Appointment

From: Ross, David P [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=119CD8B52DD14305A84863124AD6D8A6-ROSS, DAVID]
Sent: 7/20/2018 2:35:37 PM
To: Ross, David P [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=119cd8b52dd14305a84863124ad6d8a6-Ross, David]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Nagle, Deborah [Nagle.Deborah@epa.gov]; Matuszko, Jan [Matuszko.Jan@epa.gov]; McDonough, Owen [mcdonough.owen@epa.gov]; Wood, Robert [Wood.Robert@epa.gov]
CC: Caravelli, Margaret [mcaravelli@balch.com]; Penman, Crystal [Penman.Crystal@epa.gov]; Campbell, Ann [Campbell.Ann@epa.gov]; Damico, Brian [Damico.Brian@epa.gov]; Beeman, Guy M. [gmbeeman@marathonpetroleum.com]

Subject: Refining Effluent Guidelines Letter
Attachments: Real ID Information.pdf; FW: Meeting Request with Assistant Administrator Ross
Location: 1201 Constitution Ave NW, Washington DC 20004; WJCE 3233; Pleae call 202-564-5700 for escort

Start: 8/24/2018 3:00:00 PM
End: 8/24/2018 3:30:00 PM
Show Time As: Busy

Message

From: Caravelli, Margaret [mcaravelli@balch.com]
Sent: 6/28/2018 6:00:53 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
CC: Beeman, Guy M. (MPC) [gmbeeman@marathonpetroleum.com]
Subject: FW: Meeting Request with Assistant Administrator Ross
Attachments: RefiningEffluentGuidelinesLetter.pdf

Flag: Follow up

Crystal:
Again sincere apologies for sending this to Crystal Edwards and not directly to you!
And I know better since Anna Wildeman let me know a few weeks ago to work with you to schedule meetings.

Please see below for the original email meeting request. I've cc'd Guy Beeman from Marathon Petroleum as well.

Thank you in advance for your assistance.

Regards,
Margaret

From: Caravelli, Margaret
Sent: Monday, June 25, 2018 1:36 PM
To: 'Campbell.Ann@epa.gov'; 'Edwards.Crystal@epa.gov'
Cc: Beeman, Guy M. (MPC); 'Forsgren.Lee@epa.gov'
Subject: Meeting Request with Assistant Administrator Ross

Ms. Campbell & Ms. Edwards:
Your colleagues in the Office of Air and Radiation suggested I reach out to you both in regard to scheduling a meeting in July with Assistant Administrator Ross. This meeting would be in follow up to a letter recently sent to the Office of Water by API and AFPM regarding EPA's on-going study of effluent limitation guidelines for petroleum refining. (See attached).
Our client, Marathon Petroleum, would like to meet with Assistant Administrator Ross to discuss the letter. Copied on this request is Guy Beeman, Manager, Federal Affairs, Marathon Petroleum.
Please let us know what additional information and details you may need in regard to this request. You may reach me at Redacted

Thank you in advance for your assistance.

Regards,
Margaret

BALCH & BINGHAM LLP

Margaret Caravelli, Partner, Balch & Bingham LLP
601 Pennsylvania Avenue, NW ◦ Suite 825 South ◦ Washington, DC 20004-2601
t: Redacted f: (866) 237-7416 e: mcaravelli@balch.com
www.balch.com

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 jgunnulfsen@afpm.org

June 8, 2018

Mr. Brian d'Amico
Branch Chief
Engineering and Analysis Division
Office of Science and Technology
Office of Water
United States Environmental Protection Agency
Mail Code 4303 T
1200 Pennsylvania Avenue Northwest
Washington, DC 20460

Dear Mr. D'Amico:

On behalf of our members, the American Petroleum Institute (API) and American Fuel and Petrochemical Manufacturers (AFPM) are providing the following update and comments concerning the Environmental Protection Agency's (EPA's) on-going Detailed Study of effluent limitation guidelines (ELGs) for the petroleum refining point source category. API is a nationwide, non-profit, trade association that represents over 625 members engaged in all aspects of the petroleum and natural gas industry, including exploration, production, refining, and distribution of petroleum products. AFPM is a national trade association representing nearly 400 companies that encompass virtually all U.S. refiners and petrochemical manufacturers. AFPM members operate 120 U.S. refineries comprising more than 95 percent of U.S. refining capacity. API and AFPM members are subject to effluent limitation guidelines, including those in the petroleum refining point source category, and so are directly affected by all aspects of the on-going Detailed Study.

We appreciate the cooperative and trusted relationship cultivated over the last several years we have worked together on the Detailed Study. As we have discussed on multiple occasions, API and AFPM members have invested heavily in wastewater treatment technologies where warranted for addressing local water quality concerns. API and AFPM believe EPA has sufficient data, including discharge monitoring reports, toxic release inventories, site visit reports, and the 308 Questionnaire responses, to determine that the existing effluent limitation guideline technology-based limits (TBELs), taken in combination with water-quality-based effluent limits (WQBELs), are protective of human health and the environment, and that revisions to existing petroleum refining TBELs are not warranted. We request EPA analyze the aforementioned discharge monitoring reports, toxic release inventories, site visit reports, and the 308 questionnaire responses, to inform whether it is necessary to proceed with the refinery self-

monitoring program. We believe EPA upon doing so will agree that the data support the conclusion that ELG revisions are not warranted.

If EPA determines the refinery self-monitoring program is justified, EPA should narrowly tailor the program to filling gaps in the available data. Also, EPA should remove naphthenic acids (NAs) and alkylated polynuclear aromatic hydrocarbons (alkylated-PAHs) from the scope of the sampling phase. While we have yet to receive EPA's preliminary analysis, we do appreciate the responsive nature by which EPA shared documentation for the analytical method(s) for alkylated-PAHs and NAs. That said, after thorough and critical review of the documentation by leading industry experts, our members' concerns (detailed in Attachment A) are not resolved. API and AFPM membership strongly oppose inclusion in the Detailed Study of the proprietary analytical method for naphthenic acids and the non-promulgated method for alkylated-PAHs. Data derived from these methods could result in the EPA facing substantial scientific and legal challenge.

Moreover, EPA's use of the proprietary method for naphthenic acids is in clear contradiction to EPA's recent proposed rule to strengthen transparency in regulatory science (83 Fed. Reg. 18768, April 30, 2018, "Strengthening Transparency in Regulatory Science"). The summary of EPA's proposed rule states, "The proposed regulation provides that when EPA develops regulations, including regulations for which the public is likely to bear the cost of compliance, with regard to those scientific studies that are pivotal to the action being taken, EPA should ensure that the data underlying those are publicly available in a manner sufficient for independent validation." Independent validation is clearly not possible when a proprietary analytical method is used to generate the data. In the interest of transparency, per its own proposed rule, EPA should abandon the use of this proprietary method in the Detailed Study.

API's and AFPM's remaining concerns are summarized as follows:

A. Analysis of collected data

EPA has yet to share preliminary analysis of existing data, including discharge monitoring reports, toxic release inventories, site visits, and the 308 Questionnaire responses. Sharing the analysis will clarify the necessity and scope of the sampling phase as well as attain early scientific concurrence with stakeholders. Analysis of existing data should be complete before EPA moves forward with additional data collection through the self-monitoring program.

B. Method not proved in analysis of refinery wastewaters

The method developed by Axys Laboratories, intended for use for analysis of samples in the Study, has never been tested on refinery wastewaters. The documentation provided by EPA suggests that interferences in complex matrices (e.g., refinery wastewaters and effluent), may impact data quality, giving rise to highly variable data, including false positive and/or negative results.

C. Proprietary method impairs validity of data

The proposed analytical method for naphthenic acids is neither an EPA-approved nor an industry-adopted method. In fact, it is Axys Laboratories' proprietary method which directly prevents our members from validating, evaluating or replicating any results. This is a deviation from past EPA procedures and provides neither sufficient transparency nor scientific validity to the Study.

D. Absence of documented environmental benefits

EPA has not identified the environmental concern for including NAs and alkylated-PAHs in the Study. As per the well-established procedures used in past effluent guideline studies, constituents should have an associated toxicity to determine the measurable environmental benefit that may result, if removed. The science and data for the toxicity of NAs and alkylated-PAHs are still a work in progress.

In this regard, we note that of the naphthenic acids and alkylated-PAHs that would be analyzed by the prescribed methods, the vast majority of specific compounds within these mixtures are of a size that could not cross biological membranes to cause toxicity. Typically, compounds with log octanol:water partition coefficients exceeding 6.4 are excluded from toxicity assessments by the target lipid model approach. Quantifying these analytes within "total NAs" or "total alkylated-PAHs" introduces error/bias.

EPA should make available API/AFPM for our review any petroleum refinery toxicity identification evaluation (TIE) data demonstrating naphthenic acid and/or alkylated-PAH toxicity constituting the basis for inclusion of these broad classes of analytes within the Detailed Study.

API and AFPM members believe in due diligence and support EPA in developing sound science. We therefore strongly recommend that EPA remove naphthenic acids and alkylated-PAHs from the Detailed Study. Rather, we recommend that these constituents and their analytical methods be addressed in a project outside of the Study, in which the industry will be a willing participant. A separate project would also allow EPA to follow the appropriate public notice and comment period required to gain method approval. API and AFPM will be happy to discuss the concerns and suggestions in a face-to-face meeting and come to an agreement that addresses the need for validated, reproducible science in support of environmental goals.

In summary, API/AFPM believe refining ELG revisions are not warranted. If EPA continues the Detailed Study, EPA should narrowly tailor the refinery self-monitoring program to filling gaps in the available data. And API/AFPM strongly recommend EPA remove naphthenic acids and alkylated PAHs from the Detailed Study. API/AFPM would participate with EPA in a project outside the Detailed Study to address analytical methods for naphthenic acids and alkylated PAHs.

If you have any questions about these concerns or would like to arrange a face-to-face meeting, please feel free to contact us.

Sincerely,

Roger E. Claff
Senior Scientific Advisor, API

Jeff Gunnulfsen
Director, Security and Risk Management Issues, AFPM

Attachment

cc: R. Wood, EPA
D. Ross, EPA
L. Forsgren, EPA

Attachment A - Report to API and AFPM on Issues with the EPA Proposed Analytical Methods for Groups of Naphthenic Acids and alkylated-PAHs, and the Potential Impact on an ELG Investigation

Introduction

The American Petroleum Institute and American Fuel and Petrochemical Manufacturers (API/AFPM) received a number of documents from the U.S. Environmental Protection Agency (EPA) concerning experimental methods used by AXYS Laboratories for the analysis of naphthenic acids (NAs) and alkylated polynuclear aromatic hydrocarbons (PAHs). Two documents were brief method summaries of the laboratory's analytical procedures. Also included in these documents were Inter-laboratory studies involving these two analytical methods. API/AFPM has examined these documents in considerable detail, and has a number of concerns about these methods, as described in the following report. Our overall conclusions are that these methods are currently highly experimental and should not be used to evaluate refinery wastewater or develop wastewater regulations for the refinery industry.

I. Summary of Issues

1. The AXYS method for naphthenic acids is proprietary to AXYS. As such, EPA did not and could not provide the method procedures for review and comment. EPA intends to require use of the AXYS naphthenic acids method in the petroleum refining detailed study refinery self-monitoring program, notwithstanding the method is proprietary to AXYS. This intention is in clear contradiction to EPA's recent proposed rule to strengthen transparency in regulatory science (83 Fed. Reg. 18768, April 30, 2018, "Strengthening Transparency in Regulatory Science). The summary of EPA's proposed rule states, "The proposed regulation provides that when EPA develops regulations, including regulations for which the public is likely to bear the cost of compliance, with regard to those scientific studies that are pivotal to the action being taken, EPA should ensure that the data underlying those are publicly available in a manner sufficient for independent validation." Independent validation is clearly not possible when a proprietary analytical method is used to generate the data. If EPA seeks transparency, per its own proposed rule, EPA will abandon the use of this proprietary method in the petroleum refining detailed study.

2. The exact definitions of compounds to be included in both the naphthenic acid compound and alkylated PAH compound groups are still not decided, and the analytical lists for each vary widely. In the Environment Canada Inter-laboratory Study on Alkylated PAHs, part of the conclusion states: "This first assessment of the current state of the PAH and alkyl-PAH analysis of environmental samples was rather ambitious. Over 100 separate measurands were asked to be reported in 3 separate matrices. Future studies will focus on a target list more closely approximating the one found in ASTM D7363-11." They also stated they should focus on one matrix per study. This is a concession that the analytical method is unwieldly and matrix

effects are poorly understood, and the reported quantitative results for many of the PAH homologs were extremely poor.

3. For the NAs, Environment Canada is promoting the concept that aromatic naphthenic acids should be included in the "total naphthenic acids" analytical categories. The aromatic NAs are not currently included in the category, and API/AFPM strongly opposes their inclusion. If they were included with other NAs, this would imply that the toxicological and physical-chemical properties of aromatic NAs are basically the same as the properties for the NAs with no aromatic rings in their structure, and this comparability is not known or understood at this time. To determine this, a dependable and vetted method must be developed to analyze aromatic NAs as separate entities, so that their properties can be determined. There currently is no EPA peer reviewed and approved method for either the non-aromatic or aromatic NA categories.

4. The summary AXYS Analytical Method for NAs provided by EPA (the version was dated February 15, 2018) is an extremely complex and detailed method that attempts to separate the NAs in aqueous samples into 60 different categories of compounds. API/AFPM has concerns about several specific issues, some of which may have been overlooked in the necessarily abbreviated AXYS summary overview of the method. Some of our concerns and reservations are discussed below. All of these concerns and others are discussed in the full report.

   - The calibration curve for all sixty categories of naphthenic acid compounds is only provided by a single compound: 1-pyrenebutyric acid, which does not even qualify as a naphthenic acid due to the aromatic rings in its side chain. Further, 1-pyrenebutryic acid is used to generate response factors for the quantification of target compounds. Using a single compound to calibrate perhaps a hundred compounds, without evaluation of consideration of the various structural groups, will result in response factors orders of magnitude apart and will generate a highly biased data set.

   - The summary method states that several of the sixty categories either can or do contain some aromatic NAs, particularly in categories where the "z value" equals minus ten or minus twelve. It is unclear if the method can recognize which compounds are aromatic, but it appears the answer may be no, because otherwise they could be subtracted out from the total for each group. It is also unclear whether additional aromatic compounds may be present in some of the other analytical groups but cannot be detected as such by molecular weight.

   - The summary provides no discussion, for example, of the QC controls on the completeness of the derivatization reaction. We are concerned that di- or tri-carboxylic acids might get counted if only one carboxyl group is derivatized, while mono-carboxylic acids might be missed. Conversely, if two or three carboxylic acid groups per molecule do get derivatized, could molecular weight (MW) fragments of an original di- or tri-carboxylic acid be mistaken for some of the mono-carboxylic acids that are the intended analytical target?

- We note that for at least two of the chromatograms depicted on page six, there seems to be significant interfering overlap of some peaks within the same molecular weight. We are concerned that the interference could be many times greater for actual refinery wastewater, and that these interferences might be "double-counted" in any final total result, especially in highly complex wastewater matrices.

5. For naphthenic acids, the two Inter-laboratory Studies provided by EPA from Environment Canada did not provide any comparison of the analyses of different categories of naphthenic acids. The quantitative assessment was limited only to "total naphthenic acids" and included analyses by several different methods. For total NAs, the AXYS laboratory was evaluated with a somewhat high overall recovery for total NA (115-120%), which was typical of the labs using some form of liquid chromatography/mass spectroscopy (LC/MS) method in this study. (We are again concerned whether in more complex wastewater samples, this slight high bias might be much higher.) Given the dates of these studies (2012 and 2016), it is unclear whether the version of the AXYS Method (dated 2/15/18) described in the summary provided by EPA/AXYS was the same version as used for these two earlier studies.

6. Conclusion Number 8 for the 2016 Naphthenic Acid Inter-laboratory Study stated the following: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." API/AFPM agrees that this is needed, and has stated that actual refinery samples, especially untreated wastewater samples, can greatly complicate the analytical process for many well established methods, let alone experimental procedures currently being developed.

7. EPA provided one Inter-laboratory Study for Alkylated PAHs. Most of the laboratories performed quite well on the traditional single-compound PAHs, with on average about a 22% Relative Target Standard Deviation (RTSD) per compound for aqueous samples. However, the story was entirely different for the alkyl-PAH homolog groups. For aqueous samples, the average RTSD was extremely large at 80%, with some PAH homolog groups being well over 100% RTSD. If the standard data acceptance criterion of plus or minus three standard deviations is applied to this data, it is difficult to describe the analysis of these PAH homologs as being even semi-quantitative. The literature documents errors associated with EPA 8270, resulting in overestimation of alkylated PAH concentrations (Wilton et al. *Analytica Chimica Acta* 977 (2017), pp. 20-27).

