

PR 1410 Working Group Meeting #6

SEPTEMBER 20, 2017

Toyota Meeting Hall

Torrance, California



Summary of Last Working Group Meeting #5

- DuPont Clean Technologies presented sulfuric acid alkylation technology involving HF conversion and expansion
- SCAQMD presented initial rulemaking framework seeking input for implementation timeframe
- Working Group requested for CEC presentation on economic impacts caused by potential MHF ban

Comments Received from TORC

- August 23, 2017 Comment Letter:
 - ❑ No HF/MHF offsite releases since 1966 to present
 - ❑ The same MHF technology for over 20 years, but is safer with improved safety systems, training and knowledge
 - ❑ Suggest taking additional time necessary to evaluate information for the PR 1410 rulemaking
- September 12, 2017 Comment Letter:
 - ❑ TORC provides further clarifying information (e.g., testing data is hydrocarbon-free, no observable increase to the propensity of flash atomization)
 - ❑ Requests withdrawal of the premature inclusion of a MHF phase-out
 - ❑ Sulfuric acid will actually increase emissions and is cost-prohibitive

Comments Received from Valero

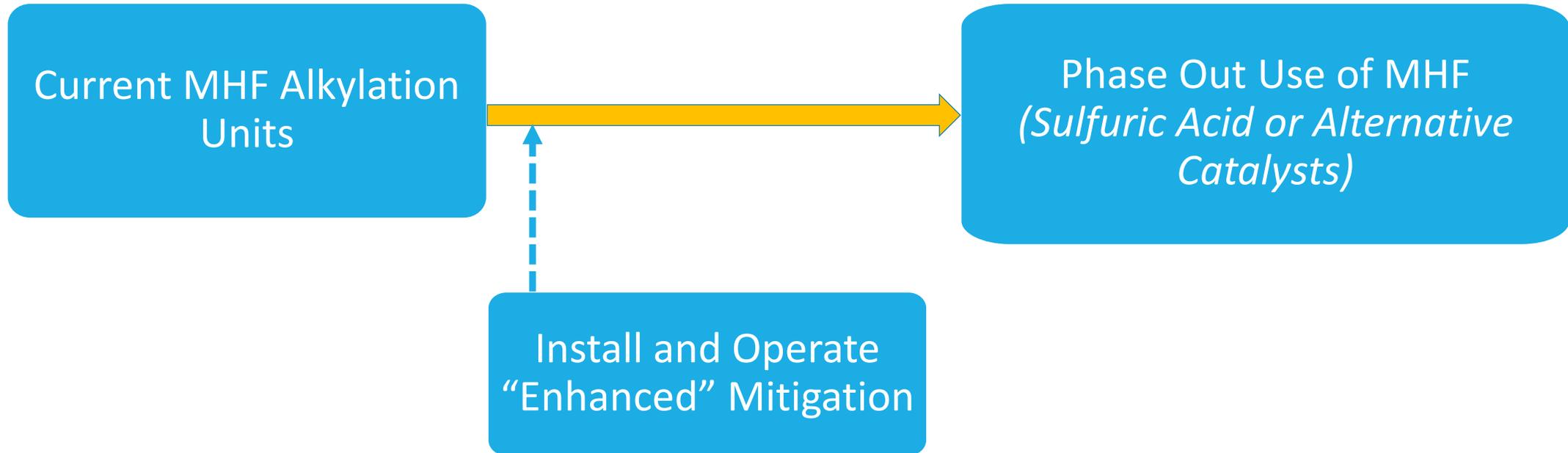
- September 18, 2017 Comment Letter:
 - ❑ DuPont/STRATCO ConvEx approach has not been demonstrated as effective in practice
 - ❑ No plot space exists at the Wilmington refinery, a key criteria for ConvEx technology
 - ❑ SCAQMD staff has not consulted with Valero on the safety and effectiveness of alternative technologies
 - ❑ Worst-case analysis:
 - Endpoint distance is not a zone in which the public would likely be in danger, but an estimate of the maximum possible area that might be affected under extreme, unlikely, catastrophic conditions
 - Assumes all active mitigations fail
 - Hypothetical potential to result in offsite consequences is plainly arbitrary
 - ❑ Urges the District to consider all relevant information before making an unnecessary rulemaking action

