



Roger Claff, P. E.
API
Sr. Scientific Advisor

1220 L Street, Northwest
Washington, DC 20005-4070
Tel (202) 682-8399
Fax (202) 682-8270
E-mail claff@api.org



Jeff Gunnulfsen
AFPM
Senior Director
Security & Risk Management

1800 M Street Northwest
Suite 900 North
Washington, DC 20036
Tel (202) 457-0480
Fax (202) 457-0486
E-mail jgunnulfesen@afpm.org

November 25, 2019

Dr. Phillip Flanders
Engineering and Analysis Division
Office of Science and Technology
Office of Water
United States Environmental Protection Agency
Mail Code 4303T
1200 Pennsylvania Avenue Northwest
Washington, DC 20460

RE: Preliminary Effluent Guidelines Program Plan 14, Notice of Availability, 84 Fed. Reg. 57,019, October 24, 2019, EPA Docket No. EPA-HQ-OW-2018-0618

Dear Dr. Flanders:

The American Fuel & Petrochemical Manufacturers (AFPM) and the American Petroleum Institute (API) (collectively “the Associations”) submit the attached comments in response to the U.S. Environmental Protection Agency’s (EPA’s) Preliminary Effluent Guidelines Program Plan 14, Notice of Availability (hereafter, Preliminary Plan 14)(84 Fed. Reg. 57,019, October 24, 2019). API represents over 600 member companies involved in all aspects of the oil and natural gas industry, including exploration, production, refining, and marketing of crude petroleum, petroleum products and manufacture of basic organic chemicals. AFPM’s members operate approximately 110 refineries - accounting for more than 95 percent of U.S. refining capacity - that produce the gasoline, diesel, jet fuel, and petrochemical building blocks for the thousands of products that make innovation and progress possible.

There are approximately 140 petroleum refineries in the U.S. and its territories. The vast majority of these refineries generate and discharge process wastewater to waters of the U.S. or publicly owned treatment works (POTWs) and are thus subject to the effluent limitations guidelines (ELGs) and pretreatment standards that EPA promulgates. See 40 CFR Part 419. Oil and gas extraction operations are located across the nation and are also subject to ELGs and pretreatment standards. See 40 CFR Part 435. The Associations’ members have a substantive interest in EPA’s effluent guidelines plans documented in the Preliminary Plan 14.

November 25, 2019

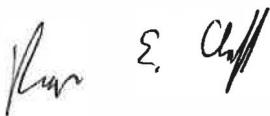
EPA and the Associations have worked collaboratively on the data collection supporting the Agency's detailed study of the existing Refinery ELGs, including providing the Agency with a better understanding of current refinery industrial processes, pollutant loadings, wastewater characteristics, and technology-based treatment standards. The Associations and their members, as the principally affected stakeholders, met with EPA on numerous occasions during the course of the study, participated in 10 refinery site visits, and submitted substantive data upon request. Among the data submissions, 21 refineries completed and submitted comprehensive 308 questionnaires providing detailed information about refinery processes, wastewater streams, wastewater treatment processes, and effluents.

The Agency's investigation was thorough. This multiyear process by both EPA and the Associations has generated robust data that support a conclusion that the existing Refinery ELGs are effective, represent the Best Available Technology Economically Achievable (BAT), and do not warrant any revision. EPA and the public should be confident in that result, which also is consistent with detailed studies that EPA conducted in 1996 and 2004. Hence, as the Associations have set forth in the attached comments in detail, the Agency should not plan to revisit that conclusion or expend limited resources on the Refinery ELGs until at least the mid-2020s, recognizing that EPA has already identified other priorities in the Preliminary Plan 14.

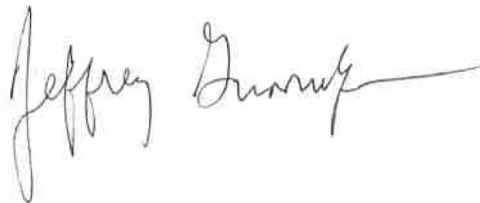
EPA's Preliminary Plan 14 also indicates that it will complete its "Study of Oil and Gas Extraction Wastewater Management Under the Clean Water Act" after requesting and receiving public comments back in July. API and other associations submitted detailed comments, a copy of which also is appended to this submission, and we are ready to meet with EPA staff if they have questions or need any clarifications regarding those comments. We look forward to EPA concluding that ELG study as well.