8. We are also concerned about how toxic weighting factors (TWF) might be developed and applied to analytical groups or subgroups (such as naphthenic acids or alkylated PAH compounds) that could include hundreds of different compounds. Typically, toxicity testing is performed using pure individual compounds; this assures that during toxicity testing, the

source of any toxicity can be attributed to that specific compound. We are concerned that for large groups of unidentified compounds, any perceived TWF observed during toxicity testing could be due to a very few compounds that are not representative of the overall group or are only present in that group of compounds when analyzed from a specific source. These few compounds may or may not be present in an analytical group from other sources or other types of wastewater. It should be noted that in Conclusion number 6 to the 2016 total Naphthenic Acid Inter-laboratory Study, Environment Canada expressed concern that the commercially available standard, Merichem Naphthenic Acid Solution (used to spike the samples, and presumably a similar mixture might be used for any toxicity testing), did not seem to match the contaminants in wastewater at the Athabasca oil sands region (sample OSPW in the study). By inference, this comment suggests that if the current naphthenic acid standard mixture solutions are not representative of oil sands process-affected water (OSPW), they are unlikely to be representative of other types of water matrices such as treated refinery wastewater either and therefore are inappropriate for determining what constituents might cause toxicity in refinery wastewater.

II. Issues Concerning an Exact and Appropriate Definition of the Compounds Being Analyzed for both Naphthenic Acids and alkyl-PAH Homologs

Based on published scientific literature discussing the analyses of both Alkylated PAHs and Naphthenic Acids, there are significant discrepancies as to exactly what types of compounds are considered appropriate to include into each of these groups. The grouping of compounds varies between different agencies (EPA, Canada, various US states), environmental papers, and also with the laboratories analyzing the samples (even in the inter-laboratory study by Environment Canada). There should be a clear and vetted definition of exactly what is intended to be measured and included within each of these broad analytical groups, and only peer-reviewed and approved methods should be used.

A. Naphthenic Acids: Strict Definition and Potential Issues

The AXYS Laboratory definition of a naphthenic acid is any configuration of fatty acid chain that 1) contains between twelve and twenty-one carbons, 2) that does not contain any aromatic carbon rings, 3) has only a single carboxylic acid group, and 4) is either saturated or has a degree of unsaturation defined by a negative "z" number that can equal the even numbers 0, -2, -4, -6, -8, -10, or -12, with each negative even number progressively corresponding to the loss of two more hydrogen atoms due to double bonds or alkyl carbon rings. The general formula is: $C_nH_{2n+z}O_2$. In common language, this definition and formula includes most naturally occurring fatty acids, and these can be saturated (maximum number of hydrogens: $z = 0$), monounsaturated (missing two hydrogen atoms due to a double-bond or cyclic non-aromatic ring: $z = -2$), or polyunsaturated (multiple double bonds, or more rarely, multiple cyclic, non-aromatic rings: z = higher even negative numbers up to -12). This definition of naphthenic acid (and, perhaps, any definition) is far from universally held, making data comparisons nearly impossible. There are some other

definitions in use (or that have been used) that utilize greater or lesser numbers of carbon atoms, a larger number of carboxylic acid groups, the presence (or absence) of some cyclo-alkane compounds, or different degrees of saturation. This particular definition used by AXYS might be due to the analytical method being used, or to the industrial wastewater being studied, or to certain common chemical properties these acids have in common. However, this definition of naphthenic acids is already very broad and can include hundreds or even thousands of compounds (including isomers).

Most of these fatty acids that meet this strict definition are essential components in vegetable oils, dairy products, animal fats, and also in processed foods such as dehydrogenated or polyunsaturated fats or fatty acids and are unlikely to be toxic. However, there evidently is a movement to broaden the definition of naphthenic acid to include carboxylic acids that contain aromatic rings, and Environment Canada has come out in favor of this. (Aromatic carbon rings are the primary constituents of benzene and PAH compounds.) API/AFPM would oppose such a move, because these compounds, if present in treated refinery wastewater, could possibly have significantly different characteristics from the normal aliphatic NAs that are presumably the main target for the analysis. API/AFPM opposes any such change on the grounds that any toxicity that might be measured could be due almost entirely to the inclusion of these aromatic compounds, which might then be transferred to other aliphatic NAs that have little or no toxicity to humans. (The human toxicity factor, or carcinogenicity, is nearly always the main driver when organic compounds are assigned a high TWF.) API/AFPM believes that the compounds that contain aromatic rings in their side-chains might have significantly different toxicological and physical-chemical properties than the standard defined naphthenic acids. Therefore, if they are found to be present in refinery wastewater, they should be evaluated separately from naphthenic acids. This is discussed in more detail in the portion of this report on the potential assignment of TWFs by EPA to analytical results that represent large groups of related compounds.

B. Alkylated PAHs: Definition has apparently been changed several times in recent years

In just the last few years, there have been numerous papers published discussing alkylated PAHs, and nearly all of the papers are different in assuming which types of compounds are to be included under that label. Many of the compounds discussed clearly do not fit the strict scientific definition of alkylated PAHs, i.e. a group of fused hydrocarbon aromatic rings (usually two to five) with substitutions of alkyl groups (methyl, ethyl, propyl, etc.) at some of the available locations around the fused rings. Some of these additional compounds have perhaps incorrectly been justified for inclusion in the group because they are frequently associated with PAH compounds, such as being common components of coal tar (which is to a large extent made up of PAH compounds). Others have even less justification for inclusion in the group. It appears that EPA is currently favoring the list of analytes that is provided with the AXYS Method (MSU 21C, provided by EPA).

Table 1 is a list of compound categories that are or have been suggested to be included in a list of alkylated PAH compounds that could be analyzed. The top three categories of compounds have been included in the AXYS analytical list, along with the traditional single compound PAHs. Compounds towards the bottom of Table 1 are not currently included in the AXYS list of analytical categories but are discussed in various other papers as possibly being identified as alkylated PAHs. It is unlikely that there is any single laboratory currently analyzing all of the compound/group categories in Table 1, and we believe it unlikely that any laboratory is using a method where all possible combinations within each compound group category are analyzed. Even AXYS and the other participants in the Environment Canada Inter-laboratory study (for alkylated PAHs) did not each perform the analysis on all of the over 100 "measurands" (combined individual compounds and homologous groups) requested by Environment Canada.

Table 1: Compounds/groups that do not meet the strict definitions of "PAH" or "alkylated-PAH"

Compound/Group	Comments
Biphenyl (plus alkyl-substituted Biphenyls)	Not really a PAH, as there are no fused rings. However, it is a common component of coal tar, and is therefore found with PAHs. They are on the AXYS analytical list.
Various alkyl substituted PAHs, also termed "alkyl-PAH Homologs"	While these type compounds do meet the "alkyl-PAH" definition, these are not analyzed as individual compounds, but as compound groupings. Each group can contain dozens of compounds, and there can be any number of different groupings possible. (No single laboratory analyzes for all possible alkyl-PAH groupings.) The AXYS Laboratory Analytical List does include an intermediate number of alkylated PAH groups, more than some laboratories, less than others. API/AFPM does not believe these groups should be included, because the quantitative analysis of the PAH homologs in aqueous samples in the 2015 Environment Canada Inter-laboratory Study was almost a complete failure (as described later in this report).
Dibenzothiophene, (plus alkyl-substituted DBTs)	This is a heterocycle (a sulfur atom in the middle ring), and therefore not a PAH. However, it is considered to be chemically similar to anthracene, and is frequently detected in heavy oil fractions. They are on the AXYS analytical list.
Dibenzofuran, other oxygen heterocycles	These are listed in the paper source below[1], and dibenzofuran is included in the alkyl-PAH listing for several laboratories, but these are not PAHs, since they contain oxygen in at least one of the fused rings. The AXYS list does not include dibenzofuran or any other oxygen heterocyclic compounds.
Nitro-pyrene, other nitro-substituted compounds	Some papers list these, and the Minnesota Pollution Control Board (MPCB) incorporates them into their "extended PAH" list. Nitro-substituted compounds have their own chemistry (explosives). These also can be groups of compounds. These are not included on the AXYS analytical list.

Nitrogen heterocycles such as Carbazole, dibenzocarbazole, dibenzoacridines (including groups of alkyl-substitutions)	Minnesota Pollution Control Board (MPCB) incorporates several of these nitrogen heterocyclic compounds into their "extended PAH" list. However, these all contain nitrogen in at least one of the aromatic rings, which greatly alters the chemistry of these compounds. They are polynuclear and aromatic but are not hydrocarbons. These are not included in the AXYS list.

[1]"Time to Say Goodbye to the 16 EPA PAHs? Toward an Up-to-Date Use of PACs for Environmental Purposes" Jan T. Andersson and Christine Achten (2015)

API/AFPM believes it is impractical to analyze samples for all of the possible combinations of compounds and compound groups in all of the above categories. The result would be hundreds of "measurands" (combined single compounds and homologous groups) where the compound groups could each further represent hundreds of additional compounds.

API/AFPM is also opposed to the analysis of alkyl-PAH homologs and any other groups of PAH-like compounds analyzed as a group, because they are not individual compounds, and the 2015 inter-laboratory study clearly indicates that currently they cannot be quantitatively analyzed. This would also apply to other compound groups that may not have been analyzed in the 2015 Inter-laboratory Study. Also, analogous to the argument for naphthenic acids, any toxicity assigned to a mixed group of alkyl-PAH isomers could be dominated by only one or a few compounds that may have unique features that are grouped with a larger number of compounds that have negligible toxicity. It should be noted that for the "traditional 16" PAH compounds, the assigned TWF ranges from 100 for benzo(a)pyrene to 0.008 for acenaphthylene. That is a TWF range of greater than four orders of magnitude. This problem with grouping alkyl-PAHs is discussed further in the portion of this report on the potential danger of assigning TWFs by EPA to analytical results that represent large groups of related compounds.

API/AFPM is not opposed to the analysis of individual non-PAH compounds if EPA can justify that such compounds can be or are often associated with other PAH compounds with similar physical-chemical and toxicological properties and an appropriate, recognized and vetted analytical method can be employed. We note that the AXYS analytical list already includes the analysis of biphenyl and dibenzothiophene as separate compounds. The individual compounds dibenzofuran and carbazole are already commonly included on many laboratory semi-volatile organic analytical lists and will likely be analyzed as independent compounds anyway. As to the other heterocycles, we think EPA should justify the investigation of those compounds, as some of them seem unlikely to be present and are rarely if ever analyzed by most laboratories.

III. Analytical Methods Used for Naphthenic Acids: Analytical Problems and Inter-laboratory Studies

Currently, all environmental laboratories only analyze naphthenic acids either as total naphthenic acids, or as groups of compounds with the general formula $C_nH_{2n+z}O_2$. There are no calibrations

performed that are utilized to quantitate individual compounds, and the type and number of calibration standards prepared for different compound groups varies by the method and laboratory using them. Naphthenic acids (NA) can be analyzed as a single result reported as "total naphthenic acids" using Fourier-transform Infrared Spectroscopy (FTIR, a type of infrared spectrophotometry). Using LC/MS methods, it may be possible to calibrate and analyze for some individual NA compounds, however each group of NA compounds can contain dozens or even hundreds of specific compounds and isomers, making this a daunting task. Laboratories utilizing an LC/MS method often simply report "total naphthenic acids" as the sum of the NA concentrations measured within each NA subgroup that is analyzed by their method.

A. A Brief Description of the AXYS method for analyzing NAs

The AXYS Method is a very complex and ambitious proprietary method for the measurement of naphthenic acids. EPA provided API/AFPM a short summary of this complicated method suitable for public review (MSU-077C, R01, dated February 15, 2018) that describes in general terms the various steps involved. Due to the very recent date assigned, it is not clear whether this exact version of the method was used in either of the inter-laboratory studies (performed in 2012 and 2016) provided by EPA and discussed later in this report. The general procedure is presented in the following.

Aqueous samples can be extracted in the laboratory, or samples can be collected in the field using up to three Polar Organic Chemical Integrative Sampler (POCIS) sampling disks, (which can be used to concentrate samples if desired). Each extract is derivatized with 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide hydrochloride (EDC), to form the corresponding naphthenic acid-EDC derivatives. This means that there is a reaction with the carboxylic group, so that an acid-EDC complex is generated. This step is presumably performed to enhance the solubility, chromatography, and/or mass spectral pattern of the naphthenic acids. Analysis of the extracts is performed by high performance liquid chromatography (HPLC) with triple quadrupole mass spectrometer detection (LC-MS/MS). A fully detailed analysis report using this method would contain values for 60 different analytical groups of naphthenic acids (an amazing amount).

These 60 groups fit the generic formula $C_nH_{2n+z}O_2$, but are restricted as listed in Table 1 of the provided MSU-077C, R01 document (and reproduced later in this report):

- The number of carbon atoms allowed for this NA analysis are only in the range of C12 through C21.
- The carbon chain should not contain aromatic rings.

- The unsaturation factor "z" for the number of hydrogens can only be zero (saturated fatty acid), or negative even integers -2 (unsaturated), -4, -6, -8, -10, or -12 (these last are polyunsaturated). Not every carbon number includes this complete list of "z" values; this serves to limit the number of NA groups to 60 categories. Each category is capable of containing dozens or sometimes hundreds of compounds meeting the same generic formula for the group.

- The AXYS method analysis is supposed to be limited only to parent ions that originally had a single carboxylic acid group (that is the CO_2H element prior to derivatization).

B. Possible issues with the AXYS method for naphthenic acids

We are concerned about several potential problems when this method is applied to actual refinery wastewater.[1] Some of these problems may be left out of the short summary provided, but others might have a major effect on the interpretation of these results, and how they might be used for development of an effluent limitations guideline (ELG). The following bullets identify these issues. They are arranged roughly in order of concern.

1. The method only uses a single calibration curve to quantitate all 60 of the different analytical categories of naphthenic acids, and the calibration uses only a single compound, 1-pyrenebutyric acid (injected at three concentration levels). This particular compound does not even qualify as a naphthenic acid by the scientific definition of that class of compounds, due to the presence of an aromatic PAH group in the side-chain. This type of representative calibration is to our knowledge never employed when the compound itself is not included among the targeted analytes. The inter-laboratory studies discussed below provide little comfort in this area, since those studies are only evaluated on the total naphthenic acid concentration, and not on the 60 different sub-categories included in this method. For the total NA analysis, the AXYS laboratory performed reasonably well (an overall moderately high bias, as did most of the laboratories using some kind of LC/MS method), but for individual categories, the results might be very high or very low. We do not know how much importance EPA might place on individual naphthenic acid categories that have been measured, but if there are great differences in toxicity for these categories, this could be problematic. We realize there are other QC controls, including a Merichem Refined NA Mix that may give reproducible results, however, it appears that the individual compounds contained in this commercial mix are unknown.

[1] Please do not assume that any of the identified problems are a reflection on AXYS Laboratories, which we know is recognized as one of the premier environmental research laboratories in North America. Our concerns are about an experimental method still under development, its possible weaknesses, and how some of the results of this method might potentially be used in the development of a new refinery ELG by EPA.

Table 2. Reproduction of Table 1 in AXYS Method MLA-077: Molecular weights of NA groups that are analyzed with this method

n (C #)	Z # (hydrogen deficiency)						
	0	-2	-4	-6	-8	-10	-12
12	200	198	196	194		--	--
13	214	212	210	208			--
14	228	226	224	222	220		--
15	242	240	238	236	234	232 *	230 *
16	256	254	252	250	248	246	244 *
17	270	268	266	264	262	260	258 *
18	284	282	280	278	276	274	272
19	298	296	294	292	290	288	286
20		310	308	306	304	302	300
21		324	322	320	318	316	314

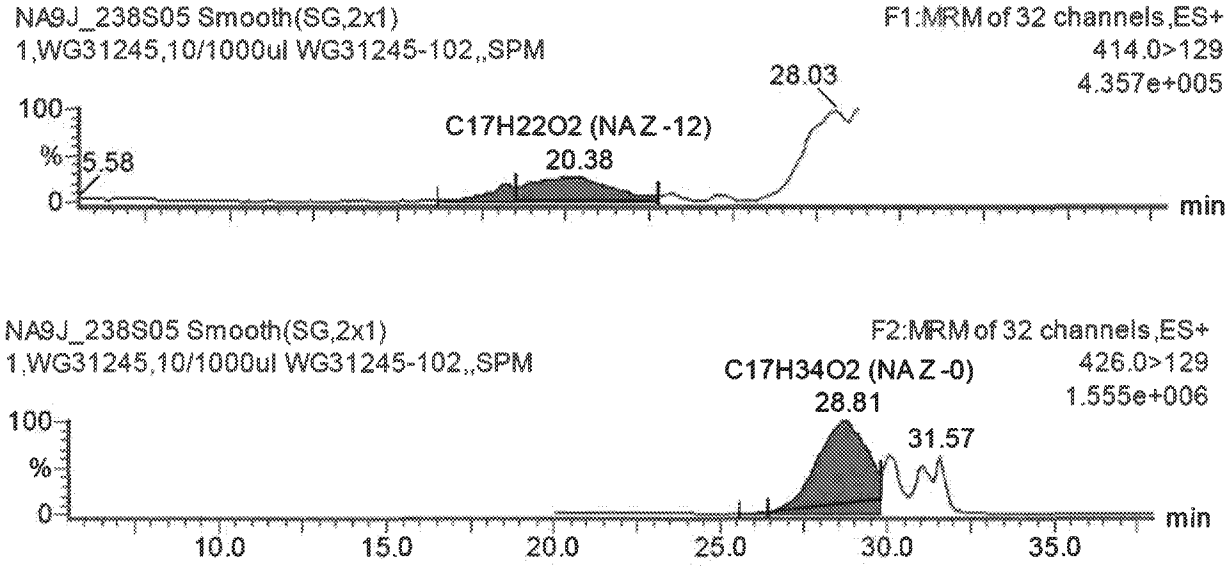
* Compounds that don't fit the strict definition of NA as they contain at least one aromatic ring may be included.

