Flaring Enforcement into Next Generation Flare Rule Making – Flare Management Plans and Beyond

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Environmental Resources Management (ERM)
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Impacts on Other Industry Segments

November 11
Introduction: EPA Flaring Initiative

**EPA National Petroleum Refinery Enforcement Initiative**

**Targets:** NSR & NSPS compliance including flares

**Results:** Significant reductions of nitrogen oxide and sulfur dioxide

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### EPA Refinery Enforcement Initiative Statistics

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<tr>
<th>Statistics</th>
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<tbody>
<tr>
<td>32 Settlements since 2000</td>
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<tr>
<td>Covers 109 refineries</td>
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<td>&gt;90% of US refining capacity</td>
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<td>+5% in negotiation now</td>
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<td>Investigations still underway</td>
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<td>&gt;$6.5 billion in control technologies</td>
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<td>&gt;$93 million in civil penalties</td>
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<td>&gt;$80 million in supplemental environmental projects</td>
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Introduction: EPA Flaring Initiative

Regulatory Actions

Recent rules make flaring an important topic...

- **NSPS Ja (40 CFR 60 Subpart Ja)**
  - Standards of Performance for Petroleum Refineries
  - September 12, 2012 - Final Promulgation

- **Refinery MACT (40 CFR 63 Subpart CC)**
  - National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries
  - September 29, 2015 - Signed by Administrator

Other industries can learn from what the refining sector went through and how they adapted to new regulations.
Flare Management Lessons Learned

The world's leading sustainability consultancy
Lessons Learned

Stakeholder Engagement

A successful Flare Management Plan (FMP) requires input and responsibility from multiple parties.

- Environmental
- Operations
- Process Engineering
- Maintenance

Convey the Message:
- NSPS Ja Rule was in Litigation for a long time
- Changes the way of doing business
Lessons Learned

Stakeholder Engagement

However, successful engagement requires training.

Training

High Level Overview of Requirements

Knowledge

Shared Understanding of Expected Outcomes

Engagement

Requirements will not go away; Ja is here to stay
Lessons Learned

Stakeholder Engagement

- Identifying all process vents.

Vent Level  Versus  Unit Level

RCAs, Finding Flow Rate  vs.  Required For FMP

Diagram shows the flow from FCCU, Coker, and ALKY to a Flare unit.
Lessons Learned

Multiple Units on a Header

Units in normal operation must route to flare during another unit’s start up and shut down.

Caution:
- Steam and Nitrogen Purging to Impacts Fuel Gas BTU Flare Vapor Recovery
Lessons Learned

Startup and Shutdown Procedures

How much is too much?

Some Submittal Options:

• Reference Internal Procedures
• Include Limited Procedures
• Include Minimization Steps only
• Attach Full Procedure

Remember: FMPs will be public records!
Lessons Learned

Startup and Shutdown Procedures

• Leverage existing documentation

Including minimization steps in current operational procedures helps ensure compliance.
Lessons Learned

Monitoring Considerations

Do you have moisture analysis? If not, what can you do?

1) Wet vs Dry

   EPA Required

2) SO₂ vs H₂S Analyzer vs Total Sulfur
Maintaining Compliance
Maintaining Compliance

Addressing Ongoing Plant Changes

➢ Changes such as:
  • Maintenance (Field Changes),
  • Operational (Process Changes),
  • Personnel (Turnover),
  • Capital Projects (Expansions, Modifications)

➢ Develop procedures now before you need them.
  • Root Cause Analysis
  • FMP Updates

➢ Maintain “Evergreen” Documentation
Maintaining Compliance

Addressing Ongoing Plant Changes

Work Process Flow Chart – Physical Change, New/Changed Operating or Start Up/Shut Down (SU/SD) Procedures - Flare Management Plan (FMP)
Maintaining Compliance

Potential Cost Savings

- Manage plant changes effectively
  - Front end planning saves future man hours
  - Baseline optimization to avoid unnecessary RCAs
- Who will own and preserve the plan?
- Avoid unnecessary questions from outside organizations
  - Be sure to avoid Confidential Business Information
  - Consider public perception
- Note that a NSPS Ja FMP is not minimizing unplanned events
- Highlight Refinery’s commitment to environmental stewardship
Maintaining Compliance

Effectively Managing Refinery Operating Procedures

*Develop a “Flaring Awareness” culture*

- Avoid pressure to rush through minimization steps

- **Stakeholder Engagement!**
  - Ensure all groups understand their responsibility

- **Plan Ahead!**
  - Address concerns ahead of time
Maintaining Compliance

Potential “Red Flags” Associated with the FMP Content Submitted

- Carefully inspect any data that is submitted
  - FMPs will be publically available

- Without Flare Gas Recovery
  - Baseline per production metric
  - Alternate baseline flows
  - Adjust baselines using Root Cause Analyses

- With Flare Gas Recovery
  - Address startup and shutdown events
  - Minimize startup and shutdown procedures
Other Industry Segments
Other Industry Segments

EPA National Enforcement Initiative: Cutting Hazardous Air Pollutants

- Non-Refineries receiving flaring Clean Air Act (CAA) Section 114 requests

- “Leaking equipment and improperly operated flares are some of the largest sources of HAP emissions from petroleum refineries and chemical manufacturing facilities.”  

- Ultimate Goal: “target and reduce illegal emissions of toxic air pollutants…”

➢ EPA Map of Air Toxics Enforcement Actions

1 http://www2.epa.gov/enforcement/national-enforcement-initiative-cutting-hazardous-air-pollutants
Other Industry Segments

Learning From Refiners

Keys lessons everyone can implement:

• Open communication & stakeholder engagement
• Training can make the difference!
• Prepare in advance (ideally starting now)
• Consider public perception
Any Questions?
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