



U.S. Department of Transportation  
Pipeline and Hazardous Materials  
Safety Administration

### MECHANICAL FITTING FAILURE REPORT FORM FOR CALENDAR YEAR 20\_\_\_\_ FOR DISTRIBUTION OPERATORS

INITIAL REPORT   
SUPPLEMENTAL REPORT

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. Public reporting for this collection of information is estimated to be approximately 1 hour per submission, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

**PART A - OPERATOR INFORMATION**

**DOT USE ONLY**

1. NAME OF OPERATOR

2. OPERATOR'S 5 DIGIT IDENTIFICATION NUMBER

\_\_\_\_/\_\_\_\_/\_\_\_\_/\_\_\_\_/\_\_\_\_

3. HEADQUARTERS NAME & ADDRESS

Number and Street

City and County

State and Zip Code

**PART B - PREPARER AND AUTHORIZED SIGNATURE**

(Type or print) Preparer's Name and Title

Area Code and Telephone Number

Preparer's email address

Area Code and Facsimile Number

Preparer's address:

Number and Street

City and County

State and Zip Code

Date Submitted

.....  
Authorized Alternative Reporting Submissions Only:

Name and Title of Person Signing

Area Code and Telephone Number

Authorized Signature

**PART C – MECHANICAL FITTING FAILURE DATA – (If the data about the “Manufacturer”, “Part or Model Number”, or” Lot Number” cannot be located with reasonable effort or if the data is unknown, enter “Unavailable”; do not leave data fields blank.)**

- 1) State in Which Fitting Failed: \_\_\_\_\_
  - 2) Date of Failure: \_\_\_\_\_
  - 3) Specify the Mechanical Fitting Involved:  Stab  Nut Follower  Bolted  Other Compression Type Fitting \_\_\_\_\_
  - 4) Specify the Type of Mechanical Fitting:  Service or Main Tee  Tapping Tee  Transition Fitting  Coupling  Riser  
 Adapter  Valve  Sleeve  End Cap  Other \_\_\_\_\_
  - 5) Leak Location:  Aboveground or  Belowground;  
 Inside or  Outside;  
 Main-to-Main or  Main-to-Service or  Service-to-Service or  Meter Set
  - 6) Year Installed: \_\_\_\_\_
  - 7) Year Manufactured: \_\_\_\_\_
  - 8) If Neither Year Installed or Year Manufactured is Known, Provide Decade Installed: \_\_\_\_\_
  - 9) Manufacturer: \_\_\_\_\_
  - 10) Part or Model Number: \_\_\_\_\_
  - 11) Lot Number: \_\_\_\_\_
  - 12) Other Attributes: \_\_\_\_\_
  - 13) Fitting Material:  Steel  Plastic  Combination Plastic and Steel  Brass  Unknown  Other \_\_\_\_\_
  - 14) Specify the Two Materials Being Joined:
    - a) First Pipe  
 Nominal Size:  1/4"  1/2"  3/4"  1"  1-1/4"  1-1/2"  1-3/4"  2"  3"  4"  6"  8" or larger  
 Unit:  IPS or  CTS or  NPS  
  
 Material:  Steel  Cast/Wrought Iron  Ductile Iron  Copper  Plastic  Unknown  Other \_\_\_\_\_  
 ❖ If Plastic ⇨ Specify:  Polyethylene (PE)  Polyvinyl Chloride (PVC)  Cross-linked Polyethylene (PEX)  
 Polybutylene (PB)  Polypropylene (PP)  Acrylonitrile Butadiene Styrene (ABS)  Polyamide (PA)  
 Cellulose Acetate Butyrate (CAB)  Other ⇨ Specify: \_\_\_\_\_
    - b) Second Pipe  
 Nominal Size:  1/4"  1/2"  3/4"  1"  1-1/4"  1-1/2"  1-3/4"  2"  3"  4"  6"  8" or larger  
 Unit:  IPS or  CTS or  NPS  
  