2. Table 2 is a copy of Table 1 from the AXYS Method (page 1 of the MSU-077C summary document. The table shows each of the sixty separate analytical categories of naphthenic acids reported to be analyzed using the AXYS method. Note that four of the 60 NA categories are asterisked, stating that it is possible that some of the compounds within those analytical groups might contain one or more aromatic rings, which do not fit the "strict definition" of a naphthenic acid. This also seems to suggest that the commercial mix "Merichem NA" that the method uses for control samples may also contain some aromatic acid species and possibly some di- or tricarboxylic acids.[2] Because the laboratory states that these aromatic compounds would be included within these categories, this logically seems to mean that the AXYS method cannot recognize whether the observed unsaturation in a particular parent mass spectral ion is caused by double bonds or by an aromatic ring (at least not by the molecular weight of the ion alone). A six-carbon aromatic ring is unsaturated by the equivalent of six hydrogens, so it would have a "z" number of "-6", before it is attached in some manner to the rest of the fatty acid chain, but this could be masked by the "z" factor present in the rest of the carbon chain. If the presence of aromatic rings could be determined by the method, then presumably such compounds could have been subtracted from the results for these analytical groups. This could have significant implications if the toxicological properties of NA's with aromatic rings are significantly different than those of the

[2] Environment Canada has concerns about the representativeness of the Merichem NA mixes compared to oil-sands process-affected water as described later in this report.

aliphatic NA compounds. Furthermore, if the presence of an aromatic ring in the carbon chain of an NA cannot be recognized, how does AXYS know whether there could be other aromatic NAs included within some of the other categories?

3. Ionization efficiency of NAs change with the structure of the compound and the matrix of the sample. This variation in ionization efficiency renders HPLC MS with electrospray ionization problematic for such complex mixtures.
4. On page six of the AXYS method summary, there are a series of seven chromatograms of groups of NAs containing 17 carbons, showing (presumably derivatized) mass values with parent MWs of 414 through 426. Presumably because these peaks are generated by a number of different isomers, the peaks have very broad retention times. Most are greater than five minutes, and all have undulations within each peak. In particular, in the mass 414 chromatogram the peak that crests at 20.38 minutes seems to have its low end retention time (RT) window clipped short due to another peak of the same mass appearing within the original RT window. Also, for mass 426, the peak at 28.81 minutes is clearly significantly influenced by some later peaks of the same mass, and apparently a manual integration was necessary. EPA requires all manual integration to be well documented. A highly experienced analyst can exercise his or her professional judgement on these integration issues (provided there is appropriate documentation), but this has its limits, and may become impossible if the chromatograms become too complex. Below are the chromatograms in question, for MW 414 and MW 426.



5. We do not know whether the chromatograms from page 6 (depicted above) are of a quality control (QC) sample or a real oil sands sample. Nor do we know if a smoothing

function has been used, as suggested by the label, "smooth," and if so, if that practice altered the analytical results. Particularly for untreated refinery wastewater which can be generated from many types of raw crude and be products of differing refinery processes, it is likely that these chromatograms could become far more complex, with substantially more likelihood of uncertainty entering into the analysis. Environment Canada mentioned this as one of their conclusions to the 2016 Inter-laboratory Study they conducted. They stated: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." Presumably this would also include refinery wastewater matrices for studying refineries. The 2016 Inter-laboratory was focused on oil-sands process-affected water and is not representative of refinery wastewater, either untreated or treated.

6. We note that this AXYS summary does not discuss any QC analytical check on the verification of the completeness of the derivatization efficiency, or address how the derivatization might perform on actual refinery samples, which presumably may contain di- or tri-carboxylic acids. Does the instrument recognize di and tri-carboxylic acids, even if they form fragments that contain only one carboxyl group? Does a fresh reagent fully derivatize all carboxyl groups in any compound? What if only one of the carboxylic groups is successfully derivatized in a di- or tri-carboxylic acid? Could the parent compound, or a potential mass ion fragment of the parent compound, be mistakenly identified as a monocarboxylic acid, and counted as a naphthenic acid? How is it determined whether stored derivatization reagent has become less effective over time? Finally, even if di- and tri-carboxylic acids are not included in the NA quantification when using the AXYS method, they possibly still could be present in acid extractions from samples containing naphthenic acids, which may have implications when performing toxicity studies on these extractions.

C. Inter-laboratory studies of the analysis of naphthenic acids

There were two inter-laboratory studies performed for the naphthenic acids analyses, one in 2012, and a second in 2016. However, the primary focus of both of these studies was the analysis of "total naphthenic acids" and only the total NA values were evaluated as to accuracy and precision among all of the participating laboratories. Triplicate samples were typically provided, and the laboratories reported their individual results as well as the mean of their triplicate analyses. (The mean value reported was the value that was evaluated in most cases.) The samples included reagent water blanks, spikes generated from Merichem naphthenic acid reference material, and other samples were of oil sands process-affected waters (OSPW). There were two main categories of analyses for total NA. An FTIR Method that can only give results as total naphthenic acids was used by many of the laboratories. There were a variety of LC/MS and LC/MS-MS methods also used by several laboratories. While these methods can achieve varying degrees of speciation

depending on the method, they also can be used to obtain a total NA value by summing up the values from all of the measured subcategories of NAs. Environment Canada evaluated the score for these laboratories only using the total naphthenic acid results since the degree and type of speciation varied greatly among the different laboratories and was evidently not comparable.

The 2012 Environment Canada Naphthenic Acids Inter-laboratory (ECNAIL) study found that some of the laboratories using both FTIR and some of the LC/MS methods could reasonably reproduce total naphthenic acid results. There was some speciation information displayed in Appendix A of the 2012 study from the various GC/MS, LC/MS, and LC/MS-MS methods, however the speciation was limited to different degrees of saturation (the "z" factor, even numbers zero through twelve, forming seven speciation categories). These categories did not differentiate based on the number of carbon atoms. The 2012 report concludes regarding speciation of the NA compounds: "The data demonstrated the capability of certain methodologies to characterize NA by carbon number as a percentage of the Total $C_nH_{2n+z}O_2$ species, however, complexity of the speciation data made comparative evaluation impractical."

The 2016 ECNAIL study report was smaller, involving only nine laboratories, but it did not address potential speciation of the NAs. Four of the nine laboratories used an FTIR method. Five of the nine laboratories used some variant of LC/MS or LC/MS-MS methods, but it is unknown whether any of these methods were identical to one-another. On average, the FTIR methods were biased low at 78% of the target values on average, with every FTIR laboratory having a negative bias. The LC/MS labs were biased somewhat high, on average 108% recovery, but the range of biases by laboratory was -19% on up to +40% (that is, the average percent recovery by laboratories performing an LC/MS method ranged from 81% to 140%). The OSPW samples had on average lower recovery by all methods, averaging 67% recovery, while the Merichem NA standard reference material had on average 113% recovery by all methods. These values demonstrated that for "total naphthenic acids" these analyses in general were reasonably quantitative among the different laboratories, but there were some significant differences depending on the sources of the reference materials.

The AXYS laboratory participated in both the 2012 and 2016 study. In both studies, they tended to be biased somewhat high for total NA (approximately +20% of the target values on samples with NA values greater than 1 mg/L), and they were approximately in the middle of the ranges for laboratories using one of the LC/MS or LC/MS-MS methods. Their in-lab precision was good, and they had no outlier results from either study.

The conclusions from the 2016 study (pages 18 and 19) contain some interesting comments that are reported below, roughly in order of importance:

- Environment Canada states in conclusion number 7: "The current definition of Total Naphthenic Acids ($C_nH_{2n+z}O_2$) as used in this study needs to be broadened to include aromatic

O2 species." API/AFPM does not agree with this conclusion, as described in Section VI of this report.

- Conclusion number 3 states: "The correlation coefficient for all laboratories is >0.96 for all laboratories indicating that main factor in any laboratory imprecision is a bias of some kind as opposed to some random errors or blunders in the laboratory." API/AFPM agree with this conclusion. Among the items that likely creates an inherent bias is trying to use a single calibration material to quantitate mixtures of compounds that can differ significantly in their overall makeup from site to site. It should be noted the calibration ranges were different across all of the methods in the interlaboratory study, with some being outside of the measured analyte range. This practice results in an inherent bias in the study.

- Conclusion number 6: "There is a need to establish a traceable quantification standard to achieve consistent analytical results. Merichem® is a commercially available mixture of naphthenic acids that allowed for an inter-laboratory comparison of laboratories' abilities to measure Total NA. It is currently the best available representation of the Total Naphthenic Acids ($C_nH_{2n+z}O_2$) which are reported in this study. However, it needs to be replaced with a commercially available, traceable material (single component or mixture) that better represents the NA components found in relevant matrices of the Athabasca oil sands region (e.g. OSPW)." This is also an important issue for API/AFPM. The assay information on these Merichem NA mixtures (from Appendix A of the 2016 study) indicates only that they are 95-99% naphthenic acids, and 1-5% petroleum distillates. It has a total acid number of 191 (with an acceptance range of 170-210). There is no information whatsoever as to specific quantities of which categories of naphthenic acids are included in this material, and it is not a traceable standard.

- Conclusion number 10 also discusses reference materials: "An OSPW derived reference material is required that can be used to compare without bias the various methods being used for NA analysis." API/AFPM is very concerned about this. Does this mean that each site or each refinery might need its own reference material for calibrations?

- Conclusion number 1 from the 2016 study discusses how the results from this study are significantly improved over much poorer results that were obtained from a 2014 inter-laboratory study for naphthenic acids, where the overall RSD values for the samples varied from 64% to 168%, with only the three highest samples having RSDs below 100%. (API/AFPM believes that if these RSD results are correct, this constitutes unacceptable method performance.) **This 2014 naphthenic acid study was not included in the information given to API/AFPM.**

- Conclusion number 8: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." API/AFPM agrees that this is needed, and has stated that actual refinery samples, especially untreated wastewater samples, can greatly complicate the analytical process for many well-established methods let alone these AXYS experimental procedures currently being developed.

IV. Discussion of Analytical Methods for Alkylated PAH Compounds and the 2015 Environment Canada Inter-laboratory Study

A. Overview of methodology

The analytical list for "alkylated PAHs usually includes the 16 standard EPA priority pollutant PAHs, "extended PAHs" (meaning additional single-compound PAHs or PAH-associated compounds), and alkylated PAHs, which are analyzed as individual groups of alkyl-substituted PAH homologs. Most laboratories use a GC/MS instrument as is used in EPA SW-846 Method 8270D.[3] Many labs operate the MS in a selective ion monitoring (SIM) mode to obtain greater sensitivity, with the possible drawback being they do not obtain a full mass spectrum of each compound. The SGS-AXYS Laboratory Method MSU-21C uses their MS operating in an Electron-Impact Ionization (EI) mode using Multiple Ion Detection (MID). We are not currently familiar with the advantages/disadvantages inherent to this type of MS setting. The main point here is that the methods used by the participating laboratories in the 2015 study discussed in Section B below, though similar in instrumentation, may not be exactly the same. In Section I of this report, we have also discussed that there is ongoing debate within the analytical community as to which extended PAH compounds and alkylated PAH homologs should routinely be included in the parameter list for this determination.

B. 2015 environment Canada inter-laboratory study shows major problems in quantifying the groups of PAH homologs

Environment Canada performed an Inter-laboratory Study for Alkylated PAH compounds, the report of which is dated April, 2015. API/AFPM received a copy of this report from EPA. Three sample matrices were tested (with four samples provided for each matrix): extract samples consisting of three different diluted oils, one National Institute of Standards and Technology (NIST) standard in methylene chloride, and synthetic soils samples spiked with three different oil sources. Four samples were provided for each matrix. Our primary concern here is on the four aqueous samples, but we also include a comparative discussion on the analyses of the extract that is spiked with the NIST certified mixture.

The results for the aqueous samples in this inter-laboratory study paint a completely different picture of two types of PAH analyses (see Table 3 below, which is a compilation of the aqueous results from Tables 3 and 4 on pages 10 and 11 from the 2015 Environment Canada Inter-laboratory study on Alkylated PAH analyses). As expected, all of the laboratories analyzed the parent PAHs (all single compounds, each with their own calibration curves) and achieved

[3] EPA, *Test Method for Evaluating Solid Waste: Physical-Chemical Methods Compendium (SW-846)*, Office of Land and Emergency Management, Washington, D.C.

acceptable Relative Target Standard Deviations (RTSD), with the average values being between 20 and 25% RTSD.[4] The parent PAH data for water and the other matrices is presented in Table 3 on page 9 of the Environment Canada Report.

However, for the PAH homolog analyses (found in Table 4 on page 11 of the Environment Canada report), the results of the RTSDs are shockingly different, and API/AFPM considers them unacceptable. (It is important to remember that the alkylated PAH homologs are actually groups of related PAH compounds, where the calibration is based only on a single compound intended to represent the entire group.) The average RTSD for the four water samples is almost 80%, an extremely high value, and some of the RTSDs for some homolog compound groups were over 100%. Typically, in these type studies, results outside of two standard deviations are given a warning, but are still considered acceptable, and results outside of three standard deviations are considered as unacceptable. To illustrate how terrible an RTSD of 80% is (which represents only a single standard deviation around the target value), consider a spiked sample with a value of 1,000 µg/L for a particular PAH homolog group. If a result within +/- 3 std. deviations is acceptable, then in this case (using an 80% RTSD for one standard deviation, multiplied by 3 SDs), any result between the values of 0 (or non-detected) up to 3,400 µg/L would be considered an acceptable result. It is difficult to rate such results as even "semi-quantitative", because many "acceptable" results would not even be within the same order of magnitude of the true value (1,000 µg/L). It is clear that the analytical method proposed for the PAH homolog groups does not "quantitate" these compounds within any acceptable definition of quantitation. Therefore, this analytical method is unacceptable for evaluating the concentrations of such compounds in refinery wastewater.

In the Table 3 below, API/AFPM compares the average percent RTSD for the parent PAHs in the four aqueous samples with the average RTSD for the PAH homologs in these same four samples. We find that for the water samples alone, the RTSD average for the PAH homologs is actually 3.41 times higher than for the parent PAH compounds. This is significantly worse than the discussions within the Environment Canada report, which estimated that overall, the RTSD for the homologs was 2.5 to 3 times higher than the RTSD for the parent compounds. This seems to suggest that the problems analyzing aqueous samples for these parameters is significantly greater than for soils or extracts. Again, API/AFPM asserts that this performance cannot be considered as quantification of these compound/compound groups in water samples.

