

August 3, 2017

Ms. Barcy F. McNeal  
Director, Office of Administration  
Public Utilities Commission of Ohio  
180 East Broad Street  
Columbus, Ohio 43215

Re: *In re Application of Vectren Energy Delivery of Ohio for Approval to Change Accounting Methods*, Case No. 15-1741-GA-AAM

Dear Ms. McNeal,

On June 1, 2017, Vectren Energy Delivery of Ohio, Inc. (VEDO) timely filed its annual report detailing the 2016 expenses related to its Distribution Accelerated Risk Reduction program, in accordance with the Commission's November 3, 2016 Opinion and Order in Case No. 15-1741-GA-AAM. The original docket had been closed, however, and per guidance received, VEDO filed the annual report in a new docket, Case No. 17-1384-GA-AAM.

VEDO recently received additional guidance that the annual report should be refiled in the original case docket, which has now been reopened for that purpose. VEDO hereby resubmits the annual report for docketing in the above-referenced case.

Because VEDO's report was timely and publicly filed in accordance with instructions received from the Commission, the refiling of the report should have no effect on any deadlines tied to the filing of that report, such as the filing of the Staff report.

Please let me know if there are any questions.

Regards,

/s/ Andrew J. Campbell  
Andrew J. Campbell

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Vectren	)	
Energy Delivery of Ohio for Approval to	)	Case No. 17-1384-GA-AAM
Change Accounting Methods	)	

**ANNUAL REPORT OF VECTREN ENERGY DELIVERY OF OHIO, INC.**

Vectren Energy Delivery of Ohio, Inc. (VEDO or the Company), pursuant to the Commission’s November 3, 2016 Opinion and Order in Case No. 15-1741-GA-AAM adopting the Distribution Accelerated Risk Reduction (DARR) program, respectfully submits its annual report detailing VEDO’s DARR-related and deferral eligible expenses incurred in calendar year 2016. In support of its annual report, VEDO states as follows:

1. VEDO is an Ohio corporation engaged in the business of providing natural gas service to customers in Ohio and, as such, is a “natural gas company” and “public utility” as defined by R.C. 4905.03(E) and 4905.02(A), respectively.

2. On November 3, 2016, in accordance with R.C. 4905.13, the Commission approved VEDO’s application to establish a regulatory asset to defer up to \$4 million annually through the DARR to reduce key risks, continue to ensure the safe and reliable operation of its system, and ensure compliance with pipeline safety laws. The Commission required VEDO to file an annual report for its DARR by June 1 each year, beginning in 2017 for calendar year 2016 expenditures, detailing the deferred expenses, baseline performance levels for each safety initiative, safety performance improvements compared to the baselines, results of ongoing and future investigations, any mid-term adjustments, and efforts towards identifying efficiencies and implementing cost-savings measures. The Commission further required VEDO’s annual report to include an audit report prepared by VEDO’s external auditor summarizing its findings with respect to the accuracy of VEDO’s accounting for DARR-related expenditures.

3. The Commission also established that, with the filing of the annual report, Staff should conduct an annual review of reported program expenditures and file a Staff Report no later than 90 days subsequent to the annual report. Once the Staff Report is filed, VEDO is granted 30 days to accept Staff's recommendations or to object thereto.

4. In support of this annual report, VEDO includes the following appendices:

- **Attachment A** – Audit Report prepared by VEDO's independent auditor, Deloitte & Touché, LLP
- **Attachment B** – DARR Summary of Deferred Expenses and Programmatic Review for the six initiatives supported by the DARR

5. The programmatic review contains various metrics, statistics, and other measures to assist in gauging and improving the effectiveness of these programs. (*See* Application ¶ 8 (Oct. 9, 2015).) In accordance with the stipulation and application, these measures are subject to change based on further internal review and discussions with Staff. As the Company gains additional experience implementing and analyzing the programs, including newly available data, it may be determined that new or refined metrics provide better measures of program effectiveness.

6. VEDO notes that Deloitte's Audit Report, included as Attachment A, found no issues.

WHEREFORE, VEDO respectfully submits this annual report for Commission Staff's review, and requests a recommendation that all 2016 DARR-related expenses be deferred.

Dated: June 1, 2017

Respectfully submitted,

/s/ Andrew J. Campbell

Mark A. Whitt (Counsel of Record)

Andrew J. Campbell

Rebekah J. Glover

WHITT STURTEVANT LLP

The KeyBank Building, Suite 1590

88 East Broad Street

Columbus, Ohio 43215

Telephone: (614) 224-3946

Facsimile: (614) 224-3960

whitt@whitt-sturtevant.com

campbell@whitt-sturtevant.com

glover@whitt-sturtevant.com

(All counsel willing to accept service by email.)

ATTORNEYS FOR VECTREN ENERGY  
DELIVERY OF OHIO, INC.

