BEFORE THE ADMINISTRATOR UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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PETITION TO OBJECT TO THE TITLE V OPERATING PERMIT FOR THE VALERO HOUSTON REFINERY

Pursuant to § 505(b)(2) of the Clean Air Act, 42 U.S.C. § 7661d(b)(2), and 40 C.F.R. § 70.8(d), Texas Environmental Justice Advocacy Services (t.e.j.a.s.), Sierra Club (Lone Star Chapter), Caring for Pasadena Communities, Environmental Integrity Project, and Earthjustice ("Petitioners")¹ petition the Administrator of the U.S. Environmental Protection Agency ("EPA") to object to the above-referenced proposed Title V permit issued by the Texas Commission on Environmental Quality ("TCEQ") for the Houston, Texas refinery owned and operated by Valero Refining-Texas, L.P. ("Valero").

As discussed below, the proposed Title V permit for Valero's Houston refinery fails to comply with Title V requirements in multiple ways. Among other things, the permit fails to incorporate and assure compliance with Permit by Rule requirements; fails to ensure compliance with standards for hazardous air pollutants from 40 C.F.R. Part 63, Subparts CC and UUU; fails to include monitoring and emission calculation methods that can ensure compliance with the limits for some of the refinery's main, most-polluting units, including the fluid catalytic cracking unit, flares, and cooling towers; includes unlawful provisions relaxing federally enforceable limits and standards during maintenance, startup, and shutdown periods; and unlawfully incorporates language giving TCEQ discretion regarding whether data from continuous emission monitors can be used to determine compliance. In addition, TCEQ failed to provide notice of the draft Title V permit through a mailing list, as is required by EPA's Title V regulations.

Acute environmental justice concerns in the communities surrounding Valero's refinery provide additional reason why EPA must pay special attention and object here. These communities are densely-populated, predominantly communities of color, and low-income, and are already overburdened by air pollution from Valero's refinery and other large sources of air

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¹ The undersigned attorneys submit this petition on behalf of the Petitioners.

pollution, including multiple other refineries and petrochemical facilities. Further, the Houston region has historically struggled with attaining the NAAQS for ozone.

BACKGROUND

I. THE PROPOSED PERMIT ON WHICH THIS PETITION IS BASED

This petition asks EPA to object to the proposed Title V permit for Valero's Houston, Texas refinery (Regulated Entity No. RN100219310, Permit No. O1381). The permit action at issue here is a permit renewal.

Valero published notice of a draft renewal Title V permit in a Spanish-language newspaper on February 24, 2019, and in an English-language newspaper on February 22, 2019.² Because Spanish language notice was published on February 24, 2019, the public comment deadline was 30 days later, on March 26, 2019.³ Petitioners timely submitted their initial comments on the draft permit on March 26, 2019. See Ex. 1, March 2019 Comments ("Initial Comments"). TCEQ later published notice of a notice and comment public hearing to occur on October 8, 2019.⁴ The notice provided that the public could also submit written comments by the day of the hearing.⁵ Petitioners timely submitted supplemental written comments on October 8, 2019. Ex. 2, October 2019 Comments ("Supplemental Comments"). Together, Petitioners' Initial Comments and Supplemental Comments raised all of the objections discussed below in this petition, except for certain specific arguments that Petitioners could not have raised in comments because TCEQ did not unveil the relevant permit problem until after the close of the public comment period.

TCEQ has responded to some (but not all) of Petitioners' significant comments on the draft permit, made some revisions to the permit (unfortunately without resolving the overwhelming majority of Petitioners' comments), and sent a proposed permit to EPA for its review. Petitioners are timely filing this petition by the June 30, 2021 deadline listed on Region

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²https://www14.tceq.texas.gov/epic/eCID/index.cfm?fuseaction=main.detail&item_id=521337812019043 &detail=action&StartRow=1&EndRow=1&Step=5&requesttimeout=5000

³ On Friday, March 22, 2019, Earthjustice staff member Lisa Fuhrmann called the TCEQ Chief Clerk's Office. She spoke with Irma Salazar, who is on the Notice Team in the Chief Clerk's Office, and Ms. Salazar confirmed that the deadline for comment on the permit renewal notice was March 26, 2019, *i.e.*, 30 days from the Spanish-language notice published on February 24, 2019.

https://www14.tceq.texas.gov/epic/eNotice/index.cfm?fuseaction=main.PublicNoticeDescResults&requestimeout=5000&CHK_ITEM_ID=784370442019240

⁵ *Id*.

6's website to petition EPA to object to the proposed permit.⁶ This date is within 60 days of the expiration of EPA's 45-day review period, which ended on April 30, 2021. TCEQ Letter, Notice of Proposed Permit (Mar. 9, 2021).

II. PETITIONERS

T.e.j.a.s. is a non-profit group whose mission is to create sustainable, healthy communities in the Houston Ship Channel region by educating individuals on health impacts from environmental pollution and empowering individuals to promote enforcement of environmental laws. T.e.j.a.s. promotes environmental protection through education, policy development, community awareness, and legal action where possible and appropriate. In furtherance of this mission, t.e.j.a.s. provides services to its members and constituents and educates the public about air pollution, fires, explosions, spills, releases, and other chemical disasters at industrial facilities in Texas, particularly at refineries and petrochemical facilities in the Houston Ship Channel. T.e.j.a.s.' members and constituents include those who live in the Manchester, Galena Park, Milby Park, and Pasadena neighborhoods, which are the neighborhoods hat are most exposed to and most affected by the Valero Houston refinery's emissions.

Caring for Pasadena Communities is a community-based nonprofit organization committed to raising awareness of environmental issues affecting residents of Pasadena and nearby communities along the Houston Ship Channel, where many of its members live and work. Caring for Pasadena Communities is organized to advocate for these communities, improve public education on environmental issues, and to ensure equal treatment for low-income residents in environmental matters. This work has entailed direct involvement in the public participation process of numerous projects by highlighting environmental justice concerns for various permitting agencies that would otherwise go unnoticed and unaccounted for.

Environmental Integrity Project ("EIP") is a non-profit, non-partisan watchdog organization that advocates for effective enforcement of environmental laws. EIP has three goals: (1) to illustrate through objective facts and figures how the failure to enforce and implement environmental laws increases pollution and harms public health; (2) to hold federal and state agencies, as well as individual corporations, accountable for failing to enforce or comply with environmental laws; and (3) to help communities obtain protections guaranteed by environmental laws.

Sierra Club's Lone Star Chapter has members who live in east Houston and on the west end of the Houston Ship Channel. Sierra Club's mission is to explore, enjoy, and protect the wild places of the earth, to practice and promote the responsible use of the earth's ecosystems and resources, to educate and enlist humanity to protect and restore the quality of the natural and human environment, and to use all lawful means to carry out these objectives. To achieve this

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⁶ https://www.epa.gov/caa-permitting/operating-permit-timeline-texas

mission, Sierra Club focuses in part on ways to prevent and reduce harmful air pollution, including from petroleum refineries such as Valero's Houston facility, and ensuring the full implementation and enforcement of national and local refinery limits and standards in permits such as the proposed permit at issue in this petition.

III. GENERAL TITLE V PERMIT REQUIREMENTS

To protect public health and the environment, the Clean Air Act prohibits stationary sources of air pollution from operating without or in violation of a valid Title V permit, which must include conditions sufficient to "assure compliance" with all applicable Clean Air Act requirements. 42 U.S.C. §§ 7661c(a), (c); 40 C.F.R. §§ 70.6(a)(1), (c)(1). "Applicable requirements" include all standards, emissions limits, and requirements of the Clean Air Act. 40 C.F.R. § 70.2. Congress intended for Title V to "substantially strengthen enforcement of the Clean Air Act" by "clarify[ing] and mak[ing] more readily enforceable a source's pollution control requirements." S. Rep. No. 101-228 at 347, 348 (1990), as reprinted in A Legislative History of the Clean Air Act Amendments of 1990 (1993), at 8687, 8688. As EPA explained when promulgating its Title V regulations, a Title V permit should "enable the source, States, EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." Operating Permit Program, Final Rule, 57 Fed. Reg. 32,250, 32,251 (July 21, 1992).

Among other things, a Title V permit must include compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit. 42 U.S.C. § 7661c(c); 40 C.F.R. § 70.6(c)(1). The D.C. Circuit has explained that Title V requires that a "monitoring requirement insufficient 'to assure compliance' with emission limits has no place in a permit unless and until it is supplemented by more rigorous standards." *See Sierra Club v. EPA*, 536 F.3d 673, 677 (D.C. Cir. 2008).

If applicable requirements themselves contain no periodic monitoring, EPA's regulations require permitting authorities to add "periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit." 40 C.F.R. § 70.6(a)(3)(i)(B); see also In the Matter of Mettiki Coal, LLC, Order on Petition No. III-2013-1 (Sept. 26, 2014) ("Mettiki Order") at 7. The D.C. Circuit has also acknowledged that the mere existence of periodic monitoring requirements may not be sufficient. 536 F.3d at 676–77. For example, the court noted that annual testing is unlikely to assure compliance with a daily emission limit. *Id.* at 675. In other words, the frequency of monitoring methods must bear a relationship to the averaging time used to determine compliance. 40 C.F.R. § 70.6(c)(1) of EPA's regulations acts as a "gap filler" and requires that permit writers must supplement a periodic monitoring requirement inadequate to assure compliance. *Id.* at 675; see also Mettiki Order at 7.

In addition to including permit terms sufficient to satisfy EPA's Title V monitoring and reporting requirements, permitting authorities must include a rationale for the monitoring and reporting requirements selected that is clear and documented in the permit record. Mettiki Order

at 7-8. See also 40 C.F.R. § 70.7(a)(5) ("The permitting authority shall provide a statement that sets for the legal and factual basis for the draft permit conditions").

If a state proposes a Title V permit that fails to include and assure compliance with all applicable Clean Air Act requirements, EPA must object to the issuance of the permit before the end of its 45-day review period. 42 U.S.C. § 7661d(b)(1); 40 C.F.R. § 70.8(c). If EPA does not object to a Title V permit, "any person may petition the Administrator within 60 days after the expiration of the Administrator's 45-day review period ... to take such action." 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). The Clean Air Act provides that EPA "shall issue an objection ... if the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements" of the Act. 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(c)(1); see also N.Y. Pub. Interest Group v. Whitman, 321 F.3d 316, 333 n.12 (2d Cir. 2003) (explaining that under Title V, "EPA's duty to object to non-compliant permits is nondiscretionary"). EPA must grant or deny a petition to object within 60 days of its filing. 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d).

GROUNDS FOR OBJECTION

For all of the reasons discussed below, EPA must object to the proposed Title V permit for Valero's Houston refinery because that permit fails to satisfy substantive requirements of the Clean Air Act and EPA's Title V regulations.

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As Petitioners pointed out in their comments to TCEQ,⁷ the areas surrounding Valero's Houston refinery are communities of color with a large, dense, and low-income population that is overburdened by hazardous and other air pollution, including from multiple refineries and petrochemical facilities. That means this is a permit that involves significant environmental justice concerns and requires particular focus and action by EPA.

The information that Valero submitted in response to EPA's Information Collection Request ("ICR") for the recent petroleum refinery sector NESHAP risk and technology review indicated that, as of the time of the ICR, the refinery released 52.63 tons/year of hazardous air pollutants ("HAPs") listed under Clean Air Act § 112.8 National Emissions Inventory ("NEI") data shows that Valero's refinery released even more HAPs in later years—350,701.20 pounds of HAPs in 2014 and 133,089.60 pounds of HAPs in 2017.9 The toxic air pollution released by the refinery includes chemicals such as benzene, hydrogen cyanide, toluene, hexane, and xylene. NEI data also shows that the refinery released 403,758.20 pounds of volatile organic compounds ("VOCs") in 2014 and 541,124.80 pounds of VOCs in 2017—and 144,126.47 pounds of PM_{2.5} in 2014 and 190,383.43 pounds of PM2.5 in 2017.

⁷ Initial Comments at 14-19; Supplemental Comments at 4-6, 32.

⁸ See https://www.epa.gov/stationary-sources-air-pollution/comprehensive-data-collected-petroleum-refining-sector

⁹ This data is listed in the Air Pollutant Report from EPA's Enforcement and Compliance History Online (ECHO). The Air Pollutant Report is available here: https://echo.epa.gov/air-pollutant-report?fid=110000460885

¹⁰ See id. at "Emissions Data."

¹¹ Id.

In addition, other nearby sources also emit large amounts of air toxics and criteria pollutants. The Houston area is one of the nation's largest hubs of petroleum refining and petrochemical manufacturing, as discussed in a recent report by EIP and the United Church of Christ, *Breath to the People*, which highlighted the environmental injustice and highly toxic air in the Houston area. ¹² In fact, that report found that ten of the nation's 100 largest emitters of air toxics are located in the Houston metropolitan area. ¹³

In particular, the Houston Ship Channel—on which Valero's Houston refinery is located—has one of the largest concentrations of petroleum refineries and petrochemical facilities in the world. ¹⁴ Communities that are particularly exposed to emissions from Valero in several areas around the Houston Ship Channel include: Manchester, which is adjacent to the Valero refinery; Pasadena which is near Valero and also near Shell's Deer Park facility and Pasadena Refining's facility; and Galena Park and Milby Park, which are exposed to emissions and safety threats from Valero and multiple refineries. The ITC in LaPorte, which has had serious fires, is located near these communities as well. The Arkema Houston Plant is also within only a few miles from Galena Park (about 3 miles) and Pasadena (about 6 miles) and people in these areas face additional chemical exposure due to the combined impacts of this and the Valero refinery.

Houston Ship Channel communities face serious health impacts from pollution from these many nearby sources. For example, research by University of Texas's School of Public Health found that children living within two miles of the Houston Ship Channel have a 56 percent greater chance of getting leukemia than children living farther away. ¹⁵A recent study and supplemental analysis by the Texas Department of State Health Services found that, for census tracts analyzed in East Harris County, "the number of other leukemia among all ages was statistically significantly higher than expected," and that for adults, the numbers of brain and cervical cancers overall were also "statistically significantly higher than expected," and the same

¹² See EIP & United Church of Christ, Breath to the People (Sacred Air and Toxic Pollution) (Feb. 2020) at 18-21,

 $[\]frac{https://d3n8a8pro7vhmx.cloudfront.net/unitedchurchofchrist/pages/24840/attachments/original/15827213}{12/FINAL_BreathToThePeople_2.26.2020.pdf?1582721312}$

¹³ *Id.* at 18. The *Breath to the People* report ranked facilities' toxic air emissions based on available toxic air emission data reported to EPA's Toxics Release Inventory ("TRI").

¹⁴ See, e.g. Ex. 3, Map of example petrochemical facilities and refineries in and near the Houston Ship Channel (based on ECHO, prepared by Earthjustice).

¹⁵ K. Walker *et al.*, University of Texas Health Science at Houston, School of Public Health, An investigation of the association between hazardous air pollutants and lymphohematopoietic cancer risk among residents of Harris County, Texas,

https://pdfs.semanticscholar.org/3b67/75f96037b7dd2104a11296784f52d4cddf33.pdf.

was true in some individual census tracts for additional kinds of cancer. ¹⁶ Emissions of HAPs and other pollutants can cause particular harm and increased threat of cancer, non-cancer chronic effects, and acute impacts for vulnerable populations such as pregnant women and exposed children, who have extra susceptibility and exposure to this pollution in utero and as infants. For example, a recent scientific report, supported by Project TENDR, highlighted how reducing children's exposure to combustion-related air pollution would also protect them from avoidable neurodevelopmental harm. ¹⁷

The most-exposed and most-affected east Houston neighborhoods—including Harrisburg-Manchester (where 97% of the population is people of color, and 37% live in poverty) and Galena Park (86% are people of color and 21% live in poverty)—face an unjust "double jeopardy" of extra health impacts from toxic air pollution and disproportionate safety threats when compared with two mainly white and higher income neighborhoods in west Houston, as shown in a 2016 report, *Double Jeopardy in Houston: Acute and Chronic Chemical Exposures Pose Disproportionate Risks for Marginalized Communities*, released by t.e.j.a.s. and the Union of Concerned Scientists. ¹⁸ The *Double Jeopardy* Report found that "[1]ong-term daily exposures to air pollution can lead to health effects that go unaddressed due to residents' limited financial and health care resources." ¹⁹

Researchers at Texas A&M University also performed a study finding disproportionate cumulative impacts from air pollution in the area, concluding: "Residents of the environmental justice neighborhood of Manchester, located on Houston's East End, are disproportionally exposed to toxic pollutants from both industry and transportation infrastructure." ²⁰

¹⁶ Tex. Dep't of State Health Servs. (DSHS), Supplemental Analyses, Assessment of the Occurrence of Cancer, East Harris County, Texas, 1995-2012 (Dec. 28, 2015), https://www.dshs.texas.gov/epitox/CancerClusters/Supplemental-analyses---CSum-14004.pdf; available

https://www.dshs.texas.gov/epitox/CancerClusters/Supplemental-analyses---CSum-14004.pdf; available at https://www.dshs.state.tx.us/epitox/CancerClusters.shtm.

¹⁷ D. Payne Sturges, M. Marty, *et al.*, Healthy Air, Healthy Brains: Advancing Air Pollution Policy to Protect Children's Health (Mar. 13, 2019), https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2018.304902.

¹⁸ Available at: https://www.ucsusa.org/sites/default/files/attach/2016/10/ucs-double-jeopardy-in-houston-full-report-2016.pdf.

¹⁹ *Id.* at 6.

²⁰ G. Sansom *et al.*, Domestic Exposures to Polycyclic Aromatic Hydrocarbons in a Houston, Texas, Environmental Justice Neighborhood, Environ. Justice (Oct. 2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6241524/ (also noting that "In another study, the total PAHs observed in Manchester were more analogous to settled house dust collected in a residential area close to an industrial complex in Sumgayit, Azerbaijan (2.9 mg/m2), than in a rural, agricultural community in Texas (0.11 mg/m2)…").

Valero's Houston refinery contributed to a "second storm" of air pollution that local neighborhoods experienced in 2017 during and after Hurricane Harvey, due to inadequate toxic release prevention measures from storm impacts.²¹ EIP found that Valero's Houston refinery is one of the "plants that released the most storm-related pollution in the Houston area."²²

The communities surrounding Valero's refinery include a significant population of people of color and low-income residents, as well as large numbers of community members who face increased vulnerability to health effects from air pollution due to their age (under 18 or over 65).²³ Specifically, EPA found, based on 2010 U.S. Census and American Community Survey data, that 2,496 people live within a one mile radius of refinery—of whom 95% are people of color (including large percentages of Latinx and African-American residents), 30% are children under the age of 18, 10% are seniors age 65 and older.²⁴ That same data show that 92,012 people live within a three mile radius of the Valero refinery—of whom 93% are people of color, 32% are children under the age of 18, 8% are seniors age 65 and older, and over half (49,039) are persons with low income. And that data shows that 292,686 people live within five miles of the refinery—of whom 91% are people of color, 32% are children under the age of 18, and 8% are seniors age 65 and older. In addition, ECHO indicates that the area surrounding the refinery is above the 80th percentile for 11 different environmental justice indexes, including the National Air Toxics Assessment ("NATA") Air Toxics Cancer Risk index (with a percentile ranking of 90.7), the NATA Respiratory Hazard index (with a percentile ranking of 86.2), the PM_{2.5} index (with a percentile ranking of 85.9), and the Risk Management Plan Proximity index (with a percentile ranking of 99).²⁵ And ECHO lists the refinery as being in a status of "High Priority Violation" in each of the previous 12 quarters. ²⁶

²¹ L. Olsen, *After Harvey, a 'second storm' of air pollution, state reports show*, Houston Chron. (Mar. 31, 2018), https://www.houstonchronicle.com/news/houston-texas/houston/article/After-Harvey-a-second-storm-of-air-12795260.php (quoting Juan Parras, t.e.j.a.s.).

²² EIP, Preparing for the Next Storm, Learning from the Man-Made Environmental Disasters that Followed Hurricane Harvey (Aug. 16, 2018), https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf

²³ See Envt'l Justice Health Alliance for Chemical Policy Reform *et al.*, Life at the Fenceline: Understanding Cumulative Health Hazards in Environmental Justice Communities (2018), https://new.comingcleaninc.org/assets/media/documents/Life%20at%20the%20Fenceline%20-%20English%20-%20Public.pdf.

²⁴ The Detailed Facility Report for the refinery from ECHO, which contains this information, is available here: https://echo.epa.gov/detailed-facility-report?fid=110000460885.

²⁵ *Id*.

²⁶ *Id*.

There are multi-family subsidized housing communities (such as Nueva Vida at 2950 Broadway, Houston, TX; Las Villas De Magnolia, Houston, TX), and other places where community members congregate within a three-mile radius of Valero. In particular, Petitioners are aware of 28 schools,²⁷ and over two dozen public parks,²⁸ within a three-mile radius of the Valero refinery, where residents visit and engage in recreation and children play outside. For example, J.R. Harris Elementary School—a public school where 63% of students are English language learners, 88% are economically disadvantaged, and 98% are African American and/or Latino—is within one mile of the Valero refinery, and within close proximity to a chemical manufacturer and a hazardous waste facility.²⁹

In these circumstances, as Petitioners' Supplemental Comments to TCEQ explained (at pages 4-6), there is a compelling need for EPA to devote increased, focused attention to ensure that all Title V requirements have been complied with—especially ensuring that monitoring and

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²⁷ 1. JR Harris Elementary, 801 Broadway St. Houston, TX; 2. Davila Elementary, 7601 Dahlia St., Houston, Texas; 3. Southmayd Elementary, 1800 Coral St., Houston, Texas; 4.YES Prep – East End, 8329 Lawndale St., Houston, TX; 5. Houston Gateway Academy Inc Elite College Prep, 3400 Evergreen, Houston, TX; 6. Houston Gateway Academy- Coral Campus, 1020 Coral St. Houston, TX; 7. Briscoe Elementary, 321 Forest Hill, Houston, TX; 8. Gallegos Elementary, 7415 Harrisburg Blvd, Houston, TX; 9. Franklin Elementary, 7101 Canal St., Houston, Texas; 10. Patterson Elementary, 5302 Allendale Rd., Houston, TX; 11. Rucker Elementary 5201 Vinett St. Houston, TX; 12. Chavez High School 8501 Howard, Houston, TX; 13. Park Place Elementary, 8235 Park Pl Blvd, Houston, TX; 14. Raul Yzaguirre School for Success, 2950 Broadway St., Houston, TX; 15. De Zavala Elementary, 7521 Ave H, Houston, TX; 16. Deady Middle School, 2500 Broadway St., Houston, TX; 17. Sanchez Elementary, 2700 Berkley St. Houston, TX; 18. Crespo Elementary, 7500 Office City Dr., Houston, TX; 19. Macarthur Elementary 1801 N Main, Galena Park, TX: 20. Galena Park HS 1000 Keene, Galena Park, TX: 21. Galena Park Middle School, 400 Keene, Galena Park, TX; 22. Galena Park Elementary, 401 N Main, Galena Park, TX; 23. Pasadena High School, 206 S Shaver, Pasadena, TX; 24. Kruse Elementary, 400 Park Ln, Pasadena, Texas; 25. De Zavala Middle School, 202 E Jackson, Pasadena, TX; 26. Richey Elementary, 610 S Richey, Pasadena, Texas; 27. Morales Elementary, 305 W Harris, Pasadena, Texas; 28. Williams Elementary, 1522 Scarborough Ln, Pasadena, TX.

²⁸ John R. Harris Park, Harris County Park; Hartman Park, Houston, TX; Clinton Park, Houston, TX; Milby Park, Houston, TX; Oak Forest Park, Houston, TX; Ray Park, Houston, TX; Charlton Park, Houston, TX; Gus Wortham Park, Houston, TX; Pleasanton manor park, Houston, TX; Robinson Park, Houston, TX; Meadowcreek Village, Houston, TX; Allendale Spaceway, Houston, TX; Oak Meadow, Houston, TX; Ingrando Park, Houston, TX; Woodruff Park, Houston, TX; Glenbrook Park & Golf Course, Houston, TX; Ray Park, Houston, Texas; Memorial Park, Pasadena Texas; Sunset Park, Pasadena, Texas; Friendship Garden, Local Conservation Area, Pasadena, TX; Crane Park, Pasadena, TX; Cascade Park, Pasadena, TX; Light Company Park, Pasadena, TX; Vermillion Park, Pasadena, TX; Park Place Park, Houston, TX; Highlands Park, Pasadena, TX; Mason Park, Houston, TX; Elm Street Park, Houston, TX.

²⁹ Tex. Education Agency, 2017-18 School Report Card, Harris Elementary, Houston ISD, https://rptsvr1.tea.texas.gov/cgi/sas/broker?_service=marykay&year4=2018&year2=18&_debug=0&single=N&title=2018+School+Report+Card&_program=perfrept.perfmast.sas&prgopt=2018%2Fsrc%2Fsrc.sas&ptype=H&batch=N&level=campus&level=campus&search=campname&namenum=harris&campus=101912166.

emission calculation requirements are adequate to assure compliance with the limits for Valero's refinery, and ensuring that limits are not unlawfully inflated for periods of startup, shutdown, and maintenance. EPA has recognized this in responding to a prior Title V permit petition. *See, e.g., In the Matter of United States Steel Corp. – Granite City Works*, Order on Petition No. V-2011-2 (Dec. 3, 2012) ("*Granite City Works* Order") at 4-6 (because of "potential environmental justice concerns" raised by the fact that "immediate area around the [] facility is home to a high density of low-income and minority populations and a concentration of industrial activity," "[f]ocused attention to the adequacy of monitoring and other compliance assurance provisions [was] warranted") (citing in part to Executive Order 12898 (Feb. 11, 1994)). 30

EPA itself has already recognized that there are significant environmental justice concerns for communities near the Valero Refinery: in issuing the Texas Environmental Collaborative Action Plan in 2016, EPA recognized the need to "work with proper authorities to investigate and address problematic permitted facilities," and identified Manchester, Galena Park, Pasadena, and nearby communities as requiring particular attention due to environmental justice concerns.³¹

The environmental justice concerns are further heightened here because Harris County, in which Valero's refinery is located, is currently designated serious nonattainment for the 2008 ozone National Ambient Air Quality Standard (NAAQS) and marginal nonattainment for the 2015 ozone NAAQS.³² Previously, the county was designated as severe nonattainment for the 1997 ozone NAAQS, but in late 2016, the county was redesignated as attainment for the 1997 standard.³³ Valero's emissions of hundreds of tons per year of ozone-precursors, including NOx and VOCs, contribute to the unhealthy levels of ozone in the county.³⁴

³⁰ Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order 12898 (Feb. 11, 1994); *see also* EPA, EJ 2020, https://www.epa.gov/environmentaljustice/ej-2020-action-agenda-epas-environmental-justice-strategy; EPA, Plan EJ 2014, Considering Environmental Justice in Permitting (2014), https://nepis.epa.gov/Exe/ZyPDF.cgi/P100ETRR.PDF?Dockey=P100ETRR.PDF.

³¹ EPA Region 6, Texas Environmental Justice Collaborative Action Plan at 4 (Aug. 3, 2016), https://www.epa.gov/sites/production/files/2016-12/documents/texas_ej_plan_8-3-16_final.pdf.

³² https://www3.epa.gov/airquality/greenbook/ancl.html

³³ 81 Fed. Reg. 78691 (Nov. 8, 2016).

³⁴ The ECHO Air Pollutant Report for the refinery—in addition to showing large amounts of VOCs released from the refinery (as detailed above)—shows that, based on NEI data, the refinery emitted 305,831.20 pounds of nitrogen oxides in 2014 and 272,338.60 pounds in 2017.

A. TCEQ'S Response Regarding These Environmental Justice Concerns Fails to Demonstrate That EPA Could or Should Ignore These Important Factors.

In its response to Petitioners' comments, TCEQ does not dispute that: (1) the communities near Valero's refinery are predominantly communities of color with a large, dense, low-income population; (2) these communities include large numbers of residents who face increased vulnerability due to their age; (3) Valero's refinery annually emit many tons of HAPs and other pollutants; and (4) the communities near the refinery are also surrounded by multiple other sources that emit large amounts of criteria pollutants and air toxics. Instead, TCEQ contends that "Title V permitting processes are not subject to making determinations of potential impacts to human health from air emissions." RTC at 108.

Petitioners are not suggesting that Executive Order 12898 creates an obligation that EPA (or TCEQ) "mak[e]" a specific "determination[] of potential impacts to human health from air emissions" from Valero's refinery. As EPA recognized in its Granite City Works Order, however, Executive Order 12898 informs EPA's review of the adequacy of Clean Air Act requirements—including Title V monitoring requirements for facilities in low-income communities or communities of color that are overburdened by pollution, like the community surrounding Valero's Houston refinery. See Granite City Works Order at 4-6. More specifically, in the Granite City Works Order, EPA recognized that: Executive Order 12898 "focuses federal attention on the environmental and human health conditions of minority populations and lowincome populations with the goal of achieving environmental protection for all communities;" Title V "can help promote environmental justice ... through the requirements for monitoring, compliance certification, reporting and other measures intended to ensure compliance with applicable requirements;" and "[f]ocused attention to the adequacy of monitoring and other compliance assurance provisions is warranted" when the "immediate area around the [relevant] facility is home to a high density of low-income and minority populations and a concentration of industrial activity." *Id.* at 5-6.35

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³⁵ In a Title V order issued at the eleventh hour before the recent change in presidential administrations, EPA asserted that it had no obligation to "conduct an EJ analysis during any of the permit actions at issue." *In the Matter of AK Steel Dearborn Works*, Order on Petition No. V-2016-16 (Jan. 15, 2021) ("AK Steel Order") at 18. EPA reached a similar conclusion in an order issued in 2019. See In the Matter of Piedmont Natural Gas, Inc.- Wadesboro Compressor Station, Order on Petition No. IV-2014-13 (March 20, 2019) ("Piedmont Natural Gas Order") at 10. Even if those orders were correctly decided (which Petitioners do not concede), they are inapposite here. Rather than addressing monitoring, reporting, and recordkeeping requirements or unlawful loopholes for startup, shutdown, and maintenance periods, the 2021 order addressed a claim that no agency had analyzed the disproportionate impact of the increased emissions permitted by the preconstruction and operating permits at issue, AK Steel Order at 16-19, and the 2019 order similarly addressed a claim requesting the evaluation of cumulative or secondary impacts of the facility at issue, Piedmont Natural Gas Order at 9-11. Further, these orders did not address EPA's prior Granite City Works order, where the agency, citing Executive Order 12898, correctly concluded that potential environmental justice concerns warranted "[f]ocused attention to the adequacy of monitoring and other compliance assurance provisions." Granite City Works Order at 4-6.

As EPA has elsewhere recognized, the "determination whether monitoring is adequate in a particular circumstance generally is a context-specific determination, made on a case-by-case basis." *In the Matter of Northeast Maryland Waste Disposal Authority- Montgomery County Resource Recovery Facility*, Order on Petition No. III-2019-2 (Dec. 11, 2020) ("MCRRF Order"). As part of that case-by-case determination, environmental justice factors, including the demographics of the surrounding community and amount of pollution burden borne by the community, are factors that must be considered in assessing whether a particular facility's monitoring and emission calculation methods are adequate to ensure compliance with the relevant applicable requirements. In communities that are disproportionately impacted by large amounts of pollution, it is especially important to ensure that members of the surrounding community can determine whether a facility that is releasing pollution that threatens their health is actually meeting its limits—and that those limits are not unlawfully inflated for periods of maintenance, startup, and shutdown.

Even though TCEQ states that Title V does not require it to make a determination of health impacts, TCEQ also asserts that it "determined that the emissions authorized by this permit are protective of both human health and welfare." RTC at 108. TCEQ adds that the health-based standards "employed in evaluating the potential emissions" include the NAAOS. "TCEQ standards contained in 30 TAC," and TCEQ Effects Screening Levels ("ESLs"). Id. at 107. Under TCEQ's apparent position, environmental justice and health concerns related to air pollution can only be present in areas that do not attain the NAAQS, TCEQ's ESLs, or certain unnamed "TCEQ standards contained in 30 TAC." Not so. Even in areas that meet the NAAQS (or TCEQ's ESLs), emissions of air pollution from a particular source can severely impact the health of surrounding fenceline communities. For example, ozone and particulate matter have no known safe levels. E.g., Clean Wisc. v. EPA, 964 F.3d 1145, 1158 (D.C. Cir. 2020) ("[N]o 'threshold concentration below which' ground-level ozone is 'known to be harmless.'") (citation omitted); Proposed Particulate Matter NAAQS, 85 Fed. Reg. 24,094, 24,108, 24,109 (Apr. 30, 2020). Similarly, as EPA has emphasized, air pollution during startup, shutdown, and malfunction events at industrial facilities has "real-world consequences that adversely affect public health." 80 Fed. Reg. 33,840, 33,850 (June 12, 2015). EPA has also recognized that ambient air monitors will not detect every NAAQS violation, particularly given the limited monitoring networks in many states. Id. at 33,939.

TCEQ also ignores that, as discussed above, Valero's refinery emits large amounts of HAPs regulated under Clean Air Act § 112, 42 U.S.C. § 7412. Congress listed HAPs under § 112 due to their "inherently harmful characteristics," even at low levels of exposure. 80 Fed. Reg. 75,025, 75,031/1 (Dec. 1, 2015); S. Rep. No. 101-228, at 5 (1989), as reprinted in 1990 U.S.C.C.A.N. 3385, 3391. Even in small doses, they "cause or contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness." H.R. Rep. No. 101-490, pt.1, at 315 (1990) (quotation marks omitted). Valero's emissions of these HAPs

can cause significant health effects—including cancer and chronic non-cancer and acute health risks.³⁶

NEI data shows that Valero's Houston refinery emits large amounts of individual HAPs. For example, the NEI data shows that, in 2017, the refinery emitted the following pounds of the following HAPs regulated under § 112: 85,183.80 pounds hydrogen cyanide; 11,081 pounds toluene; 8,562.00 pounds xylene; and 6,319.40 pounds benzene. Exposure to these HAPs can cause a range of significant acute and long-term adverse health effects. California includes toluene as a developmental toxicant.³⁷ The long-term health effects of xylene include memory impairment, red and white blood cell abnormalities, abnormal heartbeat (in laboratory workers), liver damage, mutagenesis (mutations of genes), reproductive system effects, and death due to respiratory failure.³⁸ And benzene is a known carcinogen that can cause leukemia.³⁹

Further, TCEQ ignores that the communities surrounding Valero's refinery have experienced persistent problems complying with the NAAQS for ground-level ozone, as discussed above. In sum, TCEQ has not demonstrated that Valero's emissions do not impair air quality or otherwise harm health in surrounding communities.

In its response to comments, TCEQ also asserts that EPA's ECHO database may have "inadvertently assigned" high priority violator status for the refinery. RTC at 145. Even if this is true, it does not make the environmental justice concerns here any less pressing, given the undisputable "high density of low-income and minority populations and [] concentration of industrial activity" at issue here. *See Granite City Works* Order at 4-6. Further, the flares at Valero's Houston refinery have experienced serious problems complying with the flare requirements that EPA promulgated in 2015 in 40 C.F.R. Part 63, Subpart CC for petroleum refineries—requirements that are designed to reduce emissions of HAPs. *See infra* at 56-57.

In sum, TCEQ's response to comments does not rebut the fact that this permit involves significant environmental justice concerns—and does nothing to change EPA's responsibility to ensure that the Title V permit at issue here fully complies with the Clean Air Act and to protect

 $\frac{\text{https://emergency.cdc.gov/agent/benzene/basics/facts.asp\#:} \sim : \text{text=The} \% 20 \text{Department} \% 20 \text{of} \% 20 \text{Health} \% 20 \text{and,of} \% 20 \text{the} \% 20 \text{blood} \% 2D \text{forming} \% 20 \text{organs.}$

³⁶ See EPA's Final Residual Risk Assessment for the Petroleum Refining Source Sector (Sept. 2015), EPA-HQ-OAR-2010-0682-0800.

³⁷ OEHHA, Toluene, https://oehha.ca.gov/chemicals/toluene

³⁸ Zoveidavianpoor, M., A. Samsuri, and S. R. Shadizadeh, "The Clean Up of Asphaltene Deposits in Oil Wells,"

Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 35 (2013), 22–31 <doi:10.1080/15567036.2011.619630>

³⁹ CDC, Facts About Benzene,

the overburdened, low-income communities of color near Valero's refinery from disproportionate adverse impacts of air pollution from the facility.

II. TCEQ FAILED TO PROVIDE NOTICE TO THE PUBLIC THROUGH A MAILING LIST.

As Petitioners' comments pointed out (Initial Comments at 33-34), TCEQ has failed to fulfill the requirement from 40 C.F.R. § 70.7(h)(1) that it create a mailing list and use that list to provide adequate notice to the affected Petitioners as concerned members of the public about the opportunity to comment on the draft of Valero's Title V permit. Section 70.7(h)(1) requires that notice of the public comment period on a draft Title V permit "shall be given to persons on a mailing list developed by the permitting authority using generally accepted methods (e.g., hyperlink sign-up function or radio button on an agency Web site, sign-up sheet at a public hearing, etc.) that enable interested parties to subscribe to the mailing list." Furthermore, federal regulations require that "[t]he permitting authority shall provide at least 30 days for public comment and shall give notice of any public hearing at least 30 days in advance of the hearing." *Id.* § 70.7(h)(4). TCEQ's Title V regulations similarly require this. *See* 30 Tex. Admin. Code § 122.320(b)(9).

Yet, TCEQ did not provide notice "to persons on a mailing list" for Valero's draft Title V permit for Petitioners t.e.j.a.s. and Sierra Club who specifically requested this notice for any such permits for the Valero Houston facility on April 10, 2018. Petitioners t.e.j.a.s. and Sierra Club filed comments with TCEQ on a proposed change to Valero's NSR permit 2501A to add a limit for hydrogen cyanide on April 10, 2018. Those comments clearly and specifically stated that "Commenters also request to be added to the mailing list for this permit amendment and future permit actions for this Valero facility." April 2018 Comments at 1. Yet, TCEQ did not create a mailing list or send notice of the draft Title V Permit to these Petitioners.

Moreover, community residents have expressed concerns about air pollution from this facility for quite some time as shown in prior comments, and TCEQ certainly is aware of that concern. Yet TCEQ made no attempt to reach out directly to community residents to notify them of the draft Title V proceeding; it simply relied on Valero to publish the newspaper notice.