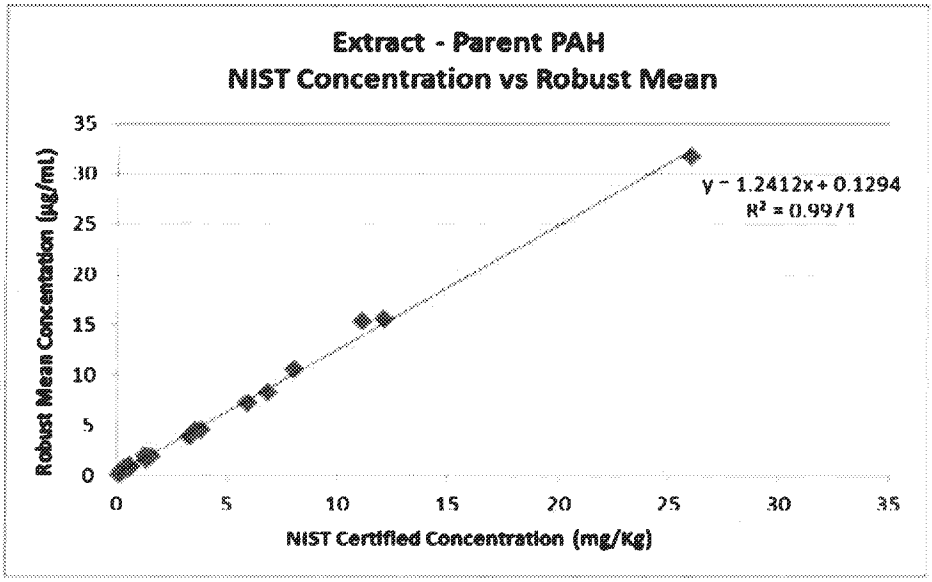
[4] An RTSD is the RSD around a known target value, instead of the mean of the reported results.

Table 3: Extracts of the Aqueous Analyses RTSDs data for alkyl-PAH Homologs (originally from Table 4 in the 2015 alkyl-PAH Inter-laboratory Study) and a summary of the average RTSDs from the aqueous analyses for the parent PAH compounds (calculated from Table 3 of 2015 report)

Aqueous samples Relative Target Standard Deviation% for PAH Homologs analyzed in Environment Canada 2015 Inter-lab Study				
Aqueous Sample Number	AAP-01	AAP-02	AAP-03	AAP-04
C1-Naphthalene	71	46	30	40
C2- Naphthalene	123	59	57	64
C3- Naphthalene	120	77	68	60
C4- Naphthalene	106	83	77	68
C1-Fluorene	91	76	66	60
C2-Fluorene	66	65	63	40
C3-Fluorene	100	95	86	91
C4-Fluorene	105	215	217	126
C1-Phenanthrene	55	45	44	29
C2- Phenanthrene	45	52	49	41
C3- Phenanthrene	80	77	79	81
C4- Phenanthrene	108	129	109	108
C1-Fluoranthene	91	76	66	60
C2- Fluoranthene	93	84	74	100
C3- Fluoranthene	68	50	57	68
C4- Fluoranthene	128	132	121	103
C1-Chrysene	27	29	31	34
C2- Chrysene	102	76	94	88
C3- Chrysene	96	96	98	81
C4- Chrysene	178	184	187	129
C1-Benzopyrene	73	78	78	78
C2-Benzopyrene	63	78	100	62
C1-Dibenzothiophene	54	42	42	42
C2-Dibenzothiophene	51	52	40	45
C3-Dibenzothiophene	83	55	57	66
C4-Dibenzothiophene	53	44	62	69
Average RTSD per sample for PAH homologs	85.77	80.58	78.92	70.50
Average RTSD per Aqueous sample for 18 parent PAH compounds	22.5	23.9	21.6	25.11
Overall RTSD Ratio Homolog over parent PAHs per sample	3.81	3.37	3.65	2.81
Average of all four ratios				3.41

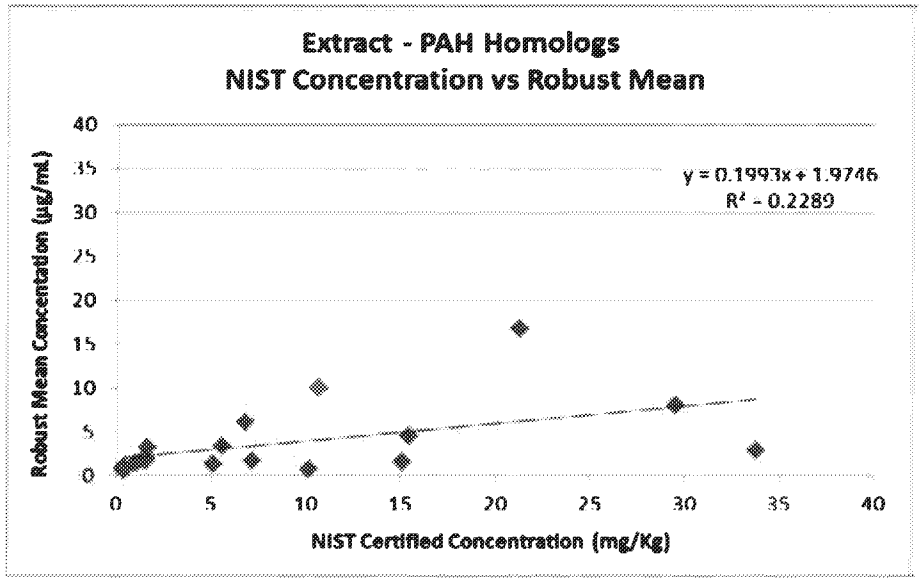
Another indication of problems related to the analysis of the PAH homologs can be seen in the extract sample that was spiked with the NIST standard. Here, any errors or biases due to sample extraction have been eliminated, and all of the values for the parent PAHs and their PAH homologs are certified. There are graphs of the analytical results of this sample on page 13 of the Environment Canada 2015 report, and two of these are shown below. It should be noted that these graphs are based on the "robust mean" and "robust standard deviation" of the data for this sample. "Robust" is defined as a statistical program that reduces the influence of any outlier results on the calculation of the "robust mean" and "robust SD" (without totally eliminating the outlying data points), so that these calculations are not unduly influenced by such outliers. Therefore, these graphs already contain a degree of correction for the worst outlier results.

The first graph (below) is for the results of the parent PAH compounds in the NIST sample extract:



As can be seen, the correlation coefficient of the parent PAH compounds versus the robust mean of the NIST extract sample is satisfactory ($R^2 = 1.0000$ is perfect correlation).

This second graph is for the PAH homologs:



The correlation coefficient of the PAH homolog compounds vs. the robust mean is only 0.2289. This is extremely poor, especially for a sample that is a simple dilution of an NIST standard that did not have to be extracted. The evidence is clear that there are severe problems with the calibrations being used for the PAH homologs.

C. Summary of Conclusions Discussed in the 2015 Environment Canada Inter-laboratory Study for PAH and PAH homolog analysis

The Environment Canada conclusions show they are aware of the issues with the quantification of the PAH homologs. They first state that the results of the analyses of the parent PAH compounds were not unexpected. They stated that most of these compounds have been routinely analyzed by most environmental labs since the 1980's, and that percent RSD's of 20 to 25% are typical for these compounds.

The following is the Environment Canada assessment of the PAH homolog analysis in the conclusion to the 2015 report:

"The results for the analysis of the alkyl-PAH homologs are consistent with an analytical method that relies on only a few select compounds to represent an entire class. The quantitation of the homologs is generally done using a single compound to represent the entire class of alkyl-PAH being quantitated instead of individual compounds and this could be responsible for the increase in relative target standard deviations observed. This would be especially true if all of the compounds in a class do not exhibit the same response factors. A number of homologs in the solid samples were also too low in concentration to be accurately quantitated or even detected in some cases. This included the NIST SRM (1941b). A lack of traceable individual calibration standards for homologs may also play a part in the apparent low recoveries of the homologs as could some unfamiliarity with the practical application of some elements of the recently promulgated ASTM

D7363-11, *Standard Test Method for Determination of Parent and Alkyl Polycyclic Aromatics in Sediment Pore Water Using Solid-Phase Microextraction and Gas Chromatography/Mass Spectrometry in Selected Ion Monitoring Mode*."

API/AFPM believes that based on the results of this study, Environment Canada has greatly understated the problems observed in the aqueous analyses, especially when they state: "The quantitation of the homologs is generally done using a single compound to represent the entire class of alkyl-PAH being quantitated instead of individual compounds and this could be responsible for the increase in relative target standard deviations observed. This would be especially true if all of the compounds in a class do not exhibit the same response factors." We also note that the problems with the aqueous samples were for all four samples, not simply the low concentration results.

Environment Canada also states that this first study may have been too ambitious and possibly included too many compounds and homologs for analysis:

"This first assessment of the current state of the PAH and alkyl-PAH analysis of environmental samples was rather ambitious. Over 100 separate measurands were asked to be reported in 3 separate matrices. Future studies will focus on a target list more closely approximating the one found in ASTM D7363-11."

API/AFPM believes that the analyses of so many types of alkylated PAHs is far too complex and that methods for measuring groups of alkylated PAHs are nowhere near sufficiently developed for any EPA study of refinery wastewaters, or any follow-up rulemaking effort.

V. Concerns About Blanket Toxicity Assessments of Groups and Categories of Compounds

A. Brief Background

In the EPA ELG process, the pollutants estimated to be removed by a proposed rule have been given a toxic weighting factor (TWF) based on toxicological tests having been performed in the past on that specific pollutant. The calculated TWF for each pollutant is actually the sum of an aquatic life toxicity value, and a human health toxicity value that are both normalized to the TWF of copper.[5] The TWF formula for pollutants in water is:

$$TWF = (5.6/AQ_{value}) + (5.6/HH_{value})$$

Where:

[5] Copper as a reference toxicant was selected by EPA years ago because its toxicity was about in the middle of pollutants being tested at the time.

5.6 (μg/L) = acute aquatic toxicity of copper at a specified hardness that is used as the scaling factor to normalize the TWF in relation to copper

AQ = Aquatic Life Value (μg/L). This is determined experimentally through toxicity testing on aquatic organisms.

HH = Human Health Value (μg/L). A few pollutants have acute human toxicity, but most times the HH factor is based on potential carcinogenic properties of the compound.

Except in rare cases, the TWF is dominated by either the AQ value, indicating toxicity to aquatic life is the predominant effect, or the HH value if there is a significant human health risk. While there are rare exceptions due to acutely toxic properties of specific compounds or potential unusual human exposure pathways—for trace organic compound contamination in water, the HH value is typically not going to be significant to the TWF calculation unless that compound is demonstrated to have potential or confirmed carcinogenic properties.

As example of this, consider the sixteen PAH compounds currently on the EPA priority pollutant list. Seven of these compounds have been identified as potentially carcinogenic through the aqueous-fish-shellfish exposure pathway, and these seven have by far the highest TWFs of the sixteen compounds. Benzo(a)pyrene is the highest of the seven with a TWF of 100, and the lowest two are benzo(b) and benzo(k) fluoranthene, both with a TWF of 30.66. Of the nine considered to be "non-carcinogenic" PAHs, the highest is fluoranthene, with a TWF of 1.27.[6] The lowest TWF of the nine "non-carcinogenic" PAHs is acenaphthylene, with a TWF of 0.0084. This compound was found to have "no observed effect" on mice, and has no HH value, so this TWF is totally based on aquatic life impacts. Note that the acenaphthylene TWF is more than 10,000 times lower than that of benzo(a)pyrene. It is an indication that if an individual compound is not carcinogenic, a TWF based entirely on aquatic life toxicity may be thousands of times lower.

B. Relating TWF factors to mixed groups of compounds, and testing for toxicity

Because the discussion above is applicable to assigning TWFs to categories of mixed compounds, it creates significant problems. Carcinogenic effects are applicable to only specific compounds because the carcinogenic interaction is produced at the molecular level, at specific sites of the molecules that mimic critical enzymes. The addition of a methyl group to a critical area of a molecule may create a stearic hindrance that may completely prevent this molecular interaction. This is why, even among the 16 PAH priority pollutant compounds that are very similar in structure some have been found to be carcinogenic and others show no carcinogenic effect whatsoever.

Each analytical group of naphthenic acids can be mixtures of dozens or hundreds of different compounds, and the total naphthenic acids can consist of thousands of compounds. The only

[6] Though fluoranthene is not classified as a class 3 carcinogen to humans as are the other seven, one study has found it to possess carcinogenic properties to newborn mice, so it still retains a HH value.

common denominator among these compounds is that they contain a single carboxylic acid group, and the attached carbon chains must be aliphatic, (but even this is being questioned by Environment Canada). As we have previously stated, most of *aliphatic* NAs (in the C12 to C21 carbon range), that meet the strict definition of NAs as used by the AXYS are naturally occurring aliphatic saturated or polyunsaturated fatty acids that are commonly found in foods and dairy products, and these compounds should not be toxic.

Some papers have discussed how oil-sands process-affected water contains numerous organic compounds, including naphthenic acids (NAs), and a few papers have asserted NAs as a source of acute toxicity in oil-sands process-affected water. Total NAs, however, defy generic characterization and the toxicity of "NAs" cannot be meaningfully expressed as though NAs constituted a single compound or a consistent, reproducible mixture of compounds. To quote one scientific review on naphthenic acids[7]: "The field continues to be challenged by the lack of a cost-effective, accurate analytical technique for NAs or an understanding of all the organic constituents in process-affected water that may be contributing to observed toxicity and thus requiring treatment."

As discussed in this report, even possibly the most specific analyses for NAs such as the method used by AXYS laboratories can still include other types of compounds that do not meet the definition of naphthenic acids. Just as in the example for PAH compounds discussed earlier, it is entirely possible for only a very few compounds to be the drivers for most or all of the apparent toxicity when addressing a situation of a mixture of hundreds or thousands of compounds. Also, it is unknown, and unlikely, that the naphthenic acids that remain in refinery wastewater after treatment contain the same toxic compounds/mixes that appear to be present in oil-sands process water.

The fact that the analytical method measures total NAs makes the toxicological testing of these naphthenic acid mixes (and also mixes of PAH homologs) a very difficult and inexact procedure. There must be some kind of reference chemical available commercially that is used to perform the toxicity testing. If the toxicity is due to only a few highly toxic compounds present in a mostly non-toxic mixture and one does not know which compounds they are, whether they are present in every mix, or whether they are present in some mixes from some sources and not others, how can a TWF for the mixture be estimated? Are they present in only some wastewaters that contain naphthenic acids and not others? Regulation of total NAs on this basis will invariably result in false positives prompting exceedance violations for dischargers presenting no significant increase to environmental toxicity. These issues are why toxicity testing has (mostly) been limited to testing one pure individual compound at a time, to increase the likelihood that consistent and reproducible results can be obtained when using the same standard reference material.

[7] Oil Sands Naphthenic Acids: A Review of Properties, Measurement, and Treatment, Brown and Ulrich, 2015

There are some very serious shortcomings to the current commercially available consensus reference material used by AXYS, which is the Merichem NA mixture. This mixture was used as a standard reference for the NA comparative studies, and AXYS Laboratory also uses Merichem mixtures as their quality assurance (QA) samples for their proprietary naphthenic acid test method. This Merichem reference material apparently contains relatively consistent proportions of the 60 naphthenic acid subcategories analyzed by AXYS, so it can be used as a QC sample to verify consistent results in their analyses over time. However, the exact makeup of the various specific compounds is unknown, and these samples only demonstrate that the unknown can be reproduced consistently. The summary API/AFPM received of the AXYS method indicates that the laboratory appears to believe some of the fractions found in the commercial Merichem NA mixture do contain some aromatic naphthenic acids. It is possible that some of these aromatic acids could have much higher toxicity than the normal aliphatic NAs. Our impression is that the AXYS method cannot quantify the aromatic NAs separately, otherwise they could be subtracted out of the total. Finally, Environment Canada, in their conclusion to the 2016 NA Inter-laboratory Study stated: "There is a need to establish a traceable quantification standard to achieve consistent analytical results. Merichem® is a commercially available mixture of naphthenic acids that allowed for an inter-laboratory comparison of laboratories' abilities to measure Total NA. It is currently the best available representation of the Total Naphthenic Acids ($C_nH_{2n+z}O_2$) which are reported in this study. However it needs to be replaced with a commercially available, traceable material (single component or mixture) that better represents the NA components found in relevant matrices of the Athabasca oil sands region (e.g. OSPW)." (Important to note: Environment Canada here appears to be asking for a reference material that is representative of a single site. Does this mean that each site and each refinery should obtain a mix that matches their site alone?)

C. Summary of the Main Issues for determining toxicity for Naphthenic Acids (also generally applicable to alkylated PAH homologs)

The following bullet items are just a few of the complex issues that must be dealt with, if one is to apply a single TWF to large groups of compounds such as naphthenic acids or alkylated PAH homologs:

- These NA or alkylated PAH homologs mixtures can contain hundreds of compounds, and if present, it is very likely that only a tiny fraction of these compounds may have a high TWF but this fraction might drive the overall toxicity of the entire group. These few toxic compounds have likely not yet been identified, but they may be present in samples from one source, and not present in another, with dramatic effect on the future evaluation of the TWF.

- Performing the tests to determine toxicity: As stated by analysts and Environment Canada, there is not yet available a commercial material that is traceable quantitatively, where all the components are identified. If individual lot numbers of this commercial material are used as **a standard to determine toxicity**, it appears they face the same problem—do certain lots of the mix contain fewer or more of the limited number of compounds that can drive the toxicity,

and is the mix representative of the types of naphthenic acids present at various facilities? How do you prepare a mix to certain toxicity specifications, if you do not know what compounds are present in the wastewater that can create the most toxicity?

