



May 2018

INTERSTATE PIPELINE INSPECTIONS

Additional Planning
Could Help DOT
Determine
Appropriate Level of
State Participation

GAO Highlights

Highlights of [GAO-18-461](#), a report to congressional committees

Why GAO Did This Study

PHMSA oversees the safety of interstate and intrastate natural gas and hazardous liquid pipelines. PHMSA certifies states to oversee intrastate pipelines, and some states also act as PHMSA's "agents" to supplement the federal inspection workforce for interstate pipelines. In recent years PHMSA has signaled a move away from using interstate agent agreements. Recent funding increases have enabled PHMSA to hire additional federal inspectors. States may receive annual grants to reimburse up to 80 percent of the cost of their pipeline safety activities.

Congress included a provision in statute for GAO to review the federal and state responsibilities and resources used to inspect interstate pipelines. This report addresses (1) how state participation has affected interstate pipeline oversight and (2) PHMSA's assessment of the resources needed to conduct interstate pipeline inspections. GAO reviewed relevant laws and PHMSA guidance on state participation in these inspections; analyzed the most recent 6 years of PHMSA funding and inspector staffing data; and interviewed pipeline safety officials from PHMSA and 22 states selected based on level of participation in interstate inspections.

What GAO Recommends

PHMSA should develop a workforce plan for interstate pipeline inspections, considering, among other things, the additional resources and safety oversight that state pipeline officials can provide. DOT concurred with our recommendation and provided technical comments, which we incorporated as appropriate.

View [GAO-18-461](#). For more information, contact Susan Fleming at (202) 512-2834 or flemings@gao.gov.

May 2018

INTERSTATE PIPELINE INSPECTIONS

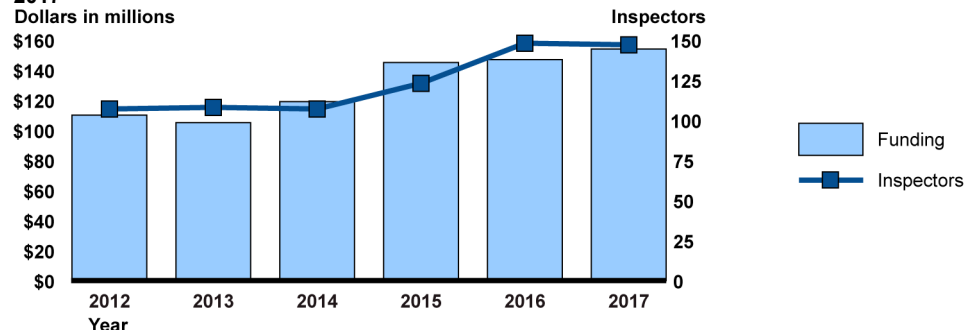
Additional Planning Could Help DOT Determine Appropriate Level of State Participation

What GAO Found

State involvement in interstate pipeline inspections can enhance oversight, although the three types of agreements that the Pipeline and Hazardous Materials Safety Administration (PHMSA) uses to allow state participation are not used extensively. Annual interstate agent agreements—held by 9 states—allow states to participate in all inspection activities and can bolster interstate pipeline oversight. For instance, an inspection conducted in 2014 by New York state officials led to \$61,900 in federal civil penalties. Temporary interstate agreements—used in 6 states to date—allow PHMSA to request states to participate in specific interstate pipeline inspections. PHMSA officials said these agreements provide the agency greater flexibility. Some current interstate agents GAO interviewed said that temporary interstate agreements are useful, but are not substitutes for interstate agent status because states do not participate in the full range of inspections. Finally, PHMSA as authorized by federal law recently established joint inspections allowing states to request to participate in interstate inspections. However, state officials were concerned that their role is limited and that they must bear the full cost to participate. PHMSA officials said they intend to clarify the state inspector role in joint inspections and acknowledged that federal grants cannot be used by states to support joint inspection activities.

PHMSA allocated recently hired inspectors based on regional workload, but has not assessed future resource needs. From fiscal years 2012 to 2017, PHMSA's appropriations increased over 40 percent, allowing the agency to expand its inspector workforce by about 25 percent. PHMSA allocated the additional inspectors across the agency's five regions based on workload. For example, PHMSA's central region received a greater percentage of inspectors than other regions to help oversee a number of new pipeline construction projects. However, PHMSA has not planned for future workforce needs for interstate pipeline inspections. In particular, it has not assessed the resources and benefits that states can provide through the three types of agreements. Leading practices for workforce planning indicate that such forward-looking analyses are essential for effective workforce planning. Without such analyses, PHMSA cannot proactively plan for future inspection needs to ensure that federal and state resources are in place to provide effective oversight of interstate pipelines.

