

**DEPARTMENT OF TRANSPORTATION
OFFICE OF THE CHIEF INFORMATION OFFICER**

SUPPORTING STATEMENT

Pipeline Safety: Control Room Management/Human Factors

Docket No. PHMSA-2007-27954

OMB Control No. 2137-0624

INTRODUCTION

This is to request the Office of Management and Budget's (OMB) grant approval for a new information collection entitled "**Pipeline Safety: Control Room Management/Human Factors**" (OMB Control No. 2137-0624).

Part A. Justification.

1. Circumstances that make collection of information necessary. The Pipeline and Hazardous Materials Safety Administration (PHMSA) is revising the Federal pipeline safety regulations to address human factors and other components of control room management. The Pipeline Inspection Protection, Enforcement and Safety (PIPES) Act of 2006 required PHMSA to issue regulations mandating operators of gas and hazardous liquid pipelines to develop, implement, and submit a human factors management plan designed to reduce risk associated with human factors in each control room. The PIPES Act also requires PHMSA to implement recommendations from the 2005 National Safety Transportation Board (NTSB) study relating to the Supervisory Control and Data Acquisition (SCADA) System—a significant tool used by many controllers to interface with controlled or monitored pipelines.

This rule improves opportunities to reduce risk through more effective control of pipelines. These regulations will enhance pipeline safety by coupling strengthened control room management with improved controller training and fatigue management. This information supports the U.S. Department of Transportation's "SAFETY STRATEGIC GOAL" which targets three main strategic initiatives: managing risk and integrity, sharing responsibility, and providing effective stewardship. This goal enhances public health and safety by working toward the elimination of transportation-related deaths and injuries.

2. How, by whom, and for what purpose is the information used. The final rule imposes requirements for control room management for all hazardous liquid (HL) pipelines and gas pipelines subject to 49 CFR Parts 195 and 192 respectively that use SCADA systems and have at least one controller and control room. The regulations in 49 CFR Part 195 apply to owners and operators of pipelines used in the transportation of hazardous liquids and carbon dioxide. Throughout this document, the term "hazardous liquid" refers to all products in pipelines regulated under part 195. In addition, the term "operator" refers to both owners and operators of pipeline facilities. The regulations in 49 CFR Part 192 apply to operators of pipelines that transport natural gas, flammable gas, or gas which is toxic and corrosive. Throughout this document, the term "gas" refers to all gases in pipelines regulated under part 192. Gas distribution pipeline operators with fewer than 250,000 services or gas transmission without compressor stations must follow procedures with appropriate documentation that implement only

the requirements for fatigue management, validation, and compliance and deviations. The information is for use by the Agency and State Officials to assist federal and state pipeline safety inspectors who audit this information when they conduct compliance inspections and to provide background for failure investigations. The recordkeeping requirements are consistent with good business practices and are designed to enhance current control room management practices.

3. Extent of automated information collection. PHMSA does not specify a format. Operators are free to make use of any information tool available to them.

4. Efforts to identify duplication. No Federal rules duplicate, overlap, or conflict with the proposed rule.

5. Efforts to minimize the burden on small businesses. HL pipeline operators are required under 49 CFR Part 195 and gas operators are required under 49 CFR Part 192 to maintain records, make reports, and provide information to PHMSA and state pipeline safety offices concerning the operations of the pipeline and related facilities. PHMSA has taken steps to minimize the significant economic impact on small entities, including exempting gas distribution operators with fewer than 250,000 services and gas transmission operators without compressor stations from all requirements except fatigue mitigation, compliance validation, and recordkeeping. The rule is likely to have minimal cost impact on small entities.

6. Impact of less frequent collection of information. PHMSA requires the information for regulatory purposes. The scheduled collection of most of the information is conducted annually, but in some cases the collection is not to exceed 15 months. Less frequent data collection would hinder achieving operator compliance with the pipeline safety regulations, which is critical to preventing accidents.

7. Special Circumstances. None of the conditions apply.

8. Compliance with 5 CFR 1320.8. On September 12, 2008 PHMSA published a Notice of Proposed Rulemaking (NPRM) in the Federal Register (FR) notice requesting comments on the proposed rule, and providing a 60-day comment period. The final rule addresses the comments filed by the public.

9. Payments or gifts to respondents. No payment is provided.

10. Assurance of confidentiality. Not applicable.

11. Justification for collection of sensitive information. There is no sensitive information collected.

12. Estimate of burden hours for information requested. The rule requires HL pipeline operators and gas operators to keep records on the following sections: control room management procedures; roles and responsibilities of pipeline controllers; information on SCADAs; fatigue mitigation; alarm management; change management; operating experience; training; compliance validation; and deviations. PHMSA estimates that it would take pipeline operators subject to the requirements of the rule approximately 127,328 hours per year to comply with the rule's recordkeeping and record retention requirements. Detailed estimates follow:

(a) Prepare and keep records associate with the general requirement under this rule.