- In the case of determining the toxic-weighted pound equivalents (TWPE)[8] for a refinery effluent, the standard mix used to determine a TWF for NAs needs to be toxicologically representative of the naphthenic acids present in the discharge from a refinery after biological and other treatment. This is likely to be very different than the mix of naphthenic acids present in untreated refinery wastewater, and even further different than oil sands process water used to mine the oil.

- Environment Canada believes that aromatic-naphthenic acids (this term is seemingly self-contradictory, since the word "naphthenic" is used to define mixtures of organic fluids that are low in aromatic content) should be included in the analysis of NAs. If, as might be the case, the aromatic NAs have significantly different toxicological/environmental properties than the currently defined aliphatic NAs, then what is the justification for including them in the same category? Perhaps a separate definition and scientifically defensible analytical procedure should be devised that can analyze for aromatic NA's only.

[8] The TWPE is used by EPA to estimate the total mass loadings of all toxic pollutants in a specific industrial effluent category for the purposes of comparing industrial point source categories for their relative contribution ot surface water discharges of toxic pollutants.

REAL ID

Does it affect me?

If the state of residence is marked in blue, you will need to present a form of acceptable ID other than a driver's license or state-issued identification card to access this facility.

The list of jurisdictions subject to enforcement changes over time. For the most recent list, please visit http://www.dhs.gov/secure-drivers-licenses#1.

Homeland Security

Department of Homeland Security Office of Policy
www.dhs.gov/secure-drivers-licenses

Message

From: Higley, Stephen D. (MPC) [sdhigley@marathonpetroleum.com]
Sent: 9/5/2017 12:23:54 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: [EXTERNAL] RE: TX/LA Flooding

Lee – thanks for the note, and my apologies for missing you Friday, as I was in the air most of the afternoon and on the road until late last night. Is there a good time for me to give you a call today?

Thanks,
Steve

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, September 01, 2017 1:18 PM
To: Michael Whatley; Higley, Stephen D. (MPC)
Subject: [EXTERNAL] RE: TX/LA Flooding

Thanks Michael.

Steve. It is very nice to meet you. Perhaps we could chat later this afternoon, after 4:30 pm EDT would work best for me. My direct number is **Ex. 6**

Thanks,
Lee

D. Lee Forsgren

Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Michael Whatley [mailto:MWhatley@hbwresources.com]
Sent: Friday, September 1, 2017 12:25 PM
To: Higley, Stephen D. (MPC) <sdhigley@marathonpetroleum.com>; Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: TX/LA Flooding

Steve and Lee –

Want to introduce you (at least electronically) and open up a line of communications between Marathon Petroleum and Lee regarding the flooding in Texas and Louisiana.

Lee is serving as the Acting Assistant Administrator for Water at EPA. Steve is in the DC office for Marathon Petroleum.

Please let me know if I can do anything to further aid your conversations.

Michael

Michael Whatley
HBW Resources
1666 K Street, NW, Suite 500
Washington, DC 20006
Redacted

Delivery Report

From: Microsoft Outlook [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MICROSOFTEXCHANGE329E71EC88AE4615BBC36AB6CE41109EF7088051]
Sent: 8/30/2017 6:07:20 PM
To: marcelo.panelo@bp.gov
Subject: Undeliverable: Re: TX/LA Flooding
Attachments: Re: TX/LA Flooding

Your message
To: Stout, Robert
CC: Michael Whatley; Nolan, James; marcelo.panelo@bp.gov; Canaan, Gabriel
Subject: Re: TX/LA Flooding
Sent: 8/30/2017 6:07:19 PM

Delivery has failed to these recipients or groups:

marcelo.panelo@bp.gov (marcelo.panelo@bp.gov)
Your message couldn't be delivered. The Domain Name System (DNS) reported that the recipient's domain does not exist.

Contact the recipient by some other means (by phone, for example) and ask them to tell their email admin that it appears that their domain isn't properly registered at their domain registrar. Give them the error details shown below. It's likely that the recipient's email admin is the only one who can fix this problem.

For more information and tips to fix this issue see this article: http://go.microsoft.com/fwlink/?LinkId=389361.

Diagnostic information for administrators:

Generating server: CY4PR09MB1398.namprd09.prod.outlook.com

marcelo.panelo@bp.gov
Remote Server returned '550 5.4.310 DNS domain bp.gov does not exist [Message=InfoDomainNonexistent] [LastAttemptedServerName=bp.gov] [CY1GCC01FT003.eop-gcc01.prod.protection.outlook.com]'

Original message headers:

```
DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed; d=usepa.onmicrosoft.com;
 s=selector1-epa-gov;
 h=From:Date:Subject:Message-ID:Content-Type:MIME-Version;
 bh=6UZaJZwpGFFVxRCin7ezN6FO9UEziHa2cWal91Oh+8M=;
```

b=Hn17YDQJmzKfOMM0buWla9dy1BkODmGc/I6Zk4lnwCUxVUlvFaUhjsjvF6S1YPMmYo0cqb8bF+4LjoQDVUA0Xjy
yTPK4WzmgkYRSg4H108HB/M2Mi2FbhySxwPHJZKi22Kc8F42T0CZ5GTAT4lnVVwcuHJaGarjX4mmHunZS4vs=
Received: from CY4PR09MB1398.namprd09.prod.outlook.com (10.172.67.20) by
 CY4PR09MB1398.namprd09.prod.outlook.com (10.172.67.20) with Microsoft SMTP
 Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384_P256) id
 15.1.1385.9; Wed, 30 Aug 2017 18:07:19 +0000
Received: from CY4PR09MB1398.namprd09.prod.outlook.com ([10.172.67.20]) by
 CY4PR09MB1398.namprd09.prod.outlook.com ([10.172.67.20]) with mapi id
 15.01.1385.014; Wed, 30 Aug 2017 18:07:19 +0000
From: "Forsgren, Lee" <Forsgren.Lee@epa.gov>
To: "Stout, Robert" <Robert.Stout@bp.com>
CC: Michael Whatley <MWhatley@hbwresources.com>, "Nolan, James"
        <James.Nolan@bp.com>, "marcelo.panelo@bp.gov" <marcelo.panelo@bp.gov>,
        "Canaan, Gabriel" <Gabriel.Canaan@bp.com>
Subject: Re: TX/LA Flooding
Thread-Topic: TX/LA Flooding
Thread-Index: AdMhqPpwCTRLWam3SzWqQ/yy9E2JCgAAXjFeAAPgztwAADbztQ==
Date: Wed, 30 Aug 2017 18:07:19 +0000
Message-ID: <6949C8A9-1A89-44A8-92F7-825CF6061CE2@epa.gov>
References: <423885520d5548a685ec552b2d40e798@HBWEXCH.hbw.local>,<9CA9EF7E-1A28-4618-
BE39-11F027F13F54@epa.gov>,<4374A33A-6F45-4B5C-AD3E-B0C5B89E853E@bp.com>
In-Reply-To: <4374A33A-6F45-4B5C-AD3E-B0C5B89E853E@bp.com>
Accept-Language: en-US
Content-Language: en-US
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
authentication-results: spf=none (sender IP is)
 smtp.mailfrom=Forsgren.Lee@epa.gov;
x-originating-ip: [2600:1003:b117:a6a3:90c9:1f95:7b0c:a871]
x-ms-publictraffictype: Email
x-microsoft-exchange-diagnostics:
1;CY4PR09MB1398;6:vSkhNL8NqlpxRnKuhf8gQOiEMYCe2ITHxAmkP1UhngH7H9yVUhs+eegDpK67Oo2cqGdSLlu
BkO6pMLzuZbW3mot0Ut1MYBvihumHoNlvGj/AKMSk83zEax+/w7qY6OlFnkwahLUGvqIkc/SCMoJnblZU2y+tN1OT
JPuesoDWqPcOEKcH77182EWSs7c2xm6Gj0gaAlSIGCTE0s/2859oUAx0fx7IVu+zXtfWta87bYiY2C0h2EKrKLa29
MQmp78lKTyUhXtOR4ytYxBZELdgzey8UYVdL9LWzUalYC9Qt+ScD/CiU25ZnVzTa6EBWobY0B7UwEJup7eTTzSqBz
nn8Q==;5:kie4RoO574htvfAWsHI28Bw0Mk+9FgSBkpc9AIv+T7g7pT3DQAXhpVE6T2k4LbIqyjj4ZIRqA/y9jlcB
CxNLZFFkOhVsrMMsye3ffNdxFrzYXpy68kXhzzs9UUWJMsoZGjuA0bu+wPxPujKpnLzCyQ==;24:tju+hKhWbWYQG
JDuMZenbt3er/YlFsgV8kneigMPusqiZbIjMA5ZvXfY3Qq1CHopmND/WspuTfmDeAfgujiEBS6c0CT90N8wwGr3cb
5qfcQ=;7:wCagNCYMkPIUkecXRX/G5NXDhliKBP/PmbWyJS1as4ukFb80H4IpjEbEgEw+Z2P+KKiaccGqSQqDqevJ
aXntRI9A+Vo5hNJPv9B9FWDW+fhC2GgjE3RJedjxsoU7NUK4v5BA8UnUsWRVU5xokwdG/Qa3KPhEKnO7v2KgFi8TY
qPjftUKHkp0nH89u04fduKBycMKyuM0XcyAgPt84+ehOVVYvdJ0K0tAqa/DeEJJc+g=
x-ms-exchange-antispam-srfa-diagnostics: SSOS;
x-ms-office365-filtering-correlation-id: f124e146-38dc-49b0-da1c-08d4efd1f4ac
x-microsoft-antispam:
UriScan:;BCL:0;PCL:0;RULEID:(300000500095)(300135000095)(300000501095)(300135300095)(2200
1)(300000502095)(300135100095)(2017030254152)(300000503095)(300135400095)(2017052603199)(
2017031423075)(2017031133081)(2017022815490 75)(300000504095)(300135200095)(3000005050
95)(300135600095)(300000506095)(300135500095);SRVR:CY4PR09MB1398;
x-ms-traffictypediagnostic: CY4PR09MB1398:
x-exchange-antispam-report-test: UriScan:(32270958623424)(22942507 4694992);
x-microsoft-antispam-prvs:
<CY4PR09MB139844 78EDD07491DD1362C08A9C0@CY4PR09MB1398.namprd09.prod.outlook.com>
x-exchange-antispam-report-cfa-test:
BCL:0;PCL:0;RULEID:(100000700101)(100105000095)(100000701101)(100105300095)(100000702101)
(100105100095)(6040450)(601004)(2401047)(8121501046)(5005006)(100000703101)(100105400095)
(93006095)(93001095)(10201501046)(3002001)(6041248)(20161123555025)(2017031423075)(2017
0228152807 5)(2017030614210 75)(2017030614061 53)(20161123558100)(20161123560025)(2016112356
2025)(20161123564025)(6072148)(2017080717420 11)(100000704101)(100105200095)(100000705101)
(100105500095);SRVR:CY4PR09MB1398;BCL:0;PCL:0;RULEID:(100000800101)(100110000095)(1000008
01101)(100110300095)(100000802101)(100110100095)(100000803101)(100110400095)(100000804101
)(100110200095)(100000805101)(100110500095);SPVR:CY4PR09MB1398;
x-forefront-prvs: 041517DFAB

x-forefront-antispam-report:
SFV:NSPM;SFS:(10019020)(39860400002)(189002)(51414003)(199003)(377454003)(24454002)(651200
7)(8676002)(4326008)(99286003)(54896002)(53936002)(54906002)(236005)(81166006)(68736007)
(81156014)(9886003)(6436002)(97736004)(5003630100001)(8936002)(229853002)(3480700004)(624
6003)(110136004)(6116002)(790700001)(6916009)(2950100002)(7736002)(82746002)(36756003)(14
454004)(50986999)(4743002)(83716003)(54356999)(102836003)(76176999)(5660300001)(25786009)
(105586002)(53546010)(2900100001)(101416001)(33656002)(72206003)(478600001)(77096006)(290
6002)(6486002)(189998001)(106356001)(6506006)(86362001)(3280700002)(3660700001);DIR:OUT;S
FP:1102;SCL:1;SRVR:CY4PR09MB1398;H:CY4PR09MB1398.namprd09.prod.outlook.com;FPR:;SPF:None;
PTR:InfoNoRecords;MX:1;A:1;LANG:en;
received-spf: None (protection.outlook.com: epa.gov does not designate
 permitted sender hosts)
spamdiagnosticoutput: 1:99
spamdiagnosticmetadata: NSPM
Content-Type: multipart/alternative;
	boundary="_000_6949C8A91A8944A892F7825CF6061CE2epagov_"
MIME-Version: 1.0
X-OriginatorOrg: epa.gov
X-MS-Exchange-CrossTenant-originalarrivaltime: 30 Aug 2017 18:07:19.7160
 (UTC)
X-MS-Exchange-CrossTenant-fromentityheader: Hosted
X-MS-Exchange-CrossTenant-id: 88b378b3-6748-4867-acf9-76aacbeca6a7
X-MS-Exchange-Transport-CrossTenantHeadersStamped: CY4PR09MB1398

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/30/2017 6:07:19 PM
To: Stout, Robert [Robert.Stout@bp.com]
CC: Michael Whatley [MWhatley@hbwresources.com]; Nolan, James [James.Nolan@bp.com]; marcelo.panelo@bp.gov; Canaan, Gabriel [Gabriel.Canaan@bp.com]
Subject: Re: TX/LA Flooding

How about a short call at 10:30 EDT?

Sent from my iPhone

On Aug 30, 2017, at 2:02 PM, Stout, Robert <Robert.Stout@bp.com> wrote:

> Thanks, Lee. Great to re-connect after spending time together at dinner, even if amidst some very challenging circumstances for our friends in TX and now LA too.
>
> Would be happy to talk tomorrow morning; let us know what times might work. I am pretty open except for 9-10 Eastern. Jim is in Chicago tomorrow so let's set up a call-in. I am copying my asst Gabriel to help with the logistics.
>
> Best,
> Bob
>
> Sent from my iPhone
>
> On Aug 30, 2017, at 12:10 PM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:
>
> > Thanks Michael.
> >
> > Bob and Jim I look forward to talking with you all soon. Let's all pray we don't have anything catastrophic to talk about at your facilities.
> >
> > Can we find a time to talk tomorrow morning?
> >
> > Lee
> >
> > Sent from my iPhone
> >
> > On Aug 30, 2017, at 11:59 AM, Michael Whatley <MWhatley@hbwresources.com> wrote:
> >
> > > Bob, Jim and Lee –
> > >
> > > Want to introduce you (at least electronically) and open up a line of communications between BP and Lee regarding the flooding in Texas and Louisiana.
> > >
> > > Lee is serving as the Acting Assistant Administrator for Water at EPA.
> > >
> > > Bob and Jim are in the DC office for BP.

Please let me know if I can do anything to further aid your conversations.

Michael

<image002.jpg>

Michael Whatley
HBW Resources
1666 K Street, NW, Suite 500
Washington, DC 20006
Redacted

Delivery Report

From: Microsoft Outlook [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MICROSOFTEXCHANGE329E71EC88AE4615BBC36AB6CE41109EF7088051]
Sent: 8/30/2017 4:10:09 PM
To: marcelo.panelo@bp.gov
Subject: Undeliverable: Re: TX/LA Flooding
Attachments: Re: TX/LA Flooding

Your message
To: Michael Whatley
CC: james.nolan@bp.com; Stout, Robert; marcelo.panelo@bp.gov
Subject: Re: TX/LA Flooding
Sent: 8/30/2017 4:10:08 PM

Delivery has failed to these recipients or groups:

marcelo.panelo@bp.gov (marcelo.panelo@bp.gov)
Your message couldn't be delivered. The Domain Name System (DNS) reported that the recipient's domain does not exist.

Contact the recipient by some other means (by phone, for example) and ask them to tell their email admin that it appears that their domain isn't properly registered at their domain registrar. Give them the error details shown below. It's likely that the recipient's email admin is the only one who can fix this problem.

For more information and tips to fix this issue see this article: http://go.microsoft.com/fwlink/?LinkId=389361.

