a significant impact on the integrity of the pipe. The company has implemented processes to identify and collect

additional information that is needed to fill gaps due to missing, inaccurate, or incomplete records. This information may be collected through normal activities including those that go beyond the activities specified in Part 192, e.g. O&M activities and Construction activities. In addition to process incorporated into the Process Management, CenterPoint Energy continually improves the mapping system through Map Correction and Found Pipe processes.

Input from subject matter experts, where appropriate, is used to supplement knowledge or to support decisions. These are people who have specific knowledge of topics and/or facilities under consideration. This includes the operator's operations, maintenance and engineering personnel – the people who construct, inspect, maintain and oversee its distribution facilities day-to-day.

The current level of system knowledge is sufficient to support CenterPoint Energy's Performance Based Distribution Integrity Management Program. This program includes the mechanism to continuously improve the information gathered in order to develop a better understanding of the pipeline systems. The data currently resides in different locations and is the responsibility of different groups within the company, with the majority of the data residing in the SAP or Maximo system and the GIS system.

CenterPoint Energy has incorporated an option to modify procedures as necessary to gather additional information when opportunities arise, such as the pipeline being excavated for operation, maintenance, or other reasons, to collect additional information needed to better understand their pipeline system. The data collection mechanisms are reviewed periodically to identify possible improvements and to accommodate any changes necessary to support procedure modifications.

When analysis and threat assessment indicate that additional infrastructure information may be useful or necessary, CenterPoint Energy will determine, at the time, the specific data needed. Such determination may be triggered by:

- 1) The desire to perform a more focused threat and risk analysis.
- 2) Indication that more information is required to evaluate future potential threats; or
- 3) Any other currently unforeseen reasons.

This information may or may not prompt a reevaluation of the plan, but at a minimum, is considered for analysis during the next annual evaluation. As an example, through data collection we may be able to further delineate the drivers for what has been categorized as "Other" in the past. CenterPoint Energy considers the information necessary to comply with various recordkeeping requirements in Part 192, to include but not limited to, those listed below.

- Procedures/Policies/Standards
 - Gas Standard History / changes in policies
- Operations and Maintenance
 - Corrosion control
 - Leak repair data
 - Mains and services
 - Main components
 - Service components
 - Mechanical Fittings
 - Other Facilities

- Inspections
- Pipeline Design
 - Facility Materials
 - Coating types
 - CP types, Isolation methods
 - Joining technologies
 - Riser Types
 - Environmental factors
 - Pressure Charts/Testing Data

7.3.1. DATA MANAGEMENT

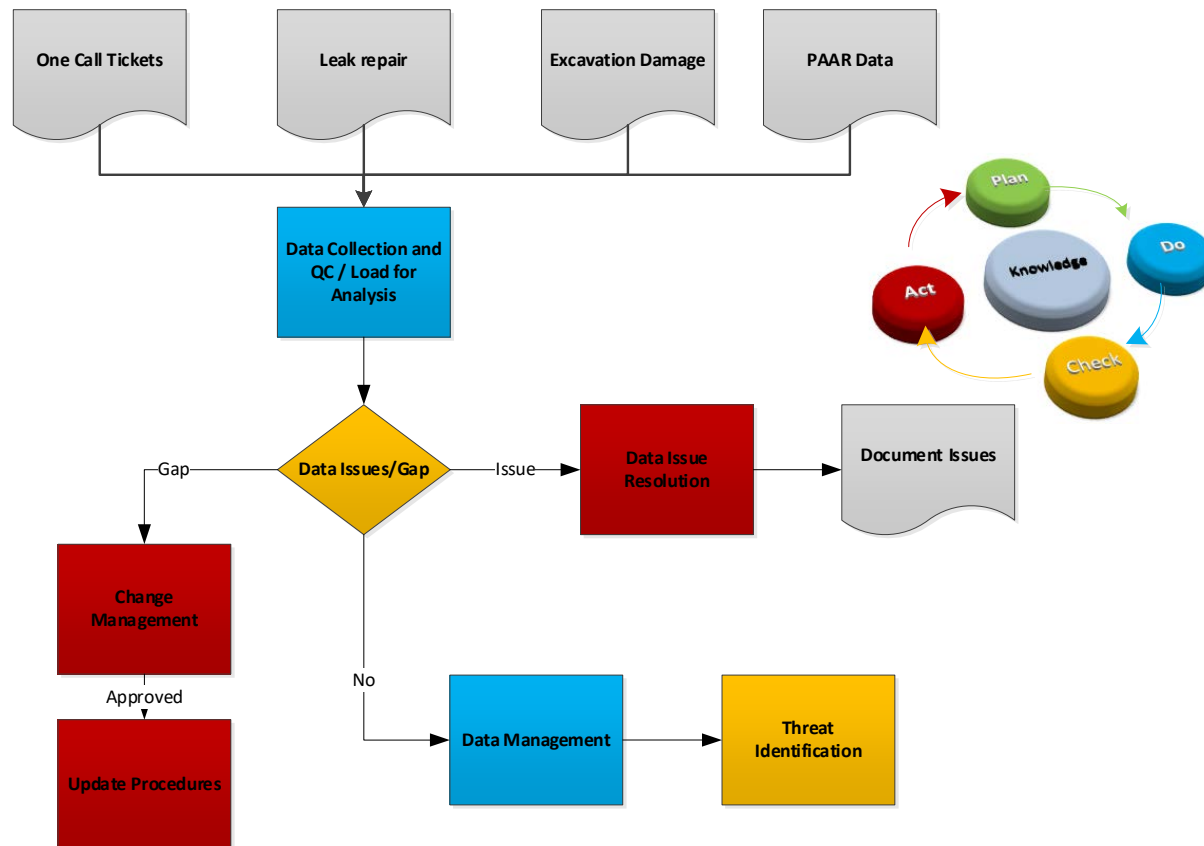
Data is managed through established procedures and Company systems for each of the field activities conducted (e.g. leakage survey, leak repair, pipeline locate and mark, new construction). The performance data associated with each facility type are currently being managed in various databases / formats with detail provided in the Distribution Integrity Management Plan. The SAP or Maximo system is used to schedule and record results of all leak repairs and to schedule all 49 CFR Part 192 required maintenance activities. New gas service information and the attributes associated with these services, including but not limited to location, size, material, diameter and EFV installed are also managed.

The data utilized in the distribution integrity program reside in the following databases / applications:

Information Type	Location	Responsible Group
Leak Data	SAP/Maximo	Business Process Organization (BPO)
Third Party Damage Data	Risk Master & SAP OR	Damage Prevention Group & BPO
Compliance Inspection & Activities	SAP/Maximo & Adhoc Databases	Operations & Compliance Group
Facility & Environmental Data	GIS	GIS Department & Operations
Material Failure Analysis Data	SharePoint & Adhoc Databases	Materials Group
Mechanical Fitting Failure Data	Adhoc Database	Operations & Compliance

These data sources are used to help manage and reduce system risk. This is accomplished by understanding the purpose of the various data sets and where they fit within the DIMP processes. A primary example is utilizing the Leak data to drive the known threat and sub-threat identification, risk evaluation and the performance metrics; while evaluating the Third-Party Damage during investigation to try to focus mitigation efforts if necessary. The ICAM/D platform has been established to manage the plan implementation, and to store/access this integrated data to utilize system knowledge for the Distribution Integrity Management Program. The processes are managed, scheduled, tracked, documented, communicated and reported in the ICAM/D platform. Completed process reports will serve as the documented evidence that the particular aspect of the integrity management program was implemented.

7.4. SYSTEM KNOWLEDGE WORKFLOW



7.5. RECORDKEEPING

7.5.1. DECISIONS

- 1) Data quality
- 2) Distribution Integrity Management Plan change or improvement
- 3) Determination of data gaps due to missing, inaccurate, or incomplete information

7.5.2. DOCUMENTATION

- 1) Data sources
- 2) Data issues
- 3) New data information

7.5.3. COMMUNICATIONS

- 1) Data collection issues through investigation / organizational Feedback
- 2) Data prepared in support of Threat Identification
- 3) Periodic DIMP awareness training and newsletters to inform engineering, management, and field personnel of critical information

8. THREAT IDENTIFICATION

8.1. REGULATORY

8.1.1. CODE 49 CFR 192.1007 (B)

The operator must consider the following categories of threats to each gas distribution pipeline: corrosion, natural forces, excavation damage, other outside force damage, material or welds, equipment failure, incorrect operations, and other concerns that could threaten the integrity of its pipeline. An operator must consider reasonably available information to identify existing and potential threats. Sources of data may include, but are not limited to, incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience.

8.1.2. PHMSA INTERPRETATION

Identification of the threats that affect, or could potentially affect, a distribution pipeline is key to assuring its integrity. Knowledge of applicable threats allows operators to evaluate the risks they pose and to rank those risks, allowing safety resources to be applied where they will be most effective.

This section requires that operators consider the general categories of threats that must now be reported on annual reports. Reporting has been required for many years, meaning that data are available regarding these threat categories. Operators are required to consider reasonably available information to identify threats that affect their pipeline or that could potentially affect it.

8.2. OVERVIEW

The AGA Foundation study which was the precursor to the GPTC Guidance and 49 CFR 192 Subpart P, listed "Improved Leak Management" as one of the "TOP" two corrective actions necessary to improve the safety of the distribution systems, regardless of the threat. Therefore, the primary driver for the need to identify threats in DIMP is to determine where they are not being effectively managed and to identify potential organizational issues associated with the execution and effectiveness of the PAAR that are designed to identify, prevent or mitigate them.

CenterPoint Energy have developed a Threat Identification framework from the PHMSA terms defined in the Annual and Incident Report forms and form instructions. From these documents the Company derived sub-categories of causes for each of the 8 primary categories ultimately resulting in second and in some cases, third tier categories for each. In addition, through this effort the Company recognized various types of facilities on which these causes may affect, resulting in the decision to analyze threats in combination with the type of facility potentially affected. Through the approach of defining cause and facility in a tiered structure, the tiers can then be collapsed to the higher level or expanded to the lower level as needed depending on the availability of the data and objective of the analysis. The implementation of the CenterPoint Energy Distribution Integrity Management Program utilizes the current data available and requires the collection of additional data as necessary with subsequent annual implementations.

In defining threats, the tier 1 facilities include mains, services, and above ground facilities, some examples of above ground facilities, which are above the natural ground soil, include the riser, meter loop, regulator station, farm taps, etc...Vaults are also considered above ground since they do not fall into a buried asset group. The materials include Bare Steel, Coated Steel, Cast Iron, Various Polyethylene, PVC and Copper. The causes associated with class 1, 2 and class 3 leaks provides valuable information. This information is

used in conjunction with hazardous leak information for threat identification. The following activities can serve as sources of information utilized in the identification of threats to the system:

- Incident
- Leak history
- Excavation damage experience
- Mechanical Fitting Failures Data
- Material Failure Data
- Field Personnel Knowledge of:
 - Corrosion Control Records
 - Continuing surveillance records
 - Patrolling records
 - Operations and Maintenance history
 - As well as the preceding data sources

Records associated with Field Personnel Knowledge are reviewed at a local level and mitigated through various activities. The conditions experienced and recorded through the corresponding processes are discussed during the Field Verification portion of the plan execution. Threats (Sub or Potential) discovered through actual experience will be incorporated for analysis in the next scheduled annual implementation of the Distribution Integrity Management Program.

Potential threats by definition are those where CenterPoint Energy has not necessarily experienced a leak but recognizes that conditions conducive to the threat exist on the system, as determined by review of external sources of information, such as gas industry and relevant technical/scientific literature, regulatory notifications, special studies and topical reports or information collected through investigation / organizational feedback.

CenterPoint Energy considers all threats as defined in PHMSA form F7100.1-1 as system wide. These threats include excavation damage, other outside force damage, corrosion, pipe, weld and joint failure, equipment failure, natural force damage and other. Threats are further defined as follows:

Excavation Damage

Leaks resulting directly from excavation damage by operator's personnel (oftentimes referred to as "first party" excavation damage) or by the operator's contractor (oftentimes referred to as "second party" excavation damage) or by people or contractors not associated with the operator (oftentimes referred to as "third party" excavation damage). Also, this section includes a release or failure determined to have resulted from previous damage due to excavation activity. For damage from outside forces OTHER than excavation which results in a release, use Natural Force Damage or Other Outside Force, as appropriate.

Other Outside Force Damage

Leak resulting from outside force damage, other than excavation damage or natural forces such as:

- Nearby Industrial, Man-made or Other Fire/Explosion as Primary Cause of Incident (unless the fire was caused by natural forces, in which case the leak should be classified Natural Forces. Forest fires that are caused by human activity and result in a release should be reported as Other Outside Force),
- Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation. Other motorized vehicles/equipment includes tractors, mowers, backhoes, bulldozers and other

tracked vehicles, and heavy equipment that can move. Leaks resulting from vehicular traffic loading or other contact (except report as "Excavation Damage" if the activity involved digging, drilling, boring, grading, cultivation or similar activities).

- Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels so long as those activities are not excavation activities. If those activities are excavation activities such as dredging or bank stabilization or renewal, the leak repair should be reported as "Excavation Damage".
- Previous Mechanical Damage NOT Related to Excavation. A leak caused by damage that occurred at some time prior to the release that was apparently NOT related to excavation activities, and would include prior outside force damage of an unknown nature, prior natural force damage, prior damage from other outside forces, and any other previous mechanical damage other than that which was apparently related to prior excavation. Leaks resulting from previous damage sustained during construction, installation, or fabrication of the pipe, weld, or joint from which the release eventually occurred are to be reported under "Pipe, Weld, or Joint Failure". Leaks resulting from previous damage sustained as a result of excavation activities should be reported under "Excavation Damage" unless due to corrosion in which case it should be reported as a corrosion leak.
- Intentional Damage/. Vandalism means willful or malicious destruction of the operator's pipeline facility or equipment. This category would include pranks, systematic damage inflicted to harass the operator, motor vehicle damage that was inflicted intentionally, and a variety of other intentional acts.
- Terrorism, per 28 C.F.R. § 0.85 General functions, includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.
- Theft. Theft means damage by any individual or entity, by any mechanism, specifically to steal, or attempt to steal, the transported gas or pipeline equipment.

Corrosion

Corrosion includes leak caused by galvanic, atmospheric, stray current, microbiological, or other corrosive action. A corrosion release or failure is not limited to a hole in the pipe or other piece of equipment. If the bonnet or packing gland on a valve or flange on piping deteriorates or becomes loose and leaks due to corrosion and failure of bolts, it is classified as Corrosion. (Note: If the bonnet, packing, or other gasket has deteriorated to failure, whether before or after the end of its expected life, but not due to corrosive action, report it under a different cause category, such as G4 Incorrect Operation for improper installation or G6 Equipment Failure if the gasket failed)

Pipe, Weld and Joint Failure

This cause includes leaks resulting from a material defect within the pipe, component or joint due to faulty manufacturing procedures, design defects, or in-service stresses such as vibration, fatigue and environmental cracking. Material defect means an inherent flaw in the material or weld that occurred in the manufacture or at a point prior to construction, fabrication or installation. Design defect means an aspect inherent in a component to which a subsequent failure has been attributed that is not associated with errors in installation, i.e., is not a construction defect. This could include, for example, errors in engineering design. Fitting means a device, usually metal, for joining lengths of pipe into various piping systems. It includes couplings, ells, tees, crosses, reducers, unions, caps and plugs. Any leak that is associated with a component or process that joins pipe such as threaded connections, flanges, mechanical couplings, welds, and pipe fusions that leak as a result from poor construction should be classified as "Incorrect Operation". Leaks resulting from failure of original sound material from force

Equipment Failure

This cause includes leaks caused by malfunctions of control and relief equipment including regulators, valves, meters, compressors, or other instrumentation or functional equipment. Failures may be from threaded components, Flanges, collars, couplings and broken or cracked components, or from O- Ring failures, Gasket failures, seal failures, and failures in packing or similar leaks. Leaks caused by overpressurization resulting from malfunction of control or alarm device; relief valve malfunction; and valves failing to open or close on command; or valves which opened or closed when not commanded to do so. If overpressurization or some other aspect of this incident was caused by incorrect operation, the incident should be reported under "Incorrect Operation."

Natural Force Damage

Leaks caused by outside forces attributable to causes NOT involving humans, such as earth movement, earthquakes, landslides, subsidence, heavy rains/floods, lightning, temperature, thermal stress, frozen components, high winds (Including damage caused by impact from objects blown by wind), or other similar natural causes. Lightning includes both damage and/or fire caused by a direct lightning strike and damage and/or fire as a secondary effect from a lightning strike in the area. An example of such a secondary effect would be a forest fire started by lightning that results in damage to a gas distribution system asset which results in an incident.

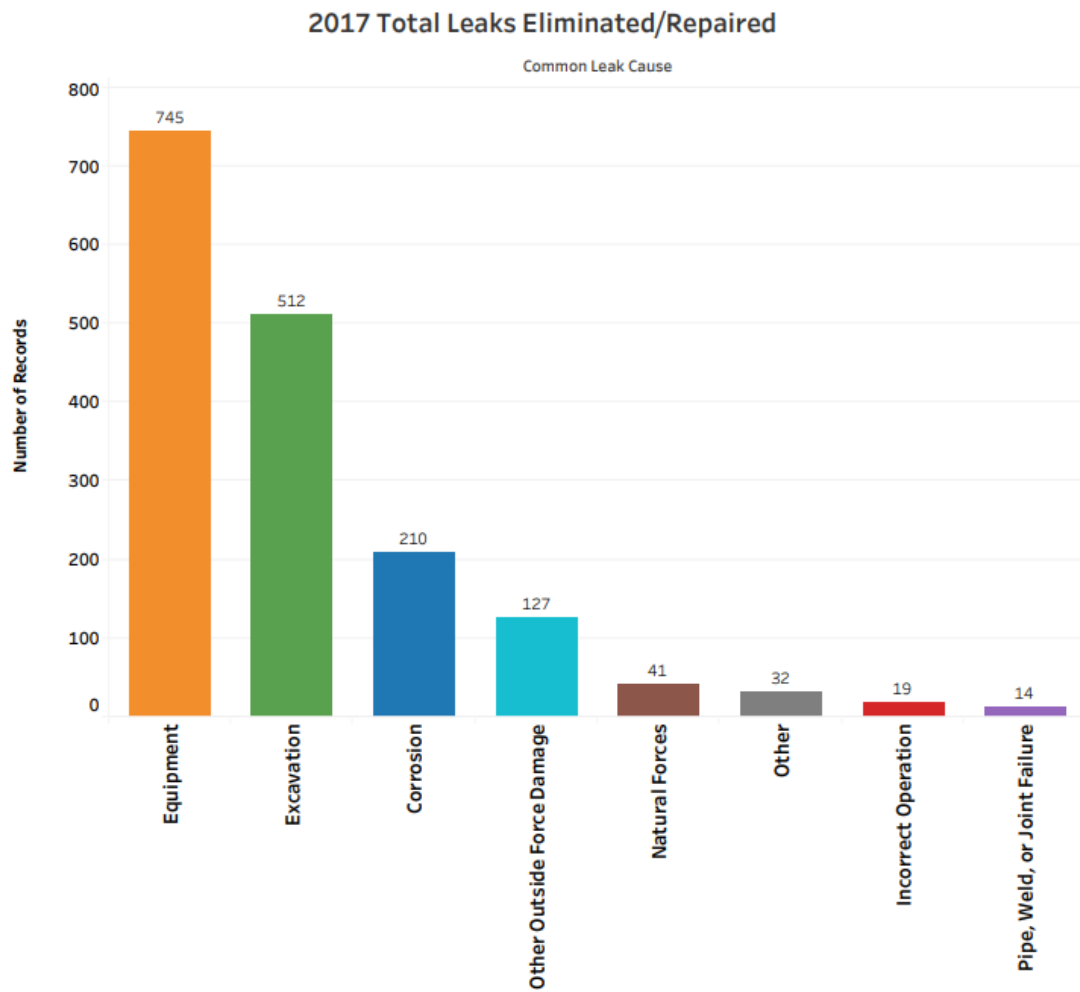
Incorrect Operations

Leak resulting from inadequate procedures or safety practices, or failure to follow correct procedures, or other operator error. It includes leaks due to improper valve selection or operation, inadvertent overpressurization, or improper selection or installation of equipment. It includes a leak resulting from the unintentional ignition of the transported gas during a welding or maintenance activity.

Other

This cause is provided for a leak resulting from any other cause not attributable to the above causes. A best effort should be made to assign a specific leak cause before choosing the Other cause category. An operator replacing a bare steel pipeline with a history of external corrosion leaks without visual observation of the actual leak, may form a hypothesis based on available information that the leak was caused by external corrosion and assign the Corrosion cause category to the leak. With the exception of Indiana and Ohio, the only selection for other in the remaining CenterPoint Energy footprint is for "Other-not excavated" in the field data collection tool.

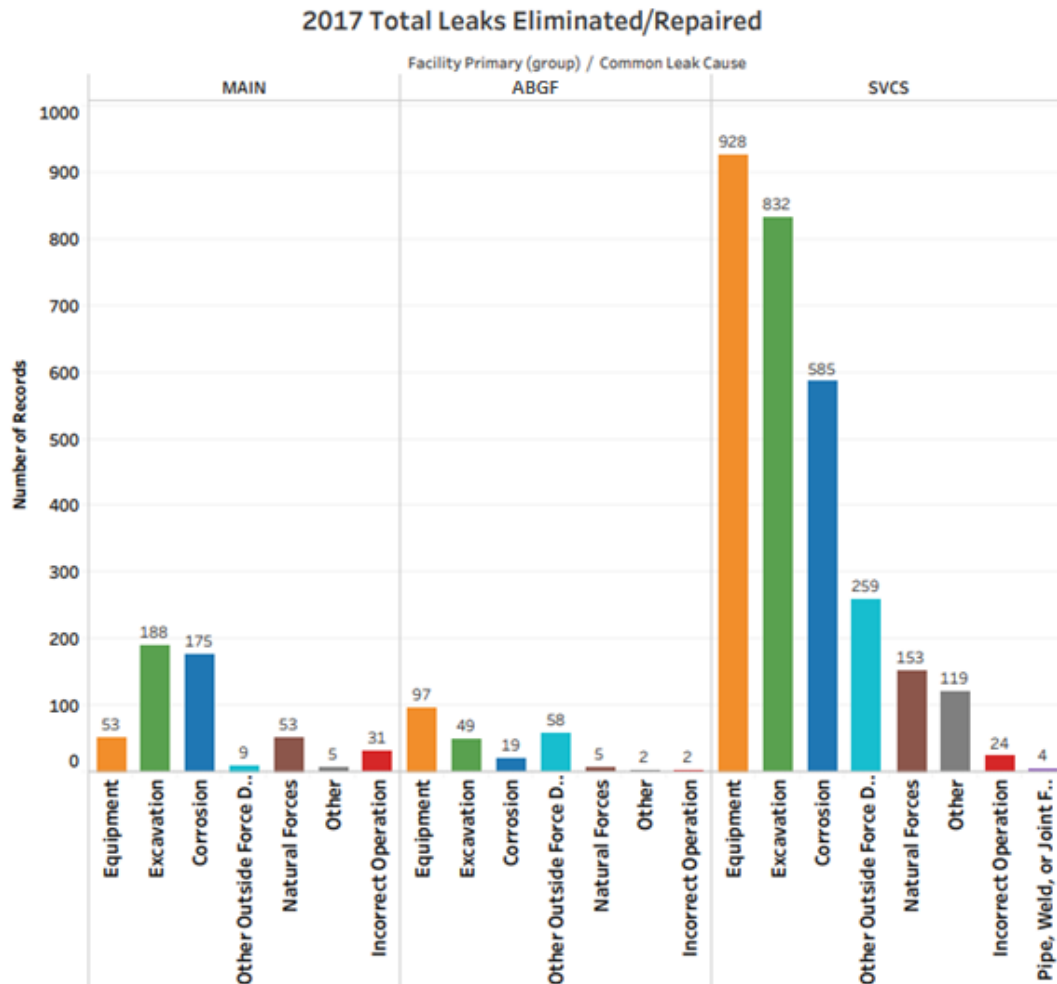
The threat identification process utilizes leaks repaired data with the following examples depicting their visualization.

8.2.1. PRIMARY CAUSE COUNT**Example by Cause**

8.2.2. PRIMARY CAUSE BY FACILITY

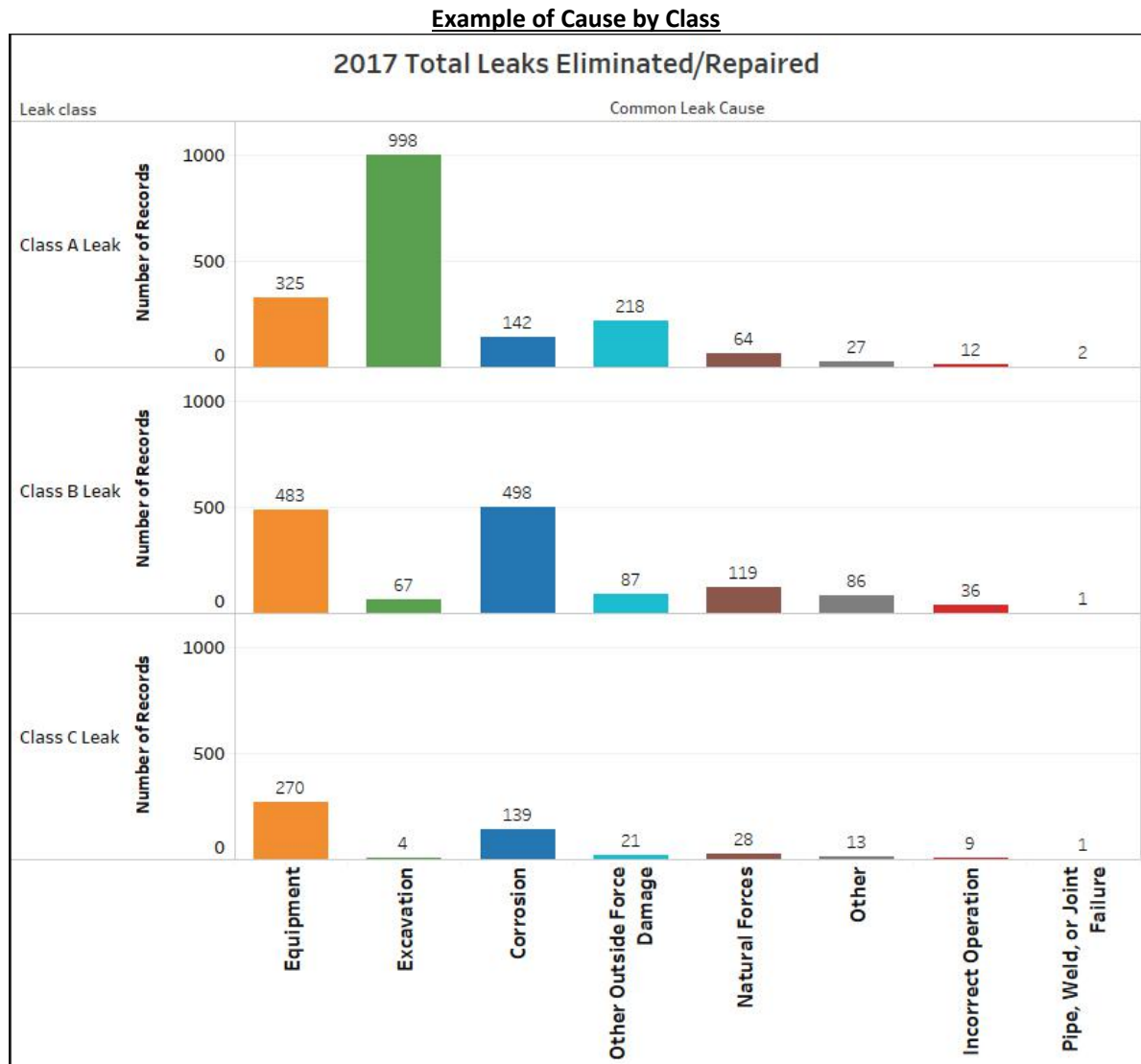
The following examples provide a graphical view of the counts of leaks by threat associated with each leak by facility.

Example of Cause by Facility



8.2.3. PRIMARY CAUSE BY CLASS

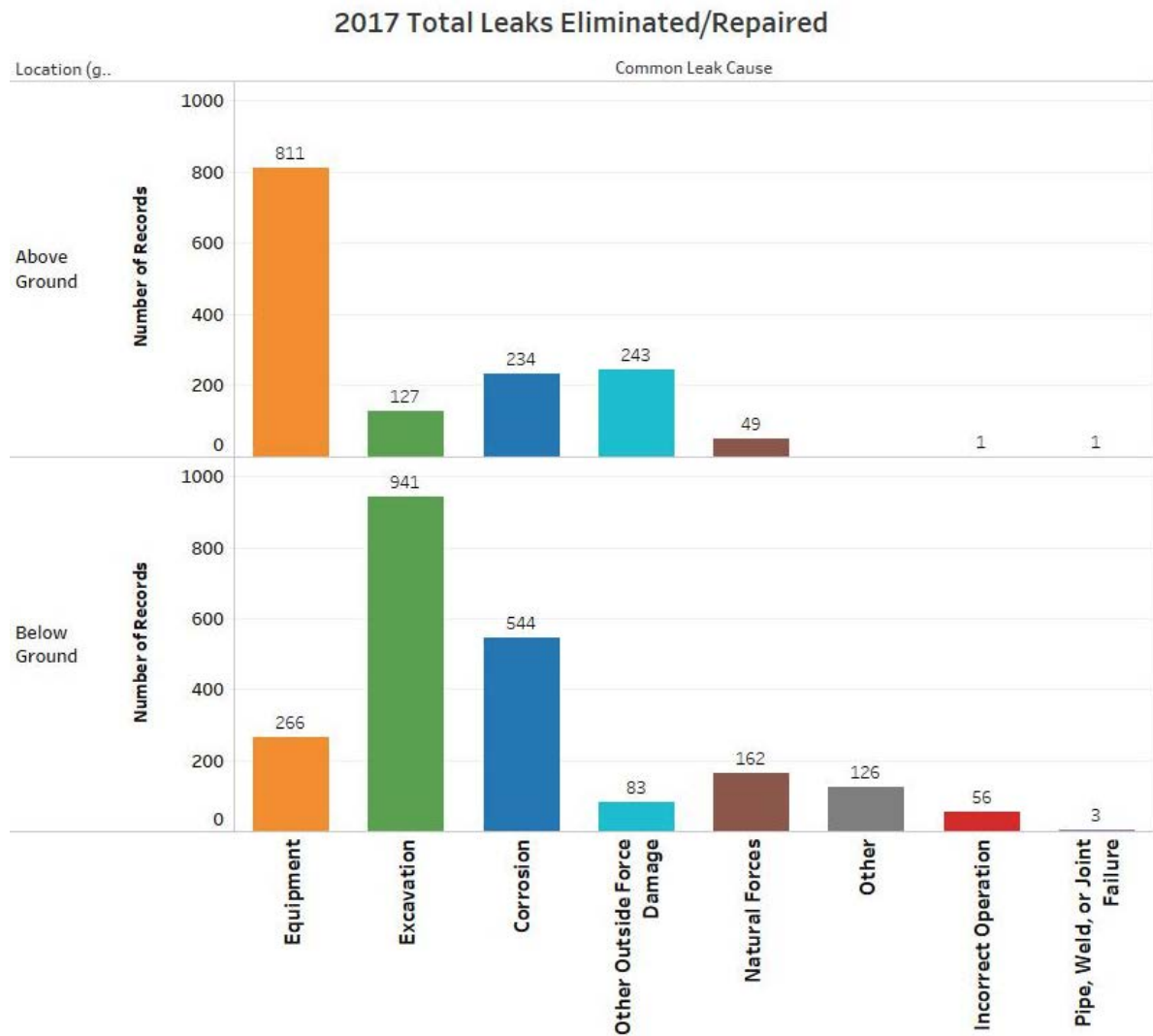
The following examples provide a graphical view of the counts of leaks by threat associated with each leak class.



8.2.4. PRIMARY CAUSE BY LOCATION

The following examples provide a graphical view of the percentage of leaks by threat by the locations where they occurred.

Example of Cause by Location



Supplemental to the data driven process; potential threats (i.e. those not yet experienced by CenterPoint Energy), yet identified in NTSB Reports, PHMSA Advisory Bulletins, or Industry incidents will be evaluated as they occur (incident / field reported) or at a minimum on an annual basis. Potential threat identification will also be collected as part of the investigation / organizational feedback allowing all field personnel to report their observations.

8.3. METHODOLOGY

The objective of CenterPoint Energy distribution integrity program is predicated on the identification of the primary threats in support of risk and performance evaluation to determine severity, trends and locations. The identification of threats will be documented at the company and state level.

Threats to the CenterPoint Energy systems are identified using data from the leak and damage databases. These databases provide the information on events the associated cause. Threats are identified as a combination of tier 1 causes / tier 1 facilities and materials for the initial implementation and can be reviewed at various location levels such as state, district, county or city level. Supplemental to the data driven process; both potential and actual sub-threats have been identified through SME reviews based on their knowledge of the systems and past experiences. The sub-threats used for additional analysis in Arkansas, Louisiana, Mississippi, Minnesota, Oklahoma, and Texas are defined by the TX PS-95 semi-annual leak report sub-threat definitions (leak cause look up table). A complete list of these sub-threats is referenced in the company appendix. These sub-threats are not risk ranked independently, but are used and analyzed as risk drivers and for further understanding of leak cause and threat identification from the DOT 8 threats during district threat analysis. In subsequent program cycles, additional threat sub causes may be defined as a result of investigation and/or the improvement of programs/activities to address risk as dictated by the implementation of the Distribution Integrity Management Program.

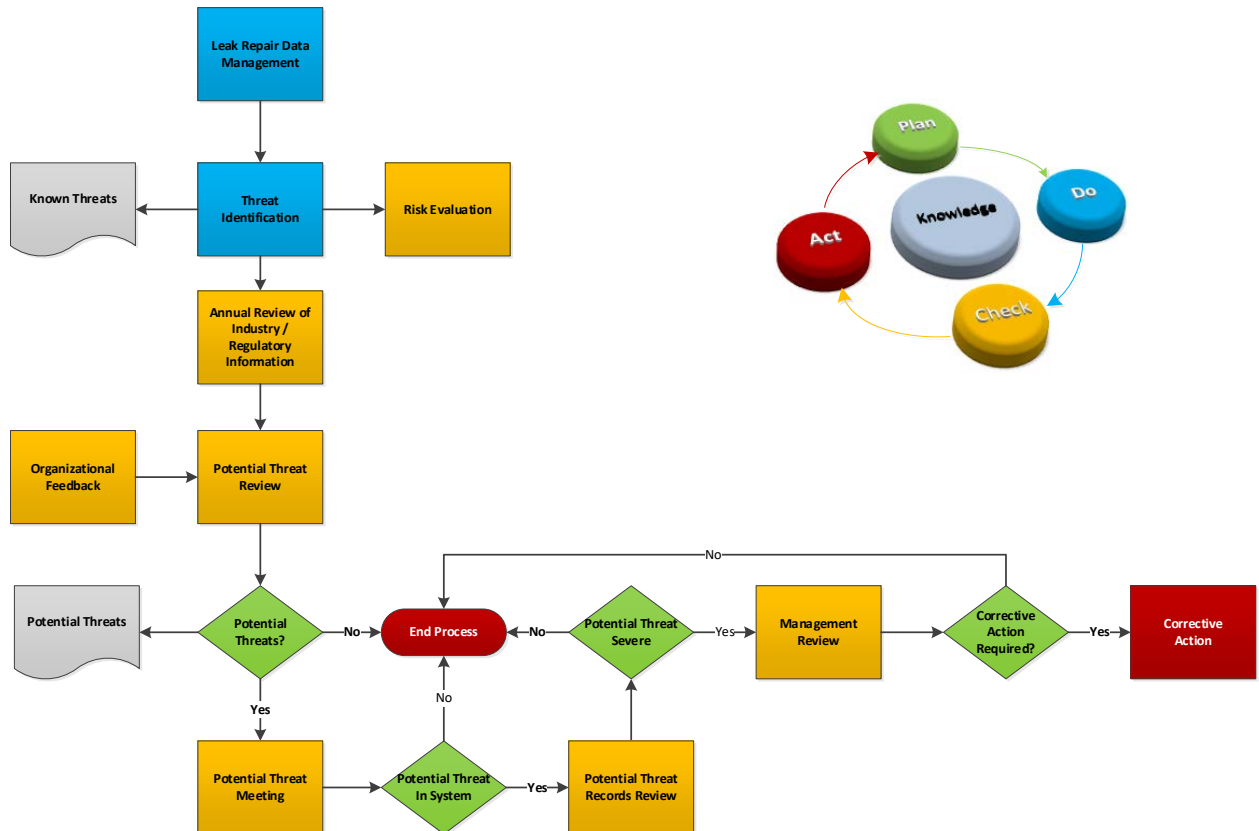
Validation of the threats identified primarily revolves around the following:

- Confirmation that the facilities in question exist in CenterPoint Energy systems
- Review of potential threats that have been recognized by industry that may not be supported by CenterPoint Energy actual experience
- Review of the threats that do not have supporting data

Data resolution will be implemented any time that CenterPoint Energy information, such as facilities, has been found to be inaccurate or not included as part of system knowledge. CenterPoint Energy has developed processes specifically designed to recognize these issues and to resolve them as part of the annual process.

Any time a potential threat has been identified, CenterPoint Energy will execute several processes to ensure that the potential threat will be addressed, if necessary. These processes include potential threat review, potential threat meetings and potential threat records review followed by the decision to take corrective action appropriately and to track these actions through management of change (MOC), or other various continuous improvement activities including: training, PAAR modification, PAAR creation, and one-off risk-reduction measures.

8.4. THREAT IDENTIFICATION WORKFLOW



8.5. RECORDKEEPING

8.5.1. DECISIONS

- 1) Are there any identified potential threats?
- 2) Are these potential threats in the system?
- 3) Is corrective action required to address the potential threat?
- 4) Is the threat valid?
- 5) Is the threat new or there a change to the threats?

8.5.2. DOCUMENTATION

- 1) Known threats by threat / facility and material at company and state level
- 2) Potential threats
- 3) New threats

8.5.3. COMMUNICATIONS

- 1) Communication of potential threats to steering committee or other appropriate team
- 2) Communication of threat data to risk evaluation
- 3) Communication of threat data to districts with validation discussion and issue resolution as needed

9. RISK EVALUATION

9.1. REGULATORY

9.1.1. CODE 49 CFR 192.1007 (C)

An operator must evaluate the risks associated with its distribution pipeline (mains, services and other appurtenances). In this evaluation, the operator must determine the relative importance of each threat and estimate and rank the risks posed to its pipeline. This evaluation must consider each applicable current and potential threat, the likelihood of failure associated with each threat, and the potential consequences of such a failure. An operator may subdivide its pipeline into regions with similar characteristics (e.g., contiguous areas within a distribution pipeline consisting of mains, services and other appurtenances; areas with common materials or environmental factors), and for which similar actions likely would be effective in reducing risk.

9.1.2. PHMSA INTERPRATION

This section requires that an operator evaluate the identified threats to determine their relative importance and rank the risks associated with its pipeline. Operators must consider the likelihood of threats as well as the consequences of a failure that might result from each threat. Consideration of consequences is important to assure that risks are properly ranked. A potential accident of relatively low likelihood but that would produce significant consequences may be a higher risk than an accident with somewhat greater likelihood but that cannot produce major consequences. Operators may subdivide their pipeline into regions for purposes of this analysis. Such division may be appropriate when factors relevant to a threat vary within the pipeline. Operators are not, however, required to divide their pipelines for purposes of analyzing risks.

9.2. OVERVIEW

Risk is typically defined as the likelihood of a failure occurring times the consequence of that failure. Distribution systems experience failures (leaks of various degrees of severity) daily. Therefore in DIMP, risk is primarily a driver to prioritize gaining a better understanding of the associated threat management and secondarily, as a program performance metric.

CenterPoint Energy's Distribution Integrity Management Program foundation is that risk is managed through O&M activities as well as other internally developed activities such as pipe replacement or accelerated leak survey. Therefore, risk modeling is utilized to drive pipe replacement and to target threat specific collection of organizational feedback from field personnel at locations with poor performance in management of the threat of concern. The requirement to evaluate and rank risk by threat is predicated on the need to prioritize action for those threats posing the highest risk to the system and is addressed through the leak repair and pipeline replacement models as detailed in the methodology, in addition to other programs and activities developed to address risk.

The local impact of the identified threats of concern will be determined during district analysis. The data driven approach allows for the analysis of the relative risk experienced for all threats and facility types that can then be grouped by material, grade, sub threat, and/or facilities, aka "buckets" to focus additional information gathering in support of determining potential corrective actions. In the event new threats are determined to have been the root cause of an incident (as defined by PHMSA 49 CFR 191), hazardous, non-hazardous leak, or near miss, these new threats will be included in the determination of CenterPoint Energy's risk management effectiveness.

If potential threats are identified (see Threat Identification), an analysis is conducted regarding their existence on the system. If they exist on the system at a frequency sufficient to support data driven analytics and are identifiable through asset attribution on the system, they will be managed by the same processes in place for risk ranking as a driver to obtain organizational feedback in support of determining potential corrective actions. If they exist on the system, but at a frequency too low to support current analytics, or if the system is susceptible but the threat hasn't yet occurred, they will be managed through the Low Likelihood Threat Matrix.

As part of CenterPoint Energy's risk assessment approach, the use of 3 evaluation techniques will be utilized with the primary focus on the relative risk evaluation based on unintentional releases of gas experienced and recorded through the leak management process. This data driven approach allows for the analysis of the relative risk experienced for all threats and facility types that can be evaluated and grouped by the non-factor information available in the dataset, such as material. The second is a commercially available probabilistic risk model that analyzes aggregated risk at the main facility level. This GIS based approach will be utilized to assist in prioritizing facility replacements and/or facility specific mitigation activities. The third is an objective risk review and ranking of the Potential and additional sub-threats to be verified by local SME's. This review will allow for the monitoring of these sub threats that have not been experienced or that are of low frequency.

9.3. METHODOLOGY – SYSTEM THREAT RISK MODEL

The use of the terms "probability," "relative probability," and "prioritize" imply a need for a mathematical process. Based on PHMSA's position to avoid confusion, by replacing these terms with "importance," "relative importance," and "rank", CenterPoint Energy employs a relative approach to rank risk by threat.

Threats to the system are identified using leak repair data and the ranking of risk is more heavily weighted to hazardous leaks since the leak classification process is risk centric. The counts of threats and the sum of their consequences are presented in a graphical view with filter options available to "drill down" as necessary. Characterizing CenterPoint Energy's distribution system by non-factor information available in the dataset, such as material, grade, sub threat and/or facilities, if subdivision is warranted, allows for a better understanding of where the contributions to risk are taking place. Once the primary threats contributing to increased risk have been identified, a further analysis will be performed per district to identify the threats with the poorest performance within the district and these are targeted for investigation / collection of organizational feedback.

Risk ranking is to be generated on an annual basis as part of the Distribution Integrity Management Program implementation, based on the frequency of any specific threat resulting in a hazardous leak, injury, or fatality with consideration for the consequence associated with any potential failure from that threat.

Risk analysis is a process of understanding what factors affect the risk posed by a pipeline system and which are most important. CenterPoint Energy risk formula (probability of failure X the consequence of the failure) applies the appropriate weight factors, as determined by a team of subject matter experts. The model was developed in house based on the information available and the understanding as to which threats contributed to the highest risk to the system.

Weight factors have been determined by a team of subject matter experts. Each component of consequence is assigned a weight factor. The multiplication of these consequence scores represents the total consequence associated to each threat. Although threats to the system are identified using all available data, the ranking of risk will be more heavily weighted to hazardous leak information since the leak classification process is a risk evaluation of the actual event. The counts of threats and the sum of their consequences are presented in a graphical view with filter options available to "drill down" as necessary. The risk evaluation is completed at a state level and the results are produced for both Total Relative Risk and Average Relative Risk. This approach accounts for both threats that are experienced frequently with higher total relative risk associated and the low frequency threats that have high relative risk associated with each occurrence.

These risk results are utilized with the performance metrics are the first step in evaluating whether the higher risk threats are being effectively managed through the implementation of activities as required by 49 CFR 192 and/or those internally developed. On an annual basis the risk model and analysis methodology will be reviewed to determine whether the risk approach, algorithms/equation or factors need to be adjusted based on new information or general improvements. These components are also re-evaluated if necessary, based on the validation process.

The risk rankings are validated as part of the annual process. This validation includes several aspects, including comparison to previous year and comparison to expectations. In the event the risk ranking is not valid, CenterPoint Energy processes allows for 2 corrective options, including revision of the model and/or the resolution of data issues. In the event it is determined that the risk model requires revision based on the results validation, the weight factors are reviewed specifically to determine changes necessary to address the area of validation that failed.

9.3.1. WEIGHT FACTORS FOR THREAT PROBABILITY

In a leak repaired record-based risk approach, the probability of any threat will be equal to the count of leaks repaired for that specific threat. This approach ultimately weights those threats with greater frequency as more severe. The application of the consequence weight factors then differentiates the threats based on the existence of conditions that would support a greater potential for migration. This migration potential is the driver to improve leak management in terms of identification and repair.

