
Office of Inspector General
Audit Report

**PHMSA'S STATE PIPELINE SAFETY PROGRAM
LACKS EFFECTIVE MANAGEMENT AND
OVERSIGHT**

Pipeline and Hazardous Materials Safety Administration

Report Number: AV-2014-041

Date Issued: May 7, 2014





Memorandum

U.S. Department of
Transportation
Office of the Secretary
of Transportation
Office of Inspector General

Subject: **ACTION:** PHMSA's State Pipeline Safety
Program Lacks Effective Management and
Oversight
Pipeline and Hazardous Materials Safety
Administration
Report No. AV-2014-041

Date: May 7, 2014

From: Jeffrey B. Guzzetti
Assistant Inspector General
for Aviation Audits

Reply to
Attn. of: JA-10

To: Pipeline and Hazardous Materials Safety Administrator

The Nation's network of approximately 2.5 million miles of pipelines moves millions of gallons of hazardous liquids and 55 billion cubic feet of natural gas every day. Eighty-five percent of these pipelines are under State authority. The Department of Transportation's (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) authorizes States to oversee and enforce operators' compliance with Federal pipeline safety regulations through its State Pipeline Safety Program.¹ PHMSA also allocates grants to State programs. Between 2008 and 2013, funding for these grants more than doubled from \$19.5 million to over \$46 million.

In September 2010, an intra-State natural gas pipeline exploded in San Bruno, CA, resulting in 8 fatalities, 58 injuries, and 38 destroyed homes. The National Transportation Safety Board's (NTSB) investigation² found weaknesses in PHMSA's oversight of State programs. Because of these weaknesses, NTSB recommended that DOT assess the effectiveness of PHMSA's oversight of intra-State pipeline safety and whether State programs use Federal grants effectively. In a January 2012 letter to NTSB, the Secretary stated that our office would conduct the audit.

¹ The program is comprised of PHMSA's Natural Gas Program and PHMSA's Hazardous Liquid Program.

² NTSB, "Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire San Bruno, California, September 9, 2010," NTSB/PAR-11/01 PB2011-916501.

Accordingly, we assessed PHMSA's (1) policies and procedures for managing its State Pipeline Safety Program, including guidelines to participating States, and (2) oversight of State pipeline safety programs. We conducted this audit in accordance with generally accepted Government auditing standards. Our review is limited to States certified under PHMSA's Natural Gas Program. Exhibit A provides details on our scope and methodology. Exhibit B lists organizations we visited or contacted.

RESULTS IN BRIEF

PHMSA's guidelines,³ policies, and procedures for State pipeline safety programs—such as inspector staffing, training, scheduling, and inspection forms—lack elements to ensure State inspections cover all Federal requirements and pipeline operators maintain safety standards. For example, PHMSA's guidelines include an outdated staffing formula that does not account for the effects of new inspection types on State inspector needs and lack minimum qualifications for State inspectors to lead standard pipeline operator inspections. The guidelines also do not sufficiently detail how States should use risk factors for scheduling inspections or specify appropriate time intervals between inspections to ensure States' inspections detect and mitigate safety risks in a timely manner. Similarly, PHMSA's policies and procedures for conducting State inspections do not require its evaluators to review the adequacy of States' inspection procedures, and the Agency does not have procedures to inform States of updated inspection forms. As a result, States may not properly execute and cover all inspection requirements. Finally, while PHMSA's triennial financial reviews of State program expenditures are effective, the Agency lacks formal written procedures to guide the conduct of these reviews. This lack of procedures could undermine the reliability of future reviews.

PHMSA's oversight of State pipeline safety programs is not sufficient to ensure States comply with program evaluation requirements and properly use suspension grant funds.⁴ Lapses in oversight have resulted in undisclosed safety weaknesses in State programs. Our review of 400 program evaluation requirements⁵ for 5 randomly selected States⁶ detected 135 non-compliances with program requirements, while PHMSA identified 12. For example, States (1) could not provide evidence that all inspections were conducted within required timeframes; (2) did not have inspection procedures for all types of inspection activities; and (3) lacked trend analyses of operators' annual reports. Because it has not

³ *Guidelines for States Participating in the Pipeline Safety Program* (rev. 2011).

⁴ PHMSA awards suspension grant funds to fiscally challenged States to help them maintain or expand their pipeline safety programs.

⁵ We reviewed 80 program evaluation requirements for each of the 5 States for a total of 400 requirements.

⁶ Our review is limited to States pipeline safety programs implemented in calendar year 2010 and 2011. Our sample was selected from 48 certified States.

accounted for these non-compliances, the Agency cannot be sure that States correct program deficiencies. PHMSA officials acknowledged that staff are not familiar with program evaluation requirements and lack training on reviewing States' adherence to requirements. Furthermore, PHMSA has not provided sufficient guidance to States and has not completed financial audits of States' use of suspension funds. This lack of suspension fund audits makes it difficult for PHMSA to be sure that States have appropriately used and accounted for the funds.

We are making recommendations to improve PHMSA's oversight of State pipeline safety programs and grants.