Pipeline and Hazardous Materials Safety Administration funding and inspectors hired, 2012 – 2017



Sources: GAO analysis of Pipeline and Hazardous Materials Safety Administration (PHMSA) information and the Office of Management and Budget (OMB) gross budget authority data. | [GAO-18-461](#)

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Abbreviations

DOT	Department of Transportation
PHMSA	Pipeline and Hazardous Materials Safety Administration
RRIM	Risk Ranking Index Model

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May 29, 2018

The Honorable John Thune
Chairman
The Honorable Bill Nelson
Ranking Member
Committee on Commerce, Science and Transportation
United States Senate

The Honorable Greg Walden
Chairman
The Honorable Frank Pallone
Ranking Member
Committee on Energy and Commerce
House of Representatives

The Honorable Bill Shuster
Chairman
The Honorable Peter A. DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

The U.S. energy pipeline network is composed of over 2.7 million miles of pipeline transporting gas, oil, and other hazardous liquids both within states (intrastate) and from one state to another (interstate). Inspections of pipeline operator programs and facilities are key oversight activities at both the federal and state level. At the federal level, the Pipeline and Hazardous Materials Safety Administration (PHMSA) is responsible for developing safety-related regulations for these pipelines. In general, PHMSA conducts inspections and enforces regulations for interstate pipelines, while certified states generally oversee intrastate pipelines.¹ Historically, PHMSA has also entered into agreements with some state pipeline safety offices to act as “agents” to supplement the federal inspection workforce for interstate pipelines. Over the years, however, the number of interstate agents has declined from 22 in 1973 to 9 today. In recent years, PHMSA has not accepted additional applications for interstate agent agreements and has signaled a move away from these

¹ States assume that responsibility by annually certifying their state pipeline safety program to PHMSA.

agreements. Instead, PHMSA has introduced other means of participation for states interested in pursuing an interstate agreement.

The Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016 included a provision that GAO assess and report on the resources used in carrying out interstate pipeline safety agreements.² This report examines (1) how state participation has affected interstate pipeline oversight and (2) PHMSA’s assessment of the resources it needs to conduct future interstate pipeline inspections.

To address both objectives, we reviewed relevant statutes, literature related to pipeline safety agreements and PHMSA guidance on state participation. To determine the effects of state participation in interstate pipeline oversight, we interviewed officials from PHMSA headquarters and 5 regional offices and 22 state pipeline safety offices. (See table 1). For our sample, we selected the following:

Table 1: States selected for GAO interviews on pipeline safety agreements with the federal government

Selection Criteria	State
States that currently hold interstate agent agreements.	Arizona, Connecticut, Iowa, Michigan, Minnesota, New York, Ohio, Virginia, and Washington
States that have applied for an interstate agreement but have been rejected.	Maryland, New Hampshire, Nevada, Virginia
States that have expressed interest in, but have not applied for, an interstate agent agreement.	Kentucky
States that have participated in a temporary interstate agent agreement ^a	Indiana, New Hampshire, Oregon, ^b Rhode Island, Virginia, ^c and West Virginia
States that have left the interstate agent program within the past 10 years.	California, West Virginia
States that hold intrastate certifications but have not participated in interstate pipeline inspections. These four states also varied in terms of the amount of interstate pipeline miles and geographic location.	Illinois, New Mexico, Pennsylvania, and Texas

Source: GAO | GAO-18-461

^aTemporary interstate agent agreements are also known as time-defined agreements

² Pub. L. No. 114-183, § 24, 130 Stat. 514, 530

^bOregon responded in writing.

^cVirginia is an interstate agent for hazard liquids but not for natural gas.

Our interviews provide a range of views, but are not generalizable across all state pipeline safety offices.

To analyze PHMSA's assessments of interstate pipeline inspection resources needed, we obtained information on PHMSA's appropriations and inspector staffing levels for fiscal years 2012 through 2017. We interviewed PHMSA officials on their data collection and verification procedures and based on these steps determined the data was reliable for our purposes. We also interviewed PHMSA officials about the agency's staffing allocation analyses on inspection staff required to conduct interstate pipeline inspections. We assessed the extent to which PHMSA's inspector staffing activities and processes met leading practices for workforce planning that we have identified in our prior work.³

We conducted this performance audit from June 2017 to May 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The U.S. pipeline network includes both interstate and intrastate pipelines, the vast majority of which fall into the latter category:

- Interstate pipelines: Interstate pipelines are primarily large-volume transmission pipelines that carry gas or hazardous liquid—sometimes over hundreds of miles—to communities and large-volume users (e.g., factories). At the start of 2017, there were about 340,000 miles of interstate transmission pipelines nationwide. Newly tapped

³ GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: Dec. 11, 2003). GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: September 2014).

domestic gas and oil deposits have resulted in an increase in the existing pipeline infrastructure to transport natural gas and oil.⁴

- Intrastate pipelines: Intrastate pipelines are primarily composed of gas distribution and some transmission pipelines that transport natural gas pipelines to residential, commercial, and industrial customers. As of 2015, there were about 2.2 million miles of distribution pipelines nationwide. In addition, an estimated 18,000 miles of federally regulated gathering pipelines carry natural gas or hazardous liquids from production areas to processing facilities where the product is refined before continuing in transmission pipelines.⁵

At the federal level, PHMSA is responsible for developing regulations for domestic interstate and intrastate natural gas and hazardous liquid pipelines. Its regulatory programs are focused on ensuring safety in the design, construction, operation, and maintenance of pipelines. Inspectors from PHMSA's five regional offices and states are responsible for inspecting nearly 3,000 companies that operate 2.7 million miles of pipelines.