Table 9.3.1 Weight Factors by Leak Cause

Cause	Weight Factor	Weight Factor
Corrosion	# of hazardous leaks	# of non-hazardous leaks
Excavation	# of hazardous leaks	# of non-hazardous leaks
Incorrect Operations	# of hazardous leaks	# of non-hazardous leaks
Equipment	# of hazardous leaks	# of non-hazardous leaks
Outside Force Damage	# of hazardous leaks	# of non-hazardous leaks
Natural Force Damage	# of hazardous leaks	# of non-hazardous leaks
Other	# of hazardous leaks	# of non-hazardous leaks
Materials / Welds	# of hazardous leaks	# of non-hazardous leaks

9.3.2. WEIGHT FACTORS FOR CONSEQUENCE

The master dataset generated in System Knowledge includes a number of attributes associated with each hazardous and non-hazardous leak. Selected attributes have been utilized to derive the consequence associated with the threat contribution to the event. Initially the following attributes and incident results were utilized in the determination of consequence.

Consequence weight factors have been determined by a team of CenterPoint Energy personnel. Each component of consequence is assigned a weight factor. The attribute data is the consequence of the environment and the PHMSA numbers are the consequence of the threat. These consequence scores are multiplicative and represent the total consequence associated to each threat, leak location, and other factors listed below. The assigned weight factors were finalized following a sensitivity analysis during which several different consequence weight factors were employed in various combinations. Although the relative risk scores changed, the relative ranking of the threats did not, and still provide the threshold for threat specific analysis for CenterPoint Energy's system.

The leak repair dataset generated in System Knowledge includes several attributes associated with each hazardous and non-hazardous leak. Selected attributes and weight factors have been utilized to derive the consequence associated with each repaired leak as follows:

Code – there are three code designations for leaks, 1, 2, and 3. Code 1 leaks are considered hazardous leaks by definition.

Volume – larger diameter pipe sizes will create situations where there may be greater consequence in the event any threat manifests a failure. For risk ranking, the volume will be generically associated with the facility type. Four facility types will be utilized: 1) Main, 2) Service, 3) Meter and 4) Regulator.

Proximity to Structures – the location of the facility type will be utilized to affect the consequence factor based on proximity to structures. The four facilities considered are: 1) Main, 2) Service, 3) Meter and 4) Regulator.

Population – the use of business district versus non-business district will provide for a consequence factor relative to population.

Migration – the use of the four facility types (Main, Service, Meter and Regulator) will provide for the consequence factor of the migration potential based on whether the leaking facility is located above or below ground.

Accumulation – the location, whether inside a structure or outside with the ability to vent to atmosphere, will be utilized to affect the consequence where there will be a greater consequence for any facilities inside a structure, building, or home

Ignition – the likelihood of access to an ignition source will affect the consequence attributed to a leak event based on leak cause and location. Higher consequences will be used in the event a leak occurs inside a building or structure or the event of a leak with potential ignition sources, specifically targeting Excavation, Other Outside Force Damage, Natural Forces, and Other.

Average Incident Rate – the historical PHMSA reportable incidents data that have occurred in the CNP umbrella of legacy companies since 2004 to current reporting year will be considered and derived on a per-threat/facility combination basis across all leaks within that combination and will be evaluated at a state level. This data will be stored in the appendix of the manual and updated

annually. The Incident/leak data uses an average of all incidents over the total count of leaks since 2004. The reason this data set is utilized for all historical incident data available is due to the low volume of incident data. This duration period allows a more robust data set than a 5-year average that is typically utilized with other factors and metrics of the plan. The start year of 2004 is being utilized as that is when the total annual leak rate data is first available by threat/facility combination.

Average Fatality Rate – the existence of a fatality during an incident is considered as a weight factor for consequence. This weight factor is derived on a per-threat/facility combination basis using the data from CenterPoint Energy actual experience and averaged across all leaks within that combination and will be evaluated at a state level. This data will be stored in the appendix of the manual and updated annually. The average fatality ratio uses an average of all fatalities over the total count of leaks since 2004 for the threat/facility combination. The reason this data set is utilized for all historical incident data available since 2004 is due to the low volume of incident data. This duration period allows a more robust data set than a 5-year average that is typically utilized with other factors and metrics of the plan. The start year of 2004 is being utilized as that is when the total annual leak rate data is first available by threat/facility combination.

Average Injury Rate – the existence of an injury during an incident is considered as a weight factor for consequence. This weight factor is derived on a per-threat/facility combination basis using the data from CenterPoint Energy actual experience and averaged across all leaks within that combination and will be evaluated at a state level. This data will be stored in the appendix of the manual and updated annually. The average injury ratio uses an average of all fatalities over the total count of leaks since 2004 for the threat/facility combination. The reason this data set is utilized for all historical incident data available since 2004 is due to the low volume of incident data. This duration period allows a more robust data set than a 5-year average that is typically utilized with other factors and metrics of the plan. The start year of 2004 is being utilized as that is when the total annual leak rate data is first available by threat/facility combination.

Table 9.3.2 Weight Factors for Consequence

Attribute / Condition	Description	Weight Factor
Leak Code	Code 1	6
	Code 2	3
	Code 3	1
Volume	Regulator	3
	Main	3
	Service	2
	Meter	1
Proximity to Structures	Meter	3
	Service	3
	Main	2
	Regulator	1
Population	Business District	2
	Non-Business District or Null	1
Migration	Meter	1
	Service	3
	Main	3
	Regulator	1
Accumulation Factor	Inside – Above	5
	Outside -- Below	5
	Outside – Above	1

Table 9.3.3 Ignition Factors by Leak Cause

Ignition Factor			
Leak Cause	Location	In/Out	Ignition Factor
Excavation	Above Ground	Inside	10
Corrosion	Above Ground	Inside	10
Incorrect Operation	Above Ground	Inside	10
Equipment	Above Ground	Inside	10
Other Outside Force Damage	Above Ground	Inside	10
Pipe, Weld, or Joint Failure	Above Ground	Inside	10
Natural Forces	Above Ground	Inside	10
Other	Above Ground	Inside	10
Excavation	Below Ground	Outside	3
Corrosion	Below Ground	Outside	3
Incorrect Operation	Below Ground	Outside	3
Equipment	Below Ground	Outside	3
Other Outside Force Damage	Below Ground	Outside	3
Pipe, Weld, or Joint Failure	Below Ground	Outside	3
Natural Forces	Below Ground	Outside	3
Other	Below Ground	Outside	3
Excavation	Above Ground	Outside	8
Corrosion	Above Ground	Outside	1
Incorrect Operation	Above Ground	Outside	1
Equipment	Above Ground	Outside	1
Other Outside Force Damage	Above Ground	Outside	8
Pipe, Weld, or Joint Failure	Above Ground	Outside	1
Natural Forces	Above Ground	Outside	8
Other	Above Ground	Outside	8

9.3.3. RISK MODEL

To address events that represent CenterPoint Energy's greatest concern (those with high probability and high public safety consequence), total risk will be ranked and evaluated per threat. The equation used to determine the risk in CenterPoint Energy's distribution system is based on the estimation of the consequence associated with each individual leak repair record times the probability of the leak as determined by the count. Using the consequence factors identified above and assuming the probability to be 1 for each leak repaired, the risk is aggregated to analyze the contribution by threat, facility and material, viewed by state and by district to prioritized collection of organizational feedback from field personnel.

The equation used to determine the risk in CenterPoint Energy's distribution system is based on the estimation of the risk associated with each individual leak repair record and summing the risk to account for the risk in the entire system. Using the consequence factors identified in the previous section and assuming the probability to be one for each leak repair, the risk is determined on each record for the various attributes/conditions.

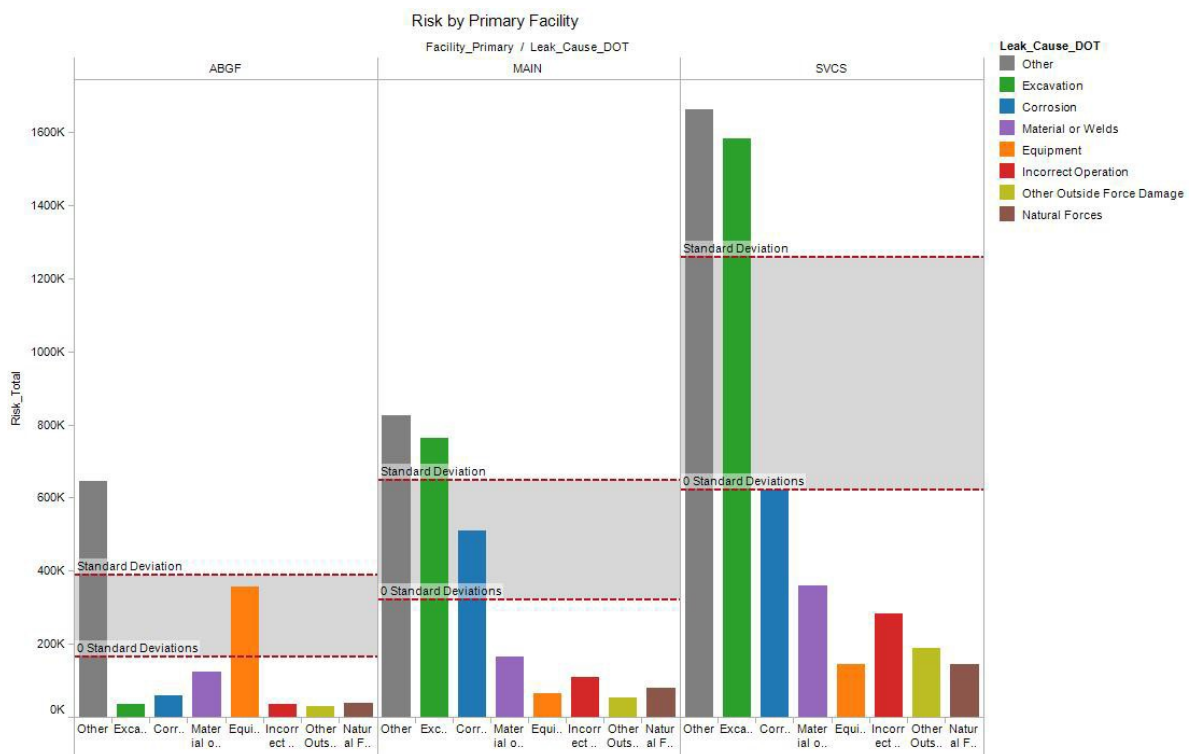
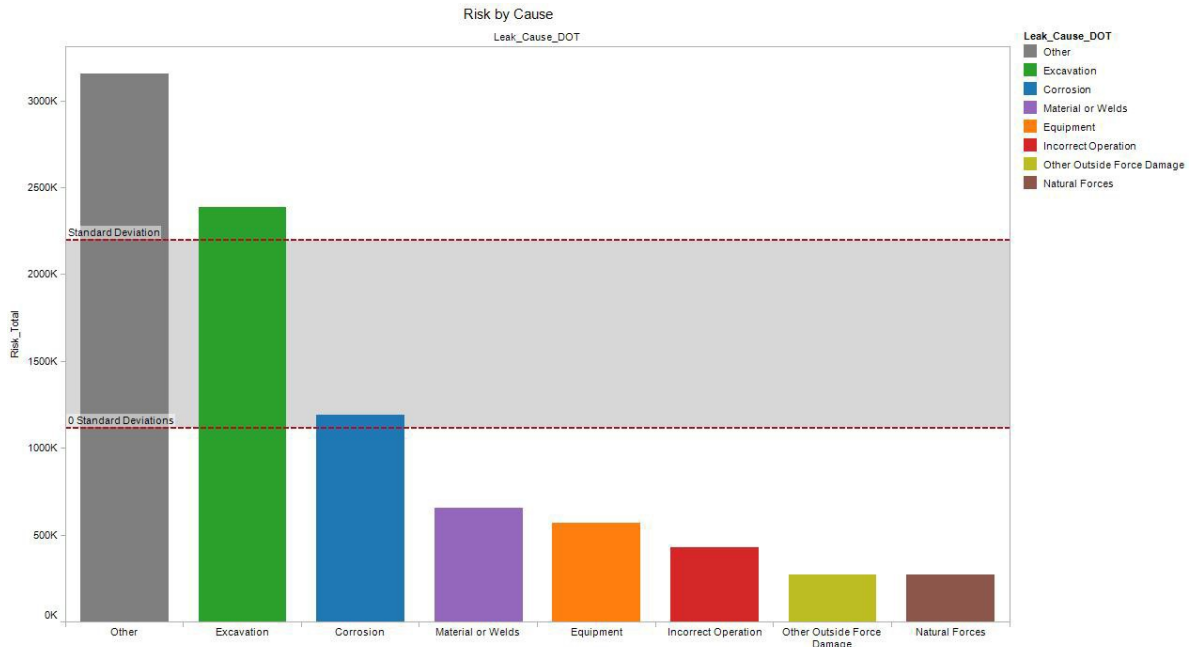
$$RISK = \sum [Leak\ Class] * [Volume] * [Migration] * [Proximity] * [Population] * [Accumulation] \\ * [Ignition] * \left(1 + \left(\left[\frac{Incidents}{Leak} \right] + \left(5 * \left[\frac{Injuries}{Leak} \right] \right) + \left(20 * \left[\frac{Fatalities}{Leak} \right] \right) \right) \right)$$

The total risk associated with the specific leak repair is calculated using the equation above, which includes additional factors to ensure the appropriate attributes such as Leak Code and Incident attributes are well represented. Code 2 and 3 leaks provide valuable information and are used in conjunction with hazardous leak and incident information for risk evaluation. The weight factor in the risk model are adjusted to weight the hazardous leaks and incident information higher so that the sheer numbers of these lower priority leaks do not skew the risk results. The total distribution system risk is the aggregated amount from the entire dataset.

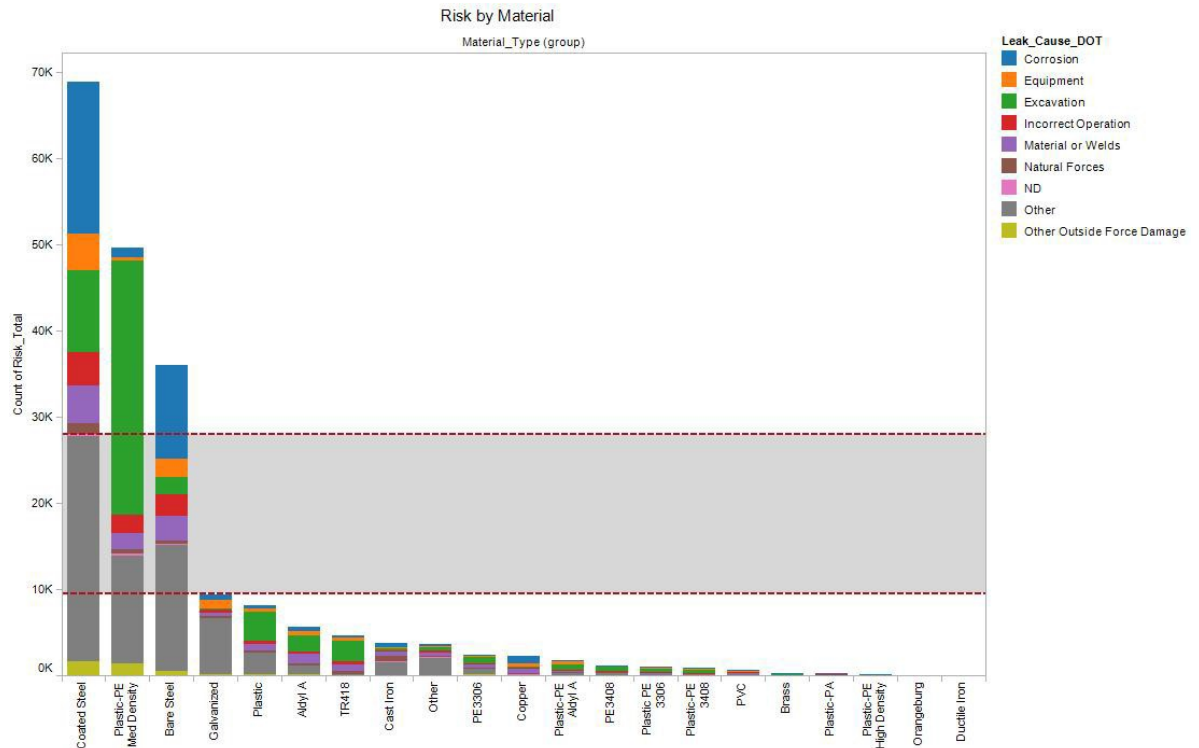
9.3.1. TOTAL RISK

The total risk calculations are presented by threat and can be viewed over time as a trend. This risk calculation is utilized as the primary driver to determine which threats are subject to additional information gathering from field personnel. Once the state centric numbers have been documented, each district is analyzed individually by threat-facility combination, to determine which districts are experiencing an increase. These districts are then targeted for collection of threat specific organizational feedback. (see Investigation)

Example of Total Risk Rank by Cause



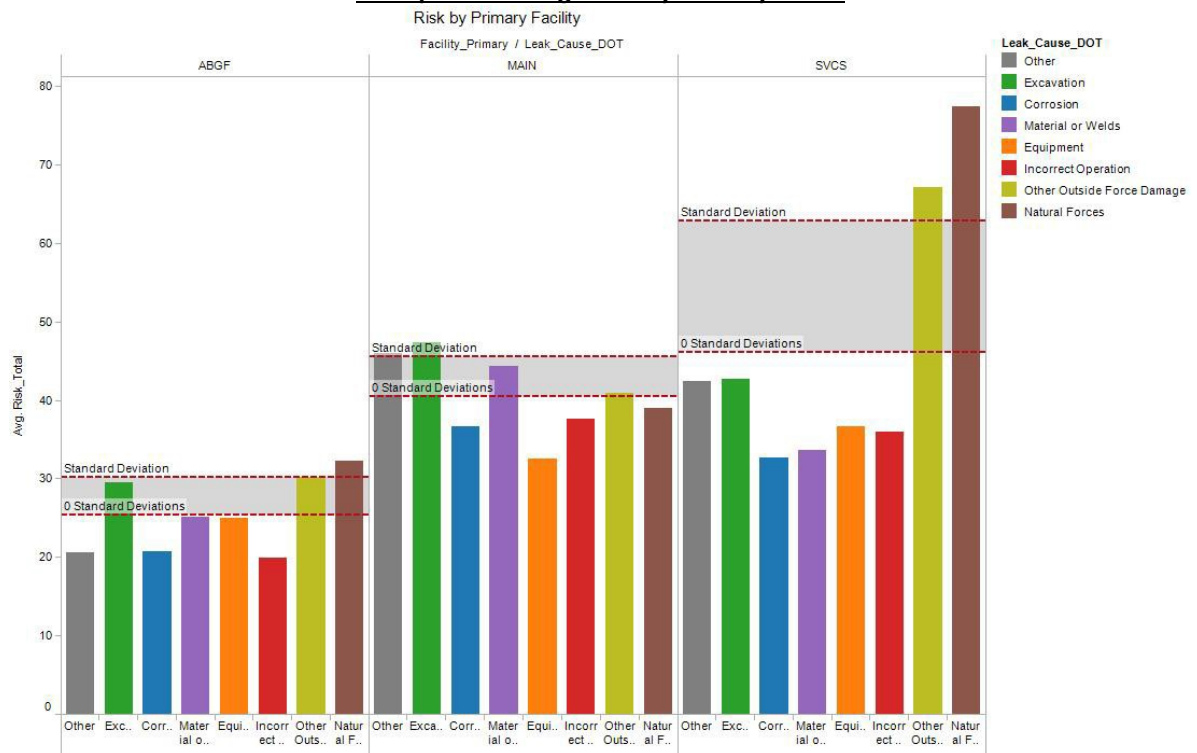
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9.3.2. AVERAGE RISK

Threats that have a low probability and a high consequence may not be recognized through the analysis of total risk. Therefore, these types of events are evaluated through the analysis of average risk, which focuses on the average consequence associated with a threat. Any threat whose risk contribution is greater than the average and was not captured in the total risk evaluation, will be identified through this metric as a threat of concern for additional information collection utilizing the organizational feedback process. Analysis of this feedback is the first step in determining the effectiveness of the programs and activities in place designed to address the threat.

Example of Average Risk by Primary Cause



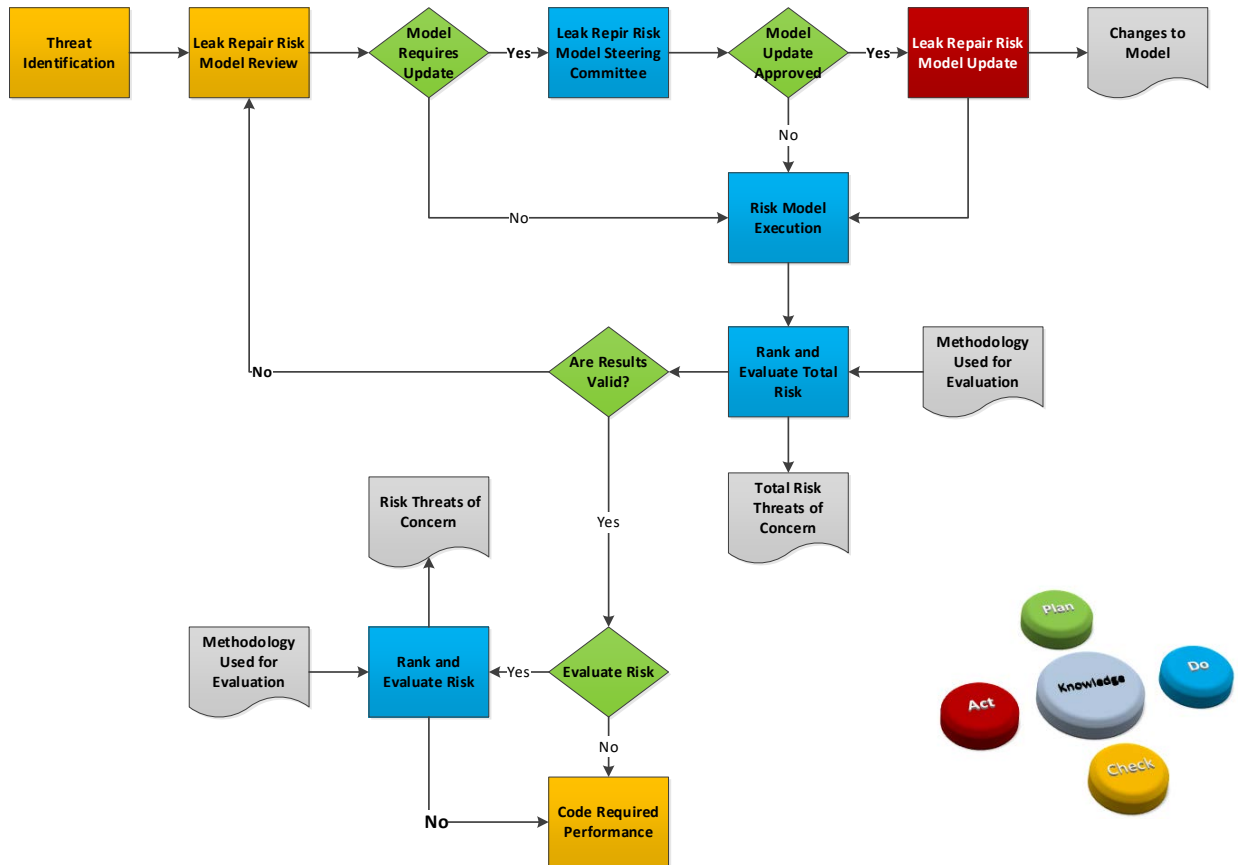
9.3.3. VALIDATION

On an annual basis, the risk model and analysis methodology will be reviewed to determine whether the risk approach, algorithms/equation or factors need to be adjusted based on new information or general improvements. Additionally, the results will be validated through one or more perspectives, such as comparison to previous year and comparison to expectations. In the event the risk ranking is not valid, then CenterPoint Energy's process automatically routes back to another review of the model. In the event, it is determined that risk model requires revision based on the results validation, the weight factors and algorithm are reviewed specifically to determine changes necessary to address the area of validation that failed.

9.4. RISK MODELING WORKFLOW

The company has incorporated the use of a commercially available probabilistic risk model to support the in the evaluation of the natural gas distribution system. The model is setup to with algorithms developed from leak repair data incorporated into GIS and factors that affect both the probability of failures and the consequence of the failures. Weight factors were established by a group of subject matter experts and will be evaluated as part of the Risk Model Methodology Review.

This GIS based approach aggregates relative risk at a main facility level by applying the factors determined by data available in the mapping system for a given project area and applying the appropriate probabilistic failure algorithm based on the material and sized. The model allows for the analysis of the relative risk of pipe segments at a division, district, city level.



9.5. RECORDKEEPING

9.5.1. DECISIONS

- 1) Are the model weight factors and algorithm correct?
- 2) Updated model approved?
- 3) Are the results of the risk model valid?
- 4) Will average risk be incorporated in analysis?

9.5.2. DOCUMENTATION

- 1) Changes to the risk model / weight factors
- 2) Criteria for determination of high total risk
- 3) Threats of concern determined by total risk

- 4) Criteria for determination of high average risk
- 5) Threats of concern determined by average risk

9.5.3. COMMUNICATION

- 1) Integrity Management proposed risk model changes to DIMP Committee
- 2) Updates to the risk factors and algorithms to risk model execution
- 3) Risk model results to performance
- 4) Risk results to the district for validation/issues

9.6. ASSET REPLACEMENT PRIORITIZATION RISK MODEL

CenterPoint Energy's various main replacement programs (MRPs) are based on various reporting requirements the Company's footprint.

In conjunction with the main replacement programs (MRPs), CenterPoint Energy also has various service line replacement and meter relocation programs.

CenterPoint Energy States including Arkansas Louisiana, Minnesota, Mississippi, Oklahoma, and Texas all utilizes algorithms based on DNV-GL Uptime software along with attribute data in the ESRI GIS to calculate relative risk scores (see Risk Model description below) for each segment of active gas main pipe contained in the GIS mapping database. A pipe segment has a specified measured length and common pipe attributes such as diameter, material, date of installation, etc. These segment lengths were created when the main was digitized into the GIS and is based on as-built drawings from construction.

CenterPoint Energy states Indiana and Ohio currently utilize a distribution risk model that is calculated using the GeoField Risk Modeler tool. The process consists of gathering data from multiple sources and packaging and sending the data to the vendor. Once the vendor receives the data, they upload the information into their tool and update/develop risk models. The new/updated risk model is run and results are exported back to CenterPoint Energy, where it is reviewed and published.

Based on the relative risk scores obtained from the risk model, the GIS team creates a colored display indicating the relative risk category of the pipe segments. This display along with the relative risk scores are published to a GIS facility map that is used by integrity engineers to analyze potential projects for replacement. This data is used in conjunction with an overlaid "Leak Cluster" heat map to identify where asset/environment/"group behavior" elements combine to identify high risk. An emphasis is made to prioritize the replacement of the highest risk areas and these become the "anchor" for a project. In order to realize economy and limit the repeated disturbance to neighborhoods in different program years, the project scope is expanded to include additional pipe that is either contiguous or in proximity to the high-risk segments.

SMEs and model software assign each distribution pipeline to an asset group to be analyzed. The MRP Model provides a probability of failure of each asset. When multiple threats apply to an asset group, the risks associated with each threat are combined for a total risk score. The model produces a numerical risk score for each set of conditions for which they are calculated.

The following is an overview of the risk model:

- Each asset group and threat combination identified in change reference has a risk model optimized for the appropriate circumstances of that combination.
- Influence (weighting) factors may be customized as conditions change over time.
- Factors may be added or removed to more accurately reflect specific conditions present in the CenterPoint Energy gas distribution system.
- Information used to create the SME Factors is derived from numerous sources, including industry studies, internal GL Noble Denton reports and data, as well as engineering judgment from individuals (SMEs) experienced in the specific areas being modeled.

THREATS

- Excavation: Statistical and SME factors which indicate areas of the pipeline system that may be more susceptible to hits from excavators.
- Material and Welds: Statistical factors which indicate types of material that have historically been more likely to leak or fail.
- Corrosion: Statistical factors which indicate areas where environmental and material conditions make corrosion more susceptible on the pipeline system and which indicate areas where corrosion has been a problem historically.
- Natural Forces: Statistical factors which indicate where uncontrollable natural events are more likely to occur on the pipeline system.
- Incorrect Operations: Statistical factors which indicate where human error could be more likely on the pipeline system. The Risk of Incorrect Operations resulting in an over pressurization of a low-pressure distribution system is covered in Section 9.2 by PAARs and risk specific preventive and mitigative targeted activities.
- Equipment: Statistical factors which indicate if certain types of equipment exist on the pipeline and the condition that the equipment is in.
- Other Outside Forces: Statistical factors which indicate other human factors that can affect the pipeline system, such as vandalism and vehicular interference.
- Other: Statistical factors which do not fit in any other category, but the company believes them to be a threat to a pipeline.
- Consequence is a measure of the impact that gas ignition would have on the surrounding area.
 - Specific factors that may be included are census block population density and services count.

ASSET GROUPING

- Asset Group Threat
- Metallic Mains All
- Plastic Mains All Except Corrosion
- Regulator Stations* Equipment and Natural Forces
- Meter Sets* Equipment and Natural Forces
- Metallic Services* Corrosion, Excavation, Incorrect Operations, Natural Forces
- Plastic Services* Excavation, Incorrect Operations, Natural Forces

*In development

9.7 LOW LIKELIHOOD THREAT MATRIX.

CenterPoint Energy reviews potential threats and additional sub-threats not directly accounted for in the leak data at a state level. The purpose of this evaluation is to monitor these threats and to evaluate the need to further investigate. The potential risk model is based on a variation of the standard risk equation and utilizes factors in influence both sides of the equations as follows:

$$Risk = \sum Susceptibility * \sum Consequence$$

The susceptibility portion of the equation is driven by four factors and the consequence portion by three factor. These factors are weighted on a scale from 0 to 1. There is no geographic stratification of a potential threat. These threats have the possibility of occurring in any given area. The consequence portion is based on the failure mode as the differentiating factor.

Table 9.7 Low Likelihood Factors

Risk Factor	Attribute / Condition	Description	Weight Factor
Susceptibility	Asset Degradation Factor	Based on the possible presence of the threat in the system	0 to 1
Susceptibility	Environment Driven	Based on whether the threat is a natural occurrence	0 to 1
Susceptibility	Design Mitigation	Based on whether there are designs to mitigate the threat	1 to 0
Susceptibility	Operational Mitigation	Based on whether there are operations to mitigate the threat	1 to 0
Consequence	Failure Mode	Based on the possibility of a leak versus a rupture	0 to 1
Consequence	Migration Potential	Based on the possibility for migration	0 to 1
Consequence	Failure Environment Exposure	Based on the possibility of environmental exposure during a failure	0 to 1

*The weighting factors represent a sliding scale where the left number indicates the factor is not present and the number on the right indicates that it is.

10. PERFORMANCE

10.1. REGULATORY

10.1.1. CODE 49 CFR 192.1007 (E)

Measure performance monitor results and evaluate effectiveness. (1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

- 1) Number of hazardous leaks either eliminated or repaired as required by §192.703(c) of this subchapter (or total number of leaks if all leaks are repaired when found), categorized by threat;
- 2) Number of excavation damages
- 3) Number of excavation tickets (receipt of information by the underground facility operator from the notification center)
- 4) Total number of leaks either eliminated or repaired, categorized by threat
- 5) Number of hazardous leaks either eliminated or repaired as required by §192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material; and
- 6) Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

10.1.2. PHMSA INTERPRETATION

Measuring performance is a key element of all integrity management programs. IM rules for other types of pipelines also include this element. At its basic level, IM is an iterative process consisting of +analysis of risks, implementing actions to reduce risk, monitoring to evaluate the effectiveness of those actions, and modifying the program as needed. Without performance monitoring, the feedback portion of the process cannot occur.

PHMSA agrees that the number of incidents is the ultimate measure of the effectiveness of efforts to assure distribution safety. PHMSA will continue to collect incident data and will use that data to evaluate the effectiveness of its regulatory program. This measure, however, is not useful to individual operators whose number of incidents is small. Many operators will experience zero incidents in a year. Few, if any, will experience more than one. Operators must use other non-incident measures to evaluate the effectiveness of their own programs. PHMSA continues to conclude that it is appropriate that the rule require these actions.

10.2. OVERVIEW

10.2.1. CODE BASED PERFORMANCE

Performance measures will be generated annually as required by code and as determined by CenterPoint Energy. The performance measures outlined in Section 10.1.1 will provide an improved understanding of the effectiveness of the activities being implemented in the management of risk to their systems. The primary data source for the generation of the performance metrics is the leak database. The performance metrics are trended over time to provide an improved understanding of the effectiveness of the activities being implemented in the management of risk to their systems. These metrics may also be assessed by material type which includes the following considerations: Bare Steel, Coated Steel, Cast Iron, Various Polyethylene, PVC and Copper. Legacy material grouping or names from field data collection tools will be grouped into one of the material categories listed.

10.2.2. PERFORMANCE AS A DRIVER FOR INVESTIGATION

CenterPoint Energy performs analysis of hazardous and non-hazardous leaks utilizing a 5 year moving average trend line along with a running 5 year trend line, weighted equally to establish a baseline. This analysis method was selected due to the dynamic nature of the data, considering improvements realized since the implementation of the DIMP. The 5 year moving average trend line smooths reactivity to onetime adjustments or events on the system, while the 5 year trend line includes these onetime occurrences, therefore they are equally weighted in the analysis for consideration. With the annual inclusion of new DIMP data, the moving average will continue to reflect the current validity of identified trends. These performance measures are utilized as the third component for identification of threats and locations subject to organizational feedback from field personnel. A 3 year moving average will be used in 2019 and 4 year moving average in 2020. A 5 year moving average will become available in 2021, once the data becomes actionable, and will be used going forward.

10.2.3. PERFORMANCE UTILIZED IN PROGRAM EFFECTIVENESS

Performance analysis is also employed by CenterPoint Energy is based on 192.1007 (e) vi:

- Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

These performance measures, as defined by CenterPoint Energy, may include those associated with Program Management, Threat Management, and Risk Management, PAAR Execution Management, and Data Management among other various data points. They will provide information as to the overall effectiveness of the DIMP and will be aggregated in the Periodic Evaluation element. Considering many of these metrics have not been captured in the past, the baseline Program Effectiveness Evaluation will be performed beginning with the 2019 cycle using CY 2018 data.

A key component of program effectiveness includes the analysis of leak management.

- L – Locate the leaks in the distribution system; the quality of leak locating is dependent upon field personnel, training, and equipment.
- E – Evaluate the actual or potential hazards associated with these leaks, the evaluation of leak grades is dependent upon field personnel, training, and equipment.
- A – Act appropriately to mitigate these hazards, refers to the repair of leaks. The decision and timing for leak repair is dictated by CenterPoint Energy policy and implemented at the division level. The integrity management group reviews the leak repair information and generates performance metrics to assist in the determination of effectiveness.
- K – Keep Records, record keeping is initiated at the division level and uploaded to the Leaks database. This data is reviewed as part of system knowledge, threat identification and, risk evaluation.
- S – Self Assess to determine if additional actions are necessary to keep people and property safe, is the overall requirement to review policy, personnel, training, equipment,

implementation, and data to determine the overall effectiveness of the leak management program. CenterPoint Energy will conduct these reviews at the state level.

The effectiveness of the leak management program as required in 192.1007(d) is determined and presented as part of the performance metric analysis. The performance metrics support the effectiveness of repairing grade 1, 2 and 3 leaks. Additionally, the effectiveness of leak management is analyzed relative to the quality of the data being submitted annually with a mechanism for improvement as part of the process.

10.2.4. PERFORMANCE UTILIZED TO EVALUATE CHANGE EFFECTIVENESS

CenterPoint Energy will measure the performance of the driver for the modification of any PAAR to determine if the modification met its objective in making the PAAR more effective. These post MOC or continuous improvement modification performance reviews will be measured on a predetermined frequency after the corrective actions have been implemented. If the change was not effective, the change (MOC or modification) will be reviewed and potentially modified.

10.2.5. PERFORMANCE OF PAAR

CenterPoint Energy will analyze the performance of all PAAR with mature data. The baseline of PAAR performance review is established by reviewing the 5 year trend line on the established, mature metrics. The performance will be evaluated based on the slope of the trend line, with the positive or negative slope assessed against whether an increase or decrease in the measure aligns with an increase or reduction in risk. For example: an increasing performance trend line on Incorrect Operations leaks would be considered a negative result, while an increasing trend line on the Public Awareness metrics would be considered a positive result. The annual review of PAAR will identify those with mature data to be added to System Knowledge and Performance analysis. Issues with PAAR performance will be identified and be subject to inclusion in the collection of organizational feedback from personnel in areas where said performance was not optimal.

10.3. METHODOLOGY

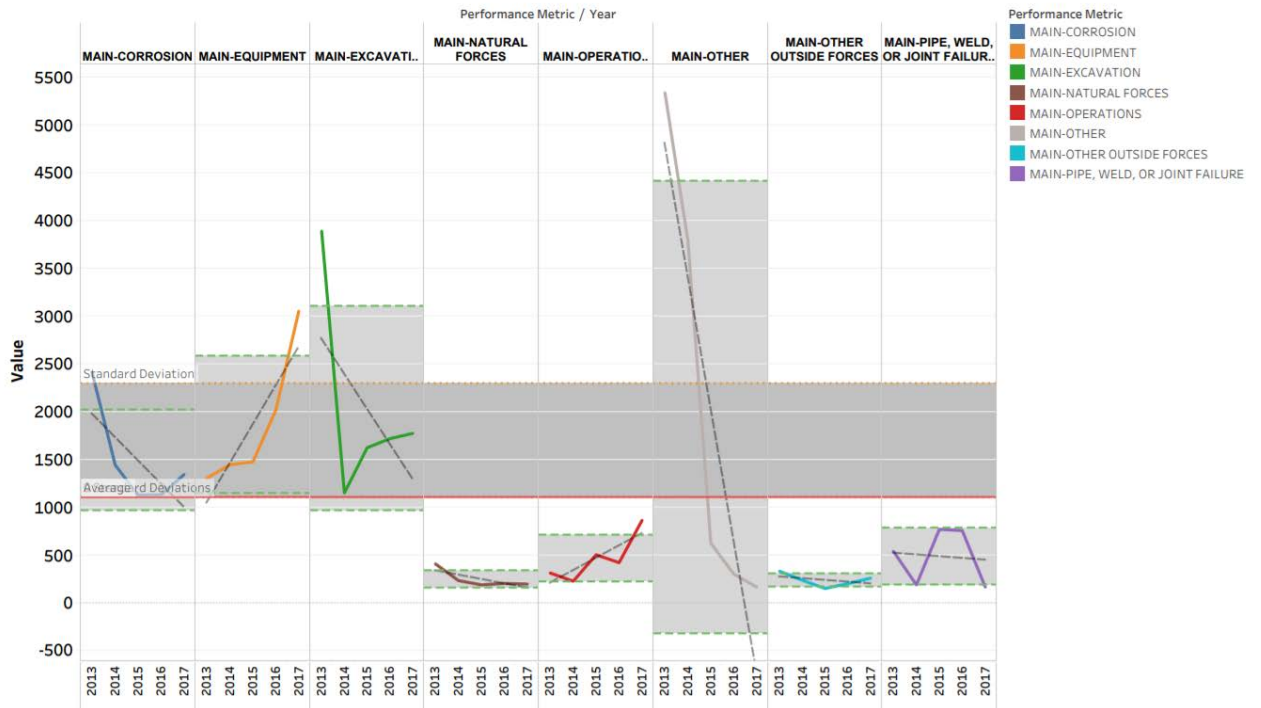
10.3.1. CODE BASED PERFORMANCE

The following code required performance measures are collected and documented annually. CenterPoint Energy analyzes performance for threats individually for services and mains.