 Material:  Steel  Cast/Wrought Iron  Ductile Iron  Copper  Plastic  Unknown  Other \_\_\_\_\_  
 ❖ If Plastic ⇨ Specify:  Polyethylene (PE)  Polyvinyl Chloride (PVC)  Cross-linked Polyethylene (PEX)  
 Polybutylene (PB)  Polypropylene (PP)  Acrylonitrile Butadiene Styrene (ABS)  Polyamide (PA)  
 Cellulose Acetate Butyrate (CAB)  Other ⇨ Specify: \_\_\_\_\_
  - 15) Apparent Cause of Leak:
    - Corrosion
    - Natural Forces Was there thermal expansion/contraction?  Yes or  No
    - Excavation Damage Time excavation damage occurred?  At time of leak discovery or  Previous to leak discovery
    - Other Outside Force Damage
    - Material or Welds/Fusions Was the leak due to  Construction/Installation Defect or  Material Defect or  Design Defect
    - Equipment
    - Incorrect Operation
    - Other Explain: \_\_\_\_\_
  - 16) How did the leak occur?  Leaked Through Seal or  Leaked Through Body or  Pulled Out
  - 17) Operator's Internal Mechanical Fitting Failure Tracking Number (optional): \_\_\_\_\_
- Record Identification Number <<This number will be auto-generated by PHMSA for each submitted mechanical fitting failure report.>>

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**Operators are required to begin collecting mechanical fitting failure information, excluding those that result only in non-hazardous leaks, beginning January 1, 2011. Submit Mechanical Fitting Failure Report Form(s) for calendar year 2011 and later.**

Reporting requirements for this form are contained in Title 49 of the Code of Federal Regulations § 192.1009, *What must an operator report when mechanical fittings fail?* and § 191.12 *Distribution Systems: Mechanical Fitting Failure Reports*. Each operator of a gas distribution pipeline, except for the operators of master meter systems or small liquefied petroleum gas (LPG) operators (see definitions below), must submit a report for each mechanical fitting failure excluding those that result only in non-hazardous leaks on a separate Department of Transportation Form PHMSA F 7100.1-2 for the preceding calendar year no later than **March 15<sup>th</sup>**. Operators are permitted to submit mechanical fitting failure report forms throughout the year.

**ONLINE SUBMISSION IS REQUIRED UNLESS AN ALTERNATIVE REPORTING  
METHOD IS GRANTED BY PHMSA.**

If electronic reporting imposes an undue burden and hardship, an operator may submit a written request for an alternative reporting method to the Information Resources Manager, Office of Pipeline Safety, Pipeline and Hazardous Materials Safety Administration, PHP-20, 1200 New Jersey Avenue, SE Washington DC 20590. The request must describe the undue burden and hardship. PHMSA will review the request and may authorize, in writing, an alternative reporting method. An authorization will state the period for which it is valid, which may be indefinite. An operator must contact PHMSA at 202-366-8075, or electronically to [informationresourcesmanager@dot.gov](mailto:informationresourcesmanager@dot.gov) or make arrangements for submitting a report that is due after a request for alternative reporting is submitted but before an authorization or denial is received.

Operators should request and receive authorization from PHMSA prior to the use of alternative reporting methods.

**Online Submissions:**

Online Submission Registration Requirements:

The following two requirements must be fulfilled prior to submitting data online:

1. You must have an Office of Pipeline Safety (OPS) provided Operator ID and Personal Identification Number (PIN)/password. If you do not have one, please complete and submit the form located on the OPS Online Data Entry and Operator Registration System New Operator Registration web site at [http://opsweb.phmsa.dot.gov/cfdocs/opsapps/pipes/new\\_operator.cfm](http://opsweb.phmsa.dot.gov/cfdocs/opsapps/pipes/new_operator.cfm) to obtain one.
2. You must have a Username and Password obtained by registering through the PHMSA Portal. If you have an OPS Operator ID and PIN/password, you may obtain a Username and Password through the PHMSA Portal.

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Each Operator, without an Operator ID, should plan accordingly and allow for several weeks prior to the due date of the report to obtain their Operator ID.

