Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines

Draft Environmental Assessment

Docket No. PHMSA-2011-0023

March 21, 2016

Prepared for:
Office of Pipeline Safety
Pipeline and Hazardous Materials Safety Administration

Prepared by:
John A. Volpe National Transportation Systems Center
Office of the Assistant Secretary for Research and Technology
TABLE OF CONTENTS

TABLE OF CONTENTS .............................................................................................................................. I
LIST OF ACRONYMS................................................................................................................................... II

1.0 SCOPE OF ANALYSIS .......................................................................................................................... 1

2.0 PURPOSE OF AND NEED FOR ACTION ............................................................................................. 1
  2.1 INTRODUCTION ................................................................................................................................... 1
  2.2 BACKGROUND .................................................................................................................................... 1
  2.3 PURPOSE AND NEED .......................................................................................................................... 4

3.0 PROPOSED ACTION AND ALTERNATIVES ....................................................................................... 5
  3.1 OVERVIEW OF ALTERNATIVES .......................................................................................................... 5
  3.2 NO ACTION ALTERNATIVE .............................................................................................................. 6
  3.3 PROPOSED ACTION ............................................................................................................................. 6
    3.3.1 Integrity Management (IM) Program Process Clarifications ..................................................... 6
    3.3.2 Integrity Assessment and Remediation: Segments Outside HCAs .............................................. 7
    3.3.3 Management of Change Implementation ...................................................................................... 7
    3.3.4 Expansion of Corrosion Control .................................................................................................. 7
    3.3.5 Pipeline Inspection Following Extreme Events ......................................................................... 8
    3.3.6 MAOP Exceedance Reports and Records Verification .............................................................. 8
    3.3.7 Launcher/Receiver Pressure Relief ............................................................................................. 8
    3.3.8 Repeal of the Reporting Exemption for Certain Gas Gathering Lines ..................................... 9
    3.3.9 Revise the Current Definition for Gas Gathering Line ............................................................... 9
    3.3.10 Create a New Category of Regulated Onshore Gathering Lines Subject to Safety Regulation... 10
  3.4 OTHER ALTERNATIVES CONSIDERED BUT DISMISSED ..............................................................11

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES ..................................13
  4.1 AFFECTED ENVIRONMENT ................................................................................................................13
  4.2 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES ....................................................14
    4.2.1 Proposed Action Alternative ..................................................................................................... 14
    4.2.2 Summary of Environmental Consequences of the Proposed Action ...................................... 18
    4.2.3 No Action Alternative .............................................................................................................. 19

5.0 LIST OF PREPARERS AND REVIEWERS .........................................................................................19

6.0 DECISION ABOUT THE DEGREE OF ENVIRONMENTAL IMPACT ...........................................19
# LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>DOT</td>
<td>United States Department of Transportation</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental assessment</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental impact statement</td>
</tr>
<tr>
<td>FONSI</td>
<td>Finding of no significant impact</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act of 1969</td>
</tr>
<tr>
<td>NTSB</td>
<td>National Transportation Safety Board</td>
</tr>
<tr>
<td>PHMSA</td>
<td>Pipeline and Hazardous Materials Safety Administration</td>
</tr>
<tr>
<td>PIR</td>
<td>Potential impact radius</td>
</tr>
<tr>
<td>RIA</td>
<td>Regulatory impact analysis</td>
</tr>
<tr>
<td>SCC</td>
<td>Stress corrosion cracking</td>
</tr>
<tr>
<td>The Act</td>
<td>Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011</td>
</tr>
<tr>
<td>The proposed rule, the rule, Notice of proposed rulemaking (NPRM)</td>
<td>Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
</tbody>
</table>
1.0 SCOPE OF ANALYSIS

This draft Environmental Assessment (EA) analyzes the potential environmental consequences associated with adopting PHMSA’s, proposed rule “Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines” (hereafter referred to as the rule, NPRM, or the proposed rule). The proposed revisions in the NPRM will impact 49 CFR Parts 191 and 192 relative to gas transmission and gas gathering pipelines.

Section 2 of this EA provides background information and information regarding the purpose and need for the rule. Section 3 describes the alternatives considered. Section 4 discusses the potential environmental consequences resulting from the alternatives. Section 5 provides PHMSA’s preliminary finding regarding the rule’s environment impact. Section 6 identifies the document's preparers and reviewers, and the references consulted during the development of this document.

2.0 PURPOSE OF AND NEED FOR ACTION

2.1 INTRODUCTION

This draft EA is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA)\(^1\), as amended, and the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR Parts 1500-1508). When an agency anticipates that a proposed action will not have significant environmental effects, the CEQ regulations provide for the preparation of an EA to determine whether to prepare an environmental impact statement or finding of no significant impact (FONSI). If the EA indicates that the proposed action may have significant impacts to the natural or human environment, PHMSA must prepare an EIS. If the EA demonstrates that no significant impacts would occur as a result of the proposed action, then PHMSA may issue a FONSI. In accordance with the CEQ regulations, the EA must include brief discussions of the need for the proposal, alternatives, the environmental impacts of the proposed action and alternatives, and a listing agencies and persons consulted.

2.2 BACKGROUND

Under the Federal Pipeline Safety Laws, 49 U.S.C. 60101 et seq., the Secretary of Transportation must prescribe minimum safety standards for pipeline transportation and for pipeline facilities. The Secretary has delegated this authority to the PHMSA Administrator (49 CFR 1.97(a)).