Each year, PHMSA uses its Risk Ranking Index Model (RRIM) as one input to determine its annual inspection priorities. RRIM categorizes each of the nation's pipeline systems regulated by PHMSA into high, medium, and low-risk tiers. Pipeline risk are proposed based on a combination of categories, such as the type of pipeline material and time since last inspection. PHMSA's guidance specifies that high-risk pipelines should be inspected at least once every 3 years, medium-risk pipelines every 5 years, and low-risk pipelines every 7 years. PHMSA's goal each year is to

⁴ Interstate hazardous liquid transmission pipeline mileage increased nearly 17 percent since 2010. Interstate gas transmission pipeline mileage decreased by 1 percent since 2010.

⁵ Only gathering pipelines close to populated areas or waterways are currently subject to federal requirements. In 2012, we recommended that PHMSA collect data on gathering pipelines to help determine whether to expand regulation of these pipelines. PHMSA anticipates issuing new rules in Summer, 2018 and Summer, 2019, that would expand the gathering pipeline mileage subject to PHMSA's requirements. GAO, *Pipeline Safety: Collecting Data and Sharing Information on Federally Unregulated Gathering Pipelines Could Help Enhance Safety*, [GAO-12-388](#) (Washington D.C.: March 22, 2012).

inspect, at a minimum, pipeline systems where the time since last inspection meets or exceeds the PHMSA guidance for the tier.⁶

Under federal pipeline safety laws,⁷ states may assume inspection and enforcement responsibilities for intrastate gas and hazardous liquid pipelines, which are primarily natural gas distribution pipelines. States assume that responsibility by annually certifying their state pipeline safety program to PHMSA, which PHMSA must validate. As part of a state's certification, states must establish pipeline laws similar to federal pipeline safety regulations for intrastate pipelines, but may also impose more stringent pipeline safety regulations. PHMSA reimburses certified state agencies up to 80 percent of the total cost of operating their pipeline safety program through an annual grant.

PHMSA may permit certified states to participate in interstate inspections through three types of agreements. (See fig.1):

- Interstate agent agreement: At PHMSA's discretion, certified states may enter into an interstate agent agreement for either their natural gas program, hazardous liquid program, or both on an annual basis. As of April, 2018, nine state pipeline agencies hold these agreements. On PHMSA's behalf, these agencies assume inspection responsibilities for the range of interstate inspection activities, as agreed upon by PHMSA and prioritized by PHMSA during the agency's annual inspection planning process. States may also propose and conduct additional inspections as they believe necessary. While state inspectors can identify violations, PHMSA is ultimately responsible for enforcement of interstate pipeline regulations and uses a range of enforcement tools from Warning Letters to more stringent Notices of Probable Violation with either proposed compliance orders or proposed civil penalties.
- Temporary interstate agreement: These agreements allow PHMSA to request a state that has had its certification validated by PHMSA to perform interstate pipeline inspections on a temporary basis. According to PHMSA guidelines, these agreements are used typically

⁶ In 2017, we recommended that PHMSA document the design of its RRIM and periodically assess the model's effectiveness; PHMSA agreed with our recommendation and is currently reexamining RRIM's key components and plans to complete the review by the end of 2018. GAO, *Pipeline Safety: Additional Actions Could Improve Federal Use of Data on Pipeline Materials and Corrosion*, [GAO-17-639](#) (Washington, D.C.: Aug. 3, 2017).

⁷ 49 U.S.C. §§ 60101-60301.