Online Submission Instructions:

1. Navigate to PHMSA's, Office of Pipeline Safety web site, Pipeline Safety Community, located at <http://www.phmsa.dot.gov/pipeline>.
  2. Click the "**Online Data Entry**" hyperlink listed in the first column. This takes you to the OPS Online Data Entry and Operator Registration System.
  3. Click on the "**Mechanical Fitting Failure Report Form**" hyperlink under the *Gas Distribution Systems* subtitle. This takes you to the PHMSA Portal login screen.
  4. Enter your "Username" and "Password" and click on "**Login**".
  5. Create or modify record:
    - a. To create a new fitting failure record, click "**Submit a Failure**". Enter the "Calendar Year" for which the report is being filed
- OR
- b. To modify an existing fitting failure record; locate the record using the "Search" function. This will allow changes to data in Part C to be made. Once the record is located, click "**Create Supplemental**" and make the necessary changes. .
  6. Follow the detailed instructions below to complete Parts A, B, and C.
  7. Click "**Save**" when finished.
  8. A copy of the report can be printed or downloaded in either MS Excel or PDF format.
  9. For distribution pipelines subject to the jurisdiction of a State agency pursuant to certification under 49 U.S.C. § 60105, send a copy of the report to the State agency no later than March 15<sup>th</sup>.

**Alternative Reporting Submissions:**

*\*\*\*Authorization from PHMSA is needed to submit the form using an alternative reporting method\*\*\**

Form PHMSA F 7100.1-2 and instructions are available for download on the Office of Pipeline Safety web site, Pipeline Safety Community, located at <http://www.phmsa.dot.gov/pipeline>. Click on the "**Library**" hyperlink and then the "**Forms**" hyperlink under the *Mini-Menu* subtitle. If you have questions about this report or these instructions, please call (202) 366-8075.

Please type or print all entries when submitting forms by mail or fax.

Alternative Reporting Submission Instructions:

1. Check new or modified report:
    - a. If this is the first time this mechanical fitting failure is being reported, check **Initial Report**.
- OR
- b. If an initial report has already been filed but that report needs to be modified check **Supplemental Report**. Only submit Part C for fittings which the information is being

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modified.

2. Enter the Calendar Year for which the report is being filed.
  3. Follow the detailed instructions below to complete Part A, B, and C. Complete a separate Part C for each fitting failure.
  4. Submit the report via one of the following methods:
    - a. Mail to:  
DOT/PHMSA Office of Pipeline Safety  
Information Resources Manager,  
1200 New Jersey Ave., SE  
East Building, 2<sup>nd</sup> Floor, (PHP-20)  
Room Number E22-321  
Washington, DC 20590
- OR
- b. Fax to: Information Resources Manager at (202) 366-4566.
  5. For distribution pipelines subject to the jurisdiction of a State agency pursuant to certification under 49 U.S.C. § 60105, submit a copy of the report to the State agency no later than March 15th.

**DEFINITIONS**

The following definitions are from §§ 192.3 and 192.1001:

1. “Distribution line” means a pipeline other than a gathering or transmission line.
2. “Operator” means a person who engages in the transportation of gas.
3. “Small LPG Operator” means an operator of a liquefied petroleum gas (LPG) distribution pipeline that serves fewer than 100 customers from a single source.
4. “Master Meter System” means a pipeline system for distributing gas within, but not limited to, a definable area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source for resale through a gas distribution pipeline system. The gas distribution pipeline system supplies the ultimate consumer who either purchases the gas directly through a meter or by other means, such as by rents.
5. “Mechanical fitting” means a mechanical device used to connect sections of pipe. The term “Mechanical fitting” applies only to:
  - a. Stab Type fittings;
  - b. Nut Follower Type fittings;
  - c. Bolted Type fittings; or
  - d. Other Compression Type fittings.
6. “Hazardous Leak” means a leak that represents an existing or probable hazard to persons or property and requires immediate repair or continuous action until the conditions are no longer hazardous.

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**INSTRUCTIONS**

**PART A – OPERATOR INFORMATION**

Online Submissions:

Items 1-3 are auto-populated. If this information is incorrect, please contact PHMSA’s Information Resources Manager at (202) 366-8075.

Alternative Reporting Submissions:

ITEM 1: Provide the name of the operator.

ITEM 2: Provide operators’ ID number. The Pipeline and Hazardous Materials Safety Administration assigns the operator’s five-digit identification number. Contact PHMSA at (202) 366-8075 if you need assistance with determining your operator’s five-digit identification number.

ITEM 3: Provide the Headquarters’ name and address.

**PART B - PREPARER AND AUTHORIZED SIGNATURE**

PREPARER is the name of the person most knowledgeable about the report or the person to be contacted for more information. Please include the direct phone number, email address, fax number, and address (e-mail address and/or fax are desired but not required). It should be noted that PHMSA will use your e-mail address to issue correspondence that is normally sent via mass mailings. “Correspondence” includes notifications such as the annual reminder letter for Annual Report filings.