\(^1\) 42 U.S.C 4321 et seq.
Therefore, PHMSA is the federal safety agency responsible for ensuring the safe, reliable, and environmentally sound operations of our nation's pipeline transportation system. The rules governing pipeline safety are included in the Federal Pipeline Safety Regulations (PSR) in Title 49 of the Code of Federal Regulations (CFR), Parts 190-199. The PSR dictate design, construction, inspection, testing, operation, and maintenance of pipeline facilities.

PHMSA is proposing changes to 49 CFR Parts 191 and 192. Part 191 describes requirements on operators of gas pipelines (including gas gathering, transmission, and distribution systems) for reporting of incidents, safety-related conditions, and annual summary data. Part 192 prescribes a wide variety of minimum safety requirements for gas gathering, transmission, and distribution lines. In the NPRM, PHMSA proposes changes to certain requirements relative to gas transmission and gathering pipelines. First, the rule would revise existing regulations for gas transmission pipelines currently regulated by PHMSA. A transmission line is a pipeline used to transport natural gas from a gathering, processing or storage facility to a processing or storage facility, large volume customer, or distribution system. Second, the rule would regulate approximately 356,000 miles of previously unregulated gathering pipelines. Gathering lines are pipelines that transport oil or natural gas from the source to a transmission line. PHMSA currently regulates approximately 4 percent of onshore gas gathering pipelines, and the proposed rule would result in regulating all onshore gas gathering pipelines.

On August 25, 2011, PHMSA published an Advance Notice of Proposed Rulemaking (ANPRM) seeking public comment on a number of questions regarding gas transmission pipelines. The questions presented in the ANPRM included whether PHMSA should change integrity management (IM) requirements, revise the definition of a high-consequence area (HCA), and place additional restrictions on the use of specific pipeline assessment methods. With respect to non-IM requirements, the proposed changes in the ANPRM included whether revised requirements are needed on new construction or existing pipelines concerning mainline valves; whether PHMSA should strengthen requirements for corrosion control of steel pipelines and whether new regulations are needed to govern the safety of gathering lines and underground gas storage facilities. PHMSA received a total of 1,463 comments; 1,080 from industry sources (trade associations/unions, pipeline operators and consultants); 316 comments from the public (environmental groups, government agencies/municipalities, the National Association of Pipeline Safety Representatives and individual members of the general

---

2 The ANPRM may be viewed at http://www.regulations.gov/#!docketDetail;D=PHMSA-2011-0023.
In the NPRM, PHMSA proposes changes to certain requirements relative to gas transmission and gathering pipelines. Some of the changes will apply to the integrity management (IM) requirements for certain gas transmission pipelines. IM specifies how pipeline operators must identify, prioritize, assess, evaluate, repair and validate the integrity of gas transmission pipelines that could, in the event of a leak or failure, affect High Consequence Areas (HCAs) within the United States. HCAs include certain populated and occupied areas. The proposed amendments to IM include: revision of IM repair criteria for pipeline segments located in high consequence areas (HCAs); adding specificity to performance-based requirements related to the nature and application of risk models; improving requirements for collecting, validating and integrating pipeline data; strengthening requirements for applying knowledge gained through the IM program; strengthening requirements on the selection and use of direct assessment methods; enhancing requirements for internal corrosion and external corrosion management programs; and enhancing requirements for management of change.

This NPRM also proposes changes with respect to non-IM requirements, including: strengthened requirements for corrosion control of steel pipelines, including improving the specificity of existing requirements; additional requirements for management of change; mandatory integrity assessments; establishing repair criteria for pipeline segments located in segments not located in HCAs; and requirements for verification of maximum allowable operating pressure (MAOP) and for verification of pipeline material for certain onshore, steel, gas transmission pipelines.

PHMSA also proposes modifying the regulation of onshore gas gathering lines, including repealing the exemption for gas gathering line reporting requirements, repealing the use of American Petroleum Institute’s Recommended Practice 80, which is currently incorporated by reference for determining regulated onshore gathering lines, and extending regulatory requirements to Type A lines in Class 1 locations for lines eight inches or greater.

The NPRM also proposes requirements for several additional topics including: requiring inspections by onshore pipeline operators of areas affected by an extreme weather event such as a hurricane or flood, an earthquake, a natural disaster, or other similar event; allowing extension of the seven-year reassessment interval upon written notice; adding a requirement to report each exceedance of the MAOP that exceeds the build-up allowed for operation of pressure-limiting or control devices; adding requirements to ensure consideration of seismicity of the area in identifying and evaluating all potential threats; adding safety regulations related to launchers and receivers which are used for in-line
tools and incorporating consensus standards into the regulations for assessing the physical condition of in-service pipelines.

These proposed changes, which include some additional topics that have arisen since issuance of the ANPRM, are the subject of this EA. They are listed in Section 1.0 of this EA and described in more detail in Section 3 of this EA.

2.3 PURPOSE AND NEED

The purpose of the proposed rule is to significantly increase the safe operation of gas pipelines. First, PHMSA proposes to provide additional protections for any pipe segment where persons are expected to be inside the pipeline potential impact radius (PIR). The PIR, as defined in § 192.903, is the radius of a circle within which the potential failure of a pipeline could have significant impact on people or property.