10.3.2. TOTAL LEAKS REPAIRED BY CAUSE (EXAMPLE)

The graphic below illustrates all leaks repaired on mains by threat, by year / all grades

CNP Main Performance

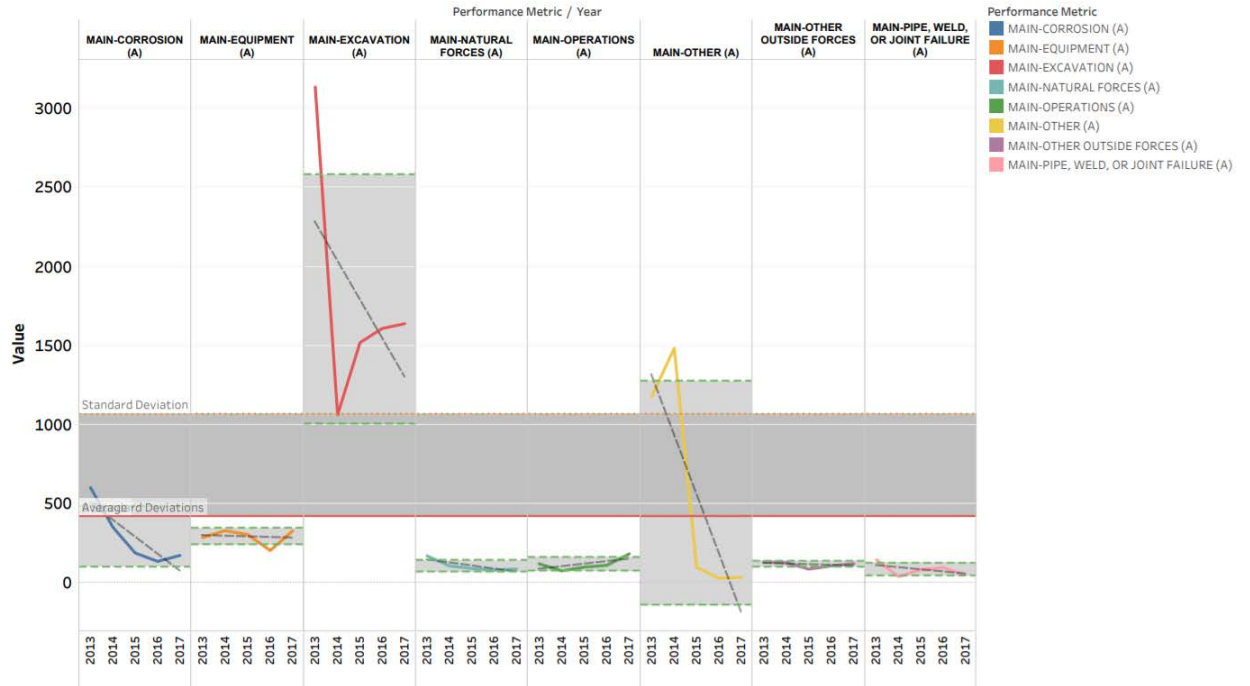


CAUSE NO. 45468

10.3.3. HAZARDOUS LEAKS REPAIRED BY CAUSE (EXAMPLE)

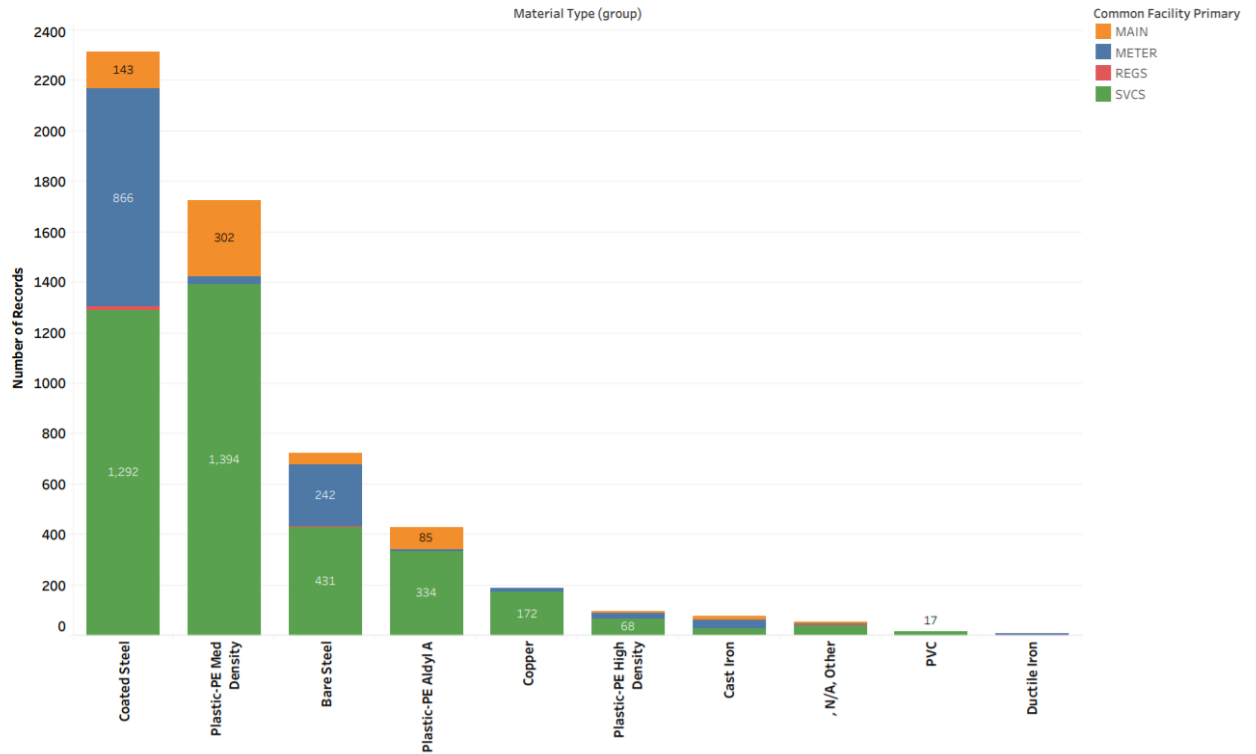
The graphic below illustrates repaired leaks on mains by threat, by year / Grade 1

CNP Main Performance



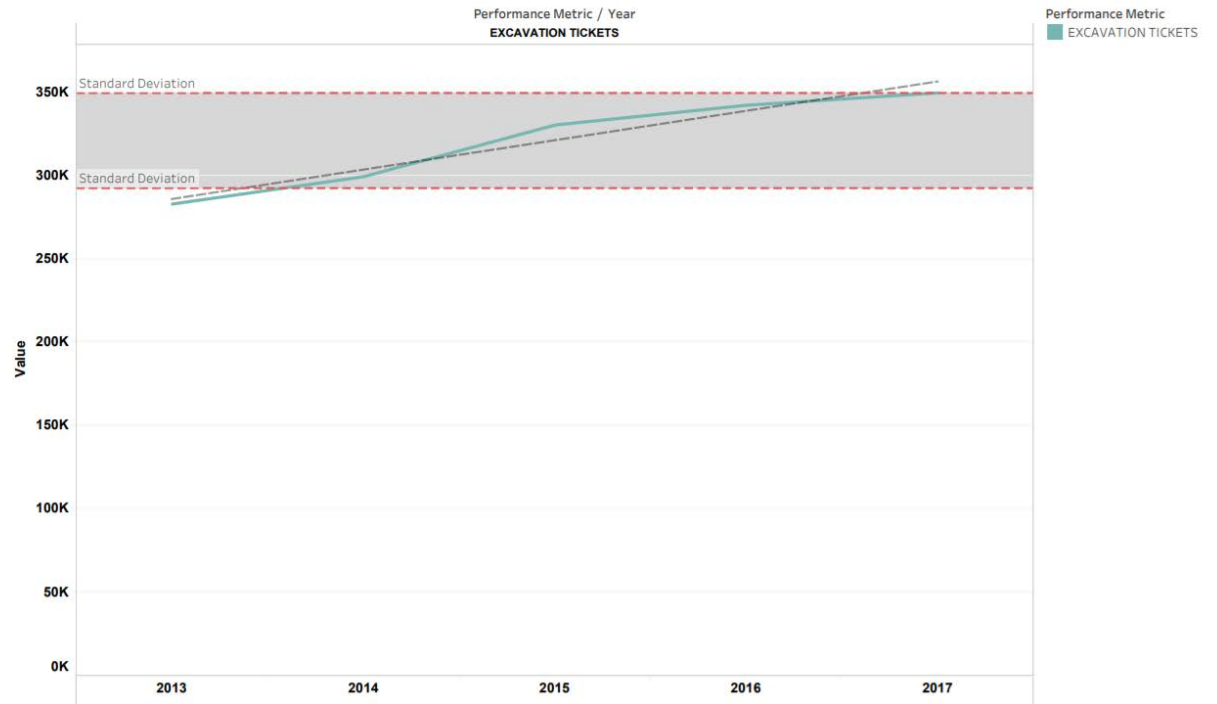
10.3.4. HAZARDOUS LEAKS REPAIRED BY MATERIAL (EXAMPLE)*The graphic below illustrates hazardous repaired leaks by threat / material*

Hazardous By Material



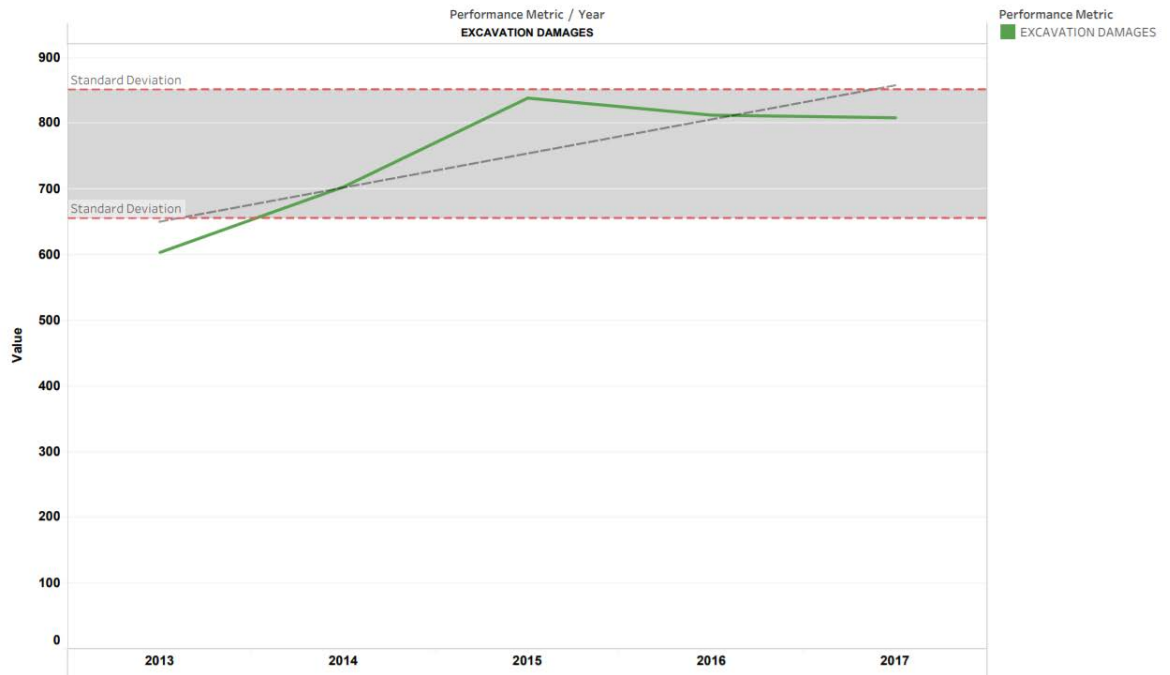
10.3.5. ONE CALL TICKETS (EXAMPLE)

One-Call Tickets



10.3.6. EXCAVATION DAMAGE (EXAMPLE)

Excavation Damage



10.4. PERFORMANCE AS A DRIVER FOR INVESTIGATION

CenterPoint Energy has developed processes to manage the analysis performance metrics relative to a 5 year moving average as a baseline to drive investigation, along with an equally weighted comparison to the 5 year trend. This analysis determines if the hazardous leaks for any threat (not identified in total or average risk) are becoming more severe to the system based on performance. Threats will be investigated if their trends are increasing and yet, have not been identified as high total or high average risk. This process is detailed further in section 11.

10.5. PERFORMANCE UTILIZED IN PROGRAM EFFECTIVENESS (IN DEVELOPMENT)

The following performance metrics have been defined by CenterPoint Energy above and beyond those four high level metrics required for reporting. These metrics are aggregated in the determination of program performance effectiveness as detailed in the Program Evaluation section. These metrics will be adjusted on an annual basis as the available information / data changes. These changes in the approach to the determination of program effectiveness will be documented in ICAM or through the MOC process.

For program effectiveness, the following metrics have been developed:

Leading Indicators

- Percentage of districts with asset level risk model executed
- Percentage of districts with macro level risk model executed
- Percentage of districts with Presentation, Risk Performance Analysis, Investigation, and Discovery complete
- Percentage of total risk addressed through investigation
- Percentage of districts with completed pipe replacement recommendations

Lagging Indicators

A review will be completed for each of the 8 DOT threats (excavation damage, corrosion, pipe, weld or joint, equipment, natural forces, other outside forces, incorrect operations, and other), referred to as the given threat below for the following questions:

- Was a given threat an elevated threat for a district in the state last cycle?
- If a given threat was a risk in the state last cycle, was an elevated threat for a district in the state this cycle?
- Where does the given elevated threat's risk for the cycle fall in comparison to the standard deviation of the last 5 years of risk for the threat?

For PAAR effectiveness, the following have been developed:

Leading Indicators

- What percentage of corrective actions was identified were properly communicated or implemented if in DIM? (Example: Modify existing PAAR, Make New PAAR, Training, etc)

- Of mature activities, what percentage has sufficient data for performance trending of 5 years?
- Of new activities, what percentage have identified data sets for tracking?

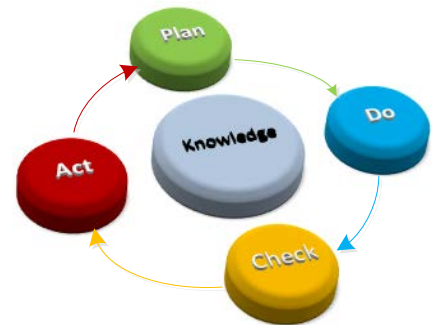
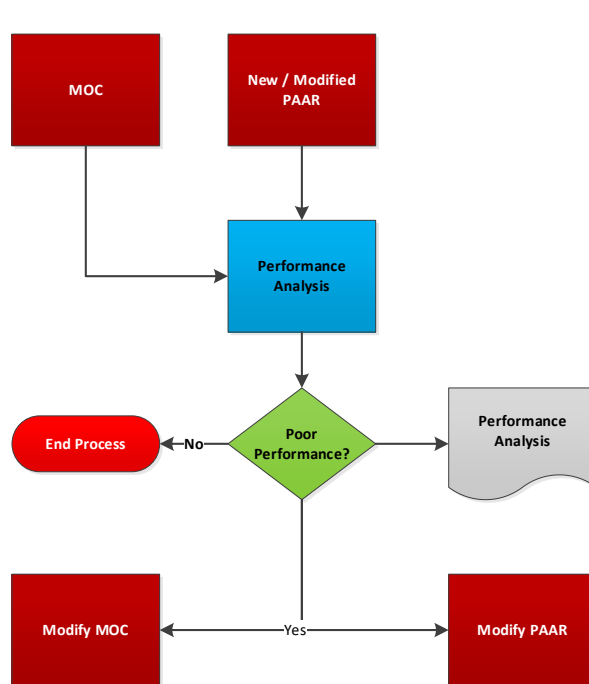
Lagging Indicators

- In areas where risk and PAAR activity metric do not align, have you developed an additional metric?
- What percentage of activities have an activity metric independent from leak data?
- What percentage of mature activities have the desired metric performance trend?
- What percentage of mature activities have the desired risk performance trend?

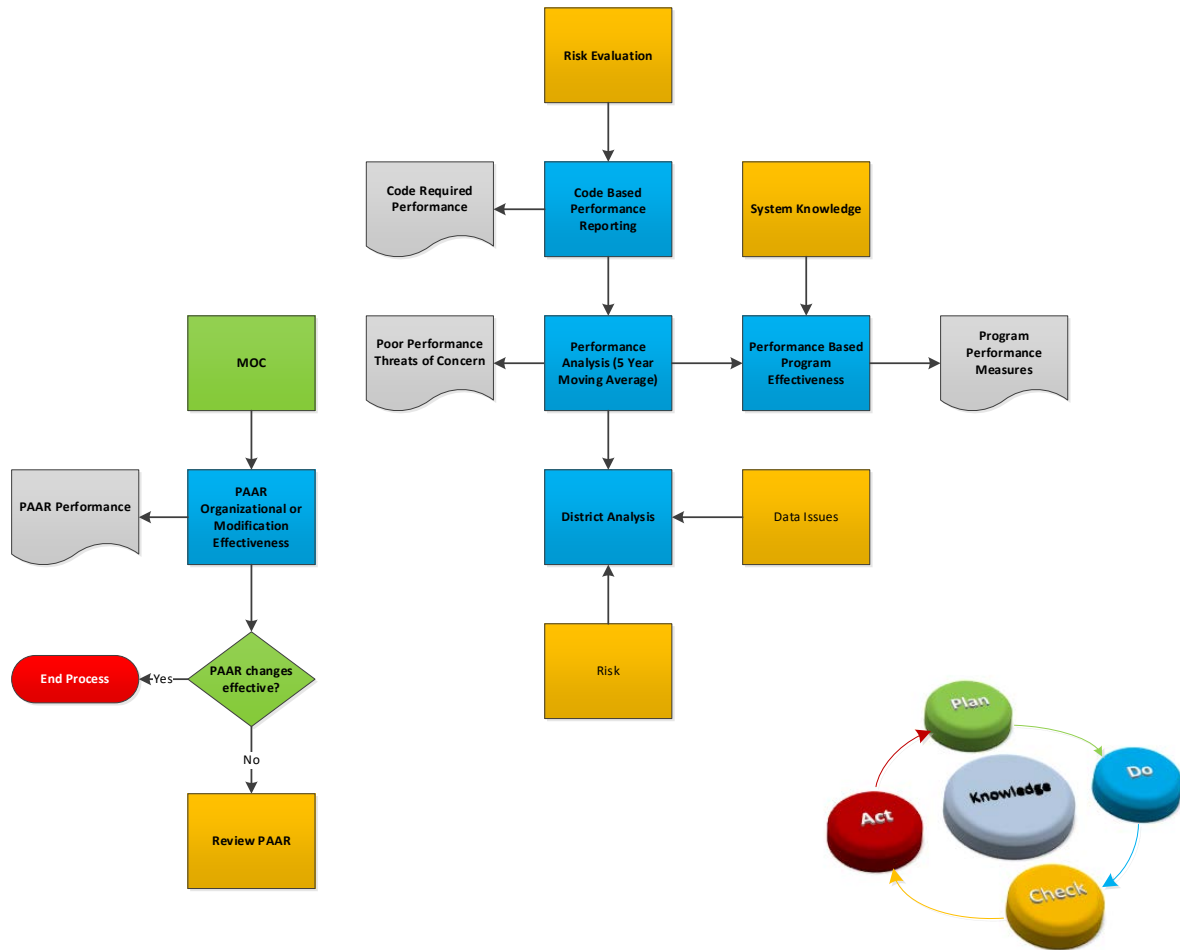
Section 16.3 further outlines the question responses and scoring.

10.6. PERFORMANCE UTILIZED TO EVALUATE CHANGE EFFECTIVENESS

PAAR performance is analyzed and if deemed ineffective will be reviewed again in Investigation Results Analysis



10.7. PERFORMANCE WORKFLOW



10.8. RECORDKEEPING

10.8.1. DECISIONS

- 1) Are investigations required?
- 2) What is the investigation approach (specific or all districts)?
- 3) What is the investigation method to be employed (meetings, pSec, both)?
- 4) Were the PAAR Organizational MOC or Modification effective?
- 5) Are new performance measures needed?

10.8.2. DOCUMENTATION

- 1) Code required performance measures
- 2) 5 year trend and 5 year moving average performance threats to be analyzed
- 3) PAAR change effectiveness
- 4) PAAR effectiveness performance

10.8.3. COMMUNICATIONS

- 1) Presentation of information / data on threats of concern specific to each district through meetings and/or pSEc.
- 2) PAAR performance to District Operations for review and resolution

11. DISTRICT ANALYSIS

11.1. REGULATORY

11.1.1. CODE 49 CFR 192.1007 (E)

Measure performance monitor results and evaluate effectiveness. (1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

- Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

11.2. OVERVIEW

District threat analysis is initiated following the determination of threats to be investigated at each districts high total risk or high average risk and poor performance based on a 5 year moving average or 5 year trend. Each district analysis will be limited to these identified threats.

Once the threats of concern have been determined, the criteria utilized to analyze threats based on state or district significance needs to be determined. On a per district basis, the data supporting the analysis of the threats of concern, as well as other areas to be addressed such as data collection or leak management issues, the results will be prepared for presentation. These presentations will then be scheduled as part of investigation meetings and/or will be provided in pSEc to the targeted field personnel.

SME validated threats; their relative risk and the company's performance in the management of these threats are utilized in the creation of a risk / performance matrix. This matrix prescribes three levels of response:

- No Analysis
- No Analysis Required – Monitor
- Analysis Required

The final aspect of the plan implementation prior to the determination of corrective actions is threat specific analysis including the following:

- Detailed examination of associated system knowledge
- Review of risk by secondary facilities (i.e. pipe, valves, risers, etc.)—if applicable
- Review of risk by material—if applicable
- Review to determine local vs. systemic
- Determination of potential drivers and focus on the appropriate activities currently being implemented

NOTE: When root cause data is available for the excavation damages, analysis is performed to identify the differentiation between those damages whose root cause were internal (and thus controllable) v those whose root cause indicated that external parties were responsible. In the case of external responsibility, the analysis provides information on audience and member with their associated root threat trends. This information is then provided to the public awareness / damage prevention team.

11.3. METHODOLOGY

The approach taken by CenterPoint Energy includes the analysis of each threat determined to have a significant contribution to risk as documented per the state or district specific threat analysis. The objective of the analysis is to systematically reduce the information to a risk-targeted level for the collection of organizational feedback in support of identifying possible corrective actions. The organizational feedback will be predicated on the data / information presented including; materials, facilities, performance trending, risk-performance drivers and other ancillary items such as data collection and/or leak management and excavation damage internal root causes.

The Risk-Performance Analysis process is a key component of the CenterPoint Energy's Distribution Integrity Management Program. The results of this effort will be utilized as the basis for decisions to improve activities to manage risk. The process begins with a classification of the relative risk and the determination of the performance for each threat. This is followed with the incorporation of both elements to determine the appropriate action to be taken for each threat; such as additional analysis (investigation), no analysis performed (Monitoring), or no analysis required (Monitoring). The objective of any subsequent analysis is to lead to the identification of an operational issue or additional data needs to determine the operational issue and potential program/activity improvement or the development of new program/activities to address risk.

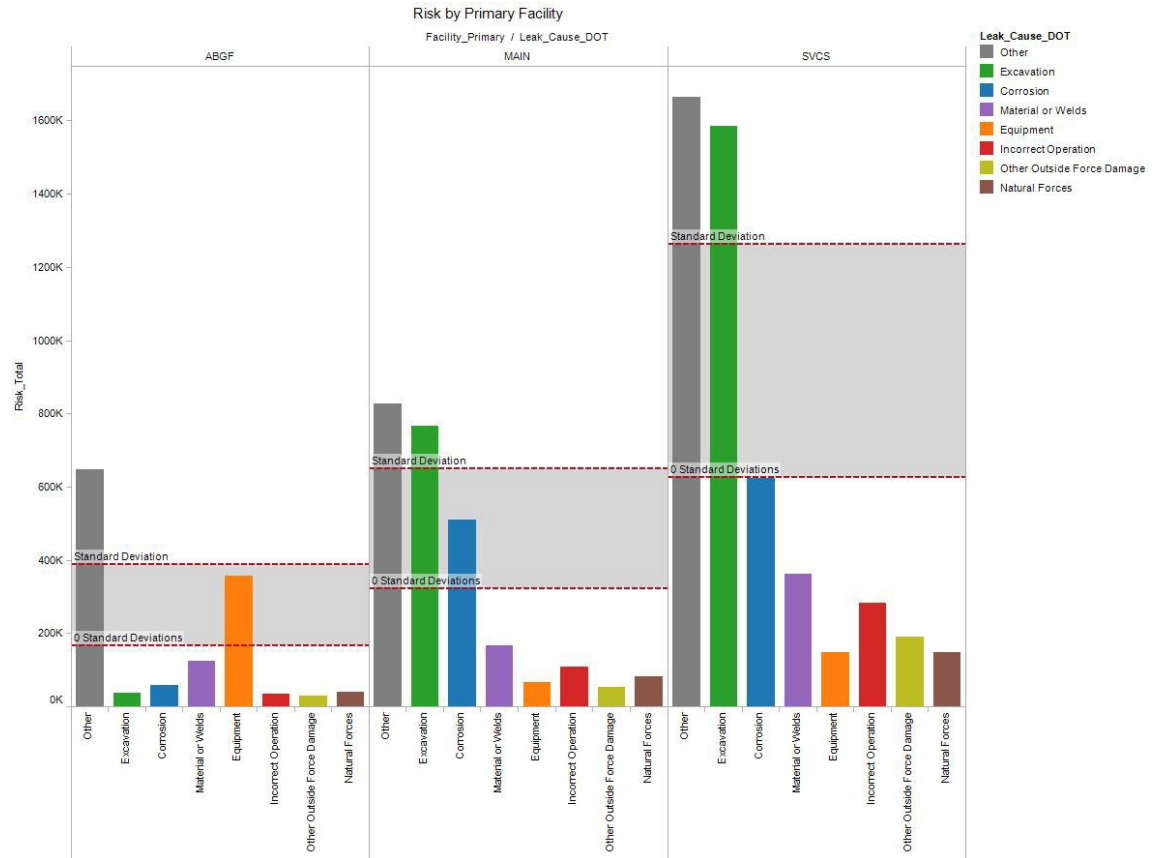
11.3.1. RELATIVE RISK ASSESSMENT

The relative risk of all threats, defined as the primary causes/facility combinations, is evaluated for both total risk and the average risk for the cycle year. The risk results are assessed for all threats affecting a given facility type and characterized in terms of severity as follows:

- Average Relative Risk – "Low" Relative Risk
- Between Average Relative Risk and 1 Standard Deviation of the average – "Medium" Relative Risk
- Over 1 Standard Deviation of the average – "High" Relative Risk

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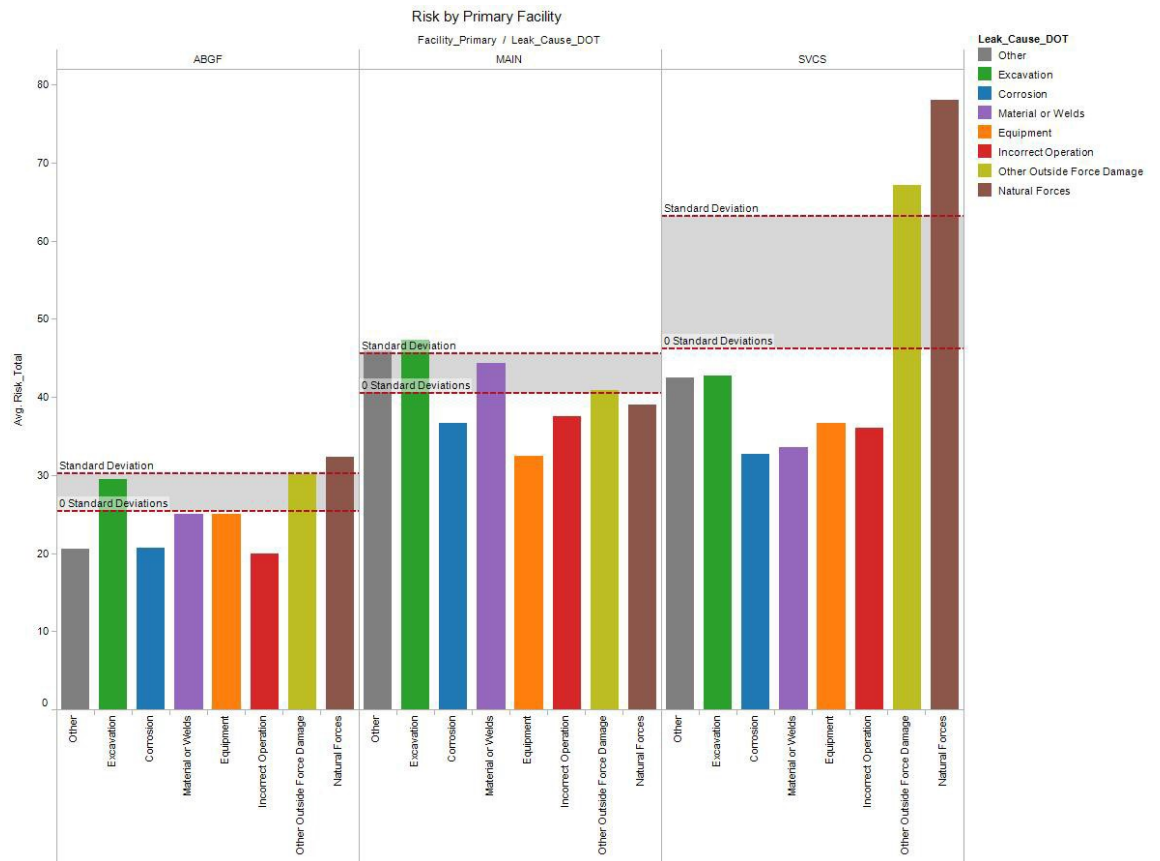
Risk by Primary Cause/Facility – Total Risk (Example)



Facility Type	Risk Classification		
	High	Medium	Low
Above ground facility	Other	Equipment	Material/Weld, Corrosion, Excavation, Natural Force, Incorrect Operation, Other Outside Force
Main	Other, Excavation	Corrosion	Material/Weld, Incorrect Operation, Natural Force, Equipment, Other Outside Force
Service	Other, Excavation		Corrosion, Material/Weld, Incorrect Operation, Other Outside Force, Natural Force, Equipment

CAUSE NO. 45468

Risk by Primary Cause/Facility – Average Risk (Example)



Facility Type	Risk Classification		
	High	Medium	Low
Above ground facility	Natural Force	Other Outside Force, Excavation	Material/Weld, Equipment, Corrosion, Other, Incorrect Operation
Main	Excavation, Other	Material/Weld, Other Outside Force	Natural Force, Incorrect Operation, Corrosion, Equipment
Service	Natural Force, Other Outside Force		Excavation, Other, Equipment, Incorrect Operation, Material/Weld, Corrosion

11.3.2. THREAT PERFORMANCE ASSESSMENT

The second component in the risk/performance analysis is the characterization of the overall performance for each threat as defined by primary cause/facility combinations. This analysis will be performed at the state level for each threat and will evaluate performance trends for the 5 year moving average to act as the historical baselines, and by the 5 year trend, weighted equally. There are three components to the performance evaluation as follows:

- Review of Performance Trend Line
- Review of Latest Year Data Point Position with respect to the Standard Deviation Band of the trend
- Review of Latest Year Data Point Position with Respect to the Standard Deviation Band of all trends

These results will be averaged for the three trends, if applicable, and utilized in conjunction with the risk results to determine the actions necessary for each threat. The performance trends utilized in this evaluation are subject to change based on significant modifications to the data collection requirements or reporting requirements. The performance evaluation ratings are based on a 1 to 6 scale with thresholds as follows in Table 11.3.2:

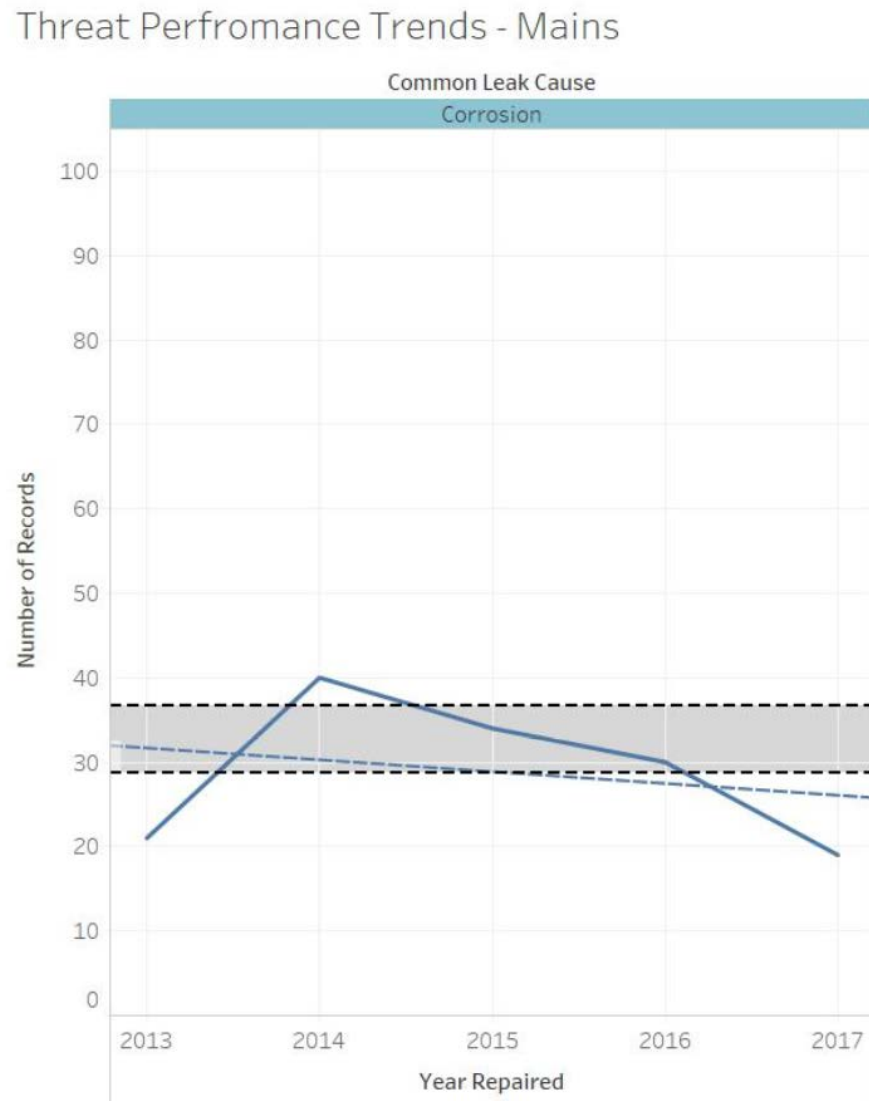
Table 11.3.2 Performance Rating Results

Performance Ratings	Score Range
Good	≤ 2.67
Fair	2.67 to 4.33
Poor	≥ 4.33

11.3.3. PERFORMANCE TREND LINE REVIEW

For this portion of the performance determination, a linear trend line will be applied to the annual totals for each threat for the various durations. The criteria for this portion are as follows:

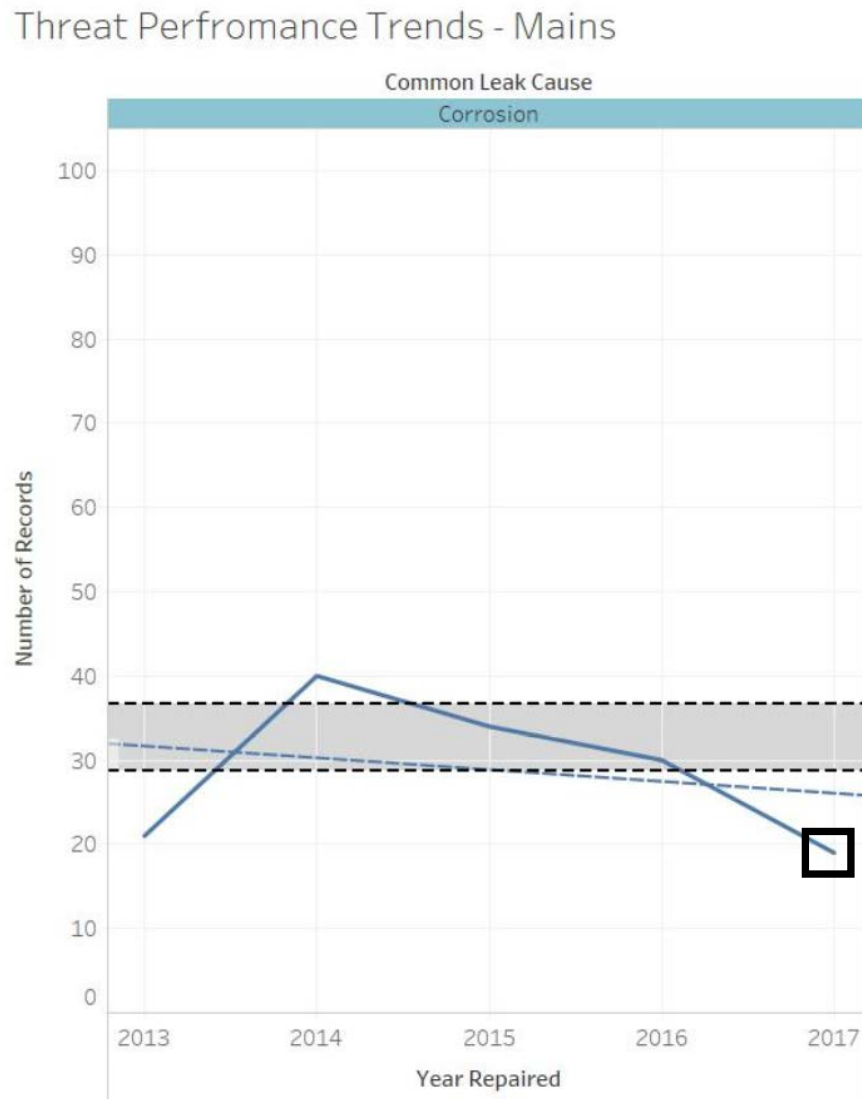
- Declining Trend Line – Value of 1
- Increasing Trend Line – Value of 2



11.3.4. PERFORMANCE TREND STANDARD DEVIATION REVIEW

For this review, a -1 to 1 standard deviation band will be applied to the individual performance trend in order to evaluate the position of the most recent data point with respect to the band. The purpose of this is to understand the behavior of the trend line. The position of the point will be characterized as follows:

- Below 1 Standard Deviation – Value of -1
- Between 1 STD and +1 STD – Value of 0
- Above 1 Standard Deviation – Value of 1
-

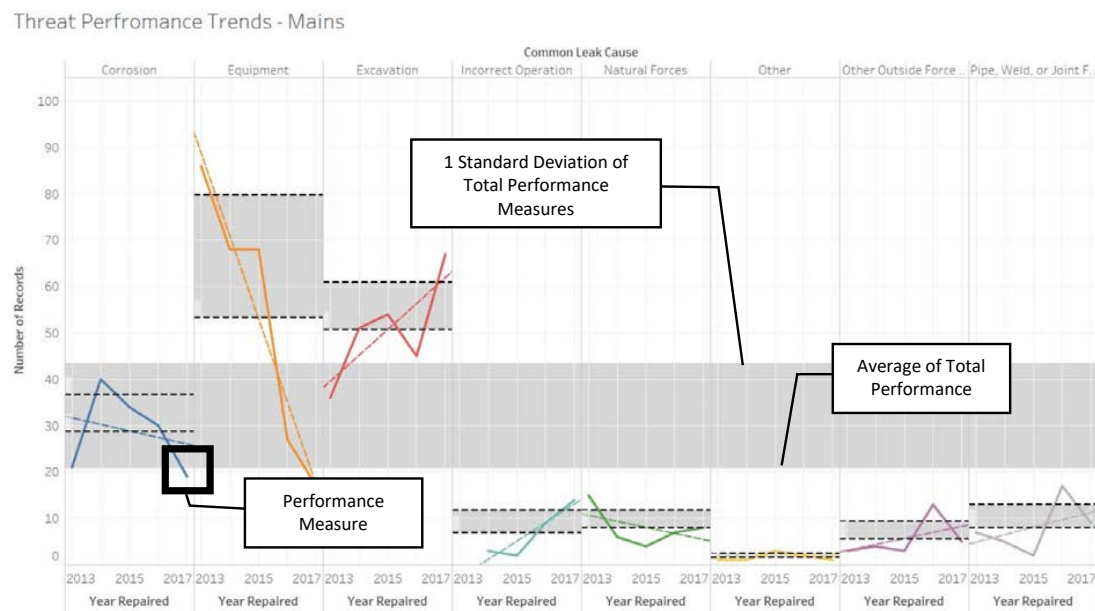


CAUSE NO. 45468

11.3.5. PERFORMANCE TREND OVERALL STANDARD DEVIATION REVIEW

The purpose of this portion is to consider the overall magnitude of the performance trends for each threat as compared to the all threats for a given facility type. Position of most recent data point compared to Average of Total Performance Measures and 1 Standard Deviation of Total Performance Measures will be characterized as follows:

- Below Total Average – Value of 1
- Between Total Average and 1 Standard Deviation of Total– Value of 2
- Above 1 Standard Deviation of Total – Value of 3



11.3.6. COMBINED PERFORMANCE EVALUATION

The results of the previous performance measures evaluations are then compiled to determine level of performance for each threat (cause-primary facility combination) trends at the various durations, 5 year moving average and 5 year trend. In the example show, the results would look as follow:

Threat-Facility	Risk Results		5 Year Trend			5 Year Moving Average Trend			5yr Score	5yr Moving Score	Max Performance Score	Cycle Results		
	Total Risk	Avg Risk	Line Slope	Position within threat	Position within all threats	Line Slope	Position within threat	Position within all threats				Performance Grade	R-P (Total)	R-P (Avg)
Corrosion - Main	Medium	Low	1	-1	1	1	-1	1	1	1	1.00	Good	Medium-Good	Low-Good

*Note: A 3 and 4 year Moving Average will be used until a 5 year becomes available in 2021

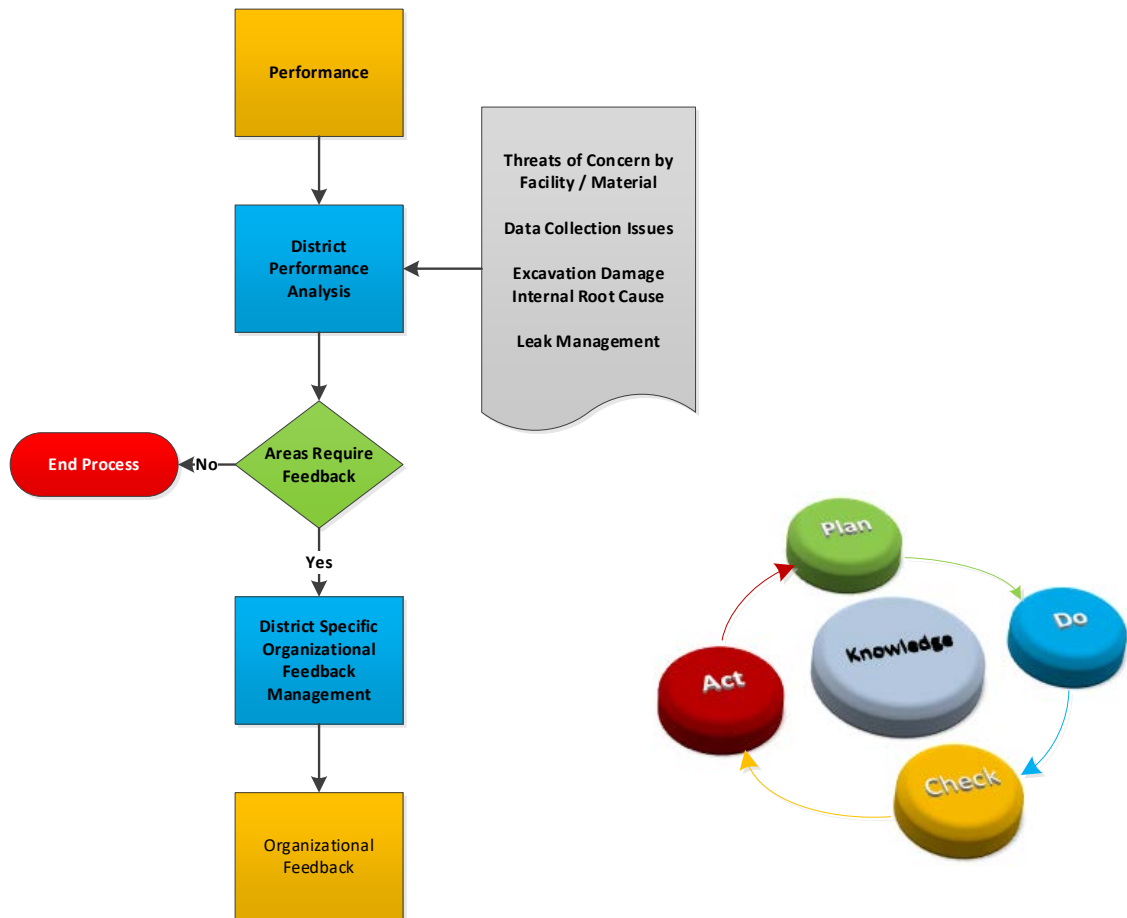
11.3.7. RISK-PERFORMANCE ASSESSMENT

In order to distinguish the threats for additional evaluation, the scores are carried through and utilized in the product of the risk-performance assessment. Both the total risk and the average risk evaluation will be evaluated with the higher of the two scores becoming the Max Performance Score used for analysis against the risk-performance matrix to determine which threats require additional analysis.

	Performance		
	Good	Fair	Poor
Risk			
Low	✕	✕	✕
Medium	✕	✕	✕
High	✕	✕	✕
Key ✕ = No Analysis ✕ = No Analysis Required-Monitor ✕ = Analysis Required			

This process will take place independently for the three facility groups: main, service and above ground facilities to allow for the potential determination of additional analysis in all sets. The results requiring further analysis based on the risk-performance assessment are high risk with fair or poor performance, along with medium risk with poor performance. The risk-performance assessment results for monitor may be further reviewed and analyzed as well. The risk-performance assessment results that do not require further analysis are considered to be less of a threat as they are performing at good or fair scores with low or medium risk results as outlined in the matrix above. Any risk-performance assessment for a threat-facility combination that makes up a total of less than 1% of the total district risk but is flagged for investigation will be excluded from the district threat analysis process so that engineer efforts may be better focused on the major components of the region's risk profile. To the same effect, any risk-performance assessment for a threat-facility combination than makes up a total of more than 10% of the total disk risk but is not flagged for investigation will automatically be included for the district threat analysis process to ensure that any threat-facility combination that makes up a sizeable portion of the region's risk will be investigated. These 1% and 10% threshold amounts will be reevaluated annually along with the risk equation (Sec 9.3).

11.4. DISTRICT ANALYSIS WORKFLOW



11.5. RECORDKEEPING

11.5.1. DECISIONS

- 1) Threats of concern at the district level
- 2) Districts requiring investigations and/or collection of organizational feedback required

11.5.2. DOCUMENTATION

- 1) Methodologies for analysis
 - a. Threat analysis (Risk-Performance Analysis)
 - b. Locations
 - c. Excavation damage

- 2) Excavation Damage
 - a. Root Threats
 - b. Audience
 - c. Members
 - d. Performance
- 3) Threats with Risk-Performance Driver

11.5.3. COMMUNICATIONS

- 1) Excavation damage external root cause analysis to public awareness / damage prevention/ district
- 2) District threats subject to field investigation / collection of organizational feedback
- 3) PAARs requiring additional analysis

12. INVESTIGATION

12.1. REGULATORY

12.1.1. CODE 49 CFR 192.1007 (E)

Measure performance monitor results and evaluate effectiveness. (1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

- (vi) Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

12.1.2. PHMSA INTERPRETATION

The investigations meet the intent of PHMSA in terms of addressing "Performance Through People" as suggested in their response in the NPRM. PHMSA did not include PTP requirements in the final rule; however, PHMSA agrees that nevertheless, the final rule still requires that operators evaluate all threats applicable to their pipeline systems. Thus, operators for which inappropriate operation is a threat of concern will be required to address that threat.

12.2. OVERVIEW

Analysis of data at the company, state, district levels provides insight to threats with higher risk and/or poor performance. These analyses tell us what to look at and where, but they do not tell us what to fix. To better understand these threats of concern and/or other issues, targeted investigations need to be made. These investigations will be designed to capture organizational feedback on the threats, facilities, materials, associated potential threats and on the PAAR designed to manage them. This organizational feedback may be obtained by on-site meetings with field personnel or through stakeholder engagement whereby all field personnel are provided the analysis results specific to the location through a platform that will allow them to provide individualized feedback. Organizational feedback provides the connection between understanding threat performance, potential threats, and PAAR, and the determination of potential corrective actions.

The areas analyzed and presented for organizational feedback include:

- Data Collection
- Leak Management
- Threats of Concern
- Threat Specific PAAR Effectiveness

Additional areas that are not evident in the data analysis that require feedback to drive potential corrective actions include:

- Potential Threats
- PAAR Execution

Once the organizational feedback annual cycle has been completed, the results from all districts will be aggregated and analyzed from a company perspective during Investigation Results Analysis, prioritizing both systemic or local issues of concern.

12.3. METHODOLOGY

The following areas are considered potential targets for the collection of Organizational feedback. The results of this effort will verify the analysis to be utilized as the foundation for decisions to improve activities to manage risk. Communications with SME's are implemented with the specific purpose of validating system knowledge, threat identification, risk ranking, performance metrics, reviewing programs and activities to address risk, as well as the determination of leak management effectiveness. These communications may be in meetings or operational feedback may be collected through a communications and information exchange platform. Following receipt of this feedback, the integrity team will validate the following items:

12.3.1. DATA COLLECTION

Selected data collection performance issues determined through the review of the leak repair or other data sets analyzed.

12.3.2. LEAK MANAGEMENT

Selected leak management performance metrics such as identification, grading and repair times.

12.3.3. THREATS OF CONCERN

Threats identified through risk / performance analysis of hazardous and non-hazardous leaks will be presented, individually. The primary purpose of this review is to determine if there is any justification for increased occurrences. Secondly, CenterPoint Energy will provide the associated details for each threat such as; are they on mains or services, what material types or secondary facilities are experiencing the higher occurrences. Additionally, the feedback will include field personnel perspectives on potential threats to the system that may warrant additional consideration.

12.3.4. THREAT SPECIFIC PAAR EFFECTIVENESS

For each threat presented, the associated PAAR designed to manage that threat will be subject to organizational feedback as a means of determining the effectiveness of their execution. Additionally, PAAR that are non-threat specific such as Leak Patrol, Survey or any designed to address consequence will be included in the presentation.

