PR 1410 Working Group
Meeting #5

AUGUST 23, 2017
SCAQMD Headquarters
Diamond Bar, California
Summary of Last Working Group Meeting #4

• Alkylation technology presentations from Chevron (ionic liquid catalyst) and CB&I (solid acid and innovative sulfuric acid catalysts):
  - Specific technical, performance, applicability questions were answered
• Cal OSHA presentation outlined their Process Safety Management regulation for petroleum refineries effective October 1, 2017
• An API representative briefly described API Recommended Practice for petroleum refineries:
  - Advocacy group established standards starting in 1924, adopted nationally and internationally
  - API 751 was used for 25 years (updated every 5 years)
  - 50 participants attended and 38 parties called in on a conference line
• Staff not able to give presentation – will present today
• MHF technology is backed with voluminous testing and modeling data
• Safe operation of MHF in the alkylation unit and no offsite impact since 1997
• TORC is still in the process of providing the District with requested information related to MHF testing data
• New grassroots sulfuric acid alkylation is cost prohibitive (~$900MM incl. spent acid regeneration) and environmentally not safer
• Alternative alkylation catalyst technologies need two four-year turnaround cycles to be considered commercially viable
• PR 1410 conceptual rulemaking framework is a premature determination and additional time is necessary for the rulemaking process
SCAQMD Activities Regarding MHF

• Ongoing meetings between SCAQMD staff and TORC to discuss confidential MFH information

• Subsequent meeting was held on August 17, 2017 to discuss more supplemental information
  - TORC provided rainout model data points used to create the ARF correlation, all testing data with associated operating parameters including measured and predicted HF rainout
  - TORC to provide additional new information that staff will evaluate
SCAQMD Staff Assessment of MHF Alkylation Technology

• Mobil conducted experiments (small- and large-scale) and comparative modeling from which ARF was calculated

• Issues with information provided by TORC
  - Ensuring experimental data provided based on all current operating conditions including pressure, temperature and weight % HF
  - Reliance on functioning MHF vapor barriers (e.g., flange shrouds, settler pans, pump seals)
  - Based on information received to date, insufficient evidence that a dense vapor cloud does not form (assumption in modeling and ARF calculation)
Evaluating Impacts from MHF Technology

- Concern that existing mitigations would not provide adequate protection in the unplanned event such as a major accident or earthquake causing equipment failure
  - Barrier breach
  - Loss of power
  - Lack of water or water pressure
- Even at 89% ARF, a release of MHF has the potential to cause health risks to a significant number of persons (according to current RMP)
- Implementing enhanced mitigation in the interim prior to a phase-out can minimize potential health risks caused by a release of MHF
- SCAQMD staff will continue to evaluate information provided to assist in formulating the rule proposal
Risk Management Plan (RMP) Worst Case Scenario Evaluation by TORC

• EPA’s RMP*Comp™ evaluated 5,200 pounds (≈520 gallons) of MHF release that would impact 255,524 within a 3.2 miles distance
  - Settler tank at 4,700 gallons MHF
  - Assumed rainout at 89% (with vapor barriers)

• If the quantity of MHF increases in RMP, the number of population impacted will increase

• TORC plans to conduct new modeling
Initial Rule Concept and Framework for Discussion

(Seeking input on timeframe)

Current MHF Alkylation Units

Phase Out Use of MHF (Sulfuric Acid or Alternative Catalysts)

Install and Operate “Enhanced” Mitigation
Implementation Timeframe

• Seeking input on implementation timeframe for enhanced mitigation measures and phase-out of MHF

• Enhanced Mitigation Measures
  - Implementation time period is dependent on type of mitigation measure
  - Some measures may take longer to implement

• Phase-out of MHF
  - Considerations needed for engineering, design, permitting/CEQA, logistics, removal, construction, delivery, installation, and performance testing
  - Maturation of alternative emerging technologies needs to be a consideration
Enhanced Interim Control Measures

• Enhanced interim control measures would be required when using MHF until transitioned to alternative catalyst or “another process”

• Purpose of interim control measures is to:
  - Seek enhanced safety improvements in the use of MHF
  - Ensure all safety measures in place
  - Minimize off-site impacts from a potential release of MHF

• Incorporating interim control measures in PR 1410 ensures facilities adhere to API recommended practices and additional PR 1410 requirements
Proposed Enhanced Mitigation

• Enhance current mitigation efforts
  - HF Detection Systems
  - Water Mitigation Systems
  - Physical Mechanisms
  - Uninterruptible power and water supply
  - Procedures/Training
  - Inventory Control
  - Inspections/Safety Audits

• More automatic activation – make “active” mitigation more “passive”
  - Water Mitigation Systems
  - Emergency Block Valves
  - Acid Transfer/Evacuation System
Upcoming SCAQMD Activities

• Soliciting feedback to generate preliminary draft rule language
• Begin preparing preliminary draft staff report
• Arrange meetings between alternative alkylation technology manufacturers and refineries to discuss commercial feasibility, transition time and costs
• Obtain any other available detailed conversion cost data
• Working on CEQA and Socioeconomic Analysis
• Next working group meeting in September 20, 2017 (at Torrance Toyota Center at 5:30 p.m.)
# Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>Current Target Date</th>
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<tbody>
<tr>
<td>PR 1410 Working Group Meeting #6 (Torrance)</td>
<td>September 20, 2017</td>
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<tr>
<td>Release of CEQA Notice of Preparation/Initial Study</td>
<td>September 2017</td>
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<tr>
<td>Public Workshops/CEQA Scoping Meeting</td>
<td>October 2017</td>
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<tr>
<td>SCAQMD Refinery Committee Meeting</td>
<td>October/November 2017</td>
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<tr>
<td>Release of CEQA Draft EIR</td>
<td>November/December 2017</td>
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<tr>
<td>Governing Board consideration of PR 1410</td>
<td>TBD</td>
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**NOTE:** Additional Working Group meetings as needed
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