Comments Received from Community

- General Comments from Community :
 - ❑ Poor safety record of Torrance refinery and large amount of MHF storage/usage
 - ❑ Concerns about alkylation unit safety from an unplanned natural disaster
 - ❑ Removal of MHF/HF from dense populations in the South Bay
- Community Tour (September 7, 2017)
 - ❑ SCAQMD staff visited local schools and potential impact areas
 - ❑ Received comments from school teachers and parents
 - ❑ Took neighborhood and refinery perimeter tour

Initial Rule Concept and Framework for Discussion

(Seeking input on timeframe)



Potential Timelines for Phase-Out of MHF

	Sulfuric Acid or Alternative Catalyst Technology
Start Date	2018
Engineering	6 months
Design & CEQA (concurrent)	15 months
Permitting	9 months
Logistics	6 months
Order/Delivery/Installation	18 months
Testing	6 months
Full Commissioning	2023 (up to 2025*)

* Consideration of turnaround schedule and recognizing that emerging technology may not fit into schedule.

Existing Mitigation Measures in Place

Existing Mitigation Measures (Total # of Unit)	TORC	Valero
Point HF sensors	Yes (27)	Yes (33)
Point sensor alarm set points	2 ppm – Internal 6 ppm – District	4 ppm – Internal 6 ppm – District
Open path HF detectors around alkylation unit	Yes (4)	No
Video cameras on alkylation unit	Yes (8)	Yes (3+)
Remote control room viewing	Yes	Yes
HF sensitive paint	Yes (multiple points)	Yes (multiple points)
Activation of water mitigation	Active (control room or field)	Active (control room or field)

Existing Mitigation Measures in Place (Continued)

Existing Mitigation Measures	TORC	Valero
Type of water mitigations	<ul style="list-style-type: none"> • Water cannons • Fire sprays • Water deluge (major pumps) 	<ul style="list-style-type: none"> • Water curtain • Water cannons • Water deluge (unit pumps)
Water cannons	Yes (9)	Yes (6)
Water curtain around alkylation unit/MHF unloading zone	No	Yes
Rapid acid transfer/evacuation system	Yes (pressure)	Yes (gravity)
Activation of acid transfer/evacuation	Active (Control room or on-site)	Active (Control room or on-site)
Estimated time to acid transfer/evacuation	7 mins. (80% in 2 mins.)	< 10 mins.

Existing Mitigation Measures in Place (Continued)

Existing Mitigation Measures	TORC	Valero
Remotely operated block valves	Yes	Yes
Activation of block valves	Active (Control room or on-site)	Active (Control room or on-site)
Primary & backup power source	Electricity & battery	Electricity & diesel
Baffles in acid settler tanks	No	Yes
Acid settler pans	Yes (settler belly pans)	Yes (acid cooler diffusers)
Flange shrouds	Yes	No
Blast wall	Yes	No
Pump barriers	Yes (acid circulation pump seals)	Yes (sealless pumps)
Safety audit	Yes	Yes

Proposed Enhanced Mitigation – Point Sensors and Open Path HF Detectors

Enhanced Mitigation Measures	Proposed Requirements
Point HF sensors	<ul style="list-style-type: none">• Cover all areas handling high volume HF (e.g., fresh MHF storage and unloading, reactors, acid settlers, pumps, acid evacuation/transfer)• Operate over a range of 0–20 ppm• Minimal interference from humidity• Periodic check & frequent calibration (every quarter)• Uninterruptible power supply
Point sensor alarm set points	<ul style="list-style-type: none">• 2 ppm – Internal notification• 6 ppm – Notification to District
Open path HF detectors	<ul style="list-style-type: none">• Open path HF detectors around the alkylation unit perimeter• Various heights (low and high)• Minimal interference from steam plumes and fog• Not sensitive to adverse environmental conditions• Uninterruptible power supply

