APPENDIX 2- TRANSMISSION M&R STATIONS PROPOSED CHANGES

2021 Winter Workshop (R.15-00-08)- January 21, 2021
Objectives:

SoCalGas proposes to:

» Transferring leaker-based emissions of Distribution Tap Facilities from Appendix 2 (Transmission M&R Stations) to Appendix 5 (Distribution M&R Stations)

• Transition from emission estimates based on counts of Distribution Tap facilities to:
  • Emission estimates based on counts of leaking components and leaking component emission factors in the same manner as Distribution M&R Stations

• Move Direct Sales emissions from Appendix 2 (Transmission M&R Stations) to Appendix 6 (MSA Systems)
  • Direct Sales emissions are accounted for in Appendix 6 (MSA Systems)
Topics

- Tap Facility Definition
  - Tap Facility Components
- Current Emission Estimation Methodology
- Proposed New Emission Estimation Methodology
- Direct Sales
- Future Work For Transmission M&R Stations

- Note that the 1996 GRI/EPA study used the same emissions measurement data set to develop the EFs for Distribution M&R stations and for Transmission M&R stations


SoCalGas and SDG&E defines Tap Facilities or First Stage Regulations (FSR) as following:

- Pressure regulating, relieving or limiting devices and associated valves, fittings, control lines and piping utilized to control the flow of high-pressure gas to a customer MSA.

- A Tap Facility is on a high-pressure line to serve a single customer where gas at medium pressure is not available.

- Emissions from Tap Facilities are reported as component leaks. No vented emissions are associated with Farm Taps (pneumatics devices).
## Tap Facilities Components

### Standard Tap Facility Design

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tee Fitting</td>
</tr>
<tr>
<td>2</td>
<td>Connector</td>
</tr>
<tr>
<td>3</td>
<td>Plug</td>
</tr>
<tr>
<td>4</td>
<td>Nipple</td>
</tr>
<tr>
<td>5</td>
<td>Valve Ball</td>
</tr>
<tr>
<td>6</td>
<td>Valve Ball</td>
</tr>
<tr>
<td>7</td>
<td>Regulator</td>
</tr>
</tbody>
</table>
Tap Facilities
Leaks and Emissions
2019 Emissions Estimate


» Population EF calculation: Emissions = Count of each Transmission M&R Stations Category * EF (Mscf/yr/station)

- Station counts by category:
  - Transmission-to-Transmission Interconnect Stations (T), \( EF = 1554.8 \text{ Mscf/yr/station} \)
  - Direct Sales Stations (D), \( EF = 12.2 \text{ Mscf/yr/station} \)*
  - Farm Taps (F), \( EF = 12.2 \text{ Mscf/yr/station} \)*

* Recalculating the EF using all 14 samples from “T-2 Transmission Source Sheet” in Volume 10 of the 1996 GRI/EPA Study indicates that the current EF for Farm Taps and Direct Sales of 12.2 Mcf NG/stn-yr is based on a calculation error and that the EF should be 4.8 Mcf NG/stn-yr

- Facility-level population emission factors (EFs) by category from 1996 GRI/EPA Study (~ 1992 data)
  - Emissions measured using tracer gas method and include both fugitive emissions (unintentional natural gas leaks) and pneumatic device venting
    - No vented emissions are associated with Farm Taps (pneumatics devices)
  - Emission Factors have large uncertainties, about ±80% (at 90% CI)
  - National EFs rather than based on SoCalGas or California-specific emissions data
  - Tap Facilities designs in other areas of the U.S. can vary from SoCalGas stations due to differences in operating pressures and environment
Proposed New Emission Estimation Methodology (2021+)

Tap Facilities:

- Emissions estimated using:
  - Results of periodic SoCalGas leak surveys of Distribution Tap Facilities that determine leaks count by component type
  - Component leaker EFs from CARB MRR (Appendix A Table 7) same as Distribution M&R station leaks
  - Emission duration: Time from the leak repair to the last survey, or January 1st of the report year