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of this Annual Report was served by electronic mail this 1st day of June 2017 to the following:

Thomas Lindgren  
Office of the Ohio Attorney General  
Public Utilities Section  
30 East Broad Street, 16<sup>th</sup> Floor  
Columbus, OH 43215  
thomas.lindgren@ohioattorneygeneral.gov

/s/ Rebekah J. Glover  
One of the Attorneys for Vectren Energy  
Delivery of Ohio, Inc.

## **Attachment A**



**Deloitte & Touche LLP**  
111 Monument Circle  
Suite 4200  
Indianapolis, IN 46204-5105  
USA

Tel: +1 317 464 8600  
Fax: +1 317 464 8500  
[www.deloitte.com](http://www.deloitte.com)

## **INDEPENDENT ACCOUNTANTS' REPORT ON APPLYING AGREED-UPON PROCEDURES**

To the Board of Directors of  
Vectren Energy Delivery of Ohio:

We have performed the procedures enumerated below, which were agreed to by Vectren Energy Delivery of Ohio (the "Company") and provided to the Public Utility Commission of Ohio (the "PUCO"), solely to assist the specified parties in the evaluation of the accuracy of the Company's accounting for cost deferrals associated with the Distribution Accelerated Risk Reduction ("DARR") Program for the period January 1, 2016 through December 31, 2016 (the "specified period"), in conjunction with the PUCO Entry regarding Case No. 15-1741-GA-AAM. Management is responsible for the accuracy of the Company's accounting for cost deferrals associated with the DARR Program. The sufficiency of these procedures is solely the responsibility of the parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures enumerated below either for the purpose for which this report has been requested or for any other purpose.

The procedures that we performed and our findings are as follows:

### **DARR Program**

1. We obtained from Company management a list of all cost deferrals under the DARR Program, as presented in the annual report to be filed with the Public Utilities Commission of Ohio (PUCO) related to Case No. 15-1741-GA-AAM (the "Filing"), by month, and agreed the sum of such cost deferrals to the Company's Filing noting no differences. We performed the following procedures:
  - a. We randomly selected 4 months included in the list of all cost deferrals obtained in Step 1 above. For each month selected, we randomly selected 5 individual cost deferral amounts from the list, for a total of 20 selections and allocated those selections ratably across the Company's six sub-programs within the DARR Program as listed below. In performing such procedures, no differences were identified, except as described below:
    - i. Expanded Leak Management Program (12 selections)
    - ii. Enhanced Damage Prevention Control (2 selections)
    - iii. Enhanced Risk Modeling and Threat Analysis (1 selection)
    - iv. Workforce Training and Qualification for New Requirements (2 selections)
    - v. Pipeline Safety Management System Implementation (1 selection)
    - vi. Public Awareness (2 selections)

- b. For each individual cost deferral amount selected, we performed the following procedures:
  - i. If the cost deferral amount represents internal labor charges, we recalculated the amount based on the Company's payroll records. We identified three selections with a difference of less than \$1 due to rounding.
  - ii. If the cost deferral amount represents third party charges, we agreed or reconciled the selection to a third party invoice. We did not identify any differences.
- c. We obtained from management an analysis comparing the amount of cost deferrals included in the Filing related to the Leak Management Program and the baseline of \$1,918,234 established in the application for PUCO Case No. 15-1741-GA-AAM. Management's analysis indicated Leak Management Program costs exceeded the baseline by \$1,399,326. We recalculated the amount by which the Leak Management Program costs exceeded the baseline, which resulted in the cost deferrals included within the Filing. We did not identify a difference in our recalculation.

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an examination or review, the objective of which would be the expression of an opinion or conclusion, respectively, on the Company's compliance with the DARR Program in accordance with the PUCO letter regarding Case No. 15-1741-GA-AAM. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of the specified parties listed above and is not intended to be, and should not be, used by anyone other than the specified parties.

*Deloitte & Touche LLP*

June 1, 2017



## **Attachment B**



## Distribution Accelerated Risk Reduction Program Management

### Distribution Accelerated Risk Reduction 3-Year Plan

Program Element	2016	2017	2018
Expanded Leak Management Program	\$1,250,000	\$1,250,000	\$1,250,000
Enhanced Damage Prevention Program	\$725,000	\$770,000	\$775,000
Public Awareness	\$200,000	\$200,000	\$200,000
Workforce Training and Qualification for New Requirements	\$247,219	\$255,840	\$263,515
Pipeline Safety Management System Implementation	\$107,909	\$110,441	\$138,754
Enhanced Risk Modeling and Threat Analysis	\$362,572	\$362,408	\$445,000
<b>Grand Total</b>	<b>\$2,892,700</b>	<b>\$2,948,689</b>	<b>\$3,072,269</b>



