





## Section 114 - Gas Distribution

### 1. Scoping - Inspection Coverage

What are your assets comprised of? (SRN.114.INSPECTCVRG.S)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| SI | PAC | NIC | NA |
|----|-----|-----|----|
|    |     |     |    |

#### Considerations

1. The intent is to identify all asset types that are sharing the same set of O&M Manuals and will be included in this inspection – Gas Transmission (GT), Gas Gathering (GG), Gas Distribution (GD), Master Meter, Underground Natural Gas Storage (UNGS), Liquefied Natural Gas (LNG), temporary LNG or Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG), and Hazardous Liquid (HL).
2. The inspector should ensure the inspection is properly configured in IA or if not using IA be sure to record all information in Table 1B.
  - a. Scoping and Leak-Prone pipe questions apply to all inspections, regardless of whether or not natural gas is being transported or consumed.
  - b. Certain questions may not be applicable to all systems. In such cases, indicate "N/A" for each such question and an explanation may be necessary.

#### Notes

### 2. Scoping - Gas Transportation

Do you transport natural gas as a specific commodity (i.e., not a byproduct or constituent of another substance)? (SRN.114.GASTRANSPORT.S)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| SI | PAC | NIC | NA |
|----|-----|-----|----|
|    |     |     |    |

#### Considerations

1. If natural gas is not directly transported (i.e., only realized from other transported commodities after pressure variations or high temperatures) then that pipe segment is not subject to natural gas emission questions.
2. LPG systems are not considered to be "gas" or "natural gas" systems for the purposes of Section 114 inspections. The primary constituent of natural gas is methane. LPG is primarily composed of propane, which is classified as a highly volatile liquid (HVL).

#### Notes

**3. Scoping - Driver or Engines**

*Do you use natural gas-fueled drivers or engines to compress natural gas? (SRN.114.DRIVERENGINE.S)*

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| SI | PAC | NIC | NA |
|----|-----|-----|----|
|    |     |     |    |

**Considerations**

1. Question sub-sets for compressors and drivers/engines are not applicable if this type of equipment is not directly fueled by natural gas.
2. Alternate energy sources for drivers and engines include electric-powered systems.

**Notes**

**4. Scoping - Use of Natural Gas**

*Do you use natural gas for fuel or power appurtenances or instrument gas on regulated facilities? (SRN.114.NGUSE.S)*

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| SI | PAC | NIC | NA |
|----|-----|-----|----|
|    |     |     |    |

**Considerations**

1. Even if the pipe segment does not transport natural gas, the segment would be subject to natural gas emission questions if natural gas is used for other directly related purposes in jurisdictional facilities.
2. Examples include actuators, heaters and fuel gas for pipeline pump motors or engines.
  - a. A gas-fired heater used to directly heat a pipeline commodity passing through the heater is in the scope of Section 114
  - b. Gas used to create steam for a steam-heat system that is subsequently used to heat a commodity is not in the scope of Section 114
3. Natural gas fueling emergency power generators is a secondary use, and out of scope for these requirements.

**Notes**

**5. Leaks & Releases - Identification of Fugitive Emissions**

*Do procedures provide a methodology for identifying sources of fugitive natural gas emissions in the system?*  
 (114.114.LKRLSID.P)

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|------|-----|---------|-------|----|----|

**Considerations**

1. Leaks and releases for the overall pipeline system should be identified and evaluated for potential reductions.
2. Identifying primary leak and release sources is a measure of an operator’s engagement on the topic.
3. The procedures should have a defined and repeatable process for finding and identifying leaks and releases.
4. Knowing which leaks and releases represent the most significant release volumes is another measure of an operator’s engagement. Asking for a ranked list of emission sources may be helpful to evaluate an operator’s understanding of their system.
5. Procedures should have a defined action section to address the significant source of emissions and could have a less-defined process for other various lower emission sources.

**Notes**

**6. Leaks & Releases - Venting**

*Do procedures identify measures for minimizing natural gas release volumes associated with non-emergency venting and blowdowns from operations and maintenance?* (114.114.LKRLSVENT.P)

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|------|-----|---------|-------|----|----|

**Considerations**

1. Possible actions to prevent venting and blowdown include:
  - a. Transfer of gas to a lower pressure pipeline system
  - b. Routing of gas to other equipment for use as fuel gas
2. Possible actions to minimize venting and blowdown volumes include:
  - a. Isolating a smaller section of the pipeline by use of valves or the installation of control fittings such as stopples
  - b. Reduction of pressure by use of in-line compression
  - c. Reduction of pressure by use of mobile compression to a segment adjacent to the nearest isolation valves
  - d. Flaring of gas
3. Pigging operations are a common area for evaluation of potential venting reductions.

**Notes**

**7. Leaks & Releases - Investigation of Unanticipated Vented Releases**

*Do procedures provide for investigation of any unanticipated vented releases of natural gas, and if so, what are the associated actions? (114.114.LKRLSUNEXPCTVENT.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|      |     |         |       |    |    |

**Considerations**

1. Investigation can improve existing emission control techniques.
2. New emission reduction opportunities may be discovered.
3. Investigating the reason or cause can find flaws in operating or maintenance practices and help identify any equipment-related deficiencies to be corrected.
4. Lessons learned can be reflected in operating practices going forward in order to minimize the possibility of recurrence.

