BOARD MEETING DATE: July 6, 2018 AGENDA NO. 20

REPORT: Refinery Committee

SYNOPSIS: The Refinery Committee held a meeting on Saturday, April 28, 2018 in Torrance concerning an update on the development of Proposed Rule 1410 - Hydrogen Fluoride Storage and Use at Petroleum Refineries. The following is a summary of the meeting.

RECOMMENDED ACTION:
Receive and File.

Clark E. Parker, Sr., Chair
Refinery Committee

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Committee Members

Present: Dr. Clark E. Parker, Sr./Chair, Mayor Larry McCallon/Vice Chair, Dr. Joseph Lyou and Mayor Pro Tem Judith Mitchell. Dr. William A. Burke was named an Ad Hoc member of the committee for this meeting.

Absent: Mayor Ben Benoit

Call to Order

Chairman Parker called the meeting to order at 9:05 a.m.

Welcome/Opening Remarks

Dr. Parker introduced the Refinery Committee members, summarized the past two Refinery Committee meetings held on April 1, 2017 and January 20, 2018 and his meetings with representatives from Valero, the Torrance Refining Company (TORC) and Torrance Refinery Action Alliance (TRAA) since the last Refinery Committee meeting. He explained that the 2015 explosion at Mobil Refinery and the repeated events in 2016, including fires, power outages, and increased flaring, brought the safety issue of modified hydrogen fluoride (MHF) to the attention of the SCAQMD. He expressed his concern about public health and safety that even refineries with the highest safety designations can have accidents and referenced, for example, the recent accident at Valero Refinery in Texas City.

Overview
Executive Officer Wayne Nastri provided an overview of the meeting's agenda and encouraged additional public participation in the ongoing rule development process.

Torrance Mayor Pat Furey encouraged active public participation and strongly encouraged the Refinery Committee members to resolve this matter as soon as possible.

Dr. Philip Fine, Deputy Executive Officer/Planning, Rule Development and Area Sources, summarized staff's continuing efforts to work with key stakeholders to reach consensus since the January 20 Refinery Committee meeting, pursuant to the Committee's direction. Dr. Fine presented key issues and staff responses regarding the availability of emerging technologies and explained that sulfuric acid alkylation is currently available commercially, but that there was a lack of return on investment for conversion to sulfuric acid. Dr. Fine explained that in addition to capital and operating costs, the public safety and health effects should be part of the consideration to phase out MHF. In addition, staff believes Torrance Refining Company's cost study of the conversion to sulfuric acid was overestimated due to the extra equipment proposed to be modified, and that the analysis did not take into account any potential benefits from the New Tax Cut and Jobs Act. A key issue raised by the refineries is that regulating only two refineries could provide a market advantage to other refineries and could affect gasoline prices. Dr. Fine explained that a pre-planned phase-out would be less disruptive than an unplanned shutdown and that the state's projection for a future decrease in gasoline demand would minimize potential supply and cost impacts.

Dr. Fine also presented the risks posed by TORC and Valero given that they are two of the top three hydrogen fluoride (HF) or MHF refineries in the U.S. in terms of location in densely populated areas. Dr. Fine emphasized that MHF exposure has the same health effects as HF exposure and although MHF modestly increases rainout, HF exposure could still occur.

Dr. Fine stated that the refineries and TRAA have said they cannot support an initial rule concept with an 8-year time frame for phase-out or Tier III mitigation. He presented the staff recommendation for two potential rule approaches. Option A requires Tier I mitigation implemented within one year of rule adoption and phase-out of MHF in no longer than five years. Option B requires Tier I mitigation and Tier II mitigation within three years of adoption and phase-out of MHF usage within 6 years after rule adoption. A technology assessment could be conducted in two years to evaluate the progress of the emerging technologies. If the assessment concludes that additional time is needed, Option B would require phase-out no longer than eight years after rule adoption.

Professor Craig Merlic of UCLA's Department of Chemistry & Biochemistry provided a presentation on the health and safety considerations for HF and sulfuric acid.

Professor Merlic indicated that both acids are highly hazardous materials; however, only HF or MHF form highly hazardous vapor clouds. He concluded that HF presents significantly greater health risks than sulfuric acid and that exposure to HF requires a specific remedy not required for sulfuric acid exposure.

Dr. Burke inquired about other businesses using HF in the Basin, such as glass etching and the quantity they use. Dr. Fine responded that the quantity of HF used in other industries is significantly lower than refineries. It was noted that other industries typically do not use HF at the high temperatures and pressures that contribute to the formation of the dense vapor cloud upon an HF release. Dr. Burke requested that staff look at other industries' using HF and consider whether those uses should be regulated.