BACKGROUND

Through its authority under the Natural Gas Pipeline Safety Act of 1968,⁷ PHMSA gives State agencies inspection and enforcement responsibilities over pipeline gas facilities. States must self-certify that they are qualified to oversee intra-State pipeline operators and enforce Federal pipeline safety regulations. Forty-eight States (51 State agencies) are certified to participate in the State Pipeline Safety Program.⁸

PHMSA provides grant funds to States to assume these pipeline safety responsibilities. Grant fund awards are based on States' performance scores, which PHMSA generates by assessing each State's oversight of its pipeline safety program. PHMSA can reimburse each State agency up to 80 percent of the actual costs of implementing a program, which may include personnel, operations, and equipment. To determine the performance score and grant reimbursement for each State, PHMSA uses the following method.⁹

- **The State's Annual Self-Certification (maximum of 50 points).** One-half of the total performance score is based on information a State submits in its annual self-certification documents. These documents explain how the State met certification requirements during the past year and how it plans to meet requirements in the upcoming year. Certification requirements include adopting Federal regulations and confirming that State inspectors are trained and qualified.
- **PHMSA's Annual Evaluation of the State's Program (maximum of 50 points).** The other half of a State's performance score is based on

⁷ P. L. 90-481 (1968)

⁸ This is limited to PHMSA's Natural Gas Program. Every State is certified to participate in this program, except Hawaii and Alaska. Also, there are more State agencies than States because Puerto Rico and District of Columbia are certified State agencies, and Arkansas includes two certified State agencies.

⁹ 49 Code of Federal Regulations 198.13

PHMSA’s annual on-site evaluation of the State’s program policies, plans, procedures, and records, and the State’s field inspections of pipeline operators. During this evaluation, PHMSA also verifies the information that the State submitted in its self-certification.¹⁰

- **Grant Allocation.** To calculate each State’s grant allocation, PHMSA applies the scoring from the State’s annual certification and program evaluation using the following formula:

$$\text{80 percent of State's Total Program Costs} \times \text{State's Performance Score} = \text{Grant Allocation}$$

Currently, PHMSA has six evaluators to review and score annual certifications and program evaluations, and oversee State agencies that participate in its State Pipeline Safety Program. Five of these evaluators also perform in-depth triennial grant reviews at State agencies.

Since 2009, PHMSA has awarded additional funds, known as suspension funds, to States that have experienced financial hardships during the recent recession. Suspension funds were available only to those States that could not provide matching funds, as stipulated in the maintenance-of-effort (MOE) clause of the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006.¹¹ Because many States were operating under hiring freezes and other financial restrictions that made the requirements of the MOE clause unattainable, the Department “suspended” the matching funds requirement for fiscal years 2009, 2010, and 2011. PHMSA provided the funds to sustain pipeline safety efforts and help State programs grow, and States must account for the funds separately from other grant funds and use them for specific purposes. In 2011, suspension funds accounted for approximately \$6 million of the \$35 million that PHMSA awarded to States.

PHMSA’S GUIDELINES, POLICIES, AND PROCEDURES LACK STEPS FOR EFFECTIVE MANAGEMENT

PHMSA’s guidelines, policies, and procedures for State programs lack steps to effectively manage the State Pipeline Safety Program and identify safety weaknesses in State programs. Specifically, PHMSA uses an outdated formula to determine how many inspectors each State needs to conduct inspections. PHMSA also lacks qualification requirements for State inspectors to lead standard inspections and does not detail in its guidelines how States should use recommended risk factors for scheduling inspections. The Agency also lacks written procedures for its triennial reviews.

¹⁰ For both a State’s annual self-certification and PHMSA’s annual evaluation of a State’s program, PHMSA may deduct points for non-compliances with program requirements.

¹¹ P.L. 109-468 (2006), known as the “PIPES” Act. The MOE clause requires States to provide matching funds that equal at least the previous 3-years’ average program costs.

PHMSA's Formula for Calculating Required Inspector Staffing Levels Is Outdated

PHMSA's staffing formula, used to calculate the minimum level of staff that States need to conduct pipeline inspections, predates certain inspection types and does not consider risks such as pipe age and composition. This formula, developed in the 1990s, includes three components common to all State pipeline programs to determine the number of needed inspectors: miles of pipeline, number of gas service lines, and inspection units.¹² However, the formula does not account for the more recent non-standard inspections¹³—integrity management, operator qualification, and operator training programs—or address factors that impact pipeline risk, such as age and material composition, and the size of inspection units. For example:

- Texas reported that despite meeting its formula-derived staffing levels for 2010 and 2011, it lacked sufficient inspector resources to accomplish its integrity management inspections of gas transmission pipeline operators. This problem will become more acute because a PHMSA regulation that went into effect in 2010¹⁴ requires States to inspect gas distribution integrity management programs as well as gas transmission.
- More than 20 percent of the Nation's total gas distribution pipelines are over 50 years old or composed of materials such as cast iron or bare steel. These pipelines are at a higher risk for failure than newer pipelines made of more resilient materials. However, PHMSA's staffing formula does not factor in the additional resources needed to inspect these pipelines' risks.

Because the formula does not factor in States' needs for non-standard inspections, States may not be staffed appropriately to meet inspection needs associated with new inspection types, such as those that assess integrity management programs,¹⁵ and risky pipelines.

¹²An inspection unit consists of all or part of an operator's pipeline facilities that are under the control of an administrative unit responsible for design, construction, and operation and maintenance, such as 500 miles of pipeline or a municipality-owned utility that distributes natural gas.

¹³ Non-standard inspections focus on operators' programs. Inspectors review the operator's plans, processes, and procedures for quality and completeness. They also perform field inspections to ensure that operators do what their plans say and to determine whether or not their plans are effective.

¹⁴ The Gas Distribution Integrity Management Final Rule, effective February 2010, requires gas distribution operators to establish integrity management programs for their gas distribution pipelines, and requires State programs to review the adequacy of these plans and their implementation.

¹⁵ An integrity management program includes plans, processes, and procedures aimed at reducing the likelihood and severity of accidents.