The Associations appreciate the efforts and collaboration demonstrated by EPA staff throughout their reviews of both ELGs identified above, and we welcome any further comments or questions regarding the detailed comments on the Preliminary Plan 14 that are attached.

Sincerely,



Roger E. Claff
Senior Scientific Advisor, API



Jeff Gunnulfsen
Senior Director, Security and Risk Management
Issues, AFPM

Attachments

cc: Jeffrey Longsworth, Barnes & Thornburg LLP
Jack Waggener, AECOM
Lial Tischler, Tischler/Kocurek

**Comments of the American Fuel & Petrochemical Manufacturers
and American Petroleum Institute
on Preliminary Effluent Guidelines Program Plan 14
80 Federal Register 57019, October 24, 2019**

I. Introduction

The American Fuel & Petrochemical Manufacturers (AFPM) and the American Petroleum Institute (API) (collectively, “the Associations”) submit the following comments on the U.S. Environmental Protection Agency’s (EPA) Notice of the Preliminary Effluent Guidelines Program Plan 14 (80 *Fed. Reg.* 57,019, October 24, 2019) (Preliminary Plan 14). The Preliminary Plan 14 solicits comments on the results and recommendations of EPA’s evaluation of various existing and new point source categories and related information.

API represents over 600 member companies involved in all aspects of the oil and natural gas industry, including exploration, production, refining, and marketing of crude petroleum, petroleum products and manufacture of basic organic chemicals. AFPM’s members operate approximately 110 refineries - accounting for more than 95 percent of U.S. refining capacity - that produce the gasoline, diesel, jet fuel, and petrochemical building blocks for the thousands of products that make innovation and progress possible. Collectively, the Associations represent the vast majority of the nation’s domestic petroleum refining capacity.

There are approximately 140 petroleum refineries in the U.S. and its territories. The vast majority of these refineries generate and discharge process wastewater to waters of the U.S. or publicly owned treatment works (POTWs) and are thus subject to the Petroleum Refining Point Source Category effluent limitations guidelines and pretreatment standards (Refinery ELGs) at 40 CFR Part 419. Apart from the Refinery ELGs, EPA also has promulgated ELGs and pretreatment standards for the Oil and Gas Extraction Point Source Category for related operations across the nation as set forth at 40 CFR Part 435. ELGs represent the best available technology economically achievable (BAT) for industrial wastewater treatment applicable to specific industrial categories.

EPA first promulgated the Refinery ELGs in 1974, and then amended those ELGs in 1975, 1977, 1982 and 1985. EPA conducted detailed studies of the Refinery ELGs in 1996 and 2004. In each instance, EPA concluded that the Refinery ELGs represented BAT and that no further amendment was necessary or appropriate.

EPA’s Final 2012 and Preliminary 2014 Effluent Guidelines Program Plan (79 *Fed. Reg.* 55,472; September 16, 2014) identified the petroleum refining point source category as one that merited study to determine if revised ELGs were necessary and appropriate. EPA’s decision to identify the petroleum refinery category as requiring further study was based on: (1) concerns for increases in metals discharges from wet air pollution controls and changes in crude oil feedstocks, and (2) further review of potential discharges of polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). Preliminary Plan 14 includes EPA’s request for comment on its decision to conclude its Refinery ELG study and its finding, as it found in 2004 and 1996, that the existing Refinery ELGs continue to represent nationally

applicable BAT. The Associations concur with EPA's conclusions and emphasize that the existing Refinery ELGs continue to effectively protect the Nation's waters, human health, and the environment.

In 2018, EPA also initiated a study of the management of produced water from the onshore oil and gas extraction industry subject to 40 CFR Part 435. On May 14, 2019, EPA released a draft study report and accepted public comments on that report through July 1, 2019. The draft study report also was included as an update in the Preliminary Plan 14, as EPA continues to review public comments.

The Associations have organized these comments into the following sections: Summary of Comments; Comments on EPA's Preliminary Plan 14; and comments on the Detailed Study of the Petroleum Refining Category (Refinery ELG Study).