Operators must have control room operating procedures. PHMSA estimates that it would take each operator approximately 6 hours per year to fulfill the recordkeeping requirements. There are 422 HL pipeline operators and 548 gas pipeline operators impacted by this requirement. PHMSA estimates that it would take pipeline operators approximately 5,820 hours per year $[6*(422+548)]$ to file and maintain records.

(b) Recordkeeping to comply with the requirements under roles and responsibilities. Each operator must define the roles and responsibilities of a controller during normal, abnormal, and emergency operating conditions. PHMSA assumes each controller takes approximately 1/2 hour each month, or 6 hours per year, to record the information needed to comply with this requirement. There are approximately 1,425 HL pipeline controllers and 3,091 gas pipeline controllers affected. PHMSA estimates that it would takes controllers approximately 27,096 hours per year $[(1,425+3,091)*6]$ to comply with the recordkeeping requirements under this section.

(c) Preparing and maintaining records related to providing adequate information. Each operator must provide its controllers with the information, tools, processes, and procedures necessary for the controllers to carry out the roles and responsibilities. PHMSA estimates that a clerk would spend approximately 6 hours per year to file and maintain the records associated with this section. There are 380 HL pipeline operators and 384 gas pipeline operators with SCADAs. PHMSA estimates it would take approximately 4,584 hours per year $[6 *(380+384)]$ for pipeline operators to comply.

(d) Recordkeeping and storage for the fatigue mitigation requirements. Each operator must implement methods in the rule under this section to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out the roles and responsibilities. All 422 HL pipeline operators and 2,280 gas pipeline operators are impacted by this requirement. PHMSA estimates that each operator will spend approximately 24 hours per year fulfilling this requirement. PHMSA estimates that the annual labor hours needed to maintain and store records associated with fatigue mitigation 64,848 $[24*(422+2,280)]$ for the entire industry. .

(e) Recordkeeping associated with the alarm management requirements. Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms. PHMSA assumes 380 HL pipeline operators and 384 gas pipeline operators that have SCADAs will need to keep records that relate to alarm management. PHMSA estimates that the aggregate labor hours needed is approximately 20 hours per year per pipeline operator or 15,280 hours per year $[20*(380+384)]$ for all pipeline operators that have SCADAs.

(f) Recordkeeping and record storage associated with change management. Each operator needs to coordinate changes that can affect control room operations with the control room personnel. PHMSA estimates 422 HL pipeline operators and 548 gas operators are impacted. It would take approximately 6 hours per year to file and maintain the records under this section. It would take approximately 5,820 hours per year $[6*(422+548)]$ for pipeline operators to comply.

(g) Recordkeeping and record storage associated with operating experience. Each operator must assure that lessons learned from its operating experience are incorporated, as appropriate, into their control room management procedures. PHMSA estimates that 422 HL pipeline operators and 548 gas operators are impacted. PHMSA estimates it would take 4 hours per year per pipeline operator to fulfill the recordkeeping requirements under this element. The labor hours associated with this requirement are expected to total approximately 3,880 hours per year $[4*(422+548)]$ for all the pipeline operators that need to comply.

(h) Recordkeeping and record storage costs associated with training requirements. PHMSA estimates that there will not be any additional burden hours associated with this rule beyond those listed under fatigue mitigation and change management.

(i) Recordkeeping under compliance validation. PHMSA is not anticipating that there will be additional recordkeeping burdens imposed by this section.

13. Estimate of total annual costs to respondents. PHMSA estimates that the total costs are approximately between \$4.3 million and \$5.9 million per year. Detailed estimates follow.

(a) Cost to prepare and keep records associate with the general requirement under this rule. PHMSA expects that each operator needs to keep copies of their plans either electronically or physically on the premises. PHMSA estimates that a clerk earning approximately \$20 per hour (including overhead) could perform this function. There are 422 HL pipeline operators and 548 gas pipeline operators impacted. PHMSA estimates that the cost of recordkeeping to industry is approximately \$116,000 the first-year. This includes \$51,000 $(\$20*6*422)$ for HL pipeline operators and \$66,000 $(\$20*6*548)$ for gas pipeline operators. The same level of expenditure will be required in annually in succeeding years.