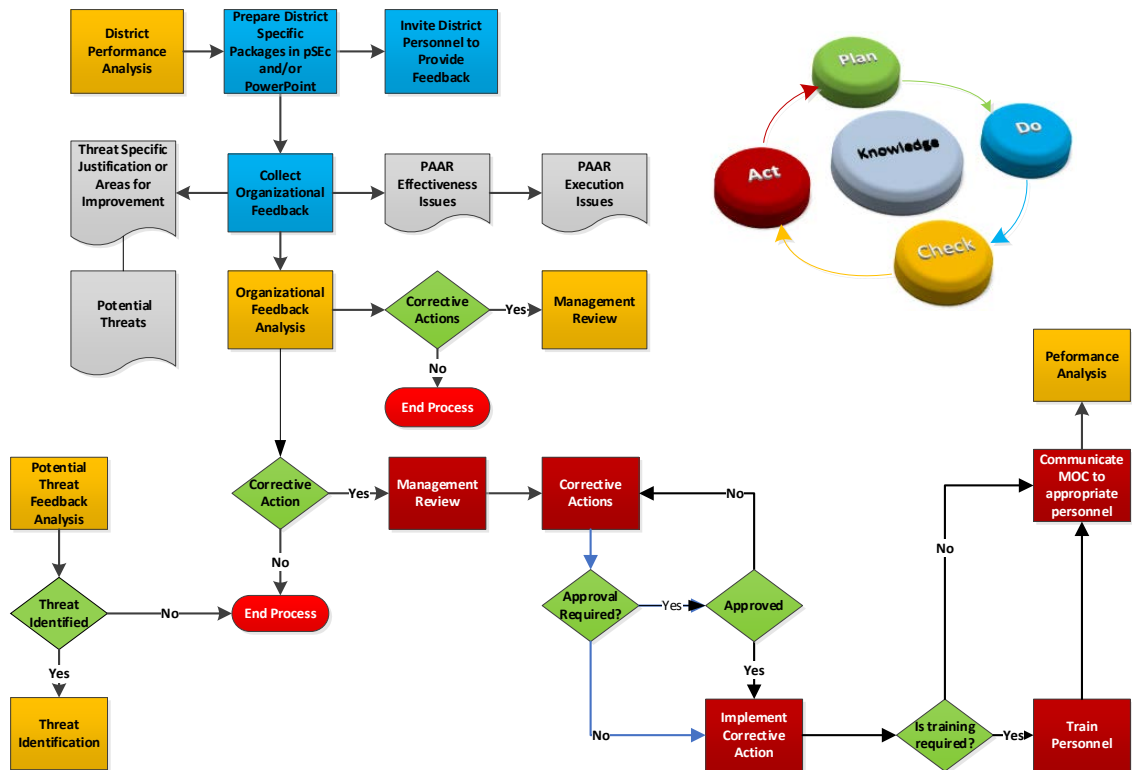
12.3.5. PAAR EXECUTION

The organizational areas associated with the execution of each PAAR to be discussed include:

- Procedures
- Training
- Communications
- Equipment
- Scheduling
- Resources
- Data Collection
- Data Management

The organizational feedback received will be compiled (see Investigation Results Analysis) to determine which, if any, issues warrant presentation to management for review and prioritization of additional research and/or possible corrective action.

12.4. INVESTIGATION WORKFLOW



12.5. RECORDKEEPING

12.5.1. DECISIONS

- Note: No decisions to be made in this Element

12.5.2. DOCUMENTATION

- Threat specific issue justification,
- Threat specific areas for improvement
- Potential threats
- PAAR effectiveness and execution feedback

12.5.3. COMMUNICATIONS

- Threat analysis presentation field personnel
- Findings to investigation results analysis

13. INVESTIGATION RESULTS ANALYSIS

13.1. CODE 49 CFR 192.1007 (E)

Measure performance monitor results and evaluate effectiveness. (1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

- Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

13.2. OVERVIEW

This section continues CenterPoint Energy's approach to drive corrective action through performance analysis, by aggregating the investigation results in preparation for specific corrective action decisions, and to identify any potential threats. In addition, we aggregate the PAAR discussions at a high level, utilize a documented criterion to identify PAAR with issues. Subsequent research and documentation on the individual components of each PAAR with identified issues is completed. The objective is to determine if improvements are to be made, their prioritization and what type of corrective actions are to be implemented.

NOTE: These investigations meet the intent of PHMSA in terms of addressing "Performance Through People (PTP)" as suggested in their response in the NPRM. PHMSA did not include PTP requirements in the final rule; however, PHMSA agrees that nevertheless, the final rule still requires that operators evaluate all threats applicable to their pipeline systems. Thus, operators for which inappropriate operation is a threat of concern will be required to address that threat.

13.3. METHODOLOGY

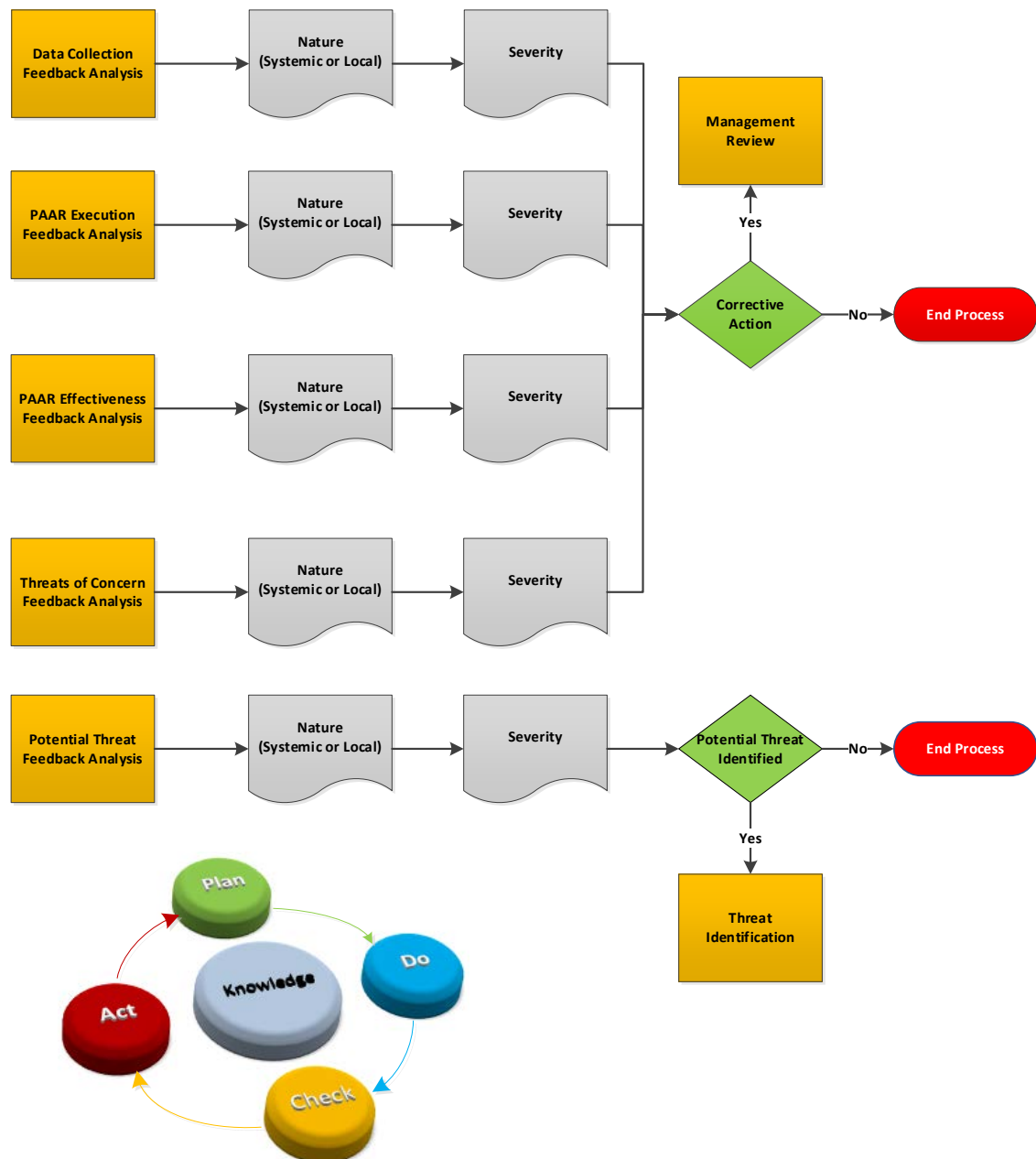
The approach taken by CenterPoint Energy requires the results of the field investigations to be aggregated, analyzed and prioritized for discussion on potential corrective actions. This analysis looks at each of the various areas presented to field personnel to determine the frequency and severity of their feedback and to determine whether the issues identified are systemic or local. The feedback captured during field investigation include the following:

- 1) Threats
 - a. Specific Threat Issues
 - b. Potential Threats
 - c. By Facility
 - d. By Material
- 2) PAAR
 - a. Organizational feedback requiring corrective action
 - b. Organizational feedback requiring further investigation

Threat specific and PAAR feedback will be aggregated and reviewed to determine potential corrective action:

- 1) New PAAAR
- 2) PAAR modification
- 3) Organizational MOC

- 4) Operational Recommendation
- 5) Continuous Improvement
- 6) Data Management Recommendation
- 7) One Off Mitigation
- 8) Distribution Integrity Management Program Governance Management of Change

13.4. INVESTIGATION RESULTS ANALYSIS WORKFLOW

13.5. RECORDKEEPING

13.5.1. DECISIONS

- 1) Are there any potential threats that need to be addressed?
- 2) Do any PAAR have issues
- 3) Type of corrective action

13.5.2. DOCUMENTATION

- 1) Facility / material analysis
- 2) Potential threat analysis
- 3) Organizational feedback analysis

13.5.3. COMMUNICATIONS

- 1) Communications with appropriate resources of proposed Organizational PAAR improvements or other recommended corrective actions

14. CORRECTIVE ACTION

14.1. REGULATORY

14.1.1. CODE 49 CFR 192.1007 (E)

Measure performance, monitor results, and evaluate effectiveness. (1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

- Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

14.2. OVERVIEW

The primary objective of the Distribution Integrity Management Program is to determine the effectiveness of current risk management efforts and to improve if, where and when necessary. This will be accomplished via analysis of the performance of programs implemented, as part of this Distribution Integrity Management Program, against the specific threats they were designed to address following the risk- performance analysis.

CenterPoint Energy will identify areas subject to corrective action through either the field investigation process or the use of a communications and information exchange platform. Following the collection of organizational feedback by any means, results are aggregated and analyzed. Relative the PAAR, the objective is to identify areas for improvement to enhance system safety as listed below:

- 1) Data Management
- 2) Data Collection
- 3) Tools / Data Collection Devices
- 4) Training
- 5) Procedures
- 6) Resources
- 7) Scheduling
- 8) Communications
- 9) GIS / Data

The following types of improvements to the Distribution Integrity Management Program will be considered either locally or on systemic basis following the analysis of the results of the risk and performance metrics validation. If modification to an existing activity or new activity is implemented, a reasonable time interval will be established to allow the activity to make an impact on the threat it was intended on mitigating. Additionally, SME's will continue to monitor the system and identify potential improvements based on analysis results and/or local conditions experienced.

- Corrective Actions
 - One Off Mitigation
 - Pipe Replacement
 - Continuous Improvement

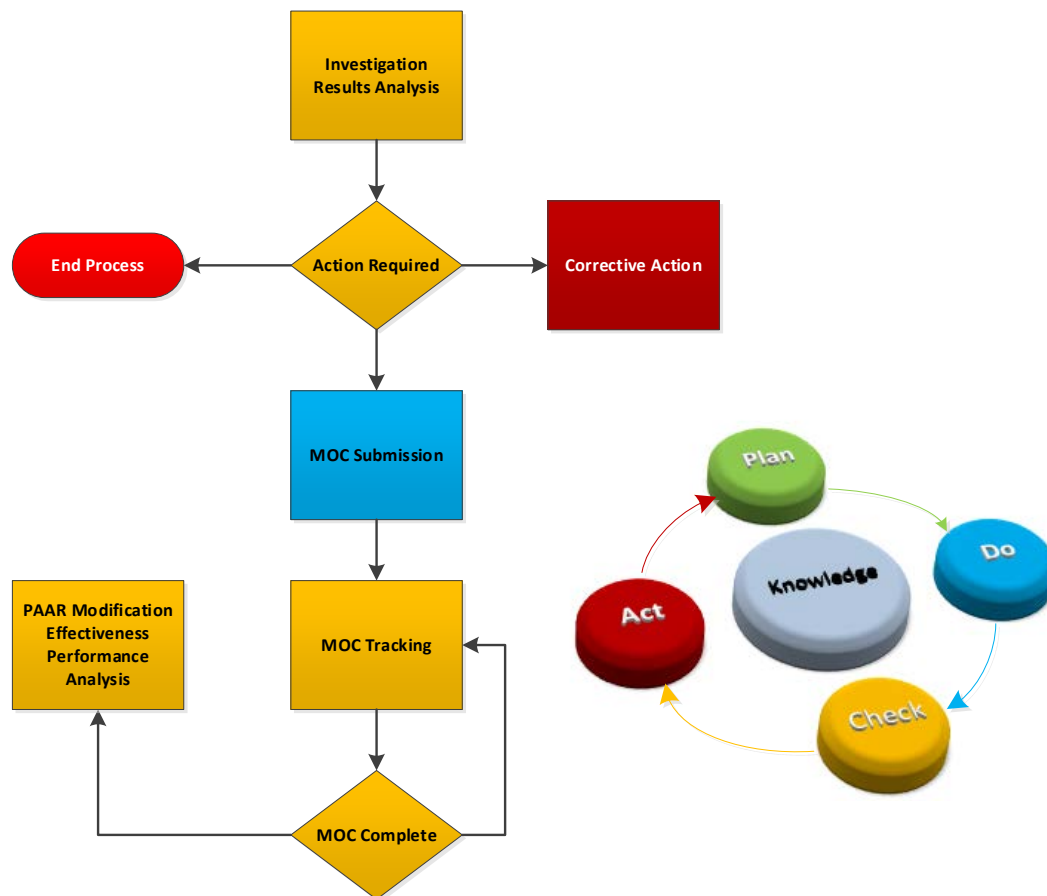
- Operational Recommendations
- Data Management
- PAAR Modifications
- Corporate MOC
- DIMP Plan Improvement
- New PAAR creation

14.3. METHODOLOGY

Corporate MOC

Specific types of changes that are considered systemic, will be managed at the corporate level. These changes will be submitted through the corporate MOC portal and subsequently tracked by integrity management.

14.3.1. CORPORATE MOC WORKFLOW



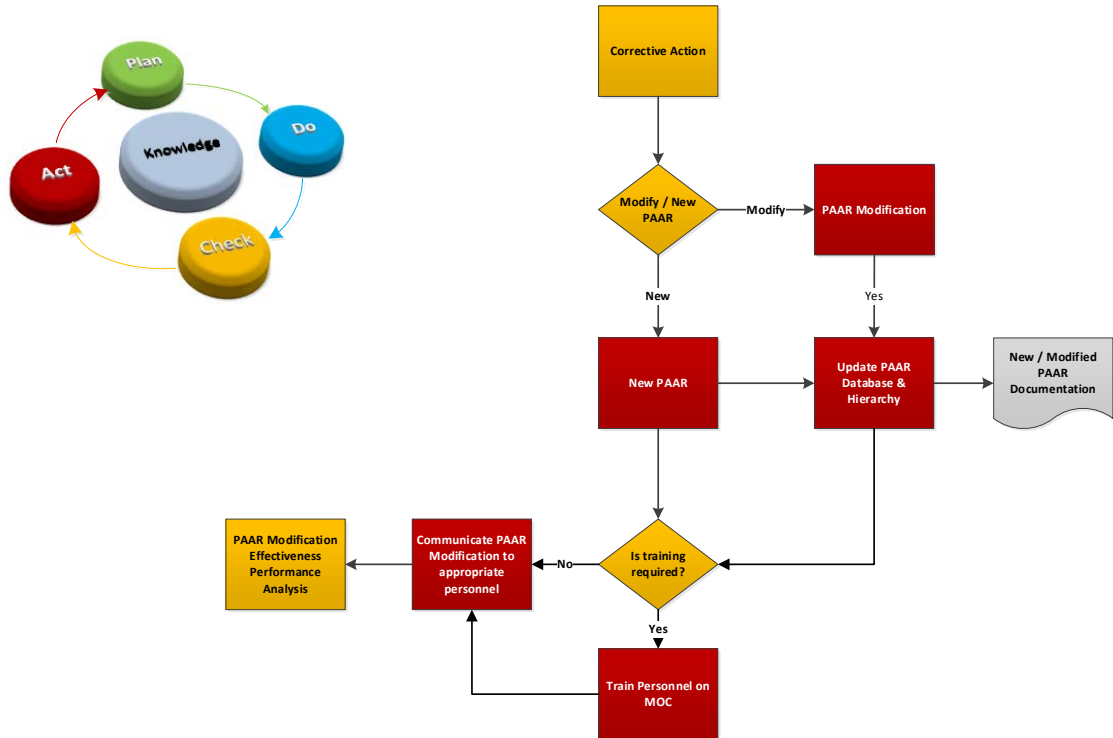
14.3.2. PAAR MODIFICATIONS

As a result of analysis / evaluation of activity effectiveness, existing PAAR may be modified. These modifications may be made to any of the aspects of the formal PAAR descriptions detailed in the PAAR database. However, the expected modifications, if any, will be primarily in terms of the frequency, the location and the data collected. A secondary change might be the means, by which the data is managed, for example, to further identify the cause of incidents that have been categorized as "Other" in the past. Other PAAR changes might include:

- Scope
- Roles / Responsibilities
- Qualifications
- Training
- Processes
- Steps
- Records to be generated / maintained
- Equipment
- Reporting

New PAAR

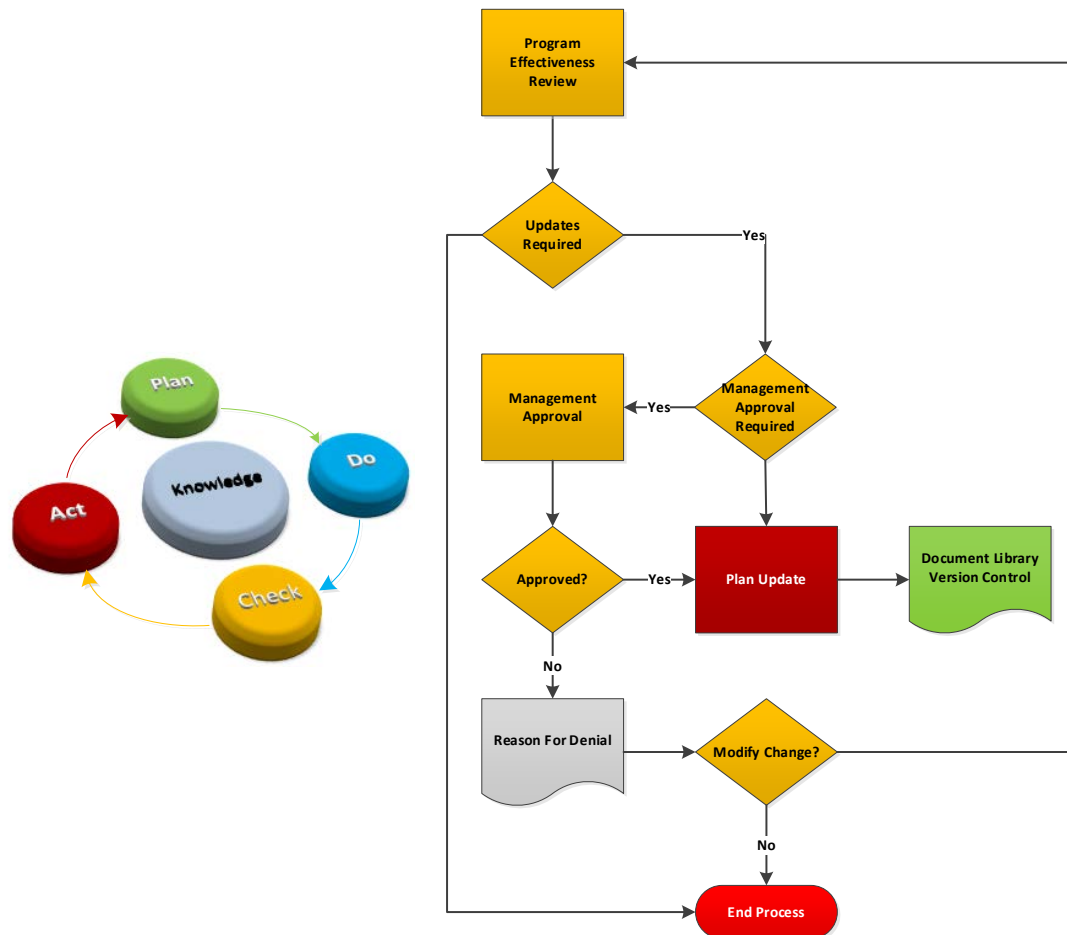
New PAAR may be created in the event it is determined that it is required to support risk management. These PAAR will be designed, approved by management, documented and added to the PAAR database.

14.3.3. PAAR MODIFICATION WORKFLOW

14.3.4. DIMP PLAN IMPROVEMENT

The distribution integrity management plan will be reviewed periodically and updated as necessary. Plan updates might also be driven by performance-based program effectiveness measurement and/or the results of the aggregation of organizational feedback and subsequent analysis.

14.3.5. DIMP PLAN IMPROVEMENT WORKFLOW



14.3.6. ONE OFF MITIGATION

One off mitigation will be used in the event the analysis of the data provided through the various activities currently being implemented suggests that specific areas fall outside the norm in terms of risk. The Company will address each of these on an as needed basis. This may include mitigation of a specific threat though one-time enhancement to the activities that manage this threat and/or its consequences, or it may include taking actions that heretofore have not been part of any activity in place. If these one-off mitigations are required and they are not part of any existing program, consideration will be made as to whether the creation of a new activity is in order.

14.3.7. CONTINUOUS IMPROVEMENT

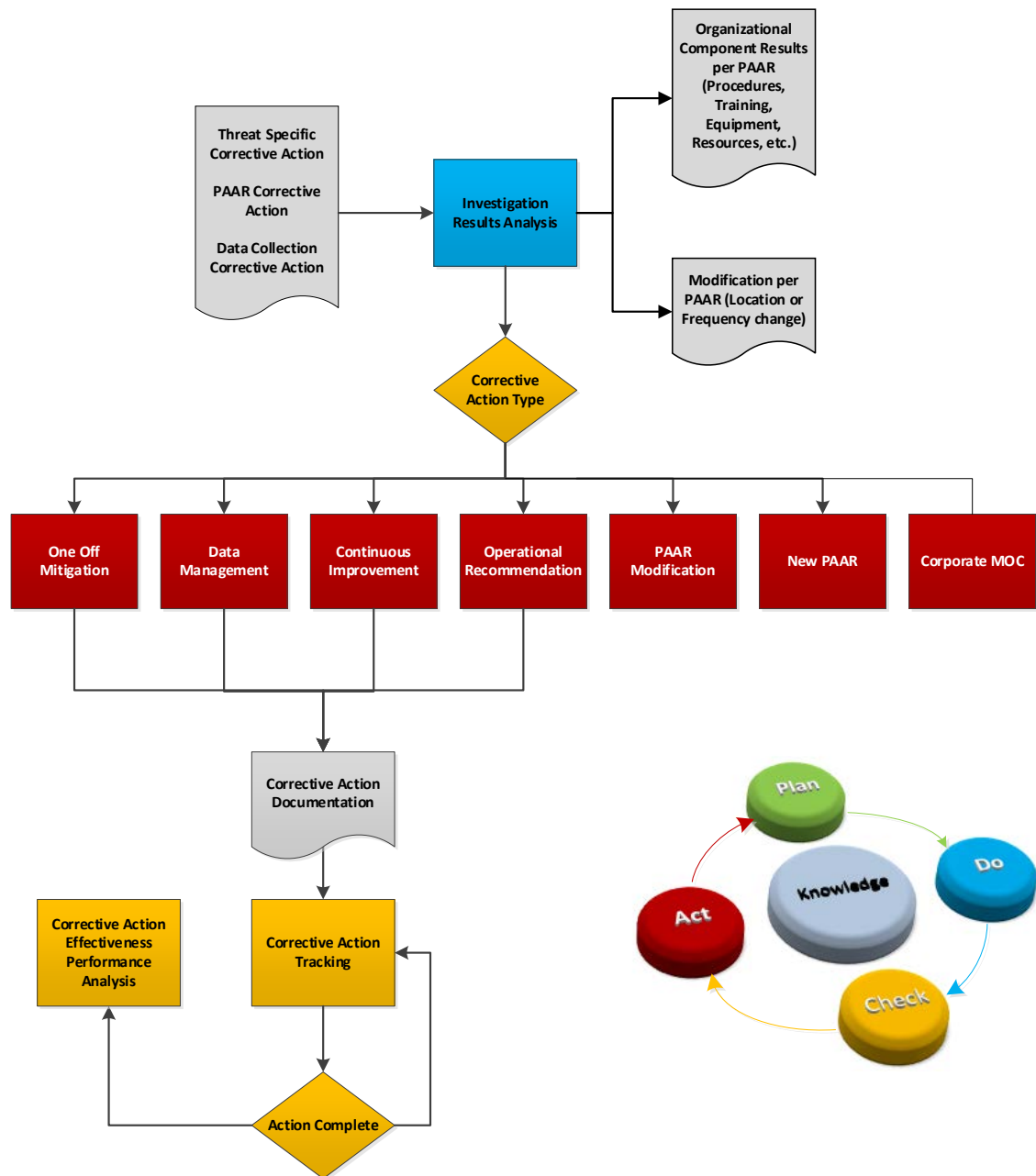
Continuous improvements are not managed as change rather they take the form of recommendations for improvement in current methods and are typically applied to training.

14.3.8. OPERATIONAL RECOMMENDATIONS

Operational recommendations will be in the form of resources, scheduling and/or communication improvements.

14.3.9. DATA MANAGEMENT

Data management corrective actions will be in the form of recommendations to the appropriate personnel with responsibility for management of data collection, data storage and data access.

14.4. CORRECTIVE ACTION WORKFLOW

14.5. RECORDKEEPING

14.5.1. DECISIONS

- 1) Corrective action required
- 2) Management of change completed
- 3) Modify PAAR or Create new PAAR
- 4) Is training required
- 5) Program update required
- 6) Management approval required
- 7) Management approval
- 8) Change modifications
- 9) Corrective action type

14.5.2. DOCUMENTATION

- 1) New PAAR
- 2) PAAR Modifications
- 3) Reasons for management disapproval

Plan updates

- 4) Corrective action

14.5.3. COMMUNICATIONS

- 1) Change to corporate MOC
- 2) Communicate PAAR change parameters to the responsible personnel

15. PROGRAMS AND ACTIVITIES TO ADDRESS RISK

15.1. REGULATORY

15.1.1. CODE 49 CFR 192.1007 (D)

Determine and implement measures designed to reduce the risks from failure of its gas distribution pipeline. These measures must include an effective leak management program (unless all leaks are repaired when found). Effective leak management ensures quality leak identification, grading, and repair information which is the core to the identification of threat and determination of risk to the systems. CenterPoint Energy includes leak management performance metrics as part of its annual integrity management implementation.

15.2. OVERVIEW

49 CFR 192 Subpart P is a performance-based regulation that was promulgated to improve pipeline safety. The initial objective of CenterPoint Energy's Distribution Integrity Program is to determine the effectiveness of activities currently being applied toward risk management in a systematic approach based on the risk performance evaluation. The effectiveness of the leak management program is addresses in the Performance section of the plan.

Programs and Activities to Address Risk (PAAR), the sources of all system knowledge are those designed to identify, prevent or mitigate conditions that might lead to an incident as opposed to a failure. Distribution systems traditionally experience leaks that are categorized as Grade 1 (hazardous), grade 2 or grade 3 (non-hazardous).

An example of how the various activities map to a specific threat is shown below for excavation damage:

Excavation Damage	
Identification	<div>Damage Prevention</div> <div>Leak Management</div> <div>Patrol/Surveillance</div>
Probability Mitigation	<div>Damage Prevention</div> <div>Public Awareness</div> <div>Incorrect Operations Audits</div> <div>Patrol/Surveillance</div>
Consequence Mitigation	<div>Leak Management</div> <div>Public Awareness</div> <div>Excess Flow Valves</div> <div>Emergency Planning</div>

As many as 7 activities are directly related to the management of the risk associated with excavation damage with a few having an impact on both the probability of failure and the associated consequence.

1. Leak Management,
2. Damage Prevention
3. Public Awareness
4. Incorrect Operations Audits
5. Patrol/Surveillance
6. Excess Flow Valves
7. Emergency Planning

49 CFR 192 is a risk-based regulation, and as such dictates several prescriptive Operations and Maintenance (O&M) requirements to manage the aforementioned conditions on the system. The requirements of this rule were designed to enhance or support pipeline safety. CenterPoint Energy will leverage all activities currently being implemented for the management of risk including those required per 49 CFR 192 as well as others that have been internally developed to address specific risks to the systems. The initial implementation of the Distribution Integrity Management Program focuses on determining if these activities may be subject to improvement. (See PAAR database for the complete list of PAAR and Appendix section of this manual)

The safety of CenterPoint Energy's assets is predicated on our knowledge of our systems and the execution of the PAAR designed to manage any threats to the assets. Measuring the performance of the system pursuant to specific threats allows for the determination of which locations and which programs or activities may be subject to corrective action.

These corrective actions may take the form of program or activity modifications, the creation of new programs or activities, or they may be designed to address organizational issues. Organizational issues include, but are not limited to; procedures, data management, training and communications.

Locations demonstrating poor performance for the identified high-risk threats are subject to investigation to determine issues with execution. As part of field investigation, the PAAR specific to the threats under investigation will be addressed with field personnel to gain feedback that could drive corrective action as required in the form of addressing organizational issues, PAAR modification or creating new PAAR.

15.3. METHODOLOGY

CenterPoint Energy's approach to the management of the PAAR includes formalization, annual review and when data maturity warrants, updating system knowledge and performance. The PAAR database has been developed to formalize the PAAR by documenting:

- Name
- Description
- Performance Metrics
- Threats Addressed
- Nature and Type

- Associated Procedure Reference

The PAAR database is maintained as part of the annual Distribution Integrity Management Program implementation. This maintenance includes updates and/or changes to the threats (causes/facilities combinations) to the system, the activities being implemented to address both the probability of these threats causing a failure as well as the consequence associated with said failure and the gas standards that dictate the implementation of these activities.

Facility Management – Three groups of facilities are managed in PAAR. These include primary facility, material and other to hold lower tier facility types.

Cause Management – Causes are hierarchical in that the eight primary causes required by regulation are included with the potential for additional sub levels.

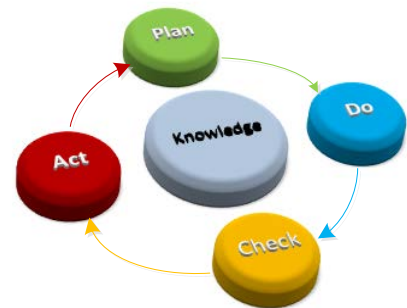
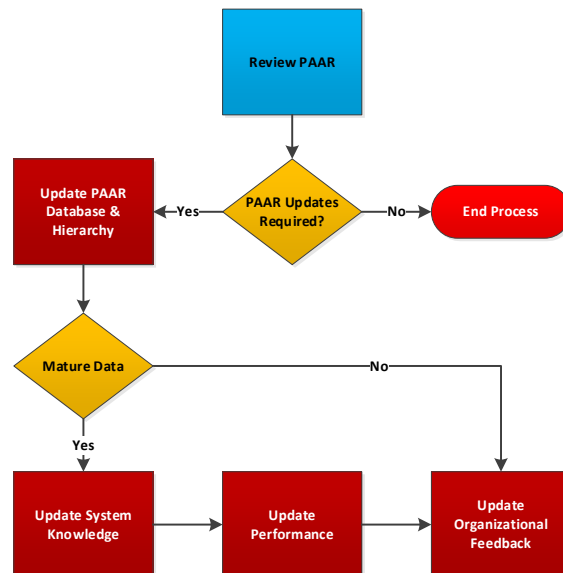
Threat Management – Each of the threats to CenterPoint Energy systems is mapped back to its cause/facility combination.

Procedure Management – Each activity is associated with any procedures in place specifically developed to manage “How” the activity is to be implemented.

Program/Activity Management – Activities are mapped to the threats they have been designed to address.

If during the annual review, any PAAR is determined to have a mature data set, the requirement is to include this data set in system knowledge. Then as part of the system knowledge processes, the data for the PAAR is managed to allow for analytical analysis. This analysis takes place as a Performance process later in the annual cycle.

15.4. PAAR REVIEW WORKFLOW



PAAR may be updated following the risk/performance driven district presentation, investigation and analysis of organizational feedback. These investigations as designed to capture input from the field personnel utilizing pSEc, or other various methods, pursuant to each PAAR in the areas of procedures, data management, training, scheduling, communications and scheduling.

This information will be used to complete the analysis of the effectiveness of the particular activity in reducing risk it is intended to address. Part of the analysis will determine if the poor performance metrics are likely due to the implementation of the requirements of the Gas Standard and related procedures. If this is the case, Quality Audits Implementation will be initiated beginning with documentation of the activity to be audited along with particular areas of emphasis if identified in the analysis.

If the analysis concludes that the implementation for the activity is properly being executed according to the associated procedures, then the question of whether or not performance metrics can be improved by changes in the activity is addressed. If none can be expected, then the activity is deemed effective, the process is complete. However, if there is reason to believe that changes will result in measurable improvement in the performance metric, additional action may be taken. If it is determined that this can be achieved by modification of the activity, the required changes are documented. After determination of whether the changes should be systemic or local, the appropriate modification to PAAR will be implemented.

After review of existing activity, and the SME's evaluation of the implementation, it is determined that additional risk reduction is required that cannot be achieved through improvement of existing activities, a new activity may be required. If a new activity is required, then the company will determine the appropriate manner in which to proceed.

Those PAAR identified as requiring modification that are not subject to corporate MOC, i.e. managed by the DIMP personnel, using the process workflow as outlined in section 14.3.3.

15.5. RECORDKEEPING

15.5.1. DECISIONS

- 1) Are PAAR updates required?
- 2) Does the PAAR have mature data?
- 3) Is this a New PAAR or a Modification to existing PAAR?

15.5.2. DOCUMENTATION

- 1) Drivers for New PAAR
- 2) Drivers for PAAR Modification

15.5.3. COMMUNICATION

- 1) Drivers for New or Modified PAAR to assigned personnel
- 2) PAAR change to the affected parties

16. PERIODIC EVALUATION & IMPROVEMENT

16.1. REGULATORY

16.1.1. CODE 49 CFR 192.1007 (F)

An operator must re-evaluate threats and risks on its entire pipeline and consider the relevance of threats in one location to other areas. Each operator must determine the appropriate period for conducting complete program evaluations based on the complexity of its system and changes in factors affecting the risk of failure. An operator must conduct a complete program re-evaluation at least every five years. The operator must consider the results of the performance monitoring in these evaluations.

16.1.2. PHMSA INTERPRATION

PHMSA considers that operators should evaluate the effectiveness of their IM programs on a routine basis, i.e., "continually." That is a basic concept of an effective IM program that has been used in other IM regulations. Nonetheless, because of the overwhelming concern raised by commenters about this term, PHMSA has revised the final rule to require that such re-evaluations occur on a periodic basis, based on the complexity of the system and changes in factors affecting the risk of failure; however, re-evaluations must occur at least once every 5 years.

16.2. OVERVIEW

The code requires a re-evaluation of threats and risk, which are performed as part of the annual cycle; however, the interpretation is much broader in that it discusses "Program" evaluation...

Program evaluation is made in two primary areas; 1) plans, processes, people and 2) program effectiveness in meeting the objectives (intent) of the regulations.

16.2.1. PERIODIC EVALUATION

The purpose of the Periodic Evaluation and Improvements is to ensure that the Distribution Integrity Management Program is accurate and appropriate for the type of systems it is intended to manage. As part of the efforts to maintain current with these requirements, the processes incorporated in this section are geared towards the evaluation and improvement of the plan since the requirements for reevaluation of threats, relative risk and performance have been integrated into the process for the related sections. Additional information is included for review and analysis on an annual basis to keep system knowledge, threats, relative risk and performance measure current with the latest complete data sets.

The annual review of the plan is conducted before commencing the processes and tasks associated with the section; this review is intended to revisit the entire Distribution Integrity Management Plan for the possible improvements based on knowledge gained through the execution of the plan. The evaluation may include a review of the following:

Plan content - such as contact information contained in the plan, names and numbers of designated forms, information storage locations, action schedules, and new system information.

Implementation - review of the execution of the plan for consideration of revisions due to difficulties or confusion in completing or carrying out tasks.

Workflow & Process management - evaluate to determine if modification or additional task and processes could provide clarity or ease the completion of the tasks. This workflow is documented in ICAM.

Personnel roles & responsibilities - determine if task assignments need to be adjusted based on knowledge and/or as additional resources become available.

Re-Evaluation – re-evaluation of threats and risks on the system. Review roles and access for users of ICAM, Uptime. J-DIMP and any other related software to determine if updates need to be made.

Measures to Reduce Risk— consider the frequency, effectiveness and modification as measures either need to be added, modified, or eliminated.

Performance Measures -- consider their effectiveness and refine or improve in effective metrics.

16.2.2. PROGRAM EFFECTIVENESS (IN DEVELOPMENT)

Although CenterPoint Energy's DIMP is predicated on the belief that risk is managed through O&M activities as well as other internally developed programs such as pipe replacement or accelerated leak survey, CenterPoint Energy has gone one step further in terms of program evaluation by adding consideration of additional components as a means of evaluating and reporting program effectiveness. These components are performance based and support the position that program effectiveness is a function of what we know, what we do and what corrective actions we take to improve.

Beyond the code requirement to evaluate risk by threat, per the AGA foundation study, the primary threats of distribution system incidents result from two sources; migration of gas to confined space with potential for ignition and excavation damage. Since that study and based on the catastrophic event that took place in Massachusetts in September 2018, Incorrect Operations has been identified as a prevalent threat. Therefore, the overall effectiveness of an integrity management program at a minimum, needs to include performance analysis in these 3 areas. CenterPoint Energy has included performance in threat management, data management, change management, and asset management to create a better understanding of program effectiveness. This approach aggregates multiple types of information to provide a non-actionable understanding of how CenterPoint Energy is performing, on a year to year basis.

Program evaluation in the simplest of terms, is the determination as to whether the programs have been executed pursuant to the plan (leading indicators / execution) and is the program meeting its objectives (lagging indicators / results). To support conformance with the DIMP plan, the following areas are managed, scheduled, tracked, documented, communicated and reported:

- The documentation of the data management with the system knowledge element
- The documentation and corrective actions for any potential threats identified as having the potential to affect system safety
- The documentation of the result of the threat specific risk ranking
- The documentation of those threats of concern as determined by the threat specific risk ranking as well as the performance analysis of the threat specific code required metrics
- The documentation of the performance analysis of
 - Leak Management
 - Excavation Damage Management
- The documentation of the total system performance-based risk
- The documentation of the district specific investigation results
- The documentation of the investigation results analysis
- The documentation of the results of the management review of investigation findings
- The documentation of any corrective actions

The lagging indicators of program effectiveness (results) have been identified as the performance of the following areas:

- Program Management
- Threat Management
- Risk Management
- PAAR Execution Management
- Data Management

The performance of these key lagging components is documented and analyzed in the Performance element of the plan. In the Program Evaluation these results are consumed by a model that provides a performance-based perspective on how well the program is meeting its objectives.

16.3. METHODOLOGY – PERFORMANCE-BASED PROGRAM EVALUATION (IN DEVELOPMENT)

The primary means by which the program will be evaluated (beyond the execution of the plan) includes consideration of the program performance of what we do, what we know and what corrective actions we take as a means of mitigating those conditions whereby a threat may result in an incident. The performance measures that contribute to the evaluation of program effectiveness are managed through processes designed to capture and analyze their associated metrics as outlined in Section 10.5. The scoring of the metrics will be outlined as the following:

Program Leading Indicators						
-	0%	33%	66%	100%		
Percentage of districts with asset level risk model executed	5	10	15	20		
<input type="checkbox"/>	17%	33%	50%	67%	83%	100%
Percentage of districts with macro level risk model executed	5	10	15	20	25	30
Percentage of districts with Presentation, Risk Performance Analysis, Investigation, and Discovery complete	5	10	15	20	25	30
Percentage of districts with completed pipe replacement recommendations	5	10	15	20	25	30
<input type="checkbox"/>	0-25%	25-50%	50-75%	75-100%		
Percentage of total risk addressed through investigation	5	10	15	20		
Program Lagging Indicators						
	Yes	No				
Was a given threat an elevated threat for a district in the state last cycle?	0	10				
If a given threat was a risk in the state last cycle, was an elevated threat for a district in the state this cycle?	0	10				
	<0	0 - 0.5	0.5-1.0	>1.0		
Where does the given elevated threat’s risk for the cycle fall in comparison to the standard deviation of the last 5 years of risk for the threat?	20	15	10	5		

CAUSE NO. 45468

<u>PAAR Leading Indicators</u>				
	0-60%	60-90%	90-100%	
What percentage of corrective actions was identified were properly communicated (Or implemented if in DIM)?	5	10	15	
Of mature activities, what percentage has sufficient data for performance trending (5 years)?	5	10	15	
Of new activities, what percentage have identified data sets for tracking?	5	10	15	
<u>PAAR Lagging Indicators</u>				
In areas where risk and PAAR activity metric do not align, have you developed an additional metric?	5	10	15	
What percentage of activities have an activity metric independent from leak data?	5	10	15	
What percentage of mature activities have the desired metric performance trend?	5	10	15	
What percentage of mature activities have the desired risk performance trend?	5	10	15	

Total program effectiveness is then determined by the component score for the number of metrics listed above of the 17 different leading and lagging indicators. This scoring system is in development and will be used as a baseline for the DIM program effectiveness evaluation. This baseline assessment will be analyzed in the 2021 cycle after 3 years of data collection effective in the 2019 cycle. This evaluation will be utilized to drive program changes and dictate program outcomes based on scoring.

16.3.1. PERFORMANCE EVALUATION MODEL

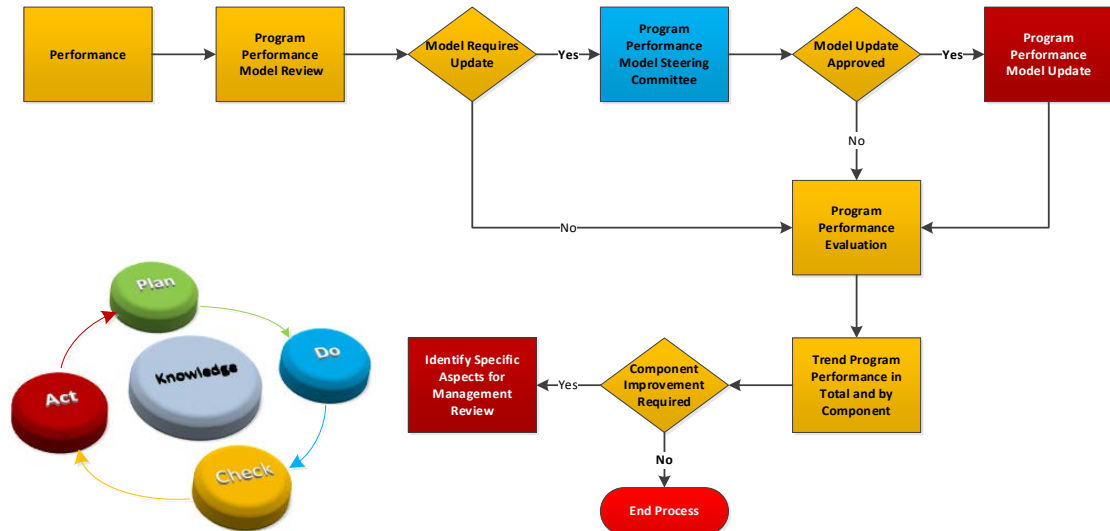
The performance-based program evaluation model is the aggregation of the performance metrics associated with each component.

[Program Management + PAAR Execution Management + Threat Management +Risk Management +Data Management]. In ALL cases if there is no data then the model utilizes a default value of 0 because not knowing something is lower on the evaluation scale than knowing the performance is very poor.

The findings will dictate one of four (4) possibilities

1. The Distribution Integrity Management Program is effective, and risk is being properly managed
2. The Distribution Integrity Management Program is not being properly implemented
3. The Distribution Integrity Management Program needs to be applied more stringently in specific areas
4. The Distribution Integrity Management Program is lacking and requires modification

16.4. PROGRAM EFFECTIVENESS EVALUATION WORKFLOW



16.5. RECORDKEEPING

16.5.1. DECISIONS

- 1) Does the model require update?
- 2) Is the updated model approved by management?
- 3) Which model components are subject to improvement?
- 4) Personnel Roles & Responsibilities
- 5) Plan updates
- 6) Process updates

16.5.2. DOCUMENTATION

- 1) Year to year program evaluation trends / total
- 2) Year to year program evaluation trends / component
- 3) Components warranting improvement
- 4) Personnel Roles & Responsibilities
- 5) Plan updates
- 6) Process updates

16.5.3. COMMUNICATION

- 1) Components warranting improvement
- 2) Model changes to committee
- 3) Model results and associated dashboards presentation to integrity management
- 4) Submit significant manual changes to regulatory authority

17. REGULATORY REPORTING

17.1. REGULATORY

17.1.1. CODE 49 CFR 192.1007 (G)

Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by §191.11. An operator also must report the four measures to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.

