



Torrance Refining
Company LLC
3700 W. 190th Street
Torrance, CA 90504
www.pbfenergy.com

VIA HAND DELIVERY

February 28, 2018

Ted Semaan
Public Works Director
City of Redondo Beach
531 N Gertruda Avenue
Redondo Beach, CA 90277

Re: *Information About Modified Hydrofluoric Acid*

Mr. Semaan,

The Torrance Refinery has been advised that the City of Redondo Beach ("City") may be considering whether to adopt a Resolution or approve a Letter of Support to encourage the South Coast Air Quality Management District ("AQMD"), as part of its Proposed Rule 1410 - Hydrogen Fluoride Storage and Use at Petroleum Refineries ("PR 1410") rulemaking to include a phase-out of Modified Hydrofluoric Acid ("MHF") as an alkylation technology, as early as four years from rule adoption.

For all the reasons below, including the supporting documents attached to this letter, we respectfully request that City officials allow the rulemaking process to be completed, rather than consider a Resolution or Letter of Support advocating an MHF phase-out. However, if City officials feel they must take action, we urge them to take a position similar to the City of Torrance supporting the AQMD's PR 1410 rulemaking process.

Setting the Record Straight About MHF

Such a phase-out would only impact two of five Southern California refineries: Torrance Refinery and Valero Energy Corporation's Wilmington Refinery, which supply approximately 30% of Southern California's gasoline demand. We are concerned because the City's consideration of a Resolution or Letter of Support appears to be based on mis- and disinformation being spread about the safe use of MHF at the Torrance Refinery. Particularly, misinformation is being distributed about what might happen if a release of hydrogen fluoride ("HF") were to occur, referring to the potential area impacted as a "circle of death" or "death zone," which is creating fear in South Bay residents, regulators, and elected officials. There is no such circle or zone, and both refineries phased out HF in 1997 (Torrance) and 2007 (Wilmington).

Regrettably, such misinformation purposefully misrepresents the U.S. Environmental Protection Agency's ("EPA") Risk Management Program ("RMP") regulations by referring to Torrance Refinery's ultraconservative emergency "planning circle" as such a zone or circle. The EPA has cautioned that "... planning circles are not intended to represent a 'public danger zone'." This graphic misrepresentation of EPA's planning tool is purposefully misleading and presented out of context -- the equivalent to recklessly yelling "fire" in a crowded theater.

A cursory review of the EPA RMP program would show that many other industries still use unmodified HF in the region, including aerospace companies. This is the same chemical both refineries phased out long ago. Even if the refineries are forced to shut down their MHF alkylation units, there would still be many other facilities using ammonia, chlorine, and other chemicals that have emergency "planning circles" across the South Bay. Like the Torrance Refinery, these facilities are permitted to operate because they properly manage risk and operate safely. In fact, the EPA produced a report on HF in 1993 that stated there was no need for further legislation to regulate the use of the chemical.

Everyone working at the Torrance Refinery recognizes we have to earn the right to operate in the South Bay community. We are committed to safe, reliable, and environmentally responsible operations, and being active in the communities that host us. We have been communicating with public officials and community groups well before taking ownership of the Torrance Refinery on July 1, 2016. We operate with oversight from dozens of agencies at every level of government, in the state with the most stringent refinery safety regulations in the nation and world.

Alkylation produces a key gasoline ingredient – alkylate, which is required to be blended into every gallon of California gasoline. Our Refinery's alkylation unit was built in 1966 using HF as the catalyst, which the Refinery phased out in 1997. Since then, the Torrance Refinery has used a safer, "modified" version of HF, or MHF, which was thoroughly tested by qualified scientists who are technical experts in their fields.

Various safety experts and a Los Angeles Superior Court judge reviewed and approved these test results that showed MHF is a safe technology. In 1997, the AQMD approved an operating permit to use MHF in the Torrance Refinery's alkylation unit, which in 50+ years of operation has never had an offsite HF release, including 20 years using MHF.

In fact, alkylation experts have publicly stated they consider the Torrance Refinery's alkylation unit's redundant safety systems, including the use of MHF, to be among the most advanced in the world. The Torrance Refinery also follows specific, global industry practices for safely and reliably managing this process.

Wilmington Refinery's alkylation unit has a similar record, using HF from 1969 until 2007, when they phased out HF and began using MHF in an agreement with the AQMD, which included the changeover as one of the AQMD's "environmental justice initiatives" in 2003. That refinery has never had an offsite release. Combined, the two facilities have operated for 100 years without an offsite release.

The AQMD issued permits to Torrance Refinery for its MHF alkylation unit in 1997 and Valero's Wilmington Refinery in 2004, after thoroughly reviewing the efficacy of MHF catalyst technology. As noted in these excerpts from a February 2003 AQMD news release announcing that they entered into an agreement with Valero that required Wilmington Refinery to phase-out and replace HF with MHF technology, the AQMD unequivocally supports and endorses the use of MHF to enhance public safety:

"Once this refinery stops using concentrated hydrogen fluoride, we will have virtually eliminated the potential for a catastrophic accidental release of this compound in our region," said Barry Wallerstein, executive officer of the South Coast Air Quality Management District."