II. Summary of Comments

The Associations assert:

- EPA's Preliminary Plan 14 "concludes the Petroleum Refining Point Source Category Detailed Study." 84 *Fed. Reg.* at 57,020. Nevertheless, EPA also states that it intends to continue to review and study the petroleum refining point source category. EPA does not document the nature and intent of any continuing review/study, and this statement contradicts the Agency's *Federal Register* assertion that it is concluding its study. EPA's Refinery ELG Study clearly documents the results of its (more than) five years of exhaustive data collection and analysis and the Agency's conclusion not to revise the Refinery ELGs. But the Associations are confused by EPA's conflicting statements and believe, based on the information collected and collaborative exchange of data between EPA and the industry, that the Agency should clearly state in its next Final Plan 14 that no further action concerning the Refinery ELGs is necessary or appropriate. Such a conclusion should apply to a minimum of one complete National Pollutant Discharge Elimination System (NPDES) permit cycle (at least five years) before EPA revisits the Refinery ELGs.
- The Associations support EPA's conclusion that no further action regarding the Refinery ELGs is necessary or appropriate.
 - EPA's analyses of petroleum refinery effluent and treatment technology data demonstrate that existing technologies set forth in 40 CFR Part 419 continue to reflect BAT and protect human health and the environment.
 - Site-specific water quality-based effluent limitations, established under the authority of 40 CFR § 122.44(c) where appropriate, continue to provide additional site-specific human health and environmental protections to supplement the nationally applicable ELGs.

- The polycyclic aromatic hydrocarbon (PAH) data, set forth in the Refinery ELG Study report, provide clear evidence that current treatment technologies adequately and effectively remove PAH compounds that might be in refinery wastewater. PAHs are not of concern in refinery wastewater subject to industry treatment technologies.
- EPA's statement that there are limited data available on alkylated PAHs and naphthenic acids in petroleum refining wastewaters does not acknowledge that there are no EPA-approved analytical methods for analyzing industry wastewater for those two classes of chemicals, that those "classes" of chemicals represent numerous individual compounds, that EPA lacks both water quality criteria or toxic weighting factors for those classes of chemicals, and that there is very little data on their fate and/or risk to human health and the environment. As a consequence of the lack of consensus on analytical methods, the lack of toxic weighting factors, and the lack of water quality criteria, there is no scientifically sound method currently available to evaluate these classes of chemicals for regulatory purposes.
- EPA has evaluated the potential presence of PCDDs and PCDFs in petroleum refinery effluents multiple times beginning in the mid-1990s, and each time the Agency has concluded that refinery effluents do not, in the absence of reporting errors or assumptions, contain measurable quantities of these chemicals. The source of PCDDs/PCDFs in petroleum refineries is a single process (catalytic reforming catalyst regeneration) that generates very small volumes of process wastewater containing low quantities of these chemicals *that are subsequently removed to non-detectable concentrations* in downstream refinery treatment systems set forth in the existing Refinery ELGs. The Associations are not aware of any petroleum refinery that discharges quantities of PCDDs/PCDFs that would require water-quality-based effluent limits (WQBELs), even though water quality criteria for these classes of chemicals are measured in the femtogram per liter (or one-quadrillionth) range.
- EPA also has proposed revisions to its overall ELGs review process in order to reduce the emphasis on the toxicity ranking analysis (TRA) it has used in the past. The Associations believe such revisions are appropriate; however, the Associations believe that any tools EPA may use to evaluate new pollutants for existing ELGs, identify new industrial categories for regulation, and/or for "filling" data gaps with new analytical methods must be based on sufficient current, reliable data and must meet established standards within the ELG program for consistency and scientific integrity.
- EPA also is proposing to evaluate nutrient contributions associated with industrial wastewater discharges. The Associations assert that EPA's focus on industrial wastewater cannot reflect the totality of nutrient sources discharging to the Nation's surface waters. API published a nutrient study in 2016, using the same type of methodology used by EPA for this Preliminary Plan 14, and documented that about 84% of total nitrogen and phosphorus loadings to the Nation's surface waters are from non-

point sources, and an additional 14% are from POTWs. Hence, the total industrial contribution to nutrient loadings of less than 2% on a nationwide basis does not warrant national ELG standards.