17.2. OVERVIEW

The purpose of this section is to establish a standardized method for reporting DIMP performance measures to the regulatory authorities. Additionally, any amended reports filed will be documented. As required by 49 CFR Part 192 Subpart P, CenterPoint Energy will maintain the superseded integrity management plans and records demonstrating compliance for a minimum of 10 years. The implementation records will be maintained in the ICAM/D platform while the supporting data will reside in the various databases as outlined in the manual.

**ALL PROCESSES, EXECUTION RECORDS, RESULTS AND SUPPORTING INFORMATION IN THE
PROCESS/WORKFLOW PLATFORM ARE INCORPORATED BY REFERENCE AS A "CONFIDENTIAL" PORTION
OF THE INTEGRITY MANAGEMENT PROGRAM**

17.3. METHODOLOGY

17.3.1. ANNUAL REPORTING

The four performance measures specified in 49 CFR §192.1007(e) must be reported to PHMSA via the Annual Report - Gas Distribution System, PHMSA Form 7200.1-1.

- a) Total number of leaks either eliminated or repaired, per §192.703(c), categorized by threat.
- b) Number of hazardous leaks either eliminated or repaired, per §192.703(c), categorized by threat.
- c) Number of excavation damages.
- d) Number of excavation tickets (receipt of information by the underground facility operator from the notification center).

Additionally, the number of EFV installed will be reported.

As part of the annual report required by §192.11, CenterPoint Energy will provide these measures no later than March 15. The submission of these reports to PHMSA and any state regulatory authority will be confirmed in ICAM. See Texas State Appendix for additional reporting requirements.

17.3.2. MECHANICAL FITTING FAILURE REPORTING

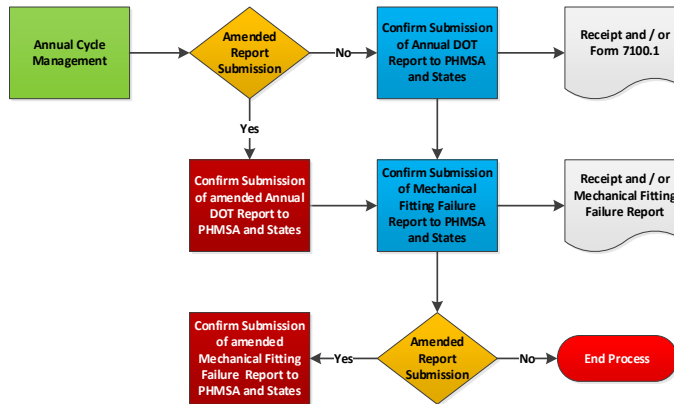
CenterPoint Energy will report mechanical fitting failure information required in 49 CFR Part 192 Subpart P on Form PHMSA F 7100.1-2. This report will include:

- 1) Location of the failure in the system
- 2) Nominal pipe size
- 3) Material type
- 4) Nature of failure including any contribution of local pipeline environment

- 5) Coupling manufacturer
- 6) Lot number and date of manufacture
- 7) Other information that can be found in markings on the failed coupling

As part of the annual report required by §192.11, CenterPoint Energy will provide these measures no later than March 15. The submission of these reports to PHMSA and any state regulatory authority will be confirmed in ICAM.

17.4. REGULATORY REPORTING WORKFLOW



17.5. RECORDKEEPING

17.5.1. DECISIONS

- 1) Is filing an amended report required?

17.5.2. DOCUMENTATION

- 1) A copy of submitted PHMSA form 7100.1 and / or receipt of submittal to PHMSA and states.

17.5.3. COMMUNICATIONS

- 1) Reports to PHMSA / State Regulatory Authorities

Distribution Integrity Management Plan Appendix

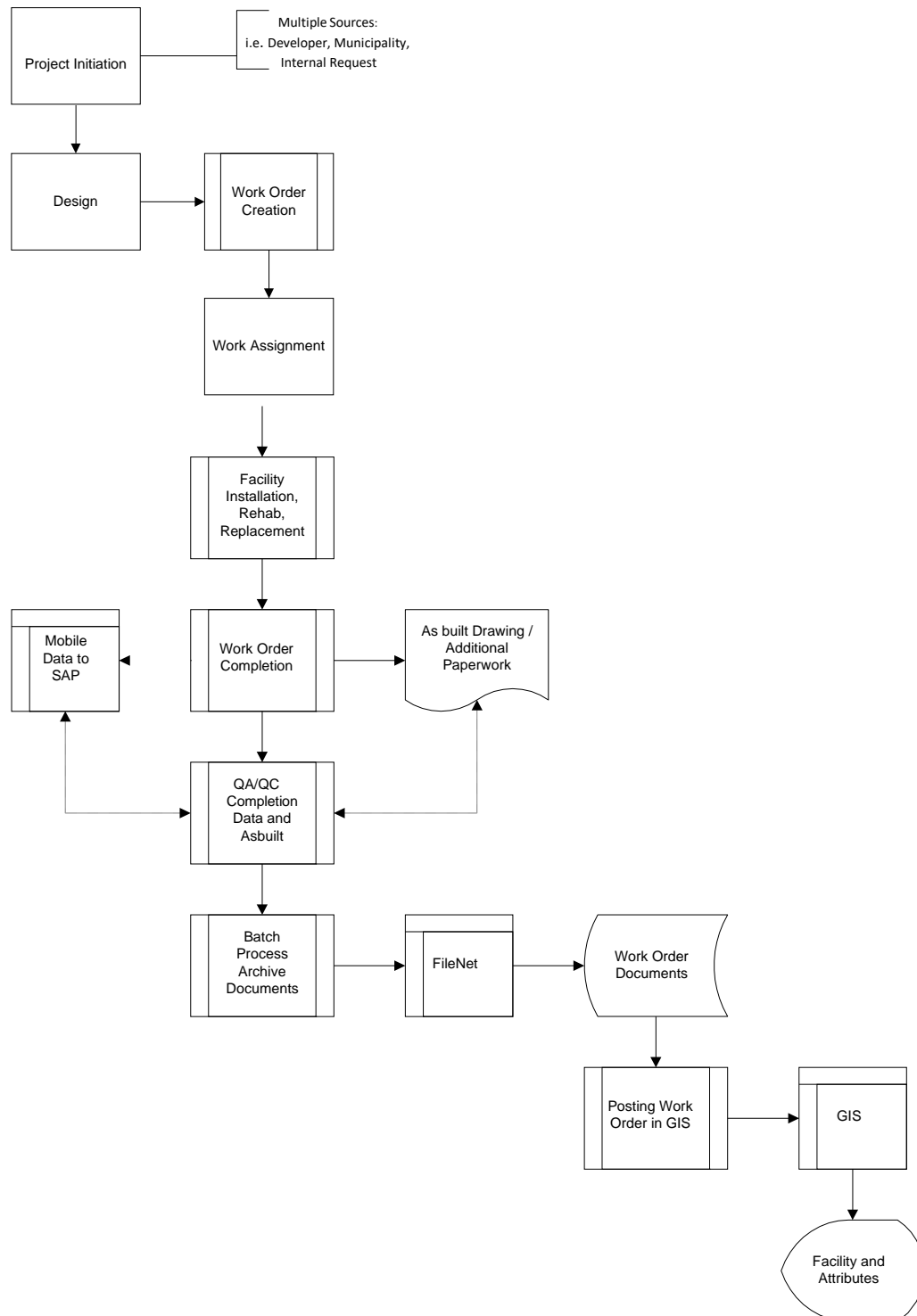
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[illegible]

1. System Knowledge: Methodology

1.1 GIS Posting Process



1.2 Map Correction Process

For Arkansans, Louisiana, Mississippi, Minnesota, Oklahoma, and Texas

Request For Map Correction			
Your Name: *	<input type="text"/>	OR Select from list	--Select--
Issue Title: *	<input type="text"/> (maximum 50 characters)		
Work Type: *	<input type="radio"/> Gas <input type="radio"/> Electric <input type="radio"/> Gas & Electric <input type="radio"/> Landbase <input type="radio"/> Landbase & Gas <input type="radio"/> Landbase & Electric <input type="radio"/> Underground		
Data Correction Type: *	<input type="radio"/> Work Order Related <input type="radio"/> Non Work Order Related	Chargeable :	
Customer Need Date: *	<input type="text"/>	Vendor Estimated Date:	
Work Order Number: ** (Completed WOTS Order Only)	<input type="text"/>	Work Order State:	--Select--
Description: * 400 characters max	<input type="text"/>		
Attach File: ***	<input type="button" value="Upload"/> <input type="button" value="Browse..."/> (File Types: .zip, .dwg, .dgn, .tif, .pdf, .doc, .bmp, .jpg, .xls, .ppt, .docx, .xlsx & .pptx)		
Update Me:	<input checked="" type="checkbox"/> Send me an email when the status of my issue changes.		
Email: add ';' characters for multiple emails	<input type="text"/>		
*Marked fields are mandatory. ** For Work Order Related Data Correction, Please hit the 'ENTER' key after typing the exact WOTS Work Order Number to autopopulate the Work Order State list. *** Spaces are not allowed in the File Name. Multiple attachment allowed per issue.			
<input type="button" value="Submit"/>			
Back Back To Main Page			

For Indiana and Ohio (QAQC work orders in Maximo)

Work Order Tracking (T&D)															
<input type="button" value="Find"/> <input type="button" value="Save Action"/> <input type="button" value="Print"/> <input type="button" value="Refresh"/> <input type="button" value="Log"/> <input type="button" value="Reports"/>															
Work Order Location: <input type="text"/> Asset: <input type="text"/> Classification: <input type="text"/> Description: <input type="text"/> Drop Site Address: <input type="text"/>	Number Pre Dir: <input type="text"/> Street Name: <input type="text"/> Suffix: <input type="text"/> Post Dir: <input type="text"/> State: <input type="text"/> City: <input type="text"/> Zip: <input type="text"/> Unit Type: <input type="text"/> Unit Number: <input type="text"/>	Work Type Sub Worktype: <input type="text"/> Failure Class: <input type="text"/> Problem Code: <input type="text"/> Division: <input type="text"/> Operating Center: <input type="text"/> Initiating WVO: <input type="text"/> Parent WVO: <input type="text"/>	Attachments Status: <input type="text"/> Substatus: <input type="text"/> Status Date: <input type="text"/> Inherit Status Changes?: <input checked="" type="checkbox"/> Has Follow-up Work?: <input type="checkbox"/> Grace Project ID: <input type="text"/> Grace Task ID: <input type="text"/> Grace WVO ID: <input type="text"/> GIS Session/Design Name: <input type="text"/> Session/Design Posted?: <input type="checkbox"/>												
Job Details Job Plan: <input type="text"/> CU Estimate: <input type="text"/> P&I: <input type="text"/> Safety Plan: <input type="text"/> Contract: <input type="text"/> Install Method: <input type="text"/> Latitude: <input type="text"/> Longitude: <input type="text"/> Is Task?: <input type="checkbox"/> Joint Use Req?: <input type="checkbox"/> Regulatory?: <input type="checkbox"/> City of Boonville?: <input type="checkbox"/> Long Lead Acq?: <input type="checkbox"/>	Asset Details Locates(s)? <input type="checkbox"/> Locates Valid: <input type="checkbox"/> Permit(s)? <input type="checkbox"/> Permit Valid: <input type="checkbox"/> Sewer Locates? <input type="checkbox"/> Sewer Locates Valid: <input type="checkbox"/> Easement(s)? <input type="checkbox"/> Easements Valid: <input type="checkbox"/> Site Ready: <input type="checkbox"/> Site Accessible: <input type="checkbox"/> Encroachment Present?: <input type="checkbox"/> Pipe Not Exposed?: <input type="checkbox"/> Temporary Stub Left?: <input type="checkbox"/>	Priority Asset Up?: <input type="checkbox"/> Warranties Exist?: <input type="checkbox"/> SLA Applied?: <input type="checkbox"/> Charge to Store?: <input type="checkbox"/> In Service Date: <input type="text"/>	Asset/Location Priority Work Order Priority: <input type="text"/> Priority Justification: <input type="text"/> Risk Assessment: <input type="text"/> Interruptible?: <input type="checkbox"/>												
Scheduling Information Target Start: <input type="text"/> Target Finish: <input type="text"/> Scheduled Start: <input type="text"/> Scheduled Finish: <input type="text"/> Compliance Date: <input type="text"/>	Record Change Actual Start: <input type="text"/> Actual Finish: <input type="text"/> Work Order Duration: <input type="text"/> Time Remaining: <input type="text"/> Need Date: <input type="text"/>	Site TND: <input type="text"/> Owner: <input type="text"/> Owner Group: <input type="text"/> Modified By: <input type="text"/> Date Modified: <input type="text"/>													
Origination Reported By: <input type="text"/> Reported Date: <input type="text"/> On Behalf Of: <input type="text"/> Phone: <input type="text"/> System: <input type="text"/> Non-Maximo Work Ticket ID: <input type="text"/>	Assignment Supervisor: <input type="text"/> Crew Type: <input type="text"/> Lead: <input type="text"/> Crew Size: <input type="text"/>	Work Group Contractor: <input type="text"/> Engineer Assigned: <input type="text"/> Sales and Marketing: <input type="text"/>													
Workflow Details Location, Permit, Easements, Inspection, etc. <input type="button" value="Print"/> <input type="button" value="Refresh"/> <input type="button" value="Log"/> <input type="button" value="Reports"/>															
<table border="1"> <thead> <tr> <th>Record ID</th> <th>Description</th> <th>Task</th> <th>Status</th> <th>Start Date / Time</th> <th>Reported Date / Time</th> </tr> </thead> <tbody> <tr> <td colspan="6">No rows to display...</td> </tr> </tbody> </table>				Record ID	Description	Task	Status	Start Date / Time	Reported Date / Time	No rows to display...					
Record ID	Description	Task	Status	Start Date / Time	Reported Date / Time										
No rows to display...															

1.3 Found Pipe Process

For Arkansans, Louisiana, Mississippi, Minnesota, Oklahoma, and Texas

Table 1 – Found Pipe Process

Step	Action
1	<p>Identification that there are facilities existing in the field that are not reflected on GIS system, or the facilities are on the maps but not in service.</p> <p>For Example:</p> <ul style="list-style-type: none"> An engineer is designing a project. In the course of their review they find a piece of pipe is not in the GIS system. Or the engineer identifies a facility that shows on the GIS system and is no longer in service. Crew is on site doing a replacement or main installation they find facilities that are not on the GIS system. Or while on site they identify a facility that is showing on the GIS system but is no longer in service.
2	Research should be done by operations to determine if historical documents exist to add or remove the facilities in question. If documents are found those should be submitted to GIS for posting, no further action is needed. If no documentation exists go to step 3.
3	Notify Work Order Management (WOM) or Schedule Router(Minnesota) that a Found Pipe Work Order is needed.
4	<p>Work Order Management or Schedule Router will create the order based on the following valid combos:</p> <p>M2 310 Mains – Maintenance – Other 632318 Found Pipe, Plastic Main M2 310 Mains – Maintenance – Other 633318 Found Pipe, Steel Main M2 312 Service Line – Maint – Other 600318 Found Pipe, Plastic Svc</p> <p>M2 312 Service Line – Maint – Other 601318 Found Pipe, Steel Svc</p>
5	<p>If the person is creating the order through Mobile Data:</p> <ul style="list-style-type: none"> Do appropriate in route, on site to the location Locate and measure facilities to be added or taken off of the GIS system Draw a completion sketch <ul style="list-style-type: none"> Include location information (which will include facet number, street names, customer name, business name, or whatever will narrow down the location for GIS to post) Complete the order through Mobile Data with specific information on the facilities to be added or removed from GIS including size, material, footage, and vintage installation year if available. <p>If the order is going to an engineer or other person not on Mobile Data:</p> <ul style="list-style-type: none"> They will locate and measure facilities to be added or taken off of the GIS system Draw a completion sketch

	Include location information (which will include facet number, street names, customer name, business name, or whatever will narrow down the location for GIS to post)
6	WOM will process the order (and complete in Mobile Data if required depending on region) and send the completion sketch to GIS for posting. GIS completes an annual process for leak survey polygons to catch any out of bounds pipe and analyze the assigned survey frequency on an annual basis. Polygons are adjusted for the facilities in each as required.
7	GIS will post the information to the mapping system from the completion sketch.

For Indiana and Ohio (QAQC work orders in Maximo)

Work Order Tracking (TBD)

Find: [] Select Action []

Go To [] Reports [] Start Center [] Profile [] Sign Out [] Help []

List [] Work Order [] GIS [] Plans [] Related Records [] Actuals [] Safety Plan [] Financials [] Log [] Failure Reporting [] Reports []

Work Order: 17144278

Location: []

Asset: []

Classification: []

Description: []

Drop Site Address: []

Number: []

Pin Dri: []

Street Name: []

Route: []

Post Dir: []

State: []

City: []

Zip: []

Unit Type: []

Unit Number: []

Work Type: []

Sub WorkType: []

Failure Class: []

Problem Code: []

Division: []

Operating Center: []

Initiating WVO: []

Parent WVO: []

Attachments: []

Status: []

Status Date: 9/16/19 11:17 AM

Inherit Status Changed?: []

Has Follow-up WVO?: []

Oracle Project ID: []

Oracle Task ID: []

Mobile WVO?: []

GIS Session/Design Name: []

Session/Design Posted?: []

Job Details

Job Plan: []

CU Estimate: []

PM: []

Safety Plan: []

Contract: []

Install Method: []

Latitude: []

Longitude: []

Is Task?: []

Joint Use Req?: []

Regulatory?: []

City of Boomville?: []

Long Lead Acq?: []

Proj. Mgmt?: []

FOR3 Needed?: []

FOR3 ID: []

Emergency?: []

Directional Bore?: []

Locate(s)?: []

Locates Valid: []

Permit(s)?: []

Permit Valid: []

Sever Locate?: []

Sever Locate Valid: []

Easement(s)?: []

Easements Valid: []

Site Ready: []

Site Accessible: []

Encroachment Present?: []

Pipe Not Exposed?: []

Temporary Stub Left?: []

Asset Details

GIS ID: []

GIS Enabled?: []

GIS Related Asset: []

Joint Use?: []

Asset Up?: []

Variances Exist?: []

SLA Agreed?: []

Charge to Store?: []

In Service Date: []

Asset Location Priority: []

Work Order Priority: []

Priority Justification: []

Risk Assessment: []

Interruptible?: []

Scheduling Information

Target Start: []

Target Finish: []

Scheduled Start: []

Scheduled Finish: []

Compliance Date: []

Actual Start: []

Actual Finish: []

Work Order Duration: []

Time Remaining: []

Need Date: []

Site: []

Owner: []

Owner Group: []

Modified By: []

Date Modified: 9/16/19 11:17 AM

Organization

Reported By: []

Reported Date: 9/16/19 11:17 AM

On Behalf Of: []

Phone: []

System: []

Non-Maximo Work Ticket ID: []

Assignment

Supervisor: []

Crew Type: []

Lead: []

Crew Size: []

Work Group: []

Contractor: []

Engineer Assigned: []

Sales and Marketing: []

Required Task: []

Preferred Task: []

Persons

No rows to display...

Add Task

Workflow Details

Reporting, Research, Examinations, Inspections, etc.

Report ID: []

Description: []

Type: []

Status: []

Start Date / Time: []

Expiration Date / Time: []

No rows to display...

Add Task

New Role

2. Threat Identification

2.1 Sub-threats

Sub-threats used for additional analysis in Arkansas, Louisiana, Mississippi, Minnesota, Oklahoma, and Texas are defined by the TX PS-95 semi-annual leak report sub-threat definitions per the leak cause look up table. The sub-threats will be updated annually. A complete list of sub-threats are as follows:

Table 2 Sub-threats

LEAK CAUSE GROUP	LEAD CAUSE DESCRIPTION
Corrosion Group	Corrosion
Excavation Group	
	Operator Personnel/Contractors Excavating
	Other Third Party Excavators
	Locator
Natural Forces Group	
	Lightning
	Washout
	Ground Movement
	Ice
	Static Electricity
Other Outside Forces Group	
	Vandalism
	Fire/Explosion First
	Excessive Strain
	Vehicle (Auto/Truck/etc.) * See note below
Materials & Welds Group	
	Dent
	Gouge
	Factory Defect
	Wrinkle Bend
	Weld (Steel)
	Fusion Defect (Plastic)
Equipment Group	
	Equipment Malfunction
	Gasket/O-Ring
	Packing
Operations Group	

	Inadequate/Failure to Follow Procedures
	Stripped Threads
	Backfill
Other Group	
	Not Excavated

For vehicle damage resulting in leaks in Texas, CenterPoint Energy codes those as Excavation Damage (code 24) during the semi-annual PS-95 filings to remain compliant with the PS-95 requirements for the Leak Cause Lookup Table. For PHMSA Form 7100 filings, CenterPoint Energy codes those vehicle damages leaks as Other Outside Force Damage to remain compliant with the federal guidelines and leak cause definitions for this type of leak. For risk analytics and sub-threat investigation, vehicle damages remain in Other Outside Force Damage.

3. Evaluate and Rank Risk: Methodology

3.1 Uptime Risk Model Development

Risk model used for the relative risk analysis was developed based on the standard equation for risk which is Risk = Probability X Consequence. In 2016- 2017, CNP evaluated a number of risk analysis tools to help with prioritization of project replacement and to assist with upcoming DIMP requirements and decided to purchase DNVGL Uptime. This tool was configured using a combination of statistical factors, based on industry and CNP data, along with SME input to produce relative risk analysis for the distribution systems. Failure prediction algorithms were developed for the different material types based on historical leaks for each of the states in which CNP operates.

Corrosion - Stl	Excavation Damage Metallic	Excavation Damage Plastic	Incorrect Operations Metallic
Diameter	Installation Date	Installation Date	Baseline Leak Rate
Coating Type	Diameter	Diameter	Procedures Format
Coating Condition	Depth of Cover	Depth of Cover	Employee and Contractor Training Effectiveness
Joint Coating	Material	Recent Installation	Experience
CP	SME Depth of Cover	Tracer Wire	Joint Inspection
Test Point Potential	Barriers and Warning Markers	SME Depth of Cover	
CIP	One Call Effectiveness	Barriers and Warning Markers	
Stray Current	One Call Locate	One Call Effectiveness	
Soil Resistivity	Wall Thickness	Casing Wall Thickness	
Historical Leaks	Casing Wall Thickness	Insertion within Metallic Pipe	
Corrosion State from Excavation	Map Accuracy	Map Accuracy	
	Procedures Format	Procedures Format	
	Procedure Rollout	Procedure Rollout	

Map Updates	Map Updates
OneCall Locate Method	OneCall Locate Method
Supervision	Supervision
Employee and Contractor Training Effectiveness	Employee and Contractor Training Effectiveness
Utility Density	Utility Density
Age of Pipeline	Public Education
Public Education	Patrol Frequency
Patrol Frequency	

Incorrect Operations Plastic	Material Failure Steel	Material Failure Plastic	Natural Forces Metallic
Baseline Leak Rate	Diameter	Diameter	Baseline Leak Rate
Procedures	Construction Standards	Install Date	Nearby Excavations
Training Effectiveness	Manufactures Test	Construction Standards	Seismic Events and Geological Faults
Experience	Commissioning Test	Manufactures Test	Seismic Event Ground Displacement
Joint Inspection	Previous Failure	Joint Method	Soil Liquefaction Susceptibility
Rock Impingement Historical	Temperature	Material	Flooding or Heavy Rain on Mains
Rock Impingement Susceptibility	Was Code in Place (1970)	Manufacture Date	Frost Heave
		Commissioning Test	Lightning Susceptibility
		Previous MF	Land Instability and Geological Investigations

RCP	Land Instability and Patrols
Temperature	Land Instability and Monitoring Required?
	Land Instability and Mitigative Measures Used?
Slow Crack Growth(Date)	Required Land Instability and Monitoring Performed?
Slow Crack Growth(Test)	Land Instability and Previous Failures from Ground Movement?
Squeeze Procedure	Land Instability and Unrecorded Mine Indications?
Squeeze Off and Slow Crack Growth Susceptibility	Hurricane Zone
Squeeze Off and Compressibility Limits	Mechanical Fitting Type
	Mechanical Fitting Procedures

Natural Forces Plastic	Equipment Failure Steel	Equipment Failure Plastic	Other Outside Forces Metallic
Baseline Leak Rate	Baseline Leak Rate	Baseline	Baseline
Lightning	SME Gasket	SME Gasket	
Hurricane Zone	SME Fitting Manufacturer	SME Fitting Manufacturer	
Varmint Previous Failure			
Mechanical Coupling Type			
Mechanical Coupling Procedure			

Other Outside Forces Plastic	Other Metallic	Other Plastic	Consequence
Baseline	Baseline	Baseline	Gas Ingress Diameter
			Gas Ingress Proximity
			Gas Ingress Cover
			Gas Ignition Pressure
			Gas Ingress Population Density

This program is a tool that is used as part of the system analysis to initiate further evaluation and determine replacement prioritization. The risk analysis results produced are in an aggregated form. Therefore, this software is being utilized as a supplemental tool, mainly in the area of facility replacement, while work continues to incorporate this robust risk analysis in the overall DIMP risk evaluation process.

3.2 Geofields Risk Model Development

In 2015, CenterPoint Energy (legacy Vectren) decided to change the DIMP model to an asset based risk model primarily driven by GIS data. Risk is assessed for every pipeline segment and every component as needed. This model uses data from multiple systems as well as data from daily operations. Data from 3rd party sources like census data and flood zones is also incorporated into the model. More importantly, this new model provides the framework to future advancements, changes and analysis. Reporting results using the geospatial format in CenterPoint Energy's GIS enhances presentation of risks to DIMP stakeholders (i.e. heat maps will be able to show risk locations, threats and common aspects of CenterPoint Energy's system). Implementation of the new risk model began in 2015 and the first model (pipeline) was implemented to production in 2017. Other models are in progress, including: services, valves and regulators.

Data is collected from multiple sources and combined in a central repository using a variety of tools. Data is extracted from Esri, Maximo, 811 locate database, Excavation Damage database (FDRS) and 3rd party sources. These sources are then combined into a single repository where further segmentation and spatial manipulation is conducted. As a result, from this data manipulation, data sources are created and then passed into the risk model. Example of this is railroad crossings. This dataset is created by the intersection of pipeline feature and the railroad feature in GIS. These types of ad-hoc datasets are created each time the risk data is exported and sent to the vendor.

<u>Corrosion - BSCI</u>	<u>Corrosion - Coated Steel</u>	<u>Excavation</u>
Corr BSCI Closed Leak Score	Corr Coated CP Score	Excav Closed Leak Score
Corr BSCI Leak Mult	Corr Coated Closed Leak Score	Excav Leak Mult
Open Leak Score Pipe	Corr Coated Leak Mult	Open Leak Score Pipe
Corr BSCI Corr WT Score	Open Leak Score Pipe	Excav Locate Score
Corr Water Score	Corr Coated Corr WT Score	Excav Damage Score
Corr BSCI Exposure Score	Corr Water Score	Excav Unlocatable Score
Corr BSCI Lcl Corr Score	Corr Coated Exposure Score	OF Shallow Pipe Score
Corr BSCI Extenv Score	Coated Localized Corr Score	Excav Damager Per 1000 Loc Score
	Coated Extensive Corr Score	Excav Material Score
	Corr Coated Bad Reading Score	Excav WT Score
	Corr Coating Score	Excav Map Issues Score
	Corr Poor Coat Score	Original Cover Depth

<u>Mat/Weld - Poly</u>	<u>Mat/Weld - Coated Steel</u>	<u>Mat/Weld - Cast Iron</u>
MW Plastic Closed Leak Score	MW Steel Closed Leak Score	MW Cast Closed Leak Score
MW Plastic Leak Mult	MW Steel Leak Mult	MW Cast Leak Mult
Open Leak Score Pipe	Open Leak Score Pipe	Open Leak Score Pipe
MW Plastic Age Score	MW Steel Material Score	MW Cast Material Score
MW Plastic Date Score	MW Steel Date Score	MW Cast Pipe Age Score
MW Plastic Material Score	MW Steel Pipe Age Score	MW BSCI Pipe Score
MW Vintage Plastic Score	MW Priority Pipe Score	

<u>Incorrect Operations</u>	<u>Natural Forces</u>	<u>Other Threats</u>
IO Closed Leak Score	NF Closed Leak Score	OT Closed Leak Score
IO Leak Mult	NF Leak Mult	OT Leak Mult
Open Leak Score Pipe	Open Leak Score Pipe	Open Leak Score Pipe
	NF Earthquake Score	
	NF Ice Storm Score	
	NF Flood Frq Score	
	NF Tornado Score	
	NF Material Score	

<u>Other Outside Forces</u>	<u>Equipment</u>
OF Closed Leak Score	EQ Closed Leak Score
OF Leak Mult	EQ Leak Mult
Open Leak Score Pipe	Open Leak Score Pipe
OF Exposure Score	EQ Valve Score
OF Land Use Score	EQ Fitting Score
OF Bridge Crossing Score	Join Method
OF Shallow Pipe Score	
OF Rail Crossing Score	
OF Road Cross Score	

3.3 Uptime Configurations Manual

See latest Uptime Configurations Manual.

3.4 Geofields Configurations Manual

See latest Geofields Configurations Manual.

4. Identify and Implement Measures to Reduce Risk

4.1 PAAR Database

Type	Action Name	Description
Program	Bridge and Span Inspections	Pursuant to Part 192 of the federal regulations, the company will inspect exposed pipe crossings once every 3 years.
Program	Continuing Surveillance	The company will perform routine continuing surveillance activities to identify abnormal operating conditions that need mitigation. This activity is performed at the operational level with records to be maintained by local operations.
Activity	Corrosion Control	Pursuant to Part 192 of the federal code, the company undertakes corrosion control activities to mitigate the threat of corrosion on steel assets.
Activity	Atmospheric Corrosion Control Surveys	Pursuant to Part 192 of the federal code, the company performs atmospheric corrosion surveys on above ground facilities at a frequency not to exceed 3 years.
Activity	Damage Prevention Programs	<p>Damage Prevention Program</p> <p>Pursuant to Part 192 of the federal code, the company has implemented public awareness measures to mitigate the threat of excavation damages.</p> <p>Damage Prevention Coordination</p> <p>The company will work to ensure appropriate communications with at risk excavators in an attempt to minimize and mitigate the threat of excavation damage to the system.</p>
Program	Design Standard Consideration	During the design phase of project execution, engineering designers give consideration to pipe placement, pipe type, and pipe operation.
Activity	EFV/Curb Valve Installation Program	<p>The company will install excess flow valves on new and replaced service lines serving single family residences where possible.</p> <p>Pursuant to recent regulation changes of Part 192 of the federal code, the company will also install curb valves when needed.</p>
Activity	Enhanced Leak Cause Classification Training	<p>To ensure the best data quality possible, the company has issued targeted training to aid technicians in selecting the most appropriate leak cause. This in turn helps to build DIM's ability to analyze the systems for threats.</p> <ul style="list-style-type: none"> - Inaccurate documentation of leak causes can skew the results in the DIMP Risk Model - Inaccurate documentation of leak causes can skew DOT Distribution Annual Reporting - Inaccurate leak cause information can affect the accuracy of the mechanical fitting failure reports - Inaccurate leak cause information may skew threat, root-cause, and other analyses

		Note: This is legacy Vectren AA 14
Program	Facility Data Research	A broad program intended to address anytime the company reviews facility documentation for assets within the system. This may relate to items such as, but not limited to, identifying at risk pipe types or reviewing documentation of an acquired system.
Activity	Facility Replacement	The company continuously works to identify aging infrastructure that may be a candidate for replacement.
Program	Ground Bed and Rectifier Replacement Program	Mississippi and Louisiana technical field operations will work to identify ground beds and rectifiers not working properly and schedule for replacement. This is an ongoing activity.
Program	Leak and Strength Test	Pursuant to Part 192 and the company's procedures, the company pressure tests certain piping assets to test for integrity prior to putting into service.
Activity	Leak Investigation and Repair	Pursuant to Part 192 and specific state rules, the company investigates, grades, monitors, and repairs leaks on an ongoing basis.
Program	Leak Survey	<p>Pursuant to Part 192 and specific state regulations, the company routinely leak surveys assets.</p> <p>7/1/2017 - Advanced leak detection equipment recalibrated to better identify above ground equipment leaks to prevent against false positives.</p>
Program	Accelerated Patrols - Exposed Crossings	Exposed crossings will be patrolled every 4.5 months for business districts and 7.5 months for non-business districts where physical movement or external loading is suspected and could lead to leakage or failure. In MN this patrol activity may also include leak survey.
Program	Accelerated Leak Survey - Shorted Casings	<p>Electrically shorted casings will be repaired where practical. In the event a practical or timely repair can be completed, annual leak surveys will be conducted. Some company locations have additional surveying criteria:</p> <p>Minnesota: Shorted casings, at a minimum, will be surveyed twice annually but at intervals not to exceed 7.5 months</p> <p>Louisiana: Leak surveys on presumed or known shorted casings in business districts will be scheduled to be performed every 6 months but at intervals not exceeding 7.5 months</p> <p>Indiana/Ohio: Any cased crossing of a cathodically protected pipe must be surveyed annually, not to exceed 15 months, if a pipe to soil reading cannot be obtained</p> <p>Note: This is legacy Vectren AA 44</p>
Program	Special Leak Survey - System Upgrading	Pursuant to Part 192 and company standards, leak survey will be performed at appropriate times during the upgrading process.
Program	Special Leak Survey - Seismic Activity	Pursuant to Part 192 and company standards, the company will perform leak survey activities post seismic activity.
Program	Line Marker Installations	Line markers will be checked on a routine basis and added where needed.
Program	Material Failure Analysis Program	When appropriate, the company may utilize the materials lab to aid in determination of root cause of a failure.

Program	Material and Tool Review Process	When appropriate, materials or tools utilized by the company will go through a review process prior to being utilized in the field.
Program	Plastic Pipe Handling Procedures	Material handling procedures have been put in place in an effort to minimize the threat of other outside force damages.
Program	Monitor Odorizer Operations	Routine concentration and consumption testing will be performed.
Activity	Operator Qualification and Training Programs	Pursuant to Part 192, the company has established operator qualification and training programs in place to mitigate the threat of incorrect operations.
Program	Pipeline Patrolling	Pursuant to Part 192, the company will patrol main lines on a routine basis. Examples of locations to be patrolled include, but are not limited to, water crossings, bridge crossings, and railroad crossings. In some cases, leak surveys may be conducted in conjunction with pipeline patrols.
Program	Pressure Regulating Station Inspection	Pursuant to Part 192, the company will perform routine inspections of pressure regulating and measurement stations to ensure proper function of equipment.
Activity	Public Awareness Program	Pursuant to Part 192, the company has developed a public awareness program.
Program	Sewer Lateral Clearing	Investigate sewer laterals to mitigate the risk of a cross bore during trenchless installations of services and mains.
Program	Valve Maintenance Program	Pursuant to Part 192, the company has established procedures for routinely maintaining specified valves.
Activity	Leak Data Sampling Plan	<p>Sampling leak repair records for data quality. Review repair records quarterly and assign an "acceptable" or "unacceptable" rating for leak repair records completion.</p> <p>Fields reviewed in sample are</p> <p>Internal Leak Cause Primary Facility Secondary Facility Leak Location</p>
Activity	Confirmed LDIW Program	If a piece of legacy plastic pipe is tested by the Materials Lab and is confirmed to have the LDIW material defect, the design engineering department for that state will be notified of the need to replace the original plastic installation scope. This project will be tracked during its lifecycle in the LDIW log by the DIM engineer.
Program	Accelerated Leak Survey-AOC	Accelerate leak surveys as necessary when abnormal operating conditions present themselves in the system on an ad hoc basis.
Program	Drug and Alcohol Program	The requirements of DOT are set forth in Title 49 of Code of Federal Regulations Part 199. Part 199 - Drug and Alcohol Testing requires operators of gas systems to have both an anti-drug program and an alcohol misuse program.
Program	Material Standards	The company will maintain a material standards manual to establish general material specifications of materials, fittings, and items to use in construction of its pipeline systems.

5. Communication and Training

Training and communication are necessary to promote asset integrity management. The training and communication plan is to be used as guidance for training and communication efforts, and may be provided in any format or frequency as determined by DIMP SMEs.

Training and Communication instructions are shown Table 5

Table 5 – Training and Communication Instructions

TRAINING/COMMUNICATION EFFORT	DESIRED OUTCOME	FREQUENCY
Leak Grade Classification	Accurately determine leak grade classification for proper response and reporting	Annual
Leak Cause Classification	Accurately determine leak cause classification for proper response and reporting	Annual
What is DIMP? (DIMP 101)	Promote DIMP efforts and educate personnel and contract resources of their role in Integrity Management	Annual
Threats and Risk	Communicate risk results; gain input from stakeholders	Annual
Conferences	Improve SME knowledge, understand industry trends, network with industry peers	As Needed

6. Compliance for Service lines directly connected to production, gathering or transmission pipelines

6.1 Foreword

This section details CenterPoint's Energy required actions to be compliant with 49 CFR 192.740 and additional actions taken via CenterPoint Energy's Distribution Integrity Management Program (DIMP) to mitigate risks associated with service lines directly connected to production, gathering or transmission pipelines (per PHMSA Code 49 CFR 192.740 and 49 CFR 192 Subpart P).

6.2 Introduction

PHMSA has identified service lines directly connected to production, gathering or transmission pipelines to be susceptible to sufficient risk to warrant explicit regulation via 49 CFR 192.740. CenterPoint Energy has interpreted that this rule may apply to services lines that originate from foreign production, gathering or transmission lines or services that are connected to CenterPoint Energy owned or operated transmission lines.

Compliant with 49 CFR Part 192, Subpart P CenterPoint Energy has also identified and implemented additional risk mitigation activities through DIMP to apply to those service lines directly connected to production, gathering or transmission pipelines that are not managed under the O&M program developed to comply with 49 CFR 192.740.

6.3 PHMSA Code 49 CFR 192.740 Compliance Activities:

PHMSA Code 49 CFR 192.740 is as follows:

- **(a)** This section applies, except as provided in paragraph (c) of this section, to any service line directly connected to a production, gathering, or transmission pipeline that is not operated as part of a distribution system.
- **(b)** Each pressure regulating or limiting device, relief device (except rupture discs), automatic shutoff device, and associated equipment must be inspected and tested at least once every 3 calendar years, not exceeding 39 months, to determine that it is:
 - **(1)** In good mechanical condition;
 - **(2)** Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed;
 - **(3)** Set to control or relieve at the correct pressure consistent with the pressure limits of § 192.197; and to limit the pressure on the inlet of the service regulator to 60 psi (414 kPa) gauge or less in case the upstream regulator fails to function properly; and
 - **(4)** Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.
- **(c)** This section does not apply to equipment installed on service lines that only serve engines that power irrigation pumps.

To ensure compliance with this code as interpreted by CenterPoint Energy, the company has developed maintenance plans to perform PHMSA Code 49 CFR 192.740 compliant inspections for all service lines directly connected to production, gathering or transmission pipelines as stated in the Operations and Maintenance Manual Section XXV-F for Arkansas, Minnesota, Mississippi, Louisiana, Oklahoma, and Texas and OM 36.40 for Indiana and Ohio.