The remaining proposals in the NPRM are in response to statutory mandates from the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (Public Law 112-90 (Act)), recommendations from the National Transportation Safety Board (NTSB), and one recommendation from the Government Accountability Office (GAO) as listed:

- Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011
  - Section 5(e) – Allow periodic reassessments to be extended for an additional six months if the operator submits sufficient justification.
  - Section 5(f) – Expand integrity management system requirements, or elements thereof, beyond high-consequence areas.
  - Section 21 – Regulation of gas (and hazardous liquid) gathering lines
  - Section 23 – Testing regulations to confirm the material strength of previously untested natural gas transmission pipelines
  - Section 29 – Consider seismicity when evaluating pipeline threats

- NTSB Recommendations (http://phmsa.dot.gov/pipeline/regs/ntsb/open)
  - P-11-14 – Recommendation to PHMSA to amend 49 CFR 192.619(c) to repeal exemptions for older pipe and require that all gas transmission pipelines constructed before 1970 be subjected to a hydrostatic pressure test that incorporates a spike test. A spike test is a type of hydrostatic pressure test that utilizes a higher pressure over shorter period of time than a standard hydrostatic pressure test.
  - P-11-15 – Recommendation to PHMSA to amend 49 CFR Part 192 so that manufacturing- and construction-related defects can only be considered stable if a gas pipeline has been subjected to a post-construction hydrostatic pressure test of at least 1.25 times the MAOP.
  - P-11-17 – Recommendation to PHMSA to require all natural gas transmission pipelines be configured to accommodate in-line inspection tools, with priority given to older pipelines.
P-11-19 – Recommendation to PHMSA to develop and implement standards for integrity management and other performance-based safety programs that require operators to regularly assess the effectiveness of their programs.

P-12-3 – Recommendation to PHMSA to revise 49 CFR 195.452 to address engineering assessment, assessment methods, excavation criteria, pressure restriction limits, and acceptable methods for determining crack growth for crack defects in steel pipe.

P-14-1 – Recommendation to PHMSA to revise 49 CFR 192.903, Subpart O, to add principal arterial roadways to the list of “identified sites” that establish a high consequence area.

Government Accountability Office Report

- GAO-14-667, Department of Transportation Is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety, August 2014.

3.0 PROPOSED ACTION AND ALTERNATIVES

3.1 OVERVIEW OF ALTERNATIVES

PHMSA considered two alternatives for each topic in the proposed rule: the no action alternative and the proposed action, a set of revisions to the Federal Pipeline Safety Regulations. These alternatives are described in Sections 3.2 and 3.3, respectively. Other alternatives are discussed in Section 3.4.

Under the no action alternative, PHMSA would not incorporate proposed amendments and changes to revise the Federal Pipeline Safety Regulations. The CEQ regulations for implementing NEPA require the analysis of a no action alternative, as the no action alternative is used to define existing conditions of the natural and human-made environments, and works as a baseline when analyzing environmental impacts of the proposed action and other alternatives, if there are any.

Under the proposed action, PHMSA would address Sections 23 of the Act, clarify integrity management processes and address integrity assessment for pipelines outside HCAs. In addition, this action would address NTSB recommendations through expansion of corrosion control and inspection of pipelines after extreme events. This action would also change the MAOP exceedance reports and records verification and make changes to launcher/receiver pressure relief. In order to address developments
within the industry, the proposed action would also address changes in gas gathering lines described in section 2.1.

For some of the topics in the rule, PHMSA considered other alternatives but eliminated them from detailed analysis. These alternatives are discussed in Section 3.4.

3.2 NO ACTION ALTERNATIVE

Under this alternative, PHMSA would not modify or amend the Federal Pipeline Safety Regulations. Pipeline operators would continue to be governed by the requirements of the existing Federal Pipeline Safety Regulations that govern materials, design, components, welding and joining, construction requirements, meters and regulators, corrosion control, test requirements, uprating, operations, maintenance, personnel qualification, and integrity management, but would not be subject to the new requirements of this proposed rulemaking change.

3.3 PROPOSED ACTION

PHMSA’s proposed action is a set of amendments and editorial changes to the Federal Pipeline Safety Regulations, which are summarized in the sections below. A more detailed description of these changes can be found in the NPRM. The changes described below in Sections 3.3.1 through 3.3.7 would apply to gas transmission pipelines, and Section 3.3.8 describes proposed changes that would apply to gas gathering pipelines.

3.3.1 Integrity Management (IM) Program Process Clarifications

Subpart O of 49 CFR Part 192 prescribes requirements for managing pipeline integrity in defined HCAs. It requires that integrity management programs for covered pipeline segments identify potential threats to pipeline integrity and use the threat identification in the integrity programs. Included within this performance-based process are requirements to collect data for analysis, and perform a risk assessment.

This action would clarify IM program process requirements in the following areas: management of change, threat identification, risk assessments, baseline assessments and notifications for reassessment of interval extensions. In addition it would clarify (and in limited cases, revise) repair criteria for remediating defects discovered in HCA segments and would require notification to PHMSA within 180 days of completing an assessment, if the operator cannot obtain sufficient information to determine if a condition presents a potential threat to the integrity of the pipeline.
3.3.2 Integrity Assessment and Remediation: Segments Outside HCAs

PHMSA proposes to require initial and periodic integrity assessment and remediation for pipeline segments outside of HCAs; no such requirements currently exist for such segments. This rule would add these requirements for the 93 percent or 280,000 miles of onshore gas transmission pipelines that are located in non-HCAs. Data analysis requirements, assessment methods and repair criteria would be the same as for segments that are located within HCAs. Repair criteria for two-year conditions in non-HCAs would be the same as the one-year condition for HCAs.

