Regulatory Roundup and Automation
Scott Jackson
Regional Sales Manager – Mid Continent
OleumTech
In the beginning....
Then, a few hundred million years later...

• Regulations began as conservation efforts to keep production limited:
  - To assure inventory
  - To keep prices high
  - To prevent scams such as Teapot Dome

Senator Albert B. Fall, the first former U.S. cabinet official sentenced to prison
Then:
The Alabama Legislature enacted the first oil and gas statute for the state in 1911. The Legislature, in Act No. 1 of the 1945 Acts of Alabama, established the Oil and Gas Board. In 2010, all prior rules were tossed out and entirely rewritten!

Now:
Failure to comply with Wyoming air quality regulations may result in an enforcement action in the form of a “Notice of Violation” and penalties of up to $10,000.00 per day.
In April 2012, the Environmental Protection Agency (EPA) passed rules to address air emissions from oil and gas exploration, production, processing and transportation. Under the rules, oil and gas operators must reduce emissions from drilling and hydraulic fracturing.

From January 2015, the EPA will require that well operators use “green completions” (technologies that capture harmful emissions) to control air emissions.
Samples of regulations,,

- Regulations that have been approved in recent years for upstream production
  - Examples include:
    - Emissions in:
      - Colorado
      - Texas
      - Alabama
    - Petroleum Conditioning in North Dakota
    - Spill regulations and penalties are, of course, old hat
  - Penalties for non-compliance?
  - And, finally, some automation technologies to help relieve the pain
## Anticipated Federal Rule Promulgation for Oil and Gas Sector

- **EPA NSPS: OOOO Reconsideration**
  - Proposal Summer 2015; final Summer 2016
  - New/modified
  - VOC & Methane
- **EPA Control Technique Guidelines (CTGs)**
  - Proposal Summer 2015, final 2016
  - Existing/new
  - VOC w/Methane co-benefit
- **DOI Well Control Requirements on Federal Lands**
  - Proposal Spring 2015
  - Methane (VOC co-benefit)
- **EPA Natural Gas Star Expansion—Gold Program**
  - Collaboration Spring 2015
  - Methane w/VOC + co-benefits
  - Existing/new
- **EPA Secure Reduction Commitments**
  - 2015
  - Methane w/VOC + co-benefits
  - Existing/New
News & Notices

Published: 02/04/2016
Operators are required to submit a list of all wells, tanks, and separation equipment in a floodplain by April 1st. Please see "Operator Guidance" page for submission details and template.

Published: 01/20/2016
Per Rule1102.d, operators of pipelines within COGCC jurisdiction must participate in Colorado’s One Call notification system as Utility Notification Center of Colorado members. Click for details.

Source: http://cogcc.state.co.us/#/home
Published: 10/26/2015
The Commission's rulemaking hearing to implement Recs. 17 & 20 will continue at 9 am on Jan. 25, 2016 in UCD's School of Public Affair's Terrace Room on the 2d floor of 1380 Lawrence St., Denver, CO.

Published: 10/14/2015
In an effort to address numerous public inquires related to spill data, COGCC has compiled data through

Source: http://cogcc.state.co.us/#/home
News & Notices

Published: 01/14/2016
The email system for submitting Form 7 Production Reports will not be active after February 29, 2016. Click here for details.

Published: 12/10/2015
Final Reclamation Inspection and Implementation Program: A Status Report to the Commission

Source: http://cogcc.state.co.us/#/home
On the horizon at API?

Chapter 18.1, *Measurement Procedures for Crude Oil Gathered from Small Tanks by Truck*, 3rd edition

Chapter 18.2, *Custody Transfer of Crude Oil from Lease Tanks Using Alternate Measurement Methods*, 1st edition

Practical Technologies and how they can work

- Level sensors
- High level switches
- Thief Hatch Switches
- Flare stack monitoring systems with Thermocouples and RTDs
So, what is a guy to do?

Let’s talk some about these options

Pressure  Level  Discrete  Thermocouple
Level sensors for spill monitoring: wired or wireless
Flare Stack Monitoring

Image: The New York Times

Thermocouple
And some of these...