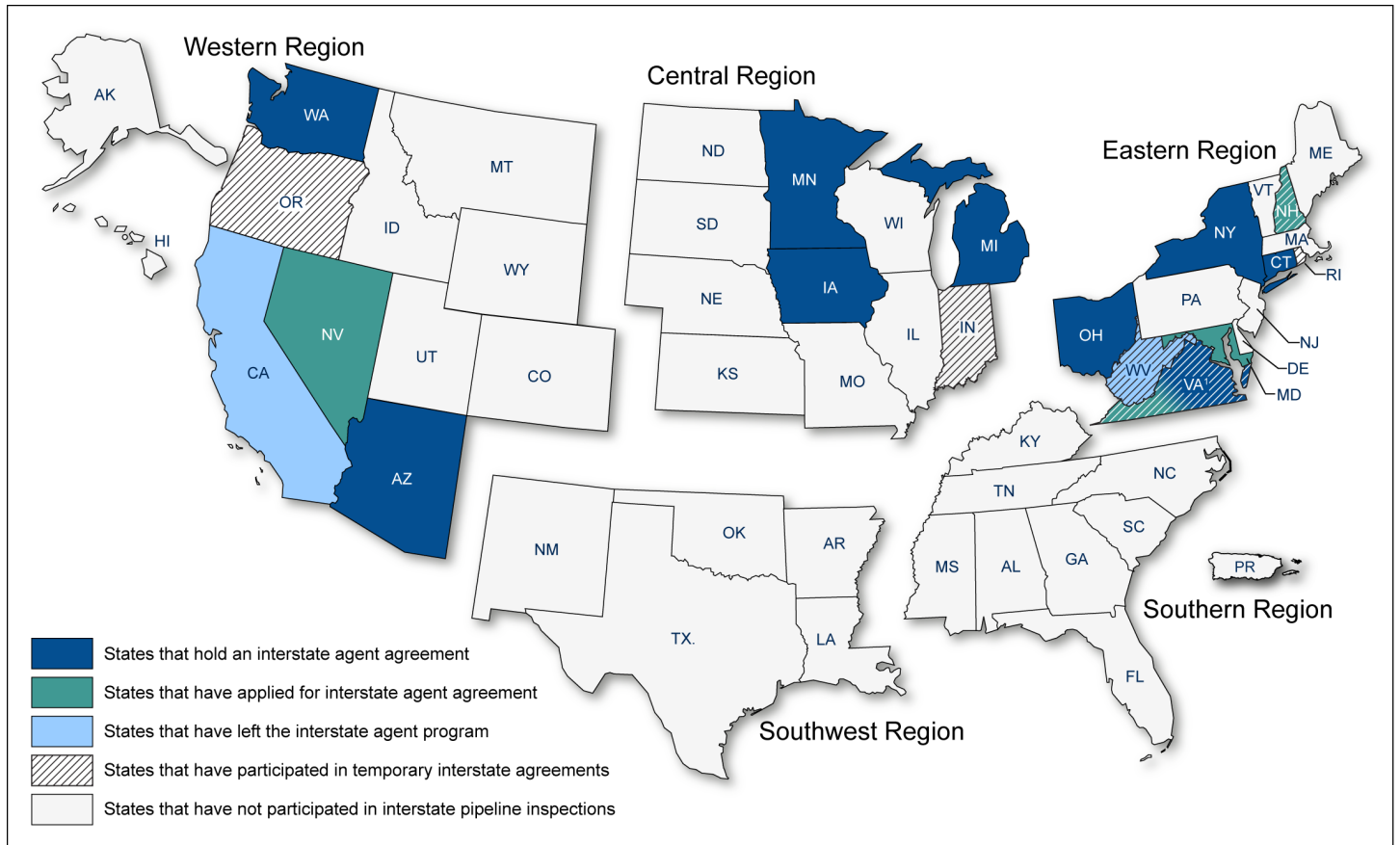
for new construction inspections, but may include assistance such as inspection of specific operators, witness to repairs or testing, or investigation of incidents. Since 2010, PHMSA has entered into temporary interstate agreements with six states.⁸

- Joint inspection: The Pipes Act of 2016 included a requirement for PHMSA to allow certified states to participate in the inspection of an interstate pipeline safety facility, if requested by the state pipeline safety agency.⁹ As of April, 2018, no states have requested to participate in joint inspections.

⁸ PHMSA has been authorized to conduct “cooperative agreements” with states to further its mission since the Pipeline Safety Improvement Act of 2002 but the first temporary agreement was issued to Nevada in 2010.

⁹ Pub. L. No. 114-183, § 13, 130 Stat. 514, 524

Figure 1: State Participation in Interstate Pipeline Inspections by PHMSA Region (as of April, 2018)



Sources: Pipeline and Hazardous Materials Safety Administration (PHMSA) and Map Resources (Map). | GAO-18-461

State Involvement in Interstate Pipeline Inspections, While Not Extensive, Can Enhance Oversight Activities

Interstate Agent Agreements Can Bolster Oversight in Participating States

According to PHMSA regional officials we met with, interstate agents conduct high-quality inspections of interstate pipelines and provide an important supplement to the federal inspection workforce. PHMSA regional officials generally agreed that interstate agents have well-trained staff and leverage their local knowledge to enhance interstate pipeline inspections within their state. Additionally, interstate agents, if authorized by PHMSA, may conduct inspections of interstate pipelines within their state more frequently than PHMSA. For instance, officials in one PHMSA region noted that an interstate agent in their jurisdiction ensured each interstate operator was inspected once every 2 years, regardless of PHMSA's risk ranking. Similarly, in two of 5 regions that have interstate agents, PHMSA regional officials stated that they needed interstate agents to supplement their current allocation of federal inspectors. For instance, in one region, PHMSA officials said that if interstate agent agreements were discontinued, the region would need to hire 3 to 4 additional inspectors. In another region, officials said that interstate agents provided the equivalent of 5 to 10 additional inspectors. Officials in one PHMSA region said that, although the region could absorb the interstate agent workload if needed, doing so would lead to less extensive inspections because there would more pipelines to inspect with fewer federal inspectors.

Interstate agents may also enhance pipeline safety oversight within their state by going above and beyond the annual interstate inspection activities required under their agreement with PHMSA. Specifically, as part of the annual inspection planning process, PHMSA's regional offices work with interstate agents to develop an annual inspection plan. While interstate agents must prioritize PHMSA's inspection priorities, such as participation in new construction inspections and PHMSA-led systems inspections, they can also propose additional inspections of interstate pipelines within their state. Officials in half of the nine states with

interstate agent agreements stated that they proposed and obtained PHMSA's approval for additional interstate pipeline inspections that would not otherwise have been included in PHMSA's annual inspection plan. For instance, PHMSA's Western Region reported that between January 1, 2015 and December 31, 2016 Washington State's pipeline safety agency—which holds an interstate agent agreement—proposed and conducted 13 inspections beyond those identified in PHMSA's inspection plans.

During these additional inspections conducted by interstate agents, state officials have identified violations of pipeline safety regulations. Some violations, including the four illustrative examples below, were deemed serious enough that PHMSA imposed civil penalties.

