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Procedure Number: 60.70.10

Title: Reporting and Investigation of Material Failures

1.0 Purpose

This document describes procedures to be used to report and investigate material failures involving pipeline facilities. The goal of the failure investigation is to find the root cause of the failure in order that corrective action may be taken to prevent future failures.

2.0 Scope

The procedure is applicable to material failures experienced on PHMSA jurisdictional facilities. This procedure is not applicable to customer owned equipment or piping, vehicular accidents, or occupational injuries.

3.0 General Information

- 3.1 The UGI Emergency Plan shall be implemented, as appropriate, when a material failure occurs. Not all occurrences of a failure will require the implementation of the UGI Emergency Plan.
- 3.2 If a failure results in a DOT reportable incident as defined in EP 6.1, follow the appropriate reporting requirements to PHMSA, the PUC, and/or the PSC. Information should also be recorded electronically and submitted on UGI's internal Standards & Materials SharePoint site, or on Form 60.70.10-1: Material Investigation Failure Report to be entered electronically when available.
- 3.3 If damages occur as a result of excavation activities, the Substructure Damage Report (Form 60.40.50-1) shall be completed.
- 3.4 Reportable failures that do not qualify as a DOT reportable incident or are not caused by excavation damage must still be documented. This documentation should be completed on the top portion of Form 60.70.10-1 Material Investigation Failure Report. The bottom portion of this report shall also be filled out for mechanical fitting failures that result in a "C" leak. The forms should then be recorded electronically as indicated in 3.2.
- 3.5 Failures that should be reported could occur during installation of mains, services, etc., or may also occur any time after installation. If the cause of the failure or defect appears procedural or equipment related in nature, the forms listed in 3.7 should be submitted and reviewed for evaluation and corrective action. Examples of items to report include:
 - 3.5.1 Inoperable valves that cannot be corrected with normal maintenance.

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005	12/09/2019	Mark Connors	1/13/2020



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- 3.5.2 Relief or regulator failures. Note: Pressures that exceed the MAOP plus allowable build-up shall be treated in accordance with the procedures for a Safety Related Condition (EP 6.2).
- 3.5.3 Meter failures and malfunctions not currently reported by the meter shop.
- 3.5.4 Cracks, leaks or other failures of any flanges, fittings, or other components.
- 3.5.5 Premature tool and equipment (i.e. tapping and stopping equipment, leak survey equipment, and pipe locator equipment) failures. Equipment replacement or repairs that are the result of normal usage do not need to be reported.
- 3.6 The completed form, along with the failed specimen, should be sent to the Manager, Standards and Materials. If it is not practical to send the failed facility, it should be retained in a safe location where it can be examined. If it is determined that a facility has a high rate of failure, and the reason for the failure has been established, the failed facility may not need to be preserved. The Senior Manager of Standards and Materials will communicate to Operations if certain failed facilities no longer need to be preserved. However, a particular facility may need to be retained based on Section 4.4 of this procedure.
- 3.7 Those items that have high rates of failure must be documented. Form 60.70.10-1 may be used for reporting, or another approved format may be used. For example, mechanical tee failures may be documented on a separate spreadsheet for tracking purposes. The Senior Manager of Standards and Materials shall determine when a format other than Form 60.70.10-1 may be used and will communicate this to Operations.

4.0 Failure Investigation and Preservation

- 4.1 Detailed investigation of a material failure should be conducted based on the extent applicable. Photographs should be taken of the failure site and surrounding area, when practical.
- 4.2 The failed specimen needs to be preserved and handled carefully for possible metallurgical analysis or pressure tests, etc. The failure surface shall be protected during the cutting, lifting, identifying and shipping of pipe and/or fittings.
- 4.3 The failed specimen should be preserved in the following manner:
 - 4.3.1 Avoid cutting too close to the failure so that pressure (or other) testing may occur. When possible, allow six (6) inches or two (2) pipe diameters of good pipe on each side of the fitting or joint that has failed.

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- 4.3.2 Do not paint or attempt to clean the specimen.
- 4.3.3 As applicable, identify the orientation and position of the specimen with respect to the remaining facilities and fixed landmarks. Also indicate the direction of gas flow.
- 4.4 If the specimen was involved, or has not been ruled out as being involved, in a loss event (property damage or injury claim), the Claims Department should be notified. In addition, in such situations, the specimen should be treated as evidence and an evidence tag (Form 60.70.10-2) must be attached to the specimen to identify the company material potentially involved in a failure or loss event.
- 4.5 Recover and preserve all UGI owned gas equipment that survives an incident, such as a fire or explosion, even when the cause has been determined to be other than gas related. Tag and maintain this equipment as described in 4.4 above until the case has been officially closed.
- 4.6 The Materials Engineer shall coordinate the analysis of failed specimens and report findings, as appropriate. Any necessary additional follow-up action such as additional leak surveys, removal of the material from stock, etc., will be established after the cause of the failure has been determined.

5.0 Records

Completed copies of Form 60.70.10-1 shall be maintained by the Material Engineer for a period of 10 years.

6.0 Operator Qualification

There are no specific UGI Covered Tasks that apply to this procedure. Refer to the UGI Emergency Plan for any emergency response activities and qualifications that may be necessary.

7.0 References

Federal Regulations

49 CFR 192.605 Procedural manual for operations, maintenance, and emergencies

49 CFR 192.613 Continuing surveillance

49 CFR 192.617 Investigation of failures

Maryland Regulations

COMAR 20.57.02.03 Reportable Incident Investigation COMAR 20.57.02.04 Reportable Incident Testing



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			UGI	GAS UTIL	ITIES	i			
		MATER	IAL INVES	TIGATION	FAILURE F	REPORT			
			Form (60.70.10-1	(08/2018)			Energy t	to do more®
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						or Service			
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					Involved				
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Manufacture Date of Man					f Installation Model #			Installed:	
Wall Thickn					e Cause			LOC #	
77 6.11	000,02.1	Not	uro of Eai		ions Taken	/ Common	to \		
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								tung lanar	
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Type of Mee	nanicai i	ittirig.			ii Otrici , 3	occity.			
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		2)							
		3)			Year Manuf	actured**:			1
**If Neither \	Year Insta	lled or Year	Manufactu	red is Knov	wn, Provide [Decade Inst	alled:		1
Manufacture	er:			Part or Mo	del Number:				
Lot Number:	•			Other Attri	butes:				
Fitting Mate	rial·			If "other, s					
Titting Wate	iidi.			ii otrior, o	poony.				
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	Nominal S			First Mate	rial:				
	Unit:			If plastic, s	specify:				
					If "other", s	pecify:			
t) Second	Pipe:							
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					If "other", s	респу:			
Primary Cau	use of Lea	k:		T.	T				
If natural for	ces, was t	here therma	l expansion	/contraction	?				
If excavation									
If material or		sions, what	caused the	leak?					
If other, expla	ain:								
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Form Prepa	red by:						Date:		
Field Super	isor:						Date:		
Material Sta							Date:		
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