

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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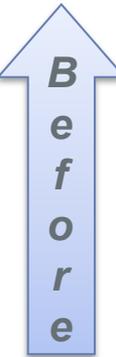
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November 11

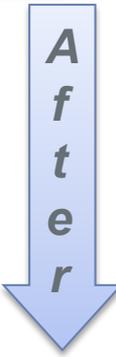
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Introduction: EPA Flaring Initiative

EPA National Petroleum Refinery Enforcement Initiative

Targets: NSR & NSPS compliance including flares

Results: Significant reductions of nitrogen oxide and sulfur dioxide

EPA Refinery Enforcement Initiative Statistics

32 Settlements since 2000

Covers 109 refineries

>90% of US refining capacity

+5% in negotiation now

Investigations still underway

>\$6.5 billion in control technologies

>\$93 million in civil penalties

>\$80 million in supplemental environmental projects

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



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.



High Level
Overview of
Requirements



Shared
Understanding
of Expected
Outcomes



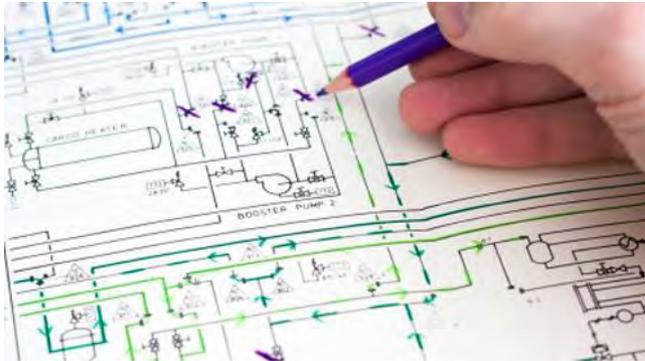
Requirements
will not go away;
Ja is here to stay



Lessons Learned

Stakeholder Engagement

- Identifying all process vents.

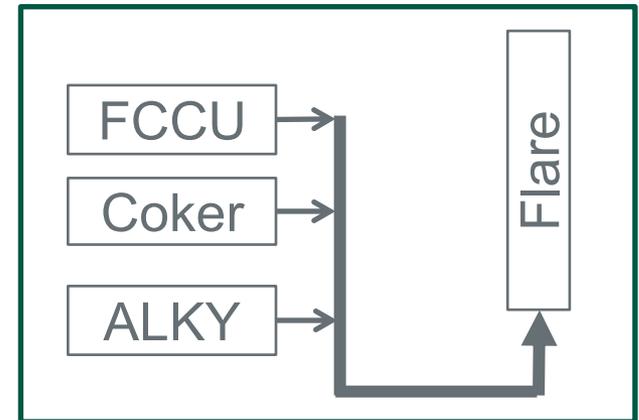


Vent Level

RCAs,
Finding Flow Rate

Versus

vs.