Further, the Manchester/ Harrisburg Super Neighborhood 65 which is the area of Houston most directly impacted by the Valero Manchester Refinery is predominately Hispanic with over 82% of the total population of 2,926 in this defined area being Hispanic in ethnicity. Seventy percent of the residents in the Super Neighborhood speak Spanish at home. ⁴² Given this

⁴⁰ Comments filed by Petitioners (Apr. 10, 2018), https://www14.tceq.texas.gov/epic/eCID/index.cfm?fuseaction=main.download&doc_id=1455363920181 01&doc_name=Valero%20HCN%20Permit%20Comments%5F04%2D10%2D2018%2Epdf.

⁴¹ City of Houston, Planning Department, Super Neighborhood 65 Statistics for 2015 at 1 (Published Nov. 2017), available at

https://www.houstontx.gov/planning/Demographics/docs_pdfs/SN/65_Harrisburg_Manchester.pdf

⁴² *Id.* at 4 (citing U.S. Census Bureau, 2000, American Community Survey, 2011-2015 Estimates).

obvious language barrier for the majority of the residents of the impacted area, it is even more important that affected community groups—including Petitioners t.e.j.a.s. and Caring for Pasadena Communities—receive early notice so that they can translate and disseminate information to residents who may not otherwise have access to information on the draft permit. Grassroots community organizations like Petitioners t.e.j.a.s and Caring for Pasadena Communities, serve a special role in being able to inform fenceline communities regarding administrative actions in their native language to increase their understanding of the proposed action and how it might impact them. Not only does it benefit the residents most impacted but also TCEQ as well to ensure meaningful public participation.

According to EPA's policy guidance on Limited English Proficiency ("LEP") for recipients of EPA financial assistance, which was published pursuant to EO 13166, TCEQ's affirmative duty to ensure meaningful access includes "an obligation to reduce language barriers that can preclude meaningful access by LEP persons to important government services." Thus, if TCEQ can provide direct notice to community groups and individuals who have expressed interest in receiving notices concerning any proposed action on a facility's permit, TCEQ should be utilizing these conduits to the impacted community to maximize notice and reduce language barriers. This is especially important given the environmental justice issues present here, as discussed above.

Without this advance notice, Petitioners lost time they needed to review and prepare to comment on the draft Title V permit, and to seek additional information from TCEQ to be able to meaningfully comment. Regardless, as courts have explained, public notice defects are objectionable without the need to show any harm, because notice is a core requirement in Title V's protections for public participation. *N.Y. Pub. Interest Research Gr. v. Williams*, 321 F.3d 316, 332-33 (2d Cir. 2003); *Sierra Club v. Johnson*, 436 F.3d 1269, 1275, 1279-80 (11th Cir. 2006).

Here, the Clean Air Act and EPA's own regulations do not allow EPA unfettered discretion to ignore obvious violations of Title V permit program requirements. *Johnson*, 436 F.3d at 1279. TCEQ does not escape these requirements either and should be held to account by EPA for this lack of required notice. "Simply put, [EPA] is required to object to permits that violate the Clean Air Act." *Johnson*, 436 F.3d at 1279. "This duty to object to such permits is a nondiscretionary duty." *Johnson*, 436 F.3d at 1279 (citing 136 Cong. Rec. S16,895, 16,944 (1990); *see also N.Y. Pub. Interest Research Group*, 321 F.3d at 333 n. 12 (quoting same)). Thus, the failure to create and utilize a mailing list is a violation that cannot simply be ignored.

Despite Petitioners' significant comment raising this issue, TCEQ, in its response to comments, failed to offer any response to Petitioners' concerns, in violation of Title V requirements (as reflected in 40 C.F.R. § 70.7(h)(6)). Thus, Petitioners cannot "explain how

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⁴³ Guidance to Environmental Protection Agency Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons, 69 Fed. Reg. 35,602, 35,604 (June 25, 2004).

[TCEQ's] response to the comment is inadequate to address the issue raised in the public comment." See 40 C.F.R. § 70.12(a)(2)(vi).

III. THE PROPOSED PERMIT FAILS TO INCORPORATE, DESCRIBE, AND ASSURE COMPLIANCE WITH PERMITS BY RULE.

TCEQ's practice of allowing major sources, like Valero's Houston refinery, to authorize significant quantities of emissions and construction using permits by rule ("PBRs") has resulted in serious, statewide problems tracking the amount of pollution major sources are actually authorized to emit. It has also made it easier for major sources to circumvent major NSR preconstruction permitting requirements by allowing operators to artificially split projects up into multiple, purportedly unrelated permit applications to mask significant net emissions increases and by allowing operators to revise major preconstruction permit requirements using PBRs instead of the appropriate NSR permit amendment process. See 30 Tex. Admin. Code § 116.116(d)(1). Nowhere, aside from the smog-filled skies of Texas's perpetual nonattainment areas, are the problems arising from Texas's mismanagement of its PBR program more apparent than in the state's Title V permits. EPA has long recognized that Texas's Title V permits, like the proposed Title V Permit here, are uncrackable riddles that raise questions where they should provide answers. In 2010, EPA's Region 6 Administrator wrote that Texas's method of incorporating PBR requirements by reference into Title V permits was "contributing to ambiguous, unenforceable Title V permits," noting in particular the problems of "PBRs that purport to modify Major NSR emission limits and that lead to the controlling limit not being reflected in the body of the Title V permit ... and the practical inability of EPA and the public to determine the applicable emission limitations and standards for each particular emissions unit." Letter from Al Armendariz, Regional Administrator, EPA Region 6, to Mark Vickery, Executive Director, TCEQ (June 10, 2010). Since then, EPA has repeatedly objected to Texas Title V permits in response to petitions filed by EIP citing failures to establish clear and enforceable limits for units that are authorized or partially authorized by PBR. See, e.g., See In the Matter of Motiva Enterprises LLC, Port Arthur Refinery ("Motiva Order"), Order on Petition No. VI-2016-23 at 30 (May 31, 2018) ("Petitioners have demonstrated that the title V permit contains no direct reference to certain source-specific requirements (e.g., certified emission limits) derived from registered PBRs, and, therefore, it is not clear whether the title V permit currently includes or incorporates all requirements that are applicable to the facility[.]"); In the Matter of ExxonMobil Corporation, Baytown Refinery, Order on Petition No. VI-2016-14 at 20-22 (April 2, 2018) ("In sum, because the Permit contains no direct reference to certain source-specific requirements ... derived from registered PBRs, it is not clear that the Permit currently includes or incorporates all requirements that are applicable to the facility[.]"); Objection to Title V Permit No. O2269, ExxonMobil Baytown Chemical Plant (January 23, 2020) at 1-10 ("In responding to this objection, TCEQ should amend the title V permit and permit record as necessary to specify monitoring, recordkeeping, and reporting requirements that assure compliance with the PBRs referenced above.").

Instead of correcting its PBR program to address these objections and to ensure that major sources in Texas nonattainment areas are subject to clear and enforceable emission limits

that are protective of public health, TCEQ continues to issue Title V permits, like the proposed Title V Permit here, that establish inscrutable and unenforceable emission limits. And instead of making these permits better in response to EPA's objections, TCEQ insists on simply making them more complicated.

Petitioners' public comments explained that the draft Title V permit's incorporation of applicable PBR requirements was deficient for the following reasons: (1) it failed to incorporate source-specific requirements established by Valero's PBR registrations under 30 Tex. Admin. Code § 106.6; (2) it failed to adequately explain how generic PBR emission limits applied to equipment at the refinery; and (3) the draft Title V permit failed to identify specific monitoring, testing, and recordkeeping conditions sufficient to assure compliance with applicable PBR requirements.⁴⁴ Initial Comments at 37-50. These failures rendered the draft Title V permit deficient, because each Title V permit must include and assure compliance with all applicable requirements. 42 U.S.C. § 7661c(a), (c); 40 C.F.R. § 70.6(a), (c).

The solution to these problems is not hard to understand. First, the Executive Director should have revised the Title V permit's New Source Review Authorization References attachment to list Valero's source-specific PBR registrations, just like it lists the refinery's other source specific Chapter 116 permits and the generic Chapter 106 PBRs that Valero has claimed. Second, where Valero has claimed multiple PBRs to authorize a particular unit, unit group, or process, or has claimed the same PBR multiple times to authorize different projects at the refinery, or where Valero has used one or more PBR registrations to modify requirements in an existing NSR permit, the revised Title V permit should included an attachment listing the controlling limits for each such unit, unit group, or process. Third, the Executive Director should have revised the Title V permit to establish specific monitoring, testing, and/or recordkeeping requirements sufficient to assure compliance with each of these limits. While, admittedly, this would be a lot of work, it is work that is required by the Clean Air Act and its implementing regulations. And it should not be too much to ask for major sources of pollution located in highly populated nonattainment areas, such as Valero's Houston refinery, to be subject to clearly specified and practically enforceable limits that are actually protective of public health.

Unfortunately, the Executive Director did not make any of these changes. Instead, he made the following changes to the draft Title V permit that only serve to make it more confusing:

First, the Executive Director added language to the proposed Title V Permit's conditions explaining which New Source Review authorizations establish applicable requirements for the Houston refinery that reference "PBR Supplemental Tables in the application." RTC, Modifications Made from Draft to the Proposed Permit at 1.

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⁴⁴ Petitioners' public comments distinguish between PBRs and Standard Exemptions incorporated by reference into the draft Title V permit. For convenience, this petition will refer to PBRs and Standard Exemptions as PBRs. Texas's Standard Exemption program predates the PBR program and the two programs are largely identical in substance and purpose.

The Executive Director also added several PBR registration numbers to the Proposed Title V Permit's New Source Authorization References by Emission Unit table, though he failed to identify this change in his response to comments.

Finally, the Executive Director deleted some previously-referenced PBRs from the proposed Title V Permit and added some others. RTC, Modifications Made from Draft to the Proposed Permit at 2-3.

For the reasons provided below, which are the same reasons Petitioners provided in their public comments and in previous petitions asking EPA to object to other Texas Title V permits, these changes do not correct the deficiencies demonstrated by Petitioners' public comments.

A. The Proposed Title V Permit Fails to Incorporate and Assure Compliance With Source-Specific Requirements in Valero's PBR Registrations.

TCEQ's PBR rule at 30 Tex. Admin. Code § 106.6 allows operators to register PBR authorizations to establish limits that are lower than the generic limits established by § 106.4 and the various PBRs found in Chapter 106, Subchapter C through X. Petitioners' initial comments identified many such PBR registrations that had not been incorporated into the draft Title V permit and explained that the permit was deficient because it failed to include these source specific applicable requirements. Initial Comments at 39. *See also* Ex. 4, Permit By Rule Registration List (updated list includes two PBR registrations finalized after the close of the public comment period). The draft Title V permit's incorporation of the Chapter 106 rules was not sufficient to assure compliance with the source specific registrations, because the generic limits in the 106 rules, by definition, are higher than the source specific requirements established through the § 106.6 registration process. *See* Motiva Order at 30.

In response to these comments, the Executive Director declined to directly add the applicable PBR registration numbers to the proposed Title V Permit's New Source Review Authorization References attachment, which, according to Special Condition No. 23, identifies the New Source Review authorizations that constitute applicable requirements for Valero's Houston refinery. Instead, the Executive Director revised Special Condition No. 23 to add PBRs listed in "PBR Supplemental Tables in the application" to the list of the kinds of permits that establish applicable requirements for Valero's refinery. But, according to the revised condition, the Title V permit only incorporates the permits listed in its New Source Review Authorization References attachment:

Permit holder shall comply with the requirements of New Source Review authorizations issued or claimed by the permit holder for the permit area, including permits, permits by rule (*including the permits by rule identified in the PBR Supplemental Tables in the application*), standard permits, flexible permits, special permits, permits for existing facilities including Voluntary Emissions Reduction Permits and Electric Generating Facility Permits issued under 30 TAC Chapter 116, Subchapter I, or special exemptions *referenced in the New Source Review Authorization References attachment*. These requirements:

- A. Are incorporated by reference into this permit as applicable requirements
- B. Shall be located with this operating permit
- C. Are not eligible for a permit shield

Proposed Title V Permit, Special Condition No. 23 (emphasis added).

But the proposed permit's New Source Review Authorization References attachment, Proposed Title V Permit at 207-208, does not list *any* PBR registration numbers as applicable requirements. Accordingly, none of the PBR registration numbers listed in the one or more PBR Supplemental Tables are unambiguously incorporated into the Title V permit. The Executive Director could have easily revised the New Source Review Authorization References attachment to include Valero's PBR registration numbers, just like it includes all the other Chapter 116 NSR permits and Generic Chapter 106 PBRs claimed by Valero, but he did not. Instead, of fixing the permit, he made it more complicated, and more unclear.

And the problem here is not just that the Executive Director botched the incorporation by reference of Valero's PBR registrations. The proposed permit would still be deficient even if Special Condition No. 23 successfully incorporated all the PBR registrations listed in Valero's PBR Supplemental Table(s). This is so, because the Title V permit itself must identify the specific permits it incorporates and may not simply incorporate by reference one or more application documents that, in turn, incorporate by reference the applicable permit numbers. While EPA has indicated that Texas may incorporate PBR requirements into Title V permits by reference, it has never approved the practice of incorporating by reference application representations that incorporate PBR requirements by reference. This practice violates both 40 C.F.R. § 70.6(a) and 30 Tex. Admin. Code § 122.142(b)(2)(B), which require Title V permits, rather than applications, to specify the applicable regulatory requirements. Special Condition No. 23's ambiguous reference to an unspecified number of tables in an unidentified application is also inconsistent with EPA's determination that:

In order for incorporation by reference to be used in a way that fosters public participation and results in a title V permit that assures compliance with the Act, it is important that: (1) referenced documents be specifically identified; (2) descriptive information such as the title or number of the document and date of the document be included so that there is no ambiguity as to which version of a document is being referenced; and (3) citations, cross references, and incorporations by reference are detailed enough that the manner in which any referenced material applies to a facility is clear and is not reasonably subject to misinterpretation.

In the Matter of United States Steel Corp., Granite City Works, Response to Petition No. V-2009-03 at 43 (January 31, 2011).

Valero has submitted many different applications to the TCEQ related to Title V Permit No. O1381. The Proposed Title V Permit is deficient because it fails to indicate which of these many applications contain an applicable PBR Supplemental Table. Petitioners were unable to locate any such tables using the databases identified in the response to comments. RTC at 35-36.

B. The Proposed Title V Is Deficient Because It Fails to Include Information Necessary to Determine How Claimed PBRs Apply to Valero's Refinery.

In addition to the PBRs Valero has registered under 30 Tex. Admin. Code § 106.6, Valero has claimed many unregistered PBRs to authorize construction and emissions from its Houston refinery. Incorporation by reference of these unregistered PBR requirements into Title V permits is inconsistent with the Clean Air Act unless two conditions are met: (1) information incorporated by reference into a Title V permit is readily available to the public and regulators; and (2) Title V permits provide information that clearly and unambiguously explains how incorporated emission limits apply to emission units at the permitted source. *In the Matter of Citgo Refining and Chemicals, West Plant, Corpus Christi*, Order on Petition No. VI-2007-01 at 12, n5 (May 28, 2009); *In the Matter of Shell Chemical LP and Shell Oil Co., Deer Park Chemical Plant and Refinery* ("Deer Park Order"), Order on Petition Nos. IV-2014-04 and IV-2014-05 at 10-11 (Sept. 24, 2015). The Proposed Title V Permit's method of incorporating Valero's unregistered PBR authorizations by reference fails to meet the second condition, because the Proposed Title V Permit omits information necessary for readers to determine (1) how the emission limits in PBRs claimed by Valero apply to units at the Houston refinery; and (2) which emission units at the refinery are subject to requirements in each of the claimed PBRs.

Before any actual work is begun on a new or modified facility, an operator must obtain a permit or permit amendment authorizing the project. 30 Tex. Admin. Code § 116.110(a). To authorize construction of new or modified facilities, an operator may apply for a new or amended Chapter 116 case-by-case permit. Id. at §§ 116.110 and 116.111. In lieu of applying for a new or amended case-by-case permit under § 116.111, an operator may instead claim a PBR (or PBRs) to authorize construction of modification of a facility, so long as the proposed construction project complies with PBR requirements. See, e.g., id. at §§ 106.4 (stating that construction may be authorized by PBR) and 116.116(d) (stating that a PBR may be used in lieu of a permit amendment to authorize construction). While each Chapter 116 NSR permit is assigned a unique permit number and includes source-specific emission limits and special conditions based on the Executive Director's review of the operator's application, PBRs establish generic emission limits and operating requirements that apply to all new and modified facilities authorized by PBR (unless the operator registers PBR emissions at lower rates—see, id. at § 106.6). These generic requirements are found in Texas's PBR rules. When construction of a new or modified emission unit authorized by PBR, the PBR (or PBRs) claimed by the operator—i.e., the rule itself—is the permit authorizing the project. See, e.g., id. at § 106.261 ("[F]acilities, or physical or operational changes to a facility, are permitted by rule provided that all of the following conditions of this section are satisfied.").

Thus, while the Proposed Title V Permit identifies incorporated Chapter 116 NSR permits by listing their unique permit numbers and the dates on which they were issued, the proposed permit identifies applicable PBRs by rule number and the date that each rule was promulgated (not the date(s) the PBR was claimed to authorize construction at the Houston refinery). Proposed Title V Permit at 207-208. This way of listing applicable requirements is misleading because it suggests that each claimed PBR, like the Chapter 116 NSR permits

identified in the Proposed Title V Permit, is a single authorization. This suggestion is misleading because Valero has claimed some PBRs multiple times to authorize multiple projects involving one or more emission units at the Houston refinery.

Each PBR submission may involve one or more claimed PBRs that establish limits that apply to a single emission unit or to multiple emission units. Additionally, Valero may claim the same PBR in different submissions to authorize multiple modifications to different emission units. Unless the Proposed Title V Permit provides information identifying each emission unit covered by each claimed PBR *for each submission*, it is impossible to tell how much each emission unit is authorized to emit under PBRs claimed by Valero.

For example, the Proposed Title V Permit's New Source Review Authorization References by Emissions Unit table indicates that Valero has claimed the PBRs at § 106.261 without registering source specific requirements to authorize emissions from the following eleven emissions units, unit groups, and processes:

PBR/Standard Exemption Rule No.	Authorization Category	Date of Rule	Covered Emissions Units, Unit Groups, and Processes
106.261	Facilities (Emission	11/1/2003	39CB2001 (Tail Gas Incinerator Unit 39 SRU), 41BA101 (D Unifiner
	Limitations)		RX Furnace), 41BA102 (D Unifiner Reboiler), 46CB6301 (Tail Gas Incinerator Unit 46 SRU), 47AD5409 (DAF Unit), 50BF02 (Boiler No.2), 50BF03 (Boiler No.
			3), 81BF01 (Boiler No. 1), 90DOCK1 (Marine Loading Dock No. 1), 90DOCK2 (Marine Loading Dock No.2), PROCVENT (Process Analyzer Vents)

Proposed Title V Permit at 209-230.

This PBR does not include any emission limits for federally regulated criteria pollutants, so the emission limits at 30 Tex. Admin. Code § 106.4(a)(1) apply. However, one cannot tell, based on information contained in the Proposed Title V Permit and the incorporated PBR, whether changes to or construction of each of the 11 units/unit groups were authorized as part of the same submission or as different projects. This matters, because if construction or modification of each unit was separately authorized—meaning the PBR has been claimed 11 times—each unit may emit up to the 30 Tex. Admin. Code § 106.4(a)(1) limits, while the units' combined emissions must remain below those same limits if construction of or modifications to all of those units was authorized as part of the same submission/project. The difference between these two scenarios is significant: If all the construction of or changes to all of these units was authorized as part of the same submission, then their combined VOC emissions must remain

below 25 tons per year. 30 Tex. Admin. Code § 106.4(a)(1)(A). If each unit or unit group was individually authorized, then the combined VOC emissions from the units allowed under § 106.4 would be 275 tons per year (25 tons per year * 11 emission units/unit groups). *Id.* Because the Proposed Title V Permit is ambiguous as to whether these units and unit groups at Valero's Houston refinery are authorized to emit 25 tons per year of VOC, 275 tons per year of VOC, or some other amount, it fails to specify and assure compliance with applicable emission limits. The Proposed Title V Permit is deficient for the same reason with respect to each pollutant that each emission unit is authorized without registration under § 106.261.

This same problem also applies to the following PBRs incorporated by reference into the Proposed Title V Permit to authorize multiple emission units or unit groups:

PBR/Standard Exemption Rule No.	Authorization Category	Date of Rule	Covered Emissions Units, Unit Groups, and Processes
106.122	Bench Scale Laboratory Equipment	9/4/2000	92EF1A, 92EF1B, 92EF1C, 92EF2, 92EF3, 92EF4, 92EF5 (Laboratory Vents)
106.262	Facilities (Emission and Distance Limitations)	11/1/2003	90DOCK1 (Marine Loading Dock No. 1), 90DOCK2 (Marine Loading Dock No. 2)
106.412	Fuel Dispensing	3/14/1997	91FA9001, 91FA9003 (Contractor Refueling – Diesel), 91FA9003 (Contractor Refueling – Gasoline)
106.472	Organic and Inorganic Liquid Loading and Unloading	3/14/1997	27TANK2 (No. 2 Oil), 41TANK (SS-99), 42FA2099V, 42TANK3, 42TANK4, 42TANK5, 44FA3099, 44FB3097, 44FB3098, 45TANK1, 46FA6299V, 47FA5412, 47FA5494 (Degreaser Storage), 45FB7499V (Chemical Inhibition Storage), 47FA5493 (Diesel Storage Tank)
106.472	Organic and Inorganic Liquid Loading and Unloading	9/4/2000	42FB2801, 50FA6 (Storage Tanks)
106.478	Storage Tank and Change of Service	3/14/1997	47FB509, 90FB722, 91FB931 (Tanks)

106.492	Flares	9/4/2000	90CB5601 (Marine Loading Dock No. 1 Thermal Oxidizer), 90DOCK1 (Marine Loading Dock No. 1)
106.511	Portable and Emergency Engines and Turbines	9/4/2000	42GG1730 (FCC Emergency Engine), 42GG1848 (CIWA Firewater Pump Engine No. 1), 42GG1849 (CIWA Firewater Pump Engine No. 2), 47GG1523 (Pump Engine at WWT), 81GEN001 (Boiler House Diesel Emergency Generator), 90GG2245 (Sims Bayou Firewater Pump Engine), 96GENC20D6 (Emergency Diesel Generator), 97GE2999 (Backup Diesel Generator), CCRGEN (Central Control Room Emergency Generator)
106.533	Remediation	7/4/2004	5GCVS (GW Recovery CVS), 5GFUG (GW Recovery Fugitives), 5GTRANSFER (MACT 5G Transfer Systems), 81SKD5602, 81SKD5603 (Groundwater Recovery Thermal Oxidizers (Phase II), 96FUG (Recovery Well System Fugitives)
51	Liquid Loading or Unloading, Equipment for Railcars, Tank Trucks, or Drums; Storage Containers, Reservoirs, Tanks; and Change of Service of Material Loaded, Unloaded	7/20/1992	42FB2097V (Stabilizer Storage), 42FB2499 (Compressor Inhibitor), 42FB2699 (Demulsifier Storage), 42FB2099V (Nickel Passivator Storage)
86	Fixed or Floating Roof Storage	6/7/1996	90FB723, 91FB924 (Tanks)

Tank, or Change		
of Service in any		
Tank, Used to		
Store Chemicals		
or Mixtures of		
Chemicals Shown		
in Table 86A		

Proposed Title V Permit at 209-230.

The Proposed Title V Permit is also deficient because it fails to identify any units, unit groups, or processes subject to PBRs at 106.263 and 79, which are listed as applicable requirements in the New Source Review Authorization References attachment. Because the Proposed Title V Permit fails to identify the emission units authorized by and subject to the requirements in these claimed rules, it is completely opaque as to how the PBRs apply to emission units at Valero's Houston refinery and thereby undermines the enforceability of PBR requirements. Objection to Title V Permit No. 02164, Chevron Phillips Chemical Company, Philtex Plant (Aug. 6, 2010) at ¶7 (draft permit fails to meet 40 C.F.R. § 70.6(a)(1) and (3) because it does not list any emission units authorized under specified PBRs); Deer Park Order at 11-15. Moreover, even if an interested party is able to determine which emission units should be subject to these PBRs, a court is unlikely to enforce these requirements, because the Proposed Title V Permit fails to identify them as applicable for any specific emission unit or units at the Houston refinery. See, United States v. EME Homer City Generation, 727 F.3d 274, 300 (3d Cir. 2013) (explaining that court lacks jurisdiction to enforce requirements improperly omitted from a Title V permit). Because this is so, the Proposed Title V Permit fails to identify and assure compliance with all applicable requirements. 42 U.S.C. § 7661c(a).

C. The Proposed Title V Permit Fails to Specify Monitoring, Testing, and Recordkeeping Methods That Assure Compliance with Applicable PBR Requirements.

The Proposed Title V Permit is deficient because it fails to establish monitoring, reporting, and recordkeeping requirements that assure ongoing compliance with emission limits and operating requirements in the following PBRs claimed by Valero to authorize construction and emissions at the Houston refinery:

106.122	9/4/2000
106.261	3/14/1997
106.261	12/24/1998
106.261	9/4/2000

106.261	1/11/2003 ⁴⁵
106.261	11/1/2003
106.261	11/3/2003 ⁴⁶
106.262	11/1/2003
106.263	11/1/2001
106.264	3/14/1997
106.371	9/4/2000
106.412	3/14/1997
106.472	3/14/1997
106.472	9/4/2000
106.473	3/14/1997
106.492	9/4/2000
106.511	9/4/2000
106.533	7/4/2004
5	9/12/1989
51	7/20/1992
51	6/7/1996
53	10/4/1995
102	1/8/1980
111	9/12/1989
118	6/7/1996

Proposed Title V Permit at 207-208.

The PBR at 106.122 provides that "[b]ench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analyses are permitted by rule," and does not specify any monitoring or testing requirements that assure compliance with emission limits and operating requirements for units and processes authorized under this PBR. 30 Tex. Admin. Code § 106.122.

⁴⁵ This entry is an error that should be corrected. There was no version of § 106.261 issued on 1/11/2003.

 $^{^{46}}$ This entry is also erroneous. There was no version of § 106.261 issued on 11/3/2003.

The current and previous versions of the PBR at 106.261, 106.262, and Standard Exemption 118 incorporated by reference into the Proposed Title V Permit provide a general authorization to construct units and processes that are not covered by other PBRs. These PBRs establish emission limits for various chemicals listed in the rule, leaving other chemicals subject to emission limits at 106.4. The previous and current versions of PBR 106.261, 106.262, and Standard Exemption 118 incorporated into the Proposed Title V Permit do not specify any monitoring or testing requirements that assure compliance with emission limits and operating requirements for units and processes authorized under these PBRs.

The version of the PBR at 106.263 that is incorporated into the Proposed Title V Permit may be used to authorize routine maintenance activities, routine start-ups and shutdowns, and temporary maintenance facilities that are constructed in conjunction with maintenance activities. 30 Tex. Admin. Code § 106.263(c) (11/1/2001). The rule establishes several emissions limits and incorporates requirements from other listed PBRs. While the rule does require facility owners to retain records containing sufficient information to demonstrate compliance with the emission limits, *see id.* at § 106.263(g), neither the PBR nor the Proposed Title V Permit identify any specific monitoring or testing methods that assure compliance with the applicable limits and operating requirements established by 106.263.

The versions of the PBR at 106.264 and Standard Exemption 111 incorporated by reference into the Proposed Title V Permit authorize the construction of replacement facilities, subject to constraints and limits specified by the rule. *See*, *e.g.*, 30 Tex. Admin. Code § 106.264(6) (9/4/2000) (providing that the PBR may not be claimed to authorize replacement facilities that will emit "hazardous constituents" listed in 40 C.F.R. 261, Appendix VIII). These PBRs, however, do not specify any monitoring or testing requirements that assure compliance with the applicable limits and operating requirements for the units they authorize.

The version of the PBR at 106.371 incorporated by reference into the Proposed Title V Permit authorizes the construction of water cooling towers, water treating systems for process cooling or boiler feedwater, and water tanks, reservoirs, or other water containers designed to cool, store, or otherwise handle water that has not been used in direct contact with gaseous or liquid process streams containing carbon compounds, sulfur compounds, halogens or halogen compounds, cyanide compounds, inorganic acids, or acid gases. 30 Tex. Admin. Code § 106.371 (9/4/2000). The PBR, however, does not specify any monitoring or testing requirements that assure compliance with the applicable limits and operating requirements for units authorized by the PBR.

The version of the PBR at 106.412 incorporated by reference into the Proposed Title V Permit authorizes "[e]quipment used exclusively to store and dispense motor fuels into heavy and light- duty motor vehicles and marine vessels or other watercraft, aircraft, and railroad locomotive engines," but does not specify any monitoring or testing requirements that assure compliance with the applicable limits and operating requirements for units authorized by the PBR. 30 Tex. Admin. Code § 106.412 (3/14/1997).

The versions of the PBR at 106.472 and Standard Exemption 51 incorporated by reference into the Proposed Title V Permit authorize organic and inorganic liquid loading and unloading. These PBRs do not specify any testing or monitoring requirements that Valero must use to assure compliance with applicable emission limits for units and activities authorized by these PBRs.

The version of the PBR at 106.473 and Standard Exemption 53 incorporated by reference into the Proposed Title V Permit authorize organic liquids loading or unloading equipment and storage containers, tanks, or change of service for such equipment subject to several restrictions. For example, 106.473(1) (3/14/1997) provides that uncontrolled emissions from the authorized equipment is less than 25 tons per year of organic compounds or any other air contaminant, as calculated by the version of AP-42 in effect at the time a project is constructed and (5) provides that facilities constructed under this PBR must meet any applicable requirements of Chapter 115 (relating to Control of Air Pollution from Volatile Organic Compounds). The 25 ton per year limit is not sufficient to assure compliance with Texas's major NSR requirements for sources located in severe ozone nonattainment areas, which requires a nonattainment NSR ("NNSR") applicability analysis for all projects that increase VOC emissions by more than five tpy and an NNSR permit for all projects that result in a net VOC increase of 25 tpy. 30 Tex. Admin. Code § 116.150. Thus, the Proposed Title V Permit must identify the applicable limits that assures compliance with NNSR requirements and specify monitoring and testing requirements that assure compliance with these limits.

The version of the PBR at 106.492 incorporated by reference into the Proposed Title V Permit authorizes smokeless flares that meet various operational requirements specified by the rule. The PBR, however, does not identify any testing or monitoring requirements that assure compliance with applicable emission limits for units authorized by the PBR.

The version of the PBR at 106.511 and the Standard Exemption 5 incorporated by reference into the Proposed Title V Permit authorize various engines, compressors, generator sets, and water pumps for portable, emergency, and standby services, provided that the maximum operating hours for such equipment shall not exceed 10% of the normal annual operating schedule of the primary equipment. These PBRs, however, do not specify any testing or monitoring requirements that assure compliance with applicable emission limits for units authorized under the PBR.

The Proposed Title V Permit also includes the following recordkeeping requirement for emission units authorized by PBR:

The permit holder shall maintain records to demonstrate compliance with any emission limitation or standard that is specified in a permit by rule (PBR) or Standard Permit listed in the New Source Review Authorizations attachment. The records shall yield reliable data from the relevant time period that are representative of the emission unit's compliance with the PBR or Standard Permit. These records may include, but are not limited to, production capacity and throughput, hours of operation, safety data sheets (SDS), chemical composition of

raw materials, speciation of air contaminant data, engineering calculations, maintenance records, fugitive data, performance tests, capture/control device efficiencies, direct pollutant monitoring (CEMS, COMS, or PEMS), or control device parametric monitoring. These records shall be made readily accessible and available as required by 30 TAC § 122.144. Any monitoring or recordkeeping data indicating noncompliance with the PBR or Standard Permit shall be considered and reported as a deviation according to 30 TAC § 122.145 (Reporting Terms and Conditions).

Proposed Title V Permit, Special Condition No. 25.

The Proposed Title V Permit also incorporates by reference "the general requirements of 30 TAC Chapter 106, subchapter A or the general requirements, if any, in effect at the time of the claim of any PBR. *Id.* at Special Condition No. 24. While 30 Tex. Admin. Code § 106.8 establishes general recordkeeping requirements consistent with Proposed Title V Permit, Special Condition No. 25, the rule does not specify any particular monitoring or testing requirements that assure compliance with applicable PBR emission limits and operating requirements.

The Revised Statement of Basis provides the following statement regarding the sufficiency of monitoring in the Proposed Title V Permit:

Federal and state rules, 40 CFR § 70.6(a)(3)(i)(B) and 30 TAC § 122.142(c) respectively, require that each federal operating permit include additional monitoring for applicable requirements that lack periodic or instrumental monitoring (which may include recordkeeping that serves as monitoring) that yields reliable data from a relevant time period that are representative of the emission unit's compliance with the applicable emission limitation or standard. Furthermore, the federal operating permit must include compliance assurance monitoring (CAM) requirements for emission sources that meet the applicability criteria of 40 CFR Part 64 in accordance with 40 CFR § 70.6(a)(3)(i)(A) and 30 TAC § 122.604(b).

With the exception of any emission units listed in the Periodic Monitoring or CAM Summaries in the FOP, the Commission Executive Director has determined that the permit contains sufficient monitoring, testing, recordkeeping, and reporting requirements that assure compliance with the applicable requirements. If applicable, each emission unit that requires additional monitoring in the form of periodic monitoring or CAM is described in further detail under the Rationale for CAM/PM Methods Selected section following this paragraph.

Revised Statement of Basis at 67.

None of the Periodic Monitoring or CAM Summaries in the Proposed Title V Permit address requirements in PBRs claimed by Valero, *see* Proposed Title V Permit at 166-193, and the Revised Statement of Basis does not provide a reasoned justification for the Executive

Director's determination that existing provisions in PBRs claimed by Valero assure compliance with applicable emission limits and operating requirements.⁴⁷

Each Title V permit must contain monitoring, recordkeeping, and reporting conditions that assure compliance with all applicable requirements. 42 U.S.C. § 7661c(a) and (c); 40 C.F.R. § 70.6(a)(3) and (c)(1); *In the Matter of Wheelabrator Baltimore, L.P ("Wheelabrator Order")*, Permit No. 24-510-01886 at 10 (April 14, 2010). Emission limits and operating requirements in PBRs and Standard Exemptions incorporated by reference into the Proposed Permit are applicable requirements. 40 C.F.R. § 70.2. The rationale for selected monitoring requirements must be clear and documented in the permit record. *Id.* § 70.7(a)(5); *In the Matter of United States Steel, Granite City Works* ("Granite City I Order"), Order on Petition No. V-2009-03 at 7-8 (Jan. 31, 2011). 49

As explained below, the Proposed Title V Permit is deficient because: (1) it fails to specify monitoring methods that assure compliance with emission limits and operating requirements established by PBRs claimed by Valero; and (2) the permit record does not contain a reasoned justification for the Executive Director's determination that monitoring methods included in the proposed permit assure compliance with emission limits and operating requirements in PBRs claimed by Valero.

Neither the Proposed Title V Permit nor the incorporated PBR rules listed above specify monitoring, testing, or recordkeeping methods that assure compliance with applicable PBR emission limits and operating requirements. While the Proposed Title V Permit does identify the Commission's general PBR rules at 30 Tex. Admin. Code, Subchapter A as applicable requirements, and includes Special Condition Nos. 24 and 25, which are related to PBR recordkeeping, these provisions do not specify which monitoring methods—*if any*—are necessary to assure compliance with PBR emission limits and operating requirements. Rather, these provisions provide a non-exhaustive menu of options that Valero may pick and choose from, at its discretion, to demonstrate compliance with PBR emission limits and operating

⁴⁷ While the Revised Statement of Basis does explain that the TCEQ's rule at § 106.8, which is incorporated by Proposed Permit, Special Condition No. 24 and establishes recordkeeping requirements consistent with those required by Special Condition No. 23, is sufficient for "insignificant sources of emissions," referred to as "IEUs," because these "units do not have the potential to violate emission limitations or other requirements under normal operating conditions," Revised Statement of Basis at 67, the units listed in the Proposed Permit are not IEUs. The Revised Statement of Basis explains that IEUs authorized by PBR are listed in the PBR Supplemental Tables that are referenced by Proposed Permit, Special Condition No. 23. Revised Statement of Basis at 66-67.

⁴⁸ Available electronically at: https://www.epa.gov/sites/production/files/2015-08/documents/wheelabrator decision 2009.pdf.

⁴⁹ Available electronically at: https://www.epa.gov/sites/production/files/2015-08/documents/uss response 2009.pdf.

requirements. The laundry list of options for monitoring compliance contained in Proposed Title V Permit, Special Condition No. 25 is so vague as to be meaningless.

The Proposed Title V Permit allows Valero to determine which records and monitoring provide sufficiently "reliable data," effectively outsourcing the Executive Director's obligation to specify the monitoring method(s) that will assure compliance with each emission limit or standard established by PBRs incorporated by reference into the proposed permit. This vagueness also prevents EPA and the public from effectively evaluating whether the monitoring methods—if any—that Valero uses to assure compliance with PBR requirements are consistent with Title V. For example, Petitioners would likely challenge monitoring that relies upon undefined "engineering calculations" to determine compliance, unless the permit record contained information show that such calculations actually assure compliance with applicable PBR emission limits and operating requirements.

Neither the Proposed Title V Permit, nor the accompanying Revised Statement of Basis provide support for the Executive Director's determination that the proposed permit specifies monitoring, testing, and recordkeeping methods that assure compliance with PBR requirements. As explained above, most of the PBR rules incorporated by the Proposed Title V Permit are completely silent about the kind of monitoring, testing, and recordkeeping required to assure compliance with applicable limits. Because this is so, the Proposed Title V Permit is deficient. Motiva Order at 24-25 (objecting to permit in case where "Petitioners have demonstrated that . . . [a] particular PBR does not contain any recordkeeping or monitoring requirements itself."); see also, Wheelabrator Order at 10.

D. Petitioners Raised Objections Regarding Applicable PBR Requirements with Reasonable Specificity During the Comment Period.