The proposed new methodologies allow year-to-year emission reductions to be demonstrated
## Periodic SoCalGas Leak Surveys Practices

<table>
<thead>
<tr>
<th>Category</th>
<th>Leak Survey Frequency (Minimum)</th>
<th>Leak Detection Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap Facilities (DOT-T)</td>
<td>2 survey per year</td>
<td>DPIR, OMD, or RMLD</td>
</tr>
<tr>
<td>Tap Facilities (DOT-D)</td>
<td>1 survey per year</td>
<td>DPIR, OMD, or RMLD</td>
</tr>
<tr>
<td>Direct Sales</td>
<td>2 survey per year. Monthly MSA inspection</td>
<td>Survey: DPIR or RMLD Inspection: Soap Test</td>
</tr>
</tbody>
</table>
## Tap Facilities

### Leaks and Emissions

### Proposed Emission Factors

Component leaker EFs from CARB MRR (Appendix A Table 7)

<table>
<thead>
<tr>
<th>Component</th>
<th>Emission Factor (scf CH4/hour/component)</th>
<th>scf CH4/scf NG$^A$</th>
<th>Emission Factor (Mscf NG/component-day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>1.69</td>
<td>0.95</td>
<td>0.0427</td>
</tr>
<tr>
<td>Block Valve</td>
<td>0.557</td>
<td>0.95</td>
<td>0.0141</td>
</tr>
<tr>
<td>Control Valve</td>
<td>9.34</td>
<td>0.95</td>
<td>0.2360</td>
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<tr>
<td>Pressure Relief Valve</td>
<td>0.27</td>
<td>0.95</td>
<td>0.0068</td>
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<tr>
<td>Orifice Meter</td>
<td>0.212</td>
<td>0.95</td>
<td>0.0054</td>
</tr>
<tr>
<td>Regulator</td>
<td>0.772</td>
<td>0.95</td>
<td>0.0195</td>
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<tr>
<td>Open-ended Line</td>
<td>26.131</td>
<td>0.95</td>
<td>0.6602</td>
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</tbody>
</table>

$^A$ Subpart W default value for CH4 in NG [§ 98.233(u)(2)]
Direct Sales
Leaks and Emissions

» Direct Sales:
  ▪ SoCalGas and SDG&E define Direct Sale as large non-core gas customers with Industrial/Commercial MSA
  ▪ SoCalGas and SDG&E are continuously refining Management Systems data:
    • Data reviews indicated that small number of Direct Sales meters have been reported in both Appendix 2 and Appendix 6. Therefore, SoCalGas proposes removing the Direct Sale meters from Appendix 2 to avoid duplication in emissions estimation.
      - The overreporting of facilities can be attributed to oversight due to the large number of customers meters reported in Appendix 6.
  ▪ SoCalGas and SDG&E confirmed and concurrence of this change with PG&E and Southwest Gas.
Transmission M&R Stations
StationLeaks and Emissions
Next Steps

» Continuing and Future Work

- Transmission M&R Stations:
  - Conducting research studies at M&R Stations using methane sensors and aerial methane detection technologies to better understand emission sources and overall facility emissions in relation to current emission factors
  - Leveraging the studies’ data to evaluate leak detections practices
  - This work will provide the industry with additional data for such type of facilities and to improve leak detection practices

- On-going modernization of Station Facilities:
  - Replacing and retro-fitting aging infrastructure (e.g., valves and fittings) to improve reliability
  - Replacing natural gas-driven pneumatic devices with lower bleed, air-driven, or electric devices

- Verify comprehensive inventory of Company M&R Stations and company-specific categories. Assets Field Verification projects are in progress and will yield to enhance the accuracy of the data across the management systems

- Continued monitoring and evaluation of the systems inventory data, the leak survey data, and analysis of leak survey data to identify and replace components that are chronic leakers
Questions?