3.3.3 Management of Change Implementation

PHMSA proposes to require operators to evaluate and mitigate risks during all phases of the useful life of a pipeline as an integral part of managing pipeline design, construction, operation, maintenance and integrity. Under this change, each operator would be required to develop and follow a management of change process that address technical, design, physical, environmental, procedural, operational, maintenance, and organizational changes to the pipeline or processes, whether permanent or temporary.

3.3.4 Expansion of Corrosion Control

The PSR currently do not include requirements related to stress corrosion cracking (SCC), which is cracking induced from the combined influence of tensile stress and a corrosive medium. SCC has caused numerous pipeline failures on hazardous liquids pipelines, including a 2003 failure on a Kinder Morgan pipeline in Arizona, a 2004 failure on an Explorer Pipeline Company pipeline in Oklahoma, a 2005 failure on an Enterprise Products Operating line in Missouri, and a 2008 failure on an Oneok NGL Pipeline in Iowa. Therefore, PHMSA has determined that additional requirements are needed in 49 CFR Part 192 Subpart I to enhance and improve internal and external corrosion control programs and reduce the threats from SCC. PHMSA has also determined that additional preventive and mitigation measures are needed in § 192.935(f) and (g) to ensure that public safety is enhanced in HCAs through greater protection from the time-dependent threats of internal and external corrosion.

PHMSA proposes to require operators to expand their corrosion control program in HCAs. Specifically, operators would be required to expand corrosion control requirements in the following areas: pipe coating assessments, remedial actions for external corrosion mitigation deficiencies, close interval surveys, interference current remedial actions, gas stream monitoring program, and preventive and mitigation measures for internal and external corrosion control.
3.3.5 Pipeline Inspection Following Extreme Events

Currently, 49 CFR 192.613 prescribes general requirements for continuing surveillance of a pipeline to determine and take appropriate actions needed due to changes in the pipeline from, among other things, unusual operating and maintenance conditions.

PHMSA has determined that additional requirements are needed to ensure that operator procedures adequately address inspection of the pipeline and right-of-way for “other factors affecting safety and operation” following extreme weather events, man-made and natural disasters, and other similar events. Such inspections would apply to both onshore and offshore pipelines and their rights-of-way. The proposed rule amends 49 CFR 192.613(a) accordingly, requiring these additional inspections and specifying the timeframe in which such inspections must be performed and the appropriate remedial actions that must be taken to ensure safe pipeline operations. This would ensure pipelines are still capable of being safely operated after these events and what mitigation or corrective actions might be required to ensure continued safe operation.

3.3.6 MAOP Exceedance Reports and Records Verification

Section 23 of the Act requires that operators report each exceedance of the maximum allowable operating pressure (MAOP) that exceeds the build-up allowed for operation of pressure-limiting or control devices. The proposed rule would codify this statutory requirement by requiring the reporting of MAOP exceedances along with the development of operational and maintenance procedures to assure MAOP are not exceeded by the amount needed for overpressure protection. This change would also include the verification of MAOP-related records.

3.3.7 Launcher/Receiver Pressure Relief

A “pig” is a generic term signifying any independent, self-contained device, tool, or vehicle that is inserted into and moves through the interior of a pipeline for inspecting, dimensioning, or cleaning. These tools are commonly referred to as “pigs” because of the occasional squealing noises that can be heard as they travel through the pipe. “Pigs” are also referred by a variety of other names based on their use. These names and their use include; scrapers (used to clean pipe), spheres (remove/add water for hydro testing); and smart pigs (inline inspections). A “pig” can be inserted into a pipeline through a launcher/receiver and, usually, is pushed through the line by the pressure of the material being transported. Based on inspections and reports, it has come to PHMSA’s attention that individuals have been injured, some fatally, while removing ILI tools and or devices from the launcher/receiver that were still under pressure. Therefore, PHMSA has determined that more explicit requirements are needed for safety when performing maintenance activities that involve the launchers/receivers. Current regulations for hazardous

March 2016
liquid pipelines (49 CFR Part 195) have, since 1981, contained such safety
requirements for scraper and sphere facilities (49 CFR 195.426). However, current
regulations for gas pipelines (49 CFR Part 192) do not similarly require controls or
instrumentation to protect against inadvertent breach of system integrity due to
incorrect operation of launchers and receivers for inline inspection tools, scraper, and
sphere facilities.

PHMSA proposes in the NPRM to require any launcher or receiver for inline tools be
equipped with a device capable of safely relieving pressure in the barrel before
removal or opening of the launcher or receiver barrel closure or flange and insertion
or removal of inline inspection tools, scrapers, or spheres. PHMSA also proposes to
require the use of a suitable device to indicate that pressure has been relieved in the
barrel, or provide a means to prevent opening of the barrel closure or flange, or
prevent insertion or removal of inline inspection tools, scrapers, or spheres, if
pressure has not been relieved.