- The Associations support EPA's decision to complete the "Study of Oil and Gas Extraction Wastewater Management Under the Clean Water Act." The Associations support EPA's role in regulating produced water under relevant provisions of the Clean Water Act and hope the Agency will consider modifying its current restrictive framework to facilitate the discharge of treated produced water in instances where public health and the environment can be appropriately protected. The Associations refer EPA to additional comments below and referenced in the docket.

The Associations' detailed comments on the following pages are organized to follow the structure of the Preliminary Plan 14 and Refinery ELG Study report, citing the sections to which our comments pertain.

III. Comments on Preliminary Effluent Guidelines Program Plan 14

Effluent Guidelines Review and Planning Process (p. 2-3)

EPA's review process and use of four factors, when appropriately executed, is generally a sound process for prioritizing industries for ELG study and revision. The four factors (environmental risk, technology availability, economic achievability, and regulatory efficiency) are intended to target industries for which EPA's limited resources would generate the most environmental benefit through identifying industrial point source categories where: (1) a significant risk to human health and the environment may be present due to existing uncontrolled discharges; (2) commercially available and cost-effective technologies are presently being used and are appropriate under the circumstances; and (3) any new technologies would not have other adverse environmental impacts, such as generation of hazardous wastes and increased energy use. As EPA properly concedes in its Preliminary Plan 14, the use of the Toxics Release Inventory (TRI) and discharge monitoring report (DMR) data to implement its TRA has limitations that compromise its utility for identifying industrial categories requiring detailed study.

The Associations support EPA's proposed approach to focus on developing new tools and analyses to identify data gaps and limitations to better address its four factors. EPA's TRA procedure is biased and unfairly results in the same industrial rankings year after year, which is to be expected given the industrial categories are fixed and the number of dischargers in each category do not significantly vary over time. Nevertheless, despite a high TRA ranking, EPA has demonstrated that the Refinery ELGs, coupled with appropriate site-specific WQBELs, fully protect water quality, human health and the environment at large. EPA's finding that the Refinery ELGs represent BAT is consistent with the Agency's findings in 1996 and 2004. Hence, the Associations suggest that EPA refocus its efforts on industries or categories of dischargers that do not have nationally applicable ELGs that establish BAT.

Further, the Associations assert that a prerequisite for EPA selecting new industrial point source categories, or additional pollutants within currently regulated industrial point source categories, should only proceed once the Agency has collected sufficient, current, reliable evidence (*e.g.*,

current, validated analytical data) that justify the investment of Agency resources in such analyses. EPA's identification of alkylated PAHs and naphthenic acids for inclusion in the Refinery ELG Study is an example of basing a planned study on speculative and anecdotal evidence, without adequate supporting information.

In fact, there are no EPA-approved analytical methods for measuring either of these two classes of compounds; there are no water quality criteria or guidance on acceptable environmental concentrations; there are no data indicating that either class of chemicals could be found in treated refinery effluents; and EPA has no toxic weighting factors to allow the Agency to gauge the possible environmental benefit of additional treatment. The Associations oppose any effort by EPA to pursue detailed studies of any industrial category based merely on conjecture or theory, and the Associations support revisions to the 304(m) process that would prevent such inefficiencies.

Nutrient Discharges in Industrial Wastewaters (p. 3-3)

The Preliminary Plan 14 provides the results of EPA's "cross-industry" evaluation of estimated nutrient (total nitrogen and total phosphorus) loadings to surface waters of the U.S. EPA used DMR data, TRI data, and, in the absence of DMR or TRI data, estimated loadings, to calculate total annual industrial nutrient loading estimates.

The Associations believe that whatever methodology and projections EPA might rely upon, they must be considered in the context of other more significant nutrient sources than industry – specifically, non-point sources. API published a report in 2016 that evaluated the industrial discharges of nutrients, including from the petroleum refining industry, using a similar methodology to that employed by EPA (API Publication 4782, *Petroleum Refinery Contribution to Nationwide Surface Water Nutrient Loadings*). API's and EPA's nutrient loading estimates for petroleum refinery effluents generally agree (*i.e.*, are within an order of magnitude). Further, EPA's and API's estimates of total nitrogen and total phosphorus loadings from POTWs are within 17-30% of each other.