- In 2015, the Connecticut Department of Energy and Environmental Protection inspected an interstate pipeline that traverses the state. During the inspection, Connecticut inspectors found the pipeline operator had failed to employ properly qualified welders in constructing a section of the pipeline. As a result, PHMSA issued a civil penalty of \$26,200 to the pipeline operator. In response to the findings, the operator ensured its welders were properly qualified and replaced the 14 welds completed by improperly qualified welders.
- In 2014, the New York Department of Public Service's Pipeline Division inspected an interstate pipeline that traverses the state. During that inspection, New York inspectors identified violations related to the operator's corrosion-control practices. Inspectors also found that the operator failed to prepare, and follow, a manual for conducting operations and maintenance activities, as well as for emergency response. As a result, PHMSA issued a civil penalty of \$61,900. In response to the findings, the operator took action to address the corrosion control-related violations and revised its operations and maintenance manual.
- In 2011, the New York Department of Public Service's Pipeline Division inspected an interstate pipeline that traverses the state. During that inspection, a New York inspector identified violations related to corrosion-control practices. As a result, PHMSA issued a civil penalty of \$78,900. PHMSA also issued a Compliance Order, requiring the operator to remediate the identified violations, or face an additional civil penalty.
- In 2014, Arizona's Corporation Commission's Pipeline Safety Section inspected two interstate gas transmission lines that traverse the state. During the inspection, PHMSA and Arizona inspectors found that the

operator had committed probable violations by not properly odorizing its pipeline, and providing insufficient information to the public about its pipeline odorization methods.¹⁰ As a result, PHMSA issued a Notice of Probable Violation, proposed civil penalties totaling \$162,700, and issued a Proposed Compliance Order.

Although state involvement in interstate inspections can enhance oversight, officials from almost all of our selected states that do not currently have an interstate agent agreement expressed little interest in pursuing such an agreement. Specifically, some officials in we spoke with plan to focus their limited resources on intrastate pipeline safety oversight activities. For example, although Texas has over 50,000 miles of interstate pipeline, officials in that state have focused exclusively on intrastate inspection activity, citing the heavy workload of their inspection staff, as well as challenges in recruiting and retaining additional inspectors. In another instance, California's state pipeline safety agency responsible for hazardous liquid oversight voluntarily withdrew from the interstate agent program in 2013, citing staffing shortages stemming from a difficult economic climate.

Although PHMSA's current policy stance does not prohibit the agency from entering into a formal interstate agent agreement if the circumstances warrant, the agency prefers that state agencies enter into temporary interstate agreements.¹¹ PHMSA officials explained that, historically, PHMSA has used interstate agents to supplement federal inspection resources and that the current nine interstate agents supplement the federal workforce by approximately 10–15 inspectors. PHMSA officials stated that they do not intend to discontinue current interstate agent agreements, but due in part to a recent staff increase the agency has sufficient staff to meet its inspection needs without adding additional interstate agents. PHMSA officials also told us that intrastate pipelines pose the highest safety risk to states and, consequently, state pipeline safety agencies should focus their efforts on intrastate pipeline oversight rather than participating in interstate pipeline inspections. During the last 7 years, four states that applied for an agent agreement—

¹⁰Odorization of pipeline gas enables detection by a person with a normal sense of smell. In May, 2018, GAO reported on issues related to odorizing combustible gas transported by pipeline. GAO, *Gas Pipeline Safety: Stakeholders' and Officials' Views on Federal Odorizing Requirements*, [GAO-18-409](#) (Washington, D.C.: April 18, 2018).

¹¹PHMSA: Guidelines for State Participating in the Pipeline Safety Program, 2017.

New Hampshire, Virginia,¹² Maryland, and Nevada—were not accepted by PHMSA for these reasons. (See app. I.) In 2013, PHMSA decided not to renew another state pipeline safety agency’s interstate agent agreement, citing the state agency’s inability to staff its program properly, among other things.

PHMSA’s Other Means of State Participation in Interstate Inspections Have Not Been Used Extensively

Temporary Interstate Agreements

While temporary interstate agreements provide an opportunity to participate in interstate pipeline oversight, officials from some state agencies told us that the agreement’s limited scope and ad hoc nature can create obstacles to state participation. For instance, in states without an interstate agent agreement, state inspectors’ day-to-day work focuses exclusively on intrastate pipeline oversight activities. In the event PHMSA requested assistance with certain interstate inspections, state inspectors may be unfamiliar with the interstate pipeline systems and operators. As a result, some state officials said that their inspectors may have a steep learning curve when conducting inspections under a temporary interstate agreement. However, PHMSA officials disagreed that most interstate agent states would have such steep learning curve because they currently inspect intrastate transmission pipelines; the regulations for interstate and intrastate pipelines are for the most part identical. Another obstacle some state officials identified relates to the fact that state pipeline safety agencies may not have sufficient inspection staff available, when needed, to participate in ad hoc interstate inspections.