Petitioners identified each of the deficiencies listed in above in their initial comments on Valero's draft Title V permit. Initial Comments at 37-50. The Executive Director did make some revisions to the draft Title V permit in response to Petitioners' Initial Comments, but as Petitioners demonstrate, these changes did not resolve Petitioners' objections. The objections Petitioners raise here are the same as those identified in their initial comments. Any additional arguments Petitioners now present in support of these objections respond to the Executive Director's actions after the close of the public comment period. Such new arguments may be made for the first time in this petition, because the grounds for such argument arose after the close of the public comment period. 42 U.S.C. § 7661d(b)(2).

E. TCEQ's Response to Comments Is Inadequate to Address the Problems with the Proposed Title V Permit's Incorporation of Applicable PBR Requirements.

The Executive Director's response to comments identifies three changes he made to the draft Title V permit in response to Petitioners' comments concerning PBR requirements:

First, Valero submitted a "PBR Supplemental Table" to the permit application, which purportedly "list[s] all PBRs applicable to the site, which include registered PBRs, claimed PBRs, and claimed PBRs for insignificant emission units. RTC at 35.

Second, the Executive Director revised draft Title V permit, Special Condition No. 22, which was renumbered as Special Condition No. 23 in the Proposed Title V Permit, to reference one or more PBR Supplemental Tables submitted with an unspecified application. *Id*.

Third, the Executive Director revised the permit's statement of basis "to include a reference to the PBR Supplemental Table and Special Term and Condition 23," and to explain that the "Insignificant Activity list in the SOB has been expanded to include a link to the de minimis source list and references to PBRs that are not listed on the OP-REQ1." *Id*.

As Petitioners explain above, these revisions do not resolve the objections raised during the public comment period, because (1) Special Condition No. 23 fails to actually incorporate PBR registrations listed in the PBR Supplemental Tables, because those registrations are not also listed in the permit's New Source Review Authorization References attachment; (2) successful incorporation of one or more PBR Supplemental Tables would still not be enough, because EPA and Texas's Title V regulations require Title V permits to at least directly list incorporated applicable preconstruction authorizations; and (3) the proposed permit fails to sufficiently identify the relevant PBR Supplemental Tables to allow a reader to determine how many such tables exist, when they were submitted, or how to find them.

The Executive Director did not make any changes to the draft Title V permit in response to Petitioners' objection that it failed to establish specific monitoring, testing, and recordkeeping requirements that assure compliance with PBR emission limits and operating limits. Instead, the Executive Director cites to Special Condition No. 25, which Petitioners addressed in their Initial Comments and address again in this petition, which provides that Valero must maintain records sufficient to demonstrate compliance with PBR requirements. RTC at 36. According to the Executive Director, it is enough for the proposed permit to require Valero to maintain records that are representative of Valero's compliance with PBR limits, even if the permit does not specify which kinds of records are representative of Valero's compliance with each applicable limit. Id. But that is incorrect. The TCEQ's Title V regulations require that each Title V permit include detailed citations identifying "the monitoring, recordkeeping, reporting, and testing requirements associated with ... [applicable] emission limitations and standards[.]" 30 Tex. Admin. Code § 122.142(b)(2)(B)(ii); see also In the Matter of Motiva Enterprises LLC, Port Arthur Refinery ("Motiva Order"), Order on Petition No. VI-2016-23 at 24-25 (May 31, 2018) (objecting to permit in case where "Petitioners have demonstrated that . . . [a] particular PBR does not contain any recordkeeping or monitoring requirements itself."); see also, Wheelabrator Order at 10.

This nonsense must end. It has been more than a decade since EPA has acknowledged the flaws addressed by this petition. EPA must object to the proposed Title V Permit. If TCEQ refuses to timely correct the permit, EPA must revise the permit itself. That much is clearly required by Title V. 42 U.S.C. § 7661d(c). Until EPA demonstrates it is willing to enforce the

law, TCEQ and industry in Texas will continue to ignore it. And the people of Texas, especially those who live in low-income communities of color, will continue to pay for it.

IV. THE PROPOSED PERMIT FAILS TO ASSURE COMPLIANCE WITH NSPS AND NESHAP REQUIREMENTS.

The proposed permit fails to assure compliance with EPA-established New Source Performance Standards ("NSPS") and National Emission Standards for Hazardous Air Pollutants ("NESHAP") in two separate ways:

A. The Permit Fails to Ensure Compliance with NSPS and NESHAP Requirements for a Flare Management Plan.

As Petitioners' comments pointed out (*see* Initial Comments at 50-51, Suppl. Comments at 33), the proposed Title V permit fails to ensure compliance with certain NSPS and NESHAP requirements for a flare management plan. The NSPS and NESHAP requirements for a flare management plan are applicable requirements that Valero's Title V permit must assure compliance with. *See* 40 C.F.R. 70.2 (defining "applicable requirement" to include "[a]ny standard or other requirement under section 111 of the Act" and "[a]ny standard or other requirement under section 112 of the Act"). The permit's failure to ensure compliance with these applicable requirements violates 40 C.F.R. §§ 70.1(b), 70.6(a)(1), and 70.7(a)(1)(iv) and 42 U.S.C. § 7661c(a).

Valero has two refinery flares-30FL1 and 30FL6. *See*, *e.g.*, Proposed Title V Permit at p. 22. 40 C.F.R. § 60.103a, at subsections (a)-(b), requires owners and operators of flares to develop, implement, submit, and comply with a flare management plan that includes several detailed categories of information, including: a listing of units and systems connected to the flares; descriptions of the flares; an assessment of whether discharges to the flares can be minimized; and procedures to minimize or eliminate discharges to the flares during planned startup and shutdown of the units and systems connected to the flares. The compliance deadline for this requirement was November 11, 2015—though, after that, the plans are to be updated to account for changes in operation of the flare. 40 C.F.R. § 60.103a(b)(1)-(2).

Similarly, 40 C.F.R. § 63.670(o) also requires owners and operators of any flares that have the potential to operate above their smokeless capacity under any circumstance to develop, implement, submit, and comply with a flare management plan to minimize flaring during periods of startup, shutdown or emergency releases. The compliance deadline for this requirement was January 30, 2019. *Id.* § 63.670(o)(2).

To ensure compliance with these clearly applicable NESHAP and NSPS requirements regarding flare management plans, *see id.* § 70.2; 30 Tex. Admin. Code § 122.10(2), the Title V permit must list the flare management plan requirements from §§ 60.103a and 63.670 as applicable requirements and should attach and incorporate a non-redacted version of the most

current version of the refinery's flare management plan(s)⁵⁰ into the Title V permit, to allow the public and regulators to access the specifics of these applicable requirements as they apply to Valero. *See*, *e.g.*, 42 U.S.C. § 7661c(a) (requiring Title V permits to include enforceable emission limitations and standards and "such other conditions as are necessary to assure compliance with applicable requirements of this chapter"). The proposed Title V permit, however, does not attach and incorporate the flare management plan(s). Nor does the proposed permit state that Valero is to develop a flare management plan under §§ 60.103a(a) or 63.670(o). Although the proposed permit lists §§ 60.103a(a) and 63.670(o), along with other subsections of §§ 60.103a and 63.670, in the permit's Applicable Requirements Summary, nowhere does the permit provide that these subsections require a flare management plan.

Incorporating and attaching a full, non-redacted version of the refinery's flare management plan is especially important for this Title V permit because the refinery's flares have recently struggled with complying with § 63.670's NESHAP operating requirements for flares, as discussed below. *See infra* at 56-57. Since the requirements for Valero to develop a flare management plan are applicable requirements, Valero should not be allowed to withhold from public view portions of that plan, or fail to incorporate this into the permit.

TCEQ's response to comments on this issue is inadequate to address the permit's failure to ensure compliance with the flare management plan requirements. TCEQ states that the requirements from §§ 60.103a(a) or 63.670(o) to prepare and submit a flare management plan were included in the draft Title V permit. To ensure compliance with the management plan requirements, however, the permit should actually provide that Valero must develop such a plan, as discussed above, and add this to the permit. The public should not be forced to look up, read, and attempt to interpret various regulatory subsections to determine what is actually required for a source to comply with its Clean Air Act obligations—especially for a large, complicated source such as a refinery. Requiring the public to do so is contrary to the purpose of Title V— to "substantially strengthen enforcement of the Clean Air Act" by "clarify[ing] and mak[ing] more readily enforceable a source's pollution control requirements." S. Rep. No. 101-228 at 347, 348 (1990), as reprinted in A Legislative History of the Clean Air Act Amendments of 1990 (1993), at 8687, 8688. As EPA explained when promulgating its Title V regulations, a Title V permit should "enable the source, States, EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." Operating Permit Program, Final Rule, 57 Fed. Reg. 32,250, 32,251 (July 21, 1992).

Finally, in violation of Title V requirements (as reflected in 40 C.F.R. § 70.7(h)(6)), TCEQ did not respond to Petitioners' significant comments raising the above objection that the Title V permit must incorporate and attach the most recent, non-redacted version of Valero's

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⁵⁰ Valero's 2019 flare management plan is attached as Exhibit 5. TCEQ redacted large portions of this plan before producing it to Petitioners. Specifically, the version that TCEQ produced is missing Appendices A-B and E. *See* 2019 Flare Management Plan at PDF pp. 29-31, 52. To ensure compliance with the NESHAP and NSPS flare management plan requirements (as well as related NESHAP and NSPS flare operating requirements), the Title V permit must allow the public to view the entire plan—not just a redacted version.

flare management plan. Thus, Petitioners cannot "explain how [LDEQ's] response to the comment is inadequate to address the issue raised in the public comment." *See* 40 C.F.R. § 70.12(a)(2)(vi).

B. EPA should require TCEQ to revise the permit to incorporate all specific requirements for NESHAP Subparts CC and UUU.

As Petitioners' comments explained (Initial Comments at 51-60), the proposed Title V permit fails to include terms and conditions necessary to assure compliance with applicable Clean Air Act requirements because it does not incorporate specific limits and standards under NESHAP Subparts CC and UUU, both pertaining to petroleum refineries. 40 C.F.R. Part 63 Subparts CC, UUU. These are important requirements that restrict the hazardous air pollutant or air toxics emissions from these sources, issued pursuant to Clean Air Act § 7412.

TCEQ admits that the Valero Houston refinery is subject to the applicable Clean Air Act requirements at issue in this petition.⁵¹ Yet, the proposed permit fails to meet the Title V requirements because the permit must—but fails to—assure compliance with all applicable requirements from Subparts CC and UUU. 40 C.F.R. §§ 70.1(b), 70.6(a)(1), 70.7(a)(1)(iv) and 42 U.S.C. § 7661c(a).

For some emissions units, the permit cites the applicable regulatory provision under Subpart CC or UUU but fails to describe an actual limit or standard, leaving it unclear precisely how the regulation applies to the unit. In addition, for some emissions units regulated under Subpart CC, the permit fails to cite applicable regulations at all. Without the inclusion and description of these limits and standards, the permit does not satisfy the Act's obligations to incorporate and assure compliance with all applicable Clean Air Act requirements. 40 C.F.R. §§ 70.1(b), 70.6(a)(1), 70.7(a)(1)(iv) and 42 U.S.C. § 7661c(a). Further, the permit undermines the public information and compliance goals of Title V by making it difficult or impossible for the public to determine which standards apply to which emissions units and whether Valero is in fact in compliance with important federal regulations related to fenceline monitoring, flare management, equipment leaks, and many other processes and emissions points.

EPA should object to the permit and require TCEQ to revise the permit to assure compliance with each of the following applicable requirements.

Specifically, there are seven regulatory provisions under Subpart CC which the proposed permit altogether fails to cite. The proposed permit does not cite the following provisions:

- 40 C.F.R. § 63.643: miscellaneous process vent provisions.
- 40 C.F.R. § 63.644: miscellaneous process vent monitoring.
- 40 C.F.R. § 63.645: test methods and procedures for miscellaneous process vents.

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⁵¹ The only provisions TCEQ states do not apply are §§ 64.646 (storage vessel provision), 63.657 (delayed coking units), and 63.1566 (organic HAP emissions). Petitioners do not have evidence to dispute the applicability of these provisions, but ask EPA to verify this fact with TCEQ using information available to the agency.

- 40 C.F.R. § 63.647: wastewater provisions.
- 40 C.F.R. § 63.650: gasoline loading rack provisions.
- 40 C.F.R. § 63.652: emissions averaging provisions.
- 40 C.F.R. § 63.653: monitoring, recordkeeping, and implementation plan for emissions averaging.

These are important provisions with precise requirements. For example, section 63.643 requires the reduction of process vent emissions by 98 weight-percent or to a concentration of 20 ppm by volume where control devices other than flares are used by a facility, whichever is lower of the two. 40 C.F.R. § 63.643(a). Section 63.644 requires the installation of monitoring devices to determine the presence of pilot flames where flares are used to burn process vent gases, and the installation of flow indicators to determine the direction and location of gas flow within a process vent system. 40 C.F.R. § 63.644(a), (c). Section 63.647 requires compliance with 40 C.F.R. Part 63 Subpart G and Part 61 Subpart FF, respectively. In turn, Subpart G requires storage vessels to be outfitted with control technologies in the form of internal or external floating roofs, while Subpart FF sets out myriad standards for tanks, surface impoundments, containers, drain systems, oil-water separators, and treatment processes at petroleum refineries. 40 C.F.R. § 63.119; 40 C.F.R. §§ 63.342-348.

As Petitioners comments also explained (Initial Comments at 63-64), the proposed permit also fails to list and describe certain "general duty" requirements from Subparts CC and UUU that apply to Valero's refinery. In particular, 40 C.F.R. § 63.642(n) from Subpart CC requires Valero to, "[a]t all times, ... operate and maintain [the refinery], including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions." And 40 C.F.R. § 63.1570(c) from Subpart UUU also includes the same general duty requirement. Yet the proposed Title V permit lists neither of these requirements. Although the proposed permit does cite to § 63.1570(c) (*see*, *e.g.*, Proposed Permit at p. 65), it does so in the context of other standards under Subpart UUU and never identifies the general duty as a separate requirement.

Petitioners' Initial Comments at pages 51-60 also explained that for several limits and standards under Subparts CC and UUU, the proposed permit either merely cites the applicable regulation while failing to describe the actual limit or standard contained therein, or describes the limit or standard in conclusory fashion. For 9 provisions under Subparts CC and UUU which the proposed permit cites, it fails to include specifically, fails to explain, or underexplains, the requirements contained therein. EPA has explained in previous Title V orders and guidance documents that this kind of lack of clarity with respect to applicable regulations at a facility undermines the purpose of Title V. A "key objective" of Title V as enforced by EPA is to "clarify how sources must comply with applicable requirements." White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program (March 5, 1996) (White Paper Number 2) at 38 (emphasis added). Title V permits must be "clear and meaningful to all affected parties," including members of the public living near the facility. In the Matter of Shell Chemical LP and Shell Oil, Order on Petition Numbers VI-2014-04 and VI-2014-05 (September 24, 2015) (Shell Deer Park Order) at 9 (emphasis added). EPA has therefore required that "at a

minimum, a permit must explicitly state all emission limitations and operational requirements for all applicable units at a facility." In the Maller of Tesoro Refining and Marketing, Order on Petition No. IX-2004-6 (March 15, 2005) at 8 (emphasis added). A conclusory statement that a provision must be complied with does not satisfy this minimum standard; nor does a general description of some, but not all, limits and standards under a given provision.

The unincluded, unexplained, and underexplained provisions are contained in the following list, with explanations as to how the proposed permit fails to sufficiently incorporate each provision:

Subpart CC

- 40 C.F.R. § 63.648: equipment leak standards.
 - The proposed permit lists this provision as applicable for 10 units in its applicable requirements summary. Proposed Permit at pp. 149-152. Because regulation under this provision triggers regulation under 40 C.F.R. Part 60 Subpart VV, the textual description for this provision states that "40 C.F.R., Part 60 Subpart VV requirements" must be complied with. *Id.* However, the permit fails to clarify what these requirements are.
- 40 C.F.R. § 63.651: marine tank loading vessel loading operating procedures.
 - O The proposed permit lists this provision, specifically section 63.651(a), as applicable for 1 unit. Proposed Permit at 121. Because regulation under section 63.651(a) triggers regulation under 40 C.F.R. Part 63 Subpart Y, the textual description for this provision states that "each owner or operator of a marine tank vessel loading operation . . . shall comply with the requirements of § 63.560 through § 63.568," i.e. the standards under Subpart Y. *Id.* However, the permit fails to clarify what these requirements are.
- 40 C.F.R. § 63.658: fenceline monitoring provisions.
 - o The proposed permit states in its "Special Terms and Conditions" section that section 63.658 must be complied with. Proposed Permit at 13. However, the permit fails to clarify what the extensive requirements under section 63.658 are.
- 40 C.F.R. § 63.660: storage vessel provisions.
 - The proposed permit lists this provision as applicable for 1 unit. Proposed Permit at 125. Because regulation under § 63.660 triggers regulation under 40 C.F.R. Part 63 Subpart WW, the textual description for this provision states that Subpart WW requirements must be complied with. *Id.* However, the permit fails to clarify what these requirements are.
- 40 C.F.R § 63.670: requirements for flare monitoring devices.
 - O The proposed permit lists this provision as applicable for 2 units. Proposed Permit at 60-61. The textual description for this provision describes the substantive standard under subsection (c) of section 63.670, pertaining to visible emissions. *Id.* However, it does not clarify other important standards contained within section 63.670, such as flare tip velocity requirements under subsection (d), combustion-zone net heating value requirements from subsection (e), and flare

management plan requirements under subsection (o) (as discussed separately above).

- 40 C.F.R. § 63.671: requirements for flare monitoring systems.
 - The proposed permit lists this provision as applicable for 2 units. Proposed Permit at 60-61. The textual description for this provision describes the substantive standard under subsection (c) of § 63.670, and does not address section 63.671 at all. *Id.*

Subpart UUU

- 40 C.F.R. § 63.1564: metal HAP emissions standards from catalytic cracking units.
 - The proposed permit lists this provision as applicable for 2 units. Proposed Permit at 73. The textual description for this provision describes the relevant opacity standard under Table 1 of Subpart UUU. *Id.* However, other requirements imposed by section 63.1564, such as the operating limits of Table 2 and the emissions limits of Table 5, are not discussed.
- 40 C.F.R. § 63.1565: organic HAP emissions from catalytic cracking units.
 - The proposed permit lists this provision as applicable for 1 unit. Proposed Permit at 73. The textual description for this provision describes the relevant CO emissions standard under Table 8 of Subpart UUU. *Id.* However, other requirements imposed by section 63.1565, such as the operating limits of Table 9 and the emissions limits of Table 12, are not discussed.
- 40 C.F.R. § 63.1568: HAP emissions from sulfur recovery units
 - The proposed permit lists this provision as applicable for 10 units. Proposed Permit 62-68, 84-89. The textual description for this provision describes the relevant sulfur dioxide emissions standard under Table 29 of Subpart UUU. However, other requirements imposed by section 63.1568, such as the operating limits of Table 30, are not discussed.

As above, these regulations are crucial to the safe operation of petroleum refineries. For example, the fenceline monitoring provisions of section 63.658 requires Valero to monitor its perimeter for benzene in accordance with Method 325A of Appendix A of 40 C.F.R. Part 63. 40 C.F.R. § 63.658(a). This includes the use of diffusive passive sampling tubes at specified locations around the perimeter for a sampling period of at least 14 days. 40 C.F.R. § 63.658(e). The fenceline monitoring provisions also require compliance with Method 325B of 40 C.F.R. Part 63, including the use of gas chromatography to analyze collected samples for the presence of VOCs. 40 C.F.R. Part 63 Appendix A, Method 325B § 1.0. Finally, the fenceline monitoring provisions require corrective action to be taken and a root cause analysis to be performed whenever benzene levels exceed 9 µg/m³. This must generally be done within 45 days of such exceedance. 40 C.F.R. § 63.658(e)-(g).

Petitioners call for EPA to take a close look at these requirements and object due to the lack of incorporation of them in part due to their serious concerns about how Valero may be interpreting these requirements. Based on what can be seen visibly at the facility, it appears that the fenceline monitors may not be placed in compliance with the applicable rules and test

methods. For example, Method 325A which is incorporated into the rules, but not into Valero's proposed permit, includes precise detail on the locations of the monitors (or passive samplers) and where they must be placed. *See*, *e.g.*, Method 325A § 8.2.⁵² Making these requirements specific and clear in the permit is especially important to ensure that Valero satisfies these requirements—especially given the environmental justice concerns present here, as discussed above.

Other of these regulations are similarly important. For example, section 63.670 requires Valero's flares to operate with a flare tip velocity of at least 60 ft/second, and the flare combustion zone gas to maintain a net heating value of at least 270 BTU per cubic feet. 40 C.F.R. § 63.670(d)-(e). It also requires the development of a flare management plan, as discussed separately above. 40 C.F.R. § 63.660(d), (e), (o). Finally, § 63.648 requires Valero to comply with a wide range of standards related to equipment leaks, including for its pumps, compressors, pressure relief devices, sampling connection systems, and valves. *See* 40 C.F.R. Part 60 Subpart VV.

In their comments at pages 51-60, Petitioners indicated that these provisions had not been incorporated in the draft permit. However, they did not discuss each provision's textual description or explain why these descriptions failed to incorporate their respective provisions. This is because during the comment period, there were no textual descriptions to discuss. Specifically, textual descriptions for sections 63.648, 63.660, 63.670, 63.671, 63.1564, 63.1565, and 63.1658 were only added after Petitioner's comments prompted their inclusion in the proposed permit, i.e. after the close of the comment period. RTC at 52-53. Petitioners were therefore unable to object to these textual descriptions during the comment period. Because Petitioners were unable to raise these objections at that time, this petition satisfies the reasonable specificity requirements of CAA § 505(b)(2) and 40 C.F.R. § 70.8(d).

In its response to comments, TCEQ asserts that the applicable requirements summary located in the proposed permit is only intended to describe "high level requirements" under each applicable provision. RTC at 52. As explained, it also states that it revised the proposed permit to, purportedly, include "specific" requirements for sections 63.648, 63.660, 63.670, 63.671, 63.1564, 63.1565, and 63.1568. *Id.* TCEQ's response is insufficient for at least three reasons:

First, TCEQ's position that the permit need only list high level requirements contravenes the purpose of Title V. Congress enacted Title V to "substantially strengthen enforcement of the Clean Air Act" by "clarify[ing] and mak[ing] more readily enforceable a source's pollution control requirements." S. Rep. No. 101-228 at 347, 348 (1990), as reprinted in A Legislative History of the Clean Air Act Amendments of 1990 (1993), at 8687, 8688 (emphasis added). As EPA explained when promulgating its Title V regulations, a Title V permit should "enable the source, States, EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." Operating Permit Program, Final Rule, 57 Fed. Reg. 32,250, 32,251 (July 21, 1992). Perhaps for this reason, EPA has expressly disapproved of TCEQ's use of mere citation, i.e., incorporation by reference (IBR), as a means

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⁵² https://www.epa.gov/sites/production/files/2016-07/documents/m-325a.pdf.

of including emission limitations within a Title V Permit on multiple occasions. *In the Matter of CITGO Refining and Chemicals Company L.P. West Plant, Corpus Christi, Texas*, Order on Petition No. VI-2007-01 (May 28, 2009) (*CITGO Order*) at 11; *Tesoro Order* at 8. In the words of EPA, "given the complexity of . . . NESHAP and . . . refiner[ies], *it is impossible to determine how the regulation applies to the facility by referring to the section-level citations." Tesoro Order* at 8 (emphasis added). Contrary to the purpose of Title V as clarified by EPA's own statements, TCEQ's position that only high level requirements need be listed in a Title V permit would frustrate the ability of the public to understand the requirements that apply to source—particularly a complicated source such as Valero's refinery. The public should not be forced to look up, read, and attempt to interpret various regulatory subsections to determine what is actually required for a source to comply with its Clean Air Act obligations. Requiring the public to do so is contrary to Title V's purpose of clarifying and making more readily enforceable a source's various applicable clean air requirements.

Second, as the above lists demonstrate, for many provisions the proposed permit does not even meet TCEQ's standard of simply including "high level" requirements. To wit, each provision in the first list is altogether uncited, with no discussion or citation of any requirements whatsoever, "high level" or otherwise. Likewise, while the provisions in the second list are cited, the permit does not describe any requirements for many of these provisions beyond the entirely circular requirement that the permit holder must comply with the provision. For example, the proposed permit's sole reference to fenceline monitoring serves simply to state that the fenceline monitoring provisions must be complied with. Proposed Permit at 13. Even assuming TCEQ is correct that the permit need only include high level requirements under Subparts CC and UUU, the permit fails to meet this standard.

Third, the "specific" requirements that TCEQ purported to include in the proposed permit are in fact general at best, circular at worst. Specifically, the requirements included in the proposed permit for sections 63.648 and 63.660 simply state that Part 60 Subpart VV and Part 63 Subpart WW must be complied with, respectively, without any specificity as to what the requirements under those subparts are. Proposed Permit at 149-152, 125. The requirements included in the proposed permit for section 63.670 state generally that all Valero flares shall operate without visible emissions, as required by subsection (c), but do not describe the specific standards for flare tip velocity under (d), net heating zones under (e), or any flare management plan under (o). Proposed Permit at 70-71. The requirements included in the permit for section 63.671 are identical to those included for § 63.670. *Id.* Finally, the requirements included in the permit for sections 63.1564, 63.1565, and 64.1568 describe relevant emissions standards under Tables 1, 8, and 29, respectively, but not other emissions and operating limits applicable to those provisions, such as those under Tables 2, 5, 9, 12, and 30. Proposed Permit at 62-68, 73, 84-89. As explained above, EPA has stated on multiple occasions that "all" emission limitations and operational requirements must be explicitly stated in a permit. Shell Deer Park Order at 9; Tesoro Order at 8. Even the more "specific" requirements which TCEQ revised to include in the proposed permit are therefore insufficient to fully describe applicable requirements under each provision.

In sum, TCEQ's response to comments fails to resolve this problem, as the revisions included in the proposed permit do not fully incorporate the applicable limits and standards under Subparts CC and UUU. Thus, the permit fails to ensure compliance with these applicable requirements from these two subparts.

In addition, in violation of Title V requirements (as reflected in 40 C.F.R. § 70.7(h)(6)), TCEQ did not respond to Petitioners' significant comment that the draft permit failed to list and describe the applicable general duty requirements from Subparts CC and UUU. Thus, Petitioners cannot "explain how [LDEQ's] response to the comment is inadequate to address [this] issue raised in the public comment." *See* 40 C.F.R. § 70.12(a)(2)(vi).

The permit should be revised to cite and describe the Subpart CC provisions that TCEQ has currently declined to cite altogether, as well as the missing Subpart CC and UUU general duty requirements. With respect to the provisions that are currently cited but remain undescribed, the permit should be revised for each provision to ensure specific inclusion of all applicable requirements. Petitioners have provided a summary of some of the most important parts of these requirements below, but ask EPA to ensure specific inclusion of all pieces of this, in consultation with the Office of Air and Radiation regulatory team as needed, to make sure no specific details of the regulatory requirements are missing that are needed to assure compliance:

- 40 C.F.R. § 63.648: equipment leak standards.
 - The permit should be revised to include specific Subpart VV standards, including those that apply to pumps, compressors, pressure relief devices, sampling connection systems, valves, and closed vent systems. For example, in the case of pumps, the permit should specify that Method 21 of Part 60 must be adhered to, namely the installation of a VOC monitoring instrument which can probe valves for leaks and specifications for calibration gases used in the probing process. 40 C.F.R. Part 60 Appendix A-7, Method 21.
- 40 C.F.R. § 63.651: marine tank vessel loading operations provisions.
 - The permit should be revised to include the specific standards for marine tank vessel loading operations under Subpart Y, for example the installation of a vapor collection system designed to collect HAP vapors and prevent them from escaping into the atmosphere. 40 C.F.R. § 63.562.
- 40 C.F.R. § 63.658: fenceline monitoring provisions.
 - The permit should be revised to include a description of monitoring standards under method 325A of Appendix A, e.g. the use of diffusive passive samplers to collect VOCs from the air at specified fenceline locations. 40 C.F.R. Part 63 Appendix A, Method 325A § 1.1. It should also include a description of monitoring provisions under method 325B of Appendix A, e.g. the use of thermal desorption/gas chromatography (TD/GC) to analyze fugitive VOC emissions and specifications as to preparation of sample tubes prior to sample collection. 40 C.F.R. Part 63 Appendix A, Method 325B § 1.1. It should specify which equipment leak sources methods 325A and 325B are being applied to. Finally, the permit should include requirements as to what must be done when benzene

concentrations discovered after fenceline monitoring exceed the action level. Namely, it should outline requirements for root cause analysis and corrective action, and the timeframe within which the two must occur. 40 C.F.R. § 63.658(e)-(g).

- 40 C.F.R. § 63.660: storage vessel provisions.
 - The permit should specify requirements under Subpart WW. For example, the permit should specify that storage vessels must be fitted with an internal or external floating roof pursuant to § 63.1062 of Subpart WW. 40 C.F.R. § 63.1062(a). It should also specify requirements for floating roofs under § 63.1063, e.g. what kind of seal configurations which must be employed for the roof. 40 C.F.R. § 63.1063(a). The permit should provide for regular visual inspection of the floating roofs for e.g. holes in the seals or an improperly functioning roof deck. 40 C.F.R. § 63.1063(d).
- 40 C.F.R. § 63.670: requirements for flare control devices.
 - O The permit should be revised to describe substantive standards in addition to those from subsection (c). For example, the permit should include the requirements that flare control devices operation in the presence of a pilot flame (subsection (b)), that the flare tip velocity must not exceed 60 feet per second (subsection (d)), and that the net heating value for flare combustion zone gases must be at or above 270 British thermal units per standard cubic feet (subsection (e)). The permit should also include monitoring requirements to determine e.g. volumetric flow rates for flare headers (subsection (i)) and gas composition of flare vents (subsection (j)).
- 40 C.F.R. § 63.671: requirements for flare monitoring systems.
 - o The permit should be revised to include requirements for the installation of a continuous parametric monitoring system (CPMS) and should specify requirements for installation of CPMS pursuant to table 13 of Subpart CCC. The permit should also specify the CPMS monitoring requirements pursuant to subsection (b) of section 63.671, and should specify corrective actions to be taken when CPMS is not operating properly, pursuant to subsection (c).
- 40 C.F.R. § 63.1564: metal HAP emission standards for catalytic cracking units.
 - o The permit should be revised to include substantive operating limits under Table 2 and substantive emissions limits under Table 5. 40 C.F.R. § 63.1564(a)(2), (b)(3). For example, the permit should specify that pursuant to Table 5, PM emissions for catalytic cracking units must not exceed 1.0 g/kg of coke burn-off. Table 5 to 40 C.F.R. Part 63 Subpart UUU.
- 40 C.F.R. § 63.1565: organic HAP emission standards for catalytic cracking units.
 - o The permit should be revised to include substantive operating limits under Table 9 and substantive emissions limits under Table 12. 40 C.F.R. § 63.1565(a)(2), (b)(4). For example, the permit should specify that pursuant to Table 12, CO emissions from catalytic cracking units should not exceed 500 ppmv. Table 12 to 40 C.F.R. Part 63 Subpart UUU.
- 40 C.F.R. § 63.1568: HAP emissions from sulfur recovery units.

The permit should be revised to include operating limits for sulfur recovery units pursuant to Table 30. 40 C.F.R. § 63.1568(a)(2). For example, pursuant to Table 30, the permit should clarify which kind of control device Valero is using for its sulfur recovery units and apply the corresponding operating limit. Table 30 to 40 C.F.R. Part 63 Subpart UUU.

The complete incorporation of these standards as described above is necessary to fully implement and comply with Title V, and to inform the public of the Valero facility's responsibilities under the law and its permit. See 42 U.S.C. § 7661c(a) and 40 C.F.R. §§ 70.1(b), 70.6(a)(1), and 70.7(a)(1)(iv).

V. THE PROPOSED PERMIT'S MONITORING, REPORTING, AND EMISSION CALCULATION REQUIREMENTS CANNOT ENSURE COMPLIANCE FOR KEY UNITS AND LIMITS AT THE REFINERY.

As discussed below, the proposed permit cannot ensure compliance with limits for the refinery's fluid catalytic cracking unit ("FCCU"), flares, dissolved air flotation ("DAF") unit, boilers, fugitive emissions, atmospheric tower heater, tanks, and cooling towers. And as discussed above, environmental justice concerns here mandate increased, focused attention to ensure that all Title V requirements—especially monitoring, recordkeeping, reporting, and compliance certification requirements—have been complied with for these units.

A. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with the Hourly and Annual PM Limits for the Refinery's FCCU.

As Petitioners' comments generally explained (Initial Comments at 66-70), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with the PM limits for the FCCU. Specifically, in violation of 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed permit's monitoring, emission calculation, and other requirements cannot ensure compliance with the PM2.5 and PM10 limits of 75.5 lbs/hour and 240 tons/year and filterable PM limits of 32.5 lbs/hour and 142.35 tons/year, all of which are found in the refinery's main NSR/PSD permit, Permit 2501A/PSDTX767M2 (which, for brevity's sake, we will refer to as "permit 2501A"). 53 See Permit 2501 Maximum Allowable Emission Rates Table ("MAERT") at "FCCU"; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating permit 2501A into the Title V permit).⁵⁴ Because the

⁵⁴ A January 18, 2019 version of permit 2501A is appended to, and incorporated into, the proposed Title V permit. See Proposed Title V Permit's "New Source Review Authorization References at p. 207. TCEQ later revised permit 2501A, but for some reason the proposed Title V permit does not append or incorporate the revised, up-to-date version of 2501A.

⁵³ Because permit 2501 lists certain monitoring or other related requirements for PM from the FCCU but those requirements cannot ensure compliance with the PM limits, § 70.6(c)(1) requires TCEQ to supplement 2501A's original monitoring and other requirements.

filterable PM limits are significantly lower than the PM2.5 and PM10 limits, this means a significant portion of PM from the FCCU is condensable PM. Ex. 6, March 2019 Declaration of Dr. Ranajit Sahu ("March 2019 Sahu Decl."), at ¶7.

In its response to comments, TCEQ identifies for the first time how Valero monitors emissions to comply with these hourly and annual PM limits, stating: "Emissions are calculated based on the stack test emission factors (lb PM/1,000 lb coke-burn) and actual coke-burn data (lb/hr)." RTC at 72. This method of calculating emissions cannot ensure compliance with the various hourly and annual PM limits for the FCCU for several reasons:

<u>First</u>, this monitoring and emission calculation method cannot ensure compliance with the hourly or annual PM limits because it is not listed in either permit 2501A or the proposed Title V permit. Any monitoring or calculation methods for these limits must be clear on the face of the Title V permit or permit 2501A.

Second, even if permit 2501A or the Title V permit did list this monitoring and emission calculation method, it could not ensure compliance with the FCCU's hourly and annual PM limits because the permits do not require Valero to conduct any new stack tests—much less stack tests at regular intervals that would be frequent enough to ensure compliance—to determine the lb PM/1,000 lb coke-burn emission factor, as discussed in the attached June 2021 declaration of Dr. Ranajit Sahu. Ex. 7, June 2021 Declaration of Dr. Ranajit Sahu ("2021 Sahu Decl."), at \$\$ 6-8. Dr. Sahu has expertise in engineering (including engineering issues related to petroleum refineries and chemical plants), the Clean Air Act and air pollution, and issues related to monitoring of emissions of air pollution (including monitoring emissions from FCCUs, flares, heaters, wastewater treatment units, and other refinery units) and calculating those emissions. \$\$Id\$. at \$\$ 1-5, Att. A.

Permit 2501A contains the following provisions regarding stack testing at the FCCU:

• Special Condition 14 lists a limit of 1 lb PM per 1,000 lbs of coke burn-off that is "front-half only" (*i.e.*, filterable PM only—and not condensable PM, March 2019 Sahu Decl. at ¶8), measured as a one-hour average over three stack test runs. That provision also states that compliance with the "MAERT limit" (presumably the PM2.5 and PM10 limits) will be demonstrated by adding "front half and back half amounts" of PM—meaning including filterable and condensable PM respectively. March 2019 Sahu Decl. ¶8. Importantly, Special Condition 14 fails to actually require any stack tests or set a schedule for testing.

Sahu's declaration cited above and below in this petition also directly support the additional facts and arguments for which we cite the declaration as support.

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⁵⁵ The relevant paragraphs from Dr. Sahu's declarations are not merely incorporated into this petition by reference. See 40 C.F.R. § 70.12(a)(2) ("... the Administrator will not consider arguments ... or other information incorporated into the petition by reference."). Instead, the cited paragraphs from the declarations directly support the petition's arguments that the proposed permit's monitoring and emission calculation provisions are flawed for the reasons discussed herein. In addition, the paragraphs from Dr.

• Special Condition 55 requires stack testing only on a schedule "as required by the TCEQ Executive Director"—*i.e.*, with no set frequency— to measure filterable PM and "total suspended particulate." In fact, it states in 55.C that the last "acceptable" stack test was conducted in December 2008—more than a dozen years ago. Subsections 55.D-G contain limitations on the FCCU's ability to operate at certain coke burn rates, and 55.G requires a new stack test if the FCCU is operating at greater than 10% of the burn rate from the previous stack test and emissions from that previous test exceeded 80% of the short-term emission rate from the MAERT. Relatedly, subsection 55-F allows the FCCU to operate at a burn rate not exceeding 10% of the burn rate from the previous stack test if the short-term emission rate in that test did not exceed 80% of the MAERT limit.

Like Special Condition 55.C, TCEQ's response to comments also indicates that the last time Valero stack tested to determine the emission factor used to calculate PM emissions was in 2008:

In regard to PM (including condensable) monitoring requirements in NSR Permit 2501A, the ED notes that Special Condition 55.B of NSR Permit 2501A requires performing stack testing that includes the condensable portion measurement. While the permit limits allow for a significant portion of the total PM10 from the FCCU to be condensable PM (approximately 57% of the short-term limit and 41% of the annual limit), actual test data from December 2008 stack testing indicates that the condensable portion was less than half of the filterable portion.

RTC at 72 (emphasis added).