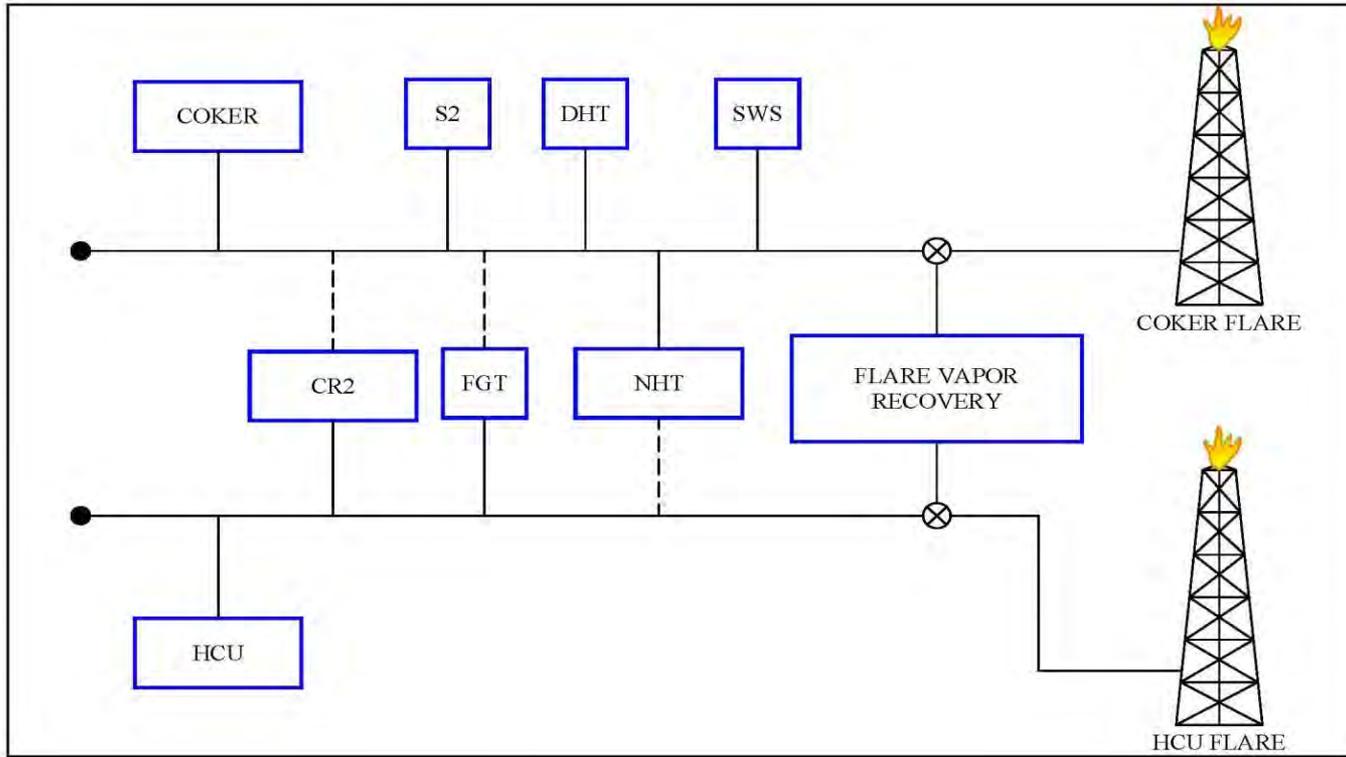


Unit Level

Required For FMP

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

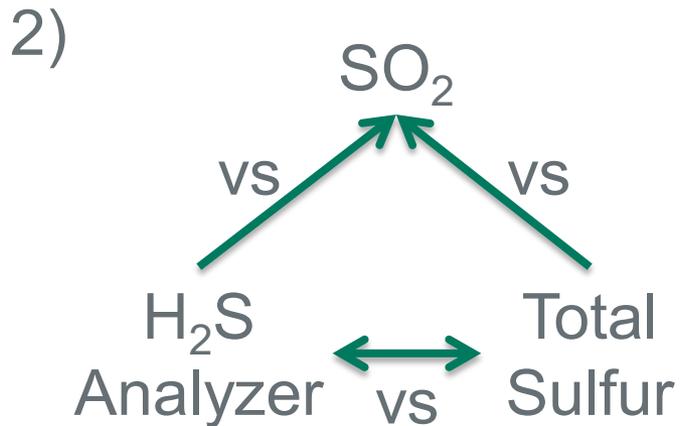
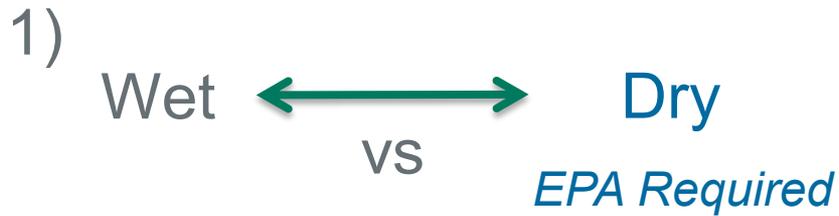


Including minimization steps in current operational procedures helps ensure compliance.