"The agreement fulfills one of the 23 Environmental Justice goals adopted by AQMD's Governing Board last fall."

"Switching to modified HF will minimize the possibility of a catastrophic accidental release not only at the refinery, but along Southland transportation corridors, as the additive is added to the chemical before shipping."

The Torrance and Wilmington MHF alkylation units have been operating without any offsite release since the AQMD originally issued permits to use MHF. The MHF technology is unequivocally the same today as when the AQMD originally permitted its use in both refineries. However, the safety systems, training, and knowledge of the MHF alkylation process and equipment have improved. Consequently, these MHF alkylation units are even safer today than when the AQMD issued the first operating permits to Torrance 20 years ago.

Despite these facts and safety records, those who want to phase-out MHF advocate for Sulfuric Acid alkylation because they believe the latter technology is safer than MHF and could be installed in four years. However, again they misrepresent the facts.

A Sulfuric Acid alkylation unit is not any safer than the Torrance Refinery's MHF alkylation unit. In 1995, after an extensive technical review of the MHF technology by and recommendation of the Court-appointed Safety Advisor, a well-respected Los Angeles Superior Court Judge approved and required the use of the MHF technology at the Torrance Refinery under the City of Torrance Consent Decree, finding "... that the modified HF catalyst (including mitigation) as safe or safer than a sulfuric acid alkylation plant producing a comparable amount of alkylate."

In addition, Sulfuric Acid alkylation units are three times larger than HF/MHF units. They would effectively increase air pollution - primary air emission concerns are "criteria pollutants" including sulfur oxides; greenhouse gases ("GHG"); and fugitive emissions. These units also consume more energy and have a larger GHG footprint than HF/MHF units. Moreover, these units require a significant amount of acid each month; approximately 1,440 truck shipments per month or about 50 trucks per day if the sulfuric acid is renewed offsite. HF/MHF alkylation units regenerate the acid within the process and only require four to six trucks per month.

After considering these negative environmental impacts, the highly regarded California Energy Commission ("CEC") pointed to the uncertainty of operating permits ever being granted for new Sulfuric Acid alkylation units at Torrance and Wilmington. Plus, even if all the required permits were granted, designing, permitting, and constructing new "grassroots units" would take many years and each refinery would face unique challenges.

Finally, a Sulfuric Acid alkylation unit at Torrance would be cost-prohibitive. A report from Burns & McDonnell's ("B&McD") concludes that the total installed cost to build an equivalent capacity Sulfuric Acid alkylation unit for Torrance would be approximately \$600MM, excluding the cost of spent sulfuric acid regeneration. An industry consultant told us a new grassroots, spent acid regeneration plant of sufficient capacity to serve a sulfuric acid alkylation unit at Torrance, or upgrading an existing third-party spent acid regeneration facility, could cost another \$300MM, inflating the total estimate to approximately \$900MM.

Regarding other emerging alkylation technologies, we have been evaluating alternative alkylation technologies since announcing the acquisition of the Torrance Refinery in September 2015. For example, to explore alternatives to alkylation, we have met separately with experts from Honeywell/UOP, Stratco/DuPont, B&McD, KBR, and CB&I, as well as independent alkylation experts, to explore emergent alternatives. Each of these technology licensors has also provided background information to the AQMD PR 1410 Working Group associated with the rulemaking.

Each licensor has publicly acknowledged their respective alkylation technologies are not commercially viable or cost-effective, especially at the production rates required to replace existing units at Torrance and Wilmington. They have also stated there is no safer alternative alkylation technology than MHF, which is still the most recent advance in alkylation catalyst, while also noting these technologies:

- Are many years away from being commercially proven, safe/reliable, and available;
- Have environmental impacts and process safety operations that are unknown, and
- Will cost as much as, and perhaps more than, a conventional, new grassroots Sulfuric Acid alkylation unit.

Because of the cost and uncertainties of alternative alkylation technologies, a phase out of MHF would jeopardize the viability of the Torrance Refinery because it would no longer be able to produce the cleaner burning CARB gasoline required by law in California. This could result in the loss of approximately 30 percent of southern California's gasoline supply, 30 percent of jet fuel sent to LAX and 65 to 85 percent of the low sulfur Emissions Control Area bunker fuel at the ports. According to the CEC, the closure of the Torrance and Wilmington Refineries could create a 26 cent per gallon or more, increase in the costs of gasoline in the region.