When submitting online your username and password take the place of the Authorized Signature.

Date Submitted: Enter the date the information was submitted.

Alternative Reporting Submissions Only:

AUTHORIZED SIGNATURE - The authorized signature may be the preparer, an officer, or other person whom the operator has designated to review and sign reports. Please include the direct phone number and email address (e-mail address desired, but not required) and sign the form. It should be noted that PHMSA will use your e-mail address to issue correspondence that is normally sent via mass mailings. “Correspondence” includes notifications such as the annual reminder letter for Annual Report filings.

**PART C – MECHANICAL FITTING FAILURE DATA**

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Make an entry in each block for which data are available. Some companies may have very old pipe for which installation records do not exist. Estimate data if necessary. Avoid entering “Unknown” if possible.

Operators must report data for each failure of a mechanical fitting that resulted in a hazardous leak during the calendar year. Report all types and all sizes of mechanical fitting failures which resulted in a hazardous leak regardless of the material composition of the fitting. The reporting requirements apply to failures in the bodies of mechanical fittings, failures in the joints between the fitting and the pipe, and when the pipe pulls out of fitting. Operators are to report mechanical fitting failures that resulted from any cause. PHMSA does not intend to collect information about failures of cast iron bell & spigot joints unless the leak resulted from a failure of a mechanical fitting used to repair or reinforce a joint.

*State in Which Fitting Failed* - Enter the state where the mechanical fitting being reported failed.

*Date of Failure* – Enter the date which the mechanical fitting failure was identified. (mm/dd/yyyy)

*Specify the Mechanical Fitting Involved*–

- *Stab Type Mechanical Fitting* - Internally there are specially designed components including an elastomer seal, such as an “O” ring, and a gripping device to affect pressure sealing and pull-out resistance capabilities. Self-contained stiffeners are included in this type of fitting. With this style fitting the operator would have to prepare the pipe ends, mark the stab depth on the pipe, and “stab” the pipe in to the depth prescribed for the fitting being used.
- *Nut Follower Type Mechanical Fitting* – The components are generally a body; a threaded compression nut or a follower; an elastomer seal ring; a stiffener or an integrated stiffener for plastic pipe; and, with some, a gripping ring. Normally the design concept of this type of fitting typically includes an elastomer seal in the assembly. The seal, when compressed by tightening of a threaded compression nut grips the outside of the pipe, affecting a pressure-tight seal and, in some designs, providing pull-out resistance. The inside of the pipe wall should be supported by the stiffener under the seal ring and under the gripping ring (if incorporated in the design), to prevent collapse of the pipe. A lack of this support could result in a loss of the seal affected by the seal ring or the gripping of the pipe for pull-out resistance. This fitting style is normally used in pipelines 2-inches in diameter and smaller. There are two categories of this type of joining device manufactured. One type is provides a seal only, and the other provides a seal plus pipe restraint against pull-out.
- *Bolted Type Mechanical Fitting* – The bolt type mechanical fitting has the same components as the nut follower except instead of a threaded compression nut or follower, there is a bolt arrangement.
- *Other Compression Type Fitting* – Use “Other” only if the fitting does not fit one of the above categories and is a compression type fitting.

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*Specify the Type of Mechanical Fitting:* Select the type of fitting which failed. Select “Other” if the fitting is not listed. For this data collection consider elbows, “Ys”, 3-way tees, and reducer tees as couplings. Consider the riser to be part of the service.

*Leak Location* – Select the location of the failed mechanical fitting in the pipeline system. Select either “Aboveground” or “Belowground”. Select either “Inside” or “Outside”. Select one from the following “Main-to-Main”, “Main-to-Service”, “Service-to-Service”, or “Meter Set”.

*Year Installed* – Provide the year the fitting was installed. Select “Unknown” if the year is not known.

*Year Manufactured* – Provide the year the fitting was manufactured. Select “Unknown” if the year is not known.

*If Neither Year Installed or Year Manufactured is Known, Provide Decade Installed* – Use this field only if both the year the fitting was installed and the year it was manufacturer are unknown but the decade that it was installed is known (e.g., 1960-1969, 1970-1979, etc.). If all three fields are unknown, enter “Unknown” in this field. Leave blank if either the Year Installed or the Year Manufactured is known.