**Notes**

**8. Leaks & Releases - Leak Data Collection and Analysis**

*Do procedures include a methodology to collect, retain and analyze detailed information from detected natural gas leaks, including those eliminated by lubrication, adjustment, tightening or otherwise below thresholds for regulatory reporting? (114.114.LKRLSLKDATA.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|      |     |         |       |    |    |

**Considerations**

1. Tabulating and reviewing a broad range of leaks helps to identify systemic issues. Potential areas of issue include:
  - a. Material
  - b. Equipment type
  - c. Equipment age
  - d. Location
2. The analysis of data could identify trends and assist the operator in prioritizing actions to reduce emissions.
  - a. Certain components may be more prone to leakage
  - b. The trend of number of components leaking over time may indicate areas to target for improvement

**Notes**

**9. Leaks & Releases - Detecting Leaks**

Do procedures include instructions for personnel to detect leaks to help further reduce emission in stations and along the right of way? (114.114.LKRLSDETECTLK.P)

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
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**Considerations**

1. Review the operator's procedures for station walk arounds to determine if they specifically look for leaks. The frequency of activities such as station walk arounds is not defined by PHMSA regulations, but the operator's practices can be discussed, how often they are performed, and how the actions help to identify leaks.
2. Operator personnel can use human senses to detect some natural gas leaks.
3. The procedures should define what techniques are they employing to detect leaks in stations.
4. Instrumented leak surveys are an identification method that would allow for quicker identification to reduce emissions.

**Notes**

**10. Leak Mitigation & Repair**

Do procedures define a process to identify, classify, mitigate and repair leaks? (114.114.LKRLSIDMITRPR.P)

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
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**Considerations**

1. What classification approach is used for gas leaks?
  - a. Some states use GPTC leak grading system
  - b. Operators may also have their own grading system
2. What non-hazardous natural gas leaks are required to be repaired or replaced?
  - a. Hazardous leaks must be addressed per regulations
  - b. Section 114 requirements, however, are focused on reducing the natural gas emissions from all leaks (including those classified as non-hazardous)
3. Is there a defined repair schedule for non-hazardous leaks?

**Notes**

**11. Leak Mitigation & Repair - Lost & Unaccounted for Gas**

*Do procedures provide for review of Lost & Unaccounted for Gas (LAUF) and do procedures specify actions to reduce the associated volume? (114.114.LKMITRPRLAUF.P)*

49 U.S.C. 60108(a)

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| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
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**Considerations**

1. Some operators may not maintain sufficient or accurate data to provide meaningful LAUF reports.
2. Attention to LAUF is an area for potential improvement in natural gas emissions.
3. Trending of LAUF over time can indicate progress of reducing natural gas emissions.

**Notes**

**12. Regulator Stations - O&M**

*Do maintenance or operational procedures contain measures for reduction of natural gas releases from regulators? (114.114.REGSTATIONOM.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|------|-----|---------|-------|----|----|

**Considerations**

1. Review the regulator procedures to determine if:
  - a. Regulators are frequently visually inspected
  - b. Regulators are operated within the design specifications and maintained at least to the manufacturer's recommendations

**Notes**



**13. Regulator Stations - Configuration**

*Do maintenance or operational procedures contain measures for identifying potential configuration changes that would reduce natural gas releases from regulators? (114.114.REGSTATIONCONFIG.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
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**Considerations**

1. Review the regulator procedures to determine if:
  - a. Use of token relief valves has been evaluated with respect to natural gas emission reductions
  - b. Use of rupture discs has been evaluated for other alternatives that would limit potential releases
  - c. Other configurations without relief valves are in use or have been considered

**Notes**

**14. Testing - Relief Valves**

*Do relief valve testing procedures include measures to minimize natural gas releases? (114.114.TESTRELIEFVLV.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
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**Considerations**

1. Do Operator maintenance or operational procedures contain measures for identifying potential configuration (e.g., actuation setpoint) changes that would reduce natural gas releases from relief valves?
2. Testing relief valves with nitrogen or air minimizes the release of gas.
3. Procedures should include a process to test or maintain relief valves that are leaking or venting outside of tolerance limits.
4. Some systems have testing manifolds installed to allow relief valve testing in place without releasing natural gas.
5. Some operators perform bench testing of relief valves and swap valves out with previously bench tested valves.

**Notes**

**15. Flaring**

Do procedures for flaring from pipeline facilities for transporting natural gas include measures for minimization of natural gas emissions? (114.114.FLARE.P)

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|      |     |         |       |    |    |

**Considerations**

1. Identify if the operator uses flares, permanent or temporary and if there are different procedure for either.
2. Procedures for periodic testing of flare stacks for incomplete combustion of natural gas:
  - a. Although flared natural gas will be seen, incomplete combustion will leave some natural gas to vent
  - b. Operators should be expected to ensure the flare system is operating within the design specifications and maintained at least to the manufacturer’s recommendations
  - c. States may have requirements for flare performance
  - d. Operators may perform VOC measurements related to flare performance
3. Process to verify or alarm when flare stacks don’t ignite or burn vented natural gas (i.e., if ignitors do not function properly unburnt natural gas will be vented).
4. Procedures ensure the flare remains in operation after startup.
5. Use of flares in certain locations (e.g., proximity to communities, schools, etc.) may be inappropriate due to safety considerations.