Due to the limited state role and competing priorities, state pipeline safety agencies rarely enter into temporary interstate agreements. According to

¹²Virginia’s pipeline safety agency currently holds an interstate agent agreement to inspect hazardous liquid pipelines. Although PHMSA certifies Virginia’s pipeline safety agency to conduct intrastate inspections of natural gas and hazardous liquid pipelines, Virginia law does not provide the agency authority to inspect municipal gas systems. As a result, the state pipeline safety agency has entered into an agreement with PHMSA, which allows it to inspect municipal gas systems on PHMSA’s behalf. However, PHMSA is responsible for enforcement under this agreement.

officials in five of the 6 states that have that have entered into temporary interstate agreements, the agreements were used for limited, ad hoc inspections that were initiated by PHMSA. The sixth temporary interstate agreement was initiated by PHMSA in lieu of the Virginia pipeline safety agency's 2017 application for an interstate agent agreement for natural gas. PHMSA offered to enter into a longer-term, temporary interstate agreement, which would permit the state agency to inspect the installation of two large interstate pipeline systems. The state agency accepted the temporary interstate agreement, which may be extended annually until the completion of the pipeline construction. To meet its new interstate inspection obligations, the state agency told us it hired two additional inspectors. According to state officials, those two inspectors will be dedicated to intrastate pipeline inspection, which will allow two of the state agency's more experienced inspectors to conduct interstate pipeline inspections.

Current interstate agents do not consider temporary interstate agreements to be an adequate substitute for an interstate agent agreement. According to officials we spoke with that are currently interstate agents, an interstate agent agreement allows state agencies and their inspectors to develop a strong understanding of operators and pipelines within their state. A few state officials stressed that the greatest benefit of interstate agent status was the ability to leverage their local knowledge—such as the proximity and familiarity with interstate pipelines within their states—to allow for quick responses to public concerns and pipeline incidents. PHMSA officials emphasized that temporary interstate agreements are not intended to replicate an interstate agent agreement; instead, these agreements are designed to provide PHMSA the flexibility to request targeted, short-term assistance from state pipeline safety agencies with interstate pipeline inspections.

Joint Inspections

Joint inspections offer states the most limited role in interstate pipeline inspections and may be entered into only if the state meets certain conditions. In response to the requirement in the PIPES Act, PHMSA created joint inspections and established certain criteria for state participation. For instance, to ensure that participation in joint inspections does not compromise intrastate pipeline safety, PHMSA only allows state inspectors to participate if the state agency has accomplished the required minimum number of inspection days during the preceding calendar year. PHMSA also requires state agencies to bear the cost of participating in joint inspections—including travel and inspection time for the state inspectors—rather than allowing states to include this activity in their annual pipeline safety program grant reimbursement. According to

PHMSA officials, this requirement is designed to focus limited federal funds intended to support states' intrastate pipeline safety programs.

While it is too early to know whether states will participate in joint inspections over the long term, no states have participated to date. Despite general agreement among some state pipeline safety officials that collaborating with PHMSA on interstate pipeline inspections could be beneficial, they noted that PHMSA's criteria reduces the incentive to participate. For instance, a few of the state officials we spoke to generally expressed concern over the requirement that states bear the entire cost of their participation. Additionally, state officials perceive the current joint inspection policy as restricting state inspectors to an observer role. However, PHMSA officials we spoke with noted that the role of state inspectors can vary based on the levels of training and knowledge among state inspectors. PHMSA officials told us they intend to clarify this role for states.

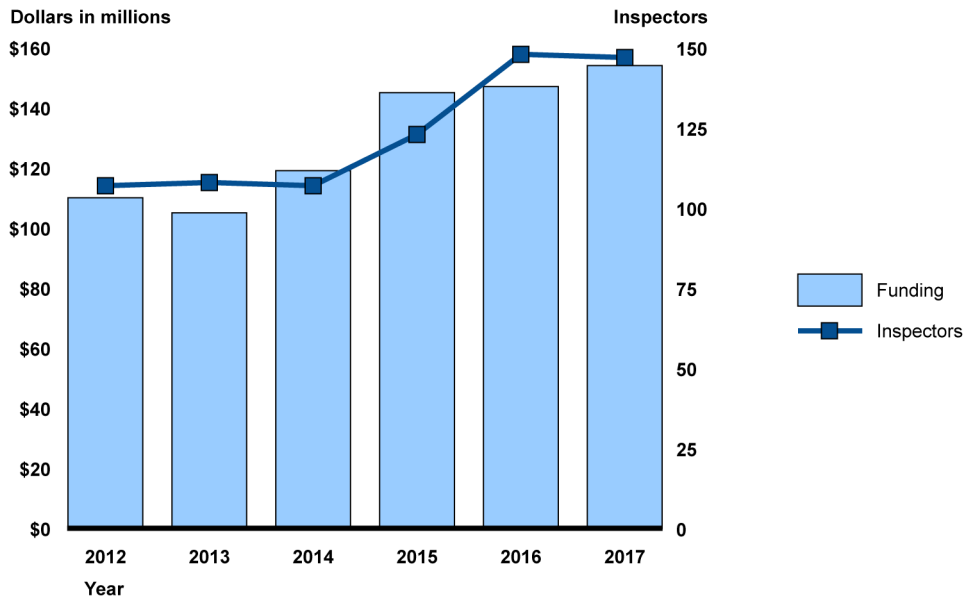
PHMSA Used a Regional Workload Analysis to Allocate Inspection Resources, but Has Not Assessed Future Resource Needs

PHMSA Has Allocated Increased Inspection Resources Based on Regional Workload

From fiscal year 2012 to 2017, PHMSA's funding increased by nearly 40 percent, allowing the agency to hire additional pipeline inspectors. Specifically, PHMSA's funding increased from \$110 million in fiscal year 2012 to \$154 million in fiscal year 2017.¹³ PHMSA's inspection and enforcement division received the majority of the increased funding, allowing that division to hire additional staff. From fiscal year 2012 through 2017, the number of inspectors hired increased by over 25 percent, from 107 to 147 across the five PHMSA regions. (See fig. 2).