3.3.8 Repeal of the Reporting Exemption for Certain Gas Gathering Lines

In Section 21 of the 2011 Act, Congress required that PHMSA review its regulations for
gathering lines in an effort to determine their sufficiency. In responding to the mandate,
PHMSA determined that the collection of additional information about gathering lines is
necessary to study the effectiveness of safety practices on these pipelines. Under current
requirements, a large portion of onshore gas gathering pipelines are exempt from
reporting. Accordingly, the proposed rule would repeal the exemption for reporting
requirements for operators of unregulated onshore gas gathering lines by deleting
§ 191.1(b)(4), adding a new § 191.1(c), and making other conforming editorial
amendments. This change would repeal the exemption for certain gas gathering lines for
the immediate notice and reporting of incidents, safety-related conditions, and annual
pipeline summary data and reporting into PHMSA’s National Registry of Pipeline
Operators.

3.3.9 Revise the Current Definition for Gas Gathering Line

Inspection and enforcement of the current regulatory requirements for regulated gas
gathering lines has been hampered by the conflicting and ambiguous language of
API Recommended Practice (RP) 80, a complex recommended practice that can
produce multiple classifications for the same gathering pipeline system. PHMSA
has determined that API RP 80 does not provide sufficient clarity regarding the
identification of gas gathering lines for the purpose of determining applicability
under 49 CFR Parts 191 or 192. Additionally, and as recognized by multiple
commenters to the ANPRM, PHMSA has identified a regulatory gap that permits the
inadvertent misapplication or, in severe cases, the potential abuse, of the gathering
line designation under that recommended practice.
The proposed rulemaking action would repeal the use of API RP 80 as the basis for identifying regulated onshore gas gathering lines and would establish new definitions for “onshore production facility or onshore production operation,” “gas processing plant,” and “gas treatment facility,” along with a revised definition for “gathering line” as the basis for determining the beginning and endpoints of each onshore gas gathering line. Neither the new PHMSA definitions related to gathering lines nor the gathering line category descriptions established in this proposed rule make reference to API RP 80.

3.3.10 Create a New Category of Regulated Onshore Gathering Lines Subject to Safety Regulation

The nature of the nation’s onshore gas gathering infrastructure has changed drastically over the past several years with the extensive resurgence of oil and gas production within the United States due to technological breakthroughs in extraction techniques. Most recently, the continuing development of shale deposits and similar tight gas production is altering not just the extent, but also the nature of the nation’s gas gathering systems. New fields are being developed in new geographic areas, significantly extending the reach of gas gathering lines. Of potentially more impact, changes are occurring in the way that these new fields are being developed. These changes are resulting in gathering lines that are larger in diameter or higher in operating pressure, or both, oftentimes transporting higher throughputs of gas than has been the case in more traditionally developed fields. Gathering lines are being constructed to transport shale and tight gas that are as large as 36 inches in diameter and with maximum operating pressures of up to 1,480 pounds per square inch (psig), far exceeding the historical design and operating parameters of gathering lines. Further changes and infrastructure growth are expected to continue into the foreseeable future, not simply due to continued application of these new technologies, but also because of continued innovations. Based on these factors, PHMSA has taken a renewed look at its regulatory approach as it relates to gas gathering pipelines in order to ensure that risks are being addressed appropriately. PHMSA recognizes that the existing framework for regulating onshore gas gathering lines may no longer be adequate.

This proposed rulemaking action would expand the amount of onshore gas gathering pipelines that would be subject to PHMSA regulation. PHMSA proposes the following:

i. Revise the definition of Type A regulated gas gathering pipelines (to be referred to as Type A, Area 1) to include Class 1 pipelines operating at greater than or equal to 20 percent specified minimum yield strength (SMYS) and that are greater than or equal to 8 inches diameter, and
ii. Establish two new categories of regulated gas gathering pipelines:
   a. Type A, Area 2, which would include Class 1 pipelines operating at greater than or equal to 20 percent SMYS but that are less than 8 inches diameter;
   b. Type B, Area 3, which would include Class 1 pipelines operating at less than 20 percent SMYS and Class 2 pipelines operating at less than 20 percent SMYS that are not currently regulated under the current definition of Type B, Area 2.

Approximately 356,000 miles of gathering lines that were previously not subject to these reporting requirements will now become subject to either some or all of the reporting requirements. The new Type A, Area 2 lines that will become subject to selected safety provisions of PHMSA’s regulations will also become subject to all of the reporting provisions. All of the remaining gathering lines that are not subject to PHMSA’s safety provisions, however, will become subject to a lesser set of carefully selected reporting provisions in order to provide PHMSA with the data it needs to properly monitor and evaluate the risks and safety performance of these remaining gathering lines.

3.4 OTHER ALTERNATIVES CONSIDERED BUT DISMISSED

For some of the topics addressed in the rule, PHMSA considered alternatives other than the proposed action and the no action alternative. PHMSA considered three types of alternatives for various topics in the rule: extending compliance deadlines, partial and/or full implementation, and technical alternatives.

Extending compliance deadlines:

For several topics in the rule, PHMSA considered extending the deadline for compliance from what is proposed in the rule. However, since the proposed compliance deadlines have long lead times (up to 25 years), extending those deadlines would delay achieving PHMSA’s goals and needlessly render the rule ineffective during the period when compliance is delayed. In particular, delaying the requirements for integrity assessment and remediation outside HCAs would reduce the likelihood of discovering and remediating integrity threats before they can grow large enough to result in a loss of pipeline integrity, and delaying the requirements for launcher and receiver safety features would needlessly expose workers to routine safety risk that should be avoided. As a result, PHMSA eliminated these alternatives from further consideration because they significantly delay achieving the purpose and need of improving the safety and protection of pipeline workers, the public, property, and the environment.