Proposed Enhanced Mitigation – Visual Detection: Video Camera

Enhanced Mitigation Measures	Proposed Requirements
Video cameras	<ul style="list-style-type: none">• Full HD video quality with remote pan/zoom, record/playback• Keep one month's worth of recordings• Cover strategic portions of the unit (reactor, settlers, fresh MHF storage, and MHF unloading zone)• One or more dedicated camera to each portion of the unit (e.g., must cover areas where water cannons used)• Consider glare from the sun, thermal load, and moisture• Remote viewing in the control room• Several screens dedicated to the alkylation unit• Minimum numbers of toggles per video

Proposed Enhanced Mitigation – Visual Detection: HF Sensitive Paint

Enhanced Mitigation Measures	Proposed Requirements
HF sensitive paint	<ul style="list-style-type: none">• All valves and flanges in MHF service area, threaded fittings, compression fittings, pump seals, leak repair clamps, sample transportation containers, HF-containing process connections, and vessels• Durable to heat and sunlight• Frequent reapplication• Frequent inspection

Proposed Enhanced Mitigation – Water Mitigation

Enhanced Mitigation Measures	Proposed Requirements
Activation of water mitigation	<ul style="list-style-type: none"> • Coverage to all areas that contain relatively high volume of MHF (e.g., the reaction loop, HF regeneration system, and fresh MHF storage and unloading) • Both active and passive mitigation • Uninterruptable water & power supply • Weekly testing
Water curtains	<ul style="list-style-type: none"> • Around alkylation unit and MHF unloading area • Passive mitigation • Automatic activation at 20 ppm HF on a point sensor or at 50 ppm HF per meter on an open path detector • Design consideration to achieve HF removal efficiency of 95% <ul style="list-style-type: none"> □ 50:1 volumetric ratio of water:HF □ Decreased space between spray nozzles □ Smaller water droplet size
Water cannons	<ul style="list-style-type: none"> • Active mitigation with control room viewing • 50:1 volumetric ratio of water:HF

Proposed Enhanced Mitigation – Safety Audit

Enhanced Mitigation Measures	Proposed Requirements
Safety audit	<ul style="list-style-type: none">• Annual third party audits• Copy of audit sent to District• Include status of equipment, specifically its safety and maintenance record, hazard risk potential, and overall operability of alkylation unit• Require checklist & electronic documentation (e.g., video recording, etc.)• Require tracking and resolution of deficiencies pursuant to audit findings