As part of a 2010 study, PHMSA and the National Association of Pipeline Safety Representatives reviewed the staffing formula to determine whether it needed enhancements. A staffing formula task group recommended quantifying certain risk factors to determine what additional staffing States needed to conduct integrity management and other new inspections and oversee leak- and failure-prone pipe. The study also revealed that States inconsistently designated inspection units—a factor in the staffing formula. A PHMSA official confirmed that States could under- or overstate their staffing needs depending on how they reported their inspection units. For example, Texas program officials illustrated how a reduction in its inspection units from 1,897 to 1,423 would decrease its staffing need from 30 to 22 inspectors.

A PHMSA official stated that the Agency has not changed the staffing formula in part because the study found an insufficient correlation between low staffing levels and reduced pipeline safety.¹⁶ Because it has not incorporated risk factors into the formula and does not consider how States define an inspection unit, PHMSA cannot be sure that States' are accurately estimating their staffing needs.

PHMSA Has Not Established Minimum Qualifications for State Inspectors to Lead Standard Inspections

Although PHMSA stipulates several training requirements for State inspectors, the Agency's guidelines do not establish minimum standards for the qualifications of State inspectors to lead standard pipeline operator inspections. According to PHMSA officials, the Agency requires State inspectors to meet the same training and qualification requirements as Federal inspectors. Specifically, State inspectors have 5 years to successfully complete 6 classes in order to become fully trained in standard inspections. PHMSA requires additional training for State inspectors to lead certain non-standard inspections, including operator qualification and integrity management inspections.

Work experience combined with PHMSA training is expected to provide inspectors with the capabilities they need to conduct standard inspections. Leaders of standard pipeline safety inspections are responsible for ensuring that the inspections are conducted according to Federal requirements and that pipeline operators are maintaining safety.¹⁷ However, PHMSA has not set minimum qualifications for State inspectors to lead standard pipeline safety inspections. Instead, the guidelines allow State program managers to decide when an inspector can lead standard inspections. For example, in one State, an individual who had been an inspector for less than a year was allowed to lead standard inspections despite taking none of the six required courses. Because it has not set minimum

¹⁶ Only two state pipeline programs could be considered as needing significant improvement, but PHMSA was unclear if staffing was an issue.

¹⁷ Leaders of standard pipeline safety inspections may lead a group of inspectors or conduct inspections alone.

qualifications for State inspectors to lead standard inspections, PHMSA cannot be sure that State inspections cover all Federal requirements and ensure pipeline operators maintain safety.

PHMSA’s Guidelines Do Not Detail How States Should Use Risk Factors for Scheduling Inspections

To ensure States identify high-risk pipeline operators and prioritize inspections accordingly, PHMSA requires States to consider 14 risk factors when scheduling inspections (see Figure 1). However, PHMSA’s guidelines do not weigh or include thresholds for the risk factors. For example, the guidelines do not state which risk factors are more critical than others or indicate how many instances of non-compliance make an operator a high risk.

Figure 1. Risk Factors for Scheduling Pipeline Inspections

• Length of time since last inspection	• Population density
• Leakage	• Excavation damage
• Incident	• Corrosion
• Compliance activities	• Natural forces
• Construction	• Outside forces
• High consequence areas	• Material and welds
• Geographic area	• Equipment

Source: PHMSA’s Annual Program Evaluation

The 5 States we reviewed did not use most of the 14 risk factors to schedule 2010 and 2011 inspections. Four States used only 1 risk factor—time intervals between inspections—while another State used 5 factors, including population density and pipeline material. This non-risk based approach to scheduling inspections makes it difficult for PHMSA to ensure that States properly oversee problematic operators.

Furthermore, one State allowed lengthy intervals between pipeline safety inspections. PHMSA requires States to inspect all types of operators and inspection units in accordance with the time intervals they have established in their procedures, but the Agency’s guidelines do not specify minimum timeframes for the frequency of the inspections. PHMSA noted that many States go beyond their risk-based requirement because they conduct inspections of all operators every year. However, we found that one State allowed as long as 8 years between inspections. Because of these oversight gaps, PHMSA cannot be sure that States detect and mitigate safety risks.

PHMSA's Policy and Guidelines for Conducting Inspections Are Incomplete

While PHMSA requires State programs to establish procedures for all types of inspections, the Agency does not require its evaluators to review the adequacy of these procedures. As a result, PHMSA cannot be sure States properly execute all required inspections. One State's guidance provided brief definitions of inspection types, but not the steps required to conduct inspections.

Furthermore, PHMSA does not have procedures to inform States of updates to its pipeline safety inspection requirements. PHMSA requires State inspection forms to cover all applicable code requirements addressed in Federal inspection forms. States use the forms from PHMSA's Web site to meet this requirement. PHMSA updates its Federal inspection forms throughout the year to incorporate new inspection requirements, but it does not alert State programs of the changes to the forms or archive the revisions. Four States used outdated Federal inspection forms at various times. Because PHMSA does not immediately inform State program officials of changes to its forms, States may not cover all applicable Federal inspection requirements.

PHMSA's Triennial Reviews Are Effective, but Lack Written Procedures

Every 3 years, PHMSA reviews States' pipeline safety program grant expenditures, including an examination of supporting documentation for the prior years.¹⁸ These triennial financial reviews have generally been thorough and found State reimbursement requests that included unallowable costs. For example, one reviewer identified ineligible personnel, training, and education costs that a State submitted in 2010 and 2011. This resulted in a deduction of \$119,434 from PHMSA's next grant reimbursement to the State. However, a lack of written procedures for conducting these reviews increases the risk of errors and inconsistencies, especially when new evaluators begin conducting grant reviews. Moreover, the lack of written procedures could impact PHMSA's goal of having all States use similar processes for calculating and allocating costs to streamline review processes and ensure equity across States.