## Distribution Accelerated Risk Reduction 2016 Annual Performance

### DARR 2016 Variance Explanations

Program Element	2016 Plan	2016 Actuals	Variance	% Variance
Expanded Leak Management Program	\$1,250,000	\$1,399,326	\$149,326	-12%
Enhanced Damage Prevention Program	\$725,000	\$274,412	(\$450,588)	62%
Public Awareness	\$200,000	\$183,324	(\$16,676)	8%
Workforce Training and Qualifications for New Requirements	\$247,219	\$197,774	(\$49,445)	20%
Pipeline Safety Management System Implementation	\$107,909	\$61,119	(\$46,790)	43%
Enhanced Risk Modeling and Threat Analysis	\$362,572	\$133,228	(\$229,344)	63%
<b>Grand Total</b>	<b>\$2,892,700</b>	<b>\$2,249,183</b>	<b>(\$643,517)</b>	<b>22%</b>

( ) denotes favorable to plan

### DARR 2016 Variance Commentary

- Delayed certain elements based on understanding efficiencies after pilots, more focus on initial phases and reprioritization of specific projects within initiatives. Also, reduced consulting rates all resulted in 2016 spending being 22% less than planned.
- Delays in regulatory approval also impacted initiation of several programs, with corresponding portions of 2016 spending pushed into 2017.
- The 2017 and 2018 program planned spend is remaining as projected at this time as the efficiencies gained through the pilot project evaluations and risk focused projects will allow Vectren to complete the work within those years at the current planned spend.
- Initiatives are generally in early phases with final approval not being received until late 2016; Vectren will be identifying savings and efficiency opportunities as the initiatives are fully implemented.
- Exceeded grade 3 leak reduction spend target repairing or closing over 2,500 leaks and 68% of the backlog.
- Enhanced Damage Prevention initiative spend was delayed to evaluate the results of the pilot data enhancement programs to determine the most efficient strategy to correct mapping errors to support service and distribution main locates.
- Public awareness campaign actual costs were less than the estimates accounting for the 8% reduction in spend.
- The initial phase of implementing additional performance evaluations extended through the end of 2016, delaying planned simulation builds accounting for the 20% underspend in Workforce Training and Qualification for New Requirements Initiative.
- The pipeline safety management system consultant engagements were delayed to 2017 to accommodate focus on completing the foundational elements of the safety management system to ensure a process is in place to support the risk register and address mitigative actions. Consultant costs for completing the baseline evaluation for the foundational elements were reduced from the original estimated costs due to engagement of a new firm.
- The 63% underspend in Enhanced Risk Modeling and Threat Analysis was due to delaying data mining efforts to develop the asset-based risk models and allow the modeling results to drive the prioritization of the data mining projects and focus on the areas that would have the greatest impact to distribution asset risk.



## Expanded Leak Management Program

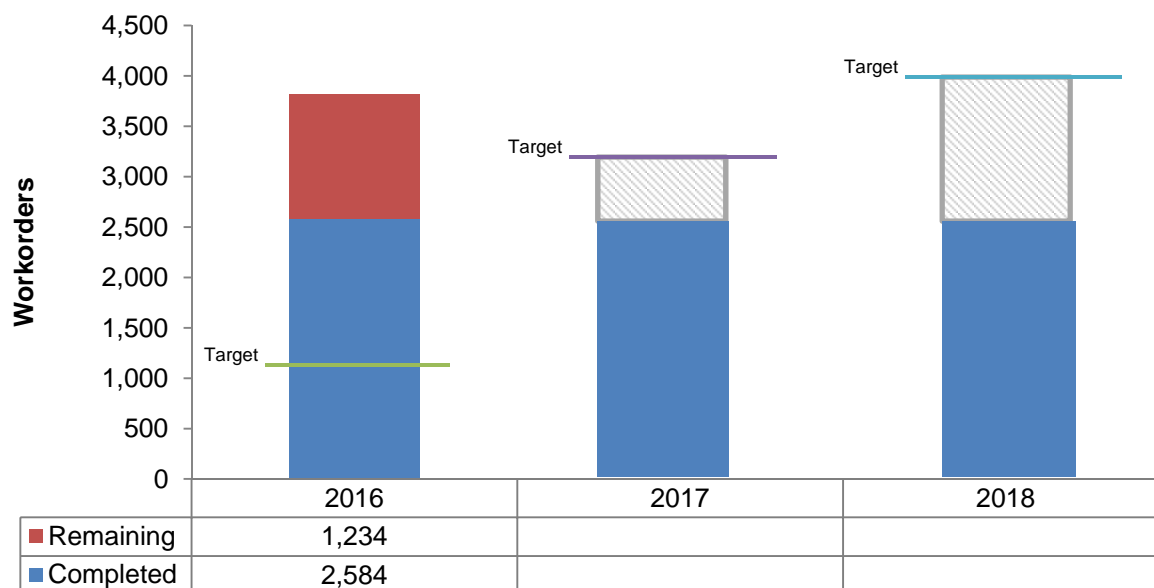
This section focuses on the performance of the grade 3 leak reduction program and demonstrates progress toward eliminating the grade 3 leak backlog and repairing grade 3 leaks as they occur in the system. The grade 3 leak backlog was assessed as of January 3, 2016 and identified 3,818 grade 3 leaks to be evaluated and repaired. The leaks were prioritized for evaluation using a base set of criteria including above ground or below ground, asset type, vintage and historical remediation information.