(b) Cost of recordkeeping to comply with the requirements under roles and responsibility. PHMSA estimates each controller takes approximately 1 hour each month, or 12 hours a year, to record the information needed to comply with this requirement. Controllers earn approximately between \$39 and \$67.50 per hour (including overhead). There are approximately 1,425 HL pipeline controllers and 3,091 gas pipeline controllers affected. The aggregate first-year cost to comply with the recordkeeping requirements under roles and responsibilities is between \$2.1 million and \$3.7 million. This includes approximately between \$667,000 $(\$39*12*1,425)$ and \$1.2 million $(\$67.50*12*1,425)$ for the HL pipeline controllers and \$1.4 million $(\$39*12*3,091)$ and \$2.5 million $(\$67.50*12*3,091)$ for gas pipeline controllers. The same level of expenditure will be required annually in succeeding years.

(c) Cost of preparing and maintaining records related to providing adequate information. PHMSA estimates that a clerk earning \$20 per hour (including overhead) would spend approximately 6 hours per year filing and maintaining the records. PHMSA assumes that all 380 HL pipeline operators and 384 gas pipeline operators with SCADAs will have to maintain records to comply with the requirements under this section. Filing and maintaining records costs approximately \$120 $(\$20*6)$ per operator. The cost of filing and maintaining records to HL pipeline operators will be approximately \$45,600 $(\$120*380)$ and the cost to gas pipeline operators will be approximately \$46,080 $(\$120*384)$. The total cost to HL and gas pipeline operators for maintaining records for compliance purposes is approximately \$92,000. The same level of expenditure is expected annually in succeeding years.

The cost of storage will depend on where the records are stored and how they are packaged. PHMSA assumes that operators store between 2 and 4 cubic feet of records within their facility each year. Record management companies estimate it costs, on average, around \$23 per cubic foot of storage space to store records on-site.

Assuming all 380 HL pipeline operators and the 384 gas pipeline operators that have SCADAs have to store records and they are stored physically on-site, PHMSA estimates that it would cost between \$35,000 and \$70,000 for operators to comply with this requirement in the first year. This includes between approximately \$17,000 ($\$23 \times 2 \text{ cubic feet} \times 380$) and \$35,000 ($\$23 \times 4 \text{ cubic feet} \times 380$) for HL pipeline operators and between approximately \$18,000 ($\$23 \times 2 \text{ cubic feet} \times 384$) and \$35,000 ($\$23 \times 4 \text{ cubic feet} \times 384$) for gas pipeline operators. The recurring annual costs for storage are expected to be at higher level than the first-year costs because operators will have accumulated additional records each successive year that need to be stored. For this analysis we estimate between 3 and 5 cubic feet will be needed for records in successive years. The annual recurring costs are expected to be between approximately \$53,000 and \$88,000. This includes between approximately \$26,000 ($\$23 \times 3 \text{ cubic feet} \times 380$) and \$44,000 ($\$23 \times 5 \text{ cubic feet} \times 380$) for HL pipeline operators and between approximately \$26,000 ($\$23 \times 3 \text{ cubic feet} \times 384$) and \$44,000 ($\$23 \times 5 \text{ cubic feet} \times 384$) for gas pipeline operators. The labor hours expended to transport the records and file them is deemed minimal.

If an operator does not implement the appropriate sections of API RP-1165 because the standard is not practical for the operator's system, the operator must demonstrate that the provisions are not practical. PHMSA assumes that only a few, if any, operators will be faced with this situation. PHMSA assumes that operators who have to provide this information will have it on hand and can provide it at no extra cost. The labor hours required to provide the information is deemed minimal and the cost is nominal.

(d) Cost related to recordkeeping and storage for the fatigue mitigation requirements.

PHMSA estimate that 422 HL pipeline operators and 2,280 gas pipeline operators must keep records. A clerk earning \$20 per hour (including overhead) is able to gather, file and maintain the records. Approximately 24 hours per year will be needed for this function. Operators store records physically on-site. Storage costs are \$23 per square-foot for the documents.

PHMSA calculates that the total first-year cost of recordkeeping related to fatigue mitigation is approximately \$1.3 million. This includes approximately \$203,000 ($\$20 \times 24 \times 422$) for the HL pipeline operators and \$1.1 million ($\$20 \times 24 \times 2,280$) for gas pipeline operators.

The total first-year cost for record retention is estimated at \$62,000. This includes approximately \$10,000 ($\23×422) for HL pipeline operators and \$52,000 ($\$23 \times 2,280$) for gas pipeline operators. This same level of expenditures is expected annually in succeeding years.

(e) Cost to keep records associated with the alarm management requirements. PHMSA assumes 380 HL operators and 384 gas operators that have SCADAs will need to keep records under this element. PHMSA estimates that the aggregate labor hours needed to compile the records related to alarm management is approximately 20 hours per year per pipeline operator or 15,280 [$20 \times (380 + 384)$] for all pipeline operators that have SCADAs.