PHMSA'S OVERSIGHT IS INSUFFICIENT TO ACCURATELY ASSESS STATES' SAFETY PROGRAMS AND USE OF FUNDS

PHMSA's assessments of State pipeline safety programs are not accurate. The Agency did not detect that: States did not track the timeliness of their inspections; some States did not have the required procedures for all types of inspections; and

¹⁸ Evaluators review supporting documentation for States' grant expenditures—such as salary data and equipment purchases—and deduct unsupported costs.

that States lacked trend analyses of operators' annual reports, which can detect information about incidents such as pipeline leaks and excavation damage. The Agency also lacks sufficient guidance on the use of suspension funds. Moreover, it has not audited States' use of these funds.

PHMSA's Assessments of States' Compliance With Program Evaluation Requirements Are Not Accurate

Through its annual program evaluations, PHMSA assesses States' compliance with performance factors, scores their safety programs accordingly, and notifies States of non-compliance and needed corrective actions. However, our review of 400 program evaluation requirements for 5 randomly selected States' 2010 and 2011 pipeline safety programs showed that PHMSA evaluators did not identify a large number of non-compliances. Specifically, we identified 135 non-compliances with program requirements, while PHMSA identified 12. These non-compliances include three critical categories.

First, States did not track whether they performed all inspections within required timeframes. PHMSA is required to verify whether States assess all operators and inspection units in accordance with the timeframes established in the States' procedures. None of the five States could provide evidence that they had inspected all operators according to their time intervals, and PHMSA did not identify these non-compliances. The five States provided selected individual inspections to PHMSA during their program evaluations, but could not provide evidence for their entire programs. Consequently, PHMSA cannot be sure that these States are conducting all safety inspections frequently enough to detect and mitigate safety risks.

Second, three of the five States did not comply with PHMSA requirements to have inspection procedures for all types of inspections,¹⁹ but PHMSA identified only one of the three non-compliant States. Specifically, PHMSA noted that the State did not have any inspection procedures for on-site operator training in 2011. We found, however, that the State did not include procedures for integrity management inspections or on-site operator training inspections in 2010 and 2011.

Finally, States did not conduct trend analyses of operators' annual reports, which provide critical historical information, such as pipeline leaks and excavation damage. PHMSA requires States to analyze operators' annual reports to pinpoint high-risk areas. All five States said they did not conduct these trend analyses in 2010 and 2011, but PHMSA did not identify any instances of non-compliance with this requirement in its program evaluation.

¹⁹ We reviewed seven types of inspections: standard, integrity management, operators' qualifications, damage prevention, on-site operator training, construction, and incident/accident.

According to PHMSA officials, the Agency's evaluators—who have at least 18 years of pipeline experience—have the overall technical expertise and training to perform and evaluate pipeline inspections. However, they lack training on how to review overall State programs in accordance with PHMSA's specific program evaluation requirements and procedures. For example, PHMSA requires courses on pipeline corrosion control but does not provide training for evaluating and verifying States' application of assessment criteria, such as timeframes and trend analyses. The lack of this training makes it difficult for PHMSA to be sure that its personnel are capable of evaluating compliance with all program requirements and consequently to ensure that safety risks are mitigated as much as possible.

PHMSA Has Not Provided Sufficient Guidance on or Audited States' Use of Suspension Funds

PHMSA provides States general guidance on suspension funds—including how to apply and account for these funds—but the guidance is incomplete and, in part, difficult to follow. For example, one of the four States²⁰ did not comply with PHMSA's requirements to account for the funds separately from other grant funds and provide supporting expense documentation. Another State was unsure how it should apply suspension funds in its next year's program cycle because States cannot include them in subsequent years' budgets, which are the basis for grant requests.

A PHMSA official stated that the Agency will begin suspension fund audits in 2014, but it has yet to develop an audit plan or determine the impact these audits will have on its evaluation resources. Furthermore, while it has requested that States submit their 2009 suspension fund data so it can recover any unspent funds, PHMSA will not audit the supporting documentation until it conducts the next triennial review of each State, which could be as much as 3 years later. As a result, PHMSA cannot determine whether the funds are being used appropriately or achieving the purpose of helping States maintain and grow their programs, or identify the type of guidance States need to better prepare for upcoming audits.

CONCLUSION

PHMSA's State Pipeline Safety Program plays a significant role in maintaining a safe and reliable intra-State gas pipeline system. While PHMSA has several efforts under way to meet this mission, it is critical that PHMSA strengthen its management and oversight of States' pipeline safety programs. To effectively execute the program, PHMSA must take actions to further refine its policies and procedures for managing the program, including its guidelines to the States and improve its oversight to ensure States fulfill their role in pipeline safety. Until such

²⁰ Florida was not included because it does not accept State pipeline safety grant funds.

actions are taken, the Agency cannot be sure that all safety weaknesses are identified and mitigated.