Preliminary Plan 14 fails to relate industrial sources of nutrients to the nationwide total nutrient loadings to surface water. API estimated (using U.S. Geological Survey and EPA data) that 84.6% of the total nitrogen loading and 84.1% of the total phosphorus loading to surface waters of the U.S. are attributable to largely unregulated non-point sources of pollution. Recognizing that POTWs make up about 14.1-14.6% of the total nitrogen and total phosphorus loadings means that industrial contributions of nutrients constitute less than 2% of the total nutrient loading to U.S. surface waters. Industrial loadings of nutrients should be addressed based on site-specific water quality-based effluent limits rather than by any effort to adopt nationally applicable ELGs.

Detailed Study of the Petroleum Refining Category (40 CFR Part 419)(p. 4-1)

EPA's Refinery ELG Study concludes that no further action is needed to revise the Refinery ELGs. The Associations fully support that conclusion, having engaged and cooperated with EPA in all aspects of the multiyear study process. As such, the Associations are confused by

EPA's subsequent statement that the Refinery ELG Study was inconclusive regarding the effects that wet air pollution controls and changes in refinery crude slates have had regarding discharges of treated refinery effluents to surface waters.

The Associations believe that EPA should have strongly concluded after extensive data analysis there is no evidence that wet air pollution controls or refinery crude slates impact refinery effluents or warrant further ELG investigation. EPA has data regarding the specific gravity of crude oil processing and the impacts on effluent pollutant loadings, and reasonably can conclude the current ELGs continue to reflect BAT. Data from the Energy Information Agency (EIA) indicate that there has been little change in crude oil specific gravity over the past 30 years. The nationwide annual average crude oil gravity in 1985, per EIA, was 32.46 API, and in 2015, per EIA, was 31.46. This is a specific gravity difference of only 0.005 g/cm³ over 30 years. Therefore, any variations or impacts on effluent loadings based on changes in crude oil specific gravity are, at best, insignificant or not reasonably detectable on a national basis.

As described in the Refinery ELG Study final report, EPA has evaluated a comprehensive database that it assembled from a survey of 21 refineries selected by the Agency, additional refinery site visits, and DMR data, which provided a detailed description of the industry's waste characteristics, treatment practices, and effluent discharges. EPA's report confirms that the Refinery ELGs consist of the best practicable control technology currently available (BPT), BAT, pretreatment standards for existing sources, pretreatment standards for new sources, and new source performance standards that effectively control not only the pollutants directly regulated by those ELGs, but also many organic and metal pollutants that are not specifically identified in those ELGs but that are removed by refineries implementing the appropriate technology standards set forth above.

In fact, every EPA study has confirmed that the pollutants regulated at BPT, BAT and the other standards contained in the Refinery ELGs serve as effective indicators of treatment efficiency for all relevant organic and inorganic chemicals found in most refinery wastewater. In some water bodies, permitting authorities have supplemented the technology-based ELGs with site-specific WQBELs to provide additional controls as needed for those water bodies.

In the 1990s, EPA first studied the potential for refinery wastewater to contain PCDDs/PCDFs (dioxins). EPA collected internal source-specific dioxin data at several refineries, which demonstrated that any dioxins generated during refining were subsequently destroyed or removed by BAT treatment systems. In every instance, EPA has found that the only alleged measurements of dioxins from refineries resulted either from a reporting error or an improper assumption by a refinery that reported "not detected" sample data as a fraction of the quantitation level from the analysis. There has never been any evidence that dioxins are a pollutant of concern for the industry.

Study of Oil and Gas Extraction Wastewater Management (p. 4-2)

The Associations support EPA's decision to complete the "Study of Oil and Gas Extraction Wastewater Management Under the Clean Water Act" ("Draft Report").

We reiterate our appreciation for the extensive outreach efforts that EPA undertook in the scoping and research for that document. The comments we submitted to the document are attached again here for EPA's convenience. Generally, we support EPA's important role in regulating produced water under relevant provisions of the Clean Water Act and hope the Agency will consider modifying its current restrictive framework to facilitate the discharge of treated produced water in instances where public health and the environment can be appropriately protected.