Diagnostic information for administrators:

Generating server: CY4PR09MB1400.namprd09.prod.outlook.com

marcelo.panelo@bp.gov
Remote Server returned '550 5.4.310 DNS domain bp.gov does not exist [Message=InfoDomainNonexistent] [LastAttemptedServerName=bp.gov] [CY1GCC01FT011.eop-gcc01.prod.protection.outlook.com]'

Original message headers:

```
DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed; d=usepa.onmicrosoft.com;
 s=selector1-epa-gov;
 h=From:Date:Subject:Message-ID:Content-Type:MIME-Version;
 bh=3IEI+itG6Kr8+BIBQpw93RV76yq4S12/aueYiGSAhbE=;
```

b=Fq5GPFKUJdKDyg8dDlpktbpEwb9P54y6ytfT0z52lacI2PvvUPGq9TN9ssEKr/lEyHNCesCsF1OeE38yMPJ6Kx2
Nnb5PzLjZuvCT5IbcHJF5PMq7SqxhGvK2qY3DhvcfFS2M8v8rH2MyGaD/XGnT6QSHw71EdFF5i4iBzVo3I8Q=
Received: from CY4PR09MB1398.namprd09.prod.outlook.com (10.172.67.20) by
 CY4PR09MB1400.namprd09.prod.outlook.com (10.172.67.22) with Microsoft SMTP
 Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384_P256) id
 15.1.1385.9; Wed, 30 Aug 2017 16:10:08 +0000
Received: from CY4PR09MB1398.namprd09.prod.outlook.com ([10.172.67.20]) by
 CY4PR09MB1398.namprd09.prod.outlook.com ([10.172.67.20]) with mapi id
 15.01.1385.014; Wed, 30 Aug 2017 16:10:08 +0000
From: "Forsgren, Lee" <Forsgren.Lee@epa.gov>
To: Michael Whatley <MWhatley@hbwresources.com>
CC: "james.nolan@bp.com" <james.nolan@bp.com>, "Stout, Robert"
        <Robert.Stout@bp.com>, "marcelo.panelo@bp.gov" <marcelo.panelo@bp.gov>
Subject: Re: TX/LA Flooding
Thread-Topic: TX/LA Flooding
Thread-Index: AdMhqPpwCTRLWam3SzWqQ/yy9E2JCgAAXjFe
Date: Wed, 30 Aug 2017 16:10:08 +0000
Message-ID: <9CA9EF7E-1A28-4618-BE39-11F027F13F54@epa.gov>
References: <423885520d5548a685ec552b2d40e798@HBWEXCH.hbw.local>
In-Reply-To: <423885520d5548a685ec552b2d40e798@HBWEXCH.hbw.local>
Accept-Language: en-US
Content-Language: en-US
X-MS-Has-Attach: yes
X-MS-TNEF-Correlator:
authentication-results: spf=none (sender IP is)
 smtp.mailfrom=Forsgren.Lee@epa.gov;
x-originating-ip: [2600:1003:b117:a6a3:90c9:1f95:7b0c:a871]
x-ms-publictraffictype: Email
x-microsoft-exchange-diagnostics:
1;CY4PR09MB1400;6:BVMNN52zfFIFodN3LhOB00PkixW7NCruu/snVACKtAYyMHi6gjM0+IPuBvJKldRCKhOZu9N
ld+TM4Q2XhimfqpQjF8tLZ4PWpEwk+GXOV80AdM9s9aUdT1XCDlwMgJ8QHVw6iNK1Rn9iren38XvMba7Wpd2V/7U0
wI6sOOkfL6ZGXObpEJ8oILIBjKft9vwP9OJ6t/7oS3Qs04MSJbatFqGfVeB9onSEBXdt2d7B5Pa2Gwl2nyZO6wFxd
0mtIOnTrHu90IH2k5TzBdHsqchy5WCkOwnJ9IZLmxkfFPg900Zq6eJFRPlanJwAWH7gcEsXPU9MbrIHhIim2gWhOw
uAcQ==;5:UA/jfhfoHa6h3s5r4BDLXIky4b4VdKdqIG/oCIBLeelOBd59LJ1kngGeEPBZfr2G6rvKuOTSjLN2VOJU
8sSnu3KPcfshCe4YpG9PlTr2VsQR/6cRivpnhvFlOorH80I+JylVu28MmSjq/26rAT4p3w==;24:PEIBJj+q3WUDR
WEYXdCiroix5ZvtwKTvr/Ippn+YHT4S1zQ+rNblMujsfmSx24QGegTDiid68YQocYjo2rhx79eIDtZ4uS5HgCf+UT
miRUw=;7:BwZHz/NgtfVWQklila/0pAAC1crD5zflTwNyR7OYFb8uMAEDntqNa0qedYUKiTvqOOCjJEQzjxYzBzam
Y+UZtbd2pxGnenZM5z256BKrLvM3680mIunToLGDrPNB5ee/wXaxezcM+QyD7is9M2LmqlrnX33BHiun7yf8r2qhNU
2jyiNOS1SQVWpWpmMz+BtEpVJNlam67UQPbmd+VbL9+7cqt/2flNI6fwClHCcY7nKk=
x-ms-exchange-antispam-srfa-diagnostics: SSOS;
x-ms-office365-filtering-correlation-id: 852b4309-de09-4a3c-0a65-08d4efc195d0
x-microsoft-antispam:
UriScan:;BCL:0;PCL:0;RULEID:(300000500095)(300135000095)(300000501095)(300135300095)(2200
1)(300000502095)(300135100095)(201703025415 2)(300000503095)(300135400095)(201705260319 9)(
49563074)(201703131423075)(201703031133081)(201702281549075)(300000504095)(300135200095)(
300000505095)(300135600095)(300000506095)(300135500095);SRVR:CY4PR09MB1400;
x-ms-traffictypediagnostic: CY4PR09MB1400:
x-exchange-antispam-report-test: UriScan:;
x-microsoft-antispam-prvs:
<CY4PR09MB1400C70B09B8CECD91B16B1C8A9C0@CY4PR09MB1400.namprd09.prod.outlook.com>
x-exchange-antispam-report-cfa-test:
BCL:0;PCL:0;RULEID:(100000700101)(100105000095)(100000701101)(100105300095)(100000702101)
(100105100095)(102415395)(6040450)(601004)(2401047)(8121501046)(5005006)(3002001)(1020150
1046)(93006095)(93001095)(100000703101)(100105400095)(6041248)(20161123564025)(20161123560
0025)(20161123558100)(20161123562025)(20161123555025)(201703131423075)(201702281528075)(2
01703061421075)(201703061406153)(6072148)(201708071742011)(100000704101)(100105200095)(10
0000705101)(100105500095);SRVR:CY4PR09MB1400;BCL:0;PCL:0;RULEID:(100000800101)(100110000
95)(100000801101)(100110300095)(100000802101)(100110100095)(100000803101)(100110400095)(1
00000804101)(100110200095)(100000805101)(100110500095);SRVR:CY4PR09MB1400;
x-forefront-prvs: 041517DFAB
x-forefront-antispam-report:
SFV:NSPM;SFS:(10019020)(39860400002)(51414003)(24454002)(377454003)(199003)(189002)(50036

30100001)(5660300001)(8676002)(8936002)(81156014)(4326008)(83716003)(189998001)(348070000
4)(68736007)(25786009)(33656002)(81166006)(478600001)(14454004)(50986999)(53546010)(99286
003)(54896002)(6512007)(86362001)(54906002)(99936001)(4743002)(6436002)(6486002)(11013600
4)(76176999)(229853002)(53936002)(6246003)(54356999)(72206003)(6506006)(6916009)(29501000
02)(105586002)(106356001)(101416001)(236005)(77096006)(2900100001)(36756003)(97736004)(32
80700002)(82746002)(2906002)(7736002)(6116002)(102836003)(3660700001)(790700001);DIR:OUT;
SFP:1102;SCL:1;SRVR:CY4PR09MB1400;H:CY4PR09MB1398.namprd09.prod.outlook.com;FPR:;SPF:None
;PTR:InfoNoRecords;A:1;MX:1;LANG:en;
received-spf: None (protection.outlook.com: epa.gov does not designate
 permitted sender hosts)
spamdiagnosticoutput: 1:99
spamdiagnosticmetadata: NSPM
Content-Type: multipart/related;
	boundary="_004_9CA9EF7E1A204618BE3911F027F13F54epagov_";
	type="multipart/alternative"
MIME-Version: 1.0
X-OriginatorOrg: epa.gov
X-MS-Exchange-CrossTenant-originalarrivaltime: 30 Aug 2017 16:10:08.6154
 (UTC)
X-MS-Exchange-CrossTenant-fromentityheader: Hosted
X-MS-Exchange-CrossTenant-id: 88b378b3-6748-4867-acf9-76aacbeca6a7
X-MS-Exchange-Transport-CrossTenantHeadersStamped: CY4PR09MB1400

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/30/2017 4:10:08 PM
To: Michael Whatley [MWhatley@hbwresources.com]
CC: james.nolan@bp.com; Stout, Robert [Robert.Stout@bp.com]; marcelo.panelo@bp.gov
Subject: Re: TX/LA Flooding

Thanks Michael.

Bob and Jim I look forward to talking with you all soon. Let's all pray we don't have anything catastrophic to talk about at your facilities.

Can we find a time to talk tomorrow morning?

Lee

Sent from my iPhone

On Aug 30, 2017, at 11:59 AM, Michael Whatley <MWhatley@hbwresources.com> wrote:

> Bob, Jim and Lee –
>
> Want to introduce you (at least electronically) and open up a line of communications between BP and Lee regarding the flooding in Texas and Louisiana.
>
> Lee is serving as the Acting Assistant Administrator for Water at EPA.
>
> Bob and Jim are in the DC office for BP.
>
> Please let me know if I can do anything to further aid your conversations.
>
> Michael
>
> <image002.jpg>
>
> **Michael Whatley**
> HBW Resources
> 1666 K Street, NW, Suite 500
> Washington, DC 20006
> **Redacted**

Message

From: Michael Whatley [MWhatley@hbwresources.com]
Sent: 8/30/2017 3:59:37 PM
To: james.nolan@bp.com; Stout, Robert [Robert.Stout@bp.com]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: marcelo.panelo@bp.gov
Subject: TX/LA Flooding

Bob, Jim and Lee –

Want to introduce you (at least electronically) and open up a line of communications between BP and Lee regarding the flooding in Texas and Louisiana.

Lee is serving as the Acting Assistant Administrator for Water at EPA.

Bob and Jim are in the DC office for BP.

Please let me know if I can do anything to further aid your conversations.

Michael

HBW RESOURCES

Michael Whatley
HBW Resources
1666 K Street, NW, Suite 500
Washington, DC 20006
Redacted

Message

From: Lee Fuller [lfuller@ipaa.org]
Sent: 7/27/2017 6:30:11 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Samantha McDonald [SMcDonald@ipaa.org]
Subject: Follow Up on IPAA Meeting
Attachments: EPA Office of Regulatory Policy and Management DM-#5467176.docx.pdf

First, I want to thank you for meeting with IPAA this week. I appreciated the discussion and your candor about the Effluent Limitations Guidelines (ELG) issues.

Second, during the conversation, we discussed some issues related to challenges in the ELG for produced water pretreatment requirements at POTWs regarding possible unique circumstances regarding potential beneficial use of water that would be precluded by the ELG. More specifically, we talked about a project involving the Gulf Coast Waste Disposal Authority. Following our meeting, I spoke with its staff and recommended that they reach out to you. Consequently, you may receive a contact from Leonard Levine on the issue. Additionally, I have attached comments submitted by the Gulf Coast Waste Disposal Authority that were sent to me for your use as background.

Again, thanks for meeting with us and I look forward to future opportunities to address issues with you,

Lee Fuller

Gulf Coast Waste Disposal Authority
910 Bay Area Boulevard • Houston, Texas 77058
Phone: 281.488.4115 • Fax: 281.488.3331 • www.gcwda.com

May 12, 2017

Office of Regulatory Policy and Management
Office of Policy
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail Code 1803A
Washington, DC 20460

RE: Docket ID No. EPA-HQ-OA-2017-0190

To Whom It May Concern:

On April 13, 2017, in accordance with Executive Order 13777, "Enforcing the Regulatory Reform Agenda (EO 13777)," the U.S. Environmental Protection Agency (EPA) published a request for input on regulations that may be appropriate for repeal, replacement or modification.[1] In response to that request for input, Gulf Coast Waste Disposal Authority (Authority) hereby submits these comments requesting modification of the final Effluent Limitations and Guidelines and Standards for the Oil and Gas Extraction Point Source Category that established pretreatment standards that prohibit the discharge of pollutants in wastewater from onshore unconventional oil and gas (UOG) extraction facilities to all publicly owned treatment works (POTWs). 81 Fed. Reg. 41,845 (July 28, 2016) (Oil and Gas Pretreatment Rule or Rule). The Authority requests that the EPA revise the Rule to exempt from its coverage discharges of UOG wastewater to POTWs that are designed to treat UOG wastewater. As EPA discussed in the preamble to the proposed Rule, wastewater treatment plants are currently being designed to treat wastewater from UOG operations. *See* 80 Fed. Reg. 18,570-18,571 (April 7, 2015). It is an unnecessary regulatory and economic burden on local governments to prohibit them from designing and building plants to treat UOG wastewater merely because the treatment plants would be publicly owned, and by definition, POTWs.

The Authority is a governmental entity created by the Texas legislature in 1969 to build, acquire, own and operate wastewater treatment facilities and related appurtenances and currently provides both industrial and municipal wastewater treatment services in Texas. Unique in Texas, the Authority operates specially designed industrial wastewater treatment plants under an exemption from federal categorical pretreatment standards for

[1] The goal of EO 13777 is to alleviate unnecessary regulatory burdens on the American people by identifying regulations that eliminate jobs, or inhibit job creation; are outdated, unnecessary, or ineffective; impose costs that exceed benefits; create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies; are not based upon high quality, objective and transparent data, or that derive from or implement Executive Orders or other Presidential directives that have been rescinded or substantially modified.

industrial wastewater. The exemption allows the Authority to treat wastewater from diverse industrial customers without requiring them to install and operate costly, redundant pretreatment equipment. Each of the facilities uses unique treatment configurations to optimize treatment of specific wastestreams that are received at the facility. Under the Clean Water Act the Authority is defined as a municipality and its treatment plants are POTWs.

The Authority owns and operates four regional industrial POTWs: three in the Houston area and one in Odessa, Texas. Treated effluent from the Authority's Odessa POTW is already being used by upstream oil and gas companies for fracking operations. The Authority has been approached by oil and gas operators in Texas about the potential for the Authority to design and build POTWs to treat produced water from unconventional oil and gas activities such that it can be discharged to waters of the U.S. Thus, the Authority is a perfect example of the type of local government that can design and build facilities using innovative technology but that is prevented from doing so in certain areas by the Rule.

The Rule should be modified to allow specially designed POTWs to accept UOG extraction wastewater. Wastewater treatment facilities can be designed and constructed to treat unconventional oil and gas extraction wastewater. A privately-owned wastewater treatment facility designed to treat oily wastewater is regulated as a centralized waste treatment facility (CWT). 40 CFR Part 437, Subpart B. Under Part 437, Subpart B, facilities that are regulated as CWTs may accept UOG extraction wastewater, treat it and discharge it to POTWs or discharge it directly to waters of the U.S. No technical justification exists to prohibit specially designed publicly-owned treatment plants, which are essentially publicly-owned centralized waste treatment facilities, from accepting UOG extraction wastewater, treating it and discharging it in the same manner. Yet, the Rule prohibits it. The number of local governments with interest in designing such POTWs may not be large. But, local governments are fully capable of determining whether it is in the interest of their constituents to design and construct POTWs to provide this treatment. They should not be prohibited by an unnecessary "one-size fits all" national regulation from doing so. The Rule stifles innovation to develop new treatment technologies that will result in more water remaining in the ecosystem rather than being injected into UIC wells and permanently removed from the environment.

The Authority submits that the regulatory test for whether a POTW is designed to treat UOG extraction wastewater should be whether it is designed to properly manage and treat waters generated from UOG extraction and the resultant residuals. Because the POTWs will be designed to treat UOG extraction wastewater, the Authority recommends that the EPA not promulgate technology-based categorical pretreatment standards. Instead, it should be left to the POTW to control each UOG discharge through local limits that are set appropriately to complement the POTWs treatment system. The POTW itself will be controlled by a NPDES permit that includes technology-based limits based upon the permit writer's best professional judgment and any necessary water quality-based limits to meet applicable state water quality standards.

At the time that EPA proposed the Rule in April 2017, EPA stated in the preamble that it did not have any data to demonstrate that underground injection control (UIC) well capacity nationwide would be expended and that the current management approach [use of UIC wells] will not be available in the future. 80 Fed. Reg. 18,557, 18,574 (April 7, 2017). The Authority submits that just a few days after the proposed Rule was promulgated studies were published that began linking wastewater injection wells to earthquakes in certain parts of the United States. Given the developing concerns regarding earthquakes in and the advances in UOG extraction wastewater treatment technologies, the EPA should be seeking to expand alternatives to injection rather than restrict them.