RECOMMENDATIONS

We recommend that PHMSA:

1. Revise the staffing formula so that it accounts for risk and non-standard inspections, and periodically analyze State-provided inspection unit data to validate staffing formula results.
2. Develop and include in PHMSA's State Program Guidelines:
 - a. Minimum training requirements for State inspectors' qualification to lead standard inspections (i.e. classroom and/or on-the-job training).
 - b. A system that tracks revisions to Federal inspection forms and actively notifies States when these new forms are available.
 - c. Standards for time allowed between inspections for all inspection types.
3. Develop and implement procedures to review the adequacy of inspection procedures as part of the annual program evaluation.
4. Provide States with comprehensive guidance to ensure States effectively implement PHMSA's risk analysis methods for scheduling inspections.
5. Document the procedures for conducting triennial grant reviews to ensure consistency of oversight.
6. Develop a training program that ensures PHMSA evaluators can successfully conduct the following program evaluation procedures:
 - a. Determine and verify whether States have complied with all Program evaluation requirements according to its procedures.
 - b. Accurately notify States in writing of non-compliance with Program evaluation requirements to ensure States take correct action to achieve compliance.
7. Develop and implement a plan for auditing States' use of suspension funds, and work with State program managers to identify current suspension fund administration challenges requiring additional guidance.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

We provided a draft of this report to PHMSA on February 20, 2014, and received its response on April 24, 2014, which is included in its entirety as an appendix to this report. In its response, PHMSA concurred with recommendations 2, 5, and 7; and partially concurred with recommendations 1, 3, 4, and 6. As detailed below, we are requesting that PHMSA reconsider its response to recommendation 1, and provide additional information on its planned actions for recommendation 3. For recommendations 2, 4, 5, 6, and 7, PHMSA's actions taken and planned meet the intent of our recommendations. However, we are requesting PHMSA provide additional documentation to verify that these actions fully address our recommendations.

For recommendation 1, PHMSA asserts that it has taken action independent of our recommendation that addresses our concerns regarding the staffing formula. PHMSA referenced a 2010 study in which a joint team of State pipeline safety program representatives and PHMSA participants evaluated the merits of the existing staffing formula and made recommendations for improvements. We acknowledged PHMSA's efforts to improve the staffing formula in our report, but believe that those actions do not go far enough. To resolve our recommendation, PHMSA officials stated that they will review the considerations from the 2010 study. However, these planned actions do not adequately address our recommendation that the Agency revise the formula to account for non-standard inspections—integrity management, operator qualification, and operator training programs—and address factors that impact pipeline risk such as age and material composition, and the size of inspection units. Accordingly, we request that the Agency reconsider its position on this recommendation. We consider this recommendation open and unresolved.

For recommendation 2, PHMSA states that it will review and update its guidance to help State program managers determine the proper training level inspectors should have before they perform unassisted inspections. The Agency also stated that its current inspection forms are already posted on its Web site (and that States have been notified as such), that it established a 5-year maximum interval between standard inspections in its recent State guidance, and that maximum time intervals will be established for other inspections. However, we are requesting that PHMSA provide additional information regarding those actions. Specifically, we request that PHMSA provide (1) additional information on whether its update to the States guidance will include minimum training requirements for State inspectors' qualification to lead standard inspections, (2) a copy of PHMSA's February 2014 email sent to the States alerting them to the location of the most recent inspection forms, (3) evidence of the Agency's intention to alert States of future changes to

the forms, and (4) a copy of the revised State guidance establishing maximum time intervals for all inspections. We consider recommendation 2 resolved but open pending receipt of this information.

For recommendation 3, PHMSA states that it plans to enhance its existing inspection guidance to States to address our recommendation. However, PHMSA did not provide the specific enhancements it plans to make to the guidance to ensure States' inspection procedures are adequate, or how it will oversee States' implementation of this guidance. Additionally, PHMSA's response does not address actions to develop and implement procedures for its evaluators' use in determining the adequacy of inspection procedures during annual program evaluations. Accordingly, we request that the Agency clarify how its planned actions will meet the intent of this recommendation. We consider recommendation 3 unresolved pending receipt of this information.

For recommendation 4, PHMSA states that it will review and revise the current risk elements for States' inspection scheduling, and will provide guidance to States on the methodologies to be used in line with PHMSA's methodologies for inspection unit risk ranking. The Agency also stated that it has developed Web-based training regarding risk assessment methods. However, we are requesting that PHMSA provide us with copies of the revisions to its States' guidance addressing effective implementation of PHMSA's risk analysis methods for scheduling inspections, and a copy of the Web-based training. We consider recommendation 4 resolved but open pending receipt of this information.

For recommendation 5, PHMSA requested that we close this recommendation because it has taken actions to address it. While these actions appear to address the intent of our recommendation, we are requesting that PHMSA provide us with the procedures it has developed for conducting triennial reviews. We consider recommendation 5 resolved but open pending receipt of this information.

For recommendation 6, PHMSA again requested that we close this recommendation because it has taken actions to address it. However, we are requesting that PHMSA provide us with a copy of its 2013 training manual for PHMSA evaluators, evidence of the Agency's intention to provide this training annually to all evaluators, and a copy of its forthcoming policy for the 2013 grant cycle that addresses State funding and program evaluation scores. We consider recommendation 6 resolved but open pending receipt of this information.

For recommendation 7, PHMSA states that it has developed a plan for auditing States' use of suspension funds and will meet with State program managers to identify administrative challenges and develop guidance on suspension funds. However, we are requesting that PHMSA provide us with a copy of its plan and intended actions for developing guidance for State program managers to validate

the actions it has taken. We consider recommendation 7 resolved but open pending receipt of this information.

Despite its general concurrence with our recommendations, PHMSA took issue with one of our findings, asserting that it requested but was never provided with information regarding the purported 135 missed non-compliances. However, our report includes 3 examples that describe the non-compliances. Further, we discussed the types of non-compliances we found with PHMSA officials on multiple occasions prior to issuing our draft audit report. Nevertheless, we are ready to again review our results with PHMSA so the Agency can take steps necessary to improve training on reviewing State grant programs.

ACTIONS REQUIRED

We consider recommendations 2, 4, 5, 6, and 7 resolved but open pending receipt of the information requested above. We consider recommendations 1 and 3 open and unresolved and request that PHMSA reconsider its position for recommendation 1 and clarify how its planned actions will meet the intent of recommendation 3.