Where practical, the oil and natural gas industry is committed to the reuse of water within our operations to offset fresh water needs and reduce disposal. We also believe there will be a need for additional discharge options beyond underground-injection-control well injection where reuse opportunities are limited, or injection is constrained. To that end, we encourage EPA to focus on opportunities for numerical or qualitative science or technology-based criteria within the existing NPDES framework, to regulate the oil and gas industry similarly to other industrial dischargers, and to continue the role of the states as the primary implementation authorities. Should EPA consider creating future discharge options in the future, we encourage the Agency to revisit the options outlined in API and American Exploration and Production Council's attached letter to EPA's Jan Matuszko on April 26, 2019.

In terms of specific suggestions for finalizing the document, we reiterate our requests for EPA to: (1) verify information in the draft document before adding it to the public record as a "final document"; (2) consider retitling the draft document from "Study" to "Report," "Overview," or "Summary of Outreach Efforts"; (3) consider the benefit of more neutral nomenclature in managing public perceptions (e.g., using "produced water" instead of "wastewater" and "treated produced water" when discussing discharge scenarios); (4) expand the document's discussion of the wide variety of factors affecting the potential reuse of produced water; and (5) expand information concerning treatment technologies. We encourage EPA to refer to the attached letter on the "Draft Report" for more detail on these specific suggestions and look forward to seeing the outcome of their considerable engagement efforts.

Summary Table of Plans for Existing Point Source Categories (p. 6-1)

In Table 6-1, EPA states that its finding for the petroleum refining point source category is "D: The EPA intends to continue the review or study of this category." Yet EPA does not document the nature and intent of this continuing review, and this finding contradicts the last paragraph in Section 4-1, page 4-1, where EPA states, "Based on the data gathered during the study, the EPA is concluding the study and not taking further action at this time." In addition, EPA's Refinery ELG Study report, documenting the results of five years of data collection and analysis, does not identify any basis or need for continued review or study of the Refinery ELGs.

From 2006 through 2008, EPA worked to revise how it conducts its 304(m) ELG review and planning process. The 2008 Final Effluent Guidelines Plan summarizes many of the processes and procedures that EPA developed for conducting such reviews. *73 Fed. Reg.* 53,218 (September 15, 2008). In that *Federal Register* notice, EPA attempted to balance the costs of comprehensive studies (taking at least 3 years at a cost of between \$1.5 and \$3 million) and using other tools that would identify significant changes in an industry that might warrant further

review. *Id.* at 53,223. In addition, the Agency indicated that it would provide “low priority” to ELGs that had been recently revised or, for that matter, had been studied and determined did not warrant revision. EPA appeared to indicate that such “low priority” status would be appropriate for roughly a seven-year period because that was the typical length of time for the industry to complete one 5-year permit cycle and generate enough new data to reassess pollutant loadings and TRI reports. *Id.* at 53,224. For these reasons, EPA’s designation of “D” for annual review of the Refinery ELGs is particularly puzzling after spending more than five years studying the industry at great expense to the Agency as well as the industry, and otherwise concluding that further study of or revision to the Refinery ELGs was not necessary. The Associations assert that EPA should change its Table 6-1 finding to “C: No further action is appropriate for the effluent guidelines and pretreatment standards for this category.”

IV. Comments on Detailed Study of the Petroleum Refining Category (40 CFR Part 419)

AFPM/API and their member companies have provided data, completed questionnaires, and answered EPA’s questions throughout the more than five-year process that the Agency has worked on the Refinery ELG Study. We agree with EPA’s recommendation of no further action, but we disagree with some of the Study’s specific conclusions. The following comments on the Refinery ELG Study describe the Associations’ conclusions based on the data and analysis provided by EPA and describe the industry’s concerns with EPA’s evaluations and conclusions. In fact, EPA’s docket provides strong evidence supporting EPA’s conclusion that the Refinery ELGs do not need to be revised.