Dr. Burke also inquired regarding the amount of additive in the MHF and if that amount has ever been independently verified. Dr. Lyou asked if the level of additive currently used would prevent a cloud from forming. Dr. Merlic stated that there were no published studies to indicate whether a six percent additive would prevent formation of a cloud. Mr. Nastri explained that the expense and hazards of this material has prevented further testing since the studies conducted in the 1990s, and staff has relied on past testing when evaluating the risk.

Mr. Matthew Johnson, representing Supervisor Janice Hahn's office, commented that Supervisor Hahn has not and would not advocate for the closure of TORC and has been a strong advocate for a ban on MHF; however, any ban should be phased in over sufficient years to allow refineries to adjust within a reasonable timeline. Supervisor Hahn strongly advocates for both good jobs and safety.

Mr. Steve Steach and Adam Webb of TORC indicated the recent Cal/OSHA audit found TORC on par with other California refineries. TORC currently meets the proposed Tier I requirements and will be implementing five of the proposed Tier II projects over the next two years such as speed of response, physical barriers and a leak detection system. TORC believes they can engineer a new proposed Tier III "fail-safe" measure, such as protective steel structures around acid settlers and high volume water mitigation around the structure. They stated that converting to a sulfuric acid unit is not financially feasible. Emerging technologies need years to demonstrate feasibility.
Dr. Burke was concerned that water mitigation would not have stopped a large leak that could have happened during the 2015 explosion. Water mitigation may not be effective 100 percent of the time and due to the dense population, the risk impact of a release would still be high. TORC stated that conversion or phase-out is not reasonable, the alternatives are not feasible, and Tier III mitigation is the only choice as it reduces risk, further protects workers, and keeps jobs, clean energy, and the economy running.

Dr. Parker stated his concern about not having the information about testing to prove a vapor cloud is not formed from MHF. Mr. Darren Stroud of TORC stated that

Honeywell UOP is the owner of this proprietary information on MHF technology, not TORC. Sharing the information publicly is UOP's discretion. Notwithstanding, they do not see any issues for the Board to view this proprietary information as an extension of SCAQMD staff's review.

Mayor McCallon stated that the Brown Act requires the Board to provide the public any information the Board used to make a decision. Dr. Lyou confirmed with District Counsel that the Board has to make a decision for rulemaking based on a public record. If there is information that cannot be made public, that does not go into the administrative record and then should not be part of the Board consideration. Dr. Lyou suggested staff write a formal letter to Honeywell requesting they waive the confidentiality claim to allow disclosure of proprietary information.

Mr. Rich Walsh, Vice President/Deputy General Counsel of Valero, highlighted that over the 35 years of operating the HF alkylation unit, there were no incidents or releases, which demonstrates that they have been successful in containing HF. He stated that most of the Tier I and II measures that staff proposed are already in place at the refinery; Tier III such as barriers, encapsulation, or an underground alkylation unit impede inspection and would make the refinery less safe. Banning MHF would effectively close the alkylation unit, and adding building structures around the unit would run counter to the safety directives for process safety management. Thirty percent improvement, due to the modifier in MHF, makes a big difference. Water curtains provide containment around the alkylation unit, as well as the water deluge, fire monitors, detection paint and alarm system. He also noted Valero is in a compact space; there is not a lot of room to build or expand, which leads to more downtime and costs and questioned whether a sulfuric acid unit could even be permitted. Valero also did not support a technology assessment as it would not prove useful. Mr. Walsh stated that Valero is ready to sign a modified MOU that would include every viable Tier I and II mitigation and some Tier III mitigation, such as a shelter-in-place air system on the schools near the refinery.

Dr. Parker inquired about the six percent additive in the Valero MOU and what was analyzed in the CEQA document for the original Proposed Rule 1410. Dr. Burke mentioned, unlike TORC, which is located in a highly populated area, Valero is geographically located in an industrial area. The SCAQMD may be able to consider a modified MOU if a Tier III mitigation package is good enough. That was the logic the Board used 16 years ago when the SCAQMD signed an agreement with Valero.