In accordance with Department of Transportation Order 8000.1C, we request that PHMSA provide us this additional information within 30 days. We appreciate the courtesies and cooperation of PHMSA representatives during this audit. If you have any questions concerning this report, please call me at (202) 366-0500, or Scott Macey, Program Director, at (415) 744-3090.

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cc: DOT Audit Liaison, M-1
PHMSA Audit Liaison, PH-4

EXHIBIT A. SCOPE AND METHODOLOGY

We conducted this audit in accordance with generally accepted Government auditing standards between April 2012 and February 2014. 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.

We reviewed States certified under PHMSA's Natural Gas Program, which includes transmission²¹ and distribution²² systems, for calendar years 2010 to 2011. We randomly selected 5 of the 48 certified States (51 State agencies) to review and visit—California, Oklahoma, Florida, Georgia, and Texas.

To evaluate the effectiveness of PHMSA's State Pipeline Safety Program, we:

- Reviewed PHMSA's guidance, policies, and procedures.
- Interviewed PHMSA management and program evaluators responsible for Program management and oversight at Headquarters and selected States.
- Shadowed PHMSA's annual program evaluations at three selected States, and shadowed PHMSA's triennial grant review of one selected State.
- Interviewed State program directors and inspectors.
- Reviewed documentation from PHMSA and each of the selected States for the annual program evaluation.²³ We selected the 2010 and 2011 program evaluations from each of the 5 randomly selected states we visited for a total of 10 program evaluations. A program evaluation can have up to 115 questions and each question can have up to 5 program evaluation requirements. We selected a total of 400 program evaluation requirements (80 per State) that were non-technical and had a direct impact on safety.
- Reviewed documentation supporting a sample of expenses that California, Oklahoma, Georgia, and Texas²⁴ submitted to PHMSA for reimbursement. We stratified payment request cost items for the 4 states and randomly selected 19

²¹ Transmission pipelines are large pipelines that operate under high pressure. They are typically used to transport gas to a distribution center or to supply a large-volume customer. In San Bruno, a transmission pipeline between two distribution systems ruptured.

²² Distribution pipelines are small pipelines that operate under low pressure. They are typically used to transport natural gas to individual households and users.

²³ Each State completed one program evaluation per year.

²⁴ Florida does not receive PHMSA State Pipeline Safety Program grant funding.

out of 143 cost items.²⁵ These cost items represented \$7.6 million or 39 percent of \$19.2 million in reimbursements PHMSA paid to these 4 states in 2010/2011. From this sample, we randomly selected and reviewed 188 line items out of 1,664.

- Reviewed and analyzed staffing formula documentation that PHMSA used to assess State staffing levels.
- Interviewed NTSB and other stakeholders regarding the Program's effectiveness.

²⁵ One cost item was selected twice due to our 'with replacement' sampling methodology reducing the number of unique cost items selected from 20 to 19.

Exhibit A. Scope and Methodology

EXHIBIT B. ACTIVITIES VISITED OR CONTACTED**PHMSA**

State Program Office
Inspector Training & Qualifications Office

State Agencies

California Public Utilities Commission
Florida Public Service Commission
Georgia Public Service Commission
Oklahoma Corporation Commission
Railroad Commission of Texas

National Transportation Safety Board

Office of Railroad, Pipeline, and Hazardous Materials Investigation
Office of Safety Recommendations & Advocacy

Stakeholders

National Association of Pipeline Safety Representatives
National Association of Regulatory Utility Commissioners
Pipeline Safety Trust

APPENDIX



U.S. Department
of Transportation
**Pipeline and Hazardous
Material Safety
Administration**

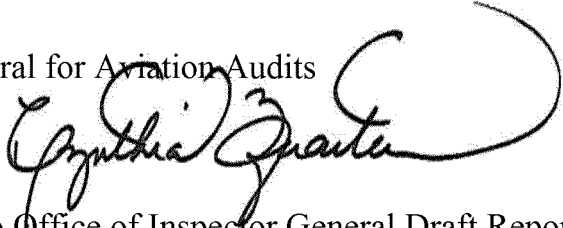
Administrator

1200 New Jersey Avenue, SE
Washington, DC 0590

April 24, 2014

MEMORANDUM

TO: Jeffrey B. Guzzetti
Assistant Inspector General for Aviation Audits

FROM: Cynthia L. Quarterman 

SUBJECT: Management Response to Office of Inspector General Draft Report
on
New Approaches Are Needed To Improve PHMSA's State Pipeline
Safety Program (Project No. 12A3008A000)

The Pipeline and Hazardous Materials Safety Administration's Office of Pipeline Safety's mission is to protect people and the environment from the risks of pipeline incidents. With over 500 Federal and State employees committed to supporting that mission and improving pipeline safety, PHMSA establishes national policy, sets and enforces standards, educates stakeholders, and conducts research and development activities.

Since 1971 when a national uniform standard of pipeline safety regulations was implemented, States have had the ability, through PHMSA, to regulate the safety of intrastate pipelines and pass additional safety regulations more stringent than the minimum Federal regulations. Before that federal program was created, many states already performed those functions under state law. Through these federally approved pipeline safety programs, most States have established more stringent safety regulations. PHMSA assumes the oversight responsibility for the full cost of pipeline safety programs if a State chooses not to participate. Currently, all

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States except Alaska and Hawaii, participate in PHMSA's pipeline safety program.

PHMSA Oversees and Supports State Pipeline Safety Programs

For over 40 years, PHMSA has worked diligently to foster a close working relationship with State pipeline safety programs. PHMSA depends on the States to manage their programs, including evaluating their inspectors' ability to perform standard inspections. PHMSA's role is to oversee the individual State programs to ensure their actions are in compliance with PHMSA's certification requirements and that appropriated funds are appropriately spent.