Partial and/or full implementation

PHMSA considered partial and/or full implementation of the rule for two topics: integrity assessments and the regulation of gas gathering lines as detailed below:
Assessment Alternatives

Since the cost of the rule is highly correlated to the pipeline mileage that would be required to have an integrity assessment, PHMSA evaluated:

- two alternative moderate consequence area (MCA) definitions, which would reduce the estimated mileages.
- expanding HCAs instead of creating a new MCA, and
- applying the MCA requirements to all non-HCA pipe.

Under the first alternative MCA definition, PHMSA considered a more limited definition of MCAs using criteria of five buildings intended for human occupancy or five persons/occupied site. PHMSA did not select this alternative because this alternative would leave an estimated 11,000 miles of pipe that contained residences or occupied sites inside the PIR without the additional protections afforded other segments with only marginally less potential consequences.

Under the second alternative MCA definition, PHMSA considered restricting the application of MCA requirements to pipe segments that are greater than or equal to eight inches in diameter. PHMSA believes that exempting MCA pipe less than eight inches in non-HCA Class 1 or non-HCA Class 2 would result in minimal mileage reduction to the scope of the rule, because such small pipe has a very small PIR. In addition, the statutory mandate to verify MAOP for any pipe in HCA/Class 3/Class 4 locations would still apply to the smaller pipe sizes. Thus, pipe segments less than eight inches in diameter in those locations that meet the integrity verification process criteria would still require an integrity assessment. Because of this, PHMSA estimated that the scope of pipelines that would require an integrity assessment would be lessened by only about 4 percent. Similar to alternative 1, this alternative would not achieve the policy objective because some pipe that contained residences or occupied sites within its PIR (even though the PIR is small) would not have the additional protections afforded other segments. For the above reasons, PHMSA did not pursue this alternative.

PHMSA considered expanding the scope of High Consequence Areas (HCAs) instead of creating Moderate Consequence Areas. Such an approach was contemplated in the 2011 ANPRM, and PHMSA received a number of comments on this approach. PHMSA concluded that this approach would be counter to a graded approach based on risk (i.e., risk based gradation of requirements to apply progressively more protection for progressively greater consequence locations). By simply expanding HCAs, PHMSA would be simply lowering the threshold for what is considered “high consequence.”
PHMSA also considered expanding the proposed requirements such that they would apply to all non-HCA gas transmission pipelines, but this was rejected because it would dilute the impact of operator’s maintenance budgets by requiring assessments on segments deemed to be in “low consequence” locations (i.e., segments without any structure intended for human occupancy or occupied site inside the PIR).

**Gathering Line Alternatives**

For expansion of regulated gas gathering lines, the second most costly portion of the proposed rule, PHMSA also considered applying some safety regulations to all currently unregulated gas gathering lines instead of restricting the new regulations to a subset of lines. This alternative would have applied risk-based rationale to apply selected regulations to pipelines based on a graded approach to address risks appropriate for each category of pipeline. Under this alternative, a very large amount of mileage, 195,000 (over 25 times more than currently regulated) would have substantial incremental compliance costs. Therefore, PHMSA eliminated this alternative.

PHMSA also considered requiring partial reporting of data by operators of unregulated onshore gas gathering pipelines. However, Section 21 of the Act requires that PHMSA provide a report to Congress on regulation of gathering lines, and this information is needed to fulfill that statutory mandate. Without reported data on a level comparable to other regulated pipelines, PHMSA would not be able to adequately oversee this new population of regulated pipelines or be responsive to the Congressional mandate. Therefore, PHMSA eliminated this alternative from further consideration because if the rule only required partial reporting by unregulated onshore gas gathering lines, it would not fulfill the statutory mandate of the Act.

**Technical Alternatives**

PHMSA considered various technical alternatives to those proposed in the rule for improving corrosion control, but found that the alternatives would be more expensive to implement without providing any expected appreciable benefit (RIA, Sec 3.4.5.2).

**4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

**4.1 AFFECTED ENVIRONMENT**

The gas pipeline infrastructure in the United States is a network of over 2.6 million miles of pipelines (http://opsweb.phmsa.dot.gov/pipelineforum/facts-and-stats/incidents-and-mileage-report/). These pipelines exist in a variety of diverse environments, including offshore locations, highly populated urban sites, and unpopulated rural areas. Therefore,
the potentially affected environment would be the land area and waterways in the United States where pipelines are located.

4.2 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

This section identifies the environmental effects of each alternative. These effects include impacts to human health and the physical environment. The physical environment includes:

- Air quality and climate
- Soils, topography and geology
- Water resources (floodplains, wetlands and water bodies)
- Historical and archeological resources
- Wildlife
- Farmland

4.2.1 Proposed Action Alternative

This section identifies the environmental effects of each component of the proposed rulemaking, including potential impacts to human health and to the physical environment, as defined in Section 4.2. Many of the changes included in the proposed rule build on existing prudent pipeline practices and others propose entirely new practices. Either way, the proposed rule would require these practices.