¹³ Funding measured in gross budget authority.

Figure 2: PHMSA funding and hired inspectors, 2012-2017



Sources: GAO analysis of Pipeline and Hazardous Materials Safety Administration (PHMSA) information and the Office of Management and Budget (OMB) gross budget authority data. | GAO-18-461

In recent years, PHMSA has improved its analysis of the number of pipeline inspectors needed to address the inspection workload in each region. Before 2014, PHMSA allocated inspectors evenly across the agency's five regions. Since 2014, PHMSA has used a regional workload analysis to allocate its interstate inspectors. Unlike the previous analysis, the regional workload analysis takes into account federal inspector workload, pipeline construction, and the amount of pipeline mileage in areas where the consequences of an accident are greater (such as populated and environmentally sensitive areas) to help ensure that PHMSA has appropriate resources in each region. For example, PHMSA's central region received a greater percentage of inspectors than most other regions to help oversee a number of new pipeline construction projects. (See table 2). According to PHMSA officials, the regional workload analysis has resulted in a better match between workforce staffing and needs.

Table 2: Number of federal pipeline inspectors hired and percent by region, 2013 and 2017

PHMSA Region	2013		2017	
	Inspectors hired	Percent of total hired	Inspectors hired	Percent of total hired
Central	23	21%	36	24%
Eastern	15	14%	21	14%
Southern	16	15%	22	15%
Southwest	26	24%	35	24%
Western	28	26%	33	22%
Total	108	100%	147	100%

Source: GAO analysis of Pipeline and Hazardous Materials Safety Administration (PHMSA) data | GAO-18-461

PHMSA Lacks an Inspection Workforce Plan That Assesses Future Resource Needs for Interstate Pipeline Inspections

While PHMSA has improved how it allocates its current inspection staff among the regions, the agency lacks a forward-looking workforce plan for interstate pipeline inspections. Workforce planning helps agencies take a strategic, forward-looking approach to put the right people with the right skills in the right places at the right time. We have previously identified leading practices for effective strategic workforce planning.¹⁴ These approaches may vary with each agency’s particular needs and mission, but share certain principles. These may include:

- identifying skills and competencies to fill critical workforce gaps and the strategies needed to recruit them;
- developing specific strategies that are tailored to address gaps in number, deployment, and alignment of human capital; and
- monitoring and evaluating the agency’s progress toward its human capital goals.

However, PHMSA has not developed a plan that systematically identifies the anticipated interstate pipeline inspection workload or the number of inspection staff needed to meet that workload. In light of the diminishing role that interstate agents currently provide in bolstering PHMSA’s inspection workforce, a plan for conducting future interstate pipeline inspections should also account for the reduction in resources and expertise state inspectors can potentially provide.

¹⁴ See [GAO-04-39](#).

According to PHMSA officials, they have not developed a workforce plan for interstate pipeline inspections because the agency's focus has been on allocating and training the recently hired inspectors and ensuring that pipeline inspections are completed. Further, the lack of an inspector workforce plan may be symptomatic of a wider-ranging workforce planning issue. A November, 2017 DOT Inspector General (IG) report found that PHMSA had not developed a comprehensive workforce plan since 2005 and recommended that PHMSA develop such a plan.¹⁵ PHMSA agreed with the recommendation and anticipates completing the plan by the end of December 2018. Of note, PHMSA's 2005 workforce plan did not include an analysis of federal and state inspectors needed for interstate pipeline inspections. In the absence of a workforce plan for interstate inspections, PHMSA cannot proactively plan for future inspection needs to ensure that federal and state resources are in place to provide effective pipeline oversight.

Conclusions

PHMSA has an important role in overseeing interstate pipelines and operators to ensure pipeline safety, and the agency's partnership with interstate agents has proven beneficial in fulfilling that role. Recent increases in funding have allowed PHMSA to increase its own inspection workforce and reduce its reliance on state agents. However, the agency does not have an inspection workforce plan to ensure that it is making the correct decisions regarding its mix of federal inspectors versus state resources. Therefore, it does not have reasonable assurance that it will be able to provide adequate oversight of interstate pipelines going forward.

Recommendation

PHMSA should develop a workforce plan for interstate pipeline inspections that is consistent with leading practices in workforce planning, which should include a consideration of the additional resources and safety oversight that state pipeline officials can provide.
(Recommendation 1)

Agency Comments

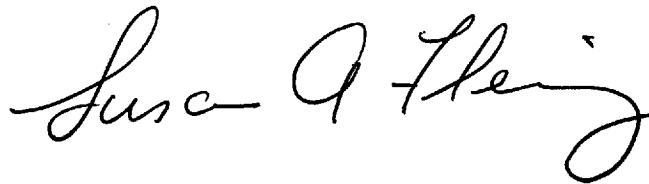
We provided DOT with a draft of this report for review and comment. In its comments, reproduced in appendix II, the Department of Transportation

¹⁵ Department of Transportation Inspector General: PHMSA Has Improved Its Workforce Management but Planning, Hiring, and Retention Challenges Remain, (Washington, D.C.; Nov. 21, 2017).

concluded with our recommendation. The Department of Transportation also provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to relevant congressional committees, the Secretary of Transportation, and other interested parties. In addition, this report will also be available at no charge on GAO's website at <http://www.gao.gov>

If you or your staff have any questions about this report, please contact me at (202) 512-2834 or flemings@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix II.

