Planning Pipeline Blowdowns and Reporting	SCG:	223.0155

PURPOSE **To provide guidelines and requirements for planning and documenting pipeline blowdowns and selecting appropriate blowdown reduction methods to reduce the amount of gas blown into the atmosphere. This standard also provides guidance for determining the appropriate method to achieve a hot cutting pressure.**

1. POLICY AND SCOPE

1.1. Consider blowdown reduction methods when planning blowdowns for pipeline projects to reduce and/or minimize the amount of gas blown into the atmosphere.

1.1.1. When it appears that blowdown reduction methods are not possible due to reasons such as safety, reliability of service or compliance related issue, please contact the Emissions Strategy Program Team at MethaneEmissions@semprautilities.com for assistance.

1.2. This standard lists some typical situations when certain methods or a combination of methods are recommended to assist the project planner in selecting the appropriate method(s) for their project, when applicable.

1.3. Form 7011, *Blowdown Emissions Reduction Plan,* must be completed for planned pipeline projects that require pipeline blowdowns and meet any of the following criteria below:

- Blowdown due to the shutdown, replacement, and/or abandonment of transmission pipelines or distribution mains operating over 60 pounds per square inch gauge (PSIG).
- Blowdown due to in-line inspection (ILI) operations. Document the cumulative planned blowdown volume per project for these operations.
- Blowdown due to the shutdown, replacement, and/or abandonment of distribution mains that are 6 inches in diameter or larger and 1,000 feet or greater in length operating under 60 PSIG.
- Any other blowdown operation that will result in a gas loss of 10 MSCF (1 MSCF = 1,000 standard cubic feet) or more, before any methane emissions reduction. This also includes gas used in the course of Company operations (including Storage Operations). Document the cumulative planned blowdown volume per project for these operations.

1.4. **Pressure Requirement to Perform a Hot Cut** - After a blowdown, use fire control stacks or nearby blowdown piping to achieve the required 0.2 inches water column (w.c.) pressure at the jobsite.

2. RESPONSIBILITIES AND QUALIFICATIONS

2.1. **Pipeline Engineering** is responsible for interpreting, revising, and reviewing this standard.

2.2. The **Emissions Strategy Program Team** is responsible for reviewing all completed blowdown emissions reduction planning forms.

2.3. **Company Employees**, usually a planner or project manager, are responsible for completing Form 7011, *Blowdown Emissions Reduction Plan,* for pipeline work involving controlled blowdowns.

3. DEFINITIONS

3.1. **Blowdown** - As defined in Standard 185.0559, *Terms and Definitions.*

3.2. **Compressed Natural Gas (CNG)** – As defined in Standard 185.0559.

3.3. **CNG Capture (Tanking)** – The compression of gas from the isolated blowdown segment to a CNG tank at a high pressure. The compressed gas is then transported off-site. Use the tanks to re-inject the captured gas into the Company's piping system and/or for customer bypass operations.

3.4. **Cross Compression** – The transfer of gas through compression, from the isolated pipe segment to be blown down to a live system. The system being transferred into can be the same pipeline as the one evacuated, so long as the gas is being transferred to a non-isolated (live) segment. Gas can also be transferred to a different, nearby gas pressure system. Transfer gas by cross compression using any of the following three methods below:

1. Compress the gas from the isolated blowdown segment to a tank. The gas is then transferred from the tank to an adjacent gas pressure system. Regulate the injection pressure based on the receiving pipeline's pressure rating limits (i.e., maximum allowable operating pressure (MAOP), maximum operating pressure (MOP)), making sure not to exceed the system's MOP.

2. Compress the gas from the isolated blowdown segment and inject it directly into a nearby live pipeline. Regulate the injection pressure based on the receiving pipeline's pressure rating limits (i.e., MAOP, MOP), making sure not to exceed the system's MOP.