Dr. Sally Hayati, president of TRAA, described previous HF releases around the world and their consequences. She stated that TORC failed to provide public disclosure of the reduction in percent additive that constitutes their MHF. The additive was reduced to levels low enough to allow for effective production. Mitigation systems can fail due to human error, earthquakes, or other disasters and no system can handle every accident

equally well due to variation in wind speed and direction. An industry-funded test in 1986 showed 100 percent of the HF released formed a visible cloud. Dr. Hayati claimed more mitigation is not enough, although she supported immediate implementation of proposed Tier I and II measures. Refineries say their mitigation systems will eliminate all airborne acid, however, mitigation experts say that good operational systems can knock down only about 80 percent of the acid, thus still leaving a large amount airborne. Ninety percent effectiveness is only achievable in optimal, lab-controlled conditions. A release could affect up to 700,000 people according to U.S. EPA's analysis. A smaller radius of the population could be impacted depending on the size of the release, wind, and the effectiveness of mitigation.

Dr. Parker asked about the acceptable level of modifier in the MHF and Dr. Hayati responded that the amount of additive needed to convey any real safety advantage (e.g., 50 percent) is not usable in the alkylation unit.

Mayor Pro Tem Mitchell inquired about the percent additive required in the TORC original consent decree. Dr. Hayati stated that it is proprietary information, but she thought it was 30-50 percent of additive in the MHF mixture. Dr. Hayati further expressed concerns with MHF usage and what was disclosed to the public.

Mr. David Campbell, union representative for United Steel Workers (USW), representing employees at the Torrance refinery, stated that between these two refineries, HF or MHF have been used for 100 years without any offsite releases. USW's report "Risk Too Great" recommends modified HF as a replacement for HF. PBF Refinery had major turnarounds in the past year which led to a lot fewer flaring incidents, much greater safety, and more training for employees. PBF is willing to do more to enhance safety in the alkylation unit. Phase-out does not allow sufficient time for an alternative process to be permitted. Cal/OSHA has been active in regulating refinery safety and adopted a process safety management revision which allows employees to have shutdown authority if they had a release of MHF at the time of an accident. It also requires a hierarchy control analysis periodically requiring facilities to look at inherently safer technology. The California Energy Commission stated that a MHF ban would cause two refineries to shut down and therefore increase the price of gasoline and jet fuel in the West for a number of years. For these reasons, they do not believe phase-out is appropriate until inherently safer technology is proven and available. In addition, the public cannot afford to lose thousands of jobs and severely damage the California economy through raising gasoline and jet fuel prices. Therefore, USW opposes a ban and supports enhanced mitigation measures.

Mr. Ron Miller of the Los Angeles/Orange Counties Building & Construction Trades Council urged the Committee to reject both staff recommendations and to work with them to make the refineries as safe as they can be. In addition to other safety features in place at refineries, they are achieving safety through training of workers at refineries.

The phase-out of MHF will lead to shutdown of refineries resulting in a loss of jobs and production of less jet fuel. Los Angeles International (LAX) airport gets 30 percent of their jet fuel from these two refineries. Eighty percent of the bunker fuel consumed for ships at the Ports of Los Angeles and Long Beach, ninth busiest in the world, comes from these two refineries. There is no pipeline across the California border so fuel supply is dependent on in-state refineries. He expressed concerns with the recent loss of business in the state.

Public Comments
Approximately 60 speakers including representatives of refineries, union representatives and the public provided comments.

Public comment opened with Mr. Darren Stroud of TORC stating that they are supportive of a process to further enhance safety and are willing to continue that work. They are currently not supportive of a phase-out of MHF because it is not a reasonable approach to addressing risks associated with the alkylation process. Sulfuric acid processes have more greenhouse gas emissions, are more energy intensive and cost-prohibitive, and emerging technologies are years away. They recognize the community concern with MHF. That is why safety is the ultimate goal that TORC strives for, and that proudly, for over 50 years, the refinery has been able to operate the alkylation unit without release. Mr. Stroud stressed that their record has to mean something and it demonstrates that they have the capability to train workers to safely use MHF. He urged the Committee to consider this record. He suggested that it is important to ask about the probability of release and if it occurs, how to mitigate that release. Mr. Stroud stated that their refinery has been successfully demonstrating that for 50 years.

Mr. Rich Walsh of Valero stated they have about 450 people attending the meeting supporting the refinery and keeping the public safe.

Following the refineries, five union representatives provided comments on behalf of their union workers. All union representatives strongly opposed the ban. They wanted to know if they can be assured their jobs will not be lost as a result of this rulemaking. They stated that banning MHF will be detrimental to refinery workers, the community and the union trades. Union workers perform professional jobs and maintain safety all the time. They respectfully asked the Committee to reject the staff recommendation on Proposed Rule 1410 and to direct staff to work with refineries. Dr. Burke suggested that additional testing of MHF is needed. Union representatives noted that staff is asking to change something that the Board had approved years earlier and that making a radical change will have a substantial cost with substantial environmental impacts, and increase the likelihood that refineries will close. Union representatives stated that there is always some risk in life and asked that the SCAQMD work with refineries to mitigate the risk.