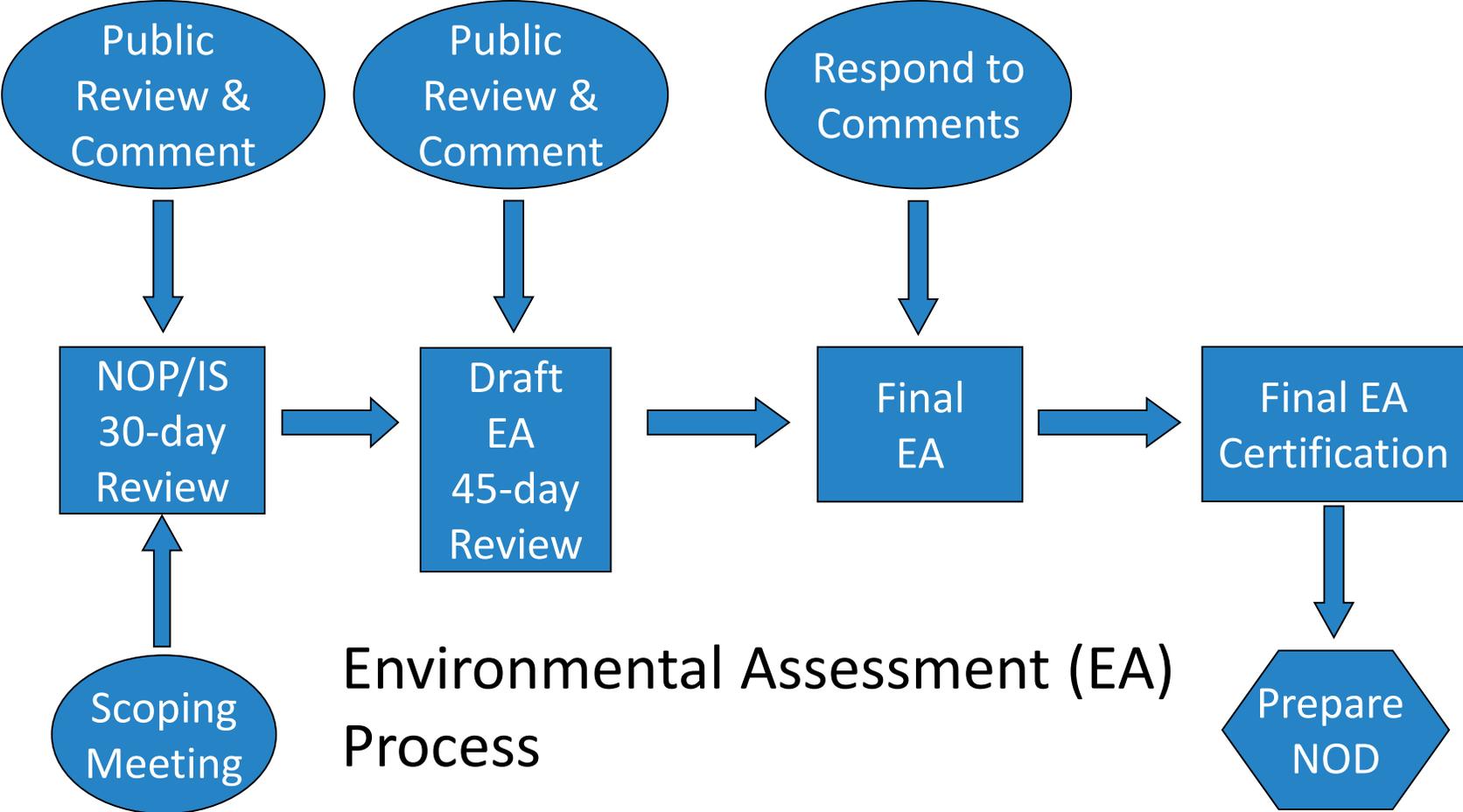
California Environmental Quality Act (CEQA)

- California State Law adopted 1970
- Purpose *[CEQA Guidelines Section 15002(a)]*
 - Inform governmental decision-makers and public about potential significant effects of projects
 - Identify ways to avoid or reduce adverse impacts
 - Require feasible alternatives and mitigation measures to prevent significant environmental damage
 - Disclose to the public why a project was approved
- Applies to projects undertaken by a Public Agency such as SCAQMD adoption of rules *[CEQA Guidelines Section 15002(b)]*
 - Required to comply with CEQA when approving a project *[CEQA Guidelines Section 15002(d)]*
 - Required for discretionary approvals *[CEQA Guidelines Section 15002(i)]*

CEQA (*Concluded*)

- PR 1410 is a project subject to CEQA
- Decision to prepare Environmental Assessment (EA) (*equivalent to Environmental Impact Report*)
 - ❑ Significant Impacts are expected with PR 1410
 - ❑ CEQA scoping meeting is required to be held
 - ❑ Analysis of alternatives and mitigation measures are required
- CEQA Scoping Meeting
 - ❑ Early consultation – opportunity for public to participate in the CEQA process
 - ❑ Provides information on the project (e.g., project description and identifies environmental topics to be analyzed
 - ❑ Allows public to provide input on potential impacts to be analyzed in the Draft EA
 - ❑ Allows public to provide suggestions for potential project alternatives

CEQA Flow Chart



Environmental Assessment (EA)
Process

Preparation of CEQA Document

- Step 1: Notice of Preparation/Initial Study (NOP/IS)
 - ❑ Will contain preliminary draft rule language, project description (Chapter 1) and environmental checklist (Chapter 2) to examine 17 environmental topic areas and identify potentially significant impact areas to be further analyzed in Draft EA
 - ❑ Will be released for 30-day public review period
 - ❑ CEQA Scoping Meeting will be held during NOP/IS public review period
 - ❑ Will be made available online at:
<http://www.aqmd.gov/home/library/documents-support-material/lead-agency-scaqmd-projects>