PHMSA assumes that a clerk earning \$20 per hour fully loaded is able to file and maintain physical records. PHMSA estimates the total first-year costs for all pipeline operators for filing and maintaining the records is approximately \$306,000. This includes approximately \$152,000 ($\$20 \times 20 \times 380$) for HL pipeline operators and \$154,000 ($\$20 \times 20 \times 384$) for gas pipeline operators. This same level of spending is expected annually in succeeding years.

Assuming that 2 cubic feet of storage space are needed for storing records and on-site storage costs approximately \$23 per cubic foot of space, the total annual costs for are expected to be approximately \$35,000 for all operators. This includes approximately \$17,000 ($\$23 \times 2 \times 380$) for HL pipeline operators and \$18,000 ($\$23 \times 2 \times 384$) for gas pipeline operators. This same level of expenditure is expected annually in succeeding years.

(f) Recordkeeping and storage costs associated with change management. PHMSA assumes:

- 422 HL pipeline operators and 548 gas pipeline operators are impacted.
- A clerk earning \$20 per hour fully loaded can file and maintain records in house.
- It would take approximately 6 hours per year to file and maintain the records.
- It costs \$23 per cubic foot to store records on-site.
- It would take approximately 1 cubic foot of storage space to store the records.

PHMSA estimates that the total first-year cost to file and maintain records would be approximately \$116,000. This is approximately \$51,000 ($\$20 \times 6 \times 422$) for HL pipeline operators and \$66,000 ($\$20 \times 6 \times 548$) for gas pipeline operators. This same level of spending would be required annually in succeeding years.

PHMSA estimates that the total cost to store records would be approximately \$22,000 in the first year and every year thereafter. This includes approximately \$10,000 ($\23×422) for HL pipeline operators and \$13,000 ($\23×548) for gas pipeline operators. This same level of expenditure would be required in succeeding years.

(g) Recordkeeping costs associated with operating experience. PHMSA assumes:

- 422 HL pipeline operators and 548 gas pipeline operators are impacted
- A clerk earning \$20 per hour (fully loaded) can file and maintain the required records.
- 4 hours per year would cover the time needed to file and maintain the additional records, beyond those collected for other recordkeeping requirements under this rule.
- No additional storage space is needed for the additional records needed to fully comply with the recordkeeping requirements under this element.

PHMSA estimates that the recordkeeping costs are approximately \$78,000. This includes approximately \$34,000 ($\$20 \times 4 \times 422$) for HL pipeline operators and \$44,000 ($\$20 \times 4 \times 548$) for gas pipeline operators. The same level of costs will occur annually in successive years.

(h) Recordkeeping and record storage costs associated with training requirements. PHMSA estimates that there will not be any additional burden or labor costs associated with this rule beyond those listed under fatigue mitigation and change management. PHMSA is aware that pipeline operators have an ongoing employee training program and these training requirements listed in this section could be easily incorporated into the established programs for which the operators budget yearly without adding any additional labor hour burden or costs.

(i) Cost to keep records under compliance validation. PHMSA does not anticipate any additional recordkeeping costs imposed by this section.

14. Estimate of cost to the Federal government. PHMSA does not expect there will be any additional cost for the Federal government

15. Explanation of program changes or adjustments. There are no program changes.

16. Publication of results of data collection. There are no plans to publish the information.

17. Approval for not displaying the expiration date of OMB approval. The Agency is not seeking this approval.

18. Exceptions to certification statement. There are no exceptions.

Part B. Collections of Information Employing Statistical Methods.

This information collection does not employ statistical methods.

1. Describe potential respondent universe and any sampling selection method to be used.

There is no potential respondent universe or any sampling selection method being used.

2. Describe procedures for collecting information, including statistical methodology for stratification and sample selection, estimation procedures, degree of accuracy needed, and less than annual periodic data cycles.

There are no procedures for collecting information, including statistical methodology for stratification and sample selection, estimation procedures, degree of accuracy needed, and less than annual periodic data cycles.

3. Describe methods to maximize response rate.

There are no methods to maximize the response rate.

4. Describe tests of procedures or methods.

There are no tests of procedures or methods.

5. Provide name and telephone number of individuals who were consulted on statistical aspects of the information collection and who will actually collect and/or analyze the information.

There were no individuals consulted on statistical aspects of this information collection.

Attachments:

1. Pipeline Inspection, Protection, Enforcement, and Safety (PIPES) Act of 2006 Act (Pub. L. 109-468, Section 12). <http://edocket.access.gpo.gov/2008/E8-10627.htm>.
2. Pipeline Safety: Control Room Management/Human Factors [Docket ID PHMSA-2007-27954].