Measure	Data
Number of Grade 3 Backlog Leaks Resolved (1/3/2016)	2,584
Percent of Backlog Leaks Completed	68%

### 2016 Status

- In 2016, Vectren focused on remediating grade 3 leaks from the backlog, completing 68% of the grade 3 leak backlog from the baseline taken January 3, 2016.
- Additionally, 1,302 grade 1 and 1,277 grade 2 leaks were remediated in 2016.

## Ohio Leak Backlog Status



### 2017 Focus

- In 2017, the focus of grade 3 leak repair will expand to remediating grade 3 leaks as they are discovered as well as continuing to work on the backlog resulting in a lower percentage of the backlog being mitigated as compared to 2016 but still remaining on target to eliminate the original backlog by the end of 2018. In 2016, an additional 2,876 grade 3 leaks were discovered that we will start addressing in 2017 as well as any newly discovered grade 3 leak from a 2017 leak survey, as practical. Vectren has discovered that some leak reports are duplicates, as the leaks had been reported from a previous survey. We are working towards process enhancements to resolve duplicate reporting. This will reduce the volume of the grade 3 leak backlog that is remediated from the volume that was remediated in 2016.
- The leak backlog as of January 3, 2016 is scheduled to be eliminated by the end of 2018 with the continuing focus on remediating grade 3 leaks as they are discovered.



## Enhanced Damage Prevention Program

This section focuses on the reduction of damages to distribution assets. The initiative includes:

- projects to improve the data and information used to locate distribution facilities;
- the addition of a damage prevention specialist to assist in targeted contractor relations and additional presence at projects with a higher potential to damage facilities; and
- the development and implementation of a ticket risk assessment model to predict one-call tickets with a high potential for damage to occur and assign mitigative actions to reduce the likelihood of a damage.

Measure	Data
Number of Locate Tickets	89,303
Damage Rate (Target 2.25)	2.27

### 2016 Status

- The damage rate improved from 2.53 in 2015 to 2.27 in 2016.
- The Ohio damage prevention specialist engages with excavators through the public awareness and 811 Call Before You Dig educational meetings held throughout the year and evaluates excavator damage history to work with them directly, both their field crews and their leadership, to promote safe excavation around pipeline assets. Excavators were at-fault for 65% of all 2016 excavation damages.
- Vectren identified that additional excavation crews unfamiliar with working around gas assets were used to perform water and sewer replacement and other infrastructure projects contributing to the damage rate exceeding the target rate. Vectren damage prevention specialists are reaching out to educate these crews on safe digging practices around gas assets as a mitigating action to protect the assets, workforce and the public.

Year	2015	2016	2017
Damage Rate	2.53	2.27	-
Target	N/A	2.25	2.10

## Ticket Risk Assessment

Measure	Data
Number of Ticket Risk Assessment (TRA) Tickets Worked	5,350

### 2016 Status

- The TRA team, consisting of 4 highly trained and experienced contract locator technicians, completed 5,350 tickets in 2016 and more than 3,000 site visits.
- The 4 technicians established themselves as experts in safe digging around natural gas lines, meeting nearly 1,000 excavators on site to discuss safe dig plans, assist in locating facilities and communicate risks.
- The TRA technicians are available to the excavation community as a resource to ensure the safety of Vectren job sites, employees and the community.
- TRA technicians liaised with Vectren and 811 call centers to ensure compliance with state dig laws, and assist in digging when needed to help locate facilities.
- The predictive analytics risk model is performing at an optimal rate and was successful, predicting approximately 46% of damages.

## Damage Reduction Data Improvements

Measure	Data
Print Error Locates Reviewed	7,588
Premise Validation Records Complete	8,051
Percent of Total Damages Due to Incorrect/Unavailable Records	11%

### 2016 Status

#### 811 Print Error Locate Ticket Project

- USIC locators can flag a locate ticket as having a print error, meaning there appeared to be a discrepancy between what is identified in the field and Vectren maps. These tickets are analyzed by a team to identify the root causes.
- More than 7,500 print error locate tickets were reviewed in 2016.
- Of those, 84 print error locate tickets resulted in corrections to Vectren's mapping system.

#### Premise Validation - GIS Placement

- Vectren maintains gas service information in three systems: a Customer Information System (CIS), an Enterprise Content Management (ECM) system and a Geographic Information System (GIS).
- The location identifier, known as a premise, ties the three systems together for a complete record of a gas service.
- More than 17,000 cases were identified in which a premise record in both the CIS and ECM system did not have a corresponding service in GIS.
- All identified cases are being corrected in GIS so the three systems align.

### 2017 Focus

- In 2017, Vectren will continue to educate excavators on safe digging practices and using ticket risk assessment to provide more attention to locate tickets with a higher likelihood of damage.
- An additional focus for 2017 is enhancing our Service Card records and mapping improvements to support locating services and reduce damages due to incorrect records.
- The damage rate target for 2017 is 2.10.