Preparation of CEQA Document (Continued)

- Step 2: Draft EA

- ❑ Will contain draft rule language + 6 chapters (Executive Summary, Project Description, Baseline, Environmental Impacts and Mitigation Measures, Cumulative Impacts, and Alternatives Analysis)
- ❑ Analyze potentially significant environmental impacts identified in the NOP/IS
- ❑ Identify feasible mitigation measures, as necessary
- ❑ Analyze cumulative impacts
- ❑ Analyze alternatives – including no project alternative and least toxic alternative
- ❑ Includes NOP/IS plus NOP/IS comment letters and responses
- ❑ Includes CEQA Scoping comments and responses
- ❑ Once completed, will be released for 45-day public review period
- ❑ Will be made available online at:
<http://www.aqmd.gov/home/library/documents-support-material/lead-agency-scaqmd-projects>

Preparation of CEQA Document (*Concluded*)

- Step 3: Final EA
 - ❑ Draft EA will be updated to reflect any revisions to project
 - ❑ Comments received relative to Draft EA will be included and responded to in Final EA
 - ❑ As necessary, prepare Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan
 - ❑ Governing Board to consider Final EA at Public Hearing
 - ❑ If PR 1410 is approved and Final EA is certified by Governing Board, Notice of Decision (NOD) will be filed with county clerks for Los Angeles, Orange, Riverside, and San Bernardino Counties
 - ❑ The Final EA and NOD will be made available online at:
<http://www.aqmd.gov/home/library/documents-support-material/lead-agency-scaqmd-projects>

SCAQMD's Socioeconomic Impact Assessment

- Required by California state law and SCAQMD Governing Board
- Typically includes:
 - Type of affected facilities and businesses
 - Range of probable costs, including those to industry
 - Analysis of available alternatives
 - Impacts on employment and the economy of the four-county region
- Report goes out to public 30 days before Public Hearing
- Staff is currently reviewing and evaluating existing data and analyses

Existing Economic and Cost Analyses

- SCAQMD staff has reviewed existing reports and analyses on costs and economic impacts of potential compliance scenarios and other potentially relevant reports and analyses:

Title	Preparer	Published Date
Surviving Without MHF	Sally Hayati	March 8, 2016
Alkylation Study & Estimate	Norton Engineering	September 9, 2016
Impact of an HF Ban on Southern California Transportation Fuels Supply	Stillwater Associates	June 23, 2017
Economic Impacts of the Torrance Refining Company	Capital Matrix Consulting	August 2017
HF Alkylation Conversion Technology (<i>at SCAQMD PR1410 Working Group Meeting #5</i>)	DuPont Clean Technologies	August 23, 2017
Cost-Benefit Analysis of Proposed California Oil and Gas Refinery Regulations	RAND Corporation	2016
2017 Integrated Energy Policy Report Commissioner Workshop on Transportation Energy Supply Trends	California Energy Commission	July 6, 2017

Existing Economic and Cost Analyses (Continued)

- These studies cover three main areas relating to potential socioeconomic impacts:
 - ❑ **Compliance cost** of potential rule scenarios that require phasing out MHF/HF in alkylation process
 - ❑ **Transportation fuels market effects** of a hypothetical refinery shutdown scenario, including gasoline price impacts, increasing imports of refined gasoline, and supply interruption
 - ❑ **Regional economic impacts**, such as employment, economic output, household earnings that are related to refinery operations

Upcoming SCAQMD Activities

- Preparing draft rule language
- Preparing preliminary draft staff report
- Seeking any other available detailed conversion cost data and any other cost information
- Working on CEQA and Socioeconomic Analysis

Schedule

Activity	Current Target Date
Working Group Meeting #7	October 2017
Release of CEQA Notice of Preparation/Initial Study	October 2017
Public Workshops/CEQA Scoping Meeting	November 2017
SCAQMD Refinery Committee Meeting	November/December 2017
Release of CEQA Draft EIR	December 2017/January 2018
Governing Board consideration of PR 1410	First Quarter 2018

NOTE: Additional Working Group meetings as needed

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