In closing, the Authority requests that the Oil and Gas Pretreatment Rule be modified to exempt from its coverage the discharge of UOG extraction wastewater to POTWs that are designed to treat pollutants expected to be present in the wastewater.

The Authority appreciates the opportunity to provide input in furtherance of the goals of EO 13777 through Docket ID No. EPA-HQ-OA-2017-0190. We invite you to contact us regarding any questions related to these comments or any other topics relevant to the goals of EO 13777.

If you have questions please contact Leonard Levine at llevine@gcwda.com or at (281) 226-1124. Thank you for your consideration.

Sincerely,

Lori Traweek

Ricky Clifton
General Manager

RC:LT/am

cc: Lori Traweek
Gordon Pederson
Leonard Levine
Sara Burgin

Lori Traweek, Asst. General Manager, is a Duly Authorized Representative of Ricky Clifton, Principal Executive Officer of Gulf Coast Waste Disposal Authority.

SharePoint Upload Path: EC > WQP > PT Program > Notification

Message

From: Michael Whatley [MWhatley@hbwresources.com]
Sent: 6/23/2017 10:09:57 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Contact information

Thanks Lee.

On Jun 23, 2017, at 4:53 PM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:

> Michael,
>
> I am now a seasoned EPA veteran of a week (well more like 4.5 days).
>
> My new contact information is as follows:
>
> Phone direct: Ex. 6
> EPA Cell phone number Ex. 6
> Main Office of Water Number: 202-564-5700
>
> Email: Forsgren.lee@epa.gov
>
> If it is a non-work matter please contact me at:
> Cell Phone: Ex. 6
> Personal Email: Ex. 6
>
> Look forward to continuing to work with you.
>
> Regards,
> Lee
>
> **D. Lee Forsgren**
> Deputy Assistant Administrator
> Office Of Water
> Environmental Protection Agency
> 1200 Pennsylvania Avenue, VW
> Room 3219 WJCiE
> Washington, DC 20460
> Phone: 202-564-5700
> Forsgren.Lee@epa.gov

Message

From: James Voyles [JVoyles@hbwresources.com]
Sent: 6/23/2017 9:04:02 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: Contact information

Thanks Lee! Good luck!

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, June 23, 2017 4:50 PM
To: James Voyles
Subject: Contact information

James,

I am now a seasoned EPA veteran of a week (well more like 4.5 days).

My new contact information is as follows:

Ex. 6

Main Office of Water Number: 202-564-5700

Email: Forsgren.lee@epa.gov

If it is a non-work matter please contact me at:

Ex. 6

Look forward to continuing to work with you.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvaina Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

Message

From: J L Forsgren [Ex. 6]
Sent: 6/23/2017 2:05:22 PM
To: 'Lee Forsgren' [LForsgren@hbwresources.com]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: FW: KP news

From: Robinson, Edward [mailto:ERobinson@janney.com]
Sent: Friday, June 23, 2017 8:03 AM
Subject: KP news

Edward A. Robinson, Jr.
First Vice President
Janney Montgomery Scott.LLc
1001 Franklin Ave
Garden City, N.Y. 11530
516-535-3400 866-224-9124
fax 516-294-8969 [Ex. 6]
erobinson@janney.com
Visit me on the web at:
www.edrobinsonjr.com

How is your Financial IQ? You can find out by taking a fun quiz on my web site and educating yourself to boot. The best part is that only you know how you did, so no worry about getting sent to Bernanke's office. I hope he passed! Go to www.edrobinsonjr.com. Click on Learning Center at the top. Click Calculators in the drop down box. Under Cash Management click Financial IQ Test.

A personal referral is the highest compliment you can give me!

Rear Admiral Mark H. Buzby, '79, to be nominated as Maritime Administrator

June 22, 2017 Andy Simpson, KP '82 Sea Year Stand Down 4

Yesterday it was announced that President Trump intends to nominate Rear Admiral (Ret.) Mark H. "Buz" Buzby, '79, as his Maritime Administrator. The president could not have picked anyone more perfectly suited for the position.

I've known Buzby since 1978 when I was a plebe candidate and he was a first classman. His leadership skills were evident then; and, long before he was commissioned as an Ensign, there was never a doubt in the minds of anyone that knew him that he would make admiral in the U.S. Navy. The only question was when — not whether — he would do so. You can see a narrative of his accomplishments and a list of his many high honors here. I suspect that one of the ones that Buzby has worn most proudly over all these years is one of the first ones he earned — the Surface Warfare Officer insignia. Buz is a shipdriver not a paper pusher. He excelled in the Navy because he lived the Academy motto: Acta non verba.

As one who 39 years ago predicted Buzby's success in the U.S. Navy, I have similar confidence predicting that Buzby's leadership of MARAD will be exemplary. This will be the first time in over eight years that MARAD has been headed by someone with true knowledge of the commercial maritime industry. This will be the first time in over eight years that MARAD will be led by

someone who truly values the US Merchant Marine Academy and its importance to the nation. This will be the first time in eight years that MARAD will be led by someone who will want to build bridges to Academy stakeholders rather than burn bridges underneath them.

Don't expect, however, that Buzby will give the Academy a free ride. This will also be the first time in over eight years that we can expect accountability at every level — from midshipmen, staff, faculty at the Academy all the way to the Maritime Administrator himself. You can expect that he will set high standards for the Academy, its personnel, and the midshipmen. You can expect that he will hold everyone to those high standards. But, you can expect that those standards will be administered fairly, objectively, competently, and with far more transparency than we have seen in the past eight years. That's all that those of us who want the Academy to thrive and regain its footing as the preeminent maritime academy in the world have been asking for.

If and when Buzby is confirmed, the crisis for the Academy will not be solved. Sea year is still not close to being fully restored; accreditation remains in jeopardy; and the Academy must still address those SA/SH issues that remain unresolved. But we can expect that Buzby will truly lead the efforts to solve those problems, effectively communicate what needs to be done, and get everyone working in unison to save the ship. Those who wish to push hidden agendas while the ship founders would be smart to abandon ship now.

Buzby will need the assistance of all stakeholders in righting the ship. That support should be freely given. All should have confidence that in addressing the issues at the Academy, Buzby has no hidden agenda — his goal will be to place the "Battle E" on the Academy's bridge wing. You can begin showing that support by writing both of your senators and urging them to act quickly in considering and approving Buzby's nomination.

Message

From: Caravelli, Margaret [mcaravelli@balch.com]
Sent: 6/25/2018 5:36:09 PM
To: Campbell, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b8c25a0c2fb648b6a947694a8492311e-Campbell, Ann]; Edwards, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0d40b5f15b2a4c438f44bbae579d829a-Edwards, Crystal]
CC: Beeman, Guy M. (MPC) [gmbeeman@marathonpetroleum.com]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Meeting Request with Assistant Administrator Ross
Attachments: RefiningEffluentGuidelinesLetter.pdf

Ms. Campbell & Ms. Edwards:
Your colleagues in the Office of Air and Radiation suggested I reach out to you both in regard to scheduling a meeting in July with Assistant Administrator Ross. This meeting would be in follow up to a letter recently sent to the Office of Water by API and AFPM regarding EPA's on-going study of effluent limitation guidelines for petroleum refining. (See attached).
Our client, Marathon Petroleum, would like to meet with Assistant Administrator Ross to discuss the letter. Copied on this request is Guy Beeman, Manager, Federal Affairs, Marathon Petroleum.
Please let us know what additional information and details you may need in regard to this request. You may reach me at Redacted

Thank you in advance for your assistance.

Regards,
Margaret

BALCH
& BINGHAM LLP

Margaret Caravelli, Partner, Balch & Bingham LLP
601 Pennsylvania Avenue, NW ◦ Suite 825 South ◦ Washington, DC 20004-2601
Redacted f: (866) 237-7416 e: mcaravelli@balch.com
www.balch.com

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 jgunnulfsen@afpm.org

June 8, 2018

Mr. Brian d'Amico
Branch Chief
Engineering and Analysis Division
Office of Science and Technology
Office of Water
United States Environmental Protection Agency
Mail Code 4303 T
1200 Pennsylvania Avenue Northwest
Washington, DC 20460

Dear Mr. D'Amico:

On behalf of our members, the American Petroleum Institute (API) and American Fuel and Petrochemical Manufacturers (AFPM) are providing the following update and comments concerning the Environmental Protection Agency's (EPA's) on-going Detailed Study of effluent limitation guidelines (ELGs) for the petroleum refining point source category. API is a nationwide, non-profit, trade association that represents over 625 members engaged in all aspects of the petroleum and natural gas industry, including exploration, production, refining, and distribution of petroleum products. AFPM is a national trade association representing nearly 400 companies that encompass virtually all U.S. refiners and petrochemical manufacturers. AFPM members operate 120 U.S. refineries comprising more than 95 percent of U.S. refining capacity. API and AFPM members are subject to effluent limitation guidelines, including those in the petroleum refining point source category, and so are directly affected by all aspects of the on-going Detailed Study.

We appreciate the cooperative and trusted relationship cultivated over the last several years we have worked together on the Detailed Study. As we have discussed on multiple occasions, API and AFPM members have invested heavily in wastewater treatment technologies where warranted for addressing local water quality concerns. API and AFPM believe EPA has sufficient data, including discharge monitoring reports, toxic release inventories, site visit reports, and the 308 Questionnaire responses, to determine that the existing effluent limitation guideline technology-based limits (TBELs), taken in combination with water-quality-based effluent limits (WQBELs), are protective of human health and the environment, and that revisions to existing petroleum refining TBELs are not warranted. We request EPA analyze the aforementioned discharge monitoring reports, toxic release inventories, site visit reports, and the 308 questionnaire responses, to inform whether it is necessary to proceed with the refinery self-

monitoring program. We believe EPA upon doing so will agree that the data support the conclusion that ELG revisions are not warranted.

If EPA determines the refinery self-monitoring program is justified, EPA should narrowly tailor the program to filling gaps in the available data. Also, EPA should remove naphthenic acids (NAs) and alkylated polynuclear aromatic hydrocarbons (alkylated-PAHs) from the scope of the sampling phase. While we have yet to receive EPA's preliminary analysis, we do appreciate the responsive nature by which EPA shared documentation for the analytical method(s) for alkylated-PAHs and NAs. That said, after thorough and critical review of the documentation by leading industry experts, our members' concerns (detailed in Attachment A) are not resolved. API and AFPM membership strongly oppose inclusion in the Detailed Study of the proprietary analytical method for naphthenic acids and the non-promulgated method for alkylated-PAHs. Data derived from these methods could result in the EPA facing substantial scientific and legal challenge.

Moreover, EPA's use of the proprietary method for naphthenic acids is in clear contradiction to EPA's recent proposed rule to strengthen transparency in regulatory science (83 Fed. Reg. 18768, April 30, 2018, "Strengthening Transparency in Regulatory Science"). The summary of EPA's proposed rule states, "The proposed regulation provides that when EPA develops regulations, including regulations for which the public is likely to bear the cost of compliance, with regard to those scientific studies that are pivotal to the action being taken, EPA should ensure that the data underlying those are publicly available in a manner sufficient for independent validation." Independent validation is clearly not possible when a proprietary analytical method is used to generate the data. In the interest of transparency, per its own proposed rule, EPA should abandon the use of this proprietary method in the Detailed Study.

API's and AFPM's remaining concerns are summarized as follows:

A. Analysis of collected data

EPA has yet to share preliminary analysis of existing data, including discharge monitoring reports, toxic release inventories, site visits, and the 308 Questionnaire responses. Sharing the analysis will clarify the necessity and scope of the sampling phase as well as attain early scientific concurrence with stakeholders. Analysis of existing data should be complete before EPA moves forward with additional data collection through the self-monitoring program.

B. Method not proved in analysis of refinery wastewaters

The method developed by Axys Laboratories, intended for use for analysis of samples in the Study, has never been tested on refinery wastewaters. The documentation provided by EPA suggests that interferences in complex matrices (e.g., refinery wastewaters and effluent), may impact data quality, giving rise to highly variable data, including false positive and/or negative results.

C. Proprietary method impairs validity of data

The proposed analytical method for naphthenic acids is neither an EPA-approved nor an industry-adopted method. In fact, it is Axys Laboratories' proprietary method which directly prevents our members from validating, evaluating or replicating any results. This is a deviation from past EPA procedures and provides neither sufficient transparency nor scientific validity to the Study.

D. Absence of documented environmental benefits

EPA has not identified the environmental concern for including NAs and alkylated-PAHs in the Study. As per the well-established procedures used in past effluent guideline studies, constituents should have an associated toxicity to determine the measurable environmental benefit that may result, if removed. The science and data for the toxicity of NAs and alkylated-PAHs are still a work in progress.

In this regard, we note that of the naphthenic acids and alkylated-PAHs that would be analyzed by the prescribed methods, the vast majority of specific compounds within these mixtures are of a size that could not cross biological membranes to cause toxicity. Typically, compounds with log octanol:water partition coefficients exceeding 6.4 are excluded from toxicity assessments by the target lipid model approach. Quantifying these analytes within "total NAs" or "total alkylated-PAHs" introduces error/bias.

EPA should make available API/AFPM for our review any petroleum refinery toxicity identification evaluation (TIE) data demonstrating naphthenic acid and/or alkylated-PAH toxicity constituting the basis for inclusion of these broad classes of analytes within the Detailed Study.

API and AFPM members believe in due diligence and support EPA in developing sound science. We therefore strongly recommend that EPA remove naphthenic acids and alkylated-PAHs from the Detailed Study. Rather, we recommend that these constituents and their analytical methods be addressed in a project outside of the Study, in which the industry will be a willing participant. A separate project would also allow EPA to follow the appropriate public notice and comment period required to gain method approval. API and AFPM will be happy to discuss the concerns and suggestions in a face-to-face meeting and come to an agreement that addresses the need for validated, reproducible science in support of environmental goals.

In summary, API/AFPM believe refining ELG revisions are not warranted. If EPA continues the Detailed Study, EPA should narrowly tailor the refinery self-monitoring program to filling gaps in the available data. And API/AFPM strongly recommend EPA remove naphthenic acids and alkylated PAHs from the Detailed Study. API/AFPM would participate with EPA in a project outside the Detailed Study to address analytical methods for naphthenic acids and alkylated PAHs.

If you have any questions about these concerns or would like to arrange a face-to-face meeting, please feel free to contact us.

Sincerely,

Roger E. Claff
Senior Scientific Advisor, API

Jeff Gunnulfsen
Director, Security and Risk Management Issues, AFPM

Attachment

cc: R. Wood, EPA
D. Ross, EPA
L. Forsgren, EPA

Attachment A - Report to API and AFPM on Issues with the EPA Proposed Analytical Methods for Groups of Naphthenic Acids and alkylated-PAHs, and the Potential Impact on an ELG Investigation

Introduction

The American Petroleum Institute and American Fuel and Petrochemical Manufacturers (API/AFPM) received a number of documents from the U.S. Environmental Protection Agency (EPA) concerning experimental methods used by AXYS Laboratories for the analysis of naphthenic acids (NAs) and alkylated polynuclear aromatic hydrocarbons (PAHs). Two documents were brief method summaries of the laboratory's analytical procedures. Also included in these documents were Inter-laboratory studies involving these two analytical methods. API/AFPM has examined these documents in considerable detail, and has a number of concerns about these methods, as described in the following report. Our overall conclusions are that these methods are currently highly experimental and should not be used to evaluate refinery wastewater or develop wastewater regulations for the refinery industry.

I. Summary of Issues

1. The AXYS method for naphthenic acids is proprietary to AXYS. As such, EPA did not and could not provide the method procedures for review and comment. EPA intends to require use of the AXYS naphthenic acids method in the petroleum refining detailed study refinery self-monitoring program, notwithstanding the method is proprietary to AXYS. This intention is in clear contradiction to EPA's recent proposed rule to strengthen transparency in regulatory science (83 Fed. Reg. 18768, April 30, 2018, "Strengthening Transparency in Regulatory Science). The summary of EPA's proposed rule states, "The proposed regulation provides that when EPA develops regulations, including regulations for which the public is likely to bear the cost of compliance, with regard to those scientific studies that are pivotal to the action being taken, EPA should ensure that the data underlying those are publicly available in a manner sufficient for independent validation." Independent validation is clearly not possible when a proprietary analytical method is used to generate the data. If EPA seeks transparency, per its own proposed rule, EPA will abandon the use of this proprietary method in the petroleum refining detailed study.