The above-bulleted provisions from permit 2501A do not actually require any stack testing, with the very limited exception contained in Condition 55.G. That the exception from 55.G is very limited as shown by the fact that Valero has not had to test for more than 12 years. An emission factor from a stack test conducted over 12 years ago—and counting—cannot ensure compliance with the FCCU's current hourly and annual limits. 2021 Sahu Decl. at ¶¶8-10. This is not only true for the annual limits but doubly so for the hourly limits. Id. The FCCU's lb PM/1,000 lb coke-burn emission rate depends on many factors that could not have remained constant in the dozen-plus years since the last stack test. Id. Based on testing conducted at other facilities, FCCU PM rates are variable and can change from stack test run to run, hour to hour, month to month, and year to year based on the condition of the FCCU's controls, the additives that Valero may use to achieve NOx and SO2 reductions (including agents such as ammonia for NOx control), the manner in which the regenerator is operating, the temperature of regeneration, and other factors. Id. By the time Valero's Title V permit is up for renewal in another five years, the emission factor will be over 17 years old. Without frequent verification, an emission-factor that is almost two decades old obviously cannot ensure compliance with the FCCU's hourly and annual PM limits. Id.

Further, Special Condition 55-F's burn-rate limitation is inadequate to ensure compliance: just because the last tested coke burn rate (in 2008) may have resulted in a short-

term emission rate less than 80% of the MAERT short-term limit does not mean that a later coke burn rate as much as 10% higher than what was tested will not result in emissions exceeding the short term MAERT rate. March 2019 Sahu Decl. at ¶9. Further, nothing in the permit record correlates the coke burn rate to specific hourly or annual PM2.5 or PM10 emissions.

Third, even if permit 2501A or the proposed Title V permit did list the monitoring and emission calculation method that TCEQ identifies in its response to comments (*i.e.*, using a lb PM/1,000 lb coke-burn emission factor determined by stack test and estimated coke-burn calculations to determine PM emissions), that method could not ensure compliance with the condensable portions of 2501A's PM limits: permit 2501 and the Title V permit do not actually require that condensable PM be measured or taken into account. March 2019 Sahu Decl. ¶11. Condition 14 references testing for condensable PM, but it does not actually require testing. Special Condition 55's reference to "total suspended particulate" is also unclear whether it includes condensable PM—or whether it instead refers to filterable PM of all sizes. Even if these provisions contemplate testing for condensable PM, they do not actually *require* testing on any set schedule—or at all (with the very limited exception in 55.G).

The proposed Title V permit cites other purported, monitoring, recordkeeping, and reporting provisions from permit 2501A as applicable to the FCCU—specifically 2501A's Special Conditions 3-5, 10-13, 15, 38, 51, 59-60, 62, and 64-65. Proposed Permit at 258. These conditions cannot ensure compliance with 2501A's very specific hourly and annual PM2.5, PM10 and filterable PM limits for the FCCU. To begin with, many of these provisions (Special Conditions 10-12, 51, 59 and 62) relate only to pollutants other than PM. And others (Special Conditions 3-5, 60 and 64) are just very general provisions that are generally applicable to the many units covered by 2501A and do not specify monitoring or reporting requirements for PM from the FCCU.

Special Condition 13 lists a 20% opacity limit, but Valero does not actually monitor opacity. *See* Proposed Permit at 238-41 (EPA's March 2016 Alternative Monitoring Plan Approval). In addition to Special Conditions 14 and 55 (discussed above), Permit 2501A lists the following other PM-specific monitoring and reporting requirements:

- Special Condition 15 lists the operating parameter limits for the FCCU's wet gas scrubber that were approved by EPA in March 2016 as part of an Alternative Monitoring Plan.⁵⁶
- Special Condition 38 only requires a once-a-year inspection and annual visual emissions observation of the FCCU's scrubber.
- Finally, for the "FCCU/Alkylation Turnaround" project that TCEQ authorized in January 2019, Special Condition 65 incorporates the requirements from 30 TAC § 116.127, which requires Valero to monitor the emissions "that could increase as a result of the project . . . and calculate and maintain a record of the annual

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⁵⁶ This condition mistakenly lists the operating parameter limits as being for the "FCC Unit Stack."

emissions . . . , in tons per year, on a calendar year basis" for either five or 10 years. Neither Special Condition 65 nor § 116.127, however, specifies how emissions are to be monitored.

Like Special Conditions 14 and 55, these additional provisions cannot ensure compliance with the hourly and annual MAERT PM limits because they require monitoring that is too infrequent, do not actually require any stack testing, and do not require measurement of condensable PM. March 2019 Sahu Decl. ¶6-9. While Condition 15 lists the operating parameter limits (with one-hour averaging periods) that EPA approved for the FCCU's scrubber in March 2016, TCEQ's response to comments states that the parameters "are not meant to ensure compliance with the hourly PM limits, because, the EPA's limits are not PM emission rates (EPA's limit is a lb of filterable PM/1,000 lb coke-burn, whereas the MAERT limit is a total PM (filterable + condensable) lb/hr limit)." RTC at 72. This presumably applies to the annual PM MAERT rates as well.⁵⁷

The PM-related provisions in the Title V permit itself are also inadequate to ensure compliance with the MAERT PM limits. March 2019 Sahu Decl. ¶12. The Periodic Monitoring Summary's operating parameters for the FCCU's scrubber (Proposed Permit at 174-75) only require that these parameters be checked once a week, and these requirements are only for compliance with the SIP opacity limit—not the MAERT's hourly and annual PM limits or the condensable portions of those limits. Likewise, the visible emissions observations per the requirements of 30 TAC § 111.111 (assuming this applies to the FCCU), Proposed Permit at 7, is infrequent and only relates to opacity—and does not account for condensable PM.

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Further, COMS only reflects filterable PM, and the NSPS and NESHAP limits for FCCUs are only filterable (and not condensable) PM limits. *See*, *e.g.*, 40 C.F.R. Part 63, Subpart UUU, Table 4 (requiring "Method 5 or 5B (40 CFR Part 60, appendix A-3) to determine PM emissions and associated moisture content for unit with wet scrubber"). Thus, the parametric monitoring approved to establish compliance with opacity limits from NSPS and NESHAP cannot ensure compliance with condensable PM limits. Even if it could, the permit record fails to show that the parametric monitoring has been correlated with —or can ensure compliance with—the significant condensable portions of the very specific MAERT hourly and annual PM limits. Also, the permit does not explain how this parametric monitoring can be used to determine actual emissions of condensable PM. *See* Deer Park Order at 21-23.

⁵⁷ Regardless, this parametric monitoring cannot ensure compliance with the annual and hourly PM limits. EPA only approved using this parametric monitoring in lieu of a continuous opacity monitoring system (COMS) for the opacity limit under NSPS and NESHAP. Proposed Permit at 238-41. This approval was not related to 2501A's PM limits, and nothing in the permit: explains how this parametric monitoring could ensure compliance with the PM limits listed in the MAERT; correlates the parametric limits with specific, actual filterable PM, PM2.5 or PM10 hourly or annual emissions; or explains how this parametric monitoring can be used to determine actual emissions of filterable PM, PM2.5 or PM10. *In the Matter of Shell Chemical LP and Shell Oil Co., Deer Park Chemical Plant and Refinery* ("Deer Park Order"), Order on Petition Nos. IV-2014-04 and IV-2014-05 at 21-23 (Sept. 24, 2015) (objecting to provision that required parametric monitoring for tanks because permit did not explain how parametric monitoring data would be used to determine the actual quantity of VOC emissions). Nor does the permit record explain how this parametric monitoring could be used to determine actual hourly or annual filterable PM, PM2.4 or PM10 emissions. Thus, this parametric monitoring is also inadequate to ensure compliance with the MAERT PM limits. March 2019 Sahu Decl. ¶10.

The PM-related NSPS and NESHAP provisions for the FCCU (mentioned in the Proposed Permit at 71-73) also cannot ensure compliance with the MAERT PM limits. March 2019 Sahu Decl. ¶13. This is especially so given TCEQ's concession that "EPA's limits are not PM emission rates (EPA's limit is a lb of filterable PM/1,000 lb coke-burn, whereas the MAERT limit is a total PM (filterable + condensable) lb/hr limit)." See RTC at 72. Further, nothing in the permit or permit record ties the NSPS or NESHAP monitoring, testing or reporting requirements—or correlates the NSPS or NESHAP limits—to specific, actual PM2.5 or PM10 emission rates or the MAERT PM limits. Moreover, the NSPS/NESHAP opacity-related parametric monitoring requirements are inadequate to ensure compliance with the MAERT limits for the reasons discussed above. ⁵⁸ And, as also discussed above, given that the NSPS and NESHAP limits for FCCUs are only for filterable (and not condensable) PM, the NSPS/NESHAP-required testing and monitoring for these limits cannot ensure compliance with the condensable portions of the MAERT PM limits. Further, the NSPS/NESHAP monitoring and testing is too infrequent to ensure compliance with the hourly and annual MAERT PM limits: To meet the NESHAP/NSPS PM limit of 1.0 kg/Mg (2.0 lb/ton) of coke burn-off in the catalyst regenerator (see 40 CFR §§ 63.1564(a)(1), 60.102(a)(1)), an FCCU like Valero's (one that does not use PM CEMS) is only required to conduct a stack test once every five years unless the PM emissions measured during the most recent stack source test are greater than 0.80 g/kg coke burn-off, in which case a stack test is required to be conducted annually. 40 CFR § 63.1571(a). In addition to the fact that neither annual nor twice-a-decade testing is frequent enough to ensure compliance with the MAERT PM limits, the Title V permit impermissibly fails to specify whether annual or testing once every five years is required for Valero.

Strong PM monitoring requirements for the FCCU are especially important to confirm that the PM emissions increases resulting from the "FCCU/Alkylation Turnaround" project that TCEQ authorized in January 2019 (referenced in 2501A Special Condition 65) do not trigger major PSD. Valero has projected PM2.5 and PM10 increases resulting from the project (7.62 and 8.55 tons/year, respectively) that are not far below the thresholds for triggering PSD—10 tons/year PM2.5 and 15 tons/year PM10. *See* Ex. 8, April 16, 2021 Version of Permit 2501A, at Special Condition 65.A.⁵⁹ Valero expects the overwhelming majority of the increases resulting

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⁵⁸ There is an additional NESHAP parametric monitoring requirement for FCCUs with wet scrubbers (like Valero's) that do not use PM CEMS—that they must use a continuous parametric monitoring system to measure and record the pressure drop across the scrubber, the coke burn-off rate or the gas flow rate entering or exiting the control device, and total liquid (or scrubbing liquor) flow rate to the control device. 40 C.F.R. Part 63, Subpart UUU, Table 3. To the extent that requirement has not been replaced for Valero by the Alternative Monitoring Plan approved by EPA, these requirements are inadequate to ensure compliance with the MAERT limits for the same reasons that the parametric monitoring from that Plan is inadequate.

⁵⁹ The projected emission increases can be arrived at by subtracting the baseline emissions listed in the table in Special Condition 65.A from the projected actual emissions listed in that same table. The January 18, 2019 version of permit 2501A (the version appended to, and incorporated into, the proposed Title V permit) shows even higher projected PM2.5 and PM10 emissions increases from FCCU/Alkylation Turnaround project, but TCEQ later amended that permit to lower the baseline and projected actual PM2.5 and PM10 emissions due to "errors" that Valero "found" related to its emissions inventory. TCEQ made the revision after Petitioners' comments on the upgrade project pointed out that Valero's baseline

from the project to be from the FCCU itself (*i.e.*, not from downstream processes)—6.88 tons/year PM 2.5 and 7.81 tons/year PM10. *See id*.

Further, the requirements from 30 TAC § 116.127 that Valero calculate and maintain a record of the annual emissions, in tons per year, on a calendar year basis for either five or 10 years—and report if annual emissions from the project exceed the baseline emissions by a significant amount—are themselves applicable requirements under Title V because they are "requirement[s] provided for in the applicable implementation plan." *See* 40 C.F.R. § 70.2's definition of "applicable requirement"; 30 Tex. Admin. Code § 122.10(2)). Thus, the proposed Title V permit must ensure compliance with these requirements, but it fails to do so for the same reasons that it fails to ensure compliance with the PM MAERT limits.

1. EPA should require TCEQ to revise the Title V permit to mandate the use of PM CEMS at the FCCU, among other things.

As Petitioners' Initial Comments explained (at pages 69-70) and as discussed in Dr. Sahu's March 2019 declaration at paragraphs 14-16, to remedy the above-described problems and ensure compliance with the hourly and annual PM2.5, PM10, and filterable PM limits for the FCCU, and to also ensure that the FCCU upgrade project does not result in the need to conduct the netting test for major PSD applicability (and thus ensure compliance with the requirements from 30 Tex. Admin. Code § 127), EPA should require TCEQ to revise the proposed Title V permit and/or permit 2501A as follows:

- Require PM CEMS (which are widely available from several vendors) and continuous flow and temperature measurements for compliance with the filterable portions of Valero's PM limits.
- Because PM CEMS only measures filterable PM: (a) require annual stack testing for condensable PM; (b) establish a filterable/condensable ratio from the most recent stack test (or as an average of the result from the most recent test and all prior tests, as these tests begin to accumulate over time); (c) establish hourly filterable and condensable operating limits that reflect the relative proportions from the most recent stack test (or using the average of tests discussed in (b) above); and (d) require Valero to meet those filterable and condensable operating limits as shown by hourly PM2.5 and PM10 CEMS results. Relatedly, TCEQ should be required to clarify in 2501A's provisions that testing for condensable PM is indeed required (to remedy the currently ambiguous language discussed above).

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emissions for the upgrade project were higher than the FCCU PM emissions that the company had reported to the emissions inventory for that same time period. Even though TCEQ corrected the "errors" that Valero "found" in the January 2019 version of 2501A through revisions that appear in the April 2021 version of that permit, the proposed Title V permit for some reason only attaches and incorporates the January 2019 version (and not the updated, corrected April 2021 version) of 2501A.

• Remove the language from Special Condition 55-F that allows the FCCU to operate at a burn rate not exceeding 10% of the burn rate from the previous stack test if the short-term emission rate did not exceed 80% of the MAERT limit.

These strong monitoring requirements—as well as strong requirements for units other than the FCCU (discussed below)—are especially important because, as discussed above, environmental justice concerns here mandate increased, focused attention to ensure that all Title V requirements—including, in particular, monitoring, recordkeeping, reporting, and compliance certification requirements—have been complied with.⁶⁰

2. Petitioners raised all but one of their objections regarding the monitoring and emission calculation requirements for PM from the FCCU with reasonable specificity during the comment period.

TCEQ's draft Title V permit, draft statement of basis, and permit 2501A did not list the monitoring and emission calculation method for determining compliance with the FCCU's MAERT PM limits that TCEQ identifies in its response to comments (*i.e.*, using a lb PM/1,000 lb coke-burn emission factor determined by stack test and coke-burn data to calculate PM emissions). Only after the close of the comment period did TCEQ identify this method in its response to comments.

Even though the draft permit and permit 2501A did not contain this method for determining compliance with the FCCU's MAERT PM limits, Petitioners raised their above objections from this petition with reasonable specificity during the comment period, except for the objection that this method cannot ensure compliance because it is not actually listed in the Title V permit or permit 2501A. Specifically, Petitioners' comments objected that the monitoring and testing requirements for PM are too infrequent and that the requirements cannot ensure compliance with the condensable portions of 2501A's PM limits. *See* Initial Comments at 66-70. TCEQ's response to comments—in which TCEQ responds to Petitioners' comments regarding the inadequacy of the draft permit's monitoring and emission calculation requirements for the PM limits—shows that the comments gave TCEQ ample notice of Petitioners' objections. *See* RTC at 72-73.

When commenting, however, Petitioners could not reasonably have anticipated the new monitoring and emission calculation method (*i.e.*, using a lb PM/1,000 lb coke-burn emission

⁶⁰ Even if EPA does not specifically instruct TCEQ to require all of the above permit fixes, EPA's order

present here, EPA should, in keeping with the recommendations from this petition, give TCEQ explicit direction on how it might remedy the proposed Title V permit's inability to ensure compliance with the relevant limits.

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responding to this petition should—because of the environmental justice concerns present here and the potential of the FCCU upgrade project to trigger PSD— give TCEQ explicit direction on how it might remedy the proposed Title V permit's inability to ensure compliance with the PM limits for the FCCU, rather than simply leaving it to TCEQ to further explain why it thinks that the current permit requirements, and/or the method of calculating emissions first identified in TCEQ's response to comments, can ensure compliance here. The same holds true for all of the additional monitoring and emission calculation problems identified below for other units: given the environmental justice concerns

factor determined by stack test and coke-burn data to calculate PM emissions) that TCEQ identified only after the close of the comment period. Thus, it was impracticable in comments to raise Petitioners' objection that the method cannot ensure compliance because it is not listed in the permits. See 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). Further, the grounds for that objection arose after the comment period, when TCEQ first identified the method in its response to comments. See id.

If EPA believes that certain other objections above were not raised with reasonable specificity during the comment period, it was impracticable to raise those additional objections in comments because Petitioners were unable, during the comment period on the draft permit, to review the monitoring/calculation method that TCEQ first identified in its response to comments. See 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). Further, the grounds for any objections not raised in Petitioners' comments arose after the comment period, when TCEQ first identified that method in its response to comments. See id. Put another way, Petitioners could not have raised every single detail of their objections to a monitoring/calculation method that was not identified during the comment period. See Portland Cement Ass'n v. EPA, 665 F.3d 177, 186 (D.C. Cir. 2011) ("We should be especially reluctant to require advocates for affected ... groups to anticipate every contingency. To hold otherwise would encourage strategic vagueness on the part of agencies and overly defensive, excessive commentary on the part of interested parties"); see also Chesapeake Climate Action Network v. EPA, 952 F.3d 310, 320 (2020) ("It was simply impracticable for Petitioners to predict how EPA would cure the missing [] component and then submit preemptive attacks on such hypothetical solutions."); Clean Air Council v. Pruitt, 862 F.3d 1, 10 (D.C. Cir. 2017) (looking to whether final rule was a "logical outgrowth" of proposed rule to determine whether 42 U.S.C. § 7607(d)(7)(b)'s impracticability prong met,⁶¹ and holding that final rule fails logical outgrowth test if commenters "would have had to divine the agency's unspoken thoughts") (citation and internal quotation marks omitted).

3. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring requirements for PM from the FCCU.

TCEQ's response to comments is inadequate to address any of the above-discussed problems with the proposed permit's monitoring and emission calculation requirements for PM from the FCCU. First, the monitoring and emission calculation method for determining compliance with the FCCU's MAERT PM limits that TCEQ first identified in its response to comments (*i.e.*, using a lb PM/1,000 lb coke-burn emission factor determined by stack test and coke-burn data to calculate PM emissions—see RTC at 72) cannot ensure compliance with the

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⁶¹ Using language similar to 42 U.S.C. § 7661d(b)(2), § 7607(d)(7)(B) provides the following with respect to judicial review of rules and other final actions by EPA: "Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment ... may be raised during judicial review. *If the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within such time or if the grounds for such objection arose after the period for public comment* (but within the time specified for judicial review) ..., the Administrator shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed." (Emphasis added).

hourly and annual PM2.5, PM10, and filterable PM limits for the FCCU for the reasons discussed above. *See supra* at 45-47.

TCEQ also states that permit 2501A's Special Condition 55.B "requires performing stack testing that includes the condensable portion measurement." RTC at 72. TCEQ is apparently referring to the reference in Condition 55.B to "total suspended particulate." As discussed above, however, this reference to "total suspended particulate" is unclear whether it includes condensable PM or not. And importantly, even if this language contemplates testing for condensable PM, it does not actually require testing on any set schedule—or at all; Condition 55.B only states that "[a]ir constituents emitted from the FCC Unit Stack ... to be tested for include (but are not limited to) filterable particulate, total suspended particulate, oxygen, CO, SO2, and NOx."

TCEQ's also states: "While the permit limits allow for a significant portion of the total PM10 from the FCCU to be condensable PM (approximately 57% of the short-term limit and 41% of the annual limit), actual test data from December 2008 stack testing indicates that the condensable portion was less than half of the filterable portion." RTC at 72. To begin with, the fact that the last stack test for condensable PM was conducted over a dozen years ago just proves that the proposed Title V permit cannot ensure compliance with the condensable portion of the MAERT PM limits for the FCCU. Further, "less than half of the filterable portion" of PM from the FCCU would still many tons of condensable PM. In addition, the percentage of condensable PM from the FCCU could very easily have changed—and surely has changed—over the last 12-plus years. 2021 Sahu Decl. at ¶11. Thus, the percentage of condensable PM could be significantly higher now. *Id*.

Finally, TCEQ states that "[m]onitoring requirements for the FCCU ... that assure compliance with applicable PM and PM opacity limits under NSPS J are listed on pages 71, 172 and 173 of the Draft Permit." RTC at 72, 135. TCEQ does not even assert, however, that these requirements ensure compliance with the FCCU's hourly and annual PM2.5, PM10, and filterable PM limits listed in permit 2501A's MAERT. Nor can these NSPS requirements ensure compliance with the MAERT PM limits, as discussed above. *See supra* at 49.

B. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with the Hourly and Annual Limits for the Refinery's Flares.

As Petitioners' comments generally explained (Initial Comments at 70-76, Suppl. Comments at 31-33), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with hourly and annual limits for VOCs, SO2, NOx, CO, and H2S from the refinery's two flares—30FL1 (the main refinery flare) and 30 FL6 (the "ULSD," or ultra low sulfur diesel flare). Specifically, in violation of 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed permit's monitoring, emission calculation, and other requirements cannot ensure compliance with the following limits from permit 2501A, all of which are in terms of combined emissions from the two flares: 255 lbs/hour and 393.3 tons/year VOCs; 1,402 lbs/hour and 115.6 tons/year SO2; 12 lbs/hour and 19.3 tons/year NOx; 86.5 lbs/hour and 139.5

tons/year CO; and 14.2lbs/hour and 1.2 tons H2S.⁶² *See* Permit 2501 MAERT at "30FL1 and 30FL6"; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating permit 2501A into the Title V permit).

In its response to comments, TCEQ, for the first time, identifies (in part) how Valero calculates emissions for purposes of complying with the flares' hourly and annual limits for VOCs, SO2, NOx, CO, and H2S, stating:

...NSR Permit No. 2501A Special Condition 37 requires flow monitors and composition analyzers to demonstrate compliance with the MAERT limits. These flow monitors as composition analyzers are used to ensure hourly and annual compliance with NOX, CO, and VOC hourly rates (AP-42 emission factors and flow rates are used for NOX and CO and composition analyzers and flow rates are used for VOC). Per NSPS Ja (also specified in the condition), H2S GCs and Total Sulfur SOLAs are installed, providing continuous measurements of the H2S and SO2 hourly emissions.⁶³

RTC at 73. These methods of calculating emissions cannot ensure compliance with the hourly and annual limits for the flares for several reasons:

First, these monitoring and emission calculation methods cannot ensure compliance with the flares' hourly or annual VOC, SO2, NOx, CO, and H2S limits because the methods are not listed in either permit 2501A or the proposed Title V permit. Although permit 2501A's Special Condition 37.D requires flow monitors and composition analyzers, Permit 2501A is vague (at best) and silent (at worst) as to how emissions of VOCs, SO2, NOx, CO, and H2S are actually calculated, as Petitioners pointed out in their comments. *See* Initial Comments at 72-73. Special Condition 37.F only cryptically provides that hourly mass emission rates are to be determined using the "above readings" and the "emission factors used in the permit amendment application, Pl-1 Dated May 9, 2012." The "emission factors" referenced in 37.F are not identified in either the draft Title V permit or 2501A. As of the time that Petitioners filed their comments, not even TCEQ knew what the relevant emission factors or calculation methods were: Petitioners specifically asked for the factors/methods in a public information request TCEQ, but TCEQ was unable to locate them, and instead admitted that: "The special condition reference was incorrect." Further, the language of Special Condition 37.F is very vague regarding what the "above readings" are that are supposed to be used, along with the "emission factors," to

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⁶² Because permit 2501 lists certain monitoring or other related requirements for the flares but those requirements cannot ensure compliance with these various limits, § 70.6(c)(1) requires TCEQ to supplement 2501A's original monitoring and other requirements.

⁶³ As explained below, TCEQ's response to comments fails to fully explain how emissions of these pollutants are calculated. For example, TCEQ does not identify any assumed destruction efficiencies and conversion efficiencies that are used to calculate emissions of, respectively, VOCs and SO2 from the flares.

⁶⁴ See Ex. 9, Email from Lisa D'Amato (TCEQ) to Emma Cheuse.

determine emission rates, since the "above" portions of Special Condition 37 reference data—other than the data from the flow and composition monitors—that could possibly be used to calculate emissions, including the flared gas net heating value (Special Condition 37.E-F) and exit velocity (37.F). In addition, permit 2501A does not specify that "H2S GCs and Total Sulfur SOLAs are installed."

Second, even if permit 2501A or the Title V permit did list the monitoring and emission calculation methods identified in TCEQ's response to comments, those methods could not ensure compliance with the flares' hourly or annual VOC, SO2, and CO limits because the permits (and TCEQ's response to comments) do not identify assumptions and/or emission factors necessary to calculate emissions of these pollutants from the flares. For example, to calculate emissions of VOCs from the flares using flow rates and data from the composition analyzers (the method of calculating VOCs identified in TCEQ's response to comments), Valero would need to use an assumed destruction efficiency, i.e., percentage of VOCs from the incoming flare waste gases that are destroyed in the flares, while taking into account the production of VOCs in the combustion processes in the flare. 2021 Sahu Decl. at ¶¶12-14. This is because the flow monitors and composition analyzers would necessarily (as a matter of engineering) be located at the flare inlets, upstream of the point where the waste gases pass through the flares (i.e., before the flares then theoretically destroy a certain percentage of the VOCs present in the waste gases). 65 Id. Historically, TCEQ guidelines for calculating emission from flares have called for use of an assumed 98% destruction efficiency for heavier VOC compounds with four or more carbon atoms and a 99% destruction efficiency for lighter VOC compounds with one to three carbon atoms. Id. See also Ex. 10, TCEQ Air Permits Division- NSR Emission Calculations (March 2021) (calling for application of "98 percent destruction efficiency for butane+ and hydrogen, and 99 percent destruction efficiency for propylene, propane, ethylene, and ammonia"). To ensure compliance with the flares' hourly and annual VOC limits, if Valero uses these 98 and 99% assumed destruction efficiencies (or some other assumed destruction efficiencies or some sort of emission factors) to calculate VOC emissions from the flares, permit 2501A or the Title V permit must identify those assumed destruction efficiencies (or emission factors). ⁶⁶ The public and regulators should not be left to guess what destruction efficiencies or emission factors Valero uses to calculate VOC emissions from the flares.

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⁶⁵ Permit 2501A's Special Condition 37.D makes clear that the monitors and analyzers are located at the flare inlets, providing: "The permit holder shall install continuous flow monitors and composition analyzers that provide a record of the vent stream flow and composition to the flare. The flow monitor sensor and analyzer sample points shall be installed in the vent stream *as near as possible to the flare inlet* such that the total vent stream to the flare is measured and analyzed." (Emphasis added).

⁶⁶ Permit 2501A's Special Condition 37.G mentions 98% destruction efficiency for VOCs (stating that the flares "shall operate with no less than 98 percent efficiency in disposing of the carbon compounds captured by the collection system"), but the permit is unclear whether this efficiency is actually used in emission calculations. The permit is also silent regarding whether any assumed conversion efficiency for SO2 is the same as the assumed destruction efficiency for VOCs.

Likewise, the permit(s) must also identify any assumed conversion efficiencies that Valero uses to calculate SO2 emissions from the flares. In its SO2 calculations, Valero presumably uses an assumed conversion efficiency, *i.e.*, percentage of all sulfur from the waste gases that is oxidized to SO2 in the flares. 2021 Sahu Decl. at ¶15. This is because the total sulfur SOLAs that (says TCEQ's response to comments) Valero uses to measure SO2 would necessarily be located at the flare inlets, upstream of the point where the waste gases pass through the flares and before the flares convert a certain percentage of the sulfur present in the waste gases to SO2. *Id*.

In addition, the permit(s) must specify which version of AP-42 emission factors Valero uses to calculate CO emissions from the flares. In 2015, EPA updated emission factors for CO (and VOC) emissions from flares because the old emission factors yielded inaccurate emissions results.⁶⁷ Permit 2501's Special Condition 37.F, however, provides that emission rates are to be determined using the "emission factors used in the permit amendment application, Pl-1 Dated May 9, 2012"—an application submitted before the CO emission factors were updated in 2015. If Valero uses an old, pre-2015 version of the CO emission factors, this non-updated version of AP-42 emission factors cannot ensure compliance with the flares' hourly and annual CO limits.

Third, if Valero is indeed using destruction efficiencies of 98% (for heavier compounds with four or more carbon atoms) and 99% (for lighter compounds with one to three carbon atoms) to calculate VOC emissions from the flares, those assumed efficiencies cannot ensure compliance with the flares' hourly and annual VOC limits for those periods during which the flares are not achieving the assumed destruction efficiencies. 2021 Sahu Decl. at ¶16. For those periods in which the flares are destroying VOCs at efficiencies less than 98% (for heavier compounds) and less than 99% (for lighter compounds), the actual flare emissions would be higher than Valero's calculations would assume, if Valero is indeed using the assumed 98-99% destruction efficiencies that TCEQ's guidelines call for. *Id.* Thus, for those periods where the flares are not meeting the assumed destruction efficiencies, Valero would be underestimating VOC emissions from the flares. *Id.*

EPA promulgated new operating requirements for flares in 2015, as part of its NESHAP risk and technology review for the petroleum refining sector. Those operating requirements, including a requirement to meet a net heating value of 270 BTU/scf in the flare combustion zone, were designed to ensure 98% destruction efficiency. *See*, *e.g.*, 80 Fed. Reg. 75,178, 75,211 (Dec. 1, 2015). Valero's flares at its Houston refinery, however, have struggled to comply with the

⁶⁷ See https://www.epa.gov/air-emissions-factors-and-quantification/new-and-revised-emissions-factors-factors-and-new-emissions

⁶⁸ There, EPA, in its final rule, stated: "The agency believes ... that this [net heating value in the combustion zone] operating limit is appropriate, reasonable and will ensure that refinery flares meet 98-percent destruction efficiency at all times when operated in concert with the other suite of requirements refinery flares need to achieve (*e.g.*, flare tip velocity requirements, visible emissions requirements, and continuously lit pilot flame requirements)." *Id*.

minimum combustion-zone net heating value from 40 C.F.R. § 63.670(e). ⁶⁹ For example, in the first half of 2019, flare 30FL1 violated this combustion-zone requirement for 221 different 15-minute block periods, and flare 30FL6 violated the requirement for 86 different 15-minute block periods. Ex. 11, Valero's First Half 2019 Subpart CC Compliance Report, at PDF pp. 5-11. In the second half of 2019, 30FL1 violated this requirement for 82 different 15-minute block periods, and flare 30FL6 violated the requirement for 249 different 15-minute block periods. ⁷⁰ Ex. 12, Valero's Second Half 2019 Subpart CC Compliance Report, at PDF pp. 10-15.

For each 15-minute period that Valero did not comply with the combustion-zone net heating value requirement, Valero would have underestimated VOC emissions from the flares, assuming the company was using 98-99% destruction efficiencies in its VOC emission calculations. 2021 Sahu Decl. at ¶17. If Valero is using an assumed 99% destruction efficiency for lighter compounds with one to three carbon atoms, even compliance with the NESHAP Subpart CC operating requirement for flares would not ensure 99% destruction efficiencies, since the NESHAP requirements were designed to, at best, achieve 98% efficiency. 2021 Sahu Decl. at ¶18. Unless TCEQ provides a sound, reasoned technical justification as to why the destruction of the "lighter" compounds is 99% (or twice as much as 98%), it should not be allowed to use this 99% destruction efficiency for open flares of the type located at the refinery. *Id.* Valero should instead only be allowed to assume 98% destruction for both light and heavy compounds, except for those periods where the flares are not meeting the opacity and net heating value requirements from § 63.670 (during which a lower destruction percentage should be used). *Id.*

Ensuring 98-99% destruction efficiency (depending on the compounds in question) is especially important for Valero's tall, stack flares because these flares (like most refinery flares) use steam-assist systems (Valero's 2019 Flare Management Plan at PDF p. 14), which will reduce the net heating value in the combustion zone and thus reduce destruction efficiencies. March 2019 Sahu Decl. ¶27. See also 79 Fed. Reg. 36,880, 36,905 (June 30, 2014). In addition, over-steaming invariably reduces flame stability and thus dramatically reduces the destruction efficiency in this way as well. March 2019 Sahu Decl. ¶27.

Each overestimated percentage point of destruction efficiency can make a huge difference in actual emissions. March 2019 Sahu Decl. ¶27. For example, if one assumes that

⁶⁹ Section 63.670(e) provides in relevant part: "For each flare, the owner or operator shall operate the flare to maintain the net heating value of flare combustion zone gas ... at or above 270 British thermal units per standard cubic feet (Btu/scf) determined on a 15-minute block period basis when regulated material is routed to the flare for at least 15-minutes."

⁷⁰ In the first half of 2020, which is the last period for which a Subpart CC compliance report is available on TCEQ's website, the two flares combined experienced fewer violations of the combustion-zone net heating value requirement—three violations, all by 30FL1. Ex. 13, Valero's First Half 2020 Subpart CC Compliance Report, at PDF pp. 10-11.

raw flare gases to be flared contain 100 lbs of VOCs, the difference in VOC emissions between a 90% and a 98% destruction efficiency is five-fold (10 lbs VOCs versus 2 lbs VOCs).

Fourth, the monitoring and calculation method for VOCs that TCEQ identifies in its response to comments (using flow rates and the composition analyzers) cannot ensure compliance with the flares' hourly and annual VOC limits because it is unclear whether the composition analyzers are measuring all VOCs in the waste gas—or only a subset of the VOCs, as discussed in Dr. Sahu's 2021 declaration at paragraph 19. Valero's 2019 flare management plan does not list any VOC composition analyzers among the flares' monitoring equipment. *See* 2019 Flare Management Plan at Tables 3.5.1-2 (PDF pp. 19-21) (listing specifications for various pieces of monitoring equipment, but not including VOC composition analyzers). The cover page to the plan's Appendix D mentions a "HRVOC Analyzer," but the plan (at least the redacted version that TCEQ provided Petitioners) does not actually list the specifications for any HRVOC analyzer(s). If Valero's analyzers used for purposes of VOC emissions calculations are only measuring "HRVOCs" (highly reactive VOCs)⁷¹—or some other subset of VOCs—instead of all VOCs in the waste gas, then Valero's calculations would be underestimating VOCs from the flares. Permit 2501A's hourly and annual limits are for all VOCS from the flares—not just some subset of VOCs, such as HRVOCs.

Fifth, as discussed in Dr. Sahu's 2021 declaration at paragraph 20, the monitoring and calculation method for VOCs that TCEQ identifies in its response to comments (using flow rates and the composition analyzers) cannot ensure compliance with the flares' hourly and annual VOC limits because it is unclear whether the flow monitors are measuring all of the gases entering the flares, including sweep and purge gases. Sweep gases are introduced to make sure that all waste gases flow toward the flares and do not accumulate in pockets or condensed spots in the piping upstream of the flares, and purge gases are non-flammable gases introduced to purge upstream units of waste gases that are sent to the flares. Valero uses sweep and purge gases, 72 but it is unclear from the permits and Valero's flare management plan whether the flow monitors are measuring VOCs in the sweep and purge gases. In particular, the version of the flare management plan produced to Petitioners by TCEQ did not include any diagrams that would allow Petitioners to better determine whether the monitors are measuring the sweep and purge gases, since TCEQ withheld the plan's Appendices A-B (which included a flow diagram, P&IDs, and flare tip drawings), apparently on claims on confidentiality. If Valero is not measuring the purge and sweep gases (and thus not taking into account any VOCs from these gases in its emissions calculations), then Valero would be underestimating VOC emissions from the flares.

<u>Sixth</u>, as discussed in Dr. Sahu's declaration at paragraph 21, if Valero is indeed using a certain assumed conversion efficiency (*i.e.*, the percentage of sulfur in the waste gases that is

⁷¹ Some VOCs, like HRVOCs, are more reactive and thus more likely to form ozone than other VOCs. 2021 Sahu Decl. at ¶19.

⁷² See Valero's 2019 Flare Management Plan at PDF p. 11 (discussing sweep and purge gases).

converted to SO2 in the flares) in its calculations of SO2 emissions from the flares, then that assumed conversion efficiency may be underestimating the percentage of sulfur that is converted to SO2, thus underestimating the SO2 emissions from the flares. For example, if Valero is assuming 98% of the sulfur in the waste gases is converted to SO2 in the flares, but in reality 100% of the sulfur is converted to SO2, then Valero's calculations would yield less SO2 than is actually emitted by the flares.⁷³ If that is the case, then Valero's method of calculating SO2 emissions from the flares cannot ensure compliance with the flares' specific hourly and annual SO2 limits. Unless it can show that the actual conversion efficiency in the flares is different, for purposes of SO2 emissions calculations, Valero should be required to assume that 100% of the sulfur compounds in the flare waste gases are converted to SO2.

Seventh, as discussed in Dr. Sahu's declaration at paragraph 22, the method that TCEQ identifies in its response to comments for monitoring and calculating SO2 emissions (Total Sulfur SOLAs) very likely cannot ensure compliance with the flares' hourly and annual SO2 limits because the upper bound of total sulfur concentration that Valero's SOLAs can measure is too low. Valero's 2019 flare management plan indicates that the SOLAs (which the plan refers to as "high-range sulfur" monitors) can only measure sulfur in the waste gases at concentrations up to 5,000 ppmy, 2019 Flare Management Plan at Tables 3.5.1-2 (PDF pp. 19-21). Depending on the upstream units that are sending waste gases to the flares and other conditions at the refinery, however, the sulfur content of the gases could be far above 5,000 ppmv. For example, Dr. Sahu is aware of another refinery that has waste gases with total sulfur contents over 650,000 ppmv.⁷⁴ If the waste gases treated by Valero's flares have sulfur contents above the current 5,000 ppmv upper bound of the SOLAs, then Valero's calculations of SO2 emissions from the flares using the SOLAs' current span would be significantly underestimating the SO2 emissions. Since Valero may not know what the highest total sulfur concentration may be in each of the two flares' waste gases, the SOLA instruments should be set to a span of 1,000,000 ppmv, which could possibly be subsequently reduced based on data collected over a reasonable time period, such as three years or more.

