EPA Methane challenge
Blowdown workshop

Steve Martz – Manager, Gas Planning
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Xcel Energy – Overview

• Gas & Electric Utility operating across 8 states
  – Minnesota, Wisconsin, Michigan, Colorado, North/South Dakota, New Mexico, & Texas

• Gas service to over 2 million customers, mostly Minnesota & Colorado

• 2,200 miles of transmission main, 34,000 miles of distribution main

• Largest generator of wind energy in the US
BMP Commitment - Pipeline Blowdown

• **Blowdown BMP:**
  – Pipelines operating greater than 60 psig
  – Non-emergency pipeline blowdown events

• **Goal:** Reduce total potential emissions by 50% each year

• **Ability to leverage existing processes to track blowdown events**

• **Past reduction performance shows an annual average reduction of 41%**
  – Average 60 events per year
  – Use of pressure reduction and line-stop fittings

• **Minimal resources needed to achieve goal**

**Historical Blowdown Emissions**

- **Reductions:** 32,000 MCF
- **Emissions:** 46,000 MCF
## Historical Blowdown Performance

<table>
<thead>
<tr>
<th>Year</th>
<th># of Planned Events</th>
<th>Total Reduced Methane Emissions (MCF)</th>
<th>Total Methane Emissions Vented to Atmosphere (MCF)</th>
<th>Percent Reduced of Total Gas Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>50</td>
<td>6956</td>
<td>11982</td>
<td>37%</td>
</tr>
<tr>
<td>2011</td>
<td>70</td>
<td>7294</td>
<td>5669</td>
<td>56%</td>
</tr>
<tr>
<td>2012</td>
<td>129</td>
<td>2806</td>
<td>3708</td>
<td>43%</td>
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<tr>
<td>2013</td>
<td>19</td>
<td>2229</td>
<td>9944</td>
<td>18%</td>
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<tr>
<td>2014</td>
<td>17</td>
<td>8356</td>
<td>6414</td>
<td>57%</td>
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<tr>
<td>2015</td>
<td>14</td>
<td>4426</td>
<td>8696</td>
<td>34%</td>
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<tr>
<td>Total</td>
<td>299</td>
<td>32,067</td>
<td>46,413</td>
<td>41%</td>
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## Implementation Plan

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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</thead>
<tbody>
<tr>
<td>Join EPA CH4 Challenge</td>
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<td>Develop Implementation Plan</td>
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<td>Stakeholder Outreach &amp; Communication</td>
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<td>Develop Blowdown Evaluation Tool</td>
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<td>Develop BMP &amp; Gas Standard</td>
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<tr>
<td>Pilot Flaring Equipment</td>
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<tr>
<td>Pilot Mechanical Capture Equipment</td>
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<tr>
<td>Gather Test Data</td>
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<td>BMP Report Out</td>
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<td>Final Report Filing</td>
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Blowdown Planning Strategies

- Tipping point analysis indicates that past blowdown events could have achieved 50% goal through use of flaring

- **Recommended Reduction Strategies:**
  1. Primary options of pressure reduction through system use
  2. Use flaring equipment to further reduce emissions
  3. Mechanically capture through portable compressors (~$15-30K)
  4. Use line stop fittings to reduce the pipeline segment length (~$5-40K per fitting)
     Only if fittings are necessary for other issues (e.g. bypass, downstream impacts)
Flaring Lessons Learned

Fully set up 30 foot portable flare

2” HP Hose Feeding Flare

30 foot portable flare
Flaring Lessons Learned

• Xcel Energy piloted a flaring trailer operation in multiple locations in Colorado

• Public interest and concern ranged from low to high
  – Vail Residents and fire department extremely concerned
  – Other areas were surprisingly less concerned

• Internal culture also problematic, certain service operating bases were more comfortable than others

• Primary advantages:
  – Ability to choose where to locate flame and heat
  – More control over burn and safer to operate
  – Less noisy

• Disadvantages:
  – Costly compared with traditional methods
  – More set up time
  – Requires approximately 40 feet of clear space to set up
  – Flame draws attention
Questions?

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