## Public Awareness

The focus of this section is to describe the increased communications to support pipeline safety in regard to our increased work within pipeline right-of-way in communities. These communications efforts are directly connected to our pipeline modernization programs and also continue to increase public awareness of the importance in calling 811 before digging to locate facilities and decrease the chance of a facility damage.

Media	Total Impressions	Click-Throughs	# of Spots
Digital (YouTube, Facebook, Twitter, Pandora, Weather.com, Hulu, Display Ads)	7,438,109	25,210	N/A
Network & Cable TV	5,416,270	N/A	715
Radio	2,516,630	N/A	396

Measure - Residential quarterly customer survey	Q1 2016	Q1 2017
Percent of residential customer's aware of a "Call before you dig" phone number	79.4%	83%
(10 being highest performance)	Below measures are based on a 10pt. scale	Below measures are based on a 10 pt. scale
Clarity of information provided by Vectren about gas safety	7.94	8.12
Vectren communicates how to be safe around natural gas	7.70	7.80

### 2016 Status

Awareness communications focused on public notification of pipeline modernization project work in their area. Messaging was designed to alert customers of the increase in work crews in order to safely navigate around the work zones. Messaging also reiterated the pipeline replacement program is in order to maintain a reliable, safe gas delivery system. Additional messaging was created to communicate recognizing a gas leak and calling 811 before digging. Messaging media used included network and cable television, radio, digital, social media, newspaper and bill inserts/messaging.

### 2017 Focus

Vectren will continue communicating the presence of work on Vectren's distribution assets to the impacted public reminding them to take precautions.



## Workforce Training & Qualifications Performance

This section focuses on the increased activities in workforce training and qualifications required by new and increasingly stringent regulations. Vectren evaluated the current operator qualification program, identified activities critical to maintaining and operating the pipeline system, and is increasing hands-on performance evaluations to ensure personnel have appropriate training and skills to perform those tasks to ensure pipeline safety, reduce risk and meet increased regulatory requirements for operator qualification.

Vectren added training internal resources dedicated to support the increased training and performance evaluations, and tracking, reporting and maintenance of the workforce training and qualification information and systems. Vectren utilizes contract and internal resources to develop the content for the training materials, performance evaluations and simulations.

Covered tasks increased from 48 to 153. Vectren continues to identify additional necessary covered tasks as a result of developing policies and procedures required by new pipeline safety regulations.

Measure	Data
Number of Evaluations Completed and Processed as of Dec. 31, 2016	2,498
Number of Employees Evaluated	103

### 2016 Status

- For the 153 covered tasks, these items were reviewed to ensure processes and abnormal operating conditions detailed therein agree with Vectren's established policies and identified risks.
- The increased covered tasks are being implemented in a phased approach; in 2016, 35 additional tasks were added to Ohio employees' qualification requirements, based on tasks performed by position.
- The sum of 2,498 evaluations as a direct result of the additional 35 tasks were completed in Ohio include first- and second-phase performance evaluations deployed to the field as of the end of calendar year 2016. This is an increase over 1,446 in 2014 and 1,174 in 2015.
- The evaluations were completed in the field and/or simulated environments, documented and sent to Technical Training, where they are manually reviewed for accuracy and completeness before being entered into a database for qualification and record retention purposes.

### 2017 Focus

Vectren will continue to develop content for additional tasks to our training programs and conduct performance evaluations to enhance training and qualification of staff for activities impacting gas assets. Vectren expects the number of required covered tasks to increase as it implements new plans, policies and procedures to comply with new pipeline safety regulations.



## Pipeline Safety Management System Implementation

This section focuses on the development and implementation of a pipeline safety management system supported by Pipeline Hazardous Materials and Safety Administration's (PHMSA) "Guidance for Strengthening Pipeline Safety through Rigorous Program Evaluation and Meaningful Metrics" and the American Petroleum Institute (API) issued recommended practice 1173 "Pipeline Safety Management System Requirements". A pipeline safety management system (PSMS) is a comprehensive change management lifecycle framework which drives a safety culture including pipeline safety, employee safety and public safety.

The Pipeline Safety System Implementation plan includes:

- Organizational restructuring focused on safety
- Implementing a safety control framework
- Increased staff dedicated to managing, planning, developing and implementing the safety management system including:
  - Documenting processes and developing control points
  - Enhancing the operator qualification plan, the compliance plan, change management process and the integrity management risk models
  - Performing quality assurance of pipeline safety processes
  - Staff and contract support additions:
    - Quality Control Specialist
    - Quality Assurance Staff
    - Management and Oversight Staff – Director of Compliance and Quality Assurance; Vice President of Safety and System Integrity
    - Consultant support to develop and implement framework

Measure	Data
Percent Complete of Implementation Plan Milestones	55%
Percent Complete of Planned Mitigation Activities	15%