<u>Eighth</u>, as discussed in Dr. Sahu's declaration at paragraph 23, the method that TCEQ identifies in its response to comments for monitoring and calculating NOx emissions (flow rates and AP-42 emissions factors) cannot ensure compliance with the flares' hourly and annual NOx limits because the AP-42 emission factor for NOx from flares is outdated and inaccurate. In particular, the AP-42 NOx emission factor is based on limited testing of propylene flares of very small sizes in the early 1980s.⁷⁵ Those flares tested almost 40 years ago bear no resemblance to the flares located at Valero's refinery, which do not burn only propylene.

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⁷³ The flares' destruction efficiency for VOCs will not necessarily be the same as the flares' conversion efficiency for SO2, since the chemistry of sulfur oxidation and oxidation of each single VOC compound are not the same under similar flare conditions of temperature and residence time. 2021 Sahu Decl. at ¶21.

⁷⁴ That refinery installed a sulfur analyzer with a range up to 1 million ppmv. 2021 Sahu Decl. at ¶22. ⁷⁵ *See* AP 42, Fifth Edition, Volume I, Chapter 13.5, Table 13.5-1 (stating NOx emission factor based on tests using crude propylene containing 80% propylene and 20% propane and citing 1983 flare efficiency

The only flare-monitoring-related conditions actually (or partly) spelled out in the proposed Title V permit itself are at pages 62-63 in the Applicable Requirements Summary and at page 192 in the Periodic Monitoring Summary. Pages 62-63 list the 40 C.F.R. Part 63, Subpart CC requirement that flares be monitored for visible emissions as specified in § 63.670(h). Given the problems with the flares' monitoring and emission calculation methods discussed above, this visible emission requirement (along with the visible emission requirement from Special Condition 37.C of permit 2501A) cannot ensure compliance with the flares' specific hourly and annual limits for VOCs, SO2, NOx, CO, and H2S. 2021 Sahu Decl. at ¶24. Further, the specific monitoring requirement listed on page 192 of the proposed Title V permit is to measure and record the presence of the pilot flame or maintain records of alarm events and duration of alarm events. Permit 2501A also contains a pilot-flame monitoring requirement (at Special Condition 37.B), and the requirement to ensure a flame is present at all times cannot ensure compliance with the specific hourly and annual pollutant limits in permit 2501A. March 2019 Sahu Decl. ¶19. Although the Statement of Basis for the proposed Title V permit states that the "presence of the pilot flame demonstrates that VOC emissions are combusted" (SOB at 93), the presence of pilot flame(s) alone cannot ensure that VOCs are being destroyed at a certain rate or that the very specific hourly and annual VOC limits for these tall, stack flares (which are subject to crosswinds)—much less the flares' non-VOC limits—are actually being met. March 2019 Sahu Dec. ¶19. Nor does TCEO explain how the pilot-flame requirement could ensure compliance with these various limits.

The proposed Title V permit also cites purported monitoring, recordkeeping and reporting provisions from permit 2501A as applicable to the flares—specifically 2501A's Special Conditions 3-6, 37, 38, 42, and 64. Proposed Permit at 265. TCEQ does not explain how any of these provisions can ensure compliance with 2501A's very specific hourly and annual limits for the flares. Regardless, these special conditions cannot ensure compliance with those limits. Special Conditions 3-5 only generally list the various NSPS and NESHAP Subparts (without detailing any of the specific provisions of those Subparts) that are applicable to all of the various units and processes covered by Permit 2501A, and they do not list any provisions specific to the flares. As discussed below, the specific NSPS and NESHAP provisions applicable to the flares cannot ensure compliance with the lbs/hour and annual limits applicable to the flares through permit 2501A. 2501A's Special Condition 6 contains certain H2S and sulfur requirements for the refinery's fuel gas, ⁷⁶ but these requirements also cannot ensure compliance with the flares' hourly and annual limits under 2501A. March 2019 Sahu Decl. ¶20. This is especially so for the NOx, VOC, and CO limits. *Id*.

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study from "Reference 1"), available at: https://www3.epa.gov/ttn/chief/ap42/ch13/final/C13S05_02-05-18.pdf

⁷⁶ Special Condition 6 lists 3-hour and annual H2S limits on the facility's refinery fuel gas, and, as relevant to the flares, provides that "[f]uel gas used in the flare pilots (EPNs 30FL1 and 30FL6), shall be sweet, natural gas containing no more than five grains of total sulfur per 100 dry standard cubic feet (dscf)."

Special Condition 38 requires only either (a) monthly inspections of the "capture systems" for the flares to ensure there are no leaking components or (b) an annual inspection for leaks in the capture systems in accordance with NSPS Appendix A, Test Method 21. Special Condition 42 contains only provisions regarding the authorization of planned MSS emissions and is not specific to the flares and does not discuss emissions during non-MSS periods. While that provision mentions estimating certain emissions (using methods or represented emissions from "the permit application") and using the potential to emit (as represented in the permit application) for certain other "inherently low emitting MSS activities," the provision does not explain specifically how emissions are to be estimated or specify any potentials to emit or claimed emissions from the permit application. Nor does the permit attach "the permit application" or identify specifically which application it is referring to. And Special Condition 64 only requires the submittal of semiannual reports for units with continuous emissions monitors. These various provisions also cannot ensure compliance with 2501A's very specific hourly and annual limits for the flares. March 2019 Sahu Decl. ¶21.

The key provisions from 2501A regarding monitoring for the flares are found in Special Condition 37, but these too fail to assure compliance with 2501A's specific hourly and annual limits, as explained above. *See also* March 2019 Sahu Decl. ¶¶17, 22-31. The relevant provisions from Special Condition 37 not already addressed above are these:

- 37.A requires the flares to meet the "40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity."
- 37.E provides: "Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR § 60.18(f)(3) as amended through October 17, 2000 (65 FR 61744)."
- 37.F provides that flared gas net heating value and actual exit velocity determined in accordance with 40 C.F.R. § 60.18(f)(4) are to be recorded at least once every 15 minutes.

These outdated provisions from the NSPS general provisions (first promulgated in 1986, more than three decades ago) can in no way ensure compliance with the specific hourly and annual VOC, SO2, NOx, CO, and H2S limits for the flares—especially given all of the problems discussed above. 2021 Sahu Decl. at ¶¶25-26. In particular, to the extent Valero's emission calculations are to assume 98% (or greater) destruction efficiency for VOCs, the requirements from § 60.18 cannot result in assuring such efficiencies because the simplistic conditions (*i.e.*, minimum heating value and maximum exit velocity) in § 60.18 cannot ensure that these tall, steam-assisted stack flares are properly operated. March 2019 Sahu Decl. ¶27-28; 79 Fed. Reg. 36,880, 36,905 (June 30, 2014).⁷⁷ Unlike § 60.18, the updated NESHAP flare requirements at §

⁷⁷ EPA's statements from the Federal Register notice cited here were in the context of the general flare provisions at 40 C.F.R. § 63.11, but those provisions are virtually identical the general NSPS flare requirements at 40 C.F.R. § 60.18.

63.670 (specifically at subsection (e)) focus on maintaining a minimum net heating value in the combustion zone, which better ensures that VOCs and sulfur compounds are combusted or converted, respectively. March 2019 Sahu Decl. ¶ 30. As EPA has found, the "combustion zone properties at the flare tip are critical parameters to know in determining whether a flare will achieve good combustion," but EPA's prior flare requirements at 40 C.F.R. §§ 60.18 and 63.11 "solely rely on the net heating value of the flare vent gas" (i.e., the gas routed to the flare before the combustion zone and before assist air or steam is added). 79 Fed. Reg. at 36,907. Previous flare requirements (i.e., §§ 60.18 and 63.11) did not take into account steam added to vent gas before the combustion zone, which can dramatically reduce heat values (and the destruction efficiency) at the point where gases are actually burned (and thus increase emissions). March 2019 Sahu Decl. ¶30. See also 79 Fed. Reg. at 36,907 ("Using excessive steam or air results in dilution and cooling of flared gases and can led to operating a flare outside its stable flame envelope, reducing the destruction efficiency of the flare"). Vent gas flow rates and composition can change significantly over short periods of time, and, relatedly, destruction and conversion efficiencies can also vary widely and fall precipitously fast (which would result in dramatic emissions increases), as discussed in more detail in the attached March 2019 declaration from Dr. Sahu. March 2019 Sahu Decl. ¶31. See also 80 Fed. Reg. at 75,210 ("... short periods of poor performance can dramatically limit the ability of a flare to achieve the desired control efficiency").

While the Valero flares are subject to certain NESHAP and NSPS requirements (see Proposed Permit at 59-61), these alone cannot ensure compliance with the very specific hourly and annual limits in the MAERT, given all of the problems discussed above. 2021 Sahu Decl. ¶27. Importantly, nothing in the permit ties the NSPS or NESHAP requirements to specific VOC, CO, SO2, H2S or NOx hourly or annual emission rates or the MAERT flare limits or explains how the NSPS or NESHAP monitoring can be used to determine specific, actual emissions of the various pollutants listed in the MAERT for the flares. See Deer Park Order at 21-23. Nor does the permit record explain how the NSPS or NESHAP monitoring can be used to determine actual hourly or annual emissions of these pollutants from the flares. Further, apart from the H2S limits in Subpart Ja (at § 60.103a(h)), these NESHAP and NSPS provisions do not include any limits for the pollutants listed in the MAERT. And under Subpart Ja, even H2S is only monitored in terms of concentration (not lbs/hour or tons/year, as listed in the MAERT) in the waste gas at the *inlet* to the flare (see 40 C.F.R. § 60.107a(a)(2)), whereas the MAERT SO2 limit is for emissions after the gases pass through the flares. Also, while Subpart Ja contains certain corrective action requirements when SO2 emissions exceed 500 lbs in any 24-hour period (see § 60.103a(c)(1)(i)), the Statement of Basis (at 57) indicates that Valero only evaluates H2S—and not SO2—for purposes of the corrective action requirements.

Finally, the Applicable Requirements Summary in the proposed Title V permit (at 59-60) also notes that the flares are subject to a SIP opacity limit. But for the reasons discussed above, this provision alone cannot ensure compliance with the MAERT limits for the flares. March 2019 Sahu Decl. ¶19.

1. EPA should require TCEQ to revise the monitoring and emission calculation requirements for the flares in specific ways.

As Petitioners' comments generally explained (Initial Comments at 76, Suppl. Comments at 31-32) and as discussed in Dr. Sahu's 2021 declaration at paragraph 28,⁷⁸ to remedy the above-described problems and ensure compliance with the hourly and annual VOC, SO2, NOx, CO, and H2S limits for the flares, EPA should require TCEQ to revise the proposed Title V permit and/or permit 2501A as follows:

- The permit must specify the exact monitoring and emission calculation methods
 that are used to ensure compliance with the hourly and annual limits for the flares,
 including any assumed destruction and conversion efficiencies that Valero uses in
 its calculations of VOC and SO2 emissions (respectively), as well as specifics
 regarding which emission factors Valero is using to calculate CO and NOx
 emissions.
- With regard to VOC emissions from the flares, the easiest and best way to remedy these problems is to require Valero to directly monitor the flare VOC emissions using techniques such as extractive sampling (followed by analysis) or via Video Imaging Spectral Radiometry (VISR), using a product such as MANTIS.⁷⁹ Directly monitoring in this way would result in more accurate VOC emissions estimates than emissions calculated using assumed destruction efficiencies. Using assumed destruction efficiencies cannot account for the variability of flare VOC emissions that can result when actual VOC destruction efficiencies vary unpredictably from the constant value assumed for calculation purposes. Thus, direct monitoring is the method most likely to ensure compliance with the flares' MAERT limits for VOCs.
- If EPA chooses not to require direct monitoring for VOCs (it should), the permit(s) must, at the least, require Valero's VOC emission calculations to use much lower destruction efficiencies (we suggest 93.9%)⁸⁰ for any 15-minute period when Valero is not meeting the combustion zone net heating value requirement from 40 C.F.R. § 63.670(e) or visible emission requirement from §

 $^{^{78}}$ See also March 2019 Sahu Decl. ¶33; Oct. 2019 Sahu Decl. ¶¶51-54.

⁷⁹ https://www.providencephotonics.com/flare-monitoring

⁸⁰ As part of the rulemaking for the petroleum refinery sector NESHAP risk and technology review, EPA —before the 2015 Subpart CC requirements (including the minimum combustion-zone net heating value from §63.670(e)) were promulgated—evaluated test data for 38 steam-assisted flares submitted by the American Petroleum Institute, National Petrochemical and Refiners Association, and the American Chemical Society, and determined their average destruction efficiency was 93.9%. EPA, Petroleum Refinery Sector Rule: Flare Impact Estimates, 5 (Jan. 16, 2014).

63.670(c). Regarding the 99% destruction efficiency for lighter compounds that TCEQ guidance currently calls for, unless TCEQ and Valero can point to a specific reasoned, sound technical basis for this assumption, it should not be allowed to be used in calculations—and 98% destruction efficiency should instead be required to be used in emissions calculations for lighter compounds, except for those periods when Valero is not meeting the combustion zone net heating value requirement from 40 C.F.R. § 63.670(e) or visible emission requirement from § 63.670(c) (when a 93.9% destruction efficiency should be required to be used).

- If EPA chooses not to require direct monitoring for VOCs, the permit(s) must also ensure that Valero measures both (a) all VOCs coming into the flare inlet, not just some subset of VOCs (such as only "highly reactive" VOCs"); and (b) all gases coming into the flare inlet, including sweep and purge gases.
- With regard to SO2 from the flares, the permit(s) should assume that all (*i.e.*, 100%) of the total sulfur compounds in the waste gases being treated by the flares are converted to SO2. The permit(s) should also require Valero to ensure that its total sulfur SOLAs do not have an upper measurement bound that is below the possible sulfur content of the waste gases entering the flare. If the SOLAs are currently not capable of measuring the actual sulfur concentrations of the waste gases because of an insufficiently lower upper bound of the measurement range, then Valero should be required to set the span value of the SOLAs at a level that will for sure be capable of measuring all sulfur entering the flares, *i.e.*, have a span value of 1,000,000 ppmv. Based on the measured sulfur concentration values, the span value could be subsequently reduced if data collected over a reasonable time period, such as three years or more, shows that sulfur values are below 1,000,000 ppmv.
- With regard to NOx from the flares, the permit(s) should, at a minimum, require that emissions calculations use an emission factor value that is the highest measured value from the limited testing done to support the current EPA AP-42 emission factor for NOx instead of the AP-42 factor itself, which is clearly inapplicable here.

Strong monitoring and reporting requirements for these flares—including direct monitoring of VOC emissions—are especially important for several different reasons. First, as shown by the flare's annual limits, these units emit large amounts of ozone precursors (NOx and VOCs) and fine particulate matter precursors (NOx and SO2). Ensuring that ozone precursors from the flares remain below the permitted limits is especially important given that the Houston region is designated nonattainment for the ozone NAAQS. Second, the flares have had regular compliance problems, as shown by the flares' struggles to comply with the minimum combustion-zone net heating value requirement from 40 C.F.R. § 63.670(e).

⁸¹ Like failure to meet the minimum combustion zone net heating value from §63.670(e), opacity violations from flares also signal that desired destruction efficiencies are not being achieved. 2021 Sahu Decl. ¶28.

Third, as discussed above, environmental justice concerns here counsel in favor of strong monitoring and emission calculation requirements for the flares. In particular, strong monitoring of VOC emissions from the two flares is necessary to protect community members living in the densely-populated neighborhoods near Valero's refinery—neighborhoods that were, up until recently, on an Air Pollution Watch List for benzene⁸²—from the harmful effects of this hazardous air pollutant. Valero previously indicated that, at least in 2004-05, benzene emissions constituted, on average, 1.23% of the VOCs emitted by the flares. See Ex. 14, Aug. 2007 MSS Application at Table G-1 ("Benzene emissions were based on the average fraction of benzene in the total VOC combustion reported in 2004-2005 EI, 1.23%"). If that same percentage still applies today, permit 2501A allows the flares to, combined, emit over three pounds of benzene every hour (1.23% of the flares' combined hourly VOC limit of 255 lbs/hour) and 4.834 tons of benzene per year (1.23% of the flares' combined annual VOC limit of 393.3 tons/year). And any VOC emissions above the MAERT limits would only increase the benzene that the nearby communities are exposed to. To ensure that there is no increased exposure and risk from benzene emissions from these flares, direct VOC monitoring is needed. See Granite City Order at 4-6 (because of "potential environmental justice concerns," "[f]ocused attention to the adequacy of monitoring and other compliance assurance provisions [was] warranted").

Fourth, strong monitoring and emission calculation methods for SO2 from the flares is also important because the hourly SO2 limits show that the flares' annual limit for that pollutant could be exceeded in any given year. *See* 2021 Sahu Decl. at ¶29. The flares' combined hourly limit for SO2 is 1,402 lbs/hour. If the flares emitted at this same emission rate for just 166 hours (less than seven days), they would exceed their annual limit of 115.6 tons/year.

Although Valero has a flare gas recovery system, permit 2501A does not actually require that the system be operated. Nalero's 2019 flare management plan (at PDF p. 24) states that the recovery system is not operated during maintenance (for an average of 14 days a year) or when the system is shut down (for an average of 52 days a year). Thus, gases are sent to the flares (and not the recovery system), on average, over nine weeks a year. Not only is this approximately 18% of the time, on a gas volume basis it represents substantial quantities of gases that are allowed to be flared. March 2019 Sahu Decl. ¶18. Further, as also shown by Valero's 2019 flare management plan, the flare recovery system is ineffective, even when it is in use. The plan (at PDF p. 12) indicates that it is possible that the system, when it is actually used, may not have sufficient capacity to handle all instances of leaking pressure relief devices, stating: "If the PRD were to relieve to the flare in sufficient quantity to exceed the capacity of the FGRU, operational

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⁸² https://www.tceq.texas.gov/toxicology/apwl/list.html

⁸³ Special Condition 37.G of that permit provides: "Except as may be provided for in the special conditions or maximum allowable emission rates table of this permit, all waste gas from point sources containing VOC and/or other organic compounds (hydrocarbons and/or hydrocarbon derivatives excluding carbon dioxide) from the process units covered by this permit shall be routed *to a flare or* a flare gas recovery system." (Emphasis added.)

monitoring will be utilized to determine the source of the flaring and determine the corrective action." (Emphasis added).

2. Petitioners raised most of their objections regarding the monitoring and emission calculation requirements for the flares with reasonable specificity during the comment period.

TCEQ's draft Title V permit, draft statement of basis, and permit 2501A did not clearly identify the monitoring and emission calculation methods for determining compliance with the flares' hourly and annual VOC, SO2, NOx, CO, and H2S limits that TCEQ identifies in its response to comments (*i.e.*, composition analyzers and flow rates for VOCs, Total Sulfur SOLAs for SO2, AP-42 emission factors and flow rates for NOX and CO, and "H2S GCs" for H2S). *See* Initial Comments at 73.84 Only after the close of the comment period did TCEQ identify these methods in its response to comments. *See* RTC at 73.

Even though the draft Title V permit and permit 2501A did not contain these newly identified methods for determining compliance with the flares' limits from 2501A, Petitioners raised their above objections from this petition with reasonable specificity during the comment period, except for their fourth, fifth, and seventh objections above -i.e., the objections that it is unclear whether the composition analyzers are measuring all VOCs in the waste gas, as well as whether they are measuring sweep and purge gases; and the objection that the upper bound of sulfur that the SOLAs measure is too low. Specifically, Petitioners' comments objected that: the relevant monitoring and calculation methods and emission factors (and also destruction and conversion efficiencies) were not listed at all (for emission factors, calculation methods, and destruction and conversion efficiencies) or clearly listed (for monitoring methods) in the draft Title V permit or permit 2501A; the emission factors and calculation methods were likely flawed; and assumed destruction and conversion efficiencies were likely resulting in underestimated VOC and SO2 emissions. See Initial Comments at 71-76; Supp. Comments at 31-32. TCEQ's response to comments—in which TCEQ responds to Petitioners' comments regarding these issues—shows that the comments gave TCEQ ample notice of Petitioners' objections. See RTC at 73.

When commenting, however, Petitioners could not reasonably have objected to the new monitoring and emission calculation methods (*e.g.*, composition analyzers and flow rates for VOCs and Total Sulfur SOLAs for SO2) that TCEQ identified only after the close of the comment period. Thus, it was impracticable for Petitioners to, in their comments, raise their current objections that: it is unclear whether the composition analyzers are measuring all VOCs in the waste gas and whether they are measuring sweep and purge gases; and the upper bound of

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⁸⁴ There, Petitioners commented, among other things, "How can the public and regulators be sure that these emission factors or calculation methods ensure compliance with the flares' hourly and annual limits when not even the Commission knows what the emission factors or methods are, and the public cannot gain access to them?" *Id.* Similarly, Petitioners commented: "[T]he language of Special Condition 37.F is very vague regarding what the 'above readings' are that are supposed to be used, along with the 'emission factors,' to determine hourly emission rates. Are the 'above readings' flared gas net heating value and exit velocity—or are they some other readings?" *Id.*

sulfur that the SOLAs measure is too low. *See* 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). Further, the grounds for those objection arose after the comment period, when TCEQ first identified the monitoring and emission calculation methods in its response to comments. *See id.*

If EPA believes that certain other objections above were not raised with reasonable specificity during the comment period, it was impracticable to raise those additional objections in comments because Petitioners were unable, during the comment period on the draft permit, to review the monitoring/calculation methods that TCEQ first identified in its response to comments. See 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(d). Further, the grounds for any objections not raised in Petitioners' comments arose after the comment period, when TCEQ first identified those methods in its response to comments. See id. Put another way, Petitioners could not have raised every single detail of their objections to monitoring/calculation methods that were not identified during the comment period. See Portland Cement Ass'n, 665 F.3d at 186 ("We should be especially reluctant to require advocates for affected ... groups to anticipate every contingency. To hold otherwise would encourage strategic vagueness on the part of agencies and overly defensive, excessive commentary on the part of interested parties"); see also Chesapeake Climate Action Network, 952 F.3d at 320 ("It was simply impracticable for Petitioners to predict how EPA would cure the missing [] component and then submit preemptive attacks on such hypothetical solutions."); Clean Air Council, 862 F.3d at 10 (looking to whether final rule was a "logical outgrowth" of proposed rule to determine whether 42 U.S.C. § 7607(d)(7)(b)'s impracticability prong met, and holding that final rule fails logical outgrowth test if commenters "would have had to divine the agency's unspoken thoughts") (citation and internal quotation marks omitted).

3. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring and emission calculation requirements for the flares.

TCEQ's response to comments is inadequate to address any of the above-discussed problems with the proposed permit's monitoring and emission calculation requirements for VOCs, SO2, NOx, CO, and H2S from the flares. First, the monitoring and emission calculation methods for determining compliance with the flares' permit 2501A MAERT limits that TCEQ first identified in its response to comments (*i.e.*, composition analyzers and flow rates for VOCs, Total Sulfur SOLAs for SO2, AP-42 emission factors and flow rates for NOX and CO, and "H2S GCs" for H2S—see RTC at 73) cannot ensure compliance with the flares' hourly and annual limits for the reasons discussed above. *See supra* at 54-59.

TCEQ also points to where the draft Title V permit listed special conditions from permit 2501A that include monitoring and reporting requirements for the flares. RTC at 73. Similarly, TCEQ states that permit 2501A's Special Conditions 37-38 "list specific monitoring and CAM requirements" for the flares. *Id.* at 135. But as discussed above (*supra* at 60-62), none of these special conditions can ensure compliance with the flares' hourly and annual limits. 85

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⁸⁵ TCEQ cites to page 266 from the draft Title V permit, whereas Petitioners above cite to the relevant page from the proposed permit (265).

TCEQ additionally points to where the draft Title V permit listed certain monitoring and reporting requirements from state and federal regulations. *Id.* Similarly, TCEQ points to monitoring requirements that purportedly "assure compliance with applicable pollutant limits" for the flares under state regulations and EPA's NSPS and NESHAP regulations. *Id.* at 72, 135. These provisions also cannot ensure compliance with the flares' very specific hourly and annual limits for the reasons discussed above (*supra* at 54-59, 62).⁸⁶

C. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with the Hourly and Annual VOC Limits for the DAF Unit.

As Petitioners' comments explained (Initial Comments at 76-78), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with hourly and annual VOC limits for the DAF unit from the refinery's wastewater treatment system. Specifically, in violation of 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed Title V permit's monitoring, emission calculation, and other requirements cannot ensure compliance with permit 2501A's 5.51 lbs/hr and 24.15 tons/year VOC limits for the DAF unit. ⁸⁷ See Permit 2501A MAERT at "DAF Unit" under the heading "Wastewater"; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating 2501A into the Title V permit).

The only monitoring requirements noted in the proposed Title V permit that are specifically applicable to the DAF unit are contained in Special Condition 36 of permit 2501A. Proposed Permit at 264. That condition provides: "Wastewater grab samples shall be taken at least monthly to determine the VOC concentration in the wastewater. The samples shall be taken in a representative portion of the wastewater stream upstream and downstream of the Dissolved Air Floatation Unit. The wastewater VOC concentrations shall be used to demonstrate compliance with the allowable emission rates. Sampling procedures shall be approved by the TCEQ Regional Director." To begin with, monthly sampling cannot ensure compliance with an hourly limit. *Cf. Sierra Club v. EPA*, 536 F.3d 673, 675 (D.C. Cir. 2008) (annual testing is unlikely to assure compliance with a daily emission limit); *see also* March 2019 Sahu Decl. ¶37. This is especially so because, as noted in Table 7-5 of EPA's Emissions Estimation Protocol for Petroleum Refineries, ⁸⁸ there are several variables—such as temperature, flow rate, wind speed and influent concentration—that can change quickly and frequently and affect VOC emissions

⁸⁶ Again, TCEQ cites to the relevant pages from the draft Title V permit (62-64, 190), whereas Petitioners above cite to the relevant pages from the proposed permit (59-61, 192).

⁸⁷ Because permit 2501A lists certain monitoring or other related requirements for VOC emissions from the DAF unit but those requirements cannot ensure compliance with the unit's hourly and annual VOC limits, § 70.6(c)(1) requires TCEQ to supplement these monitoring and other requirements.

⁸⁸ Available here: https://www3.epa.gov/ttn/chief/efpac/protocol/Protocol%20Report%202015.pdf

from uncovered DAF units, like Valero's. ⁸⁹ Depending on these "critical input" (as EPA calls them) variables and other time- and facility-specific variables, none of which are required to be measured or taken into account under the proposed Title V permit and permit 2501A, the DAF unit's VOC emissions can and will vary greatly from hour to hour. March 2019 Sahu Decl. ¶¶34-39. Because Valero is not required to take these variables into account when calculating VOC emissions from the DAF unit, the requirements from Special Condition 36 are inadequate to ensure compliance with the annual limit as well, especially for a source with such high VOC emissions. *Id.*

In its response to comments, TCEQ suggests that Valero continuously measures wastewater flow to the DAF unit. *See* RTC at 72 ("Hourly and annual VOC emission rates are calculated based on continuous influent flow to the DAF unit and the wastewater VOC concentration measured under Special Condition No. 36."). But nowhere does permit 2501A or the proposed Title V permit actually require Valero to measure influent flow, much less on a continuous basis. (If flow measurement is required by the permit(s), TCEQ does not identify where the permit(s) require such measurement.) Given that Valero's continuous measurement of wastewater flow is not mandated by the permit(s), that measurement cannot ensure compliance with the DAF unit's hourly and annual VOC limits.

Further, using unspecified sampling procedures and calculations (including leaving it up to Valero to determine what is a "representative portion of the wastewater stream" and also, presumably, unspecified emission factors) that are not listed in the permit is also inadequate to ensure compliance with the unit's limits. March 2019 Sahu Decl. ¶40. In particular, if Valero is using calculation methods or emission factors to estimate fugitive VOC emissions from the DAF unit that do not appear on the face of the Title permit or permit 2501A, how can the public and regulators be sure that these calculation methods or emission factors ensure compliance with the hourly and annual limits for VOCs? It may be that any methods/factors are inaccurate in general, inaccurate for this particular source, rely on unsubstantiated assumptions, do not account for variability of emissions or underlying conditions, or are otherwise flawed.

The proposed Title V permit also cites other purported monitoring, recordkeeping and reporting provisions from permit 2501A as applicable to the DAF unit—specifically 2501A's Special Conditions 3-5. Proposed Permit at 264. These special conditions cannot ensure compliance with the DAF unit's hourly and annual VOC limits. Special Conditions 3-5 only generally list the various NSPS and NESHAP Subparts (without detailing the specific provisions of those Subparts) that are applicable to the all the various units and processes covered by permit 2501A, and they do not list any provisions specific to the DAF unit. In fact, nowhere does the

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⁸⁹ In the U.S., most refinery DAF units are covered and vented to control devices, which makes monitoring much easier, assuming the integrity of the cover is proper and that the monitoring is done at the outlet of the control device. March 2019 Sahu Decl. ¶36. Permit 2501A Special Condition 35 provides that the API Separator Diversion Pit (EPN 47 AD5401) shall be covered, but this is a different unit from the DAF unit, and that provision can in no way ensure compliance with the DAF unit's limits. *Id.*

proposed Title V permit list *any* specific NSPS or NESHAP provisions as applicable to the DAF unit. Even if there are such provisions applicable to the DAF unit, the permit is flawed because it does not explain how NSPS or NESHAP monitoring can be used to determine specific, actual emissions of VOCs from the DAF unit. *See* Deer Park Order at 21-23; March 2019 Sahu Decl. ¶41.

Given the environmental justice concerns present here (as discussed above), strong monitoring requirements for VOCs from the DAF unit are especially important because the data that Valero submitted in response to the Information Collection Request ("ICR") for EPA's 2015 refinery NESHAP risk and technology review shows that the DAF unit is one of the largest sources of hazardous air pollutants at the refinery—listing it as emitting 1.36 tons/year of benzene, 1.08 tons/year of xylenes and 0.915 tons/year of toluene, among other HAPs. ⁹⁰ Because benzene, xylenes and toluene are all VOCs, reducing VOCs from the DAF unit will also reduce these particular HAPs and other HAPs that are VOCs. March 2019 Sahu Decl. ¶34.

1. EPA should require TCEQ to revise the Title V permit and/or permit 2501A in specific ways to remedy the VOC monitoring and emission calculation problems for the DAF unit.

As Petitioners' Initial Comments explained (at page 78) and as discussed in Dr. Sahu's March 2019 declaration at paragraph 42, to remedy these problems and ensure compliance with the DAF unit's hourly and annual VOC limits, EPA should require TCEQ to revise the Title V permit and/or permit 2501A in several specific ways: the permit(s) should require the continuous (at least hourly) measurement of the temperature, total pressure, wastewater flow rate, diffused air flow rate, and wind speed. In addition, daily sampling be required to establish the VOC concentration at the influent to the DAF unit. If daily sampling shows that VOC concentrations are relatively constant (i.e., they don't vary by more than a specified percentage from day to day), then the frequency of sampling could be reduced to weekly. Using these "critical" inputs from Table 7-5 to EPA's Emissions Estimation Protocol for Petroleum Refineries and the other variables listed in that table, Valero should be required to calculate the hourly VOC emissions using methods cited in that Protocol. The permit(s) should specify the exact calculation methods and/or models and the input parameters required for such calculation methods and/or models so that the DAF VOC emissions are properly calculated. If Valero uses inaccurate, outdated, or otherwise flawed emission factors or calculation methods, those emission factors and/or calculation methods should be updated so that they produce accurate emissions calculations.

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⁹⁰ The data that Valero originally submitted to the ICR indicated that the DAF unit emitted 5.98 tons per year of benzene, but TCEQ's response to comments states that Valero later submitted a

[&]quot;rectified/corrected" number of 1.36 tons/year of benzene. RTC at 72. TCEQ, on that same page of the response to comments, states that Valero's "error impacted other DAF pollutants as well, and not just benzene," but TCEQ does not dispute that the ICR data listed the DAF unit at emitting 1.08 tons/year of xylenes and 0.915 tons/year of toluene (numbers that were listed in Petitioners' comments on the DAF unit's monitoring requirements).

2. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring and emission calculation requirements for VOCs from the DAF unit.

TCEQ's response to comments is inadequate to address any of the above-discussed problems with the proposed Title V permit's monitoring and emission calculation requirements for VOCs from the DAF unit. TCEQ's states:

In regard to [the] Dissolved Air Flotation (DAF) Unit, the monitoring requirements for the DAF Unit (EPN 47AD5409) are specified in NSR Permit No. 2501A, Special Condition No. 36 which states "The wastewater VOC concentrations shall be used to demonstrate compliance with the allowable emission rates". The sampling frequency of measuring VOC concentrations is determined on a case-by-case basis by the requirements stated in the permit conditions, by the state or federal rule and by the process dynamics (e.g., slow or fast acting) which determines the nature of the pollutant source. Hourly and annual VOC emission rates are calculated based on continuous influent flow to the DAF unit and the wastewater VOC concentration measured under Special Condition No. 36. The ED notes that the entire Valero Houston Refinery site is subject to regulations under 40 CFR Part 61, Subpart FF. That is, Benzene Waste Operations 'BWON' regulation is a sitewide requirement that also applies to the DAF unit. This sitewide requirement is stated in special term 14 in the Proposed Permit and in special condition 3 in the NSR 2501A permit. Under NESHAP FF regulation, the DAF unit is subject to citations §61.655 for test methods and calculation procedures, §61.36 for recordkeeping requirements, and §61.357 for reporting requirements.91

RTC at 72.

As discussed above (*supra* at 68-69), however, the requirements from permit 2501A's Special Condition 36 cannot ensure compliance with the hourly and annual VOC limits for the DAF unit. And TCEQ's statement that the frequency of measuring VOC concentration is "determined on a case-by-case basis" does not actually make the case that—or explain how—monthly VOC concentration measurements (as required by Special Condition 36) can ensure compliance with the hourly and annual VOC limits for the DAF unit. As explained above, monthly sampling is not frequent enough.

As also explained above, while TCEQ suggests that Valero continuously monitors "influent flow to the DAF unit," neither permit 2501A nor the Title V permit actually requires Valero to continuously monitor wastewater flow to the DAF unit, which is a critical input needed

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⁹¹ TCEQ also devotes a paragraph of its response to comments to explaining that Valero revised the data for the DAF unit that the company submitted to the ICR to change the unit's benzene emissions from 5.98 to 1.36 tons/year. RTC at 72. As noted above, this petition uses to revised 1.36 tons/year figure.

to ensure compliance with the hourly and annual VOC limits here. The permit(s) should require this continuous measurement of wastewater flow to the DAF unit.

Finally, the fact that the DAF unit is subject to BWON requirements from 40 C.F.R. Part 61, Subpart FF also cannot ensure compliance with the hourly and annual VOC limits for the DAF unit. 2021 Sahu Decl. at ¶¶30-32. To begin with, Subpart FF regulates only emissions of benzene, not all the various other VOCs that are emitted by the DAF unit. For example, as discussed above, the data that Valero submitted in response to the ICR for the petroleum refinery sector indicated that the DAF unit annually emitted other VOCs, such as 1.08 tons/year of xylenes and 0.915 tons/year of toluene. Further, TCEQ does not explain specifically how the Subpart FF requirements can ensure compliance with the DAF unit's hourly and annual VOC limits, and nothing in the permit or permit record ties or correlates the Subpart FF requirements to specific, actual VOC emission rates for the DAF unit or the unit's MAERT VOC limits.

D. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with the PM and Opacity Limits for Several of the Refinery's Boilers.

As Petitioners' comments explained (Initial Comments at 78-81), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with PM and opacity limits for several of the refinery's boilers. Specifically, in violation of 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed permit's monitoring, emission calculation, and other requirements cannot ensure compliance with the hourly and annual PM2.5 and PM10 limits and opacity limits for boilers 1-4 (more commonly referred to in the permit materials as boilers 81BF01, 50BF02, 50BF03, and 50BF04), which are listed in NSR permit 124424. ⁹² See Ex. 15, May 2016 Version of Permit 124424, at MAERT; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating May 2016 version of permit 124424 into the Title V permit). ⁹³

On May 13, 2016, TCEQ issued permit 124424 to authorize Valero to construct a new alkylation unit and associated equipment, including a new cooling tower, new piping fugitive components and the new 366 mmBtu/hour boiler no. 4. In addition to the new equipment from this project, permit 124424 also contains emissions limits for previously-existing units at the plant, including boilers 1-3. Permit 124424 includes an annual PM2.5 limit of 30.41 tons/year

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⁹² Because permits 124424 and 2501A and the proposed Title V permit list certain monitoring or other related requirements for PM and opacity from the boilers but those requirements cannot ensure compliance with the PM and opacity limits, § 70.6(c)(1) requires TCEQ to supplement these monitoring and other requirements.

⁹³ TCEQ later revised permit 124424, as discussed below. See Ex. 16, July 2020 Version of Permit 124424. But the proposed Title V permit still incorporates the 2016 version of permit 124424.

and identical PM and PM10 limits of 30.41 tons/year that apply collectively to boilers 1-4. 94 See MAERT of May 2016 Version of Permit 124424. 95

Permit 124424 also includes varying hourly PM2.5 and PM10 limits (3.66 lbs/hr PM/PM2.5/PM10 for each of boilers 1-3 and 2.05 lbs/hr PM/PM2.5/PM10 for boiler 4)—as well as an opacity limit of 5% averaged over a six-minute period ⁹⁶—that apply to each of the boilers individually. Id.; Permit 124424 at Special Condition 11. The only PM-specific monitoring/testing provisions in permit 124424 are requirements to: (1) conduct a stack test as part of initial compliance testing; and (2) determine opacity using visual "Method 9" observation during the initial compliance test and at least once per year thereafter. *Id.* at Special Conditions 11, 23. Permit 124424 also provides (for all boilers) that previous stack testing results may be used to satisfy the requirement for any particular boiler to perform an initial compliance test. *Id.* at Special Condition 23.B-C. There are no provisions calling for follow-up stack tests (i.e., after the initial demonstration of compliance) except for the following requirements: (1) if the boilers are unable to reach maximum firing rate during testing, they "may be" limited to the highest firing rate from the testing; (2) if the boilers are unable to comply with limits while firing at maximum rate during the testing, future firing "will be" limited to the maximum rate that was still in compliance during the tests; and (3) additional testing "may be" required to authorize higher firing outside the compliant maximum firing rate from the testing. *Id.* at Special Condition 23.B. In addition, the proposed Title V permit appears to also require quarterly Method 9 observations for opacity. Proposed Permit at 4-8. These various provisions cannot ensure compliance with the hourly and annual MAERT PM limits and opacity limit for the boilers because they require monitoring that is too infrequent and do not actually require any stack testing beyond initial testing (with the very limited, mostly non-mandatory exception contained in Condition 23.B). March 2019 Sahu Decl. ¶¶43-45. Since boiler performance degrades over time, initial stack testing and infrequent visual observations cannot substitute for the use of CEMS and more frequent stack testing. Id. ¶45.