Lessons Learned

Monitoring Considerations

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



Maintaining Compliance



Maintaining Compliance

Addressing Ongoing Plant Changes

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

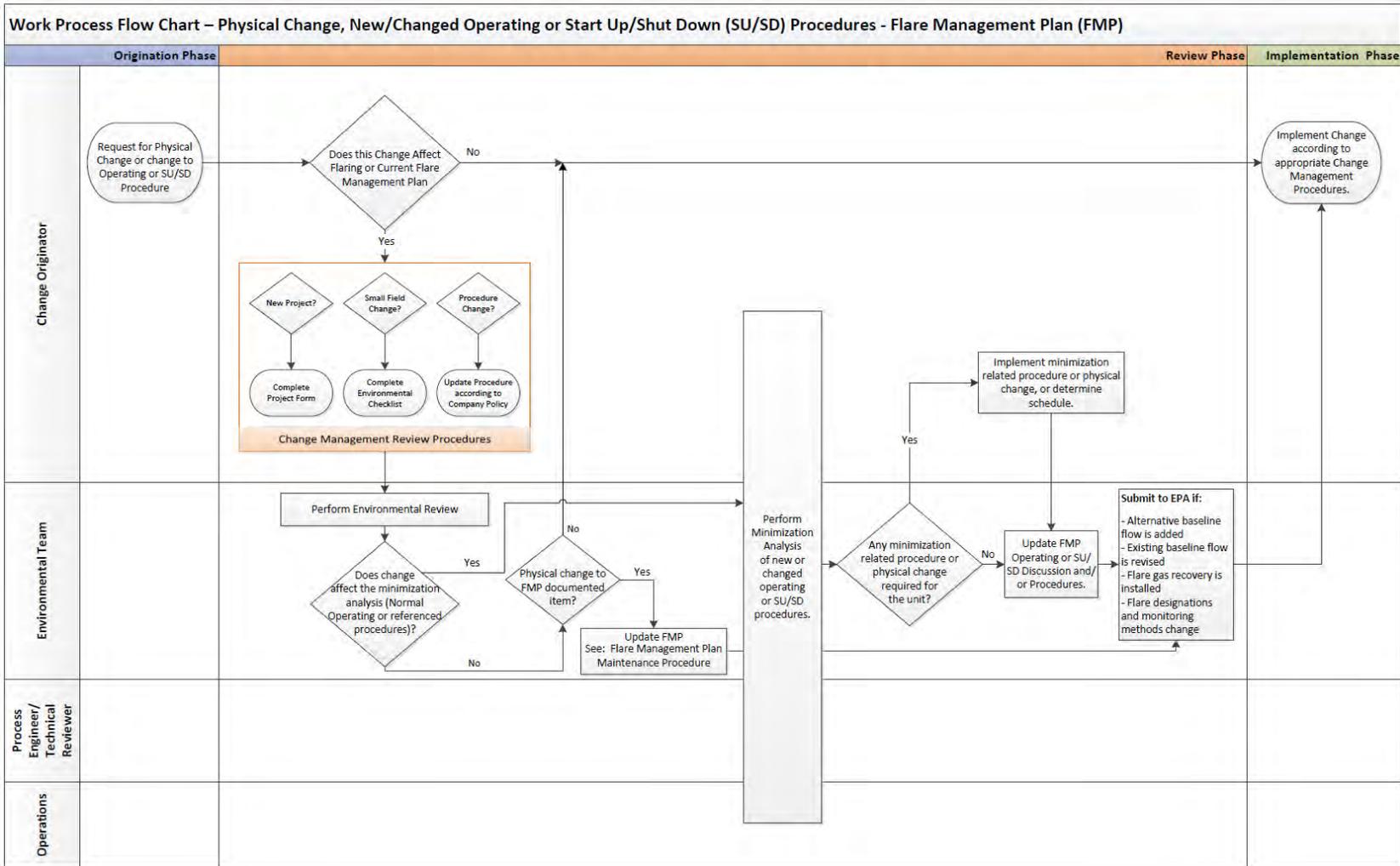
- Develop procedures now before you need them.
 - Root Cause Analysis
 - FMP Updates