### 2016 Status

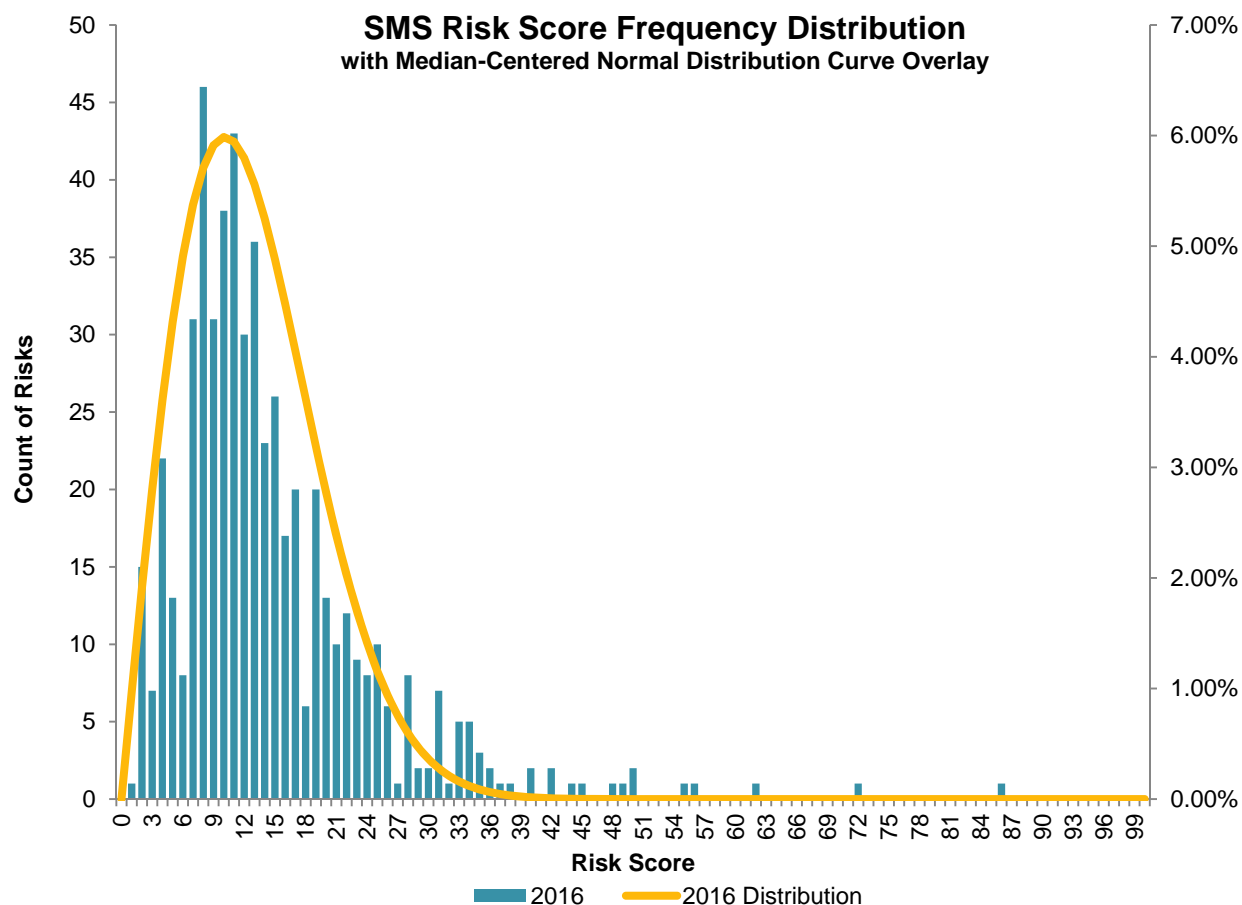
- 55% of the milestones to develop and implement the foundational elements of a pipeline safety management system have been completed.
- Milestones achievements include the development and population of a risk register, evaluation and prioritization of register items to address and the identification and assignment of mitigating actions.
- 33 risk register items were identified exceeding the initial threshold for evaluation. More than 15% of the mitigative actions developed to address those items are complete.
- 19 of the 33 risk register items above the threshold for evaluation have been addressed.

### 2017 Focus

- Vectren will continue to:
  - execute on the milestones to implement the foundational elements of a pipeline safety management system to target completion in 2017;
  - conduct activities to maintain the risk register, develop mitigating actions to reduce risk of the reported items and measure the effectiveness of those activities; and
  - hold communication meetings to report progress on implementation of the pipeline safety management system and associated activities to reduce pipeline risk.



## Safety Management Systems Continued



### 2016 Status

- The SMS risk register profile shows that the items reported range in risk score from 0 to 87 with the majority falling within the 7-15 range. This initial population provides the baseline of the SMS risk register items to compare year over year.
- The risk score takes into account the likelihood of the event occurring and the consequence of the event.
- Register items may be added at any time. The entire register listing will be reviewed in its entirety annually and risk may be adjusted considering status of mitigative actions, industry events, operational activities, etc.
- Mitigative actions are focused around higher risk register items first.