3. Compress the gas from the isolated blowdown segment using a pneumatic tool (e.g., ZEVAC) and inject it at a pressure slightly above the operating pressure of the receiving piping system, making sure not to exceed the system's MOP. The receiving pressure system can be the same or a different gas pressure system.

3.5. **Draw Down Pressure** – The use of downstream pressure regulator stations or customer meter set assemblies (MSAs) to reduce the pressure in the upstream pipeline prior to a blowdown.

3.6. **Diverting to Other Local Lines** – To reduce pressure by diverting gas to a lower pressure system within proximity of the pipeline being blown down.

3.7. **Methane Emissions Reduction** – The volume of gas saved, as a result of the application of one or more methods to reduce the release of natural gas blown into the atmosphere. For planned blowdowns and methane emissions reduction plans, see Form 7011, *Blowdown Emissions Reduction Plan*.

3.8. **Thermal Oxidizer** – An approved portable combustion unit that decomposes natural gas at a high temperature to prevent its release into the atmosphere. Typically, only **Storage Operations** uses this method.

3.9. **Volume Reduction via Pressure Control Fittings** – The installation of pressure control fittings (i.e., Stopple fittings) to reduce the volume of gas blown into the atmosphere by shortening the segment of pipeline being blown down.

3.10. See Standard 182.0185, *Pressure Terminology and Establishment of Pressure Levels for Piping*, for additional definitions.

3.11. See Standard 223.0415, *Pipeline and Related Definitions*, for additional definitions of distribution main and services.

4. PROCEDURE

4.1. When determining which blowdown reduction method to use, consider:

- practicality,
- cost, and
- scheduling.

4.2. In many cases, it is possible to *draw down* the blowdown segment using nearby Company or customer facilities (regulator stations, limiting stations and/or customer MSAs). When the location of a blowdown operation has been identified in a pipeline project, the project planner must determine what facilities are nearby and whether it is practical to use those facilities to reduce the pressure in the pipeline, after isolating the segment using valves and/or pressure control fittings.

4.2.1. **Example 1** – Isolate the distribution pipeline segment using two nearby valves on a supply line, then allow the nearby regulator station to reduce the pressure in the isolated supply line segment by transferring the natural gas from the high pressure zone to the medium pressure district.

4.2.2. **Example 2** – Isolate the transmission pipeline segment using two nearby valves on a transmission line, then allow the nearby limiting station to reduce the pressure in the isolated transmission line segment by transferring the natural gas from the high pressure transmission system to the lower pressure distribution system.

4.3. When it is not possible and/or practical to draw down the gas in the pipeline segment through a regulator station and/or customer MSA, it may be possible to reduce the

pressure by *diverting the gas to other pipelines* using a temporary regulator station or regulated bypass.

4.3.1. **Example 1** – Isolate the transmission pipeline segment using two nearby valves on a transmission line, then install a temporary regulator station to reduce the pressure in the isolated transmission line segment by transferring the natural gas from the high pressure transmission system to the lower pressure distribution system.

4.4. After a thorough evaluation of the pipeline segment to be isolated, if it is determined that there are no nearby points of isolation and the pipeline segment is too long in length (and thus contains a large volume of gas) that may take too long to draw down the gas, then it may be necessary to use *pressure control fittings* (i.e., Stopple fittings) to reduce the length of the segment.

Note:	This method can be costly due to acquisition of materials, operation, scheduling, and additional design conditions to consider (e.g., piggability of the pipeline after installation, additional leak points, etc.); therefore, this method should only be considered when all other methods are impractical or infeasible.

4.4.1. **Example 1** – Isolate the pipeline segment using two pressure control fittings (i.e., Stopple fittings) to reduce the potential volume of gas blown into the atmosphere, since there are no nearby valves to use for isolation.

4.4.2. **Example 2** – Isolate the pipeline segment using one pressure control fitting (i.e., Stopple fittings) and a single nearby valve to reduce the potential volume of gas blown into the atmosphere, since there is no nearby 2nd valve to use for isolation.