Current PHMSA staffing of State Evaluators have a total of 169 years of cumulative pipeline safety knowledge, or 28 years on average of experience, with pipeline safety issues. They use this knowledge and skill during State evaluations.

Our program oversight includes annual on-site Program Evaluations and triennial Grant Reviews. PHMSA works with States to collect and analyze annual Progress Reports, provide comprehensive program guidance, ensure compliance with and answer questions, and help them improve their individual programs.

State Pipeline Safety Programs Accomplish Program Goals

State pipeline safety programs successfully accomplish the Department of Transportation's (DOT) public safety goals. Under PHMSA's oversight, State pipeline safety programs have reduced the rate of serious pipeline incidents for gas distribution pipelines by approximately two-thirds over the last 30 years. In addition, the mileage of gas distribution pipelines has increased by over 50 percent. In 1990, State pipeline safety programs broke through the six-sigma threshold (1:1,000,000), the gold standard for acceptable risk for serious distribution incidents, and have continued to reduce serious incidents even more with an incident rate averaging half the six sigma threshold over the past 5 years. The total number of serious incidents on distribution pipelines in calendar years 2012 and 2013 were 24 and 21, respectively, which were the lowest number of serious incidents on record for the past 30 years. Since CY2010, in which there were five serious incidents on intrastate transmission lines under State safety authority, including the tragic incident in San Bruno, California, there have been no other serious incidents to date on intrastate transmission pipelines.

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PHMSA Strongly Supports the Education and Training of Pipeline Safety Inspectors

PHMSA has developed 25 pipeline-specific training courses and 28 Web Based Training (WBT) modules for Federal and State pipeline safety inspectors. There is no charge associated with the training provided to States participating in the pipeline safety program. PHMSA also mentors State pipeline safety inspectors by allowing them to audit Federal pipeline safety inspections and support Federal staff with integrity management inspections when resources allow.

In August of 2013, PHMSA opened a new training facility in Oklahoma City, OK, increasing its capability and commitment to the education and training of the pipeline safety inspector workforce. The new location provides offices and four classrooms, along with supervisory control and data acquisition (SCADA), Welding and Corrosion Labs, and fully integrated audiovisual systems throughout the training areas. The PHMSA Training Center provides dedicated space for demonstrating new technologies, methods, and procedures to Federal and State inspectors.

Conclusion

The OIG's Draft Report asserts that PHMSA's State Evaluators missed a large number of "non-compliances" (135 among 5 States) during their program evaluation. While the areas identified by the OIG are a non-technical subset of the entire question set, PHMSA needs specific information to assess the nature of its findings. However, PHMSA requested but was never provided with information regarding what the purported missed "non-compliances" were. Therefore, PHMSA is unable to verify this finding or, more importantly, use that finding to improve its training for program evaluators. Receiving the requested information from the OIG will allow PHMSA an opportunity for training, program improvement, and increased safety.

Recommendations and Responses

Recommendation 1: Revise the staffing formula so that it accounts for risk and non-standard inspections, and periodically analyze State-provided inspection unit data to validate staffing formula results.

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Response: Partially Concur. PHMSA has already taken action independent of this audit and recommendation. PHMSA uses its staffing formula to estimate the minimum staff a program should have based on the recommended number of inspection days required to be conducted in a given year. PHMSA does not use the staffing formula to prohibit or discourage a State from increasing its staff to meet its individual state inspection needs nor does it attempt to reduce the number of inspection staff in a State pipeline safety program. In fact, PHMSA encourages States to increase State pipeline safety program staffing by increasing available grant funding and suspending the maintenance of effort clause for the State Base Grant during difficult economic times. This approach has added approximately 40 State inspectors to pipeline safety programs during recent tough economic times.

In 2010, PHMSA evaluated the merits of the existing staffing formula with a team of State pipeline safety program representatives. This team determined that the existing formula is appropriate for setting a baseline inspector corps and made recommendations for improving the formula including providing additional criteria concerning increasing staff levels. PHMSA continues to believe the recently revised staffing formula is appropriate.

PHMSA recognizes that the number of inspection units and their size can affect the staffing formula results. For this reason, PHMSA annually reviews this program element with States through Question B8 of its Program Evaluation form and addresses concerns as they arise. For example, PHMSA addressed the concern regarding the size of inspection units in its letter to the California Public Utilities Commission for its CY2012 pipeline safety program.

PHMSA's "Guidelines for States Participating in the Pipeline Safety Program" lists 10 additional considerations for State staffing levels, including pipe age and material composition (such as cast iron), which may be unique to an individual State and support staffing over the base level (Section 4.2.1). Additionally, Section 4.2.2 of those guidelines allow States to propose an alternate staffing level based on supporting detailed information including aging infrastructure or the need for more non-standard inspections.

PHMSA recognizes that program improvement is a continuous process and takes this responsibility seriously. In response to this recommendation, PHMSA agrees to review the considerations identified in the 2010 Staffing Task Group to improve PHMSA's current State guidance. PHMSA will complete this review by December 31, 2014.

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Recommendation 2: Develop and include in PHMSA’s State Program Guidelines:

- a. Minimum training standards for State inspector qualifications for leading inspections (i.e., classroom and/or on-the-job training).
- b. A system that tracks revisions to Federal inspection forms and actively notifies States when these new forms are available.
- c. Standards for time allowed between inspections for all inspection types.