6.4 PHMSA Code 49 CFR 192 Subpart P Compliance Activities

To mitigate the risk for all service lines directly connected to production, gathering or transmission pipelines which are not managed under 49 CFR 192.740 compliance activity, CenterPoint Energy has adopted and implemented specific maintenance plans as described in the Operations and Maintenance Manual under section XXV-H for Arkansas, Louisiana, Mississippi, Texas, Oklahoma and Minnesota and OM 36.50 for Indiana and Ohio. These maintenance plans include the following actions:

- Atmospheric Corrosion Survey
 - Atmospheric Corrosion Inspection shall be conducted at an interval indicated in the procedure section of the O&M as outlined below
- Leak survey for above and below ground facilities
 - Leak survey shall be conducted as indicated in the procedure of the O&M manual section as outlined below, not to exceed 15 months.
- Cathodic Protection inspection (on below ground facilities)
 - Each high pressure meter set that has buried company owned appurtenances is to be placed under cathodic protection such that its status can be monitored as outlined in the corresponding O&M procedure manual as outlined below
- Visual OPP validation (this will verify that the meter set if configured such that pressure control devices and overpressure protection devices are properly installed)
 - Each visual inspection is to be conducted once each calendar year, not to exceed 15 months in the O&M procedure manual as outlined below
- Odorizer inspection
 - Odorizers shall be maintained in accordance with the procedure in the O&M manual as outlined below

Procedure	AR, LA, MN, MS, OK, TX	IN, OH
Atmospheric Corrosion Inspection	OM-X-A	OM 27.31 Atmospheric Corrosion Control
Leak Survey	OM-XIX-A-1	OM 17.33 Transmission Line Leak Survey
Cathodic Protection	OM-VIII-E-1	OM 27.10 Corrosion Control
Odorizer Inspection	OM-XIV-A	OM 13.0 Odorization
Visual Inspection	OM-XXV-H	OM 36.50 HP Meter Set Inspection

7. Process Management

7.1 ICAM DIMP Cycle Workflow

- **Element:** Annual Cycle Management
 - **Area:** Company and State Specific Process Workflow Initiation
 - **Process:** Schedule Company DIMP Processes
 - **Task:** Schedule risk model reviews (Uptime/GeoFields / Tableau)
 - **Task Response Option:** Initiate Uptime/GeoFields risk model review
 - **Auto:** Yes
 - **Branching to Process:** Pipe Replacement Risk Model Review
 - **Task Response Option:** Initiate Tableau risk model review
 - **Auto:** Yes
 - **Branching to Process:** Leak Repair Risk Model Review
 - **Task Response Option:** Not required in this cycle
 - **Task:** Schedule state specific annual cycle
 - **Task Response Option:** Minnesota Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule MN Specific Annual Cycle
 - **Task Response Option:** Mississippi Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule MS Specific Annual Cycle
 - **Task Response Option:** Louisiana Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule LA Specific Annual Cycle
 - **Task Response Option:** Texas Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule TX Specific Annual Cycle
 - **Task Response Option:** Oklahoma Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule OK Specific Annual Cycle
 - **Task Response Option:** Arkansas Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule AR Specific Annual Cycle
 - **Task Response Option:** Indiana Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule IN Specific Annual Cycle
 - **Task Response Option:** Ohio Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Schedule OH Specific Annual Cycle
 - **Task:** Schedule Investigation Results Analysis for September 1st
 - **Task Response Option:** Initiate threat investigation results analysis
 - **Auto:** No
 - **Branching to Process:** Schedule Analysis of Investigated Threats / Ancillary Presented Materials (Aggregated Information)
 - **Task Response Option:** Not required this cycle
 - **Task:** Schedule Annual PAAR review

- **Task Response Option:** Annual PAAR review
 - **Auto:** Yes
 - **Branching to Process:** Annual PAAR Review
- **Task Response Option:** Not required in this cycle
- **Task:** Schedule PAAR performance based data management for March 15th
 - **Task Response Option:** Schedule PAAR performance data management
 - **Auto:** No
 - **Branching to Process:** Initiate PAAR Performance Uploads
 - **Task Response Option:** No PAAR performance data management this cycle
- **Process:** Schedule MN Specific Annual Cycle
 - **Task:** Schedule MN Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule MN Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule MN Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule MS Specific Annual Cycle
 - **Task:** Schedule MS Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes

- **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule MS Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule MS Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule LA Specific Annual Cycle
 - **Task:** Schedule LA Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule LA Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule LA Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule TX Specific Annual Cycle
 - **Task:** Schedule TX Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes

- **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule TX Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule TX Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule OK Specific Annual Cycle
 - **Task:** Schedule OK Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule OK Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule OK Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule AR Specific Annual Cycle
 - **Task:** Schedule AR Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes

- **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule AR Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule AR Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule IN Specific Annual Cycle
 - **Task:** Schedule IN Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
 - **Task:** Schedule IN Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Schedule IN Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting
- **Process:** Schedule OH Specific Annual Cycle
 - **Task:** Schedule OH Specific Data Management processes
 - **Task Response Option:** Leak Repair Data Management
 - **Auto:** Yes

- **Branching to Process:** State Specific Leak Repair Data Management
 - **Task Response Option:** Normalization Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Normalization Data Management
 - **Task Response Option:** One Call Ticket Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific One Call Ticket Data Management
 - **Task Response Option:** Excavation Damage Data Management
 - **Auto:** Yes
 - **Branching to Process:** State Specific Excavation Damage Data Management
- **Task:** Schedule OH Rank and Evaluate Total Pipe Replacement Risk
 - **Task Response Option:** Rank and Evaluate Total Pipe Replacement Risk
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total Pipe Replacement Risk
- **Task:** Schedule OH Annual Reporting
 - **Task Response Option:** PHMSA Form 7100 Report
 - **Auto:** Yes
 - **Branching to Process:** PHMSA Form 7100 Report Submission
 - **Task Response Option:** Mechanical Fitting Failure Report
 - **Auto:** Yes
 - **Branching to Process:** Mechanical Fitting Failure Reporting

- **Element:** System Knowledge

- **Area:** System Knowledge State Specific Data Management / Data Issue Resolution
 - **Process:** State Specific Leak Repair Data Management
 - **Task:** Document criteria utilized to identify data issues
 - **Task Response Option:** Missing
 - **Task Response Option:** Incomplete
 - **Task Response Option:** Inaccurate
 - **Task Response Option:** Naming conventions
 - **Task Response Option:** Comparison to the previous year
 - **Task:** Were there any data issues?
 - **Task Response Option:** No data issues
 - **Triggers task:** Submit data to Risk Database Manager
 - **Task Response Option:** Data issues
 - **Text Instructions:** Summarize the data issues
 - **Task:** Have these issues been previously identified?
 - **Task Response Option:** Data issues previously identified
 - **Task Response Option:** Data issues are new
 - **Task:** Communicate data issues to the appropriate parties
 - **Task Response Option:** Issues communicated
 - **Text Instructions:** Document program manager name and attach email if available
 - **Task:** Submit data to Risk Database Manager
 - **Task Response Option:** Data submitted
 - **Task:** Initiate Threat Identification
 - **Task Response Option:** Threat Identification
 - **Auto:** Yes

- **Branching to Process: Leak Repair Threat Identification**
- **Process: State Specific Normalization Data Management**
 - **Task:** Create Tableau workbook
 - **Task Response Option:** Workbook generated
 - **Task:** Document criteria utilized to identify data issues
 - **Task Response Option:** Missing
 - **Task Response Option:** Incomplete
 - **Task Response Option:** Inaccurate
 - **Task Response Option:** Naming conventions
 - **Task Response Option:** Comparison to the previous year
 - **Task:** Were there any data issues?
 - **Task Response Option:** No data issues
 - **Task Response Option:** Data issues
 - **Text Instructions:** Summarize the data issues
 - **Task:** Have these issues been previously identified?
 - **Task Response Option:** Data issues previously identified
 - **Task Response Option:** Data issues are new
 - **Task:** Communicate data issues to the appropriate parties
 - **Task Response Option:** Issues communicated
 - **Text Instructions:** Document program manager name and attach email if available
- **Process: State Specific One Call Ticket Data Management**
 - **Task:** Create Tableau workbook
 - **Task Response Option:** Workbook generated
 - **Task:** Document criteria utilized to identify data issues
 - **Task Response Option:** Missing
 - **Task Response Option:** Incomplete
 - **Task Response Option:** Inaccurate
 - **Task Response Option:** Naming conventions
 - **Task Response Option:** Comparison to the previous year
 - **Task:** Were there any data issues?
 - **Task Response Option:** No data issues
 - **Task Response Option:** Data issues
 - **Text Instructions:** Summarize the data issues
 - **Task:** Have these issues been previously identified?
 - **Task Response Option:** Data issues previously identified
 - **Task Response Option:** Data issues are new
 - **Task:** Communicate data issues to the appropriate parties
 - **Task Response Option:** Issues communicated
 - **Text Instructions:** Document program manager name and attach email if available
- **Process: State Specific Excavation Damage Data Management**
 - **Task:** Create Tableau workbook
 - **Task Response Option:** Workbook generated
 - **Task:** Document criteria utilized to identify data issues
 - **Task Response Option:** Missing
 - **Task Response Option:** Incomplete
 - **Task Response Option:** Inaccurate
 - **Task Response Option:** Naming conventions

- **Task Response Option:** Comparison to the previous year
 - **Task:** Were there any data issues?
 - **Task Response Option:** No data issues
 - **Task Response Option:** Data issues
 - **Text Instructions:** Summarize the data issues
 - **Task:** Have these issues been previously identified?
 - **Task Response Option:** Data issues previously identified
 - **Task Response Option:** Data issues are new
 - **Task:** Communicate data issues to the appropriate parties
 - **Task Response Option:** Issues communicated
 - **Text Instructions:** Document program manager name and attach email if available
- **Area:** System Knowledge PAAR Performance / Data Issue Resolution
 - **Process:** Initiate PAAR Performance Uploads
 - **Task:** Confirm data properly formatted for importation into Access
 - **Task Response Option:** Data formatted properly
 - **Task:** Create Tableau workbook
 - **Task Response Option:** Workbook generated
 - **Auto:** Yes
 - **Branching to Process:** PAAR Performance Review
 - **Task:** Document criteria utilized to identify data issues
 - **Task Response Option:** Missing
 - **Task Response Option:** Incomplete
 - **Task Response Option:** Inaccurate
 - **Task Response Option:** Naming conventions
 - **Task Response Option:** Comparison to the previous year
 - **Task:** Review the data for issues?
 - **Task Response Option:** No data issues
 - **Task Response Option:** Data issues
 - **Text Instructions:** Summarize the data issues
 - **Task:** Have these issues been previously identified and are they under investigation?
 - **Task Response Option:** Data issues previously identified and under investigation
 - **Text Instructions:** Detail the status of the investigation
 - **Task Response Option:** Data issues are new
 - **Task:** Do data issues require follow up?
 - **Task Response Option:** No follow up required
 - **Task Response Option:** Follow up required
 - **Auto:** Yes
 - **Branching to Process:** PAAR Performance Data Issue Resolution
 - **Task:** Communicate data issues to the appropriate parties
 - **Task Response Option:** Issues communicated
 - **Text Instructions:** Document program manager name and attach email if available
 - **Process:** ----- Conditional Data Issue Resolution -----
 - **Process:** PAAR Performance Data Issue Resolution
 - **Task:** Document the data issue to be resolved
 - **Task Response Option:** Open Text Box
 - **Task:** Document organizational component(s) modified to resolve issue
 - **Task Response Option:** Procedures

- **Text Instructions:** Document what changed
 - **Task Response Option:** Training
 - **Text Instructions:** Document what changed
 - **Task Response Option:** Resources
 - **Text Instructions:** Document what changed
 - **Task Response Option:** Tools/equipment
 - **Text Instructions:** Document what changed
 - **Task Response Option:** Other
 - **Text Instructions:** Document what changed
 - **Task:** Communicate the resolution to appropriate parties
 - **Task Response Option:** Change communicated
 - **Task Response Option:** Change not communicated
 - **Text Instructions:** Document why change was not communicated
- **Element:** Report Results
 - **Area:** Annual Reporting Management
 - **Process:** PHMSA Form 7100 Report Submission
 - **Task:** Confirm submission to PHMSA
 - **Task Response Option:** Report submitted
 - **Attachment Instructions:** Attach proof of submission
 - **Task:** Confirm submission to States
 - **Task Response Option:** Confirmed
 - **Text Instructions:** Attach proof of submission
 - **Process:** Mechanical Fitting Failure Reporting
 - **Task:** Confirm submission to PHMSA
 - **Task Response Option:** Report submitted
 - **Attachment Instructions:** Attach proof of submission
 - **Task:** Confirm submission to States
 - **Task Response Option:** Confirmed
 - **Text Instructions:** Attach proof of submission
- **Element:** Threat Identification
 - **Area:** Threat Identification
 - **Process:** Leak Repair Threat Identification
 - **Task:** Chart known threats and their severity
 - **Task Response Option:** By Cause
 - **Attachment Instructions:** Attach threat specific graphics
 - **Task Response Option:** By Cause / Tier 1 Facility
 - **Attachment Instructions:** Attach threat specific graphics
 - **Task Response Option:** By Cause / Material
 - **Attachment Instructions:** Attach threat specific graphics
 - **Task Response Option:** By Cause / Class
 - **Attachment Instructions:** Attach threat specific graphics
 - **Task Response Option:** By Cause / Location (above/below ground)
 - **Attachment Instructions:** Attach threat specific graphics
 - **Task:** Initiate Potential Threat Identification
 - **Task Response Option:** Branch to Potential Threat Identification
 - **Auto:** Yes
 - **Branching to Process:** Potential Threat (Non-Leak Repair) Identification

- **Process:** Potential Threat (Non-Leak Repair) Identification
 - **Task:** Is this process being run Ad Hoc or as part of the annual cycle?
 - **Task Response Option:** Ad Hoc
 - **Triggers task:** What is the source of the potential threat to be considered for corrective action?
 - **Task Response Option:** Annual Cycle
 - **Auto:** Yes
 - **Branching to Process:** Rank and Evaluate Total / Average Leak Repair Risk
 - **Task:** Document the information sources reviewed for potential threats
 - **Task Response Option:** PHMSA advisories
 - **Task Response Option:** NTSB reports
 - **Task Response Option:** Interpretations
 - **Task Response Option:** Notices
 - **Task Response Option:** Industry Experience
 - **Task Response Option:** Field Reported
 - **Task Response Option:** Other
 - **Task:** Were any potential threats identified?
 - **Task Response Option:** No potential threats identified
 - **Trigger:** End Process
 - **Task Response Option:** Potential threats identified
 - **Task:** What is the source of the potential threat to be considered for corrective action?
 - **Task Response Option:** PHMSA advisories
 - **Task Response Option:** NTSB reports
 - **Task Response Option:** Interpretations
 - **Task Response Option:** Notices
 - **Task Response Option:** Industry Experience
 - **Task Response Option:** Field Reported
 - **Task Response Option:** Other
 - **Task:** Is the potential threat associated with incorrect operations (non PAAR related procedural)
 - **Task Response Option:** No
 - **Task Response Option:** Yes
 - **Auto:** No
 - **Branching to Process:** Incorrect Operations Field Reported / Potential Threat Procedure Review
 - **Task:** Initiate Potential Threat Meeting
 - **Task Response Option:** Potential Threat Meeting required
 - **Auto:** Yes
 - **Branching to Process:** Field Reported / Potential Threat Meeting
 - **Task Response Option:** Potential Threat Meeting not required
 - **Text Instructions:** Document why no meeting is required.
- **Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task:** Document threat identified?
 - **Task Response Option:** Threat details
 - **Text Instructions:** Detail field identified threat
 - **Task:** Is the threat associated with incorrect operations (non PAAR related procedural)
 - **Task Response Option:** No
 - **Task Response Option:** Yes

- **Auto:** No
 - **Branching to Process:** Incorrect Operations Field Reported / Potential Threat Procedure Review
- **Task:** Initiate Field Reported / Potential Threat Meeting
 - **Task Response Option:** Field Reported / Potential Threat Meeting required
 - **Auto:** Yes
 - **Branching to Process:** Field Reported / Potential Threat Meeting
 - **Task Response Option:** Field Reported / Potential Threat Meeting not required
 - **Text Instructions:** Document why field meeting not required.
- **Process:** ----- - Timeline: Not Set
- **Process:** Field Reported / Potential Threat Meeting - Timeline: 1 Month
 - **Task:** Document meeting organizer and justification
 - **Task Response Option:** Meeting detail
 - **Text Instructions:** Detail meeting organizer and reason for meeting
 - **Task:** Document SME attendance
 - **Task Response Option:** Attach sign in sheet
 - **Text Instructions:** Attach or document attendance
 - **Task:** Define the threat
 - **Task Response Option:** Open Text Box
 - **Task:** Document threat severity consensus
 - **Task Response Option:** Threat severe
 - **Task Response Option:** Threat not severe
 - **Text Instructions:** Detail why the threat requires no further action.
 - **Task:** Is additional records research necessary?
 - **Task Response Option:** Additional records research necessary
 - **Text Instructions:** Detail the reasoning
 - **Auto:** Yes
 - **Branching to Process:** Field Reported / Potential Threat Records Research
 - **Task Response Option:** Records research not required
- **Process:** Field Reported / Potential Threat Records Research
 - **Task:** What system knowledge do we have surrounding this new threat?
 - **Task Response Option:** Counts
 - **Text Instructions:** Detail the count of the facilities susceptible to this potential threat
 - **Task Response Option:** Locations
 - **Text Instructions:** Detail the locations of the facilities susceptible to this potential threat
 - **Task Response Option:** Non-release events
 - **Text Instructions:** Detail the number and location of non-release events associated with this potential threat
 - **Task Response Option:** Historical information
 - **Task Response Option:** No system information available
 - **Task:** What is the nature of the threat?
 - **Task Response Option:** Localized
 - **Task Response Option:** Systemic
 - **Task:** Does records research indicate the threat needs to be addressed?
 - **Task Response Option:** Potential threat needs to be addressed
 - **Auto:** Yes

- **Branching to Process:** Management Review of Field Reported / Potential Threat Research

- **Task Response Option:** Potential threat has no impact on system

- **Process:** Incorrect Operations Field Reported / Potential Threat Procedure Review

- **Task:** Do the procedure(s) require updating to address the potential incorrect operations threat? (Incorrect Operations - Procedure Review hierarchy)

- **Task Response Option:** Procedural update required

- **Auto:** No

- **Branching to Process:** Corporate MOC

- **Task Response Option:** No procedural update required

- **Text Instructions:** Document why no procedural update is required.

- **Process:** Management Review of Field Reported / Potential Threat Research - Timeline: 1 Day

- **Task:** Review threat records research results

- **Task Response Option:** Records research reviewed

- **Task:** Were any corrective actions proposed?

- **Task Response Option:** Corrective action proposed

- **Task Response Option:** Corrective action not proposed

- **Trigger:** End Process

- **Task:** Were proposed corrective actions agreed upon?

- **Task Response Option:** Follow up potential threat meeting required

- **Auto:** Yes

- **Branching to Process:** Field Reported / Potential Threat Meeting

- **Task Response Option:** Corporate MOC

- **Auto:** No

- **Branching to Process:** Corporate MOC

- **Task Response Option:** Operational Recommendation

- **Auto:** No

- **Branching to Process:** Operational Recommendation

- **Task Response Option:** Continuous Improvement

- **Auto:** No

- **Branching to Process:** Continuous Improvement

- **Task Response Option:** Data Management

- **Auto:** No

- **Branching to Process:** Data Management Recommendation

- **Task Response Option:** One Off Mitigation

- **Auto:** No

- **Branching to Process:** One Off Mitigation

- **Task Response Option:** PAAR modification

- **Text Instructions:** Document PAAR, proposed corrective actions and attach SI as appropriate

- **Auto:** No

- **Branching to Process:** Document PAAR Modification Details

- **Task Response Option:** Create new PAAR

- **Text Instructions:** Document new program objectives

- **Auto:** Yes

- **Branching to Process:** New PAAR Management

- **Element:** Evaluate and Rank Risk

- **Area:** Leak Repair Risk Modeling (Tableau)
 - **Process:** Leak Repair Risk Model Review
 - **Task:** Review consequence weight factors as required
 - **Task Response Option:** Consequence weight factors correct
 - **Task Response Option:** Consequence weight factors updated
 - **Text Instructions:** Detail or attach the changes to the consequence weight factors
 - **Task:** Review probability weight factors as required
 - **Task Response Option:** Probability weight factors correct
 - **Task Response Option:** Probability weight factors updated
 - **Text Instructions:** Detail or attach the changes to the probability weight factors
 - **Task:** Review risk algorithm as required
 - **Task Response Option:** Risk algorithm correct
 - **Task Response Option:** Risk algorithm updated
 - **Text Instructions:** Detail or attach the changes to the risk algorithm
 - **Task:** Is risk model update required?
 - **Task Response Option:** Risk model requires revision
 - **Auto:** Yes
 - **Branching to Process:** Leak Repair Risk / Threat Steering Committee Risk Model Review
 - **Trigger:** End Process
 - **Task Response Option:** No risk model revision
 - **Auto:** Yes
 - **Branching to Process:** Leak Repair Risk Model Execution
 - **Process:** Leak Repair Risk / Threat Steering Committee Risk Model Review
 - **Task:** Document Risk / Threat Steering Committee Meeting
 - **Task Response Option:** Invitees
 - **Task Response Option:** Agenda
 - **Attachment Instructions:** Attach Meeting Agenda
 - **Task Response Option:** Attendees
 - **Task Response Option:** Meeting Minutes
 - **Attachment Instructions:** Attach meeting minutes
 - **Task:** Are the proposed updates to the risk methodology approved by committee?
 - **Task Response Option:** Yes
 - **Auto:** Yes
 - **Branching to Process:** Update Leak Repair Risk Model
 - **Task Response Option:** No
 - **Auto:** Yes
 - **Branching to Process:** Leak Repair Risk Model Execution
 - **Process:** Update Leak Repair Risk Model - Timeline: 2 Week
 - **Task:** Update consequence weight factors as required
 - **Task Response Option:** Consequence weight factors correct
 - **Task Response Option:** Consequence weight factors updated
 - **Text Instructions:** Detail or attach the changes to the consequence weight factors
 - **Task:** Update probability weight factors as required
 - **Task Response Option:** Probability weight factors correct
 - **Task Response Option:** Probability weight factors updated
 - **Text Instructions:** Detail or attach the changes to the probability weight factors

- **Task:** Update risk algorithm as required
 - **Task Response Option:** Risk algorithm correct
 - **Task Response Option:** Risk algorithm updated
 - **Text Instructions:** Detail or attach the changes to the risk algorithm
 - **Task:** Initiate Leak Repair Model Execution
 - **Task Response Option:** Schedule Leak Repair Risk Model Execution
 - **Auto:** Yes
 - **Branching to Process:** Leak Repair Risk Model Execution
 - **Process:** Leak Repair Risk Model Execution - Timeline: 1 Day
 - **Task:** Execute risk model
 - **Task Response Option:** Risk model executed
 - **Task:** Based on expectations, industry, and previous year's results, was the risk valid?
 - **Task Response Option:** Risk results valid
 - **Task Response Option:** Risk results invalid
 - **Text Instructions:** Detail the justification for flagging the risk results as invalid
 - **Auto:** Yes
 - **Branching to Process:** Leak Repair Risk Model Review
- **Area:** Evaluate and Rank Leak Repair Risk
 - **Process:** Rank and Evaluate Total / Average Leak Repair Risk
 - **Task:** Confirm risk model has been executed
 - **Task Response Option:** Risk model has been executed
 - **Task:** Document risk results by state
 - **Task Response Option:** Total risk by cause chart
 - **Attachment Instructions:** Attach graphical support information
 - **Task Response Option:** Total risk by cause trend
 - **Attachment Instructions:** Attach graphical support information
 - **Task Response Option:** Total risk by cause / tier 1 facility chart
 - **Attachment Instructions:** Attach graphical support information
 - **Task:** Document average risk results by state
 - **Task Response Option:** Average risk by cause chart
 - **Attachment Instructions:** Attach graphical support information
 - **Task:** Initiate Code Required Performance
 - **Task Response Option:** Branch to Code Required Performance
 - **Auto:** Yes
 - **Branching to Process:** Code Required Performance Measurement (Schedule branch to selected districts or group for DTA)
- **Area:** Pipe Replacement Risk Modeling (Uptime/GeoFields)
 - **Process:** Pipe Replacement Risk Model Review
 - **Task:** Review consequence weight factors as required
 - **Task Response Option:** Consequence weight factors correct
 - **Task Response Option:** Consequence weight factors updated
 - **Text Instructions:** Detail or attach the changes to the consequence weight factors
 - **Task:** Review probability weight factors as required
 - **Task Response Option:** Probability weight factors correct
 - **Task Response Option:** Probability weight factors updated
 - **Text Instructions:** Detail or attach the changes to the probability weight factors
 - **Task:** Review risk algorithm as required

- **Task Response Option:** Risk algorithm correct
 - **Task Response Option:** Risk algorithm updated
 - **Text Instructions:** Detail or attach the changes to the risk algorithm
- **Task:** Is risk model update required?
 - **Task Response Option:** Risk model requires revision
 - **Auto:** Yes
 - **Branching to Process:** Pipe Replacement Risk / Threat Steering Committee Risk Model Review
 - **Task Response Option:** No risk model revision
 - **Auto:** Yes
 - **Branching to Process:** Pipe Replacement Risk Model Execution
- **Process:** Pipe Replacement Risk / Threat Steering Committee Risk Model Review
 - **Task:** Document Risk / Threat Steering Committee Meeting
 - **Task Response Option:** Invitees
 - **Task Response Option:** Agenda
 - **Attachment Instructions:** Attach Meeting Agenda
 - **Task Response Option:** Attendees
 - **Task Response Option:** Meeting Minutes
 - **Attachment Instructions:** Attach meeting minutes
 - **Task:** Are the proposed updates to the risk methodology approved by committee?
 - **Task Response Option:** Yes
 - **Auto:** Yes
 - **Branching to Process:** Update Pipe Replacement Risk Model
 - **Task Response Option:** No
 - **Auto:** Yes
 - **Branching to Process:** Pipe Replacement Risk Model Execution
- **Process:** Update Pipe Replacement Risk Model
 - **Task:** Update consequence weight factors as required
 - **Task Response Option:** Consequence weight factors correct
 - **Task Response Option:** Consequence weight factors updated
 - **Text Instructions:** Detail or attach the changes to the consequence weight factors
 - **Task:** Update probability weight factors as required
 - **Task Response Option:** Probability weight factors correct
 - **Task Response Option:** Probability weight factors updated
 - **Text Instructions:** Detail or attach the changes to the probability weight factors
 - **Task:** Update risk algorithm as required
 - **Task Response Option:** Risk algorithm correct
 - **Task Response Option:** Risk algorithm updated
 - **Text Instructions:** Detail or attach the changes to the risk algorithm
 - **Task:** Initiate risk model execution
 - **Task Response Option:** Initiate risk rank and evaluation
 - **Auto:** Yes
 - **Branching to Process:** Pipe Replacement Risk Model Execution
- **Process:** Pipe Replacement Risk Model Execution
 - **Task:** Execute risk model
 - **Task Response Option:** Risk model executed
 - **Task:** Based on expectations, industry, and previous year's results, was the risk valid?

- **Task Response Option:** Risk results valid
 - **Task Response Option:** Risk results invalid
 - **Text Instructions:** Detail the justification for flagging the risk results as invalid
 - **Auto:** Yes
 - **Branching to Process:** Pipe Replacement Risk Model Review
- **Area:** Evaluate and Rank Pipe Replacement Risk
 - **Process:** Rank and Evaluate Total Pipe Replacement Risk
 - **Task:** Confirm risk model has been executed
 - **Task Response Option:** Risk model has been executed
 - **Task:** Pipe replacement heat map executed
 - **Task Response Option:** Heat map completed
 - **Task Response Option:** No heat map completed
 - **Task:** Which asset classes are reviewed in this analysis?
 - **Task Response Option:** Steel
 - **Task Response Option:** Bare steel
 - **Task Response Option:** Vintage steel
 - **Task Response Option:** Alkyl-A
 - **Task Response Option:** Plastic
 - **Task Response Option:** Vintage plastic
 - **Task:** Identify areas for replacement
 - **Task Response Option:** Attach summary document
 - **Attachment Instructions:** Attach summary document
- **Element:** Performance
 - **Area:** Code Required Performance
 - **Process:** Code Required Performance Measurement (Schedule branch to selected districts or group for DTA) -
 - **Task:** Document company specific code based performance measures
 - **Task Response Option:** All by Cause chart
 - **Attachment Instructions:** Attach supporting graphic
 - **Task Response Option:** Hazardous by Cause chart
 - **Attachment Instructions:** Attach supporting graphic
 - **Task Response Option:** Hazardous by Material chart
 - **Attachment Instructions:** Attach supporting graphic
 - **Task Response Option:** Damages by State chart
 - **Attachment Instructions:** Attach supporting graphic
 - **Task Response Option:** One Call by State chart
 - **Attachment Instructions:** Attach supporting graphic
 - **Task:** Document state specific leaks trend
 - **Task Response Option:** Leaks trended by cause documented
 - **Attachment Instructions:** Attach graphical support information
 - **Task:** Schedule presentation/investigation method utilized this cycle to present information and capture feedback?
 - **Task Response Option:** All districts will be investigated, schedule District Threat Analysis (for each district individually or as a group)
 - **Auto:** No
 - **Branching to Process:** District Specific Threats of Concern Analysis / Presentation Preparation
 - **Task:** Initiate Program Performance Component Analysis

- **Task Response Option:** Program Evaluation Component Performance Management
 - **Auto:** Yes
 - **Branching to Process:** Program Performance Effectiveness Component Management
 - **Task Response Option:** Corrective Action Effectiveness Component Management
 - **Auto:** Yes
 - **Branching to Process:** Corrective Action Effectiveness Component Management
 - **Task Response Option:** Potential Threat Effectiveness Component Management
 - **Auto:** Yes
 - **Branching to Process:** Potential Threat Effectiveness Component Management
 - **Task Response Option:** PAAR Data Management Effectiveness Component Management
 - **Auto:** Yes
 - **Branching to Process:** PAAR Data Management Effectiveness Component Management
 - **Task Response Option:** Not required this cycle
 - **Area:** Performance Based Program Effectiveness (In Development)
 - **Process:** Program Performance Effectiveness Component Management
 - **Task:** Initiate Program Effectiveness Analysis
 - **Task Response Option:** Program Effectiveness
 - **Auto:** Yes
 - **Branching to Process:** Program Effectiveness
 - **Process:** Corrective Action Effectiveness Component Management (In Development)
 - **Element:** District Threat Analysis (DTA)
 - **Area:** District Investigation Preparation
 - **Process:** District Specific Threats of Concern Analysis / Presentation Preparation
 - **Task:** Document the threats of concern based on company risk-performance as the driver
 - **Task Response Option:** Corrosion
 - **Task Response Option:** Excavation Damage
 - **Task Response Option:** Outside Force Damage
 - **Task Response Option:** Natural Force Damage
 - **Task Response Option:** Pipe, Weld and Joint Failure
 - **Task Response Option:** Incorrect Operations
 - **Task Response Option:** Equipment Failure
 - **Task Response Option:** Threat analysis to be performed at the district level
 - **Task:** Document the total % of Risk to be addressed through investigation
 - **Task Response Option:** Total % Risk
 - **Text Instructions:** Detail total % of Risk addressed
 - **Task:** Document the criteria utilized to determine the district threat presentations
 - **Task Response Option:** High Risk and Average Risk and Performance
 - **Attachment Instructions:** Attach supporting risk / performance information
 - **Task Response Option:** Other
 - **Text Instructions:** Document cutoff point
 - **Task:** Is Corrosion a threat for this district?
 - **Task Response Option:** Yes, corrosion is a threat
 - **Task Response Option:** No, corrosion is not a threat
 - **Triggers task:** Is Excavation Damage a threat for this district?

- **Task:** Which facility is corrosion a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver
 - **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Corrosion Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Corrosion Investigation
 - **Task Response Option:** pSEc District Corrosion Organizational Feedback Preparation
 - **Auto:** Yes
 - **Branching to Process:** pSEc District Corrosion Organizational Feedback Preparation
- **Task:** Is Excavation Damage a threat for this district?
 - **Task Response Option:** Yes, excavation damage is a threat
 - **Task Response Option:** No, excavation damage is not a threat
 - **Triggers task:** Is Outside Force Damage a threat for this district?
- **Task:** Which facility is excavation damage a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services

- **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver
 - **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Excavation Damage Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Excavation Damage Investigation
 - **Task Response Option:** pSEc District Excavation Damage Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Excavation Damage Organizational Feedback Preparation
- **Task:** Is Outside Force Damage a threat for this district?
 - **Task Response Option:** Yes, outside force damage is a threat
 - **Task Response Option:** No, outside force damage is not a threat
 - **Triggers task:** Is Natural Force Damage a threat for this district?
- **Task:** Which facility is outside force damage a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver

- **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** High-Poor
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** Medium-Poor
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk
- **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Outside Force Damage Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Outside Force Damage Investigation
 - **Task Response Option:** pSEc District Outside Force Damage Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Outside Force Damage Organizational Feedback Preparation
- **Task:** Is Natural Force Damage a threat for this district?
 - **Task Response Option:** Yes, natural force damage is a threat
 - **Task Response Option:** No, natural force damage is not a threat
 - **Triggers task:** Is Pipe, Weld and Joint Failure a threat for this district?
- **Task:** Which facility is natural force damage a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver
 - **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Poor

- **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Natural Force Damage Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Natural Force Damage Investigation
 - **Task Response Option:** pSEc District Natural Force Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Natural Force Damage Organizational Feedback Preparation
- **Task:** Is Pipe, Weld and Joint Failure a threat for this district?
 - **Task Response Option:** Yes, pipe, weld and joint failure is a threat
 - **Task Response Option:** No, pipe, weld and joint failure is not a threat
 - **Triggers task:** Is Incorrect Operations a threat for this district?
- **Task:** Which facility is pipe, weld and joint failure a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver
 - **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Poor

- **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Pipe, Weld, Joint Failure Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Pipe, Weld and Joint Failure Investigation
 - **Task Response Option:** pSEc District Pipe, Weld, Joint Failure Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Pipe, Weld, Joint Failure Organizational Feedback Preparation
- **Task:** Is Incorrect Operations a threat for this district?
 - **Task Response Option:** Yes, incorrect operations is a threat
 - **Task Response Option:** No, incorrect operations is not a threat
 - **Triggers task:** Is Equipment Failure a threat for this district?
- **Task:** Which facility is incorrect operations a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver
 - **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk

- **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Incorrect Operations Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Incorrect Operations Investigation
 - **Task Response Option:** pSEc District Incorrect Operations Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Incorrect Operations Organizational Feedback Preparation
- **Task:** Is Equipment Failure a threat for this district?
 - **Task Response Option:** Yes, equipment failure is a threat
 - **Task Response Option:** No, equipment failure is not a threat
 - **Triggers task:** Presentation available for Leak Management investigation for this district?
- **Task:** Which facility is equipment failure a threat?
 - **Task Response Option:** Mains
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** Services
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
 - **Task Response Option:** ABGF
 - **Attachment Instructions:** Attach supporting graphic (may include % component and materials impacted)
- **Task:** Document the risk-performance driver
 - **Task Response Option:** High-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** High-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Medium-Poor
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Good
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Fair
 - **Text Instructions:** Total or Average Risk
 - **Task Response Option:** Low-Poor
 - **Text Instructions:** Total or Average Risk
- **Task:** Schedule District Equipment Failure Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes

- **Branching to Process:** District Equipment Failure Investigation
- **Task Response Option:** pSEc District Equipment Failure Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Equipment Failure Organizational Feedback Preparation
- **Task:** Presentation available for Leak Management investigation for this district?
 - **Task Response Option:** Dashboards available for presentation
 - **Attachment Instructions:** Attach supporting graphic
 - **Task Response Option:** No presentation material available
- **Task:** Schedule District Leak Management Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Leak Management Investigation
 - **Task Response Option:** pSEc District Leak Management Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Leak Management Organizational Feedback Preparation
- **Task:** Is Data Collection an issue for this district?
 - **Task Response Option:** Yes, data collection is an issue
 - **Text Instructions:** Document issues
 - **Attachment Instructions:** Attach graphical support information
 - **Task Response Option:** No, data collection is not an issue
 - **Triggers task:** Is Pipe Replacement data available?
- **Task:** Schedule District Data Collection Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Data Collection Investigation
 - **Task Response Option:** pSEc District Data Collection Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District Data Collection Organizational Feedback Preparation
- **Task:** Is Pipe Replacement data available?
 - **Task Response Option:** Pipe replacement data is not available
 - **Text Instructions:** Document why data not available
 - **Triggers task:** Is 3rd Party Damage data available?
 - **Task Response Option:** Pipe replacement data available and will not be presented
 - **Text Instructions:** Document reason for not presenting
 - **Triggers task:** Is 3rd Party Damage data available?
 - **Task Response Option:** Pipe replacement data available and will be presented
 - **Attachment Instructions:** Attach replacement risk report for presentation
- **Task:** Schedule Pipe Replacement Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Recommended Pipe Replacement Investigation
 - **Task Response Option:** pSEc District Pipe Replacement Organizational Feedback Preparation
 - **Auto:** No

- **Branching to Process:** pSEc District Pipe Replacement Organizational Feedback Preparation

- **Task:** Is 3rd Party Damage data available?
 - **Task Response Option:** 3rd party damage data not available
 - **Text Instructions:** Document why data not available
 - **Triggers task:** Create district threat specific presentation
 - **Task Response Option:** 3rd party damage data available and will not be presented
 - **Text Instructions:** Document reason for not presenting
 - **Triggers task:** Create district threat specific presentation
 - **Task Response Option:** 3rd party damage data available and will be presented
- **Task:** Schedule 3rd Party Damage Action
 - **Task Response Option:** On site investigation
 - **Auto:** Yes
 - **Branching to Process:** District Equipment Failure Investigation
 - **Task Response Option:** pSEc District 3rd Party Damage Organizational Feedback Preparation
 - **Auto:** No
 - **Branching to Process:** pSEc District 3rd Party Damage Organizational Feedback Preparation
- **Task:** Create district threat specific presentation
 - **Task Response Option:** Presentation ready
 - **Attachment Instructions:** Attach presentation
- **Task:** Initiate Document Meeting Metrics
 - **Task Response Option:** Schedule Document Meeting Metrics
 - **Auto:** Yes
 - **Branching to Process:** Document Meeting Metrics
 - **Task Response Option:** No investigation required for this district

- **Element:** District Presentation, Investigation & Discovery

- **Area:** Data / Risk / Performance Triggered Investigation
 - **Process:** Document Meeting Metrics
 - **Task:** Document Attendees
 - **Task Response Option:** Open Text Box
 - **Task:** Document the range of roles present
 - **Task Response Option:** Technician
 - **Task Response Option:** Supervisor
 - **Task Response Option:** Manager
 - **Task Response Option:** Director
 - **Task Response Option:** Executive
 - **Task:** Was organizational feedback survey collected?
 - **Task Response Option:** No survey collected
 - **Trigger:** End Process
 - **Task Response Option:** Survey collected on paper
 - **Task Response Option:** Survey collected electronically
 - **Trigger:** End Process
 - **Task:** Scan organizational survey documentation for data entry
 - **Task Response Option:** Organizational survey scanned and sent for data entry
 - **Auto:** Yes
 - **Branching to Process:** Organizational Data Entry

- **Process:** Organizational Data Entry
 - **Task:** Upload organizational feedback into electronic medium
 - **Task Response Option:** Organizational data loaded
 - **Task:** Quality control data entry in dashboards
 - **Task Response Option:** Dashboards sufficient to support analysis in IRA
 - **Trigger:** End Process
 - **Task Response Option:** Dashboards insufficient to support analysis in IRA
 - **Task:** Update organizational feedback dashboards
 - **Task Response Option:** Organizational feedback dashboards updated and reviewed
- **Process:** District 3rd Party Damage Performance Investigation
 - **Task:** Present 3rd party damage data for discussion
 - **Task Response Option:** Top cities
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Top offenders / damagers
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Primary cause (line locating, no valid one call, etc)
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Information not presented
 - **Text Instructions:** Document reason for not presenting
- **Process:** District Recommended Pipe Replacement Investigation
 - **Task:** Present replacement risk presentation
 - **Task Response Option:** Information presented
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Information not presented
 - **Text Instructions:** Detail why information was not presented
- **Process:** District Data Collection Investigation
 - **Task:** Present data collection observations for discussion
 - **Task Response Option:** Leak cause Other
 - **Text Instructions:** Document discussion / justification and/or potential corrective actions
 - **Task Response Option:** Corrosion on Plastic
 - **Text Instructions:** Document discussion / justification and/or potential corrective actions
 - **Task Response Option:** Excavation Damage on Above Ground Facilities
 - **Text Instructions:** Document discussion / justification and/or potential corrective actions
 - **Task Response Option:** Outside Force Damage on Buried Facilities
 - **Text Instructions:** Document discussion / justification and/or potential corrective actions
 - **Task Response Option:** Reported by
 - **Task Response Option:** Incomplete data overview
 - **Task Response Option:** Information not presented
 - **Text Instructions:** Document reason for not presenting
- **Process:** District Leak Management Investigation
 - **Task:** Present leak management data for discussion
 - **Task Response Option:** Identified by
 - **Text Instructions:** Document key findings

- **Task Response Option:** Grading
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Repair time
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Information not presented
 - **Text Instructions:** Detail why information was not presented
 - **Task:** General discussion on Survey, Patrol, Inspection, Surveillance PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Leak Survey - Business Districts
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Document key findings
 - **Task:** General discussion on Consequence PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Document key findings
- **Process:** District Excavation Damage Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat
 - **Text Instructions:** Document reason for validation

- **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
- **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Alkyl-A
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Not applicable
- **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
- **Task:** Are there any sub-causes for this threat that require prioritized action?
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
- **Task:** General discussion on Excavation Damage PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Damage Prevention Programs
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Damage Prevention - Alternative Marking Methods
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Damage Prevention - Near Miss / Locate Audits
 - **Text Instructions:** Document key findings
 - **Task Response Option:** EFV / Curb Valve Installation Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** GIS - High Profile Lines
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Line Marker Installations
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Natural Gas Education Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Public Awareness Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Unlocatable Pipe Program
 - **Text Instructions:** Document key findings

- **Process:** District Outside Force Damage Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat
 - **Text Instructions:** Document reason for validation
 - **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
 - **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Not applicable
 - **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
 - **Task:** Are there any sub-causes for this threat that require prioritized action?
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
 - **Task:** General discussion on Other Outside Force Damage PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Facility Replacement
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Copper Riser / Service Replacement Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Barricade Installation Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services At Risk Program
 - **Text Instructions:** Document key findings

- **Task Response Option:** Right of Way Clearing Program
 - **Text Instructions:** Document key findings
- **Task Response Option:** Vacant Riser Removal
 - **Text Instructions:** Document key findings
- **Process:** District Corrosion Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat
 - **Text Instructions:** Document reason for validation
 - **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
 - **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Not applicable
 - **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
 - **Task:** Are there any sub-causes for this threat that require prioritized action?
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
 - **Task:** General discussion on Corrosion PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Accelerated Leak Survey - Bare Steel Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Accelerated Leak Survey - Cast Iron
 - **Text Instructions:** Document key findings

- **Task Response Option:** Accelerated Leak Survey - Shorted Casings
 - **Text Instructions:** Document key findings
- **Task Response Option:** Accelerated Leak Survey - Unprotected Services
 - **Text Instructions:** Document key findings
- **Task Response Option:** Accelerated Rectifier Installation Program
 - **Text Instructions:** Document key findings
- **Task Response Option:** Atmospheric Corrosion Control Surveys
 - **Text Instructions:** Document key findings
- **Task Response Option:** Bare Steel Replacement Program
 - **Text Instructions:** Document key findings
- **Task Response Option:** Cast Iron Replacement Program
 - **Text Instructions:** Document key findings
- **Task Response Option:** Copper Riser / Service Replacement Program
 - **Text Instructions:** Document key findings
- **Task Response Option:** Corrosion Control
 - **Text Instructions:** Document key findings
- **Task Response Option:** Emergency Plan - H2S
 - **Text Instructions:** Document key findings
- **Task Response Option:** Facility Data Research
 - **Text Instructions:** Document key findings
- **Task Response Option:** Facility Replacement
 - **Text Instructions:** Document key findings
- **Task Response Option:** GIS - Cathodic Protection Facilities and Status
 - **Text Instructions:** Document key findings
- **Task Response Option:** Ground Bed and Rectifier Replacement Program
 - **Text Instructions:** Document key findings
- **Task Response Option:** Large Diameter Bare Steel CP Initiative
 - **Text Instructions:** Document key findings
- **Task Response Option:** Regulator Station Painting Program
 - **Text Instructions:** Document key findings
- **Process:** District Natural Force Damage Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat
 - **Text Instructions:** Document reason for validation
 - **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
 - **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings

- **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
- **Task Response Option:** Aldyl-A
 - **Text Instructions:** Document key findings
- **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
- **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
- **Task Response Option:** Not applicable
- **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
- **Task:** Are there any sub-causes for this threat that require prioritized action?
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
- **Task:** General discussion on Natural Force Damage PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Facility Replacement
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Accelerated Leak Survey - Varmint
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bridge and Span Inspections
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Emergency Operation Plan
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Emergency Shutdown Plan
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Service Design Consideration - Varmint
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Special Leak Survey - Seismic Activity
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Wildfire Inspection Program
 - **Text Instructions:** Document key findings
- **Process:** District Pipe, Weld and Joint Failure Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat

- **Text Instructions:** Document reason for validation
 - **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
- **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Not applicable
- **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
- **Task:** Are there any sub-causes for this threat that require prioritized action?
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
- **Task:** General discussion on Pipe, Weld and Joint Failure PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Asset Tracking and Traceability
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Copper Riser / Service Replacement Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Facility Data Research
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Facility Replacement
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Kerotest "No Stress" Anodeless Riser Removal
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Leak and Strength Test
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Legacy Plastic Main Replacement Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Legacy Plastic Service Replacement Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Legacy Plastic Squeeze Point Reinforcement

- **Text Instructions:** Document key findings
 - **Task Response Option:** Confirmed LDIW Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Material Failure Analysis Program
 - **Text Instructions:** Document key findings
- **Process:** District Incorrect Operations Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat
 - **Text Instructions:** Document reason for validation
 - **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
 - **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Not applicable
 - **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
 - **Task:** Are there any sub-causes for this threat that require prioritized action?
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
 - **Task:** General discussion on Incorrect Operations PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Facility Data Research
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Facility Replacement

- **Text Instructions:** Document key findings
 - **Task Response Option:** Design Standard Consideration
 - **Text Instructions:** Document key findings
 - **Task Response Option:** LP/UP Facility Replacement
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Monitor Odorizer Operations
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Material Handling Procedures
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Operator Qualification and Training Programs
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Sewer Lateral Clearing
 - **Text Instructions:** Document key findings
- **Process:** District Equipment Failure Investigation
 - **Task:** Present cause trends for discussion
 - **Task Description:**
 - **Task Response Option:** Specific district trend
 - **Task Response Option:** All district trends
 - **Task Response Option:** Company trend
 - **Task:** Was the elevated risk driven by a valid threat verified through annual operations meeting OR a data quality issue not identified through initial data analysis?
 - **Task Response Option:** Valid threat
 - **Text Instructions:** Document reason for validation
 - **Task Response Option:** Data quality issue
 - **Text Instructions:** Document issue
 - **Task:** Threat by material discussion
 - **Task Response Option:** Steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Not applicable
 - **Task:** Threat by facility discussion
 - **Task Response Option:** Mains
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Services
 - **Text Instructions:** Document key findings
 - **Task Response Option:** ABGF
 - **Text Instructions:** Document key findings
 - **Task:** Are there any sub-causes for this threat that require prioritized action?

- **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Task Response Option:** No new threats identified
 - **Task:** General discussion on Equipment Failure PAAR with organizational detail, if available
 - **Task Response Option:** None reported
 - **Task Response Option:** Accelerated Inside Meter Moveout Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Accelerated Leak Survey - Inside Meters
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Compression Coupling Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Beltline Replacement Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Equipment Replacement Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Facility Data Research
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Facility Replacement
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Material and Tool Review Process
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Master Meter OPP Installation Program
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Pressure Regulation Station Inspection
 - **Text Instructions:** Document key findings
 - **Task Response Option:** Valve Maintenance Program
 - **Text Instructions:** Document key findings
- **Area:** pSEc District Specific Organizational Feedback Preparation
 - **Process:** pSEc District Corrosion Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
 - **Process:** pSEc District Excavation Damage Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation

- **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
- **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
- **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
- **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Natural Force Damage Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Outside Force Damage Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Equipment Failure Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete

- **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
- **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Incorrect Operations Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Pipe, Weld, Joint Failure Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Leak Management Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Data Collection Organizational Feedback Preparation

- **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District Pipe Replacement Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Process:** pSEc District 3rd Party Damage Organizational Feedback Preparation
 - **Task:** Create district / threat specific menu item
 - **Task Response Option:** Named as Year/District/Threat
 - **Task:** Configure district / threat menu item content
 - **Task Response Option:** Charts w/ explanation
 - **Task Response Option:** Overview article
 - **Task Response Option:** Threat specific questionnaire
 - **Task Response Option:** Threat PAAR questionnaires
 - **Task:** Configure district / threat menu item for district specific access
 - **Task Response Option:** Complete
 - **Task:** Connect new district / threat menu item to main menu by threat
 - **Task Response Option:** Complete
 - **Task:** Notify district / role to initiate feedback
 - **Task Response Option:** District / role notified
- **Area:** State or Multi-District Presentation
 - **Process:** State or Multi-District Presentation
- **Element:** Investigation Results Analysis (IRA)
 - **Area:** Threat / Ancillary Investigation Results Analysis
 - **Process:** Schedule Analysis of Investigated Threats / Ancillary Presented Materials (Aggregated Information)
 - **Task:** Review investigation performed dashboard to select IRA analysis processes

- **Task Response Option:** Dashboard reviewed
- **Task:** Schedule analysis of threats with issues identified during investigation
 - **Task Response Option:** Excavation Damage
 - **Auto:** Yes
 - **Branching to Process:** Analyze Excavation Damage from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task Response Option:** Outside Force Damage
 - **Auto:** Yes
 - **Branching to Process:** Analyze Outside Force Damage Analysis from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task Response Option:** Corrosion
 - **Auto:** Yes
 - **Branching to Process:** Analyze Corrosion from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task Response Option:** Natural Force Damage
 - **Auto:** Yes
 - **Branching to Process:** Analyze Natural Force Damage from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task Response Option:** Pipe, Weld and Joint Failure
 - **Auto:** Yes
 - **Branching to Process:** Analyze Pipe, Weld and Joint Failure from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task Response Option:** Incorrect Operations
 - **Auto:** Yes
 - **Branching to Process:** Analyze Incorrect Operations Analysis from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task Response Option:** Equipment Failure
 - **Auto:** Yes
 - **Branching to Process:** Analyze Equipment Failure from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
- **Task:** Schedule analysis of non threat areas with issues identified during investigation
 - **Task Response Option:** No non-threat issues identified
 - **Task Response Option:** 3rd Party Damage
 - **Auto:** Yes
 - **Branching to Process:** Analyze 3rd Party Damage from Aggregated Investigation Results
 - **Task Response Option:** Data Collection
 - **Auto:** Yes
 - **Branching to Process:** Analyze Data Collection from Aggregated Investigation Results
 - **Task Response Option:** Recommended Pipe Replacement

- **Auto:** Yes
 - **Branching to Process:** Analyze Recommended Pipe Replacement from Aggregated Investigation Results
 - **Task Response Option:** Leak Management
 - **Auto:** Yes
 - **Branching to Process:** Analyze Leak Management from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
- **Process:** Analyze 3rd Party Damage from Aggregated Investigation Results
 - **Task:** View the IRA 3rd Party Damage dashboard to determine if any issues require further consideration?
 - **Task Response Option:** No significant 3rd party damage issues
 - **Trigger:** End Process
 - **Task Response Option:** 3rd party damage issues requiring further consideration
 - **Text Instructions:** Summarize 3rd party issues requiring further consideration
 - **Task:** Communicate the findings to the damage prevention group
 - **Task Response Option:** Findings communicated
 - **Text Instructions:** Document / attach communication
- **Process:** Analyze Recommended Pipe Replacement from Aggregated Investigation Results
 - **Task:** View the IRA Replacement Risk dashboard to determine if issues require further consideration?
 - **Task Response Option:** No significant pipe replacement issues
 - **Trigger:** End Process
 - **Task Response Option:** Pipe replacement issues requiring further consideration
 - **Text Instructions:** Summarize pipe replacement issues requiring further consideration
 - **Task:** Communicate the findings to the appropriate parties
 - **Task Response Option:** Findings communicated
 - **Text Instructions:** Document / attach communication
- **Process:** Analyze Data Collection from Aggregated Investigation Results
 - **Task:** View the IRA Data Collection dashboard to determine if any issues require further consideration?
 - **Task Response Option:** No significant data collection issues
 - **Trigger:** End Process
 - **Task Response Option:** Data collection issues requiring further consideration
 - **Text Instructions:** Summarize data collection issues requiring further consideration
 - **Task:** Communicate the findings to the appropriate parties
 - **Task Response Option:** Findings communicated
 - **Text Instructions:** Document / attach communication
- **Process:** Analyze Leak Management from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task:** View the IRA Leak Management dashboard to determine if any issues require further consideration?
 - **Task Response Option:** No significant leak management issues
 - **Triggers task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Distribution Beltline?
 - **Task Response Option:** Leak management issues requiring further consideration
 - **Text Instructions:** Summarize leak management issues requiring further consideration
 - **Task:** Communicate the findings to the appropriate parties
 - **Task Response Option:** Findings communicated

- **Text Instructions:** Document / attach communication
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - AOC?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Distribution Beltline?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Exposed Crossings?