4.4.3. **Example 3** – Isolate the pipeline segment using two nearby valves on a supply line and install a pressure control fitting (i.e., Stopple fittings) on a lateral pipeline within the isolated segment to reduce the potential volume of gas blown into the atmosphere, since there are no nearby valves on the lateral pipeline.

4.5. In some circumstances, consider capturing and *cross compression* of gas from the isolated system into a nearby system as a practical solution, depending on the volume of gas and pressure of both, the isolated system and the nearby live system.

4.6. A similar method to consider is *CNG capture (tanking)*, if the gas will be transferred to a separate tank, transported off-site and reintroduced into a separate system, not in the nearby vicinity of where the gas was first captured.

4.7. To determine which compression-based blowdown reduction method to use, consider the volume first, and then the schedule (i.e., the maximum time committed to project by project team). For the criteria for determining which method to use and other pertinent information, see **Table 1** below.

Table 1 - Blowdown Reduction Method Criteria

Method	Equipment	Executed by	Volume (MSCF)	Pressure (PSIG)	Schedule (maximum days)
Cross Compression	ZEVAC	Approved Vendor	<50	<500	1-2 days
Cross Compression	ZEVAC	SCG CNG Team	<50	<500	1-2 days
CNG Capture (Tanking)	ANGI Setup	SCG CNG Team	50-1,000	>40	3-4 days
Cross Compression	ANGI Setup	SCG CNG Team	50-1,000	>40	3-4 days
Cross Compression	Vendor Provided Equipment	Approved Vendor	>1,000	200-1250	3-4 days

4.7.1. **Example 1** – Extract the gas from a supply line (400 PSIG MAOP), cross compress the gas, and then reintroduce it into a transmission line (600 PSIG MAOP).

4.7.2. **Example 2** – Extract the gas from a supply line, compress the gas into a CNG tank, and then reintroduce the gas into a medium pressure district through a pressure reduction trailer and/or a portable regulator station.

4.8. Blowdown Reduction Plan Preparation and Routing

4.8.1. For planned blowdown events, Form 7011 must be completed and distributed *at least 30 days* prior to the blowdown event. For preparation guidelines, routing instructions and examples of supporting documentation, see Form 7011, *Blowdown Emissions Reduction Plan*.

4.8.2. All planned blowdown events documented on Form 7011, *Blowdown Emissions Reduction Plan,* that occur and/or executed must be reported on Form 3466, *Reporting of Gas Blown to Atmosphere*. For guidelines, see Form 3466, *Reporting of Gas Blown to Atmosphere*.

4.9. Methods for Achieving Hot Cutting Pressure

4.9.1. Where possible, blow down the pipeline section from the higher elevation end (to reduce pressure at the jobsite) to as close to the desired pressure, before using the fire control stacks to complete the task.

4.9.2. Reduce the pressure at the jobsite to 0.2 inches w.c. in the desired pipeline segment.

4.9.3. Monitor the pipeline pressures with water manometers when pressures drop to 2 PSIG or less.

4.9.4. Use the calculator provided in **Section 4.9.7** below to determine the predicted pressure at the blowdown location.

4.9.4.1. Higher locations have higher gauge pressures than lower locations.

4.9.4.2. 1 PSIG is equal to 27.7 inches w.c.

4.9.5. Normally, a negative gas pressure is present at the valve location at the lower elevation, when the desired pressure is achieved at the jobsite. Close and plug all end closures and valves to avoid air intrusion into the pipeline at the lower valve.

4.9.6. Fire control stacks at the job sites should remain closed until after the blowdown stack at the blowdown location is closed and sealed. If the pipeline system's isolating facilities are unable to properly seal and isolate the pipeline section, it may be necessary to throttle the blowdown stacks in order to maintain the required 0.2 inches w.c. pressure while the fire control stacks are opened. Fire control stacks and/or blowdown stacks must be continuously monitored with manometers for positive pressure to ensure no air enters the pipeline.