Following these comments, the general public, including TRAA members and other former or current union members, provided testimony. A majority of the general public supported Option A, with a phase-out of MHF in four years instead of five years as recommended by staff. Some key comments included:

- The recent cut in corporate tax rates and tax incentives are already in place and would assist the refineries in transitioning out of MHF;
- HF is a "chemical weapon" and refineries could be a target for terrorist activity;
- Refineries are safe until an accident happens;
- No earthquake-proof structure exists and water mitigation is not effective;
- Elimination of MHF is the ultimate mitigation;
- Refineries would not close; PBF took on risk when buying ExxonMobil refinery;
- Fuel prices are too high already and, banning MHF will increase fuel prices;
- Phasing out MHF would result in refinery shut down.; and
- Banning MHF could cause 1,000 small businesses to lose jobs.

Below is the list of speakers who provided public comments.

Maria Alejandra, SBCC (Wilmington)
Katie Baad
Logan Bagby
Bill Baxter
Timothy Beyer, TRAA
Lydia Bree
Peter Burgis
Denise Butrouski
Gladimir Buzga
Marietta Buzga
Sandy Cajas, Regional Hispanic Chamber of Commerce
Sandra Cartier
Neftly Chan
Antoine Churg
Charles Clendening
Jim Eninger
Daniel Figueroa and one iron union worker, on behalf of Iron Workers
Louis Fleming, TRAA
Dana Fontso, Beach Cities Health District
Mark Freedman, United Steelworkers
Dr. Genghmun Eng
Steve Goldsmith, TRAA
Nancy Griffin
John Hanna, Southwest Region of Carpenters
George Harpole, TRAA
Clifford Heise
Donna Heise, TRAA
Judith Herman
Burt Hockins, TRAA
Dan Hoffman, Wilmington Chamber of Commerce
Seth Hoffman
Omar Ibarra
Marvin Kropke, International Brotherhood of Electrical Workers Local Union
Catherine Leys
Sherry Lear, 350 South Bay Los Angeles
Alejandro Linares
Catherine Luciano
Brandon Matson, TORC
Eric Nakano
Barbara Newman
Gerry O'Conner
Mary Pope
David Poster
Bill Reynolds
Chris Ricardy
Rudy Rodriguez, Local 250 Steamfitters
Michelle Rushden
Joaquin Santos, Laborers Local Union 1309
Al Sattler, Sierra Club
Jerry Secundy, California Council for Environmental and Economic Balance
Roger Sham
Darren Stroud, TORC
Connie Sullivan
Cheryl Tchir
Sandra Viera
Rich Walsh, Valero Wilmington Refinery
Sarah Wiltfong, Bizfed
Penny Wirsing, TRAA
Caroline Yoshida

Public testimony was followed by comments from the Refinery Committee members.

General Counsel Bayron Gilchrist clarified that the Committee would not be voting on a rule proposal, but would rather be making recommendations to staff on how to proceed in terms of rulemaking, which would eventually be considered by the full Board. Secondly, he recommended that the Committee consider whether a rule with the currently recommended concepts or a version that staff would be discussing is ready to go before the full Board or whether to return to the Committee for additional updates. Thirdly, he recommended that the Committee consider what specific options it would like to have in the future so that staff can develop them for consideration.

Mr. Nastri commented that assertions were made that staff has misunderstood or misrepresented some of the facts. There may be differences in opinion, but it does not mean it is wrong or has been misrepresented. When looking at science, it has many different interpretations but one needs to look at the entire body of evidence. In this particular case, staff has reviewed much of the data that exists. Generating additional data is a separate question and that is something that staff would certainly examine. Those are lengthy studies but staff can look into how that may be done to provide more certainty. But when looking at the utilization of certain materials, the responsibility and the burden of proof should be on those using the materials to show it is in fact safe. There may have been questions about the effectiveness of the additive, and there needs to be the data that actually proves it.

Dr. Parker acknowledged that there is a difference between opinion and facts based on evidence. As such, there seems to be no argument that MHF would be the same as HF in that it can form a vapor cloud. What really needs to be discussed is how we mitigate that, if it can be mitigated, eliminate it if there is an alternative, or stay with what we have, if that is acceptable. There should not be speculation without empirical data.