## Enhanced Risk Modeling And Threat Analysis

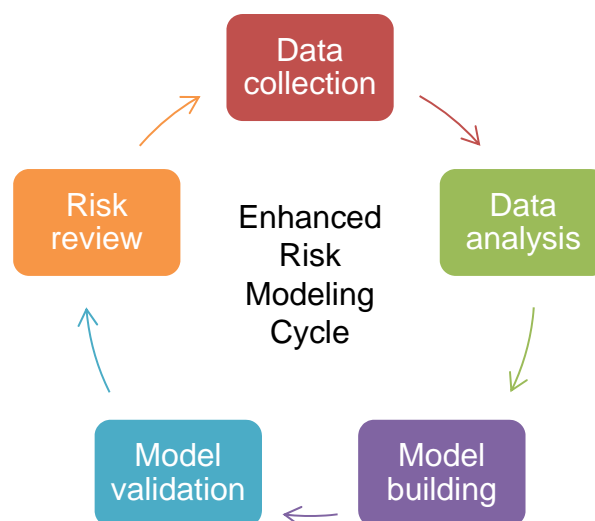
This section focuses on the progress of developing an asset-based risk model, improving the quality and completeness of data on distribution assets and enhancements to the threat identification and analysis process by developing additional or more robust reporting, data integration, data mapping and data viewing tools. This initiative contains many specific projects to enhance the risk modeling and threat analysis processes.

Measure	Data
Percent Complete of Distribution Risk Model Enhancement Process Development	100%
Percent Complete Develop and Implement Enhanced Distribution Risk Model	36%

### 2016 Status

- In 2016, Vectren focused on the development of an asset-based risk model for distribution assets. Vectren engaged consultants to evaluate different risk modeling strategies and decided on creating a portfolio of asset risk models based in the individual asset type, data and associated threats and consequences. Asset types were evaluated and prioritized for model building for models covering the asset categories below:

1. Pipeline
2. Valves
3. Service Line
4. Fittings
5. Pressure Regulation/Overpressure Protections
6. Meter Setting
7. Equipment



- The results of the individual asset models will be combined in an overarching model and reporting to be developed as the final stage, as well as standard maps and communication tools to present, inform and evaluate the model output.
- The evaluation of the current state data sets and data quality is complete.
- The development of the process to build and validate an asset-based risk model is complete.
- The development of the methodology to pre-process, manage, validate and maintain data for the asset-based risk models is complete.
- These processes are used and repeated each time a model is developed.
- The pipeline asset-based risk model is 90% complete.
- The valve, regulator and service line asset-based risk models are in-process.
- Data quality improvement initiatives are being scoped and identified for prioritization using the model output.

### 2017 Focus

In 2017, Vectren will:

- complete development and validation asset based risk models,
- continue to standardize and improve the quality and completeness of data sources,
- and start developing the over-arching model and reporting to view to establish baseline risk and use risk model results to target risk reduction initiatives.

Vectren will continue to data mine work order records with a focus on data necessary to validate maximum allowable operating pressure. Vectren intends to complete a pilot indirect survey project for high pressure distribution assets to determine a baseline of coating quality.



## Appendix A – Pipeline Safety Management System Risk Cycle Example

Appendix A details the steps in the pipeline safety management system risk cycle and shows practical application by showing the results from an example risk through each phase of the cycle.

### The Pipeline Safety Management System (PSMS) Risk Cycle Process consists of:

- identifying risks, assigning a risk score and ranking;
- establishing a threshold for prioritization;
- conducting a detailed risk analysis process, commonly known as a bow tie, used to identify risk drivers and corresponding mitigation; and
- evaluating the effectiveness of the mitigating actions.

### PSMS Risk Cycle Process Detail:

- Annually, subject matter experts identify and rank risks that face their department. A risk score is calculated based on their information.
  - In this example, a field employee indicated that the thing he worried about most was there being a delay in isolation if there was an emergency. The risk was ranked as required and the risk score calculated to a value of 29.6.
- Quality Assurance (QA) applies additional factors to these scores. All risks are then combined into a single list. The list is ordered from most risk to least risk. A risk threshold is established then approved by Vectren leadership. For risks above the threshold, a bow tie analysis is performed.
  - Continuing with the above example, after QA applied its factors to the risk, the score received a final score of 42. The risk threshold was established at 33. Therefore, a bow tie analysis was performed for this risk.

