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Natural Gas STAR Methane Challenge Program
Implementation Plan

Partner Name

Washington Gas

Current as of (date)

Apr 19, 2019

Partner Implementation Manager

Name: _____

Title: _____

Address: _____

City/State/Zip: _____

Telephone/Fax: _____ E-mail: _____

Partner Methane Challenge Commitments[1]

BMP Commitment Option

	Source	Start Date	Achievement Year
	Onshore Production		
☐	Pneumatic Controllers		
☐	Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks		
	Gathering and Boosting		
☐	Pneumatic Controllers		
☐	Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks		
☐	Reciprocating Compressors - Rod Packing Vent		
☐	Centrifugal Compressors - Venting		
	Natural Gas (NG) Processing		
☐	Reciprocating Compressors - Rod Packing Vent		
☐	Centrifugal Compressors - Venting		
	NG Transmission & Underground Storage		
☐	Reciprocating Compressors - Rod Packing Vent		
☐	Centrifugal Compressors - Venting		
☐	Transmission Pipeline Blowdowns between Compressor Stations		
☐	Pneumatic Controllers		
	NG Distribution		
■	Mains – Cast Iron and Unprotected Steel *(Commitment Rate:* 3.0% *)*	Jan 1, 2016	2021
■	Services – Cast Iron and Unprotected Steel	Jan 1, 2016	2021
☐	Distribution Pipeline Blowdowns *(Commitment Rate:)*		
■	Excavation Damages	Jan 1, 2016	2021

Partner Methane Challenge Commitments

ONE Future Emissions Intensity Commitment Option

Segment:		Intensity Target:		Target Year:	

[1] Partners may delete unused rows within the table, and may duplicate rows and add relevant details as needed (e.g., a corporate parent partner that has different commitments for each LDC can duplicate relevant rows to list the commitments for each LDC).

Natural Gas STAR Methane Challenge Program
Implementation Plan Template – BMP Commitment

Milestones/Timeframes for Meeting Commitments:

Washington Gas, a founding Methane Challenge Partner, has committed to adopting technologies and practices that improve operational efficiency and reduce emissions of methane. Below is an outline of the practices Washington Gas is implementing through the year 2021 in order to achieve reduced methane emissions.

BMP: Mains and Services – Cast Iron and Unprotected Steel

Washington Gas is replacing and rehabilitating gas main and service lines in various neighborhoods in Washington, D.C, Maryland, and Virginia.

Washington Gas will replace cast iron mains with plastic or cathodically protected steel and replace or cathodically protect unprotected steel mains. In areas of Washington D.C. where replacement of the main line is not feasible or permitted, Washington Gas plans to rehabilitate cast iron and unprotected steel pipes with plastic pipe inserts.

Washington Gas will replace unprotected steel and cast iron service lines with plastic piping. The plastic will meet the manufacturing requirements and qualifications provided in 49 CFR Part 192, Subpart B. The replacement of cast iron mains and services with plastic pipes will reduce leaks of methane emissions into the atmosphere.

Washington Gas plans to complete these replacements and rehabilitations by 2021. To quantify the amount of mains and services identified for replacement, Washington Gas has compiled the following information from their 2015 U.S. Department of Transportation Annual Reports for Gas Distribution Systems:

Table 1 – 2015 Counts of Mains and Services Identified for Replacement

	Miles of Main				Services			
	Unprotected Steel		Cast/ Wrought Iron[1]	Mains Total	Unprotected Steel		Cast/ Wrought Iron	Services Total
	Bare	Coated			Bare	Coated		
Washington DC	24.957	60.966	416.311	502.234	7,039	12,056	0	19,095
Maryland	127.701	73.754	60.265	261.72	5,633	8,178	0	13,811
Virginia	28.203	192.649	15.243	236.095	5,427	4,854	0	10,281
Total	180.861	327.369	491.819	**1,000.05**	18,099	25,088	0	**43,187**

Table 2 – Future Commitment for Counts of Mains and Services[2,3]

	End of Year Amounts					
	Start (2015)	**2016**	**2017**	**2018**	**2019**	**2020**
Miles of Main Remaining (Cast Iron/Unprotected Steel)	1,000.05	970.05	940.95	912.72	885.34	858.78
Cumulative Miles of Main Replaced	--	30.00	59.10	87.33	114.71	141.27
Services Remaining (Cast Iron/Unprotected Steel)	43,187	41,891	40,634	39,414	38,231	37,084
Cumulative Services Replaced	--	1,296	2,553	3,773	4,956	6,103

Mains and Services – Cast Iron and Unprotected Steel – Reporting

Washington Gas collects data for the total mileage of pipeline made of each material annually and the total time each specific pipeline type was operational in the calendar year as needed. This data is reported each year to the EPA electronically according to requirements under Subpart W of the Greenhouse Gas Mandatory Reporting Rule via the Greenhouse Gas Reporting Program (GHGRP). Washington Gas commits to reporting the information in the EPA's "Distribution Segment Supplementary Technical Information" document by their designated achievement date, as follows:

Table 3 – Mains and Services Reporting

Emissions Source	Quantification Method	Data Elements to be Collected at Facility-Level	Currently collected through GHGRP
Distribution mains and services - cast iron -	Subpart W: cast iron mains EF / unprotected	Total miles of cast iron distribution mains	X
		Total number of cast iron services	

[1] Includes Cast/Wrought Iron as well as Reconditioned Cast Iron.
[2] Amounts include unprotected steel (bare and coated), cast/wrought iron, and reconditioned cast iron for gas mains and services in Washington D.C, Maryland, and Virginia.
[3] Projections are based on a commitment from Washington Gas's Methane Challenge Program to reduce unprotected steel and cast iron mains and service lines by 3% each year, for 5 years. 3% reduction for future years is based on the projected value of the year immediately prior.

