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Bridget McCann
Manager, Southern California Region

April 18, 2017

Dr. Philip Fine
Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Norton Engineering Consultants (NEC) Alkylation Technology Study and Proposed Rule 1410

Dear Dr. Fine:

The Western States Petroleum Association (WSPA) is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states. WSPA appreciates the opportunity to provide feedback regarding the Norton Engineering Consultants (NEC) Alkylation Technology Study commissioned by the SCAQMD that was made available on September 9, 2016. The study reviewed options for replacing Hydrofluoric Acid (HF) Alkylation units. WSPA member companies could be impacted by this report.

Alkylation is a process used in refineries to produce high octane motor and aviation fuels and meet U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (ARB) fuel standards. The two most prevalent technologies for alkylation processes involve the use of hydrofluoric acid or sulfuric acid.

While hydrofluoric acid is a hazardous material, it is highly regulated and managed under the Risk Management Plan (RMP) and Process Safety Management (PSM) programs overseen by the USEPA and the Occupational Safety and Health Administration (OSHA), respectively, as well as by California refinery safety regulations. The intent of these programs is to minimize potential risks to community receptors (i.e., RMP) and workers (i.e., PSM) in the event of an accidental release. The Southern California refineries using the Modified Hydrofluoric Acid (MHF) Alkylation technology are subject to these programs. The HF alkylation process has been successfully used in U.S. refineries for more than 70 years.[1]

In order to further manage potential risks associated with HF above and beyond existing regulatory requirements, the refining industry has developed engineering controls and best practices which are described in API Recommended Practice 751, Safe Operation of Hydrofluoric Acid Alkylation Units. This standard provides guidance to refiners on the safe operation of HF alkylation units including hazards management, operating procedures, worker protections, materials and construction, inspection and maintenance, transportation, inventory control, relief and utility systems and mitigation options. The standard is also intended to provide refiners with

[1] American Petroleum Institute (API), Standard RP-751, Safe Operation of Hydrofluoric Acid Alkylation Units, 2013.

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information to support process hazards analysis for the PSM and RMP programs. With proper design and careful management, API notes that "the acid used in these units does not present a significant risk to the community or the environment." The petroleum and chemical industries have conducted extensive research on HF alkylation safety, the results of which have been used to prevent incidents and to mitigate any effects of an incident were to occur. [2]

The NEC Study notes that the Southern California refineries employing the MHF process have implemented "most or all" of the safety enhancements specified in API Recommended Practice 751. These enhancements include:[3]

- HF and/or hydrocarbon detection systems (which may be point source, open path, or infrared imaging design) to identify release of HF acid
- Remote camera systems for use in identifying potential leak locations from a safe distance
- Acid detecting paint to identify small HF leaks that may be undetectable by other means
- Water mitigation systems (remotely operating monitors and/or water curtains) to absorb any airborne HF and reduce downwind impact from a release. These systems have demonstrated HF removal efficiencies of 50-80+% in experimental testing (effectiveness will depend on leak rate/conditions and location and type of water mitigation system).[17, 19, 20]
- Rapid acid transfer system to transport acid from a leaking section of the unit and isolate the acid in a safe location. Use of these systems help to minimize the duration of a leak and the total quantity of HF that is lost during a release event.
- Remotely operated block valves to isolate the major sources of HF acid or other equipment that may present a credible leak potential

At its time of publishing, the NEC Study provided a description of the different alkylation technologies which had been developed, and/or commercialized by the industry to date. As NEC noted, only two of the seven technologies mentioned were commercially demonstrated: HF Alkylation and Sulfuric Acid Alkylation.

As with any major industrial project, there are a host of other practical considerations which would need to be factored by a company before advancing a significant alteration to an existing and viable process. Such considerations include, but are not limited to, space limitations, environmental permitting, and environmental review under the California Environmental Quality Act (CEQA). The NEC Study only presents a very simplistic estimate of costs and excludes large sections of alkylation units that may need complete replacement as these two technologies are NOT interchangeable due to significant design differences. Given that such a conversion project has never been accomplished at a U.S. refinery, one would reasonably expect it to be much more complex and expensive in a real world environment. We strongly recommend that any further study include estimation of all associated costs including potential adverse impacts on local and regional economies.

[2] Ibid.
[3] Norton Engineering Consultants (NEC), Alkylation Technology Study, September 2016, page 13.

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WSPA believes that it should not be an agency's objective to pick one technology over another, but rather provide stakeholders viable options. Specifically, refineries in California need the flexibility to select the best technology from operational and environmental standpoints for their unique configurations and locations. Given the various factors noted in this comment letter that serve as a basis for technology selection, it is important to let all relevant factors drive the preferred technology.

Thank you for your consideration of these comments. If you have questions, or would like to set up a meeting to discuss, please contact me at this office, at bmccann@wspa.org or phone at (310) 808-2146.

Sincerely,

cc: Wayne Nastri, SCAQMD
Cathy Reheis-Boyd, WSPA
Patty Senecal, WSPA

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