- Maintain “Evergreen” Documentation



Maintaining Compliance

Addressing Ongoing Plant Changes



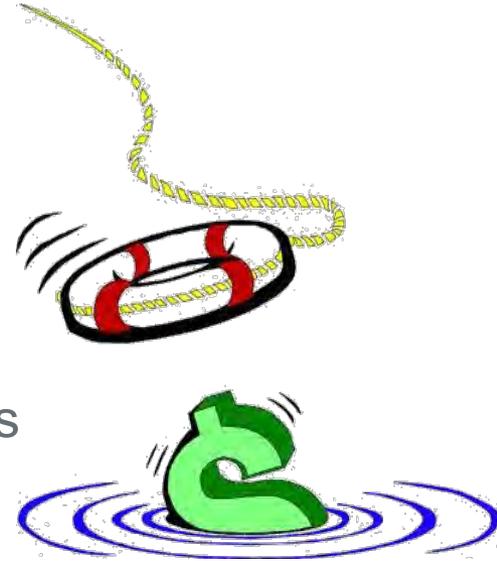
Maintaining Compliance

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.”***¹
- Ultimate Goal: *“target and reduce illegal emissions of toxic air pollutants...”*¹



➤ 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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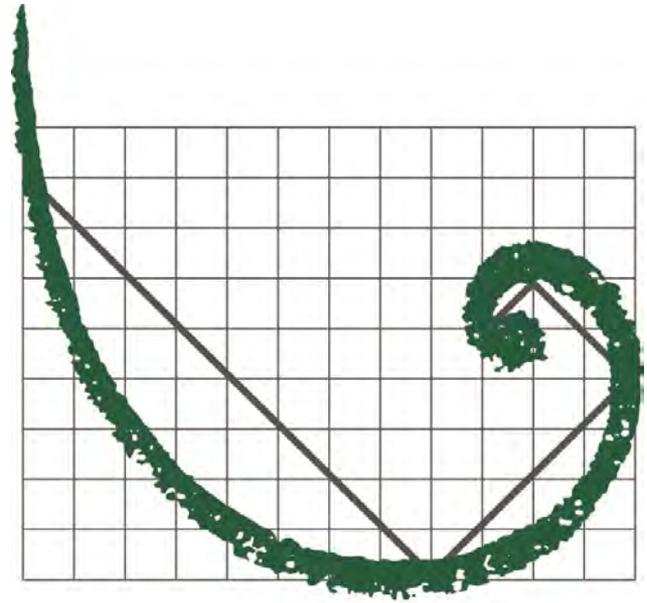
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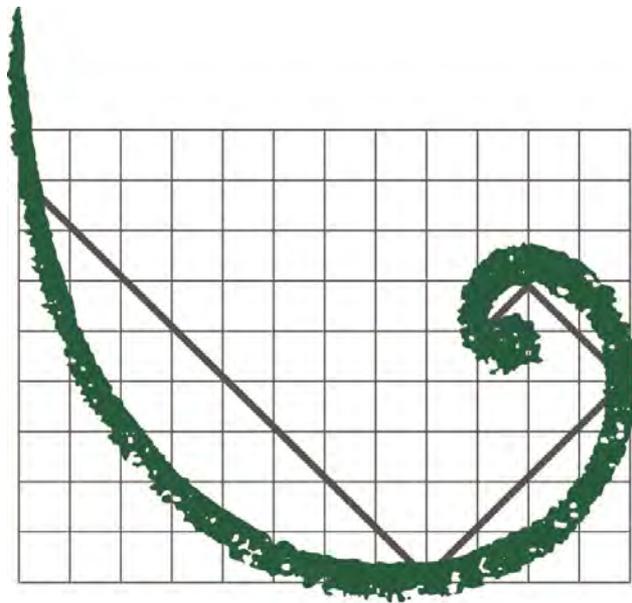
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