A handwritten signature in black ink that reads "Susan A. Fleming". The signature is written in a cursive, flowing style.

Susan A. Fleming
Director, Physical Infrastructure Issues

Appendix I: States That Have Applied and Have Not Been Accepted for Interstate Agent Status

In the past 7 years, four additional state pipeline safety agencies have applied for interstate agent agreements:

- **New Hampshire:** In 2014, the state legislature passed a law requiring the state's pipeline safety agency to apply for interstate agent status on an annual basis. State pipeline safety officials cited New Hampshire inspectors' local knowledge of interstate pipelines, as well as concerns over the frequency of PHMSA's interstate pipeline inspection activity, as reasons for seeking an agreement. To date, PHMSA has not accepted the state agency's annual applications for interstate agent status citing an increase in the federal inspection workforce, a preference for states to focus on intrastate pipeline oversight, and the ability for state agencies to participate in interstate inspections through other means, such as temporary interstate agreements.
- **Virginia:** In 2016, the Virginia General Assembly passed legislation requiring the state pipeline safety agency to apply for interstate agent status for natural gas. The state agency applied the following year, citing the need to conduct construction inspections of the Virginia section of two large interstate natural gas transmission pipelines. PHMSA did not accept the state agency's application, citing increasing federal inspection resources as well the agency's lack of full authority over its intrastate gas operators. Instead, PHMSA provided the state agency a temporary interstate agreement, renewable on an annual basis, to conduct the desired inspections.
- **Maryland:** Maryland's pipeline safety agency applied for interstate agent status in 2014 in response to public concern over proposed construction of a new interstate pipeline. PHMSA did not accept the agency's application for interstate agent status, citing an increase in federal resources and PHMSA's preference that the state agency focus its inspection efforts on intrastate pipelines. According to state agency officials, public interest has waned and the state has no plans to reapply.
- **Nevada:** Nevada's pipeline safety agency applied for interstate agent status in 2011. According to state pipeline safety officials, they did so to help retain staff, rather than as a result of pipeline safety concerns. PHMSA did not accept the agency's request, citing a preference only to enter into new interstate agreements when additional state support was needed, as well as the preference for states to focus on intrastate pipeline facilities. According to state officials, they do not plan to reapply.

Appendix II: Comments from the Department of Transportation



U.S. Department of
Transportation

Office of the Secretary
of Transportation

Assistant Secretary for Administration

1200 New Jersey Avenue SE
Washington, DC 20590

Susan A. Fleming
Director, Physical Infrastructure Issues
U.S. Government Accountability Office (GAO)
441 G Street NW
Washington, D.C. 20548

MAY 10 2018

Dear Ms. Fleming:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) partners with States to provide comprehensive and uniform implementation of the pipeline safety program. PHMSA authorized nine States, through the use of interstate agent agreements, to inspect interstate pipelines while retaining responsibility for enforcing pipeline safety regulations. Interstate agent agreements are just one of many PHMSA initiatives designed to strengthen the pipeline safety program.

The GAO draft report recognized PHMSA's pipeline safety program advancements, stating that "PHMSA has improved how it allocates its current inspection staff among the regions." PHMSA renewed interstate agent agreements with nine States for calendar year 2018; developed guidelines for State participation in interstate joint inspections and informed States, through events such as the regional National Association of Pipeline Safety Representatives meetings, about the types of interstate agreements available and how to participate in joint inspections; and evaluated the performance of States with existing interstate agent agreements and required improvements when performance issues were identified.

PHMSA has several actions currently underway that are designed to further enhance how it allocates resources for interstate pipeline inspections, including: developing a 5-year comparative workforce plan that assesses PHMSA's ability to hire and retain employees in mission-critical occupations, recognizing the importance of succession planning for strategic hiring, using hiring and retention incentives, hiring trends, and general workforce statistics, the outcome of which will inform how PHMSA allocates resources for interstate pipeline inspections.

Upon review of the draft report, we concur with the recommendation to develop a workforce plan for interstate pipeline inspections. The Department will provide a detailed response to this recommendation within 60 days of the final report's issuance.

We appreciate the opportunity to respond to the GAO draft report. Please contact Madeline M. Chulumovich, Director of Audit Relations and Program Improvement, at (202) 366-6512, with any questions or if GAO would like additional information.

Sincerely,

Keith Nelson
Assistant Secretary for Administration

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Susan Fleming, (202) 512-2834 or flemings@gao.gov

Staff Acknowledgements

In addition to the contact named above, Sara Vermillion (Assistant Director), Nick Nadarski (Analyst-in-Charge), Mike Duane, David Hooper, Delwen Jones, Malika Rice, and Kelly Rubin made key contributions to this report.

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