**Notes**

**16. General - Feedback to Design/Configuration Practices**

Do operation and maintenance procedures contain mechanisms for identifying potential design/configuration changes for reducing natural gas releases? (114.114.GNLDSGNCNFG.P)

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|      |     |         |       |    |    |

**Considerations**

1. Design practices or standards should be reviewed and updated as needed to ensure natural gas instrument and control tubing has adequate mechanical support.
  - a. Excessive vibration can cause cracking or fitting leaks
  - b. Long spans can also cause cracking or fitting leaks
2. Review the regulator procedures to determine if:
  - a. Regulators are frequently visually inspected
  - b. Other configurations without relief valves are in use

**Notes**

**17. Leak-Prone: Leaks & Releases**

*What procedures are in place to monitor for and identify pipe segments that are leak-prone, and what criteria (e.g., frequency of leak or failure events) are specified for determining a pipeline segment is leak-prone? (114.LEAKPRONE.LKRLS.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
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**Considerations**

1. "Leak-prone" is not defined in current PHMSA regulations but can be thought of in the general engineering predictive sense (i.e., if a similar set of material, operational, and environmental factors were present, releases would be anticipated over time to occur at materially higher rates than average/typical).
2. Leak-prone pipe is not limited to the examples listed in the Act.
3. The operator should have a documented process or an assigned job responsibility to review pipe leak and failure information to identify any systemic problems.
4. The process should set thresholds for leaks (e.g., # leaks per unit measure) to better assure that leak performance over time is evaluated.
5. The process should consider the different materials, operational factors, and environmental conditions that can impact the likelihood of failure.

**Notes**

**18. Leak-Prone: Leaks & Releases - Leak Data Collection and Analysis**

*Do procedures include a methodology to collect, retain and analyze detailed information from detected leaks, including those eliminated by lubrication, adjustment, tightening or otherwise below thresholds for regulatory reporting? (114.LEAKPRONE.LKRLSLKDATA.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|------|-----|---------|-------|----|----|

**Considerations**

1. Note: For gas systems, this question may already have been answered in a previous section of this inspection. If so, please review the previous version and copy/paste the applicable result and notes to this question for future inspection results trending and analysis.
2. Tabulating and reviewing a broad range of leaks helps to identify systemic issues. Potential areas of issue include:
  - a. Material
  - b. Equipment type
  - c. Equipment age
  - d. Construction practices
  - e. Location
3. The analysis of data could identify trends and assist the operator in prioritizing actions to reduce emissions
  - a. Certain components more prone to leak
  - b. Trend of number of components leaking over time

**Notes**

**19. Leak-Prone: Leaks Mitigation & Repair - Replacement and Remediation (Example Section 114 Materials)**

*Do procedures identify cast iron, unprotected steel, wrought-iron, and vintage plastic pipe with known leak issues? (114.LEAKPRONE.LKMITGRPREXAMPLE.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
|------|-----|---------|-------|----|----|
|      |     |         |       |    |    |

**Considerations**

1. Do Operator procedures provide for identification of pipe with known leak issues?
2. Do procedures contain measures for proactively minimizing leaks by replacing or remediating these materials?
3. The Section 114 statute specifically calls out "cast iron, unprotected steel, wrought iron, and historic plastics with known issues".
4. These specific examples are known to be problematic based on the material and the Act requires a program to replace or remediate these lines.
5. A pipe remediation/replacement process is only expected after such pipe is identified.
6. Operators should have established threshold criteria for when repairs or replacements are to be initiated and completed.
7. After systemic issues are identified, programs should go beyond remediation, and consider replacement or abandonment efforts.
8. Operators with known leak-prone pipe should have metrics established to track and record their replacement efforts, which may drive program adjustments made to improve their process.

**Notes**

**20. Leak-Prone: Leak Mitigation & Repair - Replacement and Remediation (Other Materials)**

*Do procedures clearly define a process to address replacement or remediation of pipe segments with known leak issues beyond those specifically identified in Section 114? (114.LEAKPRONE.LKMITGRPROTHER.P)*

49 U.S.C. 60108(a)

*Note: this question is presented in multiple places so you will see multiple instances of it on this report.*

| Sat+ | Sat | Concern | Unsat | NA | NC |
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**Considerations**

1. The Section 114 statute also requires remediation or replacement of pipe known to leak based on design, or past operating and maintenance history.
2. A pipe remediation/replacement process is only expected after such pipe is identified.
3. Operators should have established threshold criteria for when repairs or replacements are to be initiated and completed.
4. After systemic issues are identified, programs should go beyond remediation, and consider replacement or abandonment efforts.
5. Operators with known leak-prone pipe should have metrics established to track and record their replacement efforts, which may drive program adjustments made to improve their process.

**Notes**

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