Wastewater Influent Concentration Analysis (p. 5-1)

Table 5-2 of the Study presents a comparison of refinery influent wastewater data collected in the 2019 Refinery ELG Study with influent data that are reported in the 1982 Technical Development Document (TDD),¹ which served as the basis for the existing refinery ELGs. The 2019 influent database is too limited to allow any statistical comparison of the two databases; however, qualitatively there is no difference between the refinery wastewater constituents in the two databases, suggesting refinery influent wastewater has changed little over time.

PAH Compounds

In Table 5-3 of the Refinery ELG Study report (September 2019, EPA-HQ-OW-2018-0618-0349), EPA concluded that there were no PAH data in the 2017 DMR dataset. In fact, the database contained multiple PAH analytical results in which the vast majority were “non-detect” results, with only a few very low actual detections. In total, six refineries reported sum values for the sixteen EPA Method 610 PAH compounds. Eighteen additional refineries analyzed for individual PAHs and reported numerical results for monthly averages for each PAH compound analyzed. Most of these refineries analyzed for multiple PAH compounds, some reporting as many as eight or more individual PAH compounds. Overall, the trend in these results is clear:

¹ EPA (1982) *Development Document for Effluent Limitations Guidelines and Standards for the Petroleum Refining Point Source Category*.

the current treatment technologies effectively remove PAH compounds that might be in refinery wastewater. EPA has adequate data from which to conclude that PAHs are not of concern in refinery wastewater subject to industry treatment technologies.

Naphthenic Acids and Alkylated PAHs

There are no approved EPA analytical methods for either alkylated PAHs or naphthenic acids. The analytical procedures and the characterization of these compounds are only in the experimental research phase of development. These are both extremely broad groups of organic compounds, with each group containing potentially many thousands of individual compounds. Experimental analytical procedures used by different laboratories do not even agree regarding which compounds should be included within each of these categories, and in most instances, individual compounds cannot be isolated even using the most sophisticated laboratory analytical techniques. In Section 8.1 of the Eastern Research Group (ERG) Summary Assessment document (EPA-HQ-OW-2018-0618-161), ERG confirmed that data do not yet exist that could characterize alkylated PAH compounds separately from traditional PAH compounds. ERG simply equated the toxic and exposure characteristics of PAHs to those presumed to be for alkylated PAH compounds. The validity of this assumption is highly questionable.

In Section 8.2 of the ERG summary assessment discussing naphthenic acids, ERG followed similar reasoning. While ERG notes that some naphthenic acids may be persistent in the environment and may have some toxicity, they also note that most compounds classified as "naphthenic acids" have little to no toxicity and degrade relatively rapidly. In fact, neither naphthenic acids nor alkylated PAHs have Integrated Risk Information System-based effects thresholds nor has EPA established any related ambient water quality criteria. For these reasons, the Associations concur with the EPA's conclusion to defer further action on these two classes of compounds until additional data are obtained. EPA should not revisit any such analyses until it has fully developed approved laboratory analytical methods, established appropriate toxic weighting factors, and developed exposure criteria.

Baseline Loadings Estimate (p. 5-5)

Effluent Concentrations

Table 5-3 of the Refinery ELG Study report tabulates refinery effluent data that EPA downloaded from the DMRs of 82 direct-discharging refineries. The Associations created the following table that compares effluent concentrations reported in the 1982 TDD to effluent concentration data compiled by EPA in Table 5-3.

