



## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

In reference to the notice of inquiry that was published July 30, 2014, in the Federal Register by the Pipeline and Hazardous Materials Safety Administration's Office of Pipeline Safety concerning a request for revision of a previously approved information collection for the National Pipeline Mapping System, Northern Natural Gas Company offers the following comments for your consideration based on our review and operating experience.

Northern Natural Gas Company is based in Omaha, Nebraska, and operates an interstate natural gas pipeline system extending from the Permian Basin in Texas to the upper Midwest. The system includes approximately 14,700 miles of natural gas pipeline with 5.5 billion cubic feet per day (Bcf/day) of market design storage capacity, plus 2.0 Bcf/day of field capacity. This system also has five natural gas storage facilities with a total firm and operational capacity of 73 Bcf, which includes 4 Bcf of liquefied natural gas and 47 compressor stations with a total of 620,630 horsepower. Northern Natural Gas provides transportation and storage services to approximately 81 utilities and numerous end-use customers in Minnesota, Iowa, Nebraska, South Dakota, Wisconsin, Illinois and the Upper Peninsula of Michigan.

Northern Natural Gas supports efforts to increase pipeline safety; therefore, we are providing technically based responses to the proposed revision to the information submittal requirements to the National Pipeline Mapping System. Northern Natural Gas believes the existing National Pipeline Mapping System has provided and continues to provide means for a member of the public to contact pipeline operators for additional information about the pipeline facilities that they operate and has improved both state and local official response capabilities. Northern Natural Gas believes the inclusion of additional attributes as proposed, the stringent position accuracy requirements and the associated maintenance of this data would be burdensome for operators and regulators and not add information of significant value to the public or to state and local emergency response planning. The additional information requested is a highly detailed duplicate of the information collection provided in the annual Department of Transportation report and may be misused for locating pipelines instead of using One Call systems.

Northern Natural Gas also has security concerns regarding open access to the pipeline attributes in a mapping environment, specifically how that data could be used by individuals or organizations to adversely target pipeline assets. The proposed information collection under Control Number 2137-0596 does not discuss the protection of the data of privately owned company from the current sophisticated electronic information theft that is prolific worldwide.

**Original Purpose and Requirements** – The purpose and requirements for the National Pipeline Mapping System, as stated in the 2002 Pipeline Safety Act, are shown below:



## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

### **§ 60132. National pipeline mapping system**

(a) INFORMATION TO BE PROVIDED.—Not later than 6 months after the date of enactment of this section, the operator of a pipeline facility (except distribution lines and gathering lines) shall provide to the Secretary of Transportation the following information with respect to the facility:

(1) Geospatial data appropriate for use in the National Pipeline Mapping System or data in a format that can be readily converted to geospatial data.

(2) The name and address of the person with primary operational control to be identified as its operator for purposes of this chapter.

(3) A means for a member of the public to contact the operator for additional information about the pipeline facilities it operates.

(b) UPDATES.—A person providing information under subsection (a) shall provide to the Secretary updates of the information to reflect changes in the pipeline facility owned or operated by the person and as otherwise required by the Secretary.

(c) TECHNICAL ASSISTANCE TO IMPROVE LOCAL RESPONSE CAPABILITIES.—The Secretary may provide technical assistance to State and local officials to improve local response capabilities for pipeline emergencies by adapting information available through the National Pipeline Mapping System to software used by emergency response personnel responding to pipeline emergencies.

These requirements are summarized in the National Pipeline Mapping System Standards for Pipeline, Liquefied Natural Gas and Breakout Tank Farm Operator Submissions as follows:

The Pipeline Safety Improvement Act of 2002 requires that pipeline operators provide to the Secretary of Transportation the following information. The Secretary of Transportation is utilizing the National Pipeline Mapping System National Repository to handle all pipeline data.

- Data appropriate for use in the National Pipeline Mapping System (NPMS). A complete data submission includes the geospatial data, attribute data, and metadata for all LNG, hazardous liquid, and natural gas transmission pipeline operation systems operated by a company.
- The name and address of the person with primary operational control to be identified as its operator.
- A means for a member of the public to contact the operator for additional information about the pipeline facilities it operates. (OPS is developing a public application that will address this requirement.)





## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

- Updates of the above information to reflect changes in pipeline facilities.

Essentially, the purpose of the National Pipeline Mapping System is to provide the public with information regarding pipeline operators and who to contact in order to obtain additional information. The system is also intended to improve the local response capabilities of state and local officials during pipeline emergencies. This purpose is still true today and Congress has not changed the National Pipeline Mapping System requirements.