Permit 2501A, at Special Condition 65.D, requires Valero to retain "satisfactory stack test records" for boilers 1-4⁹⁷ "demonstrating that PM emissions do not exceed

⁹⁴ Special Condition 1 of the permit provides that the emission limits for the boilers apply upon start of operation of the new alkylation unit.

⁹⁵ The 30.41 tons/year limit from the May 2016 version of permit 124424 applies collectively to boilers 1-6, which includes (in addition to boilers 1-4) boilers 81BF05 and 81BF06 (boilers 5-6). In its response to comments, TCEQ states that boilers 5-6 are no longer used at the refinery. RTC at 73. Even though boilers 5-6 are no longer in use, the July 2020 version of 124424 lists the same 30.41 tons/year limit that previously applied to boilers 1-6 as being applicable to boilers 1-4. See MAERT of July 2020 Version of Permit 124424.

⁹⁶ For maintenance, startup, and shutdown periods, Special Condition 20.C incorporates higher opacity limits from 30 TAC Chapter 111.

⁹⁷ That condition references boiler "80BF04," which presumably is a mistake and instead is meant to refer to boiler 50BF04.

0.0019 lb PM/MMBtu," and further provides that "[c]ompliance with the 0.0019 lb PM/MMBtu factor will be determined by averaging the emission factors derived from each of the boilers to be tested." Special Condition 65.D, however, does not require any testing or monitoring beyond initial testing and could seemingly allow previous stack testing to be used to demonstrate compliance with the 0.0019 figure. Thus, it too cannot ensure compliance with permit's 124424 PM and opacity limits for the same reasons that 124424's provisions are inadequate. March 2019 Sahu Decl. ¶46.

Permit 2501A's MAERT also contains a different collective tons/year limit for boilers 1-3 (26.00 tpy PM2.5/PM10), as well as individual lbs/hour limits for these boilers that are the same as those listed in permit 124424, but neither these limits nor 2501A's monitoring and reporting provisions for these limits for *boilers 1-3* can ensure compliance with respect to *boiler 4*. Nor can these provisions from 2501A ensure compliance with the limits for boilers 1-3. Permit 2501A's monitoring and reporting requirements for the hourly and tons/year limits for boilers 1-3 listed in 2501A are very similar to ⁹⁹—but even more lax than—the inadequate monitoring and reporting provisions from 124424. Specifically, Special Condition 53 appears to only require initial, one-time testing for opacity (not even PM), as it states: "The air contaminants emitted from the boilers to be tested for include (but are not limited to) NOx, CO, NH3, O2, VOC, and opacity."

Strong PM monitoring requirements for the boilers (in particular boiler no. 4) are especially important to confirm that the PM emissions increases resulting from the alkylation unit expansion project that TCEQ authorized in permit 124424 do not trigger major PSD. Both TCEQ and Valero state that the PM2.5 emissions increase resulting from the alkylation project would be 9.32 tons/year and that the resulting PM10 increase would be 10.88 tons/year—and Valero's application states that new boiler No. 4 would be responsible for the overwhelming majority of that increase, with projected PM2.5 and PM10 emissions of 8.96 tons/year. Ex. 17, TCEQ Construction Permit Source Analysis & Technical Review for Permit 124424 at 1; Ex. 18, Excerpts from Valero's June 2015 Alkylation/Boiler Application, at Table 8-1. These numbers

⁹⁸ Permit 2501A's MAERT also contains a different collective tons/year limit for boilers 1-3, 26.00 tpy PM2.5/PM1) (as well as individual lbs/hour limits for these boilers that are the same as those listed in permit 124424), but neither these limits nor 2501A's monitoring and reporting provisions for these limits can ensure compliance with respect to *boiler 4*. Permit 2501A's monitoring and reporting provisions for 2501A's hourly and tons/year limits for boilers 1-3 (which are similar to, but apparently even more lax than, the monitoring and reporting provisions from 124424) also cannot ensure compliance with 2501A's hourly and annual limits for boilers 1-3 (or with the limits for these boilers in 124424). Special Condition 53 appears to be the only relevant testing/monitoring requirement, but it only requires initial testing for opacity—not PM.

⁹⁹ Like Special Condition 23.B from permit 124424, permit 2501A's Special Condition 53.B provides that: (1) if the boilers are unable to reach maximum firing rate during testing, they "may be" limited to the highest firing rate from the testing; (2) if the boilers are unable to comply with limits while firing at maximum rate during the testing, future firing "will be" limited to the maximum rate that was still in compliance during the tests; and (3) additional testing "may be" required to authorize higher firing outside the compliant maximum firing rate from the testing. This special condition cannot ensure compliance with the PM and opacity limits for the same reasons (discussed above) that permit 124424's Special Condition 23.B cannot ensure compliance with those limits.

are very close to the applicable major source thresholds for triggering the need to conduct a netting test for major PSD applicability—10 tons/year PM2.5 and 15 tons/year PM10. See $40 \text{ C.F.R.} \S 51.166(b)(23)$. In addition, Valero based its PM emissions-increase calculations on only 75% of the relevant AP-42 emission factors, claiming that stack testing for identical units supported the use of this lower emission factor. Excerpts from Valero's June 2015 Alkylation/Boiler Application, at 6-1-6-2. Adequate monitoring is particularly necessary to confirm that the real-world emissions from the boilers justify the use of this reduced emission factor. March 2019 Sahu Decl. $\P 47$.

(With respect to the alkylation unit/boiler 4 project, we note that the requirements from 30 TAC § 116.127 that Valero calculate and maintain a record of the annual emissions, in tons per year, on a calendar year basis for either five or 10 years—and report if annual emissions from the project exceed the baseline emissions by a significant amount—are themselves applicable requirements under Title V because they are "requirement[s] provided for in the applicable implementation plan" (see 40 C.F.R. § 70.2's definition of "applicable requirement"); 30 Tex. Admin. Code § 122.10(2)). Thus, the proposed Title V permit must ensure compliance with these requirements, but it fails to do so for the same reasons that it fails to ensure compliance with the PM limits from permit 124424.)

1. EPA should require TCEQ to revise the Title V permit and/or permit 124424 to mandate the use of PM CEMS at the boilers, among other things.

As Petitioners' Initial Comments explained (at pages 80-81) and as discussed in Dr. Sahu's March 2019 declaration at paragraph 48, to remedy the above problems and ensure that the alkylation/boiler 4 project does not result in the need to conduct the netting test for major PSD applicability (and thus ensure compliance with the requirements from 30 TAC § 127), EPA should require TCEQ to revise the Title V permit and/or permit 124424 as follows:

- Require PM CEMS and continuous flow and temperature measurements for compliance with the filterable portions of Valero's PM limits
- Because PM CEMS only measures filterable PM: (a) require annual stack testing for condensable PM; (b) establish a filterable/condensable ratio from the most recent stack test (or as an average of the results from the most recent test and all prior tests, as these tests begin to accumulate over time); (c) establish hourly filterable and condensable operating limits that reflect the relative proportions from the most recent stack test (or the average across tests discussed in (b) above); and (d) require Valero to meet those filterable and condensable operating limits as shown by hourly PM CEMS results.
 - 2. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring requirements for PM from the boilers.

TCEQ's response to comments is inadequate to address any of the above-discussed problems with the proposed permit's monitoring requirements for PM and opacity from these boilers. TCEQ's response to comments states:

Special Condition No. 23 of Permit No. 124424 includes PM stack testing requirement for boilers 1-4. This condition specifies that if boilers are unable to reach the maximum firing rate during testing, then future firing may be limited to the highest firing rate achieved during testing (firing rate is an operational parameter). Special Condition No. 11 of the same permit has limits on opacity from all boilers (Test Method 9 measurements during the initial compliance test and yearly thereafter).

RTC at 73. This response does nothing more than recite the monitoring and testing requirements from permit 124424. For the reasons discussed above, these provisions are inadequate to ensure compliance with the PM and opacity limits for these boilers. Further, TCEQ gives no indication that the provision regarding limiting future firing rates (if the maximum rate is not achieved during initial testing) has actually come into play, *i.e.*, that the boilers could not achieve their maximum firing rate during the one-time stack testing.

Finally, TCEQ mentions, without identifying them, "[m]onitoring requirements for the boiler unit 50BF04 that assure compliance with applicable PM and PM opacity limits under § 60.48b of NSPS Db." RTC at 72, 135. TCEQ does not even assert, however, that these unidentified NSPS requirements ensure compliance with the boilers' hourly and annual PM limits and opacity limit listed in permit 124424. Nor can these NSPS requirements ensure compliance with these PM and opacity limits, since nothing in the Title V permit or permit record ties the unidentified NSPS requirements—or correlates any NSPS limits—to specific, actual PM, PM2.5 or PM10 emission rates, opacity rates, or the MAERT PM limits for the boilers.

E. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with Hourly and Annual VOC Limits for Fugitive Emissions.

As Petitioners comments explained (Initial Comments at 81-83), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with fugitive emission limits at the refinery. Specifically, in violation of 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed permit's monitoring, emission calculation, and other requirements cannot ensure compliance with the 88.09 lbs/hr and 385.63 tons/year VOC limits for fugitive emissions listed in permit 2501A. ¹⁰⁰ See Permit 2501A MAERT at "Fugitives"; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating 2501A into the Title V permit).

Although footnote 5 in 2501A's MAERT states that the 88.09 lbs/hr and 385.63 tons/year VOC limits are an "estimate" and "enforceable through compliance with the applicable special

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¹⁰⁰ Because permit 2501A lists certain monitoring or other related requirements for fugitive emissions but those requirements cannot ensure compliance with these VOC limits, § 70.6(c)(1) requires TCEQ to supplement these monitoring and other requirements.

condition(s) and permit application representations," TCEQ's EPA-approved NSR rules provide that representations in permit applications become conditions upon which a facility operates. *See, e.g.*, 30 Tex. Admin. Code § 116.116(a)(1); *see also* 79 Fed. Reg. 8368, 8385 (February 12, 2014) (proposed rule accepting TCEQ's policy that "[t]he permit application, and all the representations in it, is part of the permit when it is issued and as such is enforceable"). Further, Valero and the TCEQ relied upon these "estimates" to determine that fugitive emissions would not result in unacceptable air quality impacts and were controlled at a level consistent with LAER. Thus, these "estimates" of VOC emissions are applicable requirements that require monitoring and reporting sufficient to ensure compliance with them. *See, e.g.*, 42 U.S.C. § 7661c(c) (each Title V permit "shall set forth inspection, entry, monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions"); 30 Tex. Admin. Code § 122.42(c); 40 C.F.R. § 70.6(c).

The monitoring and reporting provisions in the proposed Title V permit and permit 2501A, however, cannot ensure compliance with these applicable requirements limiting fugitive VOC emissions to 88.09 lbs/hr and 385.63 tons/year. The main fugitive monitoring requirements from permit 2501A (at Special Condition 39) only require quarterly monitoring using a gas analyzer. Quarterly use of a gas analyzer cannot ensure compliance with the VOC fugitive applicable requirements of 88.09 lbs/hr and 385.63 tons/year: such monitoring is both too infrequent (especially for the hourly limit) and also likely to miss leaks from valves, pumps, seals and other equipment for the reasons detailed in the attached declaration of engineering expert Dr. Ranajit Sahu. March 2019 Sahu Decl. ¶49-51. EPA itself has recognized the deficiencies in such leak detection and repair (LDAR) programs. ¹⁰¹

The provisions of 2501A are also inadequate to ensure compliance with the 88.09 lbs/hr and 385.63 tons/year limits because the permit says nothing about how fugitive emissions from the thousands of components at issue at the refinery are to be calculated—except for the provisions from Special Condition 39.I that apply only to emissions from the limited number of components on Valero's "delay of repair list." March 2019 Sahu Decl. ¶53. Further, TCEQ has not explained why the limited calculation method discussed in 39.I is accurate with respect to the remainder of fugitive emissions from this refinery.

The proposed Title V permit also lists other purported monitoring, reporting and recordkeeping requirements as being relevant to permit 2501A's limits for fugitives—specifically Special Conditions 2-5, 40, 45, 60 and 64. Proposed Permit at 265. But these requirements too are inadequate to ensure compliance with the applicable requirements limiting fugitive VOC emissions to 88.09 lbs/hr and 385.63 tons/year. Special Condition 2 does not even speak to monitoring, reporting or recordkeeping for these applicable VOC requirements, and Conditions 3-5 only generally list the various NSPS and NESHAP Subparts (without detailing any of the specific provisions of those Subparts) that are applicable to all of the various units and processes covered by Permit 2501A. Special Condition 40 only relates to fugitive emissions of H2S and NH3—not VOCs. And Condition 45 requires open-ended valves or lines to be closed and only contains very limited monitoring requirements for situations when repair or

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 $^{^{101}~\}textit{See}~\underline{\text{https://www.epa.gov/sites/production/files/2014-02/documents/ldarguide.pdf}}$

replacement results in an open-ended line or valve for 72 hours (requiring, if the leak is not blocked, one-time monitoring for turnarounds lasting up to 45 days or, in other situations, an initial monitoring and then monthly monitoring). These very limited and infrequent monitoring requirements from Condition 45—applying to the limited situation when repair or replacement results in an open-ended line—cannot ensure compliance with the applicable requirements limiting fugitive VOC emissions to 88.09 lbs/hr and 385.63 tons/year that apply to the many other possible sources of fugitive emissions at the Valero refinery. March 2019 Sahu Decl. ¶54.

Likewise, Special Conditions 60 is only a general recordkeeping provision with the limited requirement for fugitives that records of inspections, repairs and replacements be kept. And Special Condition 64 only requires the submittal of semiannual reports for units with continuous emissions monitors. These provisions also cannot ensure compliance with 2501A's very specific hourly and annual VOC applicable requirements for fugitives.

While the proposed Title V permit notes certain NESHAP, NSPS and SIP provisions that could possibly be applicable to the same fugitive sources covered by permit 2501A, these NESHAP, NSPS and SIP provisions do not speak to monitoring and reporting (or calculation of emissions) for permit 2501A's very specific applicable VOC requirements of 88.09 lbs/hr and 385.63 tons/year. The same holds true for the NESHAP fenceline monitoring provisions that EPA recently instituted for refineries, the details of which are not even listed in the proposed Title V permit. Relatedly, nothing in the permit ties any NSPS or NESHAP requirements to specific fugitive VOC hourly or annual emission rates or explains how any NSPS or NESHAP monitoring can be used to determine specific, actual fugitive emissions of VOCs. *See* Deer Park Order at 21-23.

To remedy these problems and ensure compliance with the 88.09 lbs/hr and 385.63 tons/year applicable requirements, EPA should require TCEQ to revise the Title V permit and/or permit 2501A to require optical gas imaging, as discussed in detail in the March 2019 declaration of Dr. Sahu. *See* March 2019 Sahu Decl. ¶51-52. Strong monitoring requirements for the fugitive VOC emissions are important here due to the environmental justice concerns discussed above (especially given that many of the fugitive VOCs from the refinery are surely VOC HAPs) and the surrounding area's nonattainment status for the ozone NAAQS.

In violation of Title V requirements (as reflected in 40 C.F.R. § 70.7(h)(6)), TCEQ did not respond to Petitioners' significant comments raising the above objection regarding the inadequate monitoring for the hourly and annual fugitive VOC limits. Thus, Petitioners cannot "explain how [LDEQ's] response to the comment is inadequate to address the issue raised in the public comment." *See* 40 C.F.R. § 70.12(a)(2)(vi). 102

listed in NSR permit 2501A. Even if TCEQ did intend this statement to address monitoring for the fugitive VOC limits from 2501A, these SIP, NSPS, and NESHAP requirements for fugitive emissions

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¹⁰² In its response to comments, TCEQ states the following regarding fugitive emission requirements from the SIP and EPA's NSPS and NESHAP regulations: "Monitoring requirements for various fugitive units subject VOC emission limits under 30 TAC Chapter 115, NSPS GGG, NSPS GGGa, MACT CC, are listed on Pages 135-145." This does not address monitoring for the hourly and annual fugitive VOC limits listed in NSR permit 2501A. Even if TCEQ did intend this statement to address monitoring for the

F. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with the Hourly and Annual PM and VOC Limits for the Atmospheric Tower Heater.

As Petitioners' comments explained (Supplemental Comments at 12-16) and as discussed in the October 2019 declaration of Dr. Ranajit Sahu at paragraphs 6-13,¹⁰³ the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with VOC and PM limits for the refinery's Atmospheric Tower Heater (23BC201). Specifically, in violation of 40 C.F.R. §§ 70.6(a)(3)(i)(B) and 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed permit's monitoring, emission calculation, and other requirements cannot ensure compliance with permit 2501A's 1.93 lbs/hour and 8.43 tons/year limits for VOCs and 2.66 lbs/hour and 11.65 tons/year limits for PM2.5 and PM10.¹⁰⁴ See Permit 2501A MAERT at "Atmospheric Tower Heater"; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating 2501A into the Title V permit).

The monitoring, reporting and recordkeeping requirements for this heater listed in permit 2501A and the proposed Title V permit's Major NSR Summary Table (at p. 247) do not address VOC emissions at all, and thus cannot ensure compliance with the hourly and annual VOC limits. Although (as discussed below) EPA's NESHAP rule covering industrial boilers and process heaters initially established carbon monoxide (CO) as a surrogate for emissions of non-dioxin organic HAPs (including certain VOCs such as hexane) from those units subject to numeric limits, it is very difficult to establish reliable CO and VOC correlations. Further, that NESHAP rule did not establish CO as a surrogate for all VOCs that might be emitted from this heater. Thus, the CO CEMS for this heater (as required by 2501A's Special Condition 59) cannot ensure compliance with the specific VOC limits from the MAERT.

The portion of the Major NSR Summary table devoted to this heater only incorporates two requirements from permit 2501A that TCEQ could possibly reasonably assert somehow assure compliance (they do not) with the PM limits for this heater—the requirement (at Special Condition 7.A) to only burn refinery fuel gas or natural gas, and the requirement (at Special

cannot ensure compliance with the 2501A VOC limits: nothing in the Title V permit or permit record ties these SIP, NESHAP, and NSPS requirements to specific, actual VOC emission rates or the MAERT VOC limits for fugitive emissions.

¹⁰³ Dr. Sahu's October 2019 declaration ("Oct. 2019 Sahu Decl.") is attached to this petition as Exhibit 19.

¹⁰⁴ Because permit 2501A lists certain monitoring or other related requirements for PM emissions from this heater but those requirements cannot ensure compliance with these PM limits, § 70.6(c)(1) requires TCEQ to supplement these monitoring and other requirements. And because (as discussed below) permit 2501A lists no monitoring or other related requirements for VOCs from the heater (meaning, presumably, that the VOC limits were never accompanied by any monitoring or testing requirements), § 70.6(a)(3)(i)(B) mandates that TCEQ add sufficient monitoring, reporting, and recordkeeping requirements into the Title V permit and/or permit 2501A to ensure compliance with the limits.

Condition 8) that opacity not exceed 5 percent average over a six-minute period as determined by EPA Method 9 (visual observations). While the first of these requirements qualitatively affects the amount of PM emitted by this heater, it does not determine quantitatively the specific amount of PM (or VOCs) that are emitted.

In addition, simply noting that the heater can burn only refinery fuel gas or natural gas does not ensure that the numerical hourly and annual PM and VOC emissions limits will be met. In particular, condensable PM and VOC emissions are affected not only by the type of fuel burned (*i.e.*, the composition of the fuel), but also by the combustion conditions in the heater. Factors such as the varying degree of mixing of fuel and air will affect the quantity of VOCs emitted. Factors such as the sulfur content of the fuel (which can vary in the case of refinery fuel gas) can and will affect the quantities of condensable PM (mainly sulfuric acid mist) that are emitted. In other words, if this heater is burning only refinery fuel gas or natural gas, it can still easily exceed its hourly and annual limits listed in the MAERT.

The opacity requirement cannot ensure compliance with the PM limits because it does not actually require Method 9 inspections on any set schedule or for any set period of time; it only states that Method 9 inspections are to be used to determine opacity. Method 9 inspections performed at Valero's whim (or not at all) or only a few minutes at a time cannot ensure compliance with hourly (or annual) PM limits.

The Method 9 provision also cannot ensure compliance because Method 9 observations require ideal weather conditions and cannot be made in conditions such as at night, during rainfall or on cloudy days—even though the PM limits continue to apply to the heater during these periods. Thus, Method 9 can never assure compliance during these conditions.

In Title V orders, EPA has found that infrequent Method 9 observations cannot assure compliance with continuous opacity limits. These orders apply equally in the context of using visual observations to ensure compliance with hourly and annual PM limits. For example, EPA found that a Title V permit record failed to sufficiently support the use of weekly Method 9 observations to assure compliance with a continuous opacity limit. *In the Matter of EME Homer City Generation L.P. Indiana County, Pennsylvania,* Order on Petitions III-2012-06, III-2012-07, and III-2013-02 (June 30, 2014) at 44. Similarly, EPA found that quarterly and biannual Method 9 observations are inadequate to assure compliance with opacity limits. *See In the Matter of Pacificorp's Jim Bridger and Naughton Electric Utility Steam Generating Plants,* Order on Petition No. VIII-00-1 (Nov. 16, 2000) at 19 (quarterly observations); *In the Matter of Tennessee Valley Authority, Bull Run, Clinton, Tennessee,* Order on Petition IV-2015-14 (Nov. 10, 2016) ("Bull Run Order") at 11 (biannual observations). In the Bull Run Order, EPA found specifically that the permitting agency "did not explain how twice-yearly Method 9 observations assure compliance with an opacity limit of 20 percent averaged over a six-minute period except for one 6-minute period per 1 hour of not more than 40 percent." *Bull Run Order* at 11-12.

The portions of the proposed Title V permit's Applicable Requirements Summary devoted to the Atmospheric Tower Heater also does not address PM or VOC emissions from this heater. That summary (at 55-57) only addresses a NSPS Subpart Ja requirement for H2S, SIP limits for NOx and CO emissions, and a NESHAP requirement under 40 C.F.R. § 63.7540 to conduct an annual tune-up.

These provisions cannot ensure compliance with permit 2501A's PM and VOC limits for the heater because they do not link any specific NSPS, SIP, or NESHAP monitoring or other requirements to determining specific, actual emissions of PM or VOCs from the heater. *See* Deer Park Order at 21-23. Nor does the proposed Title V permit or permit record explain how any such applicable requirements could ensure that PM or VOC emissions from this heater remain below permit 2501A's hourly and annual limits for these pollutants.¹⁰⁵

Given the environmental justice issues present here (as discussed above), ensuring compliance with the PM and VOC limits for this heater is especially important because it would, in turn, better ensure that the heater limits its emissions of two hazardous air pollutants—acenaphthylene and hexane—that it emits in significant amounts. The information that Valero submitted in response to EPA's Information Collection Request for the refinery sector Risk and Technology Review lists this particular heater as emitting 2.97 tons/year of acenaphthylene and 2.54 tons/year of hexane. ¹⁰⁶ Because hexane is a VOC, strong monitoring/testing requirements for VOCs from the heater would ensure that hexane from the heater is adequately controlled.

Although EPA's NESHAP rule (at subpart DDDDD) covering industrial boilers and process heaters initially established CO as a surrogate for emissions of non-dioxin organic HAPs (such as hexane and acenaphthylene) from those units subject to numeric limits, ¹⁰⁷ the Atmospheric Tower Heater is not even subject to numeric limits under NESHAP Subpart DDDDD. ¹⁰⁸ Further, as the result of two recent D.C. Circuit decisions, EPA may reevaluate the adequacy of CO as a surrogate for certain HAPs, including acenaphthylene, that are polycyclic organic matter (POM). *See United States Sugar Corp. v. EPA*, 830 F.3d 579, 629-30 (D.C. Cir. 2016); *Sierra Club v. EPA*, 884 F.3d 1185, 1194-98 (D.C. Cir. 2018). Acenaphthylene is a polycyclic aromatic hydrocarbon (PAH), which fall under the broader umbrella of POM.

Strong monitoring for condensable PM (and not CO monitoring) would ensure that Valero is reducing acenaphthylene from this heater because, unlike some organic hazardous air pollutants (like formaldehyde) that are simple molecules formed in the combustion process and emitted as a gas, POM is comprised largely of heavy complex molecules that are formed

¹⁰⁵ In addition to the requirements discussed above, the additional provisions from permit 2501A listed for this heater in the proposed Title V permit's Major NSR Summary Table (at pp. 247-49) also cannot ensure compliance with the PM and VOC limits. Special Conditions 3-5 only generally list the various NSPS and NESHAP Subparts (without detailing any of the specific provisions of those Subparts) that are applicable to all of the various units and processes covered by Permit 2501A, and they do not list any provisions specific to this heater. As related to this heater, Condition 59 only pertains to CEMS for NOx, CO, and O2. Conditions 60 and 62 are only a general recordkeeping provisions. And Condition 64 only generally requires submittal of semiannual CEMS monitoring reports.

¹⁰⁶ See https://www.epa.gov/stationary-sources-air-pollution/comprehensive-data-collected-petroleum-refining-sector

¹⁰⁷ See, e.g., 75 Fed. Reg. 32,006, 32,018 (June 4, 2010).

¹⁰⁸ As discussed above, this heater is only subject to a NESHAP requirement for an annual tune-up. See Proposed Title V Permit at p. 57; 40 C.F.R. § 63.7540.

downstream of the combustion process and emitted in particulate form. The CO control methods EPA cited to explain choosing CO as a NESHAP surrogate for heaters and boilers ("achieving good combustion or using an oxidation catalyst," 75 Fed. Reg. 32,006, 32,018/3 (June 4, 2010)) have little if any effect on POM emissions and, vice versa, methods to control emissions of POM (PM controls and activated carbon injection, 76 Fed. Reg. 15,608, 15,653/3-54/1 (Mar. 21, 2011)) have little or no effect on CO emissions. ¹⁰⁹ See 75 Fed. Reg. 75,348, 75,356/2 (Dec. 19, 2005); 79 Fed. Reg. 74,656, 74,678/1-2 (Dec. 16, 2014). Some of the so-called "good combustion" conditions that "drastically" reduce POM emissions cause CO emissions to increase. EPA-HQ-OAR-2002-0058-3856 at 3767 ("as the furnace gas temperature increased the PAH yields ... decreased drastically, while the CO yields increased").

1. EPA should require TCEQ to revise the Title V permit and/or permit 2501A in specific ways to remedy the problems with VOC and PM monitoring for the Atmospheric Tower Heater.

As Petitioners' Supplemental Comments explained (at page 15) and as discussed in Dr. Sahu's October 2019 declaration at paragraph 13, to remedy the above problems and ensure compliance with the hourly and annual VOC and PM limits for the Atmospheric Tower Heater, EPA should require TCEQ to revise the Title V permit and/or permit 2501A as follows:

- Require that a continuous opacity monitoring system (COMS) be installed, coupled with periodic stack testing for both filterable and condensable PM. During the stack testing, Valero should be required to establish an opacity-PM correlation to, in turn, establish an opacity monitoring limit that the heater would be required to comply with moving forward. As for the frequency of stack testing, the permit(s) should require as follows: if the stack testing shows PM emissions that are less than 80% of the PM limits, then testing could be conducted on an annual basis; if testing shows PM emission that are between 80 and 89% of the limits, testing should be required to be conducted semi-annually; and if testing shows PM emissions that are 90-plus percent of the limits, then testing should be required on a quarterly basis. In lieu of COMS, TCEQ could require PM CEMS, coupled with stack testing for condensable PM (since PM CEMS only measure filterable PM) at the frequencies mentioned above.
- For VOCs, require periodic stack tests, at the same frequencies discussed above
 for PM stack tests. The permit(s) should specifically require stack tests to cover a
 range of heater loads, including low and intermediate loads. This is needed
 because higher emissions of VOCs and hexane are more likely at intermediate or
 low loads than at high loads.

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¹⁰⁹ See also 75 Fed. Reg. at 32,042/1 (asserting that POM could be controlled through means including "add-on [particulate matter] control systems (either fabric filter or wet scrubber) and activated carbon injection in the fabric filter-based systems"); 76 Fed. Reg. at 15,653/3-54/1 (same).

2. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring requirements for PM and VOCs from this heater.

TCEQ's response to comments is inadequate to address any of the above-discussed problems with the proposed Title V permit's monitoring requirements for PM an VOCs from the Atmospheric Tower Heater. TCEQ's response to comments states:

Sufficient monitoring for heater 23BC201 is listed on the Major NSR Summary Table as having monitoring/testing requirements included in Special Condition Nos. 3, 4, 5, 7, and 59 of Permit No. 2501A. In addition, the Proposed Permit was revised to replace the high level requirements with more specific requirements for 40 CFR Part 63, Subpart DDDDD regulations for units subject to these regulations in the applicable requirements summary (ARS) table (Proposed Permit at Pages 46 through 164 including Atmospheric Tower Heater (23BC201), heaters 23BA301 and 29BA1300. These units are also subject to monitoring requirements under 30 TAC Chapter 117, § 117.340(a) for measuring fuel flow.

RTC at 73.

As discussed above (*supra* at 79-81), permit 2501A's Special Conditions 3-5, 7, and 59 cannot ensure compliance with the VOC and PM limits for the Atmospheric Tower Heater. Special Conditions 3-5 only generally list the various NSPS and NESHAP Subparts (without detailing any of the specific provisions of those Subparts) that are applicable to all of the various units and processes covered by Permit 2501A, and they do not list any provisions specific to this heater. Condition 7 does not address VOC emissions at all, and the only portion of that condition that TCEQ could possibly reasonably assert somehow assures compliance with the PM limits for this heater (the requirement, at Special Condition 7.A, to only burn refinery fuel gas or natural gas)¹¹⁰ does not in fact ensure compliance with the PM limits, since this heater can still easily exceed its hourly and annual PM limits if it is burning only refinery fuel gas or natural gas. And as related to this heater, Condition 59 only pertains to CEMS for NOx, CO, and O2—none of which can ensure compliance with the heater's VOC and PM limits.

The requirement from 40 C.F.R. Part 63, Subpart DDDDD that TCEQ added to the Title V permit—the requirement under 40 C.F.R. § 63.7540 to conduct an annual tune-up (Proposed Permit at 57)—also cannot ensure compliance with the PM and VOC limits, as discussed in Dr. Sahu's 2021 declaration at paragraphs 33-35. The Atmospheric Tower Heater is not even subject to numeric limits under Subpart DDDDD, and the annual tune-up requirement obviously cannot be used to determine specific, actual emissions of PM or VOCs from the heater. *See* Deer Park

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¹¹⁰ The other portions of Special Condition 7 deal with H2S/SO2 emissions (at 7.A), require this heater to comply with a NOx limit (at 7.C), and prohibit burning or combusting fuel oil (at 7.D). The fuel oil prohibition cannot ensure compliance with the PM and VOC limits for the same reasons that the requirement to burn only refinery fuel gas or natural gas cannot ensure compliance with these limits.

Order at 21-23. Nor does (or can) TCEQ explain how the vague "tune-up" requirement from Subpart DDDDD could ensure that PM or VOC emissions from this heater remain below permit 2501A's hourly and annual numerical limits for these pollutants. Section 63.7540 only requires that Valero, during a tune-up: inspect the heater's burner and clean or replace any burner components "as necessary"; inspect the flame pattern and adjust the burner "as necessary to optimize" the flame pattern; inspect the system controlling the air-to-fuel ratio and ensure that it is "correctly calibrated and functioning properly"; "optimize" total emissions of CO; and maintain (and submit if requested) CO concentrations measured at high fire or typical operating load, before and after the tune-up. 40 C.F.R. § 63.7540(a)(10). These limited, general tune-up requirements can in no way ensure compliance with this particular heater's very specific hourly and annual VOC and PM limits.

Finally, measuring fuel flow cannot ensure compliance with the VOC and PM limits for the same reasons that the requirement to only burn refinery fuel gas or natural gas cannot ensure compliance with these limits. 2021 Sahu Decl. at ¶36. As discussed above, condensable PM and VOC emissions are affected not only by the type (*i.e.*, the composition of the fuel) and quantity of fuel burned, but also by the combustion conditions in the heater. Factors such as the varying degree of mixing of fuel and air will affect the quantity of VOCs emitted, including condensable organics (which also affect condensable PM emissions). *Id.* Additionally, factors such as the sulfur content of the fuel (which can vary in the case of refinery fuel gas) can and will affect the quantities of other condensable PM (mainly sulfuric acid mist) that are emitted. *Id.*

G. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with Hourly and Annual Limits for the Refinery's Tanks.

As Petitioners' comments explained (Supplemental Comments at 16-24), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with hourly and annual limits for VOCs and other pollutants from the tanks covered by permit 2501A, for either routine emissions or emissions during planned "MSS" (maintenance, startup, and shutdown) periods. The failure of the permit to include sufficient monitoring and other requirements to ensure compliance with these limits violates 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c). The tanks at issue specifically listed in permit 2501A are Storage Tanks 22FB747, 42FB2802, 45FB6001-02, 45FB7403, 46FB6301, 90FB807, 91FB922, and 90FB735 and the ROSE Flush Oil Tank. The hourly VOC limits for routine emissions from these tanks range from 0.01 lbs/hour to 0.45 lbs/hour, and the annual VOC limits for these tanks range from 0.01

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¹¹¹ As discussed below, permit 2501A's MSS provisions are unlawful and must be removed. Even if EPA did not object to the MSS provisions (it must), the agency must still object to the insufficient emission calculation and monitoring requirements for the MSS tank limits.

¹¹² Because permit 2501A and the proposed Title V permit list certain monitoring or other related requirements for the tanks but those requirements cannot ensure compliance with the tanks VOC and other limits, § 70.6(c)(1) requires TCEQ to supplement these monitoring and other requirements.

tons/year to 0.86 tons/year. ¹¹³ Permit 2501A MAERT at "Storage Tanks"; Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating 2501A into the Title V permit).

Adequate monitoring for these tanks is especially important given Harris County's nonattainment status for ozone (which VOCs are a precursor for)¹¹⁴ and because, as shown by permit 2501A's MSS provisions, tank emissions at the refinery can rapidly spike to levels that would negatively affect air quality: as discussed below, Permit 2501A's MAERT establishes extremely high (unlawful) lbs/hour limits for VOCs and benzene from "Tank MSS Activities"—529.27 lbs/hour for VOCs and 8.07 lbs/hour for benzene.¹¹⁵

TCEQ guidance has also made clear that tank emissions can be quite significant and affect air quality. A December 5, 2006 TCEQ memo from Dan Eden titled "Air Emissions During Tank Floating Roof Landings" explained (at page 1) the following regarding tank floating roof landings: "If the liquid level in [a tank with a floating roof] is lowered to below the level of the floating roof support legs, the roof will rest (land) on the legs, or supports, rather than on the liquid, severely limiting the control efficiency of the floating roof. Air emissions from tanks are greater while the tank roof is landed and remain so until the tank is either completely emptied and purged of organics or the tank is refilled and the roof is again floating." That same memo also emphasizes that underreporting emissions from roof landings is "of particular importance" in the Houston region because "it may play a role in demonstrating attainment." *Id.*

Here, the main monitoring provisions for the tanks covered by permit 2501A specify that, to calculate emissions, Valero is to use both (1) unnamed calculation methods from a TCEQ publication titled "Technical Guidance Package for Chemical Sources – Storage Tanks," apparently in combination with information such as tank capacity, VOC molecular weight, VOC monthly average temperature, VOC vapor pressure at the monthly average material temperature, and VOC throughput for each month (*see* Permit 2501A's Special Condition 29.F-G) and (2) at least to calculate certain planned MSS emissions, AP-42 emission factors from Section 7.1.3.2 ("Compilation of Air Pollution Emission Factors, Chapter 7 – Storage of Organic Liquids"), dated November 2006 and methods from "the permit application," apparently in combination

¹¹³ Per footnote 4 of the MAERT, the annual limits are calculated on a 12-month rolling basis.

¹¹⁴ High ozone events are episodic in nature and can occur at irregular intervals. Nothing in Permit 2501A or the Title V permit limits or prevents high VOC emissions from tanks' MSS activities from occurring prior to or during possible or expected high ozone days.

¹¹⁵ As noted below, Permit 2501A also contains hourly and annual limits for VOCs (5.21 lbs/hour and 3.28 tons/year) and benzene (0.04 lbs/hour and 0.03 tons/year) from "Thermal Oxidizer Controlled MSS activities," which apparently cover emissions associated with controlled degassing of the tanks.

¹¹⁶ This memo is available at: https://www.tceq.texas.gov/assets/public/permitting/air/memos/tank_landing_final.pdf

¹¹⁷ The guidance package is attached as Exhibit 20.

with information including total volumetric flow, VOC vapor pressure, volume necessary to float the roof, and times regarding the start and end of degassing (*see id.* at Special Conditions 46.F(3)-(4), 47). *See also* Special Condition 60 (requiring Valero to maintain records including VOC emission calculations and tank capacity, material stored, VOC molecular weight, VOC monthly average temperature, VOC vapor pressure at the monthly average temperature, and VOC throughput for the previous month).

As discussed below and in the October 2019 declaration of Dr. Sahu at paragraphs 14-33, these provisions cannot ensure compliance with the tanks' hourly and annual VOC and other limits under 2501A for several reasons:

First, it is impossible for the public or regulators (or Valero, for that matter) to determine how emissions are to be calculated under the varying circumstances of tank operations. See Deer Park Order at 22 ("[T]he Petitioners demonstrated that the record, including the permit and the RTC, does not explain what monitoring methods assure compliance with VOC emission limits for storage tanks"). Are the unspecified methods from the permit application, or the 2006 version of the AP-42 methods, 118 or the methods from the TCEO Technical Guidance Package to be used to determine "routine" emissions? What about MSS emissions? Are methods from both the 2006 version of AP-42 and the application to be used to calculate MSS emissions? When, if ever, do the application methods supplant those from AP-42? Are these methods to be used for all MSS emissions—or only a subset? While the version of Valero's application for the MSS limits that we reviewed¹¹⁹ and the TCEQ guidance both generally rely on AP-42 methods, they are not the same as the 2006 AP-42 methods. 120 Oct. 2019 Sahu Decl. ¶18. For example, the TCEQ guidance is from 2001 and cannot therefore include updates to AP-42 tank calculation methods that were made in 2006. Id. Further, the guidance includes short-term emission calculation methods, while the 2006 version of AP-42 does not. Id. In fact, short-term emissions calculations have been included in AP-42 for the first time in EPA's proposed, pending revisions to AP-42. Id.