- **Task Response Option:** No corrective actions identified
- **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Maximum Survey Cycle?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Continuing Surveillance?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC

- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Enhanced Leak Cause Classification Training?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Leak Survey - Business Districts?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No

- **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for GIS - PRIME Legacy Posting Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Leak Data Sampling Plan?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement

- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Leak Investigation and Repair?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Leak Survey?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification

- **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Pipeline Patrolling?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Special Leak Survey - System Upgrading?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No

- **Branching to Process:** One Off Mitigation
- **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Excavation Damage from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
 - **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Detail the nature of the potential threat

- **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
- **Task Response Option:** None reported
- **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Damage Prevention - Alternative Marking Methods?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Damage Prevention - Near Miss / Locate Audits?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No

- **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Damage Prevention Programs?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for EFV / Curb Valve Installation Program ?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No

- **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for GIS - High Profile Lines?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Line Marker Installations?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation

- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Natural Gas Education Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Public Awareness Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Unlocatable Pipe Program?
 - **Task Response Option:** No corrective actions identified

- **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?
 - **Task Response Option:** No influence
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat

- **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Outside Force Damage Analysis from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
 - **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes

- **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
- **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Barricade Installation Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Copper Riser / Service Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation

- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Right of Way Clearing Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation

- **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Services At Risk Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Vacant Riser Removal?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?
 - **Task Response Option:** No influence
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline

- **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat
- **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Corrosion from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported

- **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
- **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Bare Steel Mains?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement

- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Cast Iron?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Shorted Casings?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation

- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Unprotected Services?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Rectifier Installation Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details

- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Atmospheric Corrosion Control Surveys?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Bare Steel Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation

- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Cast Iron Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Copper Riser / Service Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Corrosion Control?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)

- **Auto:** No
 - **Branching to Process:** Corporate MOC
- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Emergency Plan - H2S?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Data Research?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No

- **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for GIS - Cathodic Protection Facilities and Status?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement

- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Ground Bed and Rectifier Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Large Diameter Bare Steel CP Initiative?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation

- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Regulator Station Painting Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?
 - **Task Response Option:** No influence
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** GIS - PRIME Legacy Posting Program

- **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat
 - **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Natural Force Damage from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis)
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
 - **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat

- **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
- **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
- **Task Response Option:** Vintage plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
- **Task Response Option:** None reported
- **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Varmint?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Bridge and Span Inspections?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC

- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Emergency Operation Plan?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Emergency Shutdown Plan?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No

- **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Service Design Consideration - Varmint?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement

- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Special Leak Survey - Siesmic Activity?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Wildfire Inspection Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation

- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?
 - **Task Response Option:** No influence
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat
- **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Pipe, Weld and Joint Failure from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis) - Timeline: 1 Day
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification

- **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
- **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
- **Task Response Option:** None reported
- **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
- **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Asset Tracking and Traceability?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)

- **Auto:** No
 - **Branching to Process:** Corporate MOC
- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Confirmed LDIW Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Copper Riser / Service Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)

- **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Data Research?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement

- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Kerotest "No Stress" Anodeless Riser Removal?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Leak and Strength Test?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification

- **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Legacy Plastic Main Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Legacy Plastic Service Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation

- **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Legacy Plastic Squeeze Point Reinforcement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Material Failure Analysis Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?

- **Task Response Option:** No influence
- **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat
- **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat
- **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Incorrect Operations Analysis from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis) - Timeline: 1 Day
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes

- **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
- **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
- **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Design Standard Consideration?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)

- **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Data Research?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation

- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for LP/UP Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Material Handling Procedures?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details

- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Monitor Odorizer Operations?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Operator Qualification and Training Programs?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation

- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Sewer Lateral Clearing?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?
 - **Task Response Option:** No influence
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat

- **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat
 - **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes
 - **Branching to Process:** New PAAR Management
 - **Task Response Option:** Not required
- **Process:** Analyze Equipment Failure from Aggregated Investigation Results (Scheduled branch to specific PAAR for organizational analysis) - Timeline: 1 Day
 - **Task:** View the IRA Facilities dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Mains
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Services
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Meter loop
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
 - **Task:** View the IRA Materials dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Bare steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage steel
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Aldyl-A
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Plastic
 - **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** Vintage plastic

- **Text Instructions:** Detail the nature of the potential threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** None reported
 - **Task:** View the IRA Sub-Cause dashboard to determine if any potential threats (sub-causes) were identified
 - **Task Response Option:** Potential sub threat identified
 - **Text Instructions:** Document details of sub threat
 - **Auto:** Yes
 - **Branching to Process:** Field Reported (Non-Leak Repair) Threat Identification
 - **Task Response Option:** No new threats identified
 - **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Inside Meter Moveout Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
 - **Task:** View the IRA PAAR dashboard, was any corrective action identified for Accelerated Leak Survey - Inside Meters?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)

- **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Compression Coupling Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Beltline Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification

- **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Equipment Replacement Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Data Research?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No

- **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Facility Replacement?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Master Meter OPP Installation Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Material and Tool Review Process?
 - **Task Response Option:** No corrective actions identified

- **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Pressure Regulation Station Inspection?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC
 - **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
 - **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
 - **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
 - **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** View the IRA PAAR dashboard, was any corrective action identified for Valve Maintenance Program?
 - **Task Response Option:** No corrective actions identified
 - **Task Response Option:** Corporate MOC (Equipment, Procedures)
 - **Auto:** No
 - **Branching to Process:** Corporate MOC

- **Task Response Option:** Operational Recommendation (Resources, Scheduling, Communications)
 - **Auto:** No
 - **Branching to Process:** Operational Recommendation
- **Task Response Option:** Continuous Improvement (Training)
 - **Auto:** No
 - **Branching to Process:** Continuous Improvement
- **Task Response Option:** Data Management (GIS, Data Collection, Performance Improvement)
 - **Auto:** No
 - **Branching to Process:** Data Management Recommendation
- **Task Response Option:** PAAR modification
 - **Auto:** No
 - **Branching to Process:** Document PAAR Modification Details
- **Task Response Option:** One off Mitigation
 - **Auto:** No
 - **Branching to Process:** One Off Mitigation
- **Task:** Did data quality influence the threat severity determination?
 - **Task Response Option:** No influence
 - **Task Response Option:** Accelerated Leak Survey - Distribution Beltline
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - AOC
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Data Sampling Plan
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Exposed Crossings
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Accelerated Leak Survey - Maximum Survey Cycle
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Continuing Surveillance
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Cause Classification Training
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Enhanced Leak Survey - Business Districts
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** GIS - PRIME Legacy Posting Program
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Investigation and Repair
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Leak Survey
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Pipeline Patrolling
 - **Text Instructions:** Describe the influence on the threat
 - **Task Response Option:** Special Leak Survey - System Upgrading
 - **Text Instructions:** Describe the influence on the threat
- **Task:** Are any new PAAR to be considered?
 - **Task Response Option:** New PAAR required
 - **Auto:** Yes

- **Branching to Process:** New PAAR Management

- **Task Response Option:** Not required

- **Element:** Corrective Action

- **Area:** Corporate Management of Change

- **Process:** Corporate MOC - Timeline: 1 Day

- **Task:** Corporate MOC - Equipment identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Equipment not up to date
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Equipment repair time too slow
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Not enough training on use of equipment
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Equipment insufficient to meet the objectives
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
- **Task:** Corporate MOC - Procedures identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Procedures not current
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Procedures not correct
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Procedures difficult to understand
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Procedures difficult to execute
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
- **Task:** Proposed change request type
 - **Task Response Option:** Opportunity for Change
 - **Task Response Option:** Required Change
- **Task:** Proposed change title
 - **Task Response Option:** Open Text Box
- **Task:** Organization
 - **Task Response Option:** Open Text Box
- **Task:** Description of change
 - **Task Response Option:** Open Text Box
- **Task:** Provide a brief description of why the change is needed
 - **Task Response Option:** Open Text Box
- **Task:** What type of change?
 - **Task Response Option:** Material / Product / Chemical
 - **Task Response Option:** Process / Procedure / Manual
 - **Task Response Option:** Organization structure
- **Task:** Submit RFC in online portal
 - **Task Response Option:** RFC submitted
- **Task:** Initiate tracking process to verify completion of correction action

- **Task Response Option:** Schedule Corporate MOC Tracking
 - **Auto:** Yes
 - **Branching to Process:** Corporate MOC Tracking
 - **Process:** Corporate MOC Tracking - Timeline: Not Set
 - **Task:** What is the tracking method used for this change?
 - **Task Response Option:** Online RFC portal
 - **Task Response Option:** Follow up with person responsible
 - **Text Instructions:** Document follow up person
 - **Task:** What is the current status of the change?
 - **Task Response Option:** Change complete
 - **Text Instructions:** Document completion date
 - **Task Response Option:** Change in progress
 - **Text Instructions:** Document projected implementation date
 - **Auto:** Yes
 - **Branching to Process:** Corporate MOC Tracking
 - **Task Response Option:** Change not started
 - **Text Instructions:** Document reason for not starting change
 - **Auto:** Yes
 - **Branching to Process:** Corporate MOC Tracking
- **Area:** Operational Recommendation
 - **Process:** Operational Recommendation - Timeline: 1 Day
 - **Task:** Operational Recommendation - Resources identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Not enough resources
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Not the right resources
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Untrained resources
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Inexperienced resources
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
 - **Task:** Operational Recommendation - Scheduling identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Schedules not communicated very well
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Schedules not managed very well
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Schedules not organized or optimized
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Schedules frequency not sufficient
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
 - **Task:** Operational Recommendation - Communications identified as an area requiring corrective action
 - **Task Response Option:** None reported

- **Task Response Option:** Communications between workers is lacking
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Communications between workers and contractors is lacking
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Communications between workers and management is lacking
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
 - **Task:** Document the communication details
 - **Task Response Option:** Department
 - **Text Instructions:** Document department(s)
 - **Task Response Option:** Personnel
 - **Text Instructions:** Document or attach personnel involved
 - **Task:** Initiate tracking process to verify completion of correction action
 - **Task Response Option:** Schedule Recommendation Tracking
 - **Auto:** Yes
 - **Branching to Process:** Operational Recommendation Tracking
 - **Process:** Operational Recommendation Tracking - Timeline: 1 Day
 - **Task:** Document follow up with responsible person for status update
 - **Task Response Option:** Open Text Box
 - **Task:** What is the current status of the change?
 - **Task Response Option:** Change complete
 - **Text Instructions:** Document completion date
 - **Task Response Option:** Change in progress
 - **Text Instructions:** Document projected implementation date
 - **Auto:** Yes
 - **Branching to Process:** Operational Recommendation Tracking
 - **Task Response Option:** Change not started
 - **Text Instructions:** Document reason for not starting change
 - **Auto:** Yes
 - **Branching to Process:** Operational Recommendation Tracking
- **Area:** Continuous Improvement
 - **Process:** Continuous Improvement - Timeline: 1 Day
 - **Task:** What type of improvement?
 - **Task Response Option:** Training
 - **Text Instructions:** Detail the recommendation
 - **Task Response Option:** Other
 - **Text Instructions:** Detail the recommendation
 - **Triggers task:** Document the communication details
 - **Task:** Continuous Improvement - Training identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Training frequency not sufficient
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Training content not sufficient
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Training methodology not sufficient
 - **Text Instructions:** Summarize finding and document criteria

- **Task Response Option:** Training facility not sufficient
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
 - **Task:** Document the communication details
 - **Task Response Option:** Department
 - **Text Instructions:** Document department(s)
 - **Task Response Option:** Personnel
 - **Text Instructions:** Document or attach personnel involved
 - **Task:** Initiate tracking process to verify completion of correction action
 - **Task Response Option:** Schedule Continuous Improvement Tracking
 - **Auto:** Yes
 - **Branching to Process:** Continuous Improvement Tracking
 - **Process:** Continuous Improvement Tracking - Timeline: Not Set
 - **Task:** Document follow up with responsible person for status update
 - **Task Response Option:** Open Text Box
 - **Task:** What is the current status of the change?
 - **Task Response Option:** Change complete
 - **Text Instructions:** Document completion date
 - **Task Response Option:** Change in progress
 - **Text Instructions:** Document projected implementation date
 - **Auto:** Yes
 - **Branching to Process:** Continuous Improvement Tracking
 - **Task Response Option:** Change not started
 - **Text Instructions:** Document reason for not starting change
 - **Auto:** Yes
 - **Branching to Process:** Continuous Improvement Tracking
- **Area:** Data Management Recommendation
 - **Process:** Data Management Recommendation - Timeline: 1 Day
 - **Task:** Data Management - GIS identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Data collection requirements are not clear
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Asset attributes are not easily accessible
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Asset locations are not correct
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
 - **Task:** Data Management - Data Collection identified as an area requiring corrective action
 - **Task Response Option:** None reported
 - **Task Response Option:** Procedures insufficient
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Training insufficient
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Scheduling insufficient
 - **Text Instructions:** Summarize finding and document criteria

- **Task Response Option:** Equipment insufficient to meet the objectives
 - **Text Instructions:** Summarize finding and document criteria
 - **Task Response Option:** Other
 - **Text Instructions:** Summarize finding
 - **Task:** Data Management - Is there a performance measure improvement identified for this PAAR?
 - **Task Response Option:** None identified
 - **Task Response Option:** Performance improvement identified
 - **Text Instructions:** Summarize findings
 - **Task:** Document the communication details
 - **Task Response Option:** Department
 - **Text Instructions:** Document department(s)
 - **Task Response Option:** Personnel
 - **Text Instructions:** Document or attach personnel involved
 - **Task:** Initiate tracking process to verify completion of correction action
 - **Task Response Option:** Schedule Data Management Tracking
 - **Auto:** Yes
 - **Branching to Process:** Data Management Tracking
 - **Process:** Data Management Tracking - Timeline: 1 Day
 - **Task:** Document follow up with responsible person for status update
 - **Task Response Option:** Open Text Box
 - **Task:** What is the current status of the change?
 - **Task Response Option:** Change complete
 - **Text Instructions:** Document completion date
 - **Task Response Option:** Change in progress
 - **Text Instructions:** Document projected implementation date
 - **Auto:** Yes
 - **Branching to Process:** Data Management Tracking
 - **Task Response Option:** Change not started
 - **Text Instructions:** Document reason for not starting change
 - **Auto:** Yes
 - **Branching to Process:** Data Management Tracking
- **Area:** One Off Mitigation
 - **Process:** One Off Mitigation - Timeline: 1 Day
 - **Task:** Description of one-off mitigation
 - **Task Response Option:** Open Text Box
 - **Task:** Document the communication details
 - **Task Response Option:** Department
 - **Text Instructions:** Document department(s)
 - **Task Response Option:** Personnel
 - **Text Instructions:** Document or attach personnel involved
 - **Task:** Initiate tracking process to verify completion of correction action
 - **Task Response Option:** Schedule One Off Mitigation Tracking
 - **Auto:** Yes
 - **Branching to Process:** One Off Tracking
 - **Process:** One Off Tracking - Timeline: Not Set
 - **Task:** Document follow up with responsible person for status update
 - **Task Response Option:** Open Text Box

- **Task:** What is the current status of the change?
 - **Task Response Option:** Change complete
 - **Text Instructions:** Document completion date
 - **Task Response Option:** Change in progress
 - **Text Instructions:** Document projected implementation date
 - **Auto:** Yes
 - **Branching to Process:** One Off Tracking
 - **Task Response Option:** Change not started
 - **Text Instructions:** Document reason for not starting change
 - **Auto:** Yes
 - **Branching to Process:** One Off Tracking
- **Area:** Distribution Integrity Management Program Governance Management of Change
 - **Process:** Proposed Plan Change Initiation - Timeline: Not Set
 - **Task:** Detail the proposed change
 - **Task Response Option:** Summary of Change
 - **Text Instructions:** Provide details of the proposed change(s)
 - **Task:** Analyze each of the following to determine their potential impact on the decision to implement this suggested change
 - **Task Response Option:** Cost
 - **Text Instructions:** Document cost implications
 - **Task Response Option:** Safety
 - **Text Instructions:** Document safety implications
 - **Task Response Option:** Training
 - **Text Instructions:** Detail training implications
 - **Task Response Option:** Documentation
 - **Text Instructions:** Detail documentation implications
 - **Task Response Option:** No implications to his change
 - **Task:** What is the primary driver to justify moving this suggested change forward?
 - **Task Response Option:** Regulatory / Code Compliance - Indicates that the change is driven by an external source (i.e. OPS, EPA, MMS, OSHA)
 - **Task Response Option:** Best Practices - Indicates that the change is driven by internally or externally identified best management practices.
 - **Task Response Option:** Reliability - Indicates that the change is driven by the need to improve the reliability of a piece of equipment or process.
 - **Task Response Option:** Integrity - Indicates that the change is driven by an internally identified source and is expected to improve the Integrity of the facility.
 - **Task Response Option:** Optimization - Indicates that the change is driven by an internally identified source and is expected to optimize the system or business process.
 - **Task Response Option:** Safety - indicates the change is driven by the need to improve safety
 - **Task:** Is management approval needed to make changes?
 - **Task Response Option:** Yes
 - **Auto:** Yes
 - **Branching to Process:** Management Approval of Plan Changes
 - **Task Response Option:** No
 - **Auto:** Yes
 - **Branching to Process:** Implement and Communicate Plan Changes
 - **Process:** Management Approval of Plan Changes - Timeline: Not Set

- **Task:** Document management approval
 - **Task Response Option:** Approval granted
 - **Auto:** Yes
 - **Branching to Process:** Implement and Communicate Plan Changes
 - **Task Response Option:** Approval denied
 - **Text Instructions:** Document reasons why approval was denied
 - **Auto:** No
 - **Branching to Process:** Proposed Plan Change Initiation
 - **Process:** Implement and Communicate Plan Changes - Timeline: Not Set
 - **Task:** Implement the approved changes to the Plan
 - **Task Response Option:** Complete
 - **Task:** Upload latest version of the plan to the ICAM document library
 - **Task Response Option:** Latest plan version uploaded
 - **Task:** Communicate approved changes to plan to appropriate personnel
 - **Task Response Option:** Complete
 - **Text Instructions:** Document communications with affected parties
 - **Task:** Is additional training required as a result of this MOC?
 - **Task Response Option:** No additional training required
 - **Task Response Option:** Failover Training
 - **Task Response Option:** Fatigue Management Training
 - **Task Response Option:** Abnormal Operating Conditions
 - **Task Response Option:** SCADA / Communications
 - **Task Response Option:** Gas Controller
- **Element:** Programs and Activities to Address Risk (PAAR)
 - **Area:** Manage Programs and Activities to Address Risk
 - **Process:** Annual PAAR Review - Timeline: 1 Month - R: Sheila Howard
 - **Task:** Are all current PAAR included in the database?
 - **Task Response Option:** PAAR list current
 - **Triggers task:** Review PAAR in hierarchy
 - **Task Response Option:** PAAR list requires update
 - **Task:** Formalize additional PAAR in Access database
 - **Task Response Option:** PAAR Access database updated
 - **Task:** Review PAAR in hierarchy
 - **Task Response Option:** PAAR hierarchy current
 - **Triggers task:** Review PAAR in Investigation and IRA
 - **Task Response Option:** PAAR hierarchy not current
 - **Task:** Update PAAR hierarchy
 - **Task Response Option:** PAAR hierarchy updated
 - **Task:** Review PAAR in Investigation and IRA
 - **Task Response Option:** PAAR in investigation and IRA current
 - **Triggers task:** Review PAAR data sets
 - **Task Response Option:** PAAR in investigation or IRA not current
 - **Task:** Add PAAR to appropriate workflow processes
 - **Task Response Option:** District presentation, investigation and discovery by threat
 - **Task Response Option:** Investigation Results Analysis by threat
 - **Task:** Review PAAR data sets
 - **Task Response Option:** PAAR data sets modified or now available

- **Task Response Option:** PAAR data unchanged or No PAAR data
 - **Trigger:** End Process
- **Area:** PAAR Modification
 - **Process:** Document PAAR Modification Details - Timeline: 1 Day
 - **Task:** Describe the proposed modification(s)
 - **Task Response Option:** Description of change
 - **Text Instructions:** Describe the change
 - **Task:** What is the type of change?
 - **Task Response Option:** Major
 - **Task Response Option:** Minor
 - **Task:** What is the nature of the change?
 - **Task Response Option:** Temporary
 - **Text Instructions:** Document length of time change will be implemented
 - **Task Response Option:** Permanent
 - **Task:** What are the implications of this change?
 - **Task Response Option:** No implications
 - **Task Response Option:** Cost implications
 - **Text Instructions:** Document implications
 - **Task Response Option:** Safety implications
 - **Text Instructions:** Document implications
 - **Task Response Option:** Training implications
 - **Text Instructions:** Document implications
 - **Task:** Is management approval required?
 - **Task Response Option:** Management approval not required
 - **Task Response Option:** Management approval required
 - **Auto:** Yes
 - **Branching to Process:** PAAR Modification Management Approval
 - **Trigger:** End Process
 - **Task:** Initiate PAAR modification
 - **Task Response Option:** Schedule PAAR modification implementation
 - **Auto:** Yes
 - **Branching to Process:** Communicate PAAR Modification
 - **Process:** PAAR Modification Management Approval - Timeline: 1 Day
 - **Task:** Document management approval
 - **Task Response Option:** Approved
 - **Auto:** Yes
 - **Branching to Process:** Communicate PAAR Modification
 - **Task Response Option:** Not approved - Need more information
 - **Text Instructions:** Document additional information required
 - **Auto:** Yes
 - **Branching to Process:** Document PAAR Modification Details
 - **Task Response Option:** Not approved - no changes to be implemented
 - **Text Instructions:** Document reason for no change
 - **Process:** Communicate PAAR Modification - Timeline: 1 Day
 - **Task:** Communicate approved modification of PAAR to appropriate personnel
 - **Task Response Option:** Program Manager
 - **Text Instructions:** Document communication

- **Task Response Option:** Operations Manager
 - **Text Instructions:** Document communication
 - **Task Response Option:** Training Manager
 - **Text Instructions:** Document communication
 - **Task Response Option:** Other
 - **Text Instructions:** Document communication and audience
 - **Task:** Update PAAR database
 - **Task Response Option:** PAAR database updated
 - **Task:** Initiate PAAR modification performance effectiveness
 - **Task Response Option:** Schedule PAAR modification performance effectiveness for a year from now
 - **Auto:** Yes
 - **Branching to Process:** PAAR Performance Review for Organizational Changes and/or Modifications
- **Area:** New PAAR
 - **Process:** New PAAR Management - Timeline: Not Set
 - **Task:** Define the issue driving the need for a new PAAR
 - **Task Response Option:** Document new PAAR driver
 - **Text Instructions:** Document issue driving PAAR
 - **Task:** Identify appropriate responsible parties
 - **Task Response Option:** Responsible Parties Identified
 - **Text Instructions:** Document person with assigned responsibility
 - **Task:** Communicate new PAAR drivers to responsible parties
 - **Task Response Option:** Communicate PAAR drivers to responsible parties
 - **Auto:** Yes
 - **Branching to Process:** Update Status of New PAAR Development
 - **Process:** Update Status of New PAAR Development - Timeline: Not Set
 - **Task:** Communicate with responsible parties to check new PAAR status
 - **Task Response Option:** PAAR ready for implementation
 - **Task Response Option:** PAAR not ready for implementation
 - **Text Instructions:** Detail progress
 - **Auto:** Yes
 - **Branching to Process:** Update Status of New PAAR Development
 - **Task:** Communicate new PAAR details to appropriate personnel
 - **Task Response Option:** New PAAR communicated
 - **Text Instructions:** Detail recipients and attach communication
 - **Task:** Update PAAR database and hierarchy
 - **Task Response Option:** PAAR database updated
 - **Task Response Option:** PAAR hierarchy updated
 - **Task:** Add PAAR to appropriate workflow processes
 - **Task Response Option:** District presentation, investigation and discovery by threat
 - **Task Response Option:** Investigation Results Analysis by threat
 - **Task:** Does PAAR have supporting data?
 - **Task Response Option:** PAAR data available
 - **Text Instructions:** Document details of data available
 - **Task Response Option:** No supporting data at this time
 - **Task:** Document PAAR type

- **Task Response Option:** O&M activity
 - **Task Response Option:** Program activity
- **Element:** Periodic Evaluation
 - **Area:** Performance Based Program Effectiveness (In Development)
 - **Process:** Program Effectiveness
 - **Task:** Review the Program Performance dashboard
 - **Task Response Option:** Program performance reviewed
 - **Attachment Instructions:** Attach trend dashboard thru current year
 - **Task:** Document the performance effectiveness ranking for the year
 - **Task:** Is the program performance improving?
 - **Task Response Option:** Performance improving
 - **Task Response Option:** Performance not improving
 - **Text Instructions:** Detail the component(s) driving performance effectiveness down
 - **Area:** Distribution Integrity Management Program Governance
 - **Process:** Annual Review of Roles and Responsibilities - Timeline: 1 Day - R: Kate Porter
 - **Task:** Review and determine if process assignments need to be modified
 - **Task Response Option:** Process assignment changes required
 - **Task Response Option:** No changes required
 - **Triggers task:** Review personnel roles/access for users in ICAM
 - **Task:** Document reason(s) for changes required
 - **Task Response Option:** Changes required based on knowledge
 - **Text Instructions:** Document changes
 - **Task Response Option:** Changes required based on addition or reduction of resource availability
 - **Text Instructions:** Document changes
 - **Task:** Update process assignments
 - **Task Response Option:** Process assignments updated and individuals have been notified
 - **Task:** Review personnel roles/access for users in ICAM
 - **Task Response Option:** ICAM user role changes required
 - **Task Response Option:** No changes required
 - **Triggers task:** Review personnel roles/access for users in Uptime/Geofields
 - **Task:** Document ICAM user role changes required
 - **Task Response Option:** Open Text Box
 - **Task:** Update ICAM user roles
 - **Task Response Option:** ICAM roles updated
 - **Task:** Review personnel roles/access for users in Uptime/Geofields
 - **Task Response Option:** Uptime/Geofields user role changes required
 - **Task Response Option:** No changes required
 - **Triggers task:** Review personnel roles/access for users in J-DIMP
 - **Task:** Document Uptime/Geofields user role changes required
 - **Task Response Option:** Open Text Box
 - **Task:** Update Uptime/Geofields user roles
 - **Task Response Option:** Uptime/Geofields roles updated
 - **Task:** Review personnel roles/access for users in J-DIMP
 - **Task Response Option:** J-DIMP user role changes required

- **Task Response Option:** No changes required
 - **Triggers task:** Are there any other related software that requires user role/access review?
 - **Task:** Document J-DIMP user role changes required
 - **Task Response Option:** Open Text Box
 - **Task:** Update J-DIMP user roles
 - **Task Response Option:** J-DIMP roles updated
 - **Task:** Are there any other related software that requires user role/access review?
 - **Task Response Option:** Other related software requires review
 - **Text Instructions:** Document name of software
 - **Task Response Option:** No other related software review required
 - **Trigger:** End Process
 - **Task:** Review personnel roles/access for users in other related software
 - **Task Response Option:** Other related software user role changes required
 - **Text Instructions:** Document which software require changes
 - **Task Response Option:** No changes required
 - **Trigger:** End Process
 - **Task:** Document other related software user role changes required
 - **Task Response Option:** Open Text Box
 - **Task:** Update other related software user roles
 - **Task Response Option:** Other related software roles updated
 - **Text Instructions:** Document name of software
- **Process:** Annual Review of Distribution Integrity Management Program Governance - Timeline: 1 Month - R: Kate Porter
 - **Task:** Have there been any changes that would require an update to the plan?
 - **Task Response Option:** No changes
 - **Trigger:** End Process
 - **Task Response Option:** Changes required
 - **Task:** Select areas of the written plan requiring updates
 - **Task Response Option:** Introduction / Utility Overview / Maps
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Roles and Responsibilities
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Definitions
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Integrity Management
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** System Knowledge
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Threat Identification
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Risk Evaluation
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Performance
 - **Text Instructions:** Document driver and summarize changes required
 - **Task Response Option:** Threat Specific Analysis
 - **Text Instructions:** Document driver and summarize changes required

- **Task Response Option:** Investigation
 - **Text Instructions:** Document driver and summarize changes required
- **Task Response Option:** Investigation Results Analysis
 - **Text Instructions:** Document driver and summarize changes required
- **Task Response Option:** Management of Change
 - **Text Instructions:** Document driver and summarize changes required
- **Task Response Option:** Program Evaluation
 - **Text Instructions:** Document driver and summarize changes required
- **Task Response Option:** Programs and Activities to Address Risk
 - **Text Instructions:** Document driver and summarize changes required
- **Task Response Option:** Reporting
 - **Text Instructions:** Document driver and summarize changes required
- **Task:** Schedule Management of Change
 - **Task Response Option:** Schedule MOC
 - **Auto:** Yes
 - **Branching to Process:** Proposed Plan Change Initiation
- **Process:** Annual Review of ICAM Workflow - Timeline: 1 Month - R: Kate Porter
 - **Task:** Aggregate all notes captured during the cycle pursuant to the processes / workflow
 - **Task Response Option:** Process management notes compiled
 - **Attachment Instructions:** Attach aggregated notes on process changes required
 - **Task:** Are there any proposed changes to be made to the processes and/or workflow?
 - **Task Response Option:** Change to existing process / task / response
 - **Text Instructions:** Detail change
 - **Task Response Option:** Add new process / task / response
 - **Text Instructions:** Detail change
 - **Task Response Option:** Remove existing process / task / response (not used)
 - **Text Instructions:** Detail change
 - **Task Response Option:** Take existing process / task / response off line (no longer to be used)
 - **Task:** Have proposed changes been approved by management
 - **Task Response Option:** Changes not approved
 - **Trigger:** End Process
 - **Task Response Option:** Some changes approved
 - **Text Instructions:** Detail changes not approved and why
 - **Task Response Option:** All changes approved
 - **Task:** Update process template w/ changes and submit for PIC approval
 - **Task Response Option:** ICAM Updated

Indiana Appendix

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Revisions

[illegible]

1. System Knowledge

1.1. Posting Requirements

The purpose of the GIS Standard is to provide an expectation of what data is necessary in order to process projects in GIS, as well as provide accurate data for all departments. This standard also provides a modeling standard so that each individual processing data in GIS will represent the situations the same.

INTRODUCTION

To make things clear, the formatting of certain words has been changed to reflect their meanings. Below is the list of meanings and the style that was used:

Feature – When a feature is named in the standard, it will be italicized.

Attribute – When an attribute is listed in the standard, it will be bold.

'Attribute Value' – When an attribute value is listed in the standard, it will have single quotes around it.

Company Form – When a Company form is listed, it will be underlined.

Attributes – Attributes that are hidden for future use or currently not needed will be bold and gray.

Attributes

For each feature listed in this standard, the editable attributes are listed in the order found on the ArcFM Attribute Editor for that feature, along with the details about each attribute. (See example below.)

Attribute Name

System Required: Data that is required by the system to insert the feature in GIS.

Data Required: Data that Vectren requires to be populated for business needs.

Description: A question or statement describing what data should be captured for this attribute.

Domain Values: If there is a domain list for the attribute, all or part of the list will be listed for clarity.

Auto Populated Attributes

The auto populated attributes are listed in alphabetical order with a description of the attribute.

1.2 PIPELINE & SERVICE**1.2.1 PIPELINE**Attributes

Attribute	System Required	Data Required	Description	Domain Values
Maximo ID	No	No	The number that Maximo auto assigns to an Asset.	None
Designation	Yes	Yes	The percent SMYS. (= or >20% SMYS is Transmission) Anything lower is Distribution.	Distribution, Transmission, Unknown
Function	Yes	Yes	Where and how is the Pipeline being used?	Main Line, Station, Storage Field
Owner	Yes	Yes	Who owns the facility? / Where are the facilities located?	SW = 'SIGECO', NE, NW, SE = 'IGC', Ohio = 'VEDO', 'Customer'
Measured Length	No	Yes	Length of the Pipeline that was installed.	None
Nominal Diameter	Yes	Yes	What is the standard size of the Pipeline?	list of sizes from '0.125' to '44'
Measure	Yes	Yes	The Standard of measure that was used to determent the size of the Pipeline.	IPS (Iron Pipe Size), CTS (Copper Tubing Size), OD (Outside Diameter), Unknown
Material	Yes	Yes	The material of the Pipeline?	Cast Iron, PB, PE, PVC, Steel, Wrought Iron, X-Trube, Unknown
Material Spec	Yes	Yes	The Spec tells how the pipe was made and/or made up of.	API5L, ASTM A53, ASTM A106, ASTM A134, ASTM A135, ASTM A139, ASTM A211, ASTM A333, ASTM A381, ASTM A671, ASTM D2513, N/A, Unknown

Attribute	System Required	Data Required	Description	Domain Values
Seam	Yes	Yes	If the material is Steel, what type of seam was used to make the pipe?	CBW, DC-ERW, DSAW, EFAW, EFW CLASS12, etc.
Manufacturer	No	No	The Company that made the pipe.	American Steel Pipe, Youngstown Sheet & Tube, etc.
Wall Thickness	Yes	Yes	How thick is the wall of the pipe?	list from '0.03' to '3.429'
Coating Type	Yes	Yes	If the material is Steel, what type of coating is on the Pipeline? (Plastic pipe is N/A)	Bare, Wax, Coal Tar (swabbed on), Coal Tar w/Asbestos Felt, Coal Tar w/Fabric, Coated – Type Unknown, Concrete, FBE – Single Coat, FBE – Dual Coat, N/A, Paint, Plastic, Polyethylene Coated, Tape Wrap – Cold, Tape Wrap – Hot, Unknown
Internal Coating Indicator	No	No	Is there an Internal Coating?	Yes, No, N/A, Unknown
Asbestos State	No	No	Is there an asbestos coating on the pipe?	Asbestos Negative, Asbestos Positive, N/A, Unknown
Pressure class	Yes	Yes	The amount of Pressure on the system. (Unknown is not to be used for new installation.)	High, Medium, Low, N/A, Unknown
Test Pressure	No	Yes	How much pressure was applied to the Pipeline during the Pressure test? (Recorded PSIG)	None
Construction Status	Yes	Yes	This is the current life cycle status of the object.	Existing, Proposed, Retired In Place, Retire, Remove
Installation Date	No	Yes	The in service date.	None
Retire Date	No	Yes, when the Pipeline has been 'Retired in Place'	The date the Pipeline was abandon and no longer in service.	None

Attribute	System Required	Data Required	Description	Domain Values
Station Name	No	Yes, when associated to a Gas Regulator Station	When the Pipeline is associated to a Gas Regulator Station it will have the Station name populated, otherwise it will be Null.	None
Joining Method	No	No	How was the pipe connected to the other pipe?	Acetylene Welded, Welded Type Unknown, Arc Welded, Bell Joint, Coupled, Flanged, Screw, Unknown
Installation Method	No	Yes	How was the Pipeline installed?	Bore, Insert, Joint Trench, Trench, Plow, Unknown
ROW Type	No	No	Where was the Pipeline placed?	Business Development, Farmland, Residential Development, Roadway, Unknown, Waterway, Wetlands, Woods
Original Cover Depth	No	No	How deep was the Pipeline when it was installed in inches?	None
Protection Date	No	No	When was the Pipeline CP protected?	None
Tested Yield Strength	No	No	Future Use, Leave Null	None
Outside Diameter	Yes	No	What is the measurement of the outside of the pipe? (Calculated Component MAOP)	List from '0.405' to '46'
Calculated Component MAOP	No	No	Future Use, Leave Null	None
Documented Component MAOP (System MAOP)	No	No	This is calculated and populated on Transmission Pipeline only by IM.	None
Documented Component MAOP Just	No	No	Future Use, Leave Null	None
Assumptions Used	No	No	Future Use, Leave Null	None

Attribute	System Required	Data Required	Description	Domain Values
ArcFM Operation Pressure	No	No	Future Use, Leave 1	None
Coating Condition	No	No	Future Use, Leave 1	None
IM System Name	No	No	Future Use, Leave Null	None
IM System Description	No	No	Future Use, Leave Null	None
Percent SMYS	No	No	Future Use, Leave Null	None
Issue Indicator	No	No	Future Use, Leave Null	None
BTU Factor	No	No	Future Use, Leave Null on Distribution and Default to 0.69 on Transmission	None
Joint Trench Type	No	No	If joint trenched, what other Utility is in the trench?	List the different types of utilities
Standard Dimension Ratio (SDR)	No	No	This is a pressure rating for plastic pipe. The higher the SDR is the lower the pressure rating is and the lower the SDR is the higher the pressure rating is.	None
Pipe Status Indicator	No	No	This is used for the trace function. (Default to open.)	Open, Closed
Pipe Type	No	No	Can the pipe be pinched to stop gas flow?	Pinchable, Non-Pinchable
Plastic Type	No	No		Polyethylene, PVC
Interstate Indicator	No	No	Does the Pipeline cross from State to State?	Yes, No, Unknown
Agreement Type	No	Yes	When the facilities are owned by the Customer, the maintenance agreement is between Vectren and the Customer? (Default to 'N/A' when the facilities are Vectren owned.)	N/A, Other provides Operations and Maintenance Services, Vectren provides Operations and Maintenance Services

Auto Populated Attributes

CP Type – The method of cathodic protection applied to protect the pipeline from corrosion **CP**

System Name – The name of the electrically isolated Cathodically Protected System **CP System**

Status – The open or closed status of the CP System

Maximo ID – The Asset ID that is assigned by Maximo

Object ID – The system ID number

Operations Center – The Operational area that is responsible for the work needed to be done

Perlustro – This is used to keep track of leak surveys

Smallworld ID – The legacy GIS system ID number

1.2.2 GAS SERVICE.Attributes

Attribute	System Required	Data Required	Description	Domain Values
Maximo ID	No	No	The number that Maximo assigns to an Asset	None
Service Type	Yes	Yes	Is the active service pipe connected to a Meter Manifold?	Service Stub, Service with Riser
Isolated Indicator	Yes	Yes	Indicates whether a service is isolated or not, found on the <u>Service Card</u> .	Yes, No, Unknown
Designation	Yes	No	The Designation of the <i>Pipeline</i> to which the <i>Gas Service</i> is connected.	Distribution, Transmission, Unknown
Owner	Yes	Yes	Facility owner/location. SW = 'SIGECO'; NE, NW, SE = 'IGC'; Ohio = 'VEDO'; 'Customer'	SW, NE, NW, SE, Ohio, Customer
Installation Date	No	Yes	The in-service date (date on the <u>Service Card</u>).	None
Retired Date	No	Yes [when Construction Status is 'Retired in Place']	The retired date (date on the <u>Service Card</u>).	None
Customer Class	No	No	The type of customer.	Residential, Commercial, Industrial
Farm Tap Indicator	Yes	Yes	Gas regulator/meter setting that is tapped to foreign pipeline supplier that requires regulation from higher pressure line to cut to service line pressure.	Yes, No, Unknown (being decommissioned)
Farm Tap Odorizer Indicator	No	Yes	Is there an Odorizer on the service?	Yes, No, N/A, Unknown (being decommissioned)
Measured Length	No	No	Length of pipe installed (in feet).	None, this is Auto Populated on insertion and can be overwritten

Attribute	System Required	Data Required	Description	Domain Values
Calculated Component MAOP	No	No	Future Use, Leave Null.	None
Documented Component MAOP	No	No	Future Use, Leave Null.	None
Documented Component MAOP Just	No	No	Future Use, Leave Null.	None
Assumption Used	No	No	Future Use, Leave Null.	None
ArcFM Operation Pressure	No	No	Future Use, Leave Null.	None
Construction Method	No	Yes	The type of fitting used to tap to the <i>Pipeline</i> .	Combination, Compression Fitting, Electrofuse, Fusion, Thread and Couple, Unknown, Welded
Split Service Indicator	No	Yes	Is there one service feeding another service?	Yes, No, Unknown
Curb Valve Indicator	Yes	Yes	Was a valve installed on the service next to the main?	Yes, No, Unknown
EFV Installed Indicator	Yes	Yes	Was an Excess Flow Valve installed on the Service?	Yes, No
EFV Manufacturer	No	Yes	Manufacturer	UMAC, Unknown
EFV Size	No	Yes	Pipe size of the EFV	½", ¾", 1", 2"
EFV Model	No	Yes	Model Number from Manufacturer	400, 550, 700, 1100, 1800, 2600, 5500, 10,000, Unknown
Riser Manufacturer	No	Yes	Manufacturer.	Central Plastics, Continental, Elster, Honeywell, Normac, Perfection, RW Lyall, Rob Roy, Unknown, Upnor, N/A
Riser Material	No	Yes	Material of the riser.	Copper, Plastic, Steel (Bare), Steel (Coated)
Riser Outlet Size	No	Yes	The diameter of the outlet fitting of riser installed.	½ to 12 inch
Riser Type	No	Yes	Type of riser installed.	Fabricated, Flexible, Other, Pre bent, Unknown, N/A

Attribute	System Required	Data Required	Description	Domain Values
Servi-Sert Installed Indicator	No	No	This is a repair fitting and will be noted on the <u>Service Card</u> .	No, Yes, No-but protected
Construction Status	Yes	Yes	The current life cycle status of the object.	Existing, Proposed, Retired in Place, Retire, Remove
Agreement type	Yes	Yes	When the facilities are owned by the Customer, the maintenance agreement between Vectren and the Customer.	N/A, Other provides Operations and Maintenance Services, Vectren provides Operations and Maintenance Services (Default to 'N/A' when the facilities are Vectren owned)

Auto Populated Attributes

CP System Name – The name of the Cathodic Protection System that the service is connected to.

CP System Status – The open or closed status of the Cathodic Protection System that the service is connected to.

Coating Type – Pipe coating used for Design work to place the correct Compatible Units (CUs).

Object ID – The system ID number.

Operation Center – The Operational area that is responsible for the work. **Outside**

Diameter – Pipe diameter used for Design work to place the correct CUs. **Smallworld**

ID - The legacy GIS system ID number.

Standard Dimension Ratio – Pipe ratio used for Design work to place the correct CUs.

Wall Thickness – Pipe thickness used for Design work to place the correct CUs.

Work Function – A life cycle status used during designing.