**Figure 1: Risk Submission Form and Scoring Example**

Safety Management System Risk Register Submission Form											
Functional Group:		Ohio Division									
*Blue shading indicates required input.											
PEAR MODEL RISK RANKING TOOL		Potential Severity - Average Case Expectation				Increasing Probability					
		50%	20%	15%	15%	10	8	6	4	2	
		Score	People - Public, Customers / Employee	Environment	Assets - Physical and Financial	Reputation	Happened more than 3 times in the company	Happened 2 or 3 times in the company	Happened in the company	Known in the Energy Industry	Unknown but possible in the Energy Industry
		10	Multiple fatality	Direct Immediate Impact	Extensive Damage (>\$5M)	National Impact					
		8	Multiple fatality	No Immediate Impact; Containment Difficult	Major Damage (>\$1M)	Industry Impact					
		6	Single fatality	Impact; Containment Sizeable but	Local Damage (<\$1M)	State Impact					
		4	Serious Injury	Impact; Containment Possible	Minor Damage (<\$250k)	Divisional Impact					
		2	Minor Injury	Immediately Contained	Slight Damage (<\$50k)	Local Impact					
RISK INPUT SECTION BELOW											
Risk Description	SMS Category	Owner	Ratings for Potential Severity				Total Severity-Calculated	Probability Rating	Risk Score-Calculated		
Ansonia feeder, hit line, concern about a compression coupling blowing off...identifying shut down points, needed to get engineering to identify shut down points, ensure division has an up-to-date isolation plan. Where do we need to send regulator techs to shut the system down for a leak or blowing gas (car accident). For every hit line that comes in, it would be helpful if a engineer would identify the squeeze points or the critical valves to be operated to shut the line down, this will facilitate us obtaining a quicker "made safe time"...95% of the time, this may not be needed by the field, but the times it is needed will be priceless.	Emergency Preparedness & Response	C Tebbe	2	6	4	6	3.7	8	29.6		



## Appendix A – Pipeline Safety Management System Risk Cycle Example

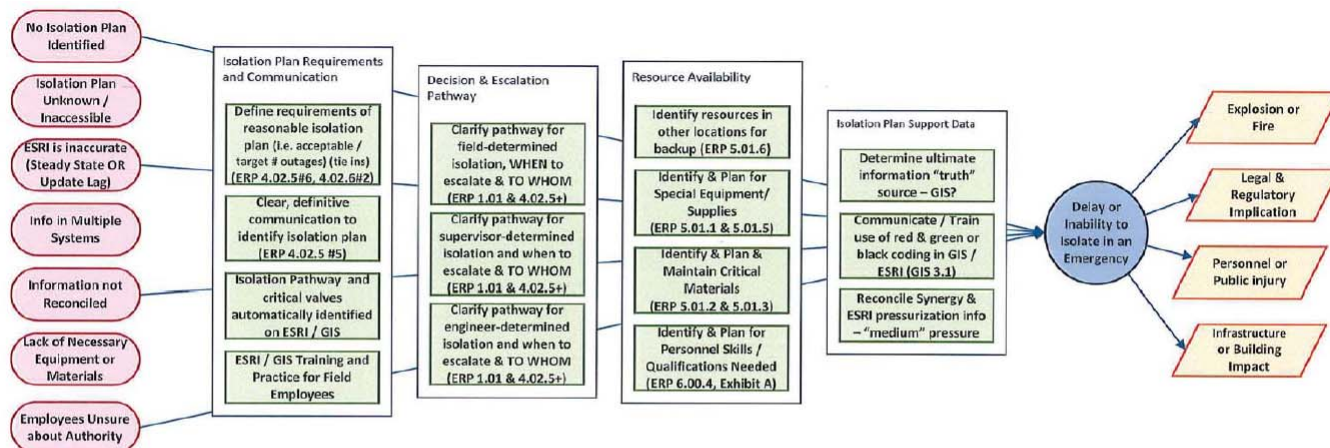
Appendix A details the steps in the pipeline safety management system risk cycle and shows practical application by showing the results from an example risk through each phase of the cycle.

Figure 2: Risk Scoring Example

G	H	I	J	K	L	M	N	P	R
Risk Description	P Severity	E Severity	A Severity	R Severity	Calc Severity	Proa bility	Calc Risk Score	Risk Score	2016 Std D
Ansonia feeder, hit line, concern about a compression coupling blowing off...identifying shut down points, needed to get engineering to identify shut down points, ensure division has an up-to-date isolation plan. Where do we need to send regulator techs to shut the system down for a leak or blowing gas (car accident). For every hit line that comes in, it would be helpful if an engineer would identify the squeeze points or the critical valves to be operated to shut the line down, this will facilitate us obtaining a quicker "made safe time"...95% of the time, this may not be needed by the field, but the times it is needed will be priceless.	2	6	4	6	3.7	8	29.6	42.29	2.94

- Then, QA and the risk owner create a list of follow-up tasks. These tasks either strengthen an established mitigation or create a new one. QA monitors the risk owner's progress on completing the tasks.

Figure 3: Bow Tie Risk Analysis Example



Authorized By / Date: *Jeffery A. Cohen* 02.02.2017  
Reviewed By / Date: *Nancy E. Corder* 2/2/2017

BTA025 - Isolation

- Annually, the risk items assigned for mitigation are reviewed by QA and the risk owner to evaluate the effectiveness of the mitigating measures and adjust the risk score based on their performance.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**8/3/2017 2:45:19 PM**

**in**

**Case No(s). 15-1741-GA-AAM**

Summary: Correspondence Regarding 2017 Annual Report electronically filed by Ms. Rebekah J. Glover on behalf of Vectren Energy Delivery of Ohio, Inc.