If the Torrance Refinery were to close, not only could there be market impacts as noted by the CEC above, such a closure could impact the Refinery's 570 employees and 300 daily Building Trades and other contractors who rely upon their steady, highly-paid jobs provided by the Refinery to support their families. Additionally, when considering the Refinery's economic multiplier effect, for every Refinery job lost, 15 other jobs throughout Southern California and the state would be eliminated.

Moreover, such a closure would eliminate the support the Refinery provides to 45 community groups and non-profits, City of Torrance programs, and school district initiatives. The taxes and fees that the Refinery pays to fund valuable services that community members rely upon, including police and fire services, parks and recreation programs, just to name a few, would also be reduced or eliminated if the Refinery closes.

Before Taking Action

Accordingly, the Management of Torrance Refinery, on behalf of our employees, contractors, and local vendors, urge that the City listen to both sides of the story and consider all the facts and evidence before taking action on any Resolution or Letter of Support. We invite the City Council and City staff to visit the Torrance Refinery for a tour of our MHF alkylation unit. They can meet the people who run the unit and learn first-hand about the many redundant safety systems we employ that keep Refinery personnel and the community safe. We are confident the combination of MHF and redundant safety systems will contain any potential MHF release onsite, as we have seen since the unit began operating more than fifty years ago.

To further assist in your review of the facts and evidence related to the Torrance Refinery and its safe use of MHF we have prepared the attached binder of documents that include the following:

- Tab 1:** Alkylation Study Estimate and Reports, Burns & McDonnell, July 2017
- Tab 2:** Economic Impact of the Torrance Refining Company LLC Torrance Refinery, Capital Matrix Consulting, August 2017
- Tab 3:** Letter to the Carson Community: USW Members Committed to Safety at Torrance Refinery, November 19, 2017
- Tab 4:** Potential Transportation Fuel Supply and Price Impacts of HF Ban, California Energy Commission, September 2017
- Tab 5:** Proposed SCAQMD rule will kill high-paying jobs, hike gas prices: Blanca Rubio, February 20, 2018
- Tab 6:** Torrance Refinery Alkylation Overview Presentation, 2017
- Tab 7:** Torrance Refinery MHF Fact Sheet, 2018
- Tab 8:** Torrance Refinery Myth vs. Fact, Fact Sheet, 2018
- Tab 9:** Torrance Refinery Overview Presentation, 2017
- Tab 10:** Torrance Fire Department MHF Presentation
- Tab 11:** State Building and Construction Trades Council letter to The Honorable William Burke, dated January 17, 2018
- Tab 12:** Press Release "Highly Toxic Chemical to be Phased Out at Valero Refinery: District, February 7, 2003
- Tab 13:** City of Torrance Resolution, approved March 29, 2017

In addition, with this letter you will be receiving a spiral bound presentation from the Torrance Refining Company called "*Setting the Record Straight, The Truth About Torrance Refinery MHF*," which takes Torrance Refinery Action Alliance ("TRAA") presentations and provides the facts behind their myths about MHF. Our report presents the facts based on testing, modeling, and research by qualified experts,

correcting misinformation in the presentations by TRAA ("The Case Against MHF, -ARF-SRI-and Barriers-" (January 4, 2017) and TRAA's feedback to Torrance Fire Department (February 28, 2017).

* * *

In closing, the Torrance Refining Company is confident that the many layers of protection, safety systems and mitigation measures built into our MHF alkylation unit allows the Refinery to operate, safely, reliably, and in an environmentally responsible manner. MHF is the newest, most advanced alkylation catalyst technology available today and the Torrance Refinery's MHF alkylation unit with its current safety systems is the best and safest alkylation process for Torrance Refinery.

No emerging alkylation technology has reached the mature state of technological, economic, or commercial viability achieved by MHF or sulfuric acid alkylation. Until a newer technology is proven to be inherently safer than MHF alkylation, feasible, cost-effective, commercially viable on a similarly-sized commercial unit, and consistent with the California's environmental goals, the **only viable option for the Torrance Refinery at this time is MHF**, which we are required to use under the terms of the Refinery's Consent Decree with the City of Torrance.

We are continuously looking for opportunities to further improve Refinery operations. To this end, we are in discussion with the AQMD and other agencies about additional enhancements we can make to the Torrance Refinery's MHF alkylation unit to further enhance its already redundant safety systems.

For all these reasons, we encourage the City to not adopt a Resolution or Letter of Support that would support a phase-out of MHF. However, if the City feels that it must take some action, we ask the City to take a position similar to the City of Torrance and support the AQMD's PR 1410 rulemaking.

If you have any questions concerning this letter or attachments, or would like to visit the Refinery for a tour of the MHF alkylation unit, please contact Betsy Brien, External Relations Manager, at (562) 227-0012 or me at (310) 212-4500.

Sincerely,



Steve Steach
Refinery Manager

Attachments (2)

cc: Betsy Brien, PBF Energy
David Ingram, Torrance Refining Company
Barbara Graham, Torrance Refining Company
Darren W. Stroud, Torrance Refining Company