

PRIMARY: 192.617

SECONDARY: 192.605, 613, 805

PURPOSE: Review existing GM under 192.613 and revise as appropriate to address the use of the terms “incident,” “failure” and “accident.”

ORIGIN/RATIONALE: Mary Friend email 1/22/18

This section of code 192.617 addresses “Investigation of Failures”, and refers throughout the short regulatory language to accidents and failures. However, in reading our guide material, nowhere in that material does GPTC use the term “accident”. We use incident, and we use failure, but do not reference the language from code which is accident.

The guide material also fails to provide any guidance as to what might be considered a failure, and tend to refer to failures as a mechanical failure only. Failures may also include a failure of a procedures (192.605(b)(8)) human error (192.805(d), (e)), abnormal operations (192.605(c)). Not all of these would be included in the list under 192.613.

We do not address any written procedures for a failure analysis. For example not every failure, leak or traffic accident needs to be investigated.

The guide material also fails to address “minimizing the possibility of a recurrence”. We ought to be addressing what happens to the investigation, and the people who may need to be notified. This list might include control room, purchasing, training, operations for procedure review, or OQ.

RESPONSIBLE GROUP: DP/ER Task Group

Section 192.613

Note: Although not required, operators should consider including Type B gathering lines in continuing surveillance efforts.

1 GENERAL

Continuing surveillance should be conducted to identify any pipeline facilities experiencing abnormal or unusual operating and maintenance conditions. This may be accomplished by the following.

- (a) Periodic visual inspection of pipeline facilities to identify items such as the following.
 - (1) – (6) ...
- (b) Periodic review and analysis of records, such as the following.
 - (1) Patrols.
 - (2) Leak surveys.
 - (3) Valve inspections.
 - (4) Vault inspections.
 - (5) Pressure regulating, relieving, and limiting equipment inspections.
 - (6) Corrosion control inspections.
 - (7) Facility failure investigations.
 - (8) Pipeline system failure investigations.

Anomalies discovered should be evaluated, and those determined to present potential safety concerns should be scheduled for remediation and communicated to appropriate integrity management personnel.

2 ...

Section 192.617

Note: Although not required, operators should consider developing written procedures for failure investigations on Type B gathering lines.

1 GENERAL

- (a) Data on all failures and leaks should be compiled to support compliance with §192.613. A failure investigation should be performed to determine the cause of the failure and minimize the possibility of a recurrence.
- (b) For information on failures of PE pipe, see 3 of the guide material under §192.613.
- (c) For information on reporting failures of mechanical fittings, see [Guide Material Appendix G-192-8, Section 10](#). *{Green font reflects approved revision from TR 21-06 to be published in Addendum 3.}*

2 TYPES AND NATURE OF FAILURES **AND INCIDENTS** THAT SHOULD BE ANALYZED

- (a) Failure investigation should be conducted for incidents as defined in §191.3. While the term "incident" is defined, the term "failure" is not defined in Parts 191 or 192. Operators should investigate failures as defined in their procedures. An operator should also consider investigating any other failure that enables the operator to establish patterns that might be occurring on its pipeline system. For examples, see guide material under §192.613.
- (b) A failure is defined as a condition in which a human, structure, component, device, or system fails to adequately perform its intended purpose. Such a condition might or might not also meet the definition of an "incident" in §191.3 or the reporting requirements of §191.5.
- (c) An accident is an unplanned occurrence that results in a release of natural gas from a pipeline. Accidents are failures occurring in pipeline systems for which the pipeline operator must make a report to the Office of Pipeline Safety if ~~they meet~~ the definition of "incident" in §191.3 ~~is met~~.
- (d) If a failure or incident on an onshore gas transmission pipeline involves the closure of a rupture mitigation valve (RMV) or the closure of alternative equivalent technology, the operator must conduct a post-incident analysis under §192.617(c) and (d).

[Editorial note: Combined lettering with TR 22-34 shown in 3 below. If this TR is approved and TR 22-34 is not, the lettering needs to revert to 3(a)-(f) instead of 3(a)-(i) as shown below.]