The proposed rule would impose testing or inspections that could identify conditions in existing pipelines that require preventative maintenance activities. These maintenance activities that occur in response to testing or inspection results, could lead to more excavations. While pipeline operators typically adhere to certain practices to minimize or mitigate environmental damage during excavation, these activities result in ground disturbance that has the potential to cause sedimentation into adjacent wetlands and waterways. This could reduce water quality and diminish aquatic habitat. In addition, disturbance to vegetation could reduce available wildlife habitat for terrestrial species. Excavation could also disturb historical and archaeological resources and farmland, if any of these resources are present. However, impacts associated with these excavations are expected to be localized to the area immediately adjacent to the work area and temporary in duration. The size of these excavations would be contained within the existing right-

---

3 Many state and local governments have laws and ordinances in place that apply to excavations aimed at reducing sedimentation. See for example, Virginia Erosion and Sediment Control Regulations (VESCR) VA Code Ann. § 62.1-44.15:57 and Pennsylvania Erosion and Sediment Control Regulations, 25 PA Code 86. Depending on the location and the resources impacted, The Clean Water Act (CWA) also prohibits contamination of water bodies from sedimentation. (CWA §§402404; 33 USCA §§ 1342)
of-way. While such excavations would individually have minor localized environmental impacts, they would also decrease the likelihood of pipeline failures that could result in catastrophic damage to human health and the environment. Therefore, it is expected that in such cases, the proposed rule would have a negligible adverse effect on the physical environment and would provide overall increased protection to human health and the physical environment in the form of prevention.

To the extent that the proposed rule would affect pipelines that exist in areas with minority and low-income populations, the regulatory amendments would have the same effect regardless of the geographic location of the pipelines. Because PHMSA believes that these regulatory amendments would increase pipeline safety across systems, we believe any impact to areas where environmental justice concerns exist will be positive, and impacts would be the same as those in areas where environmental justice is not a concern. Therefore, consistent with Executive Order 12898 and DOT Order 5610.2(a), Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, PHMSA does not anticipate that the proposed rule would result in disproportionately high and adverse effects on minority or low-income populations.

Analysis conducted for the RIA shows that the proposed rule may result in fewer accidents or incidents, which could lead to a reduction in gas released into the atmosphere as greenhouse gases (GHG). The proposed changes to gas transmission lines are estimated to prevent the release of up to 1,337 metric tons of carbon dioxide (CO₂) and 35,663 metric tons of methane per year (or 750,260 metric tons of CO₂ equivalent). The proposed changes to gas gathering lines are estimated to prevent the release of up to 491 metric tons of carbon dioxide and 5,337 metric tons of methane per year (112,568 metric tons of CO₂ equivalent). Thus the proposed rule is expected to result in total annual reductions of 1,828 metric tons of carbon dioxide and 39,000 metric tons of methane (820,828 metric tons of CO₂ equivalent).  

In addition to reductions in GHG release, the proposed changes are expected to enhance the protection and safety of pipeline workers and the public. For example, changes related to integrity management process clarifications and improvements are expected to improve the safe operation and maintenance of gas transmission pipelines. Management of change aspects of the rule have the benefit of ensuring that all aspects of the pipeline management process appropriately assure safety and pipeline integrity. MAOP

4 The volume of CO₂ and methane released annually are from the RIA, Tables 4.1-5B and 4.2-7. The EPA Greenhouse Gas Calculator (http://www.epa.gov/cleanenergy/energy-resources/calculator.html) was used to calculate the CO₂ equivalency.
documentation and reporting is expected to reduce the likelihood of occurrence of
incidents due to excessive pressure conditions. Changes to launcher and receiver safety
features are expected to reduce the likelihood that pipeline workers would be injured by
high-pressure releases from launchers and receivers. Implementation of the gas
transmission portion of the proposed rule could potentially result in a reduction of
injuries and fatalities. Incorporation of these rule changes may result in an average
reduction of 0.114 fatalities and 0.722 injuries per year, or a total of approximately 2
fatalities and 11 injuries over a 15 year period. Implementation of the gas gathering
portion of the proposed rule could potentially result in a reduction of injuries and
fatalities; incorporation of these rule changes may result in an average reduction of 0.808
fatalities and 1.278 injuries per year, or approximately 12 fatalities and 19 injuries over a
15 year period. Thus implementation of all components of this rule would result in a
reduction of just under 1 fatality and 2 injuries per year, or 14 fatalities and 30 injuries in
a 15 year period.

In this section, environmental consequences of the proposed action alternative are
examined for each component of the proposed rulemaking, which are described in section
3.2. This section describes the potential impacts of each component on public health.

Integrity Management (IM) Program Process Clarifications: This change would
clarify and improve requirements in the IM program through validating and integrating
pipeline data and expanding threat management. In addition, updated risk models and
calculations would be provided and required to be utilized, further improving the IM
program. Through clarification and updates to the existing IM program, processes aimed
at identifying pipeline anomalies would be more accurately and effectively implemented
in turn reducing the potential for pipeline failure. This change may result in preventative
maintenance activities that could lead to more excavations, which individually have very
minor and localized environmental impacts. Therefore, this change is expected to have a
net benefit to human health and the physical environment.

Integrity Assessment and Remediation: This change would require integrity
assessment and remediation for segments outside HCA’s. This change may result in
preventative maintenance activities that could lead to more excavations, which
individually have very minor and localized environmental impacts. However, this
change is expected to identify more pipeline anomalies, in turn reducing pipeline failure
that could result in damage to human health and the environment. Therefore, this change
would result in a net benefit to human health and the environment.