Second, the methods from the application and the TCEQ guidance—even if the public could be sure under what circumstances they are required to be used to calculate emissions—cannot ensure compliance with the hourly and annual VOC and other limits from the MAERT because it is impossible to discern the TCEQ guidance's and application's methodologies for calculating emissions when reviewing the proposed Title V permit and permit 2501A. Oct. 2019 Sahu Decl. ¶19. See also Deer Park Order at 21-23. For example, upon review of the TCEQ Technical Guidance Package, it appears to require the use of a version of the pre-2006 AP-42

¹¹⁸ Compounding the confusion caused by the permit's lack of clarity as to which calculation methods apply and when, EPA has proposed revisions to the 2006 AP-42 methods, including methods to estimate tank landing emissions. Oct. 2019 Sahu Decl. ¶17. As discussed below, that proposal includes, for the first time, adding methods for calculating short-term tank emissions.

¹¹⁹ For tank emission calculations, we are working from a November 21, 2007 submittal from Valero to TCEQ, updating Valero's 2006 application to establish MSS limits. *See* Ex. 21, Valero's Nov. 21, 2007 Submittal re Tank Emission Calculations.

¹²⁰ Nor are they consistent with EPA's recently proposed revisions to the 2006 AP-42 methods.

calculation methods as revised by TCEQ, but this is not (but should be) clear from the face of the permit. Because the permits do not list any specific methods from the permit application or guidance for calculating emissions, the public and regulators cannot be sure how or whether any such methods, individually or in combination, can ensure compliance with the tank limits.

Consider this: in response to our August 6, 2019 Public Information Request for Valero's MSS permit application, TCEQ produced 9 PDF files containing over 2,000 pages of documents, correspondence, and multiple versions of (and updates to) Valero's application spanning nearly six years. Reviewing those 9 PDF files to find the calculation methods for tank emissions from Valero's November 21, 2007 application submittal took several hours, and then it turned out that those 2,000 pages did not even include Valero's two most recent updates to its application (submitted in 2008 and 2010). See 8/19/19 Email from E. Cheuse to C. Rietz et al (part of Ex. 22, August-September 2019 Emails Between E. Cheuse and C. Rietz). In fact, TCEQ—at least at the time—could even locate the 2008 and 2010 updates to Valero's MSS application. See 9/5/19 Email from C. Rietz to E. Cheuse (part of Ex. 22) ("Since the permit reviewer and I have been unable to locate the missing files..."). TCEQ has now produced several additional voluminous PDF files for us to wade through, in the hopes that the missing updated applications are in those files. Id. The unspecified methods from "the permit application" obviously cannot ensure compliance when TCEQ cannot even locate the most recent version of the application. From the November 2007 version in our possession to the 2008 and 2010 updates, the calculation methods could have changed in ways that would make them less likely to ensure compliance. That TCEQ could not (at least as of fall 2019) locate those updates confirms that not even TCEQ knows for sure what the methods identified in "the permit application" are.

Even if TCEQ might know what the methods from "the permit application" are, the public should not be expected to spend hours and hours wading through voluminous permit application files in an effort to find calculation methods that could (and should) be listed in the Title V permit or permit 2501A. Such practices by TCEQ only serve to frustrate public (and EPA) involvement and obfuscate what monitoring and calculation methods are to be used. Under these circumstances, the failure to list these methods in the permits renders the Title V permit unable to ensure compliance with the relevant limits. Any monitoring or calculation methods from the guidance and relevant permit application should be clear on the face of permit 2501A or the Title V permit.

Third, to the extent that Valero is expected to use the 2006 AP-42 methods to calculate MSS emissions, those methods cannot ensure compliance with the tank limits because that version of AP-42 does not address short-term emissions from tanks—only annual emissions. Oct. 2019 Sahu Decl. ¶21. EPA recently proposed changes to AP-42 to account for short-term emissions from tanks for the first time, but the 2006 version of AP-42 does not include these proposed changes. *Id.* Of course, the 2006 methods for determining annual tank emissions simply cannot accurately determine emissions during short-term MSS or degassing periods, when emissions can rapidly spike. *Id.*

In particular, the MSS limit for VOCs (529.27 lbs/hr-see permit 2501A MAERT at "Tank MSS Activities") shows that the tanks currently listed in permit 2501A can emit at a rate over a thousand times more than the highest hourly limit for an individual tank's "routine" emissions

listed in permit 2501A (0.45 lbs/hour)—and more than 50,000 times the lowest such limit (0.01 lbs/hour). Put another way, permit 2501A's highest annual limit for VOCs from an individual tank is 0.86 tons/year. If that tank emitted at the MSS rate of 529.27 lbs/hour for just three and a half hours, it would exceed its annual limit. Further, several of the tanks listed in 2501A's MAERT have annual VOC limits of 0.01 tons/year (or 20 lbs/year). For these tanks, operating at the MSS rate for less than three minutes would result in exceedances of their annual limits. Thus, emissions from the tanks could easily vary by a degree that would cause an exceedance of the applicable limits and that variability should be accounted for in any method of calculating the tank emissions here. Oct. 2019 Sahu Decl. ¶¶22-23. The 2006 version of AP-42, however, cannot account for this short-term variability since the 2006 calculation methods do not estimate any short-term or MSS emissions, including emissions from degassing and tank landings. Oct. 2019 Sahu Decl. ¶ 23.

Fourth, the methods from the November 2007 version of the permit application in our possession, the 2001 guidance and the 2006 version of AP-42 all require Valero to make certain assumptions to calculate emissions from the tanks, but the permits do not require these assumptions to be substantiated. Oct. 2019 Sahu Decl. ¶24. The numerous inputs and/or assumptions involved in these three calculation methods include: tank geometry; tank condition; condition of the roof including the floating roof pan; the presence and condition of roof penetrations such as guide poles; the condition of specific tank components such as rim seals and guide pole seals; properties of the tank product and their variation with ambient conditions, specifically temperature; product throughput; wind speed (especially for external floating roof tanks); and many others. Id. To ensure that these assumptions and inputs for these various parameters are accurate and have not changed, Valero needs to confirm them at least quarterly to account for seasonal variability of—and other possible changes to—these parameters. *Id.* Valero should not be allowed to simply make assumptions regarding these many variables, which can easily change in the span of a few weeks, without specific and detailed conditions in the permit requiring that information confirming the assumptions be collected periodically, such that emission calculations can be verified. Id. Changes in these parameters and inputs over time can lead to much higher emissions from the tanks. Id.

Fifth, the permits' calculation methods for estimating tank emissions are wholly inadequate because permit 2501A only requires Valero to inspect floating roof tank components annually or less frequently, with the exception of occasions on which tanks are emptied or degassed (*see* Permit 2501A Special Condition 29.C, requiring inspections and seal gap measurements in keeping with 40 C.F.R. 60.113b), and such inspections are not frequent enough to assure that each tank seal is properly maintained, as discussed in the attached October 2019 declaration of Dr. Sahu at paragraph 25. *See also* Alex Cuclis, Why Emission Factors Don't Work at Refineries and What to Do About It ("Why Emission Factors Don't Work") at 18-19, Presentation/Paper for the EPA at the Emissions Inventory Conference in Tampa, Florida on August 13-16, 2012. A typical floating roof tank has numerous seals, including rim seals (primary and secondary) and seals at each roof penetration. Ensuring that each of these seals is functioning properly is not a trivial task. Unspecified and vague requirements to inspect tanks annually, with no accompanying and detailed checklist (tailored for each tank) provides no

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¹²¹ Available at https://www3.epa.gov/ttnchie1/conference/ei20/session7/acuclis.pdf

assurance at all that each potential seal will be inspected. Even small gaps in seals—such as due to distortion of the tank itself or the floating roof, which can happen with age, geological settling, product expansion, precipitation accumulation on the roof pan, and expansion due to variations in ambient conditions such as temperature, high winds, hurricanes and the like—can result in large fugitive emissions. Thus, the permit's vague inspection requirement does nothing to assure good maintenance of each location where fugitive emissions can escape from the tanks. Compounding this problem, § 60.113b only generally requires that problems with seals and other maintenance issues be addressed within 45 days of discovery (and even allows for a 30-day extension on top of that). 40 C.F.R. § 60.113b(a)(2), (b)(4). Failing to address these problems for 45 or 75 days can lead to very large quantities of fugitive VOC emissions. Oct. 2019 Sahu Decl. ¶25.

In addition, visual inspections are simply inadequate to detect the small gaps in seals that can lead to large tank emissions. Oct. 2019 Sahu Decl. ¶26. Optical imaging (such as FLIR cameras) is necessary to detect these small gaps in tank seals. *Id.* Thus, Valero should be required to use FLIR or similar optical imaging on a periodic basis, no less than quarterly, to detect leaks in the tanks. *Id.*

Sixth, the permits fail to require Valero to periodically verify the accuracy of the required calculation methods. Oct. 2019 Sahu Decl. ¶27. Along with the 2006 version of AP-42, the methods from the permit application and the TCEQ guidance are also based on AP-42. *Id.* Verifying compliance with either short-term or long-term emission limits using AP-42 calculation methodologies for tanks alone is, at best, an indirect means of verification since it cannot address limitations inherent in the methodologies themselves. Only direct measurements can verify compliance with emission limits. *Id.*

In addition to the problem (discussed above) that AP-42-based methods require operators to make numerous assumptions regarding calculation inputs, AP-42 calculation methods for tanks themselves are inherently flawed and inaccurate, as discussed in Dr. Sahu's October 2019 declaration at paragraphs 28-30. AP-42 calculation methods were developed many decades ago based on limited "testing" on a small number of small tanks, at a time when it was impossible to conduct direct measurements of large tanks' actual emissions to verify the accuracy of the calculation methods.

More recently, direct measurements of tank VOC emissions, including by methods such as differential absorption light detection and ranging (DIAL), have showed that, even under the best of circumstances, AP-42 methods can grossly underestimate actual VOC emissions from tanks based in part on the methods' inability to fully capture the underlying processes that lead to emissions from tanks. For example, the City of Houston's DIAL study at the Shell Deer Park

Emissions in the Houston Ship Channel Area and Selected Surrounding Major Stationary Sources Using DIAL Technology to Support Ambient HAP Concentrations Reductions in the Community, 1, 92-94,

¹²² See Why Emission Factors Don't Work; EPA, Critical Review of DIAL Emissions Test Data for BP Petroleum Refinery in Texas City, Texas, EPA 453/R-10-002, ES-2, Table 1 (Nov. 2010), available at http://www.epa.gov/airtoxics/bp_dial_review_report_12-3-10.pdf; Loren Raun and Dan W. Hoyt, City of Houston, Bureau of Pollution Control and Prevention, Measurement and Analysis of Benzene and VOC

Refinery showed that VOC emissions from tanks as calculated by AP-42 methods may be underestimated by a factor of as much as 132. Shell Deer Park DIAL Study at 1, 92-94. The study also showed that actual benzene emissions from tanks were underestimated by a factor of as much as 93. *Id.* Similarly, in a refinery measurement study in Alberta, actual emissions of VOCs were 30 times higher and actual emissions of benzene were 100 times higher than emissions calculated using AP-42 equations. Memorandum from Brenda Shine, EPA, on Potential Low Bias of Reported VOC Emissions from the Petroleum Refining Industry to EPA Docket No. EPA-HQ-OAR-2003-0146 at 5-6 (July 27, 2007). And multiple remote sensing studies have consistently found that actual fugitive emissions from storage vessels were 4-10 times higher than reported. ¹²³ FluxSense, Pilot Study to Quantify Industrial Emissions of VOCs, NO2, and SO2 by SOF and Mobile DOAS in the Carson Area, 4 tbl. E1. (Mar. 27, 2014). The direct measurement methods discussed in this paragraph, such as DIAL, are far more accurate on the whole than AP-42 methods for calculating tank emissions. Oct. 2019 Sahu Decl. ¶29.

In addition to failing to ensure compliance with the limits for "routine" emissions from the tanks, even if the MSS provisions from 2501A were lawful (they are not), the Title V permit and permit 2501A do not contain monitoring or other requirements sufficient to ensure compliance with these limits for the reasons discussed above. In fact, the permits contain no monitoring, recordkeeping or reporting requirements for the MSS benzene limit for the tanks.

The additional provisions that the proposed permit identifies as relevant to tank emissions also cannot ensure compliance: The proposed Title V permit's Major NSR Summary Table lists various additional provisions from permit 2501A that purportedly serve as monitoring, recordkeeping and reporting requirements for 2501A's limits for routine and MSS emissions from the tanks—Special Conditions 3-5, 29-30, 42-43, 46-47 and 60-61. Proposed Permit at 262-63, 267. None of these additional provisions can ensure compliance with those limits for the tanks.

Special Conditions 3-5 only generally list the various NSPS and NESHAP Subparts (without detailing any of the specific provisions of those Subparts) that are applicable to all of the various units and processes covered by Permit 2501A, and they do not list any provisions specific to the tanks. Even any NSPS or NESHAP provisions that are applicable to the tanks cannot ensure compliance with permit 2501A's limits for the tanks because nothing in the permit or permit record ties any specific NSPS or NESHAP requirements to specific, actual VOC or other emission rates or the MAERT limits for the tanks.

The portions of Special Condition 29 not already discussed above only contain very general design requirements for Valero's tanks. Special Condition 30 only provides that, upon TCEQ's request, Valero is to provide or allow for a sample or analysis of the material stored in a

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Table 4.4(a) (Jul. 2011) ("Shell Deer Park DIAL Study"), available at http://www.greenhoustontx.gov/benzenereports.html .

¹²³ As mentioned above, EPA recently proposed changes to AP-42 methods for tanks. These proposed changes, however, focused on adding calculation methods for short-term emissions and (other than for a very small number of specialty tanks, such as heated tanks) did not address the flaws that AP-42 methods generally have in calculating tank emissions. Oct. 2109 Sahu Decl. ¶30.

tank. Special Condition 42 only provides that MSS emissions are to be estimated using unspecified methods from the permit application "consistent with good engineering practice." Special Condition 60 is only a general recordkeeping provision with the limited requirement for tanks that records of emissions calculations be kept. And Special Condition 61 only requires that records of MSS activities be kept. None of these various provisions address specifically how emissions are to be monitored or calculated and also cannot ensure that emissions will stay below permitted levels or that proper maintenance or leak detection will be performed. Oct. 2019 Sahu Decl. ¶31.

Special Condition 43 addresses depressurizing, emptying, degassing and placing into service of certain units, but that provision specifically states that it does not apply to units identified in Special Conditions 46-47, which address tanks. Thus, Special Condition 43 does not even cover the tanks.

Special Condition 46 contains certain operating requirements for roof landings, and Special Condition 47 provides that portions of Condition 46 apply to fixed-roof tanks. These provisions are presumably designed to reduce emissions from MSS events, but nothing in the permits can ensure that these requirements are indeed reducing emissions if the emissions are not accurately monitored or calculated. Oct. 2019 Sahu Decl. ¶32. Further, while Special Condition 46 could be read to require that emissions be routed to a control device during roof landings (see Condition 46.B), other language in Condition 46 states that the control requirement does not apply to "changes of tank service or tank inspection/maintenance as identified in the permit application." See Special Condition 46 ("Tank roofs may only be landed for changes of tank service or tank inspection/maintenance as identified in the permit application, except where the VOC vapors below the floating roof are routed to a control device or a controlled recovery system"). In fact, comparing the relatively modest VOC emissions allowed during "Thermal Oxidizer Controlled MSS Activities" (5.21 lbs/hour and 3.28 tons/year, per the MAERT) with the astronomical VOC emission rate allowed in the MAERT for "Tank MSS Activities" (529.27 lbs/hour) strongly suggests both that (a) use of a control device is not required at all times and (b) any operating requirements for roof landings or otherwise are not effective at controlling VOC emissions from the tanks during MSS periods. Oct. 2019 Sahu Decl. ¶32.

1. EPA should require TCEQ to revise the Title V permit and/or permit 2501A in specific ways to remedy the problems with the monitoring and emission calculation methods for the tanks.

As Petitioners' Supplemental Comments explained (at page 23) and as discussed in Dr. Sahu's October 2019 declaration at paragraph 33, to remedy the above problems and ensure compliance with the hourly and annual limits for the tanks from permit 2501A's MAERT, EPA should require TCEQ to revise the Title V permit and/or permit 2501A to:

- make the emission calculation methods used for calculating the tanks' emissions clear in the permit and available for comment for both routine and MSS emissions.
- for short-term emissions from the tanks, such as from tank cleaning, degassing, and roof landings, require, at least, use of the methodology proposed in the revisions to

the 2006 AP-42 methods.

- at least quarterly, require the collection of data to confirm each parameter that is an input or assumption for the calculation method(s) above. While there is simply no practical approach to collecting such data on an hourly basis, the more frequent the data collection, the better. If the collected data shows that previously-used inputs or assumptions are incorrect, the collected data should be used as the new input or assumption.
- require inspections of tank seals using FLIR or similar optical imaging methods at least quarterly, and require any gaps in seals to be remedied within 3 days.
- require that direct verification of routine emissions from tanks containing high vapor pressure products (*i.e.*, with vapor pressures at or above 5 mm Hg- or 0.1 psia) be conducted using methods such as DIAL at least annually so that the AP-42-based methods can be verified/calibrated. In addition, so that AP-42 methods can be calibrated for planned short-term periods with high levels of emissions (such as from cleaning, degassing and landings) from all tanks (not just tanks with higher vapor pressures), require use of DIAL or other direct measurement methods for every other (*i.e.*, the first, third, fifth, and so on) planned period of short-term emissions. If such testing demonstrates that AP-42 methods are unreliable, Valero should be required to continue to use DIAL or a comparable direct monitoring method (to be conducted at least quarterly for routine emissions and in each instance for MSS emissions) to assure compliance with applicable emission limits— or to appropriately adjust the AP-42 based calculation methods.
 - 2. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring and emission calculation requirements for the tanks.

TCEQ's response to comments is inadequate to address any of the above-discussed problems with the proposed Title V permit's monitoring requirements for the tanks. TCEQ's response to comments states:

Special condition 29 of NSR Permit 2501 includes standard compliance requirements including maintaining an emissions record which includes calculated emissions of VOC from all storage tanks during the previous calendar month and the past consecutive 12-month period. The record includes tank identification number, control method used, tank capacity in gallons, name of the material stored, VOC molecular weight, VOC monthly average temperature in degrees Fahrenheit, VOC vapor pressure at the monthly average material temperature in psia, VOC throughput for the previous month and year-to-date. Hourly and annual emission rates are calculated based on EPA/TCEQ permitted methods and procedures. TANK-MSS emissions are stated in NSR Permit 129444. The actual TANK-MSS emission

rates are much smaller than permitted values and they are reported during emission inventories reporting.

RTC at 114.

This response does not actually address Petitioners' objections. Among other things, it does not identify how tank emissions are actually calculated. TCEQ only states that emissions "are calculated based on EPA/TCEQ permitted methods and procedures," without actually identifying those methods or procedures. And TCEQ does not even attempt to address Petitioners' comments that: AP-42 methods do not address short-term emissions; the permits contain inadequate inspection requirements; and the permits require no verification.

TCEQ refers to permit 2501A's Special Condition 29, but, as discussed above (*supra* at 85-90), that condition cannot ensure compliance with the tanks' hourly and annual limits, for routine or MSS emissions. TCEQ also references NSR permit 129444, but that permit does not actually cover any of the specific tanks from permit 2501A at issue in Petitioners' objections here. *See* Ex. 23, NSR Permit 129444. Further, TCEQ does not explain how permit 129444 could possibly ensure compliance with the limits for the tanks at issue here or could otherwise address Petitioners' concerns. Finally, that Valero reports MSS emissions from the tanks at rates lower than permitted MSS levels also does nothing to address the above problems. It could very well be that Valero reports small levels of tank MSS emissions because the monitoring and emission calculation methods it is using are so flawed.

H. The Proposed Permit's Monitoring Requirements Cannot Ensure Compliance with the Hourly and Annual PM10 Limits for the Refinery's Cooling Towers.

As Petitioners' comments explained (Supplemental Comments at 28-31), the proposed Title V permit does not include adequate monitoring, reporting, recordkeeping, or emission calculation requirements to ensure compliance with PM10 limits for several cooling towers at the refinery. Specifically, in violation of 40 C.F.R. § 70.6(c)(1), as well as the requirements from 42 U.S.C. §§ 7661c(a) and 7661c(c), the proposed permit's monitoring, emission calculation, and other requirements cannot ensure compliance with the following hourly and annual limits, listed in permit 2501A, for PM10 emissions from the following cooling towers: 14.05 lbs/hour and 61.54 tons/year from Cooling Tower No. 2 (27CWT2); 10.18 lbs/hour and 44.58 tons/year from Cooling Tower No. 7 (23CWT7); 0.54 lbs/hr and 2.37 tons/year from Cooling Tower No. 3 (22CWT3); 0.14 lbs/hr and 0.59 tons/year from Cooling Tower No. 9 (23CWT7); 0.72 lbs/hr and 3.16 tons/year from Cooling Tower No. 10 (42CWT10); and 0.34 lbs/hr and 1.50 tons/year from Cooling Tower No. 11 (40CWT11). See Permit 2501A MAERT at "Cooling Towers";

¹²⁴ Because permit 2501A lists certain monitoring or other related requirements for PM10 emissions from the cooling towers but those requirements cannot ensure compliance with these PM10 limits, § 70.6(c)(1) requires TCEQ to supplement these monitoring and other requirements.

Proposed Title V Permit's "New Source Review Authorization References" at p. 207 (incorporating 2501A into the Title V permit).

Although footnote 5 in the MAERT states that these numbers are an "estimate" and "enforceable through compliance with the applicable special condition(s) and permit application representations," TCEQ's EPA-approved NSR rules provide that representations in permit applications become conditions upon which a facility operates. *See*, *e.g.*, 30 Tex. Admin. Code § 116.116(a)(1); *see also* 79 Fed. Reg. 8368, 8385 (Feb. 12, 2014) (proposed rule accepting TCEQ's policy that "[t]he permit application, and all the representations in it, is part of the permit when it is issued and as such is enforceable"). Further, Valero and TCEQ relied upon these "estimates" to determine that cooling tower emissions would not result in unacceptable air quality impacts and were controlled at a level consistent with BACT. Thus, these "estimates" of PM10 emissions from the cooling towers are applicable requirements that require monitoring and reporting sufficient to ensure compliance with them. *See*, *e.g.*, 42 U.S.C. § 7661c(c) (each Title V permit "shall set forth inspection, entry, monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions"); 30 Tex. Admin. Code § 122.42(c); 40 C.F.R. § 70.6(c).

For several reasons, the current monitoring and other provisions in the draft Title V permit and permit 2501A cannot ensure compliance with these applicable PM10 requirements for the cooling towers, as discussed in Dr. Sahu's October 2019 declaration at paragraphs 43-50. The main monitoring requirements for PM from the cooling towers are found in Special Condition 28.D of permit 2501A, which allows Valero to choose either: (1) monthly sampling for total dissolved solids (TDS); or (2) quarterly TDS sampling coupled with daily conductivity monitoring using a TDS-to-conductivity ratio. First, this provision cannot ensure compliance with the PM10 limits because it does not specify how the results of the TDS sampling (arrived at through either monthly TDS sampling or conductivity sampling using a TDS-to-conductivity ratio) are then to be used to calculate PM10 emissions from the cooling towers. PM-10 emissions from cooling towers are generated when cooling water evaporates and leaves particulate matter formed by the crystallization of dissolved solids. The primary drivers of PM emissions from cooling towers are flow rate of the cooling water, the amount of TDS in the cooling water, and the drift rate. Once Valero has the TDS results (through either of the two options under the permit), are there assumptions, emission factors, and/or other parameters that are used to calculate PM10 emissions? Are the manufacturer design assurances for drift eliminator control efficiency listed in Condition 28.C for the drift eliminators to be used in calculating emissions? The permit must list any assumptions, emission factors, and/or other parameters that are used to calculate PM10 emissions.

Second, this requirement cannot also ensure compliance with the hourly and annual PM10 limits because it does not require measurement of the cooling water flow rate or use of flow rate in PM10 emissions calculations. The flow rate can fluctuate greatly from hour to hour because the need for cooling water at the refinery (and, in turn, flow rate) varies depending on which processes at the refinery are being engaged.

TCEQ states in its response to comments that cooling towers are subject to 30 TAC § 115.764(a(1), "which requires a continuous flow monitor on the cooling tower return line." RTC at 135. Section 115.764, however, addresses monitoring for VOCs from cooling towers—not PM. There is no indication that Valero monitors flow rate for purposes of determining compliance with its PM10 limits or that Valero uses—much less is required to use—the flow rate data in its PM10 emissions calculations.

Third, assuming that the manufacturer design assurances for drift eliminator control efficiency listed in Condition 28.C are to be used to establish the drift rate for calculating emissions, the permits also cannot ensure compliance with the PM10 limits because they establish no mechanism to validate that these assurances are still accurate. Separately, TCEQ has not established in the permit record that the assurances are accurate. Based on the control efficiencies listed in Condition 28.D, which range from drift rates of 0.001% to 0.05%, these drift eliminators were likely installed years ago: modern drift eliminators result in much lower drift rates of 0.0005% or less. Over time, if not properly maintained, the baffles for drift eliminators can deteriorate, break, or wear out, and passages can become clogged with deposits. All of this can result in drift rates that are much higher than original manufacturer assurances. This, in turn, can lead to much higher PM rates. Although Condition 28.C provides that the drift eliminators are to be "maintained and inspected annually," this provision is too vague (since maintenance actions are not defined or specified)—and it requires inspections that are too infrequent—to ensure that the drift eliminators are actually reducing drift at the rates originally represented by the manufacturers.

Fourth, the TDS sampling (both direct sampling and indirect sampling through conductivity) in both of the options from Special Condition 28.D is too infrequent to ensure compliance with both the hourly and the annual PM10 limits. The TDS percentage in refinery cooling water can vary greatly from hour to hour, depending on cooling water quality (which can change due to additives to reduce algae and fungi in the cooling water system, anti-corrosion agents, and the like, all of which can increase TDS), what processes at the refinery the cooling water is being used for, and the TDS content in the water before additives are added and before it is used to cool processes at the refinery. Oct. 2019 Sahu Decl. ¶47; see also AP 42, Fifth Edition, Compilation of Air Pollutant Emissions Factors, Volume 1: Stationary Point and Area Sources, Chapter 13.4 at Table 13.4-2 (listing summary statistics for TDS content in circulating water, and listing range of TDS values of 380 - 91,000 ppm).

Due to the variability of TDS, monthly sampling cannot ensure compliance with the annual, let alone hourly, PM10 limits for the cooling towers. And the <u>daily</u> conductivity monitoring using a TDS-to-conductivity ratio also cannot ensure compliance with the <u>hourly</u> limits (or the annual limits). Instead, hourly conductivity monitoring using a representative ratio

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¹²⁵ It is likely no coincidence that the two cooling towers with the highest PM10 limits (limits that are much higher than those for the other four cooling towers) have drift eliminators with listed control efficiencies of 0.05%—50 times less efficient than the control efficiency listed for the other four cooling towers (0.001%), and over a 100 times less efficient than the control efficiencies that modern eliminators achieve.

should be required. In addition, given the variability of TDS, quarterly TDS sampling to validate that ratio is too infrequent. Instead, to ensure that the TDS-to-conductivity ratio is accurate, TDS sampling to validate the ratio should be more frequent—at least monthly.

<u>Fifth</u>, the permits also cannot ensure compliance with the PM10 limits because Condition 28.D's requirements for <u>initially</u> establishing the TDS-to-conductivity ratio mandates monitoring that is too infrequent to account for the variability in TDS in the cooling water. Currently, Condition 28.D requires Valero to use the average of nine weekly TDS-to-conductivity ratios (provided that the highest ratio is not 10% larger than the smallest ratio) to establish the ratio that will be used moving forward. Given potential TDS variability, however, monitoring that occurs once a week is unlikely to yield an accurate TDS-to-conductivity ratio. Instead, Valero should be required to establish the ratio using at least daily monitoring, as discussed in more detail below.

The additional cooling tower-related permit provisions cannot ensure compliance: As mentioned above, Special Condition 28.C requires the installation of drift eliminators with manufacturer assurances of certain control efficiencies. But even if the drift were reduced by the drift eliminators to the extent of the manufacturer assurances, this provision cannot ensure compliance with the PM10 limits because two of the major drivers of PM10 emissions from the cooling towers—flow rate and TDS content—can still fluctuate over short periods of time, as discussed above.

The draft Title V permit's Major NSR Summary Table also lists Permit 2501A's Special Conditions 3-5 as monitoring, recordkeeping and reporting requirements for the cooling towers. But these provisions only generally list the various NSPS and NESHAP Subparts (without detailing any of the specific provisions of those Subparts) that are applicable to all of the various units and processes covered by Permit 2501A, and they do not list any provisions specific to the cooling towers. In fact, our review of the NSPS and NESHAP regulations did not reveal any provisions relevant to PM from cooling towers. Even if there any NSPS or NESHAP provisions that are relevant to PM from the towers, they cannot ensure compliance with permit 2501A's PM10 limits because nothing in the permit or permit record ties any specific NSPS or NESHAP requirements to specific, actual PM10 emission rates or the MAERT limits for the cooling towers.

1. EPA should require TCEQ to revise the cooling towers' monitoring and emission calculation methods in specific ways.

As Petitioners' Supplemental comments explained (at pages 30-31) and as discussed in Dr. Sahu's October 2019 declaration at paragraph 50, to remedy the above problems, EPA should require TCEQ to revise the Title V permit and/or permit 2501A as follows:

- Make the details of the emission calculation methods used for calculating PM10 emissions from the cooling towers clear in the permit and available for comment.
- Require the hourly measurement of cooling water flow rate to the cooling towers for purposes of determining compliance with the towers' PM10 limits, and require Valero to use this hourly flow rate data in its PM10 emissions calculations.

- Require semi-annual inspections and maintenance of the drift eliminators, along
 with detailed requirements for maintenance per manufacturer's instructions. In
 addition, TCEQ must establish in the permit record that the manufacturer
 assurances for the drift eliminators are accurate, given the age of the drift
 eliminators.
- Remove the option in Special Condition 28.D for Valero to conduct monthly TDS sampling. Instead, require Valero to continuously (or at least hourly) monitor TDS using a TDS-to-conductivity correlation. To establish that correlation, Valero should be required to conduct at least daily concurrent TDS and conductivity measurements for 90 days or more. In addition, TDS and conductivity sampling to validate the correlation should be required to be conducted at least monthly.
 - 2. TCEQ's response to comments is inadequate to address the problems with the permit's monitoring requirements for PM10 from the cooling towers.

In its response to comments, TCEQ states the following regarding monitoring for the cooling towers: "Monitoring of PM from the cooling towers is stated in NSR Permit 2501A, Special Condition Nos. 3, 4, 5, and 28. In addition, cooling towers are also subject to requirements under 30 TAC Chapter 115, such as 30 TAC § 115.764(a(1), listed in the Draft Permit for GRP-CWT unit, which requires a continuous flow monitor on the cooling tower return line." RTC at 135. As discussed above, however, Special Conditions 3-5 and 28 cannot ensure compliance with the cooling towers' PM10 limits. 126

And, as also discussed above, 30 TAC § 115.764 does not address monitoring for PM from cooling towers—only VOCs. There is no indication that Valero monitors flow rate for purposes of determining compliance with its PM10 limits or that Valero uses—much less is required to use—the flow rate data in its PM10 emissions calculations. Further, TCEQ does not identify any other portion of 30 TAC Chapter 115 that could possibly ensure compliance with the cooling towers' PM10 limits. Regardless, the remainder of Chapter 115 cannot ensure compliance with these PM10 limits, since Chapter 115 covers control of air pollution from VOCs, not PM.

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¹²⁶ Above, Petitioners discuss all of the portions of Special Condition 28 relevant to PM emissions from the cooling towers. The remaining parts of Condition 28 are not relevant to PM.

VI. IN VIOLATION OF 40 C.F.R. § 70.7(A)(5), TCEQ FAILED TO PROVIDE A REASONED EXPLANATION FOR WHY THE PROPOSED PERMIT ENSURES COMPLIANCE WITH THE LIMITS AT ISSUE HERE FOR THE FCCU, FLARES, DAF UNIT, BOILERS, FUGITIVE EMISSIONS, ATMOSPHERIC TOWER HEATER, TANKS, AND COOLING TOWERS.

As Petitioners' comments explained (*see* Initial Comments at 70, 76, 78, 81, 83; Supplemental Comments at 15-16, 23-24, 31), in addition to the failure of the proposed Title V permit to ensure compliance with limits for the FCCU, flares, DAF unit, boilers, fugitive emissions, atmospheric tower heater, tanks, and cooling towers, the permit and permit record are also deficient for the independent and separate reason that TCEQ has not adequately explained how the proposed Title V permit provisions can ensure compliance with these limits. TCEQ's statement of basis—other than some limited discussion of periodic monitoring that TCEQ has added to the Title V permit for the FCCU and flares (SOB at 77-78, 93-96)—does not even address why the permit's monitoring, reporting, or other requirements are adequate to ensure compliance with the relevant limits discussed above. As discussed above, the periodic monitoring that TCEQ has added to the Title V permit for the FCCU and flares cannot ensure compliance with the relevant limits for those units. And, as discussed above, TCEQ's response to comments does not provide a reasoned explanation for how the proposed Title V permit provisions can ensure compliance with these limits or the other relevant limits.

TCEQ's failure to provide a reasoned explanation in the permit record for why it believes the permit conditions are sufficient to assure the refinery's compliance with these various limits violates 40 C.F.R. § 70.7(a)(5)'s requirement that permitting authorities "provide a statement that sets forth the legal and factual basis for the draft permit conditions." *See also* Mettiki Order at 7-8 ("In addition to including permit terms sufficient to satisfy EPA's part 70 monitoring requirements, permitting authorities must include a rationale for the monitoring requirements selected that is clear and documented in the permit record.") (citing § 70.7(a)(5) and prior Title V orders).

In violation of Title V requirements (as reflected in 40 C.F.R. § 70.7(h)(6)), TCEQ did not respond to Petitioners' significant comment raising this precise objection regarding TCEQ's failure to offer a reasoned explanation for why the monitoring and other permit requirements ensure compliance with these limits. Thus, Petitioners cannot "explain how [TCEQ's] response to the comment is inadequate to address the issue raised in the public comment." *See* 40 C.F.R. § 70.12(a)(2)(vi).

VII. THE PROPOSED PERMIT INCLUDES UNLAWFUL PROVISIONS RELAXING FEDERALLY ENFORCEABLE EMISSION LIMITS DURING STARTUP, SHUTDOWN, AND MAINTIENANCE PERIODS.

As Petitioners' comments pointed out (*see* Initial Comments at 83-88, Supplemental Comments at 10-12), the proposed Title V permit incorporates provisions that unlawfully relax federally enforceable emission limits during periods of startup, shutdown, and maintenance ("MSS"). Because the Title V permit incorporates these unlawful MSS provisions, it fails to

ensure compliance with the affected, relaxed federally enforceable limits, in violation of 40 C.F.R. §§ 70.1(b), 70.6(a)(1), and 70.7(a)(1)(iv) and 42 U.S.C. § 7661c(a). More specifically, the limits affected by the unlawful MSS provisions are contained in a major New Source Review ("NSR") and Prevention of Significant Deterioration ("PSD") permit—permit 2501A—and also include NSPS and NESHAP standards. These limits from a major NSR/PSD permit and NSPS and NESHAP standards are applicable requirements that Valero's Title V permit must assure compliance with. See 40 C.F.R. 70.2 (defining "applicable requirement" to include: "[a]ny term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under title I, including parts C or D, of the Act"; "[a]ny standard or other requirement under section 111 of the Act"; and "[a]ny standard or other requirement under section 112 of the Act"). But because the proposed permit incorporates provisions unlawfully relaxing NSR, PSD, NESHAP, and NSPS requirements, the permit cannot ensure compliance with these applicable requirements.

In addition, the Clean Air Act and EPA's Title V regulations require Title V permits to include "enforceable emission limitations and standards." 42 U.S.C. § 7661c(a). See also 40 C.F.R. § 70.6(b)(1) (except for those terms specifically marked as state-only, "[a]ll terms and conditions in a part 70 permit ... are *enforceable* by [EPA] and citizens under the Act"). (emphasis added). Contrary to these requirements, the MSS provisions at issue render unenforceable, during MSS periods, the limits normally applicable to the affected units.

The proposed Title V permit incorporates permit No. 2501A (see Proposed Permit's "New Source Review Authorization References" at p. 207), 127 which is the refinery's main NSR/PSD permit. Permit 2501A contains limits and other provisions covering emissions from various units during periods of planned MSS. It is these MSS provisions from permit 2501A that unlawfully inflate major NSR/PSD limits—and also unlawfully revise NESHAP and NSPS standards.

EPA has "consistently" stated that major NSR/PSD limits must apply at all times and that PSD/NSR permits cannot contain blanket exemptions to those limits for periods of startup, shutdown and malfunction ("SSM"). See Order Granting in Part and Denying in Part Petition for Objection to Permit, In the Matter of Southwestern Electric Power Co., H.W. Pirkey Power Plant, Petition No. VI-2014-01 ("Pirkey Order") (Feb. 3, 2016) at 8 (citing to previous Title V orders and EPA Environmental Appeals Board (EAB) decisions). 128 While EPA has stated that

¹²⁷ A January 18, 2019 version of permit 2501A is appended to, and incorporated into, the proposed Title V permit. As noted above, TCEQ later revised permit 2501A, but the provisions addressing periods of startup, shutdown, and maintenance did not change with the revision.

¹²⁸ Relatedly, EPA has objected to at least one Title V permit where Texas—through MSS provisions established through a NSR permit—attempted to undermine a State Implementation Plan (SIP) limit that applies at all times. *Id.* at 10-12 (MSS provisions appeared to conflict with, and thus rendered unclear, applicability of SIP limit for particulate matter).