Table 2. Comparison of 2019 to 1982 Effluent Data					
Pollutant	Table 5-3 Number of Refineries with Data	Table 5-3 Average Pollutant Concentration	1982 TDD Data	1982 TDD Data Source	Concentratio n Change 2019/1982
Ammonia as N	76	3.5	11.3	Table V-3 thru V-20	-7.8
Arsenic	15	0.0179	0.177	Table V-27	-0.159
BOD5	79	8.49	17.3	Table V-3 thru V-20	-8.8
BTEX	3	0.000192	0.0015	Table V-3 thru V-20 Averaged as 17 sites and 3 analytes	-0.001
Cadmium	11	0	0.001	Table V-27	-0.001
Chromium	65	0.00245	0.115	Table V-27	-0.11
COD	73	76.1	148	Table V-3 thru V-20	-71.9
Copper	19	0.00333	0.023	Table V-27	-0.020
Cyanide	15	0.0122	0.039	Table V-27	-0.027
Lead	17	0.000982	0.014	Table V-27	-0.013
Mercury	25	0.000086	0.001	Table V-27	-0.001
Nickel	12	0.00547	0.008	Table V-27	-0.003
Nitrate-Nitrite	0	No Data	No Data		
Nitrogen, Total	5	16.9	No Data		
Oil & Grease	63	2.16	18.6	Table V-3 thru V-20, 9 refineries reported	-16.4
PAH	0	No Data	No Data		
Phenol	25	0.00894	0.016	Table V-27	-0.007
Phosphorus	16	0.954	No Data		
Selenium	26	0.0536	0.011	Table V-27	0.043
Sulfide	70	0.0296	0.634	Table V-3 thru V-20	-0.60
TDS	70	0.0296	No Data		
TKN	8	6.78	No Data		
TOC	11	11.2	48.2	Table V-3 thru V-20	-37.0
TSS	77	12.9	31.9	Table V-3 thru V-20	-19.0
Uranium-238	0	No Data	No Data		
Zinc	20	0.0261	0.203	Table V-27	-0.177

This table demonstrates that the average pollutant concentrations, in milligrams per liter, in refinery effluent have decreased from 1982 to 2019, with one exception. That exception, selenium, is very effectively controlled through WQBELs imposed on refineries to address localized water quality concerns related to selenium. The Clean Water Act sets forth national technology standards and expects that permitting authorities will control additional pollutants as needed to protect local water quality. The petroleum refining industry has an excellent compliance record in response to both nationally-applicable ELGs and locally-mandated WQBELs. Thus, the data presented in this table confirm that the existing Refinery ELGs still represent BAT, that revisions to those ELGs are not warranted, and that all refinery pollutants of concern are currently being regulated by the combination of ELGs and WQBELs.

The DMR effluent data compiled by EPA demonstrate that the Refinery ELGs represent BAT. This conclusion is consistent with EPA's two prior Refinery ELG studies (1996 and 2004). The Associations assert that EPA's use of its TRA procedure, which utilizes TRI and DMR data,

unfairly biases the analyses of potential environmental risk because manufacturing industries with large numbers of plants discharging significant volumes of water, especially when the industry's effluent loadings are summed nationwide, will always have elevated TRA values. In addition, the TRA procedure ignores the significance of WQBELs for individual dischargers in locations where local water quality conditions require unique treatment to help protect human health and enhance water quality.

EPA has acknowledged the limitations of its TRA procedure in its Preliminary Plan 14, and the Associations support the Agency's shift away from using it for identifying industrial categories to be targeted for detailed studies of their existing ELGs. EPA's analysis of the Refinery ELGs offers a case in point, in that a more robust and reliable assessment, as conducted in the Refinery ELG Study, refuted the TRA procedure's identification of the refining point source category as warranting investigation for possible ELG revision.

Loadings Estimates

EPA used its estimated industry-wide flows and the effluent concentration data in Table 5-3 of the Refinery ELG Study to calculate estimated baseline loadings for the industry (Table 5-4). The Associations question the validity of such an analysis – total pollutant loadings for an industrial category have no relationship to assessing environmental impacts that are inherently site-specific. This calculation is apparently a holdover from the TRA procedure that EPA has used in past ELG plans. The Associations recommend that EPA eliminate total industry pollutant loading calculations from the ELG planning process because such analyses do not provide useful information with respect to the need to revise ELGs.

Conclusion

EPA and the Associations have worked very closely and collaboratively throughout the Agency's recent detailed study of the existing Refinery ELGs and all current refinery industrial processes, pollutant loadings, wastewater characteristics, and technology-based treatment standards. This multiyear process by EPA and the Associations has generated robust data that support a conclusion that the existing Refinery ELGs are effective, represent BAT, and do not warrant any revision. EPA and the public should be confident in that result, which also is consistent with detailed studies that EPA conducted in 1996 and 2004. Hence, the Agency should not plan to revisit that conclusion or expend limited resources on the Refinery ELGs until at least the mid-2020s, recognizing that EPA has already identified other priorities in the Preliminary Plan 14.

The Associations appreciate the efforts and collaboration demonstrated by EPA staff throughout this process and welcome any further comments or questions.