Management of Change Implementation: This change would ensure accurate
information is readily available regarding repairs and maintenance activities. Through
this increased standard, a reduction in errors and omissions would reduce the potential for pipeline failure that could result in damage to human health and the environment. Therefore, it is expected that this component of the proposed rule would have a positive impact to human health and the physical environment.

**Expansion of Corrosion Control:** Improving existing corrosion control standards and requirements would reduce the potential for pipeline failure that could result in damage to human health and the environment and may also reduce the need to excavate in order to replace corroded pipes. Therefore, it is expected that this component of the proposed rule would result in a net benefit to human health and the physical environment.

**Pipeline Inspection Following Extreme Events:** Requiring pipeline inspections immediately following an extreme event would more readily identify pipeline damage that could result in impacts to human health and the environment. This change may result in maintenance activities that could lead to more excavations, which individually have very minor and localized environmental impacts. Therefore, it is expected that this component of the proposed rule would result in a net benefit to human health and the physical environment.

**MAOP Exceedance Reports and Records Verification:** This component of the rule would give operators and regulators a better understanding of MAOP exceedances that occur. PHMSA believes this would prevent potential pipeline failure by readily identifying operators with numerous MAOP exceedances. Therefore, it is expected that this component of the proposed rule would have a positive impact to human health and the physical environment.

**Launcher/Receiver Pressure Relief:** This component of the rule would ensure safety protocol is followed when testing pipelines for anomalies. These requirements would prevent a small release in gas and ensure operator safety from unexpected pressure releases during inspection operations. This would have a positive impact to human health and the environment.

**Repeal of the Reporting Exemption:** This change would repeal the current exemption for certain gas gathering lines from incident and safety related reporting. This would support the continuing evaluation of the effectiveness of safety practices and determine if additional requirements are needed. This is expected to improve overall safety within the pipeline industry which would have a positive impact to human health and the environment.
Revise the Current Definition for Gas Gathering Line: This change would clarify the existing definition of gas gathering lines. This would address a regulatory gap that permits the inadvertent misapplication or, in severe cases, the potential abuse, of the gathering line designation under current practice. This change may result in increased maintenance activities that could lead to more excavations, which individually have minor and localized environmental impacts. However, this change is expected to improve compliance, in turn reducing pipeline failure. Therefore it is expected that this will result in a net benefit to human health and the environment by reducing the potential for an incident.

Create a New Category of Regulated Onshore Gathering Lines: Creating a new category of Type A gathering lines for high risk lines not currently regulated would incorporate corrosion, damage prevention and other safety provisions in current regulations. Incorporation of these new requirements may result in preventative maintenance activities that could lead to more excavations, which individually have very minor and localized environmental impacts. However, this change is expected to identify more pipeline anomalies, in turn reducing the potential for pipeline failure that could result in damage to human health and the environment. Therefore, this change would result in a net benefit to human health and the environment.

4.2.2 Summary of Environmental Consequences of the Proposed Action

The proposed action alternative is not expected to result in adverse environmental impacts and may result in beneficial impacts. Some elements of the proposed rulemaking would impose testing or inspections that could identify conditions in existing pipelines that require preventative maintenance that involves excavations. Such excavations would individually have minor localized environmental impacts and would also decrease the likelihood of pipeline failures that could result in catastrophic damage to human health and the environment. Other components of the proposed rule would reduce the potential for pipeline failure through regulations that would clarify integrity management, improve safety protocols, expand corrosion control, and incorporate new onshore gas gathering requirements. This would decrease the likelihood of pipeline failures that could result in catastrophic damage to human health and the environment.

In summary the proposed rule would have a net positive impact to human health and the physical environment through a reduction in pipeline failures and increased safety to pipeline workers and the public.
4.2.3 No Action Alternative

There are not expected to be any environmental impacts to human health, the physical environment or environmental justice from the no action alternative, in which no regulatory changes would occur. However, if the no action alternative were selected, the changes aimed at increasing worker safety and reducing pipeline failure would not be implemented or achieved. Therefore, PHMSA believes that the no action alternative would be an inferior choice for environmental and human safety protection.

5.0 LIST OF PREPARERS AND REVIEWERS

This EA was prepared by the following DOT staff from PHMSA and Volpe National Transportation Systems Center (No other agency assisted in the development of this EA):

<table>
<thead>
<tr>
<th>Preparers</th>
<th>PHMSA Reviewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volpe Center</td>
<td>Preparer: Travis Mast, Biologist</td>
</tr>
<tr>
<td></td>
<td>Reviewer: Marla Engel, MRP, AICP, Environmental Protection Specialist</td>
</tr>
<tr>
<td></td>
<td>Reviewers: Amelia Samaras, PHMSA</td>
</tr>
<tr>
<td></td>
<td>Cameron Satterthwaite, PHMSA</td>
</tr>
</tbody>
</table>

6.0 DECISION ABOUT THE DEGREE OF ENVIRONMENTAL IMPACT

PHMSA has preliminarily determined that the selected alternative would not have a significant negative impact on the environment. In fact, PHMSA believes the proposed rule would have a positive impact on the environment. PHMSA welcomes comment on any of these conclusions. If it is determined that no significant impacts would occur as a result of the proposed action, then the determination will result in a Finding of No Significant Impact (FONSI).

References