PSD/NSR permits may contain alternative limits that apply during startup and shutdown when the permitting authority determines that compliance with a primary PSD/NSR limit is infeasible during those periods, such alternative limits must be justified as Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) for the startup/shutdown periods to which they apply. *Id.* at 8, 12 (citing previous Title V orders and EAB decisions). *See also* 42 U.S.C. §§ 7475(a)(4), 7503(a)(2) (the Clean Air Act's BACT and LAER requirements, respectively). Importantly, EPA has stated that alternative BACT/LAER limits are not justifiable for periods of scheduled maintenance or malfunctions—and that maintenance activities should be scheduled "during process shutdown." *See, e.g.*, Pirkey Order at 12.

In at least one letter to TCEQ, EPA has made clear that states cannot replace or revise existing NSR/PSD limits without complying with the major NSR/PSD required procedures used to establish the original limits. See also 42 U.S.C. §§ 7475, 7503 (Clean Air Act requirements for PSD and major NSR permits, respectively). Thus, to revise the major NSR/PSD limits from permit 2501A applicable to "routine" operations and create new alternate limits for periods of startup and shutdown, TCEQ would need to (among other things): analyze whether—and ensure that—the limits from permit 2501A for these startup and shutdown periods meet BACT or LAER (depending on the limit at issue); analyze air quality impacts resulting from the new, relaxed limits for startup and shutdown periods; ensure that the public participation requirements for establishing major NSR/PSD limits are complied with; and offset any emissions increases resulting from relaxing major NSR limits.

Here, there is absolutely no indication that TCEQ followed these requirements in establishing the MSS limits that replaced Valero's original PSD/NSR limits for planned MSS periods. Tellingly, TCEQ does not claim in its response to comments that it did comply with these requirements. For example, nowhere does TCEQ claim that the MSS limits or other MSS provisions reflect BACT or LAER, that the Commission complied with the requisite public participation requirements for major NSR/PSD, or that emissions increases from relaxing major NSR limits (*i.e.*, here, limits for NOx and VOCs) were offset. In addition, only EPA—not TCEQ—can revise NESHAP and NSPS standards. Turther, putting aside the issue of proper

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¹²⁹ Ex. 24, Letter from Jeff Robinson, Air Permits Section, U.S. EPA Region VI, to Richard Hyde, P.E., Air Permits Division, TCEQ, regarding Permitting of MSS Emissions at Major Stationary Sources, May 21, 2008.

¹³⁰ Our review of files produced by TCEQ shows that, on June 25, 2012, Valero was issued Permit No. 80493 to authorize MSS emissions—and that permit 80493 was later voided and consolidated into Permit No. 2501A.

¹³¹ See 42 U.S.C. §§ 7411(b)(1)(B) (requiring the "Administrator" to establish and, if appropriate every eight years, revise NSPS); § 7412(d)(1) (requiring the "Administrator" to promulgate NESHAP); § 7412(d)(6) (requiring the "Administrator" to revise as necessary NESHAP at least every 8 years); § 7602(a) (defining "Administrator" as "the Administrator of the Environmental Protection Agency"). In addition, Clean Air Act § 112(1)(1) makes doubly clear that states cannot weaken NESHAP limits, such as through alternate limits that apply during MSS periods: "Each State may develop and submit to the

procedures for establishing alternate limits for startup and shutdown periods, TCEQ's revisions to major NSR/PSD limits for periods of planned maintenance violates EPA's policy that alternate limits are *never appropriate* for maintenance periods. Thus, EPA should instruct TCEQ to make clear in the Title V permit that the MSS provisions from permit 2501A are not incorporated into the Title V permit. If TCEQ wishes to still incorporate the MSS limits and provisions into the Title V permit, it must designated them as state-only, non-federally-enforceable provisions under 40 C.F.R. § 70.6(b)(2).

Permit 2501A's planned MSS provisions unlawfully inflate the following limits for the following units at Valero's refinery:

FCCU: The planned MSS provisions from permit 2501A unlawfully inflate major NSR/PSD carbon monoxide ("CO"), nitrogen oxide ("NOx") and sulfur dioxide ("SO2") limits applicable to the FCCU during MSS periods, as well as associated NESHAP and NSPS limits. During planned MSS periods, ¹³² the permit allows CO emissions from the FCCU (1,012 ppmvd) that are more than double the normal concentration limit of 500 ppmvd. ¹³³ *Compare* Special Condition 12 of Permit 2501A (limits during "routine operations") *with* Special Condition 51.B (limits during planned MSS). The one-hour 500 ppmvd limit is presumably a PSD limit because it is contained in the refinery's main NSR/PSD permit and no other source for the limit is identified in the permit, but it is also the limit that applies to FCCUs under the NESHAP and NSPS regulations. *See* 40 C.F.R. §§ 63.1565(a)(1), 60.103(a), 60.105(e)(2); *see also* Proposed Title V Permit at 71-72. Thus, by incorporating permit 2501A, Valero's Title V permit is unclear regarding whether the MSS provisions from 2501A or the provisions from NSPS and NESHAP limits apply to the FCCU during planned MSS. Therefore, EPA should, at the very least, instruct TCEQ to make clear in the Title V permit that the MSS provisions do not affect any otherwise-applicable NSPS or NESHAP requirements.

In addition to the CO concentration limits, permit 2501A also improperly increases the PSD lbs/hour and tons/year limits for CO emissions from the FCCU during MSS periods. For example, the lbs/hour and tons/year limits for routine CO emissions from the FCCU are 269 lbs/hour and 198 tons/year. Permit 2501A MAERT at "FCC Unit Stack." The MSS permit,

Administrator for approval a program for the implementation and enforcement ... of emission standards ... A program submitted by a State under this subsection may provide for partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce emissions standards and prevention requirements but shall not include authority to set standards less stringent than those promulgated by the Administrator" 42 U.S.C. § 7412(I)(1) (emphasis added).

¹³² Permit 2501A defines startup for the FCCU as ending "when torch oil is no longer needed to keep dense bed temperature stable" and shutdown beginning "when the charge rate is reduced to prepare the unit for feed out." Permit 2501A at Special Condition 51.B. Under the definition of startup in particular, Valero could assert that startup lasts many hours, as the word "stable" is ambiguous.

¹³³ The 500 ppmvd limit has an averaging period of one hour. The 1,012 ppmvd CO limit applicable to MSS does not appear to list an averaging period.

however, allows 1,129.66 lbs/hour (over four times the normal limit) and 27.11 tons/year of CO from the FCCU during planned MSS. *Id.* at "FCCU MSS Activities."

In addition to the CO limits, the MSS provisions also unlawfully increase the FCCU's one-hour (and arguably the 7-day and 365-day) concentration NOx NSR limits – as well as arguably the unit's 7-day and 365-day SO2 PSD limits. *Compare* Special Conditions 10-12 of Permit 2501A (listing normal NOx limits of 200 ppmvd averaged over one hour, 38 ppmvd averaged over seven rolling days, and 19 ppmvd averaged over 365 rolling days; and normal SO2 limits of 50 ppmvd averaged over seven rolling days and 25 ppmvd averaged over 365 rolling days) *with* Special Condition 51.B (listing MSS limits of 512 ppmvd for NOx and 256 ppmvd for SO2). At least the 7-day SO2 limit in the NSR permit (50 ppmvd) is the same as one of the NSPS limit under 40 C.F.R. § 60.104(b), 134 so the Title V permit is arguably unclear regarding whether the MSS provisions from 2501A or NSPS provisions apply to the FCCU during planned MSS. Finally, Special Condition 51.B (stating that the MSS limits "apply to the operations of the specified facilities during planned" MSS periods) could be read to mean that MSS emissions impermissibly do not count toward the annual 129.89 tons/year SO2 and 172 tons/year NOx limits applicable to the FCCU in the MAERT.

Flares: Permit 2501A's MSS provisions are unclear regarding whether, for MSS periods, they excuse the refinery's two flares (30FL1 and 30FL6) from meeting their normal lbs/hour and tons/year major NSR/PSD emission limits from 2501A's MAERT table. The permit's MAERT table contains no special MSS limits applicable to the flares. But the MSS provisions (at Special Condition 42) state that they authorize emissions resulting from the planned MSS activities summarized in attachment F, and those activities include when all process units vent to the flares during startup, shutdown, depressurization and draining. The activities listed in attachment F also include when all process units and tanks vent to the flares during preparation for—or recovery from—facility or component repair/replacement. Attachment F further lists the flares as being associated with controlled degassing of floating roof tanks with landed roofs. The permit's MSS provisions at Special Condition 52 also list certain requirements for control devices, including the flares. Taken together, these provisions could be read to provide that the flares do not have to meet the non-MSS numeric limits that would normally be applicable to them (from the permit's MAERT) if the flares are used during the relevant activities listed in attachment F and if the flares meet the MSS requirements listed in Special Condition 52. EPA should instruct TCEQ to revise the Title V permit and/or permit 2501A to make clear that MSS provisions do not affect Valero's duty to comply with the flares' lbs/hour and tons/year limits listed in permit 2501A's MAERT.

 $^{^{134}}$ 40 C.F.R. \S 60.104(c) specifies that the averaging period for this limit is 7 days.

Tail Gas Incinerators: Permit 2501A contains an alternative MSS SO2 limit of 620 ppmvd for two tail gas incinerator (TGI) units (39CB2001, 46CB6301). Permit 2501A at Special Condition 51.B. This concentration limit replaces the 250 ppmvd limit—and arguably also replaces the hourly SO2 limits applicable to these units (93.95 lbs/hr and 85.15 lbs/hr)—during normal operations. *See* Permit 2501A at Special Condition 21 and MAERT at "Tail Gas Incinerator Unit 39 SRU and 46 SRU." Permit 2501A's 250 ppmvd limit is also a limit applicable to the TGI units under at least NSPS—and apparently under the NESHAP regulations as well. See Proposed Title V Permit at 62-63, 85-86 (citing 40 C.F.R. § 60.104(a)(2)(i), 40 C.F.R. Part 63, Subpart UUU, Table 29). Thus, the MSS provisions could be read to impermissibly replace the normal NSPS and NESHAP SO2 requirements for the TGI units during MSS periods. In addition, Special Condition 51.B (stating that the MSS limits "apply to the operations of the specified facilities during planned" MSS periods) could be read to unlawfully provide that MSS emissions do not count toward the combined annual SO2 limit of 354.28 tons/year for the two TGIs. *See* MAERT at "Combined Annual Cap for both TGIs."

<u>Boilers:</u> Permit 2501A also contains unlawfully inflated lbs/hour limits for "Boiler MSS Activities"—11.99 lbs/hour for NOx and 123.86 lbs/hour for CO. Permit 2501A MAERT at "Boiler MSS Activities." These MSS limits are much higher than the hourly NOx and CO limits normally applicable to Package Boilers 1-3 under permit 2501A—3.95 lbs/hr NOx and 13.63 lbs/hr CO. *See* MAERT at Emission Points 81BF01, 50BF02, 50BF03.

NSR permit 124424 also contains alternate provisions that apply to the refinery's boilers during MSS periods. *See* Ex. 15, May 2016 Version of Permit 124424, at Special Conditions 19-22. To the extent these MSS provisions affect major NSR/PSD limits or NESHAP/NSPS limits that would otherwise be applicable to the boilers, they are unlawful.

Tanks and Wastewater Treatment Plant: Permit 2501A MAERT establishes extremely high lbs/hour limits for VOCs and benzene from "Tank MSS Activities"—529.27 lbs/hour for VOCs and 8.07 lbs/hour for benzene. The MAERT also establishes a high lbs/hour limit for benzene from "Wastewater Treatment Plant MSS Activities"—0.98 lbs/hour. The allowed VOC emissions from the tanks during MSS periods are exponentially higher than permit 2501A's VOC limits applicable during normal tank operations, which range from 0.01 lbs/hour to 0.45 lbs/hour. *See* MAERT at "Storage Tanks" section.

These MSS provisions are apparently permitting benzene emissions for the first time: Permit 2501A does not list limits for benzene emissions from the tanks and wastewater treatment

¹³⁵ Permit 2501A provides that startup for the TGIs "begin[s] when acid gas is fed to the units and the shutdown period begins when acid gas is removed from the units." Permit 2501A at Special Condition 51.B.

¹³⁶ As noted above, even though TCEQ has since revised permit 124424, the proposed Title V permit incorporates the 2016 version of 124424. *See* Proposed Title V Permit's "New Source Review Authorization References" at p. 207.

units during periods of "normal" operation. In fact, according to Valero's own pre-permit modeling, MSS emissions of benzene from the wastewater treatment plant would, for an expected 28 hours per year, cause the maximum ground-level chemical concentrations along the refinery's property line to be 1.9 times the short-term Effects Screening Level ("ESL") for benzene. See Ex. 25, TCEO Construction Permit Source Analysis & Technical Review at 6 (Jun. 19, 2012); Ex. 26, Request for Comments – TCEQ Toxicology Division at 2 ("MSS activities at the wastewater treatment units are the culpable sources for benzene exceedances. Expected frequency of cleaning is once per year for 48 hours."). To make matters worse, the area surrounding the refinery was previously on an Air Pollution Watch List for benzene, ¹³⁷ and TCEQ's Toxicology Division cautioned: "[I]n the absence of site-wide modeling for total emissions (e.g., MSS emissions plus normal emissions), we are unable to assess the facility's overall impact on the surrounding community. Any future permitting actions involving benzene increases at this facility ... should be minimal and will undergo a more detailed review." Ex. 27, Memo from TCEQ Toxicology Division at 1-2 (Dec. 21, 2011).

The MAERT's annual MSS limit for benzene from the wastewater treatment plant (0.02 tons/year) is much lower than the hourly benzene MSS limit, and footnote 6 to the MAERT provides that annual emissions of VOCs and benzene authorized by the tank MSS provisions are to be "accommodated as part of the annual allowable rate [presumably for "routine" emissions] of each of the storage tanks." 138 To begin with, however, the permit does not contain annual limits for benzene from the tanks, and thus the permit would appear to allow Valero to annually release large amounts of benzene during MSS periods. Also, the lower annual VOC limits for the tanks are of no comfort because, as discussed above in the section discussing monitoring and emission calculations methods for the tanks, the monitoring required by the Title V permit and permit 2501A are wholly inadequate to ensure compliance with those limits.

Other units: Permit 2501A contains multiple other MSS provisions that address additional units, as well as the above units. See Permit 2501 Special Conditions 41-52, MAERT at "Maintenance, Startup and Shutdown," Attachments D-F. Any of these MSS provision from permit 2501A (or any other underlying permit) that purports to revise or otherwise impact a major NSR, PSD, NSPS, or NESHAP (or SIP limit) is unlawful for the reasons discussed above. 139 Those reasons include that alternative NSR and PSD limits are never justifiable for

¹³⁷ https://www.tceq.texas.gov/toxicology/apwl/list.html

¹³⁸ Permit 2501A's MAERT also contains unlawful hourly and annual limits for VOCs (5.21 lbs/hour and 3.28 tons/year) and benzene (0.04 lbs/hour and 0.03 tons/year) from "Thermal Oxidizer Controlled MSS activities." Special Condition 46.F(4) explains that emissions associated with controlled degassing of the tanks are to be in compliance with these particular Thermal Oxidizer Controlled MSS limits. That same provision explains that uncontrolled MSS emissions associated with activities authorized by "Tank MSS Activities" are to be accounted for as part of the annual limit for routine emissions from each tank.

¹³⁹ SIP limits can only be revised for MSS periods if EPA approves a SIP change incorporating the relevant MSS provisions. See 42 U.S.C. § 7410(i).

periods of planned maintenance, and that TCEQ cannot replace existing major NSR and PSD limits without complying with the required major NSR and PSD procedures used to establish original limits (such as public participation requirements and a demonstration that alternative limits reflect BACT or LAER, as relevant). TCEQ has not even attempted to demonstrate that it complied with these major NSR and PSD procedures when establishing the MSS provisions. Thus, EPA should instruct TCEQ to make clear that none of the MSS provisions from permit 2501A—or any other underlying NSR/PSD permit with MSS provisions—are incorporated into the Title V permit.

A. TCEQ's Response to Comments Offers No Valid Reason for Retaining the Unlawful MSS Provisions.

In its response to comments (RTC at 78), TCEQ asserts that "[i]t is not appropriate for [Petitioners] to attempt to challenge these [MSS] issues in a Title V permit action" because, says TCEQ, such challenge "should be raised through the appropriate NSR permit process." *See also* RTC at 116 (asserting the same). TCEQ points to no provisions of the Clean Air Act or EPA's Part 70 regulations that support its position. ¹⁴⁰ Instead, TCEQ's position is contrary to the plain language of both the Act and EPA's Title V regulations.

Title V permits must assure compliance with all applicable requirements and are designed to strengthen enforcement, but the proposed permit cannot ensure compliance with—and renders unenforceable—applicable PSD/NSR limits and NESHAP and NSPS standards because it unlawfully alters them by incorporating an underlying permit that allows Valero to comply with alternate, higher limits during MSS periods—MSS limits that were not established through the required major NSR/PSD permitting process. Specifically, the Clean Air Act requires Title V permits to include "enforceable emission limitations and standards ... and such other conditions as are necessary to assure compliance with applicable requirements of this chapter" 42 U.S.C. § 7661c(a) (emphasis added). NESHAP, NSPS, and PSD/NSR requirements are plainly "applicable requirements of this chapter"—the Clean Air Act. To ensure compliance with these

¹⁴⁰ TCEQ's position is somewhat similar to—but easily distinguishable from—the position that EPA, under the previous Administration, took in *In the Matter of Exxon Mobil Corporation, Baytown Olefins Plant*, Order on Petition No. VI-2016-12 (March 1, 2018) (the "Baytown Order"). In the Baytown Order, which was later upheld by the Fifth Circuit in a May 29, 2020 decision in *Environmental Integrity Project v. EPA*, EPA maintained that Title V permitting should not address the applicability of major NSR when a minor NSR permit has already issued for the project in question. That Fifth Circuit decision and the Baytown Order are inapplicable here, since here no minor NSR permit ever issued and the applicability of major NSR (rather than minor NSR) is not at issue. Further, that Fifth Circuit decision was wrongly decided because (among other reasons) it ignored unambiguous statutory language specifying that "applicable requirements" include the requirements "of the applicable implementation plan" (42 U.S.C. § 7661c(a)) and "of [Title] I" (§ 7661a(f)), and "that a permit be obtained before construction of modification" (§ 7661a(a)). The Fifth Circuit also ignored similar unambiguous language from EPA's Title V regulations. As the Tenth Circuit correctly concluded in *Sierra Club v. EPA*, 964 F.3d 882, 891 (10th Cir. 2020), EPA's Part 70 regulations "unmistakably require[] that each Title V permit include all requirements in the state implementation plan, including Utah's requirement for major NSR."

applicable requirements, the Act specifically requires that any applicable NESHAP, NSPS, and PSD/NSR limits be "enforceable" in Title V permits.

In addition, 42 U.S.C. § 7661a(f) declares that a state's Title V program cannot be approved by EPA, even partially, unless it "applies, and ensures compliance with ... [a]ll requirements established under section 7412 ... applicable to 'major sources' ... [and] [a]ll requirements of [Title I] (other than section 7412...) applicable to sources required to have a permit under [Title V]." The NESHAP requirements applicable to Valero's refinery are "requirements established under § 7412 applicable to major sources," and NSPS and NSR/PSD requirements appear in Title I— placing all of these requirements squarely within the requirements that a Title V must ensure compliance with.

Consistent with the statute, 40 C.F.R. § 70.1(b) declares that "[a]ll sources subject to these regulations shall have a permit to operate that assures compliance by the source with all applicable requirements." *See also* 40 C.F.R. §§ 70.4(b)(3)(i), (v) (a state must have authority to "[i]ssue permits and assure compliance with each applicable requirement" and "[i]ncorporate into permits all applicable requirements"), 70.6(a)(1) (permit must "assure compliance with all applicable requirements at the time of permit issuance"), 70.7(a)(1)(iv) (a permit can be issued only if it "provide[s] for compliance with all applicable requirements"). EPA's Title V regulations define "applicable requirement" to specifically include NSR/PSD limits and NESHAP and NSPS requirements. *See id.* § 70.2 (parts (2)-(4) of the "applicable requirement" definition). Also consistent with the statute, § 70.6(b)(1) provides that, except for those terms specifically marked as state-only, "[a]ll terms and conditions in a part 70 permit ... are *enforceable* by [EPA] and citizens under the Act." 40 C.F.R. § 70.6(b)(1) (emphasis added).

In addition to contravening the plain language of the Clean Air Act and EPA's regulations, TCEQ's position also contravenes Title V's core purpose of promoting compliance and strengthening enforcement. This core purpose is made clear by the legislative history and statutory structure. For example, in enacting it, Congress expected Title V to "substantially strengthen enforcement of the Clean Air Act" by "clarify[ing] and mak[ing] more readily enforceable a source's pollution control requirements." S. Rep. No. 101-228, at 347-48 (1990), as reprinted in 1990 U.S.C.C.A.N. 3385, 3731. Similarly, the Senate Report explained: "The first benefit of the title V permit program is that ... it will clarify and make more readily enforceable a source's pollution control requirements." *Id.* at 347, 1990 U.S.C.C.A.N. 3731. *See also id.* at 346, 1990 U.S.C.C.A.N. 3729 ("Operating permits are needed to ... better enforce the requirements of the law by applying them more clearly to individual sources and allowing better tracking of compliance.").

To effectuate this purpose of promoting compliance and strengthening enforcement, Congress designed Title V permits to enable EPA, states, and the public to identify violations and correct them—requiring Title V permits to list all applicable requirements and include monitoring, recordkeeping, reporting, and annual compliance certification requirements and schedules of compliance. 42 U.S.C. § 7661(c)(a), (c). To this end, Congress also provided that any Title V permit condition can be enforced administratively or in court by EPA or by the public through a citizen suit. *Id.* §§ 7413(a)(3), 7604(a)(1), (f). Contrary to Title V's core

purpose of promoting compliance and strengthening enforcement, the proposed permit's MSS provisions renders applicable NESHAP, NSPS, and PSD/NSR requirements unenforceable during MSS periods.

In its response to comments (RTC at 78), TCEQ also asserts that "[p]lanned MSS emissions have been properly authorized in the underlying NSR permit in accordance with EPA-approved permitting requirements" from 30 TAC Chapter 116. *See also* RTC at 116 (arguing the same). 30 TAC Chapter 116 includes provisions addressing "control of air pollution by permits for new construction or modification" and covers a myriad of different types of permitting (including minor and major NSR permitting, constructed or reconstructed major sources of HAPs, standard and flexible permits, and Best Available Retrofit Technology), and TCEQ does not identify any specific part of Chapter 116 that authorizes the MSS provisions. TCEQ's vague assertion that Chapter 116 gives it authority to issue permits with MSS provisions cannot trump the unambiguous statutory and regulatory language discussed above. Further, notably, TCEQ does not assert that, when issuing the MSS provisions, it complied with the requirements for establishing the affected major NSR and PSD limits in the first place, including establishing that the new MSS limits reflect BACT or LAER and offsetting any emissions increases resulting from inflating major nonattainment NSR limits.

Even if the MSS limits were "noticed for public comment" in 2007 (see RTC at 78), TCEQ's decision to provide for public comment provides no basis for interpreting Congress' intent when promulgating Title V or EPA's intent when promulgating its Part 70 regulations. Cf. Weiler v. Chatham Forest Products, Inc., 392 F.3d 532, 537-38 (2d Cir. 2004) (explaining that though a state had "opted to provide for review of [the state agency's air permitting] decisions in state court, Congress did not require it to do so" and that it is "therefore difficult to understand how [the state's] decisions regarding whether to provide state judicial review, and which remedies to make available, have any relevance to a determination of Congress' intent in enacting" the Clean Air Act's citizen suit provision). As discussed above, Clean Air Act Title V and EPA's Title V regulations are clear that Title V permits must ensure compliance with major NSR and PSD limits—meaning that the Title V permitting process provides an avenue for Petitioners to challenge TCEQ's unlawful relaxation of NSR and PSD limits during MSS periods.

Further, regardless whether TCEQ provided notice and comment for the MSS provisions and regardless whether the MSS limits were established through TCEQ's permitting processes, that would not allow TCEQ to revise NESHAP and NSPS standards for MSS periods. As discussed above, only EPA—not TCEQ—can revise NESHAP and NSPS standards.

TCEQ also—without any explanation of how this is so—argues that Petitioners "ignore[]" the Fifth Circuit's decision in *Luminant Generation Co. LLC v. EPA*, 714 F.3d 841 (5th Cir.2013) and unspecified "state regulations that required authorization of planned MSS." RTC at 78. *Luminant*, however, did not address whether a Title V permit must assure compliance with major NSR and PSD limits—or NSPS or NESHAP standards—that are unlawfully revised to provide for higher limits during MSS periods; *Luminant* only upheld, at *Chevron* step 2, EPA's approval of an affirmative defense for unplanned MSS periods and disapproval of an

affirmative defense for planned MSS periods. 714 F.3d at 851-60. The only mention of permitting of MSS emissions in the Fifth Circuit's decision was when the court rejected an industry argument that EPA was required to approve the affirmative defense for planned MSS periods as a necessary step in Texas' transition to a permitting scheme. *Id.* at 858-59. Importantly, *Luminant* did not address whether TCEQ can revise major NSR and PSD limits (it cannot) without following the required processes and requirements for establishing those limits in the first place.

Finally, the unspecified "state regulations that required authorization of planned MSS" that TCEQ mentions are not SIP-approved—and thus cannot lawfully authorize the MSS provisions at issue here.

VIII. THE PROPOSED PERMIT UNLAWFULLY INCORPORATES LANGUAGE GIVING TCEQ DISCRETION REGARDING WHETHER CEMS DATA MAY BE USED TO DETERMINE COMPLIANCE.

As Petitioners' Initial Comments explained (at page 86-88), some of the underlying permits incorporated into the proposed Title V permit contain unlawful language giving TCEQ discretion regarding whether data from continuous emission monitoring systems ("CEMS") can be used to determine compliance with the pollution limits for some of the major units at the facility. EPA must require TCEQ to make clear that this language is not incorporated into the Title V permit to ensure that EPA, other regulators or enforcement officials (such as from Harris County), and community residents could use this emissions data in enforcement proceedings or other compliance efforts.

At least NSR permits 2501A and 124424, which govern many of the major processes at the refinery and are incorporated into the proposed Title V permit (see Proposed Permit's "New Source Review Authorization References" at p. 207), contain unlawful language identical or similar to the following: "The data from the CEMS *may*, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit." See Permit 2501A at Special Conditions 59.H, 60.D (emphasis added); Ex.15, May 2016 Version of Permit 124424, at Special Condition 24.D.¹⁴¹ In permit 2501A alone, this language applies to the data from 23 different CEMS for eight different units, including all of the CEMS for the FCCU and the SO2 CEMS for the tail gas incinerators ("TGIs"). See Permit 2501A at Special Conditions 59. These CEMS are meant to ensure compliance with some of the most significant limits at the refinery, including hourly and annual limits such as the combined annual SO2 cap for both TGIs of 354.28 tons/year and the FCCU's annual limits of 198 tons/year CO, 172 tons NOx and 129.89 tons/year SO2. See Permit 2501A MAERT at "FCCU" and "SRU."

These provisions (and any other similar provisions in these permits or other permits), which leave it to TCEQ's discretion whether the CEMS data determines compliance, are

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¹⁴¹ As noted above, even though TCEQ has since revised permit 124424, the proposed Title V permit incorporates the 2016 version of 124424. *See* Proposed Title V Permit's "New Source Review Authorization References" at p. 207.

unlawful because they (a) violate the credible evidence rule, and thus make it so that the Title V permit cannot ensure compliance with the affected limits and cannot promote enforcement, (b) make it so that the Title V permit's monitoring and reporting provisions cannot ensure compliance with the limits that have corresponding CEMS and (c) improperly shield Valero from its Title V requirement to independently certify compliance.

EPA's 1997 credible evidence rule amended various provisions of EPA's regulations to "make clear that enforcement authorities can prosecute actions based exclusively on any credible evidence, without the need to rely on any data from a particular reference test." 62 Fed. Reg. 8314, 8316 (Feb. 24, 1997); see also 30 Tex. Admin. Code § 122.10(5) (defining "deviation" in part based on "credible evidence"). Similarly, Clean Air Act § 113(a) authorizes EPA to bring enforcement actions "on the basis of any information available to the Administrator," and §113(e) provides that, in determining the amount of penalties, EPA and courts are to take into account (among other things) the "duration of the violation as established by any credible evidence (including evidence other than the applicable test method)." 42. U.S.C. § 7413(a),(e). EPA has explained that, "under the Clean Air Act, EPA or citizens may use direct emissions monitoring data generated by continuous emissions monitors as well as any other credible evidence, to establish or support an independent effort to determine a facility's compliance status." In the Matter of TVA Gallatin and Johnsonville Power Plants, Petition No. IV-2003-4 (EPA July 29, 2004) at 9 f.n.6 (citing 63 Fed. Reg. 8314 (Feb. 24, 1997), 66 Fed. Reg. at 56997-56998 (November 14, 2001)). In Title V petition responses, EPA has found unlawful "permit terms excluding the use of credible evidence." See, e.g., In the Matter of Shell Chemical LP and Shell Oil Company, Petition Nos. VI-2014-04, VI-2014-05 (EPA Sept. 24, 2015) at 38.

Here, the CEMS language in question, which is incorporated into the proposed Title V permit, violates the credible evidence rule because it leaves it up to the discretion of TCEQ to determine whether to exclude the CEMS data as credible evidence of compliance. Thus, if EPA or affected members of the public brought a suit to enforce violations of the affected limits on the basis of CEMS data, Valero might argue that it was up to only TCEQ—and not EPA, a plaintiff environmental or community group, or a federal district court—to decide whether the CEMS data could be used to determine compliance. As such, in violation of 40 C.F.R. §§ 70.1(b), 70.6(a)(1), and 70.7(a)(1)(iv) and 42 U.S.C. § 7661c(a), the proposed Title V permit cannot ensure compliance with the affected major NSR/PSD limits. 142

In addition, the Clean Air Act and EPA's Title V regulations requires Title V permits to include "enforceable emission limitations and standards." 42 U.S.C. § 7661c(a). See also 40 C.F.R. § 70.6(b)(1) (except for those terms specifically marked as state-only, "[a]ll terms and conditions in a part 70 permit ... are enforceable by [EPA] and citizens under the Act"). (emphasis added). Contrary to these requirements, the credible evidence language at issue could render unenforceable the affected limits.

of the Act").

¹⁴² The affected limits, which Valero determines compliance with through CEMS, are contained in major NSR/PSD permits and are thus applicable requirements under Part 70. *See* 40 C.F.R. 70.2 (defining "applicable requirement" to include: "[a]ny term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under title I, including parts C or D,

In addition, in violation of 40 C.F.R. § 70.6(c)(1), the CEMS language in question also renders the Title V permit's monitoring and reporting requirements incapable of ensuring compliance with the affected limits that are tied to CEMS monitoring: the language leaves it up to TCEQ to determine whether or not the CEMS data will be used to determine compliance, without specifying alternate monitoring that will apply if the CEMS data is not used. EPA has objected to Title V permits in similar situations. *See In the Matter of TVA Gallatin and Johnsonville Power Plants* at 4-8 ("because these permit conditions authorize letters [from the state agency] acknowledging unexcused exceedances of the opacity standards to be evidence of compliance, the 'prima facie evidence of compliance' language, on its face, is not consistent with 40 C.F.R. § 70.6(c)(1)").

Finally, the language at issue improperly shields Valero from its Title V requirement to independently certify compliance. EPA's regulations mandate that each Title V permit include requirements for compliance certification regarding the "status of compliance with the terms and conditions of the permit for the period covered by the certification." 40 C.F.R. § 70.6(c)(5)(iii)(C); see also 30 Tex. Admin. Code § 122.142(b)(1), § 122.143(15), § 122.165. In objecting to language similar to that here, EPA has explained:

Compliance certifications must be based on, among other things, the monitoring data described in 40 C.F.R. § 70.6(c)(5)(iii)(B) and must identify and take into account each deviation. 40 C.F.R. § 70.6(c)(5)(iii)(C). Every source must base its annual compliance certification on its own evaluation of such data. *Id.* [Permit c]onditions E3-6 and E3-7 improperly shift the burden of assessing compliance status to TDEC by providing that certain actions by TDEC form the basis of the source's annual compliance certification. Because a source's annual compliance certification must be based on its own evaluation of its data, the permit may not authorize TVA to certify compliance based on something else - e.g., TDEC's acceptance of quarterly emissions reports or a written response from TDEC; even one that purports to find the source in compliance with the opacity standard. Thus, the provision in Conditions E3-6 and E3-7 relating to the annual compliance certification is not in compliance with 40 C.F.R. § 70.6(c)(5)(iii).

In the Matter of TVA Gallatin and Johnsonville Power Plants at 8-9. As with the TVA permit(s) at issue there, the CEMS language here "improperly shift[s] the burden of assessing compliance status" to TCEQ and possibly allows Valero to "certify compliance based on something" other than "its own evaluation of its data."

EPA should require TCEQ to remove the unlawful language from Permit 2501A Special Conditions 59.H, 60.D and Permit 124424 Special Condition 24.D, as well as any similar language from these permits or any other permits incorporated into the Title V permit.

¹⁴³ That subsection continues: "The certification shall be based on the [monitoring] method or means designated in paragraph (c)(5)(iii)(B) of this section. The certification shall identify each deviation and take it into account in the compliance certification." 40 C.F.R. § 70.6(c)(5)(iii)(C); *see also* 30 Tex. Admin. Code § 122.146(4)-(5).

Alternately, EPA should require TCEQ to revise the Title V permit to specifically provide that these unlawful provisions are not incorporated into the Title V permit.

A. TCEQ's Response to Comments Offers No Valid Reason for Retaining the Language Giving TCEQ Discretion Regarding Whether CEMS Data May Be Used to Determine Compliance.

In its response to comments (RTC at 80), TCEQ—pointing to certain provisions from the draft Title V permit regarding Valero's use of credible evidence in certifying compliance and reporting deviations—asserts that "[n]othing in the Draft Permit prohibits the use of credible evidence to demonstrate compliance (or noncompliance)." TCEQ also asserts that "there is nothing ... that shield[s] Valero from independently certifying compliance with applicable requirements using credible evidence." *Id.* TCEQ, however, ignores the unambiguous language, from NSR permits 2501A and 124424, providing that "data from the CEMS *may, at the discretion of the TCEQ*, be used to determine compliance with the conditions of this permit." As discussed above, this language could allow Valero—in an enforcement suit brought by EPA or affected members of the public—to argue that it was up to only TCEQ (and not EPA, a citizensuit plaintiff, or a federal district court) to decide whether the CEMS data could be used to determine compliance. If (as TCEQ seems to assert) the language in question here truly has no effect, then TCEQ should have no problem removing that language from the relevant NSR permits—or specifying in the Title V permit that the language is not incorporated into the Title V permit.

Respectfully submitted this 29th day of June 2021, on behalf of Caring for Pasadena Communities, Texas Environmental Justice Advocacy Services (t.e.j.a.s.), and Sierra Club.

/s/ Emma Cheuse Emma Cheuse Earthjustice 1001 G St. NW Suite 1000 Washington, D.C. 20001 (202) 667-4500 ext. 5220 echeuse@earthjustice.org /s/ Amy Catherine Dinn
Amy Catherine Dinn
Environmental Justice Team
Equitable Development Initiative
Lone Star Legal Aid
P.O. Box 398
Houston, Texas 77001-0398
(713) 652-0077 ext. 1118
adinn@lonestarlegal.org

/s/ Gabriel Clark-Leach
Gabriel Clark-Leach
Environmental Integrity Project
1206 San Antonio Street
Austin, Texas 78701
(512) 637-9478
gclark-leach@environmentalintegrity.org

Counsel for Caring for Pasadena Communities

/s/ Patton Dycus

Patton Dycus
Patton Dycus Law, LLC
315 W. Ponce de Leon Ave., Suite 842
Decatur, Georgia 30030
(404) 446-6661
pattondycuslaw@gmail.com

Counsel for Texas Environmental Justice Advocacy Services (t.e.j.a.s.) and Sierra Club

CC: (Attachments available by request)

Jeff Robinson, Branch Chief, EPA Region 6, robinson.jeffrey@epa.gov

Aimee Wilson, EPA Region 6, Wilson.Aimee@epa.gov

Jesse Chacon, P.E., Manager, Operating Permits Section, Air Permits Division, TCEQ jesse.chacon@tceq.texas.gov

TCEQ Office of Air, Air Permits Division Technical Program Support Section, MC-163 airperm@tceq.texas.gov

Matthew Lindquist, Manager Environmental Engineering, Valero Energy Partners, LP, Houston Matt.Lindquist@valero.com

Robert E. Moore, Vice President and General Manager Valero Refining – Texas LP Rob.Moore@valero.com

LIST OF EXHIBITS

Exhibit No.	Title
1	March 2019 Comments of Petitioners ("Initial Comments")
2	October 2019 Comments of Petitioners ("Supplemental Comments")
3	Map of example petrochemical facilities and refineries in and near the Houston
	Ship Channel (based on ECHO, prepared by Earthjustice)
5	Permit By Rule Registration List
	Valero's 2019 Flare Management Plan
6	March 2019 Declaration of Dr. Ranajit Sahu
7	June 2021 Declaration of Dr. Ranajit Sahu
8	April 16, 2021 Version of Permit 2501A
9	Email from Lisa D'Amato (TCEQ) to Emma Cheuse
10	TCEQ Air Permits Division- NSR Emission Calculations (March 2021)
11	Valero's First Half 2019 Subpart CC Compliance Report
12	Valero's Second Half 2019 Subpart CC Compliance Report
13	Valero's First Half 2020 Subpart CC Compliance Report
14	Aug. 2007 MSS Application
15	May 2016 Version of Permit 124424
16	July 2020 Version of Permit 124424
17	TCEQ Construction Permit Source Analysis & Technical Review for Permit 124424
18	
	Excerpts from Valero's June 2015 Alkylation/Boiler Application
19 20	October 2019 Declaration of Dr. Ranajit Sahu
	TCEQ Technical Guidance Package for Chemical Sources – Storage Tanks
21 22	Valero's Nov. 21, 2007 Submittal re Tank Emission Calculations
23	August-September 2019 Emails Between E. Cheuse and C. Rietz NSR Permit 129444
24	Letter from Jeff Robinson to Richard Hyde- May 21, 2008
25	TCEQ Construction Permit Source Analysis & Technical Review
26	Request for Comments – TCEQ Toxicology Division
27	Memo from TCEQ Toxicology Division