**Additional Purposes and Additional Information** – The information collection proposed under Control Number 2137-0596 states that the additional data being submitted would result in the ability to use the National Pipeline Mapping System data for additional purposes:

Specifically, the new data will:

- Aid the industry and all levels of government, from Federal to municipal, in promoting public awareness of hazardous liquid and gas pipelines and in improving emergency responder outreach. Currently, 787 Federal officials, 1,208 state officials and 4,791 county officials have access to the online mapping application. Providing these officials with improved NPMS containing system-specific information about local pipeline facilities can help ensure emergency response agencies and communities are better prepared and can better execute response operations during incidents.
- Permit more powerful and accurate tabular and geospatial analysis, which will strengthen PHMSA's ability to evaluate existing and proposed regulations as well as operator programs and/or procedures.
- Strengthen the effectiveness of PHMSA's risk rankings and evaluations, which are used as a factor in determining pipeline inspection priority and frequency.
- Allow for more effective assistance to emergency responders by providing them with a more reliable, complete dataset of pipelines and facilities.
- Provide better support to PHMSA's inspectors by providing more accurate pipeline locations and additional pipeline-related geospatial data that can be linked to tabular data in PHMSA's inspection database.

The revision would require a significant change in the amount and complexity of attribute data being collected. As stated in the 2004, 2009 and the May 2014 revisions to the operating standards for the National Pipeline Mapping System, the attributes table in



## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

2004 has remained unchanged other than the addition of the Low Stress designator for hazardous liquids lines, which was introduced in 2009. Currently, 16 attributes are collected for pipelines:

1. Unique link ID – Link between the geospatial elements (pipeline segments) and their respective attribute records. Assigned by the operator(s).
2. Operator Number – Assigned by the Pipeline and Hazardous Materials Safety Administration.
3. Operator Name – The name of the company that physically operates the pipeline system.
4. System Number – Assigned by the operator. The operator's name for a functional grouping of pipelines.
5. Subsystem Number – Assigned by the operator. A unique name for a smaller sub-section of a pipeline system. A subset of the system number.
6. Pipeline ID – Assigned by the operator. This identifier is for a specific section of pipeline within a pipeline system.
7. Diameter
8. Commodity 1 – The primary commodity carried by the pipeline system.
9. Commodity 2 – The secondary commodity carried by the pipeline system.
10. Commodity 3 – The tertiary commodity carried by the pipeline system.
11. Commodity Description – Descriptive information of the commodities carried by the pipeline system. For example, "NATURAL GAS" or "PROPANE".
12. Interstate Designation – (Y)es/(N)o designator to identify if the pipeline system is an interstate pipeline.
13. Pipeline Status Code – Identifies the current status of the pipeline segment: I=in service, B=abandoned, R=retired.
14. Data Quality Code – Operator's estimate of the positional accuracy of the submitted pipeline segment.
15. Revision Code – Identifies this pipeline segment as: A=addition; M=modification; or D=deletion of a previous submission to the National Pipeline Mapping System.
16. Metadata File Name – Character type of file code + 5-digit operator identification number + 4-digit file number.

The revision would require 26 additional attributes that would add an enormous level of complexity to the data submission.

1. Maximum Allowable Operating Pressure
2. Pipe grade
3. Percent Specified Minimum Yield Strength
4. Leak detection system used
5. Pipe coating





## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

6. Pipe material
7. Pipe join method
8. Year of construction/installation
9. Class locations
10. High-consequence areas
11. Onshore/offshore designation
12. In-line inspection segment
13. Year of last in-line inspection
14. Year of last direct assessment
15. Year of original pressure test
16. Test pressure of original pressure test
17. Year of last pressure test
18. Test pressure of last pressure test
19. Commodity detail
20. Special permit segment
21. Wall thickness
22. Seam type
23. Installation method if pipe crosses body of water greater than 100 feet in width
24. Facility response plan by segment
25. Throughput/pipeline capacity
26. Mainline block valve locations

The current list of 16 attributes generally is applicable to an entire pipeline. The additional attributes would reduce pipeline segments down to where all of the 42 attributes are common with an associated geographic location. A pipeline with any maintenance history or modifications may have any number of segments with varying pipe materials, coatings, wall thicknesses, specified material yield strength, seam type and joining methods that would require segmentation for these reporting requirements – at times down to lengths as short as one foot. A single pipeline also can have many individual Class location segments with overlapping high-consequence areas. Pipelines may operate with multiple maximum allowable operating pressure segments along their length. The 16 attributes that currently are submitted for one pipeline would become 42 attributes that split a 100-mile long transmission line into thousands of segments. In addition to the unintended reporting complexity, the additional required attributes listed go beyond the purpose as authorized by the 2002 Pipeline Safety Act for the National Pipeline Mapping System.