3 FAILURE **AND INCIDENT** INVESTIGATION

- (a) Failure investigation and subsequent analysis should determine the root cause(s) of the failure. The investigation may be as simple as assembling an internal review group or as complex as conducting a full-scale failure investigation with laboratory analysis of a failed component.
 - (1) Section 192.617 requires operators to establish and follow procedures for investigating and analyzing failures and incidents. Where appropriate, an operator must send the failed pipe, component, or equipment for laboratory examination and testing. Additionally, operators must develop, implement, and incorporate lessons learned from a post-failure or incident review into its written procedures.
 - (2) Not every failure or incident needs laboratory analysis or testing. However, each failure or incident needs an investigation sufficient enough to allow the operator to determine the contributing factors, and to minimize the possibility of a recurrence.
 - (3) If the failure or incident involves an onshore gas transmission pipeline, the operator must evaluate and mitigate, as necessary, significant changes that pose a risk to safety or the environment through a management of change process (MOC) under §192.13(d). See guide material under §192.911 for more information on MOC.
- (b) The information for completing a 30-day incident report form contained in Part 191 may constitute an adequate analysis of a reportable failure or leak. See §§191.9 and 191.15.
- (c) A subject matter expert (SME) individual or team can perform an extensive evaluation, or a more simplified evaluation based on the nature of a system and its operation. The SME should be knowledgeable by training or experience in the procedures for the investigation of an incident or other failure.
- (d) The general process for performing root-cause analysis is as follows.
 - (1) Assemble the review team.
 - (2) Define the problem and gather data and documentation.
 - (3) Identify factors that contributed to the problem (i.e., causal factors).

- (4) Find the root cause for each causal factor, such as people, equipment, material, process, or outside influence.
- (e) Steps to identify and prevent reoccurrence include:**
- (1)** Determine the extent of condition, including identification of locations, equipment, or assets with the potential for similar or same failures to occur.
 - (2)** Ensure information identified in extent of condition analysis is captured in an investigation report and carried through to recommended actions and assignments.
 - (53)** Develop and assign recommendations, considering the following.
 - (i) Minimizing the possibility of a recurrence (§192.617).
 - (ii) Review of procedures ((§192.605(b)(8)).
 - (iii) Human error (§192.805(d and e)).
 - (iv) Abnormal operations (§192.605(c)).
 - (64)** Distribute recommendations and review the operator's procedures. Ensure consideration is given to communication with all potentially impacted personnel. This may include personnel from control room, purchasing, training, operations, and Operator Qualification.
 - (75)** Implement the recommendations.
 - (6)** Track action items and recommendations to closure.
- (f)** Consider testing the involved facilities, whether buried or aboveground. Evaluations could include leak or other surveys, inspecting for signs of recent excavation activity, physical damage to aboveground facilities, or evidence of vehicle damage.
- (eg)** For failures of mechanical fittings, consider following the evaluation steps in **89** below. *{Green font reflects approved revision from TR 21-06 to be published in Addendum 3.}*
- (h)** The analysis of ruptures or the closure of an RMV or alternative equivalent technology on an onshore gas transmission pipeline must include all relevant factors impacting the release volume and the consequences. See §192.617(c)(1)-(5) for a list of some of the relevant factors. The post-incident or post-failure review should include detection and mitigation actions, response time, valve location, valve actuation, and SCADA system performance. The review is not limited to these factors and may include other factors deemed appropriate by the operator.
- (i)** If the failure or incident on an onshore gas transmission pipeline involves the following, the operator must complete a summary and conduct status reviews within the time periods stated in §192.617(d). Each summary, review, and analysis produced must be reviewed, dated, and signed by the appropriate senior executive officer.
- (1)** Identification of a rupture following a notification of potential rupture.
 - (2)** Closure of an RMV.
 - (3)** Closure of an alternative equivalent technology.

4 RESPONSE TO FAILURE *{no change}*

5 DATA COLLECTION *{no change}*

~~6 INVESTIGATION~~

~~A subject matter expert (SME) individual or team can perform an extensive evaluation or a more simplified evaluation based on the nature of a system and its operation. The SME should be knowledgeable by training or experience in the procedures for the investigation or other failure.~~

~~6.1 Incident.~~

~~When a detailed analysis is to be made, an SME investigation team should be designated. The investigation should include the following.~~

- ~~(a) Determination of the probable cause.~~
- ~~(b) Evaluation of the initial response.~~
- ~~(c) The need for system improvements, if necessary.~~
- ~~(d) The need for improvements in response, management and investigation.~~

~~6.2 Other failures.~~

~~Assign an internal SME individual or team.~~

~~6.3 Evaluation~~

- ~~1. Consider testing the involved facilities, performing a leak or other survey of the involved area, or inspecting for signs of recent excavation activity.~~

67 SPECIMENS

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78 TESTING AND ANALYSIS

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89 CONSIDERATIONS FOR MECHANICAL FITTINGS

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89.1 Mechanical fitting failure evaluation for nut-follower fittings.

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89.2 Mechanical fitting failure evaluation for boltless stab fittings (2-inch and smaller).

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910 REFERENCE

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{Green font reflects approved revisions from TR 21-06 to be published in Addendum 3.}

Section 192.805

See Cautionary Note at the beginning of Subpart N.

1 GENERAL *{no change}*

2 ELEMENTS OF THE WRITTEN PROGRAM

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2.4 Performance contributing to an incident (§192.805(d)).

(a) Determine if reevaluation of covered task qualification is needed.

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(b) Determining if other actions are needed.

...

(c) If task performance by specific individual is not documented.

...

(d) Determine if a failure investigation per §192.617 is necessary.