Response: Concur. a) PHMSA had not established minimum qualifications because we wanted to allow State program managers the flexibility to use their available resources, as appropriate and consistent with inspector skill levels. By December 31, 2014, PHMSA will review and update guidance to help State program managers determine the proper training level inspectors should have before they perform unassisted inspections.

b) PHMSA already posts the most current inspection forms on its website and will now alert States when there are changes to the Federal inspection forms. On February 27, 2014, PHMSA sent an email to all States alerting them to the location of the most recent inspection forms and of PHMSA’s intentions to alert them to future changes. PHMSA will continue to alert states of future changes.

c) PHMSA established a 5-year maximum interval between standard inspections in guidance to States for CY2014. PHMSA required public education effectiveness inspections to be completed by the end of CY2013 and distribution integrity management inspections to be completed by the end of CY2014. By December 31, 2014, PHMSA will establish maximum inspection intervals for other types of inspections.

Recommendation 3: Develop and implement procedures to review the adequacy of inspection procedures as part of the annual program evaluation.

Response: Partially Concur. PHMSA provides States with guidelines for administering their pipeline safety programs. Under the guidelines, each pipeline safety program requires States to establish and follow written inspection procedures that provide for methodical, systematic, comprehensive, and consistent inspections.

PHMSA annually evaluates each State’s adherence to its inspection procedures. As shown in the statistics section of the “State Pipeline Safety

Programs are Accomplishing Program Goals.” State pipeline safety programs have been very successful in meeting safety goals. Nevertheless, PHMSA does recognize that program improvement is a continuous process. By December 31, 2014, PHMSA will provide States with standardized inspection forms and will enhance our existing general inspection guidance.

Recommendation 4: Provide States with comprehensive guidance to ensure States effectively implement PHMSA’s risk analysis methods for scheduling inspections.

Response: Partially Concur. Prior to this audit, PHMSA was working with States on this matter in transitioning to an advanced risk-informed methodology focused on mitigating overall risk to people and the environment. PHMSA has supported risk inspection prioritization for several years and believes prioritizing inspection units according to risk is especially important when inspection resources are limited. PHMSA has also established key factors for States to consider when risk-ranking inspection units. Additionally, PHMSA developed a Web Based Training titled, “Introduction to Risk Assessment Methods,” which provides a basis and background for assessing risk and is available to all State program managers and inspectors.

Moving forward, PHMSA is committed to reviewing the current key elements of the existing guidance to assess if any modifications are needed. Further, PHMSA will revise the risk-ranking elements and provide guidance to the States on the appropriate methodologies to be used in line with PHMSA’s methodologies for inspection unit risk-ranking. PHMSA will have this additional guidance in place by December 31, 2014.

Recommendation 5: Document the procedures for conducting triennial grant reviews to ensure consistency of oversight.

Response: Concur. PHMSA appreciates the OIG’s recognition of how thorough PHMSA’s triennial grant reviews and efforts are to assure the appropriate expenditure of Federal grant funds. PHMSA proposes closure of this recommendation based on the following actions already taken:

- PHMSA’s evaluators involved with grant monitoring have completed a Grant Certification program by Management Concepts and take refresher courses each year.

- PHMSA has enhanced existing forms, guidance, and training for conducting triennial grant reviews to include procedures being implemented for CY2014 Grant Reviews.
- On February 13, 2014, PHMSA held a webcast with all its State Evaluators involved in grant management. The purpose of this webcast was to review PHMSA's procedures for conducting grant monitoring and to address grant review form updates for monitoring One Call, State Damage Prevention, and MOE Suspension Grant Fund expenditures.

Recommendation 6: Develop a training program that ensures PHMSA evaluators can successfully conduct the following program evaluation procedures:

- a. Determine and verify whether States have complied with all Program Evaluation requirements according to its procedures.
- b. Accurately notify States of non-compliance with Program Evaluation requirements to ensure States take correct action to achieve compliance.

Response: Partially Concur. PHMSA proposes closure of this recommendation based on the following actions:

- PHMSA has taken action to develop a more robust annual review and training of State guidance materials for conducting Program Evaluations. In PHMSA's annual meeting with State Evaluators from November 5-7, 2013, PHMSA went over each of the Program Evaluation questions and the associated guidance with each State Evaluator to discuss what each State Evaluator reviews and considers in determining if there are areas needing improvement and if grant allocation points should be deducted. PHMSA will continue to conduct this annual training to enhance consistency with Program Evaluations.
- PHMSA periodically rotates the State Evaluators among the States so a different perspective is brought to the State Evaluation over time to identify inconsistencies with State Evaluator perception, interpretation, or time given to review a particular issue. PHMSA is implementing a new policy for the 2013 grant cycle to not reduce a State's funding unless the State loses points for the same question it lost points for in

the previous evaluation, which allows States to make program changes before PHMSA reduces their grant funding.

- PHMSA requested six additional positions in the FY2015 budget request to help support more in-depth evaluations of State pipeline safety programs. This request, if granted, will effectively double PHMSA's capacity for conducting thorough and effective program evaluations.
- PHMSA, by formal correspondence, continues to communicate annually with State senior officials regarding pipeline safety issues identified from the annual Program Evaluations. PHMSA's State Evaluators continue to offer to brief State pipeline safety senior officials on the Program Evaluation results at the conclusion of the evaluations.

Recommendation 7: Develop and implement a plan for auditing States' use of suspension funds, and work with State program managers to identify current suspension fund administration challenges requiring additional guidance.

Response: Concur. An audit plan has been developed for auditing States' use of Suspension funds. By December 31, 2014, PHMSA will meet with State program managers to identify administrative challenges and develop additional guidance with regard to Suspension funds. This guidance will be included in the 2015 "Guidance to States Participating in the Pipeline Safety Program."