Much of the additional attribute data requirements already are provided in the annual Department of Transportation mileage report in a tabular form by state, class location, high-consequence area, percent specified minimum yield strength, piggable, pressure tested, pressure test ratio, on/off shore, etc. The amount of mileage in-line inspected,



## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

pressure tested and direct assessed, and the associated findings are included in the annual Department of Transportation mileage report. Northern Natural Gas believes providing this data in the annual mileage report significantly strengthened the ability of the Pipeline and Hazardous Materials Safety Administration to evaluate existing and proposed regulations, as well as operator programs and/or procedures, and the effectiveness of risk rankings and evaluations it performs. Duplication of this annual Department of Transportation mileage report data into the highly detailed current attribute table for annual data submittal for the National Pipeline Mapping System provides opportunity for error. Additionally, the misuse of this data becomes possible.

**Positional Accuracy** – The revision also would require a significant change in the level of positional accuracy of the geographic location of pipeline facilities. As stated in the 2004, 2009 and May 2014 revisions to the operating standards for the National Pipeline Mapping System, the requested minimal positional accuracy is  $\pm 500$  feet.

In the background information for the information collection under Control Number 2137-0596, the Pipeline and Hazardous Materials Safety Administration proposed a required positional accuracy of 50 feet for all pipelines and 5 feet for all pipeline segments located within Class 3, Class 4 and high-consequence areas and believes a large number of operators already have access to data with this degree of accuracy within their geospatial information systems. All operators currently are required to provide a data quality code for the estimated positional accuracy of the submitted pipeline segment. The ranges are as follows:

- E=excellent: within 50 feet
- V=very good: 50-300 feet
- G=good: 301-500 feet
- P=poor: 501-1000 feet
- U=Unknown

The Integrity Management Program rule does not list a positional accuracy requirement. The accuracy of the centerline of a pipeline must be properly considered as stated in the gas Integrity Management Program frequently asked question No. 174:

*FAQ-174. The centerline of a pipeline may not be accurately determined via GIS or other method. The locations of structures (e.g., from aerial photography) may also involve inaccuracies. What provisions must be taken to address for inaccuracies in these measurements, in order to*





Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

*accurately determine the relative location of structures with respect to the pipeline? [10/02/2006]*

*The rule does not explicitly address mapping/measurement inaccuracies. Instead, it specifies the use of distances that apply to pipelines, and distances from those pipelines, as they actually exist in the field. The research behind the C-FER equation used to estimate potential impact circles was based on actual measurements of the distances affected by pipeline accidents.*

*PHMSA recognizes that mapping and measuring technologies involve some level of inaccuracy/tolerance. Operators must take these into account and consider the uncertainties in the distances they measure or infer when evaluating potential impact circles (PICs). Each operator's approach must be technically sound, must account for the uncertainties as they exist in the mapping/measurement methods used by the operator, and must be documented in its IM plan or related procedures. Operators may use a combination of techniques in order to account for these inaccuracies. For instance, aerial photography may be used as an initial screen. Field measurements (such as pipeline locators along with chainage measurements or survey quality range finders) may be used to verify if structures near the edge of the PIC (i.e., within the range of mapping/GIS inaccuracies) are actually inside or outside the PIC. PHMSA will inspect each operator's approach to assure that the operator's process is adequate to identify all covered segments.*

Northern Natural Gas considers the quality of data for positional accuracy in the identification of high-consequence areas and class locations. Northern Natural Gas has submitted its data quality as V, very good: 50-300 feet. Northern Natural Gas has reviewed its technically based approach to the consideration of positional accuracy during integrity management program inspections and integrated inspections with the Pipeline and Hazardous Materials Safety Administration. During all of these inspections, Northern Natural Gas' approach was found to be technically sound and to meet the requirements of the regulation.

The proposed required positional accuracy of 50 feet for all pipelines and 5 feet for pipeline segments located within Class 3, Class 4 and high-consequence areas is not consistent with any survey accuracy quality standard or aerial photography standards. See Table 1 below.

Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

**Table 1 – Mapping/Measurement Source Accuracy**

	Source	Accuracy (feet)
Survey	High Order Survey	± 0.033
	Real Time Kinematic Survey	± 0.33
	Differential Global Positioning System Survey	± 3.3
	Wide Area Augmentation System GPS Survey	± 16.4
	Recreational GPS	± 30
	Standard GPS not corrected	± 99
Photography	2 meter ground sample distance <sup>i</sup>	± 33
	1 meter ground sample distance <sup>ii</sup>	± 20
	1/2 meter ground sample distance <sup>iii</sup>	TBD

Pipeline positional data has been determined and maintained by the use of company records with confirmatory surveys and aerial photography. By changing the accuracy requirement from 500 feet to 50 feet or less, essentially the requirement becomes a survey requirement. For all Class 3 locations, Class 4 locations and high-consequence areas, the accuracy requirement of 5 feet becomes a land survey requirement using a DGPS quality survey of ±3.3 feet or better. For Class 1 and Class 2 locations, the accuracy requirement would effectively become a recreational GPS quality survey or better with an accuracy of ±30 feet. Although this level of accuracy may not have been intended in the proposed revision, the outcome is that pipelines will have a positional accuracy of ±3.3 feet or ±30 feet. The cost for Northern Natural Gas to obtain this survey accuracy has a preliminary estimate of \$15 million.

**Public Awareness Program** – There are two main objectives of public awareness programs.

1. To raise the awareness of the affected public and key stakeholders (local officials, emergency officials and excavators) of the presence of pipelines in their communities.
2. To help the public understand the steps that the public can take to prevent and respond to pipeline emergencies.

A key requirement to public awareness programs is that the operators must establish and maintain liaison with fire, police, and other appropriate public officials and coordinate with them on emergency exercises or drills and actual responses during an emergency. This requirement includes making local appropriate maps and guidance on the use of





## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

One-call systems to properly mark pipelines prior to excavation activities. Consideration must be given to the amount of information being provided and the potential for the public, state or local officials or regulators to NOT contact the pipeline operator for situation-specific information. Third-party damage is the leading cause of natural gas pipeline incidents and often times the root cause is failure of the excavator to call the state One Call center. One Call violators often state they thought they already knew the pipeline's location and therefore, did not need to contact the One Call center. One Call data is given in corridors with the intent to allow local pipeline operators the opportunity to ensure public safety. An accuracy level of 5 feet may have an unintended outcome for the public, state and local officials, and emergency responders to not engage the One Call center or the pipeline operator when working near a pipeline. If this accuracy change is enacted, Northern Natural Gas is concerned the likelihood of third-party damage will increase.

**Security** – Much of the requested data in the information collection already exists in the public domain with the ultimate goal being pipeline safety; however, recent incidents of national and international electronic espionage raise this seemingly benign request for additional pipeline information to a potentially latent security risk.

Providing the additional attribute data in a mapping environment also increases security risks. The National Pipeline Mapping System was developed so the public, developers and emergency responders could determine what pipelines were present in a general area, then contact and meet with pipeline operators for more specific information. Even this limited information access was taken offline for a period of time when significant domestic security threats were present. The attribute data being proposed for inclusion on the National Pipeline Mapping System provides potential adversaries with location-specific, technical information that would increase the probability an attack could be successful.

The National Infrastructure Protection Plan currently has pipeline operators in the midst of system wide physical and electronic security upgrades similar to those previously experienced by other national industries, such as airports. Pipeline operators are endeavoring to ensure facility and electronic security and, at a minimum, ask for assurances that additional government-required information will not translate from simple data to targeting of pipeline assets by international or local adversaries.

Information collection under Control Number 2137-0596 does not provide any information regarding the protection of data from the current sophisticated electronic information theft that is prolific worldwide. The concern for pipeline operators is how increased amounts of electronically transmitted data increase the overall security risk to a greater number of pipelines and facilities.



## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

If other documents or operational procedures provide data security assurances, then Pipeline and Hazardous Materials Safety Administration needs to convey that assurance to pipeline operators. An explanation as to how the Pipeline and Hazardous Materials Safety Administration and the National Pipeline Mapping System are working within the framework of the National Infrastructure Protection Plan will go a long way to alleviate data sharing security anxiety.