1.2.3 GAS SERVICE ORDERAttributes

Attribute	System Required	Data Required	Description	Domain Values
Issue Indicator	No	No	Future Use, Leave Null.	None
Service Order Number	No	Yes	The Premise number is the Service Order # EXCEPT for the SW, where the Service Order # is the number listed on the <u>Service Card</u> .	None
Type of Order	No	Yes	The type of service work performed.	New Service, Other, Renew Service, Reroute Service, Retire Service, Unknown
Type of Service Renew	No	Yes	If the service was 'Renewed Service' or 'Reroute Service,' what part of the service was changed? All other Service Order types are 'N/A.'	Complete, Main to Property Line, Property Line to Meter, N/A
Test Pressure	No	Yes	The pressure at which the service was tested, measured and recorded in PSIG.	None
CP Protected	No	Yes	Indicates if the Service has cathodic protection. Plastic pipe is 'N/A.'	Yes, No, Unknown, N/A
Service Size	No	Yes	Pipe size used for the Service.	0.125 inches up to 8 inches
Material	No	Yes	Pipe material used for the Service.	ABS, CAB, CU, Cast Iron, PB, PE, PVC, Steel, Unknown, Wrought Iron, X-Trube
Coating	No	Yes	The type of coating on steel pipe. Plastic pipe is 'N/A.'	Bare, Wax, Coal Tar (swabbed on), Coal Tar w/Asbestos Felt, Coal Tar w/Fabric, Coated – Type Unknown, Concrete, Fusion Bonded Epoxy (FBE), N/A, Paint, Plastic, Polyethylene Coated, Tape Wrap – Cold, Tape Wrap – Hot, Unknown

Attribute	System Required	Data Required	Description	Domain Values
Cover Depth	No	Yes	Service tap depth at the main [in inches].	None
Date Completed	No	Yes	Date the work was completed.	None
Retire Date	No	Yes (if/when the Service is 'Retired in Place')	Date service was 'Retired in Place'.	None
Installation Method	No	Yes	How the service was placed in the ground (When both 'Bore' & 'Trench' are selected on the <u>Service Card</u> , select 'Bore.').	Bore, Insert, Joint Trench, Plow, Trench, Unknown
Comments	No	No	Comments about the service.	None
Measure Length	No	Yes	The length of pipe that was used to complete the service.	None
Design ID	No	No	Future Use, Leave Null.	None
Work Request ID	No	No	Future Use, Leave Null.	None
Work Location ID	No	No	Future Use, Leave Null.	None
Work Flow Status	No	No	Future Use, Leave Null.	None
Maximo Work Order Number	No	Yes	The Maximo work order number under which this part of the service was installed.	None
Test Length – Minutes	No	Yes	The duration of the Pressure Test on the Gas Service.	None
Test Date	No	Yes	The Gas Service test date.	None

Auto Populated Attributes

Gas Service Object ID – The system ID number of the *Gas Service* that the *Gas Service Order* is related to.

Gas Service Smallworld ID – The system ID number of the *Gas Service* that the *Gas Service Order* is related to in the legacy GIS system.

Object ID – The system ID number.

Smallworld ID - The legacy GIS system ID number.

Work Function – A life cycle status used during designing.

1.3 VALVE AND FITTINGS**1.3.1 GAS VALVE****Attributes**

Attribute	System Required	Data Required	Description	Domain Values
Maximo ID	No	No	The number that Maximo auto assigns to an Asset.	None
Facility ID (Valve Number)	Yes	Yes	Valve number which must be unique, it can be system generated or manually entered.	None
Operating Classification	Yes	Yes	Is this valve an emergency valve? (Based on O&M section 9.2 Engineering determines if a Gas Valve is Critical or not.)	Non-Critical, Critical
Designation	Yes	Yes	What is the Designation of the <i>Pipeline</i> that the valve is connected to? ('Unknown' is not to be used for new installation.)	Distribution, Transmission, Unknown
Subtype Code	Yes	Yes	System required field for display.	Gas Valve
Owner	Yes	Yes	Who owns the facility? Where are the facilities located?	SW = 'SIGECO', NE, NW, SE = 'IGC', Ohio = 'VEDO', 'Customer'
Station Name	No	Yes, when associated to a <i>Gas Regulator Station</i>	When the <i>Gas Valve</i> is associated to a <i>Gas Regulator Station</i> the Station Name will be populated; otherwise, it will be Null.	None
Installation Date	No	Yes	The In-service date.	None
Valve Diameter	Yes	Yes	Size state by Manufacturer	List of sizes from '0.125 to '46'

Attribute	System Required	Data Required	Description	Domain Values
Material	Yes	Yes	What material is the Valve made of?	Steel, Brass, Bronze, Ductile Iron, PE, PE 2306, PE 2406/2708, PE 2708, PE 3406, PE 3408, PE 3408/4710. PE 4710, Other, Unknown, PE 2406
Manufacturer	No	No (Yes, when connected to Transmission Pipeline)	Company who made the Valve?	List of companies from Apollo to Worcester
Model	No	No (Yes, when connected to Transmission Pipeline)	Model number	None
Serial Number	No	No (Yes, when connected to Transmission Pipeline)	ID number that the Manufacturer uses.	None
ANSI Pressure Rating	Yes	Yes	The Manufactory Pressure Rating.	List of ratings from ANSI 150 to WOG 5000
Pressure Class	Yes	Yes	The amount of Pressure on the system. ('Unknown' is not to be used for new installation.)	High, Medium, Low, N/A, Unknown
Calculated Component MAOP	No	No	Future Use, Leave Null	None
Documented Component MAOP	No	No	Future Use, Leave Null	None
Documented Component MAOP just	No	No	Future Use, Leave Null	None
Assumptions Used	No	No	Future Use, Leave Null	None

Attribute	System Required	Data Required	Description	Domain Values
Exclude from PM Automation Indicator	No	Yes	Is this a Critical valve that does not need a PM created?	N/A, Yes, No
Employees to Operate	No	No	The number of Employees needed to operate the valve?	None
Confined Space Indicator	No	No	Space with volume less than 50 cubic feet per 1,000 Btu per hour of the total input rating of all appliances in the space.	None
Turns To Close	No	No	How many turns of the handle does it take to close the valve?	list from '¼' to '220'
Depth To Nut	No	No	How deep is the valve below grade in inches?	None
Valve Type	Yes	Yes	The type of valve that was installed.	Ball, Butterfly, Check, Curb, Gate, Needle, Other, Plug, Unknown
Valve Function	Yes	Yes	How is the valve being used? (See below for description of each type of function.)	Blow-Down, By-Pass, Dead End, Inlet , Main line, Outlet, Relief Inlet, Run-Inlet, Run- Outlet, Scrubber, Station, Supply, System Isolation, Tie Valve, Unknown, Pig Launcher/Receiver, Emergency Valve
Operator Type	Yes	Yes	How the valve operated?	Wrench, Hand Wheel, Remote, Lever, Unknown, Automatic
Normal Position	Yes	Yes	What is the normal operation position?	Open, Closed
Installation Type	Yes	Yes	Where was the valve installed?	Above Ground, Below Ground, Below Ground – Valve box, etc.
End Type	No	Yes	How is the valve connected to the pipe?	Flanged, Welded, Threaded, etc.
Pad lock Indicator	No	No	Is the Valve locked?	Yes, No, Unknown
Lube Indicator	No	No	Can the Valve be lubricated?	Yes, No, Unknown

Attribute	System Required	Data Required	Description	Domain Values
Insulated Indicator	No	Yes	Does the valve need to be insulated and is it? (If Plastic default to N/A)	Yes, No, Unknown, N/A
Block and Bleed Indicator	No	No	Is the Valve a Block and Bleed Valve?	Yes, No, N/A
Atmospheric Exposure Indicator	No	No	Is the valve exposed to the weather?	Yes, No, Unknown
Construction Status	Yes	Yes	This is the current life cycle status of the object.	Existing, Proposed, Retired In Place, Retire, Remove
In Station Indicator	No	No (Yes, when the valve is related to a Regulator Station)	Is the valve in a Regulator Station?	Yes, No, Unknown
Address	No	Yes	The nearest address to the valve.	None
Cross Street	No	No	The nearest cross street to the valve.	None
City	No	No	City the valve is located.	None
County	No	No	County where the valve is located	None
Location Description	No	Yes	Physical description with dimensions locating the valve.	None
Agreement Type	No	Yes	When the facilities are owned by the Customer, the maintenance agreement is between Vectren and the Customer? (N/A is to be used when the facilities are owned by Vectren.)	N/A, Other provides Operations and Maintenance Services, Vectren provides Operations and Maintenance Services

Attribute	System Required	Data Required	Description	Domain Values
Storage Field Name	No	No (Yes, when related to a Storage Field)	Storage Field where the valve is located.	Glendale Storage Field, Hendricks County Junction/Zionsville, Hindustan Storage Field, Jeffersonville Propane Plant, Loogootee/Fuhman Storage Field, Lebanon Propane Plant, Midway Storage Field, Monroe City Storage Field, Ohio Valley Hub, Oliver Storage Field, Sellersburg Storage Filed, Terre Haute Propane Plant, Unionville Storage Field, White River Storage Field, Wolcott storage Field

Auto Populated Attributes

CP System Status – The open or closed status of the CP System to which service is connected

Object ID – The system ID number

Operation Center – The Operational area that is responsible for the work needed to be done

Smallworld ID – The legacy GIS system ID number

1.3.2 NON-CONTROLLABLE FITTINGAttributes

Attribute	System Required	Data Required	Description	Domain Values
Maximo ID	No	No	The number that Maximo auto assigns to an Asset.	None
Designation	Yes	Yes	What is the Designation of the <i>Pipeline</i> that the Non-Controllable Fitting is connected to?	Distribution, Transmission, Unknown
Subtype Code	Yes	Yes	The type of fitting. (See below for description of each type.)	Service Tap, Reducer, Band Clamp, Coupling, End Cap, etc.
Owner	Yes	Yes	Who owns the facility? Where are the facilities located?	SW = 'SIGECO'; NE, NW, SE = 'IGC'; Ohio = 'VEDO'; 'Customer'
Station Name	Yes	No	What is the name of the Regulator Station that the fitting is a part of?	None
Pressure Rating	Yes	Yes	The pressure rating that is found in the Manufacturer specs.	ANSI 150, ANSI 300, ANSI 400, ANSI 600, etc.
Material	Yes	Yes	What material is the fitting made of?	Steel, Copper, Cast iron, Wrought Iron, X-Trube, PVC, ABS, CAB, PB, PE
Installation Date	No	Yes	The in-service date.	None
Manufacturer	No	Yes	The company that made the fitting.	None
Model Number	No	Yes	The Manufacturer's number	None
End Type	No	No	What types of ends are on the fitting to connect it to the system?	Compression, Flanged, Threaded, Welded, Welded x Flanged, Other, Unknown
Insulated Indicator	No	Yes	When the material is steel is the fitting insulated? (When the Material is 'PE', default 'N/A'.)	Yes, No, Unknown, N/A

Attribute	System Required	Data Required	Description	Domain Values
Bonded Indicator	No	Yes	Is the fitting connected to a structure with a Bond wire? (When the Material is 'PE', default 'N/A')	Yes, No, Unknown, N/A
Calculated Component MAOP -	No	No	Future Use, Leave Null	None
Documented Component MAOP	No	No	Future Use, Leave Null	None
Documented Component MAOP Just	No	No	Future Use, Leave Null	None
Assumption Used	No	No	Future Use, Leave Null	None
Construction Status	Yes	Yes	This is the current life cycle status of the object	Existing, Proposed, Retired In Place, Retire
In Station Indicator	No	No	Is the fitting located inside a <i>Regulator Station</i> ?	Yes, No, Unknown
Location Description	No	Yes	Notes that are used to describe where the fitting is located. The measurements may be to the center of the road, edge of the road or a nearby structure.	None
Agreement Type	No	No	When the facilities are owned by the Customer, the maintenance agreement is between Vectren and the Customer? (Default to 'N/A' when the facilities are Vectren-owned.)	N/A, Other provides Operations and Maintenance Services, Vectren provides Operations and Maintenance Services.

Auto Populated Attributes

Object ID – The system ID number

Operation Center – The Operational area that is responsible for the work needed to be done

Smallworld ID – The legacy GIS system ID number

Subtype Code (Fitting Type)

'Service Tap' – Used at the tap point of a Gas Service. 'Tee' –

Used for a fitting that has 3 equal size openings.

'Reducer' – Used to show where a Pipeline reduces in size. (Not needed at tap points.) 'Band Clamp' –

Used to show a leak repair on a Pipeline.

'Pumpkin' – Used to show a leak or damage repair on a Pipeline.

'Coupling' – Used to show where two Pipelines are joined together with a fitting. 'Insulator'

– Used to show where a fitting electrically isolates two CP Structures. 'End Cap' – Used to show where a Pipeline ends.

'Elbow 90' – Fitting that turns 90deg

'Main Tie-In Assembly' – Not currently defined and / or being used. 'Strainer' –

Usually installed upstream of a Controllable Fitting or Meter. 'Elbow-45' – Fitting that turns 45deg

'Saddle Tee' – Fitting that is mechanically fastened to a pipe.

'Flange' – Used to show where a flange collar was added to install a piece of equipment. Flange can be connected to other fittings to make an assembly.

'Unknown Fitting' – Used when no other options qualify.

'Reducing Tee' – Used to show where an inline Tee reduces the lateral size. 'Blind

Flange' – Used to show a stopping point that has blind flange unit.

'High Vol tapping Tee' – Fitting that is mechanically fastened or welded to the top of a pipe to extend a lateral of different sizes using a weld method to connect the new pipe.

'Tapping Tee' – A fitting used to tap an existing pipe to start a new lateral. 'Reducing

Ell' – Used to show where the Pipeline reduces at a bend. 'Three-Way Tee' – Used for a fitting that has 3 equal size openings.

'Filter / Separator' – Usually installed on the inlet of a Regulator Station to remove particles matter and liquids from the lines.

'Handi-Pak' – A two piece fitting used to seal around Case Iron pipe bell and spigot joints. 'Union' – Connects two pipes mechanically.

'Cross' – Used to show where there is a four way connection.

'Transition' – Used to connect two pipes of different material or wall thickness.

1.3.3 CONTROLLABLE FITTINGAttributes

Attribute	System Required	Data Required	Description	Domain Values
Maximo ID	No	No	The number that Maximo auto assigns to an Asset.	None
Designation	Yes	Yes	What is the Designation of the <i>Pipeline</i> that the Controllable Fitting is connected to?	Distribution, Transmission, Unknown
Subtype Code	Yes	Yes	The type of fitting.	Stopper
Owner	Yes	Yes	Who owns the facility? Where are the facilities located?	SW = 'SIGECO'; NE, NW, SE = 'IGC'; Ohio = 'VEDO'; 'Customer'
Pressure Rating	Yes	Yes	The pressure rating that is found in the Manufacturer specs.	ANSI 150, ANSI 300, ANSI 400, ANSI 600', etc.
Material	Yes	Yes	What material is the fitting made of?	Steel, Copper, Cast iron, Wrought Iron, X-Trube, PVC, ABS, CAB, PB, PE
Installation Date	No	Yes	What is the in-service date?	None
Manufacturer	No	Yes	The company that made the fitting.	None
Mode Number	No	Yes	The Manufacturer's number.	None
End Type	No	No	What type of ends are on the fitting to connect it to the system?	Compression, Flanged, Threaded, Welded, Welded x Flanged, Other, Unknown
Insulated Indicator	No	Yes	Does the fitting need to be insulated and is it? (When the Material is 'PE', default 'N/A'.)	Yes, No, Unknown, N/A
Bonded Indicator	No	Yes	Is the fitting connected to a structure with a Bond wire? (When the Material is 'PE', default 'N/A'.)	Yes, No, Unknown, N/A

Attribute	System Required	Data Required	Description	Domain Values
Station Name	No	Yes	What is the name of the <i>Regulator Station</i> that the fitting is a part of?	None
Calculated Component MAOP -	No	No	Future Use, Leave Null	None
Documented Component MAOP	No	No	Future Use, Leave Null	None
Documented Component MAOP Just	No	No	Future Use, Leave Null	None
Assumption Used	No	No	Future Use, Leave Null	None
Normal Position	No	No	It is allowing the gas to flow?	Open, Closed
Construction Status	Yes	Yes	This is the current life cycle status of the object	Existing, Proposed, Retired In Place, Retire
In Station Indicator	No	No	Is the fitting located inside a Regulator Station?	Yes, No, Unknown
Location Description	No	Yes	Notes that are used to describe where the fitting is located. The measurements may be to the center of the road, edge of the road or a nearby structure.	None
Agreement Type	No	No	When the facilities are owned by the Customer, what is the maintenance agreement between Vectren and the Customer? (Default to 'N/A' when the facilities are Vectren-owned.)	N/A, Other provides Operations and Maintenance Services, Vectren provides Operations and Maintenance Services.

Auto Populated Attributes

CP System Status – The open or closed status of the CP System to which service is connected

Object ID – The system ID number

Operation Center – The Operational area that is responsible for the work needed to be done

Smallworld ID – The legacy GIS system ID number

1.4. Gas LeaksAttributes

Attribute	System Required	Data Required	Description	Domain Values
Maximo Asset Number	No	No	Maximo Asset number of the asset that was leaking. (no longer being used.)	None
Work Order Discovery Number	No	Yes	The number must be unique. (The Leak entity number from Maximo)	None
Work Order Repair Number	No	No	The Maximo work order number for the Leak Repair. (Repair work orders are no longer used)	None
Leak Grade	Yes	Yes	What is the severity of the leak? (Found on <u>Leak Case Report form 3110</u>) For description, see the O&M Plan.	1, 2, 3
Designation	No	Yes	Designation matches the Designation of the repaired asset.	Distribution, Transmission, Unknown
Status	Yes	Yes	Is the leak active? If yes, then it is 'Open'.	Open, Closed
Leak Reason	No	No	Once repaired, why was the facility leaking?	None (Should match the Leak Cause in Maximo.)
Facility Confidence	No	No	(No longer being used.)	None
Correction Date	No	Yes (at the time of repair.)	When was the leak repaired?	None
Address	No	No	Address associated to the leak	None. (Address found on <u>Leak Case Report form 3110</u>)
Cross Street	No	No	Nearest intersection	None
City	No	No	City where the leak is located	None

Attribute	System Required	Data Required	Description	Domain Values
County	No	No	County where the leak is located.	None
Comments	No	No	Notes from the field on what was done to repair the leak.	None

Auto Populated Attributes

None

1.5. Pipe Exam

PIPE EXAM

FORM 3106 v2018.1

Reported Date: _____ Maximo WO #: _____ Employee/Contractor Name: _____
 Location (Operations Center): _____ City: _____ State: _____ Map: _____
 Address: _____ Latitude (dd.ddddd): _____
 Nearest Intersecting Street: _____ Longitude (-dd.ddddd): _____

NOTE: IF PIPE MATERIAL IS PLASTIC, COMPLETE SHADED FIELDS ONLY

Pipe Material <input type="checkbox"/> Cast Iron <input type="checkbox"/> Copper <input type="checkbox"/> Galvanized Steel <input type="checkbox"/> Plastic – Black PE3306 PE3406 PE3408 PE4710 <input type="checkbox"/> Plastic – Orange PE2406 <input type="checkbox"/> Plastic – Pink Aldyl-A <input type="checkbox"/> Plastic – Yellow PE2306 PE2406 PE2708 <input type="checkbox"/> Steel – Bare <input type="checkbox"/> Steel – Coated <input type="checkbox"/> Steel Tubing <input type="checkbox"/> Wrought Iron <input type="checkbox"/> Other _____	Soil Condition <input type="checkbox"/> Dry <input type="checkbox"/> Moist <input type="checkbox"/> Wet <input type="checkbox"/> Frozen <input type="checkbox"/> N/A	Wall Thickness (Measured Only) Top: _____ Bottom: _____ Side 1 Thickness: _____ Side 1 Direction (circle one): N NE E SE S SW W NW Side 2 Thickness: _____ Side 2 Direction (circle one): N NE E SE S SW W NW 	Graphitization (Cast Iron) <input type="checkbox"/> Extensive <input type="checkbox"/> Localized <input type="checkbox"/> None	Defects Observed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Pipe Size <input type="checkbox"/> <input type="checkbox"/> . <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pipe Depth (Top of Pipe) <input type="checkbox"/> Above Ground <input type="checkbox"/> Under 2 Feet <input type="checkbox"/> 2 Feet to 3 Feet <input type="checkbox"/> 3 Feet to 4 Feet <input type="checkbox"/> 4 Feet or Over	Coating Holiday Observed? <input type="checkbox"/> Extensive <input type="checkbox"/> Localized <input type="checkbox"/> None	Internal Corrosion <input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy <input type="checkbox"/> None <input type="checkbox"/> Not Seen	If 'Defects Observed' is Yes, the fields below must be populated. Actual Pressure <input type="checkbox"/> Low (<= 1 psig) <input type="checkbox"/> Medium (>1 psig and <= 60 psig) <input type="checkbox"/> High (> 60 psig) Gouge? <input type="checkbox"/> Yes <input type="checkbox"/> No Dent? <input type="checkbox"/> Yes <input type="checkbox"/> No
Facility Location: <input type="checkbox"/> Curb Valve <input type="checkbox"/> Drip <input type="checkbox"/> Main <input type="checkbox"/> Meter Set <input type="checkbox"/> Reg. Station Component <input type="checkbox"/> Reg. Station Piping <input type="checkbox"/> Service <input type="checkbox"/> Valve	Coating Type <input type="checkbox"/> Coal Tar or Asphalt <input type="checkbox"/> Concrete <input type="checkbox"/> Fusion Bonded Epoxy <input type="checkbox"/> Paint <input type="checkbox"/> Plastic (Extruded) <input type="checkbox"/> Tape Wrap – Cold <input type="checkbox"/> Tape Wrap – Hot <input type="checkbox"/> Thin Film <input type="checkbox"/> Wax <input type="checkbox"/> No Coating	External Corrosion <input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy <input type="checkbox"/> None <input type="checkbox"/> Not Seen	Installed Insulator <input type="checkbox"/> At Curb Valve <input type="checkbox"/> At Meter Set <input type="checkbox"/> At Service Tap <input type="checkbox"/> On Main <input type="checkbox"/> On Service <input type="checkbox"/> No	TRANSMISSION MAINS ONLY NOTE: If on a Transmission pipeline, contact the Integrity Management Department for guidance on additional testing and/or repair requirements. Arc Burn? <input type="checkbox"/> Yes <input type="checkbox"/> No Buckle/Wrinkle Bend? <input type="checkbox"/> Yes <input type="checkbox"/> No Cracking? <input type="checkbox"/> Yes <input type="checkbox"/> No Puddle Weld? <input type="checkbox"/> Yes <input type="checkbox"/> No Scratch? <input type="checkbox"/> Yes <input type="checkbox"/> No Pipe Repairs Made? <input type="checkbox"/> Yes <input type="checkbox"/> No
Surface <input type="checkbox"/> Above Ground <input type="checkbox"/> Below Ground – Soft Surface <input type="checkbox"/> Below Ground – Hard Surface	Coating Condition <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> No Coating	Pitting Depth <input type="checkbox"/> Shallow * <input type="checkbox"/> Deep * <input type="checkbox"/> None <small>*Requires measurement with pitting depth gauge. Record reading below.</small>	Installed Anode <input type="checkbox"/> Yes <input type="checkbox"/> No	
Soil Type <input type="checkbox"/> Cinders <input type="checkbox"/> Clay <input type="checkbox"/> Fill <input type="checkbox"/> Gravel <input type="checkbox"/> Marsh <input type="checkbox"/> Mixed Soils <input type="checkbox"/> Rock <input type="checkbox"/> Sand <input type="checkbox"/> N/A	Coating Repairs Made? <input type="checkbox"/> Yes <input type="checkbox"/> No	*Depth of Shallow Pitting _____ *Depth of Deep Pitting _____	Anode Size <input type="checkbox"/> 1.5 lbs. <input type="checkbox"/> 3 lbs. <input type="checkbox"/> 17 lbs. <input type="checkbox"/> 32 lbs.	
		External Corrosion Extent <input type="checkbox"/> Extensive <input type="checkbox"/> Localized <input type="checkbox"/> None	Pipe to Soil (As Found) - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
			Pipe to Soil (As Left) - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Remarks: _____ _____ _____ _____			Pipe Exam Conducted By: _____ Pipe Exam Date: _____	

2. Evaluate and Rank Risk

2.1. Weight Factors for Consequence

Indiana Only Incident information to be used in Relative Risk Model

2004-2019 PHMSA Reportable Incident Data	Cumulative Incident by Year	Cumulative Injury by Year	Cumulative Fatality per Leak	Incidents per Leak	Injuries per Leak	Fatalities per Leak
Meter						
Corrosion	0	0	0	0	0	0
Pipe, Weld, or Joint Failure	0	0	0	0	0	0
Excavation	0	0	0	0	0	0
Incorrect Operation	0	0	0	0	0	0
Natural Forces	1	0	0	0.000309502	0	0
Equipment	0	0	0	0	0	0
Other	0	0	0	0	0	0
Other Outside Force Damage	2	1	0	0.003906250	0.001953125	0
Main						
Corrosion	0	0	0	0	0	0
Pipe, Weld, or Joint Failure	0	0	0	0	0	0
Excavation	4	7	0	0.003960396	0.006930693	0
Incorrect Operation	1	1	0	0.004048583	0.004048583	0.000000000
Natural Forces	1	0	0	0.001240695	0	0
Equipment	0	0	0	0	0	0
Other	0	0	0	0	0	0
Other Outside Force Damage	0	0	0	0	0	0
Regulators						
Corrosion	0	0	0	0	0	0
Pipe, Weld, or Joint Failure	0	0	0	0	0	0
Excavation	0	0	0	0	0	0
Incorrect Operation	0	0	0	0	0	0
Natural Forces	0	0	0	0	0	0
Equipment	0	0	0	0	0	0
Other	0	0	0	0	0	0
Other Outside Force Damage	1	4	0	0.013698630	0.054794521	0
Services						
Corrosion	0	0	0	0	0	0

Pipe, Weld, or Joint Failure	0	0	0	0	0	0
Excavation	3	3	4	0.000850099	0.000850099	0.001133466
Incorrect Operation	1	1	2	0.000607903	0.000607903	0.001215805
Natural Forces	0	0	0	0	0	0
Equipment	0	0	0	0	0	0
Other	0	0	0	0	0	0
Other Outside Force Damage	1	0	0	0.000745712	0	0

3. Identify and Implement Measures to Reduce Risk

3.1. Indiana PAAR Database

Type	Action Name	Description
Activity	Accelerated Inside Meter Moveout Program	This program is intended to address threats associated with inside meters by relocating them outside of a structure. This will be accomplished through public improvement efforts as well as directed replacements
Program	Right of Way Clearing Program	Rights of way will be maintained on a routine basis to ensure line markers are easily seen and assets can be easily accessed in an emergency. Clearing priority will be set based on local operations.
Activity	Bare Steel and Cast Iron Replacement Program	<p>Prior to the implementation of the DIM program, Vectren had conducted an initiative to identify risk and develop mitigative actions. Since this effort was conducted prior to the implementation of DIM, there was not a risk model in place. The identification of risk was based on SME knowledge of operations and maintenance issues seen in the field, an increasing leak rate on bare steel and cast iron (BS&CI) assets, threats communicated to the industry by state and federal entities, and discussions of threats seen by industry peers and associations.</p> <p>This effort led to the determination that bare steel and cast iron material was a primary driver of risk. Issues with the material included:</p> <ul style="list-style-type: none"> - Cast iron pipe is susceptible to “graphitization” which causes the material to become brittle over time - Bare steel pipe has no barrier to electrically isolate it from the surrounding soil leading to a higher rate of corrosion resulting in leaks. - It is difficult to apply effective cathodic protection to bare steel because of the direct contact with the soil. - BS&CI systems are typically low pressure and are prone to issues with water gathering within the line and susceptible to cold weather condition <p>Note: This is legacy Vectren AA 6</p>

Activity	Sewer Transections	<p>Sewer transections, also known as cross bores, occur when natural gas mains or services are inadvertently installed through existing sewer mains and/or sewer laterals using trenchless technology (e.g., horizontal directional drilling). In the decades since natural gas companies started utilizing trenchless technology, the industry has recognized the need for refined policies regarding the discovery of latent (legacy) sewer transections and the prevention of sewer transections in new installations. Latent sewer transections may remain undisturbed for decades until the need for sewer maintenance. If the sewer transection is not identified prior to a tool being used to clear a sewer blockage, the tool may strike the gas line, causing a leak. Enhanced policies and adherence to these policies by personnel can prevent new sewer transections from occurring.</p>
Program	Regulator Station Rehabilitation	<p>Prior to the implementation of the DIM program, Vectren had conducted an initiative to identify risk and develop mitigative actions. Since this effort was conducted prior to the implementation of DIM there was not a risk model in place. The identification of risk was based on SME knowledge of operations and maintenance issues seen in the field, threats communicated to the industry by state and federal entities, and discussions of threats seen by peers.</p> <p>Regulator Station Rehabilitation was one of the identified categories. Known threats include:</p> <ul style="list-style-type: none"> - Pit/Vault stations are prone to flooding Corrosion at the surface to air interfa. Flood/rain leading to water infiltration of the assets causing them to underperform or fail - Safety to Employee (Confined Spac) - Obsolete and/or underperforming equipment - Regulator station not in accordance with current design standards <p>Note: This is legacy Vectren AA 30</p>

Program	Pipeline Exposures	<p>Prior to the implementation of the DIM program Vectren had conducted an initiative to identify risk and develop mitigative actions. Since this effort was conducted prior to the implementation of DIM there was not a risk model in place. The identification of risk was based on SME knowledge of operations and maintenance issues seen in the field, threats communicated to the industry by state and federal entities, and discussions of threats seen by peers. Based on these discussions an asset modernization program was created to eliminate assets deemed to be high risk.</p> <p>Exposed and shallow pipe were identified categories within this program. Soil depth above a pipeline serves as a buffer to protect the asset from atmospheric corrosion, other outside forces, natural force damage, and excavation damage. While exposures await remediation, patrols are scheduled on a quarterly basis to observe the condition of the pipeline.</p> <p>Note: This is legacy Vectren AA 35.</p> <p>1/17/2020 Update: Shallow pipe factors are included in the risk model for facility replacement.</p>
Program	Encroachments	<p>Prior to the implementation of the DIM program Vectren had conducted an initiative to identify risk and develop mitigative actions. Since this effort was conducted prior to the implementation of DIM there was not a risk model in place. The identification of risk was based on SME knowledge of operations and maintenance issues seen in the field, threats communicated to the industry by state and federal entities, and discussions of threats seen by peers. Based on these discussions an asset modernization program was created to eliminate assets deemed to be high risk.</p> <p>Encroachments were identified as a category within this program. The following risk factors were determined to be affected by encroachments:</p> <ul style="list-style-type: none"> - Public safety issues with having structures built on pipelines or service lines right-of-way - Unnecessary damage could occur to pipelines, service lines, or other equipment located on right-of-way - Negatively impact normal operations and maintenance procedures - Potential interference with walking surveys and patrols - Ability to discover safety concerns visually could be impeded

		Note: This is legacy Vectren AA 36.
Activity	Casings	<p>Prior to the implementation of the DIM program Vectren had conducted an initiative to identify risk and develop mitigative actions. Since this effort was conducted prior to the implementation of DIM there was not a risk model in place. The identification of risk was based on SME knowledge of operations and maintenance issues seen in the field, threats communicated to the industry by state and federal entities, and discussions of threats seen by peers. Based on these discussions an asset modernization program was created to eliminate assets deemed to be high risk.</p> <p>Electrically shorted casings were identified as a category within this program. Due to poor design, environmental forces, or normal degradation casings can become shorted which can lead to a higher corrosion rate.</p> <p>Note: This is legacy Vectren AA 48.</p>
Activity	More Frequent Leak Survey Cycle to Align Atmospheric Corrosion Requirement	<p>Leak survey is a very important and effective method for detecting and mitigating leaks on Vectren's assets and the associated threats and risk. There is a desire to provide a more proactive approach to early leak and corrosion detection. There is potential confusion on which pipelines needed to be surveyed for a given grid, which could result in over- or under-surveying. This also leads to inefficient management of leak survey resources. Atmospheric corrosion survey requirements need to be considered.</p> <p>Note: This is legacy Vectren AA 56.</p>
Activity	Accelerated Isolated Service Replacement Program	<p>This program is intended to address threats associated with isolated metallic services by replacing the services with plastic service lines. Historically, the replacement of isolated services have been accomplished through public improvement efforts, directed replacements, and targeted isolated service replacement, though have not been formally tracked. Initial isolated service numbers were capture from GIS on 4/17/2019 which will be the benchmark 2018 data and will be formally tracked moving forward.</p>

Program	Leak Cause Validation	<p>Review Maximo Leak Repair Work Order records on mains and services from 2017, 2018, and 2019. Leak orders reviewed will be documented with the validated leak cause or the corrected leak cause, as well as, the rationale behind to leak cause correction. Corrected leak data will allow for improved accuracy in pipeline risk models, regulatory reports (DOT, Leak Reports, etc.), and system data.</p> <p>The leak cause validation project in conjunction with quarterly leak cause sampling will provide operations with visibility to the importance of accurate data and encourage the development of additional leak cause training.</p> <p>The review of 2017, 2018, and 2019 Maximo Leak Repair Work Orders will be completed by 2/1/2020.</p>
Program	Quality Management Program	<p>Company program designed to protect against human error through enhanced contractor oversight. The program includes contractor risk evaluation, regular office and field audits, and ad hoc field audits for abnormal issues identified during the regular course of business.</p>

4. Leak Management Program

1.0 SUMMARY

1.1 Purpose

- 1.1.1 CenterPoint Energy recognizes that managing leaks on its distribution system is an important part of addressing the overall integrity of the system, as leaks are a lagging indicator of system health. Each potential leak reported is investigated and if a leak is detected, CenterPoint Energy evaluates and categorizes each leak in accordance with the Leak Classification and Action Criteria tables in the Operations and Maintenance (O&M) Plan, Section 19.33 "Classifying Gas Leaks". Confirmed leaks classified as Grade 1 or 2 are acted upon and cleared either immediately or within twelve months from the date the leak is discovered and Grade 3 leaks are now remediated whenever possible prior to the recheck timeline. CenterPoint Energy's Distribution Integrity Management (DIM) program monitors metrics associated with distribution system leaks to evaluate the integrity of the system and determine the effectiveness of leak risk remediation actions.
- 1.1.2 In 2017, CenterPoint Energy implemented an Integrity Management Program Management group to quality control evaluations of the integrity management programs. From a quality control status review of the action items from the Distribution Integrity Management Program Review completed in 2015, the need to collect CenterPoint Energy's distribution leak management efforts into a program document published within the DIM plan was identified.
- 1.1.3 This program document is targeted to be a source of CenterPoint Energy's leak management activities and metrics published within the DIM plan to facilitate monitoring and annual review.

1.2 Reduction of risks

- 1.2.1 Historically, distribution asset risk was primarily driven by leaks. A new model for pipeline risk was developed and published in 2017. While the model consumes a variety of data related to distribution assets, leak data remains heavily weighted data set to determine distribution asset risk. Reduction of leaks reduces the overall risk of the distribution system.
- 1.2.2 The on-going detection and accurate reporting of leak discovery and remediation is essential to the DIM program for threat identification

and risk assessment. CenterPoint Energy places a high priority on collecting and reviewing this information.

- 1.2.3 Documentation is required to be completed when a leak is repaired. Leak cause, actual leak source, and leak locational information collected during leak repairs feeds into CenterPoint Energy's Distribution Integrity Management risk model and analysis; therefore, enhancing threat evaluation and proactive risk mitigation.
- 1.2.4 While Grade 1 and 2 leaks are remediated near term of discovery per CenterPoint Energy's O&M, Grade 3 leaks are rechecked annually using resources from Field Operations. Reduction in the backlog of Grade 3 leaks will also reduce the amount of resources required by field operations for annual rechecks and response to odor call and allow those resources to be put to other uses.

1.3 In scope:

- 1.3.1 This program addresses the reduction of risk associated with distribution system leaks.
- 1.3.2 CenterPoint Energy leak management efforts above and beyond the mandated efforts required by pipeline safety regulations whether implemented or under consideration, including those covered by additional/accelerated actions or other program efforts within or external to DIM.

1.4 Out of scope:

- 1.4.1 Standard compliance leak efforts.

2.0 LEAK MANAGEMENT PLAN

CenterPoint Energy's leak management program contains the elements to manage and determine the effectiveness of active and completed leak management efforts for CenterPoint Energy's gas distribution assets including:

2.1 Locate and Evaluate Leaks

- 2.1.1 Components of on-going leak detection, monitoring, and remediation as part of operations and maintenance activities are provided in O&M Plan 17.0, Gas Leak Surveys and Pipeline Patrols, O&M Plan 19.0, Gas Leaks, and O&M Plan 20.0, Leak Detection Equipment.
- 2.1.2 The leaks in the distribution system are located through routine surveys and selected gas leak surveys and pipeline patrols that are conducted with special conditions arise as outlined in O&M Plan 17.0, Gas Leak Surveys and Pipeline Patrols. Additionally, all leak and gas odor complaints are responded to and investigated as outlined in the Customer Service Policy (CSP) 3.2, Inside Leak Investigation and Fuel Line Test Spotting for Leakage.
- 2.1.3 Leak surveys are performed using leak detection equipment as outlined in O&M Plan 20.20, Leak Detection Equipment General Policy.
- 2.1.4 CenterPoint Energy evaluates each leak detected in accordance with Leak Classification and Action Criteria tables outlined in O&M Plan 19.33, Classifying Gas Leaks. Leaks are pinpointed, confirmed, and classified when a sustained reading is obtained on a combustible gas indicator. Classification is assigned by qualified, trained personnel.

2.2 Act Appropriately to Mitigate Hazards

- 2.2.1 Confirmed leak action criteria for repair and monitoring is outlined in O&M Plan 19.33, Classifying Gas Leaks.

2.3 Keeping Records

- 2.3.1 Per O&M Plan 19.90, Gas Leaks, Records, every confirmed leak is given a unique identifier and is tracked until it is repaired. Leak records, including repair action and clearing confirmations, are retained for the life of the affected facility.

2.4 Self-Assess

- 2.4.1 CenterPoint Energy's Distribution Integrity Management (DIM) has implemented actions as part of its on-going leak management program to monitor, analyze the severity and cause of leaks and their remediation. See Table 1, Leak Management Program Efforts. The results of these reviews (e.g. number of leaks discovered rises for an area) may call for additional risk control practices based on the impact to the risk.

3.0 LEAK MANAGEMENT EFFORTS

3.1 Current State Actions

- 3.1.1 CenterPoint Energy's Leak Management Plan includes current state actions either active or completed to reduce the threats associated with leaks on gas distribution assets. This includes:

- O&M Procedures
- Additional/Accelerated Actions
- Asset Strategies
- Asset Replacement Programs
- Data Collection Enhancements
- Training and Communications
- Metrics Monitoring
- Effectiveness Review
- Leak Factor Impacts to Asset Risk

3.1.2 Table 1, Leak Management Program Efforts shows the CenterPoint Energy leak management efforts currently in place or previously completed to manage leaks within the distribution system.

Table 1: Leak Management Program Efforts

Leak Management Effort	Desired Outcome	PAAR ID	Status	Threat(s) Addressed	Frequency
O&M Procedures	Standard process for identifying, classifying and repairing leaks.	N/A	Active	- Incorrect Operations - Data and record accuracy and availability	On-going
Leak Survey Process Improvement	Aligned 3- and 5-year leak survey processes	N/A	Complete	- Corrosion - Natural Forces - Excavation Damage - Other Outside Force - Material, Joint, or Weld Failure - Incorrect Operations - Equipment - Other	One-Time
Shorted Casing Leak Survey	Additional leak survey for shorted casings awaiting	42	Active	Corrosion	Annually

Grade 3 Leak Backlog Reduction	Reduce the backlog of open grade 3 leaks not occurring on assets scheduled for capital retirement.	92	Active	<ul style="list-style-type: none"> - Corrosion - Natural Forces - Excavation Damage - Other Outside Force - Material, Joint, or Weld Failure - Incorrect Operations - Equipment - Other - Operations Data and Record Accuracy and Availability 	On-going
Alignment to 3-year Atmospheric Corrosion Leak Survey Cycle	More frequent residential leak	93	Active	<ul style="list-style-type: none"> - Corrosion - Natural Forces - Excavation Damage - Other Outside Force - Material, Joint, or Weld Failure - Incorrect Operations - Equipment - Other - Operations Data and Record Accuracy and Availability 	One-Time
Bare Steel and Cast Iron	Elimination of leaks through the retirement of bare steel and retirement assets	81	Active	<ul style="list-style-type: none"> - Corrosion - Material, Joint, or Weld Failure 	On-going

Vintage Plastic Pipe	Reducing the amount of leaks in the system due to vintage plastic pipe	69	Active	<ul style="list-style-type: none"> - Natural Forces - Excavation Damage - Material, Joint, or Weld Failure - Incorrect Operations - Operations Data and Record Accuracy and Availability 	On-going
Ineffectively Coated Steel	Reducing the amount of leaks in the system due to ineffectively coated steel	85	Active	<ul style="list-style-type: none"> - Corrosion - Excavation Damage - Material, Joint, or Weld Failure - Incorrect Operations 	On-going
Exposed Pipe at Bridge Crossings	Reducing the amount of leaks in the system due exposed pipe at bridge crossings	86	Active	<ul style="list-style-type: none"> - Corrosion - Natural Forces - Other Outside Force 	On-going
Exposures & Shallow Pipe	Reducing the amount of leaks in the system due to exposures	88	Active	<ul style="list-style-type: none"> - Corrosion - Natural Forces - Excavation Damage - Other Outside Force 	On-going

Casing Removal	Reducing the amount of leaks in the system due to the presence of casings	91	Active	Corrosion	On-going
Mechanical Fitting Failure Investigation	Increasing the reliability and accuracy of mechanical failure fitting data	N/A	Active		One-Time
Leak Process Streamlining	Evaluating the business needs to collect the defined leak information through field data collection systems and the work management system	N/A	Complete		One-Time
Leak Process Mapping	Documentation of the current state leak management process including swimlanes and system dependencies.	N/A	Complete		One-Time
Leak Factor Impacts to Risk	Evaluate the weightings and impact to risk as applied in the asset-based risk model		Active		On-going

Enhanced Leak Cause Classification Training	Targeted training to aid technicians in selecting the most appropriate leak cause	18	Active	<ul style="list-style-type: none"> - Corrosion - Natural Forces - Excavation Damage - Other Outside Force - Material, Joint, or Weld Failure - Incorrect Operations - Equipment - Other - Operations Data and Record Accuracy and Availability 	On-giong
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4.0 APPENDICES

Appendix A: Grade 3 Leak Backlog Reduction

Strategy Purpose

CenterPoint Energy recognizes that managing leaks on its distribution system is an important part of addressing the overall integrity of the system, as leaks are a lagging indicator of system health. Each potential leak reported is investigated and if a leak is detected, CenterPoint Energy evaluates and categorizes each leak in accordance with the Leak Classification and Action Criteria tables in the Operations and Maintenance (O&M) Plan, Section 19.33 "Classifying Gas Leaks". Confirmed leaks classified as Grade 1 or 2 are acted upon and cleared either immediately or within twelve months from the date the leak is discovered; whereas Grade 3 leaks, deemed as nonhazardous at the time of detection and expected to remain nonhazardous, are addressed and cleared as time and budget permits.

Over the years, a significant backlog of Grade 3 leaks has developed. Currently the backlog is over 10,000 Grade 3 leaks companywide and is increasing by more than 1,350 each year. Implementing the Grade 3 Leak Backlog Strategy will reduce safety concerns, as well as the long-term environmental damage throughout the system.

This strategy is targeted to reduce the current backlog of Grade 3 leaks.

Appendix B: Mechanical Fitting Failure Report

Summary

During the DIMP development before 2011, a section was added to the leak forms and the compliance application system to capture the information required for the Mechanical Fitting Failure Report (MFFR), which is exhibited in Distribution Integrity Management (DIM) Plan 11.0, Mechanical Fitting Failure Reporting. During the DIMP implementation training sessions conducted in the first half of 2011, field personnel were informed of the purpose of this, as well as, how to complete the documentation. The form was available through the leak work order process in the compliance application system, but was also available as paper for CenterPoint Energy employees and contractors without direct access to our electronic systems. In the latter case, the completed leak work order paperwork was delivered to office personnel for entry into the compliance application system. The data stored in this system is the source for the MFFR.

In the years since, CenterPoint Energy has continuously improved its processes for maintaining accurate records documenting mechanical fitting failures. When the DIMP was first implemented in 2011, the leak repair process prompted the field personnel to indicate whether the leak involved a mechanical fitting. If a mechanical fitting was involved, the field personnel were required to capture additional information related to the mechanical fitting that was required for the MFFR. The Operations Supervisor reviewed the completed work orders for completion and accuracy. Through DIMP communications and MFFR review, CenterPoint Energy determined that this process could be enhanced to automatically detect a leak involving a mechanical fitting by using the selection of asset values on the leak form to trigger the additional mechanical fitting failure information. In 2013, CenterPoint Energy started a leak streamlining project to improve the functionality within the compliance application system. In March 2014, the identified leak work order changes were implemented. The changes allowed mechanical fitting failures to be detected based on values the field personnel selected following their work. To provide additional assistance to the field crews, a leak cause definition document was loaded onto every field crew laptop that explained the different leak form values.

In 2015, CenterPoint Energy conducted a continuous improvement event to eliminate paper leak documents for internal field personnel in favor of an all-electronic leak documentation process. This included the leak, mechanical fitting failure, and pipe exam forms. The electronic version of the leak form was enhanced with cascading selections, which limit the possible choices based on previous selections, and data validation, which prevents the user from submitting the form with invalid selections.

In 2017, the use of the compliance application system was expanded to all field personnel, including contractors. This reduced the time required for leak information to enter our compliance application system, eliminated the possibility of transcription error during the paper-to-digital data entry process, and ensured that the field personnel adhered to the data validation rules built into the electronic system.