Emissions Source	Quantification Method	Data Elements to be Collected at Facility-Level	Currently collected through GHGRP
gas service	steel services EF	Annual CH_4 emissions (mt CH_4)	X[4]
Distribution services - copper - gas service	Subpart W copper services EF	Total number of copper services	X
		Annual CH_4 emissions (mt CH_4)	X
Distribution mains and services- plastic - gas service	Subpart W: plastic mains EF / plastic services EF	Total miles of plastic distribution mains	X
		Total number of plastic services	X
		Annual CH_4 emissions (mt CH_4)	X
Distribution mains and services - protected steel - gas service	Subpart W: protected steel mains EF / protected steel services EF	Total miles of protected steel distribution mains	X
		Total number of protected steel services	X
		Annual CH_4 emissions (mt CH_4)	X
Distribution mains and services- unprotected steel - gas service	Subpart W: unprotected steel mains EF / unprotected steel services EF	Total miles of unprotected steel distribution mains	X
		Total number of unprotected steel services	X
		Annual CH_4 emissions (mt CH_4)	X
Distribution mains and services- cast iron or unprotected steel with plastic liners or inserts - gas service	Subpart W plastic mains EF	Total miles of cast iron or unprotected steel distribution mains with Plastic Liners or Inserts	
		Total number of cast iron or unprotected steel services with plastic liners or inserts	
		Annual CH_4 emissions (mt CH_4)	
Voluntary action to reduce methane emissions during the reporting year	Difference in emissions before and after mitigation	Miles of cast iron mains:	
		Replaced with plastic	
		Replaced with protected steel	
		Rehabilitated with plastic pipe inserts or cured-in-place liners	
		Miles of unprotected steel mains:	
		Cathodically protected or replaced with protected steel	
		Rehabilitated with pipe inserts or cured-in-place liners	
		Replaced with plastic	
		Number of cast iron services:	
		Replaced with plastic	
		Replaced with protected steel	
		Replaced with copper	
		Rehabilitated with plastic pipe inserts	
		Number of unprotected steel services:	
		Cathodically protected or replaced with protected steel	
		Replaced with plastic	
		Replaced with copper	

[4] Mains only, no cast iron services are reported through GHGRP.

Emissions Source	Quantification Method	Data Elements to be Collected at Facility-Level	Currently collected through GHGRP
		Rehabilitated with plastic pipe inserts	
		Emission reductions from voluntary action (mt CH_4)	

Washington Gas has accelerated programs in Washington DC, Maryland, and Virginia that have been approved by each state regulatory body and the Public Services Commission (PSC) to seek cost recovery for efforts taken to meet the program commitments defined in this plan.

BMP: Excavation Damages

Washington Gas maintains records on all excavation damages. Washington Gas will strive to reduce the instances of excavation damages and the amount of methane emissions from such damages by conducting incident analyses to determine the need for process improvements. These analyses will include an evaluation of safety and One-Call practices, as well as what can be done to reduce the risk of recurrence of excavation damages. Washington Gas is also making use of the 811 excavation safety education program to help avoid the instances of causing excavation damages. Washington Gas plans to reduce occurrences of excavation damages by 2021.

Excavation Damages - Reporting

Washington Gas commits to reporting the information in the EPA's "Distribution Segment Supplementary Technical Information" document by their designated achievement date, as follows:

Table 4 – Excavation Damages Reporting

Emissions Source	Quantification Method	Data Elements to be Collected at Facility-Level	Currently collected through GHGRP
Excavation damages – natural gas distribution network	NA	Total number of excavation damages	
		Total number of excavation damages per thousand locate calls	
		Total number of excavation damages per class location (optional)	
		Total number of excavation damages by pipe material (steel, cast iron, copper, plastic etc.) and part of system involved (main, service, inside meter/regulator set, etc.)	
		Total number of excavation damages which resulted in a release of natural gas	
		Total number of excavation damages which resulted in the pipeline being shut down	
		Total number of excavation damages on pipelines or facilities with supervisory control and data acquisition-based systems in place	
		Total number of excavation damages where the operator was given prior notification of excavation activity	

Emissions Source	Quantification Method	Data Elements to be Collected at Facility-Level	Currently collected through GHGRP
		Total number of excavation damages by type that caused excavation damage incidents[5]	
		Total number of excavation damages by apparent root cause[6]	
Voluntary action to reduce methane emissions during the reporting year	Subpart W plastic mains EF	Actions taken to minimize excavation damages/reduce methane emissions from excavation damages	
		Company-specific goal for reducing excavation damages and/or methane emissions from excavation damages (when available)	
		Progress in meeting company-specific goal (when available)	

Additional Information/Context:

Washington Gas is currently convening an internal working group that is investigating whether adding a commitment level for distribution pipeline blowdowns is appropriate and if the current proposed BMPs for blowdowns can be successfully used within Washington Gas' jurisdictions.

At this time, the EPA has not finalized any BMP commitment details for Metering and Regulating (M&R) Stations and City Gates. As EPA releases BMPs for M&R Stations/City Gates and other areas that are applicable to distribution systems, Washington Gas plans to review and determine the appropriateness of adding these BMPs to Washington Gas' current commitment levels.

[5] Contractor, Railroad, County, State, Developer, Utility, Farmer, Municipality, Occupant, Unknown/Other, Data not collected

[6] One-Call Notification Practices, Locating Practices, or Excavation Practices not Sufficient; One-Call Notification Center Error, Abandoned Facility, Deteriorated Facility, Previous Damage, Data not Collected, Other Outside Force Damage, Pipe, Weld or Joint Failure, Equipment Failure, Incorrect Operation, Other/Miscellaneous