Dr. Fine commented that refineries have not refuted that the modifier of HF has a maximum of 30 percent improvement. Staff has not had time to respond to the TORC comment letter received the night before the meeting.

Mr. Nastri added that there are a lot of areas for which there is agreement, such as Tier I and Tier II mitigation and even further layers of mitigation. The question is whether to phase out the long-term use of MHF. Staff is seeking direction on how we move forward with regard to the ultimate disposition of MHF.

Dr. Lyou started his comments with appreciation for the refineries for having mitigation measures in place and their hard work to ensure safety and to protect the public and their workers; however, he is supportive of additional mitigation to be implemented as quickly as possible. He added that we have to make decisions based on as much information as available to the Committee. Dr. Lyou requested staff investigate the

possibility of the threat of terrorism and earthquakes, and the ability to make confidential information public. He wished the emerging technology were more developed but acknowledged they are not. Dr. Lyou expressed that he is still uncertain as to which option is better and that it might be time to put both of these options before the full Board for direction.

Mayor McCallon noted that every day we face many risks in our lives. He believed risks associated with using MHF in the alkylation process at these refineries are being well managed otherwise he would not personally visit both refineries. Mayor McCallon opposed banning the use of MHF because of the potential adverse impact that the current Proposed Rule 1410 approaches would have on the economy in California if refineries were to cease operation. The Tier I and II mitigation being recommended will enhance the risk management the refineries already have in place. Staff needs to explore Tier III options in a five- to-six-year timeframe and to look at the technology in four to five years to see if an alternative technology is coming along and would be appropriate.

Mayor Pro Tem Mitchell recognized the value of jobs that the refineries bring to the community, as well as the dignity of having those jobs. Jobs are a high priority for the community as well as the Board. Mayor Pro Tem Mitchell stated that she thinks a well-managed risk may still be a risk too great and be unacceptable. The maximum 30 percent benefit protection from MHF is not enough. She questioned if the risk is well managed in the wider community, for example, is there enough remedy to MHF exposure available in local hospitals if a release happens. Accidents and consequences cannot be predicted, but from the history of refinery-associated incidents, there were numerous unplanned accidents. Mayor Pro Tem Mitchell directed staff to proceed with the development of the rule to phase out MHF with the flexibility of how it is phased out and in a manner that would allow refineries to continue to operate. Mayor Pro Tem Mitchell acknowledged alternative alkylation technologies do exist. For example, sulfuric acid alkylation is already a proven alkylation technology and solid acid alkylation technology has been around for years. Refineries would need to think about what alkylation method they want to choose following a phase-out. She also urged staff to collaborate with refineries and labor unions to make sure jobs are preserved in that transition. She also encouraged inclusion of proper mitigation in the rule.

Dr. Parker raised a concern that MHF with the seven percent additive has not been tested so it is not certain how it behaves. He also commented on the two destructive acids used in alkylation that can kill people. One acid, HF, forms a vapor cloud. The other, sulfuric acid, does not. HF moves by wind and covers large areas, which means it is very difficult to control. Sixty times more water than HF is effective to bring it down, but if water is not directly aimed at the source, HF will vaporize and form a cloud. What it does not say is how long and how much it will take in order to become a very

lethal release. Dr. Parker recommended to proceed with Tier I and II mitigations as quickly as possible.

Dr. Burke commented that Torrance residents did not pick HF to be used at the refinery and most did not know it was at the refinery. Dr. Burke supported Tier I and II mitigation and believed more information is needed for Tier III mitigation. He requested that an MOU be drafted with either one or both options, and that this should be discussed at a future Refinery Committee meeting in Wilmington. It is unlikely that one MOU meets the needs of all parties, but stakeholders could be working towards a 90–95 percent agreement.

Dr. Parker concluded with the direction to inquire with Honeywell for the disclosure of confidential information, testing the MHF, and exploring the likelihood of exposures.

Mr. Nastri expressed his intent to return to the Committee in 90 days with the results of further investigation after reaching out to the key stakeholders, such as the Department of Homeland Security, the Federal Bureau of Investigation (FBI), and Honeywell.

Mr. Nastri suggested two options. One option would be rulemaking for Tier I and Tier II and then come back to the Committee with concepts for the ultimate disposition with regards to MHF, or a concurrent MOU-type arrangement. He concluded that staff will be able to report back to the Committee with staff recommendations depending on discussions with stakeholders.

The meeting was adjourned at approximately 2:40 p.m.

Attachment
The staff presentation has been posted online and can be accessed from the following webpage: http://www.aqmd.gov/nav/about/groups-committees/refinery-committee.