**Summary of Comments** – Northern Natural Gas recommends the following comments for consideration.

- The National Pipeline Mapping System should be able to cite the mileage and the percentage of total mileage that are within 50 feet already. This information to the industry would justify or negate increasing the position accuracy requirements beyond what is required in the National Pipeline Mapping System.
- Northern Natural Gas believes the proposed required positional accuracy of 50 feet for all pipelines and 5 feet for pipeline segments located within Class 3, Class 4 and high-consequence areas are not consistent with any survey accuracy quality standard or aerial photography standards. Although this level of accuracy may not have been intended in the proposed revision, the outcome is that pipelines will have a positional accuracy of  $\pm 3.3$  feet or  $\pm 30$  feet. The Pipeline and Hazardous Materials Safety Administration should consider revising the Data Quality Code to reflect survey accuracy technically available:
  - E=excellent: within 16 feet
  - V=very good: 17-30 feet
  - G=good: 31-99 feet
  - P=poor: 100-500 feet
  - U=Unknown
- Northern Natural Gas believes the Pipeline and Hazardous Materials Safety Administration should maintain the existing attributed collected for the National Pipeline Mapping System in consideration of the work accomplished by integrity management programs to properly account for accuracy in high-consequence areas and also should expand this requirement to Class 3 and Class 4 locations.
- Northern Natural Gas believes the Pipeline and Hazardous Materials Safety Administration should maintain the existing attributes collected for the National Pipeline Mapping System as the current system continues to provide members of the public appropriate contact information for pipelines as authorized by the 2002 Pipeline Safety Act. Additionally, Northern Natural Gas believes the existing annual





## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

Department of Transportation mileage report data and on-site audits provide the Pipeline and Hazardous Materials Safety Administration sufficient data within a system-specific context as needed for risk ranking pipeline operators.

- Northern Natural Gas believes the information provided from incident data meets the supplemental proposed requirement to provide system-specific information about local pipeline facilities and can help ensure emergency response agencies and communities are prepared and can execute response operations during incidents. Detailed system-specific information is already included in incident reporting requirements including geospatial information. Northern Natural Gas believes encouraging contact and collaboration between pipeline operators and the public, land developers and emergency responders is in the best interest of all parties in ensuring communities are prepared and can execute response operations during incidents.
- Northern Natural Gas believes the inclusion of the proposed additional attributes and the associated maintenance of this data would be burdensome for operators and regulators to maintain and would not add significant value to the public or to state and local emergency response planning. For example, the 16 general attributes may apply to a single pipeline, but the proposed, expanded list of 42 attributes may split the same line into hundreds of segments if the pipe had any maintenance history or modifications.
- Northern Natural Gas believes that providing excavators with more information on the size or pressure of a pipeline through the National Pipeline Mapping System would undermine the efforts of One Call legislation. Third-party damage is the leading cause of natural gas pipeline incidents and often times the root cause is failure of the excavator to call the state One Call center.
- Northern Natural Gas believes the Pipeline and Hazardous Materials Safety Administration should provide pipeline operators information on how it is working within the framework of the National Infrastructure Protection Plan to protect sensitive security information regarding critical infrastructure. Answers to the proposed expanded attributes already are submitted in a tabular format by state in the annual mileage report to the Department of Transportation. The concern of pipeline operators is how increased amounts of electronically transmitted data increase the overall security risk to a greater number of pipelines and facilities.
- Northern Natural Gas also has security concerns regarding open access to the pipeline attributes in a mapping environment, specifically how individuals or organizations could use that data to adversely target pipeline assets. Much of the requested data in the information collection already exists in the public domain with the ultimate goal



## Comments Concerning the Proposed Revision to the Information Collection for the National Pipeline Mapping System – September 29, 2014

---

being pipeline safety; however, the attribute data being proposed for inclusion on the National Pipeline Mapping System provides potential adversaries with location-specific, technical information that could increase the probability an attack could be successful.

Northern Natural Gas appreciates the opportunity to submit comments on these proposed changes to the previously approved information collection for the National Pipeline Mapping System. Northern Natural Gas looks forward to continuing to work with the Pipeline and Hazardous Materials Safety Administration and other key stakeholders to address the best ways to increase pipeline safety using a technically based approach based on solid risk management principles.

Respectfully submitted,

Gary Krichau  
Manager, Pipeline Integrity and Corrosion  
Northern Natural Gas Company

---

<sup>i</sup> National Aerial Photography Program Standards from National Agricultural Imagery Program (NAIP) – Horizontal Accuracy, for 2 meter ground sample distance all DOQQs (Digital Ortho Quarter Quad) and CCMs (Compressed County Mosaic) shall have 90% of all well-defined points tested fall within the 10.0 meters of the same location identified on Government furnished baseline orthophoto control imagery. For Northern Natural Gas' system, this imagery is NAIP photography in Minnesota and Texas prior to 2008 and photography prior to 2009 elsewhere.

<sup>ii</sup> NAIP Information Sheet 2013 specifies 1 meter ground sample distance (GSD) requires all well-defined points tested shall fall within 6 meters of true ground at a 95% confidence. For Northern Natural Gas' system, this means Minnesota and Texas photography starting in 2008 and all NAIP photography in 2009.

<sup>iii</sup> NAIP Information Sheet 2013 specifies ½ meter GSD become an option in 2011. No states impacting Northern Natural Gas' system had ½ meter GSD imagery as of 2013.