**If the data about the “Manufacturer”, “Part or Model Number”, or” Lot Number” cannot be located with reasonable effort or if the data is unknown, enter “Unavailable”; do not leave these data fields blank.**

*Manufacturer* – This is the name of the company that produced the fitting. The manufacturer name would typically be on a sticker attached to a fitting or product or it may be stamped into the fitting. Operators should take care in identifying the manufacturer. Some types of fittings are commonly referred to as “Dresser fittings” (for example) even though the particular fitting may have been manufactured by a different company. Operators should report here the company that actually manufactured the involved fitting when known.

*Part or Model Number* – Enter the part/model number used by the manufacturer to designate the failed fitting.

*Lot Number* – Enter the manufacturing lot.

*Other Attributes* – Enter other distinguishing features which may assist in identifying the fitting.

*Fitting Material* – Enter the material that forms the body of the fitting.

*Specify the Two Materials Being Joined* - For each pipe connected to the fitting, enter the nominal size and material. If the material is plastic, specify the type of plastic.

*Apparent Cause of Leak*– Enter the apparent cause of the leak using the definitions below:

**Leak causes are classified as:**



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***CORROSION:*** leak resulting from a hole in the pipe or other component that was caused by galvanic, bacterial, chemical, stray current, or other corrosive action.

***NATURAL FORCES:*** leak resulting from earth movements, earthquakes, landslides, subsidence, lightning, heavy rains/floods, washouts, flotation, mudslide, scouring, temperature, frost heave, frozen components, high winds, or similar natural causes.

When *Natural Forces* is the leak cause, indicate if thermal expansion/contraction contributed to the fitting failure. *Thermal Expansion/contraction* means the fitting failed due to a change in volume in response to a change in temperature.

***EXCAVATION DAMAGE:*** leak resulting from damage caused by earth moving or other equipment, tools, or vehicles. Include leaks from damage by operator's personnel or contractor or people not associated with the operator.

When *Excavation Damage* is the leak cause, indicate if the excavation damage occurred at the time the leak was discovered or if the damage occurred previous to when the leak was discovered.

***OTHER OUTSIDE FORCE DAMAGE:*** Include leaks caused by fire or explosion and deliberate or willful acts, such as vandalism.

***MATERIAL OR WELDS/FUSIONS:*** leak resulting from failure of original sound material from force applied during construction that caused a dent, gouge, excessive stress, or other defect that eventually resulted in a leak. This includes leaks due to faulty fusions and damage sustained in transportation to the construction or fabrication site. Also include leak resulting from a defect in the pipe material, component, or the longitudinal weld or seam due to faulty manufacturing procedures. Leaks from material deterioration, other than corrosion, after exceeding the reasonable service life, are reported under Other.

When *Material and Welds/Fusions* is the leak cause, indicate if the leak was caused by a construction/installation defect, material defect, or design defect.

*Construction or Installation Defect* means a component was installed incorrectly. It could be due to poor workmanship, the procedure was not followed, or there were poor construction/installation procedures.

*Material Defect* means an inherent flaw in the material or weld that occurred in the manufacture or at a point prior to construction, fabrication or installation.

*Design Defect* means an aspect inherent in a component to which a subsequent failure has been attributed that is not associated with errors in installation, i.e., is not a construction defect. This could include, for example, errors in engineering design or an application error.

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*EQUIPMENT*: leak resulting from malfunction of control/relief equipment including valves, regulators, or other instrumentation; stripped threads or broken pipe couplings on nipples, valves, or mechanical couplings; or seal failures on gaskets, O-rings, seal/pump packing, or similar leaks.

*INCORRECT OPERATIONS*: *leaks* resulting from inadequate procedures or safety practices, or failure to follow correct procedures, or other operator error.

*OTHER*: leak resulting from any other cause, such as exceeding the service life, not attributable to the above causes. Specify in more detail the cause if select other.

*How did the leak occur?* – Enter the gas was escaping between the fitting and the pipe (leaked through seal), from the body of the fitting (leaked through body) or if the pipe had pulled out of the fitting.

*Operator's Internal Mechanical Fitting Failure Tracking Number (optional)* - If applicable, enter the operator's unique tracking number assigned to identify this specific mechanical fitting failure. This field is intended to help operators easily track which mechanical fitting failures have been submitted to PHMSA.