- All-in-One
- Thief Hatch Emissions Alarms
- High level switch Spill Prevention
## Sample of Environmental Regulation and State Type

<table>
<thead>
<tr>
<th>Type</th>
<th>State</th>
<th>Year</th>
<th>Penalty</th>
<th>Practical Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fugitive Emissions – Air Quality</td>
<td>Colorado</td>
<td>2015</td>
<td>$15,000 per incident</td>
<td>Thief Hatch monitor switches</td>
</tr>
<tr>
<td>Petroleum Conditioning – Explosion Prevention</td>
<td>North Dakota</td>
<td>2015</td>
<td></td>
<td>Temperature monitoring systems; Flare stack &amp; temp monitoring systems</td>
</tr>
<tr>
<td>Fugitive Emissions Monitoring – Air Quality</td>
<td>Texas</td>
<td>2015</td>
<td></td>
<td>Thief Hatch monitor switches</td>
</tr>
<tr>
<td>Zero Emissions sealed tanks – Air Quality</td>
<td>Alabama</td>
<td></td>
<td></td>
<td>Level sensors and high level switches</td>
</tr>
<tr>
<td>Fugitive Emissions – Air Quality</td>
<td>Wyoming</td>
<td></td>
<td>$10,0000 per day</td>
<td>Thief Hatch monitor switches</td>
</tr>
</tbody>
</table>
## Regulatory or SOP looming

<table>
<thead>
<tr>
<th>Type</th>
<th>Enforcement</th>
<th>Year</th>
<th>Penalty</th>
<th>Practical Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety – Stay off the tank catwalks</td>
<td>Safety consultants and engineers</td>
<td>2015</td>
<td>Job elimination?</td>
<td>Level sensors and Level switches; active SCADA</td>
</tr>
<tr>
<td>Safety – Gas Detection</td>
<td>Safety consultants and engineers</td>
<td>2015</td>
<td>Job elimination?</td>
<td>Gas detection systems</td>
</tr>
<tr>
<td>Ground contamination from Spills or overflow</td>
<td>EPA and state agencies</td>
<td>2015</td>
<td>Job elimination?</td>
<td>Level sensors and level switches; active SCADA</td>
</tr>
<tr>
<td>Custody transfer</td>
<td>API</td>
<td></td>
<td>$$$ lost to theft or inaccuracies</td>
<td>Level sensors, flow meters on the sales line, etc.</td>
</tr>
<tr>
<td>Flare Stack monitoring in TX</td>
<td></td>
<td></td>
<td></td>
<td>Wireless monitoring using thermocouples</td>
</tr>
</tbody>
</table>
How each helps

- Level sensors
- High level switches
- Thermocouple
- Thief Hatch Switches
- Temperature Transmitter
## How these simple devices aid in compliance

<table>
<thead>
<tr>
<th>Device</th>
<th>How It Helps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Sensors</td>
<td>Source of data for notifying changes in level. Can be used to monitor trends of fill rates.</td>
</tr>
<tr>
<td>High Level Switches</td>
<td>Trips a discrete out to stop fill when level reaches the float. If using a high, high level switch with two floats, the first float initiates a warning while the second float stops the fill.</td>
</tr>
<tr>
<td>Thermocouple</td>
<td>When used to monitor flare stacks, the thermocouple transmitter notifies the system when the temperature goes low indicating that the flare is not lit.</td>
</tr>
<tr>
<td>Thief hatch switch</td>
<td>A simple switch that can attach to the thief hatch through the hinge. When the thief hatch is opened or closed, a signal is provided to a transmitter to notify the system of the status.</td>
</tr>
</tbody>
</table>
Rules and regulations, in untold numbers, have directly impacted us for nearly 100 years. Some good, some not-so-good. Some help us and some don’t.

It is not practical to even try to enumerate that complete set in any state let alone in every state in this forum.

The good news is that companies continue to develop affordable, practical, proven products to help us get into and stay in compliance.
Thank You!
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