4.9.7. Use the calculator below to determine the estimated pipeline pressure in inches w.c. at the jobsite when taken at different locations with different elevations.

Hot Cutting
Pressure Calculator

5. EXCEPTION PROCEDURE
(See Standard 182.0004, *Exception Procedure for Company Operations Standards*)

5.1. The exception procedure in this standard only applies to the completion of Form 7011 as the blowdown reduction methods defined and procedurally described are guidelines and not requirements.

5.2. An exception to this standard shall be considered only after all practical solutions have been exhausted and the **Emissions Strategy Program Team** has been consulted. All proposed exceptions to this standard must take safety issues into primary consideration and must comply with all relevant governing codes, before approval of any proposed exception may be granted.

5.3. An exception to this standard shall be permitted only if Standard 182.0004, *Exception Procedure for Company Operations Standards*, is followed, and approval is granted by those required by 182.0004.

6. OPERATOR QUALIFICATION COVERED TASKS(See Standard 167.0100, *Operator Qualification Program*, Appendix A, *Covered Task List*)

Not Applicable.

7. RECORDS

Form 7011 must be completed, routed and retained per the requirements listed in its applicable form instruction.

8. APPENDICES – N/A

9. PROTECTED SECTIONS AND WORDING

The following sections and wording in this document cannot be altered or deleted without prior approval from Pipeline Safety & Compliance and Legal:

Section	Protected Wording (Underlined ONLY)	Justification	Date Wording Added
Not Applicable			

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NOTE: Do not alter or add any content from this page down; the following content is automatically generated.
Brief: Fully reviewed. Gas Standard renamed from "Planning Pipeline Blowdowns" to "Planning Pipeline Blowdowns and Reporting". Gas Standard was revised to incorporate new policy and scope due to SB 1371 directive for blowdown reduction methods which include new definitions, procedure and reporting with associated forms and records. All sections of the gas standard have been revised as it originally only applied to the blowdown procedure for achieving a hot cutting pressure. Updated hot cutting pressure procedure for clarity and added a calculator for ease of use and incorporating of existing equation.

Document Profile Summary	
Responsible Person:	Rodriguez Paz, Cristopher D
Published On:	10/1/2020
Last Full Review Completed On:	8/31/2020
Document Status:	Active
Doc Type:	GAS
Category (Prior FCD system only):	
If Merged, Merged To Document Number:	
Utility:	SoCalGas
Department:	Gas Engineering
Number of Common Document (if applicable):	N/A-Gas standard does not exist for SDGE at the moment but may in the near future. Gas standard before recent revision detailed a procedure that was not practiced in SDGE.
Confidential Sections:	
Contains OPQUAL Covered Task:	No
Part of SoCalGas O&M Plan:	Yes
Part of SDG&E O&M Plan:	No
Last O&M Review date:	8/30/2022
Writer:	Franco, Daniel
O&M 49 CFR Codes & Impacted Sections of Document:	192.605(b)(5): Entire Document
Part of Non-O&M Parts 191-193 Plan:	No
Non-O&M 49 CFR Codes & Impacted Sections of Document:	
Part of Distribution IMP (DIMP):	No
Part of Transmission IMP (TIMP):	No
Part of Storage IMP (SIMP):	No
Impacts GO112F:	No
GO112F Codes & Impacted Sections of Document:	
Impacts GO58A:	No
GO58A Codes & Impacted Sections of Document:	
Impacts GO58B:	No
GO58B Codes & Impacted Sections of Document:	
Part of CA PUC:	No
CA PUC Codes & Impacted Sections of Document:	
Impacts New Business Construction:	No

Indices/Binders in Which Document is Filed:	DISTM, STOR, TPP, TRAN
NOP Learning Module (LM) Training Code:	NOP00611