2. The exact definitions of compounds to be included in both the naphthenic acid compound and alkylated PAH compound groups are still not decided, and the analytical lists for each vary widely. In the Environment Canada Inter-laboratory Study on Alkylated PAHs, part of the conclusion states: "This first assessment of the current state of the PAH and alkyl-PAH analysis of environmental samples was rather ambitious. Over 100 separate measurands were asked to be reported in 3 separate matrices. Future studies will focus on a target list more closely approximating the one found in ASTM D7363-11." They also stated they should focus on one matrix per study. This is a concession that the analytical method is unwieldly and matrix

effects are poorly understood, and the reported quantitative results for many of the PAH homologs were extremely poor.

3. For the NAs, Environment Canada is promoting the concept that aromatic naphthenic acids should be included in the "total naphthenic acids" analytical categories. The aromatic NAs are not currently included in the category, and API/AFPM strongly opposes their inclusion. If they were included with other NAs, this would imply that the toxicological and physical-chemical properties of aromatic NAs are basically the same as the properties for the NAs with no aromatic rings in their structure, and this comparability is not known or understood at this time. To determine this, a dependable and vetted method must be developed to analyze aromatic NAs as separate entities, so that their properties can be determined. There currently is no EPA peer reviewed and approved method for either the non-aromatic or aromatic NA categories.

4. The summary AXYS Analytical Method for NAs provided by EPA (the version was dated February 15, 2018) is an extremely complex and detailed method that attempts to separate the NAs in aqueous samples into 60 different categories of compounds. API/AFPM has concerns about several specific issues, some of which may have been overlooked in the necessarily abbreviated AXYS summary overview of the method. Some of our concerns and reservations are discussed below. All of these concerns and others are discussed in the full report.

   - The calibration curve for all sixty categories of naphthenic acid compounds is only provided by a single compound: 1-pyrenebutyric acid, which does not even qualify as a naphthenic acid due to the aromatic rings in its side chain. Further, 1-pyrenebutryic acid is used to generate response factors for the quantification of target compounds. Using a single compound to calibrate perhaps a hundred compounds, without evaluation of consideration of the various structural groups, will result in response factors orders of magnitude apart and will generate a highly biased data set.

   - The summary method states that several of the sixty categories either can or do contain some aromatic NAs, particularly in categories where the "z value" equals minus ten or minus twelve. It is unclear if the method can recognize which compounds are aromatic, but it appears the answer may be no, because otherwise they could be subtracted out from the total for each group. It is also unclear whether additional aromatic compounds may be present in some of the other analytical groups but cannot be detected as such by molecular weight.

   - The summary provides no discussion, for example, of the QC controls on the completeness of the derivatization reaction. We are concerned that di- or tri-carboxylic acids might get counted if only one carboxyl group is derivatized, while mono-carboxylic acids might be missed. Conversely, if two or three carboxylic acid groups per molecule do get derivatized, could molecular weight (MW) fragments of an original di- or tri-carboxylic acid be mistaken for some of the mono-carboxylic acids that are the intended analytical target?

- We note that for at least two of the chromatograms depicted on page six, there seems to be significant interfering overlap of some peaks within the same molecular weight. We are concerned that the interference could be many times greater for actual refinery wastewater, and that these interferences might be "double-counted" in any final total result, especially in highly complex wastewater matrices.

5. For naphthenic acids, the two Inter-laboratory Studies provided by EPA from Environment Canada did not provide any comparison of the analyses of different categories of naphthenic acids. The quantitative assessment was limited only to "total naphthenic acids" and included analyses by several different methods. For total NAs, the AXYS laboratory was evaluated with a somewhat high overall recovery for total NA (115-120%), which was typical of the labs using some form of liquid chromatography/mass spectroscopy (LC/MS) method in this study. (We are again concerned whether in more complex wastewater samples, this slight high bias might be much higher.) Given the dates of these studies (2012 and 2016), it is unclear whether the version of the AXYS Method (dated 2/15/18) described in the summary provided by EPA/AXYS was the same version as used for these two earlier studies.

6. Conclusion Number 8 for the 2016 Naphthenic Acid Inter-laboratory Study stated the following: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." API/AFPM agrees that this is needed, and has stated that actual refinery samples, especially untreated wastewater samples, can greatly complicate the analytical process for many well established methods, let alone experimental procedures currently being developed.

7. EPA provided one Inter-laboratory Study for Alkylated PAHs. Most of the laboratories performed quite well on the traditional single-compound PAHs, with on average about a 22% Relative Target Standard Deviation (RTSD) per compound for aqueous samples. However, the story was entirely different for the alkyl-PAH homolog groups. For aqueous samples, the average RTSD was extremely large at 80%, with some PAH homolog groups being well over 100% RTSD. If the standard data acceptance criterion of plus or minus three standard deviations is applied to this data, it is difficult to describe the analysis of these PAH homologs as being even semi-quantitative. The literature documents errors associated with EPA 8270, resulting in overestimation of alkylated PAH concentrations (Wilton et al. *Analytica Chimica Acta* 977 (2017), pp. 20-27).

8. We are also concerned about how toxic weighting factors (TWF) might be developed and applied to analytical groups or subgroups (such as naphthenic acids or alkylated PAH compounds) that could include hundreds of different compounds. Typically, toxicity testing is performed using pure individual compounds; this assures that during toxicity testing, the

source of any toxicity can be attributed to that specific compound. We are concerned that for large groups of unidentified compounds, any perceived TWF observed during toxicity testing could be due to a very few compounds that are not representative of the overall group or are only present in that group of compounds when analyzed from a specific source. These few compounds may or may not be present in an analytical group from other sources or other types of wastewater. It should be noted that in Conclusion number 6 to the 2016 total Naphthenic Acid Inter-laboratory Study, Environment Canada expressed concern that the commercially available standard, Merichem Naphthenic Acid Solution (used to spike the samples, and presumably a similar mixture might be used for any toxicity testing), did not seem to match the contaminants in wastewater at the Athabasca oil sands region (sample OSPW in the study). By inference, this comment suggests that if the current naphthenic acid standard mixture solutions are not representative of oil sands process-affected water (OSPW), they are unlikely to be representative of other types of water matrices such as treated refinery wastewater either and therefore are inappropriate for determining what constituents might cause toxicity in refinery wastewater.

II. Issues Concerning an Exact and Appropriate Definition of the Compounds Being Analyzed for both Naphthenic Acids and alkyl-PAH Homologs

Based on published scientific literature discussing the analyses of both Alkylated PAHs and Naphthenic Acids, there are significant discrepancies as to exactly what types of compounds are considered appropriate to include into each of these groups. The grouping of compounds varies between different agencies (EPA, Canada, various US states), environmental papers, and also with the laboratories analyzing the samples (even in the inter-laboratory study by Environment Canada). There should be a clear and vetted definition of exactly what is intended to be measured and included within each of these broad analytical groups, and only peer-reviewed and approved methods should be used.

A. Naphthenic Acids: Strict Definition and Potential Issues

The AXYS Laboratory definition of a naphthenic acid is any configuration of fatty acid chain that 1) contains between twelve and twenty-one carbons, 2) that does not contain any aromatic carbon rings, 3) has only a single carboxylic acid group, and 4) is either saturated or has a degree of unsaturation defined by a negative "z" number that can equal the even numbers 0, -2, -4, -6, -8, -10, or -12, with each negative even number progressively corresponding to the loss of two more hydrogen atoms due to double bonds or alkyl carbon rings. The general formula is: $C_nH_{2n+z}O_2$. In common language, this definition and formula includes most naturally occurring fatty acids, and these can be saturated (maximum number of hydrogens: $z = 0$), monounsaturated (missing two hydrogen atoms due to a double-bond or cyclic non-aromatic ring: $z = -2$), or polyunsaturated (multiple double bonds, or more rarely, multiple cyclic, non-aromatic rings: z = higher even negative numbers up to -12). This definition of naphthenic acid (and, perhaps, any definition) is far from universally held, making data comparisons nearly impossible. There are some other

definitions in use (or that have been used) that utilize greater or lesser numbers of carbon atoms, a larger number of carboxylic acid groups, the presence (or absence) of some cyclo-alkane compounds, or different degrees of saturation. This particular definition used by AXYS might be due to the analytical method being used, or to the industrial wastewater being studied, or to certain common chemical properties these acids have in common. However, this definition of naphthenic acids is already very broad and can include hundreds or even thousands of compounds (including isomers).

Most of these fatty acids that meet this strict definition are essential components in vegetable oils, dairy products, animal fats, and also in processed foods such as dehydrogenated or polyunsaturated fats or fatty acids and are unlikely to be toxic. However, there evidently is a movement to broaden the definition of naphthenic acid to include carboxylic acids that contain aromatic rings, and Environment Canada has come out in favor of this. (Aromatic carbon rings are the primary constituents of benzene and PAH compounds.) API/AFPM would oppose such a move, because these compounds, if present in treated refinery wastewater, could possibly have significantly different characteristics from the normal aliphatic NAs that are presumably the main target for the analysis. API/AFPM opposes any such change on the grounds that any toxicity that might be measured could be due almost entirely to the inclusion of these aromatic compounds, which might then be transferred to other aliphatic NAs that have little or no toxicity to humans. (The human toxicity factor, or carcinogenicity, is nearly always the main driver when organic compounds are assigned a high TWF.) API/AFPM believes that the compounds that contain aromatic rings in their side-chains might have significantly different toxicological and physical-chemical properties than the standard defined naphthenic acids. Therefore, if they are found to be present in refinery wastewater, they should be evaluated separately from naphthenic acids. This is discussed in more detail in the portion of this report on the potential assignment of TWFs by EPA to analytical results that represent large groups of related compounds.

B. Alkylated PAHs: Definition has apparently been changed several times in recent years

In just the last few years, there have been numerous papers published discussing alkylated PAHs, and nearly all of the papers are different in assuming which types of compounds are to be included under that label. Many of the compounds discussed clearly do not fit the strict scientific definition of alkylated PAHs, i.e. a group of fused hydrocarbon aromatic rings (usually two to five) with substitutions of alkyl groups (methyl, ethyl, propyl, etc.) at some of the available locations around the fused rings. Some of these additional compounds have perhaps incorrectly been justified for inclusion in the group because they are frequently associated with PAH compounds, such as being common components of coal tar (which is to a large extent made up of PAH compounds). Others have even less justification for inclusion in the group. It appears that EPA is currently favoring the list of analytes that is provided with the AXYS Method (MSU 21C, provided by EPA).

Table 1 is a list of compound categories that are or have been suggested to be included in a list of alkylated PAH compounds that could be analyzed. The top three categories of compounds have been included in the AXYS analytical list, along with the traditional single compound PAHs. Compounds towards the bottom of Table 1 are not currently included in the AXYS list of analytical categories but are discussed in various other papers as possibly being identified as alkylated PAHs. It is unlikely that there is any single laboratory currently analyzing all of the compound/group categories in Table 1, and we believe it unlikely that any laboratory is using a method where all possible combinations within each compound group category are analyzed. Even AXYS and the other participants in the Environment Canada Inter-laboratory study (for alkylated PAHs) did not each perform the analysis on all of the over 100 "measurands" (combined individual compounds and homologous groups) requested by Environment Canada.

Table 1: Compounds/groups that do not meet the strict definitions of "PAH" or "alkylated-PAH"

Compound/Group	Comments
Biphenyl (plus alkyl-substituted Biphenyls)	Not really a PAH, as there are no fused rings. However, it is a common component of coal tar, and is therefore found with PAHs. They are on the AXYS analytical list.
Various alkyl substituted PAHs, also termed "alkyl-PAH Homologs"	While these type compounds do meet the "alkyl-PAH" definition, these are not analyzed as individual compounds, but as compound groupings. Each group can contain dozens of compounds, and there can be any number of different groupings possible. (No single laboratory analyzes for all possible alkyl-PAH groupings.) The AXYS Laboratory Analytical List does include an intermediate number of alkylated PAH groups, more than some laboratories, less than others. API/AFPM does not believe these groups should be included, because the quantitative analysis of the PAH homologs in aqueous samples in the 2015 Environment Canada Inter-laboratory Study was almost a complete failure (as described later in this report).
Dibenzothiophene, (plus alkyl-substituted DBTs)	This is a heterocycle (a sulfur atom in the middle ring), and therefore not a PAH. However, it is considered to be chemically similar to anthracene, and is frequently detected in heavy oil fractions. They are on the AXYS analytical list.
Dibenzofuran, other oxygen heterocycles	These are listed in the paper source below[1], and dibenzofuran is included in the alkyl-PAH listing for several laboratories, but these are not PAHs, since they contain oxygen in at least one of the fused rings. The AXYS list does not include dibenzofuran or any other oxygen heterocyclic compounds.
Nitro-pyrene, other nitro-substituted compounds	Some papers list these, and the Minnesota Pollution Control Board (MPCB) incorporates them into their "extended PAH" list. Nitro-substituted compounds have their own chemistry (explosives). These also can be groups of compounds. These are not included on the AXYS analytical list.

Nitrogen heterocycles such as Carbazole, dibenzocarbazole, dibenzoacridines (including groups of alkyl-substitutions)	Minnesota Pollution Control Board (MPCB) incorporates several of these nitrogen heterocyclic compounds into their "extended PAH" list. However, these all contain nitrogen in at least one of the aromatic rings, which greatly alters the chemistry of these compounds. They are polynuclear and aromatic but are not hydrocarbons. These are not included in the AXYS list.

[1]"Time to Say Goodbye to the 16 EPA PAHs? Toward an Up-to-Date Use of PACs for Environmental Purposes" Jan T. Andersson and Christine Achten (2015)

API/AFPM believes it is impractical to analyze samples for all of the possible combinations of compounds and compound groups in all of the above categories. The result would be hundreds of "measurands" (combined single compounds and homologous groups) where the compound groups could each further represent hundreds of additional compounds.

API/AFPM is also opposed to the analysis of alkyl-PAH homologs and any other groups of PAH-like compounds analyzed as a group, because they are not individual compounds, and the 2015 inter-laboratory study clearly indicates that currently they cannot be quantitatively analyzed. This would also apply to other compound groups that may not have been analyzed in the 2015 Inter-laboratory Study. Also, analogous to the argument for naphthenic acids, any toxicity assigned to a mixed group of alkyl-PAH isomers could be dominated by only one or a few compounds that may have unique features that are grouped with a larger number of compounds that have negligible toxicity. It should be noted that for the "traditional 16" PAH compounds, the assigned TWF ranges from 100 for benzo(a)pyrene to 0.008 for acenaphthylene. That is a TWF range of greater than four orders of magnitude. This problem with grouping alkyl-PAHs is discussed further in the portion of this report on the potential danger of assigning TWFs by EPA to analytical results that represent large groups of related compounds.

API/AFPM is not opposed to the analysis of individual non-PAH compounds if EPA can justify that such compounds can be or are often associated with other PAH compounds with similar physical-chemical and toxicological properties and an appropriate, recognized and vetted analytical method can be employed. We note that the AXYS analytical list already includes the analysis of biphenyl and dibenzothiophene as separate compounds. The individual compounds dibenzofuran and carbazole are already commonly included on many laboratory semi-volatile organic analytical lists and will likely be analyzed as independent compounds anyway. As to the other heterocycles, we think EPA should justify the investigation of those compounds, as some of them seem unlikely to be present and are rarely if ever analyzed by most laboratories.

III. Analytical Methods Used for Naphthenic Acids: Analytical Problems and Inter-laboratory Studies

Currently, all environmental laboratories only analyze naphthenic acids either as total naphthenic acids, or as groups of compounds with the general formula $C_nH_{2n+z}O_2$. There are no calibrations

performed that are utilized to quantitate individual compounds, and the type and number of calibration standards prepared for different compound groups varies by the method and laboratory using them. Naphthenic acids (NA) can be analyzed as a single result reported as "total naphthenic acids" using Fourier-transform Infrared Spectroscopy (FTIR, a type of infrared spectrophotometry). Using LC/MS methods, it may be possible to calibrate and analyze for some individual NA compounds, however each group of NA compounds can contain dozens or even hundreds of specific compounds and isomers, making this a daunting task. Laboratories utilizing an LC/MS method often simply report "total naphthenic acids" as the sum of the NA concentrations measured within each NA subgroup that is analyzed by their method.

A. A Brief Description of the AXYS method for analyzing NAs

The AXYS Method is a very complex and ambitious proprietary method for the measurement of naphthenic acids. EPA provided API/AFPM a short summary of this complicated method suitable for public review (MSU-077C, R01, dated February 15, 2018) that describes in general terms the various steps involved. Due to the very recent date assigned, it is not clear whether this exact version of the method was used in either of the inter-laboratory studies (performed in 2012 and 2016) provided by EPA and discussed later in this report. The general procedure is presented in the following.

Aqueous samples can be extracted in the laboratory, or samples can be collected in the field using up to three Polar Organic Chemical Integrative Sampler (POCIS) sampling disks, (which can be used to concentrate samples if desired). Each extract is derivatized with 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide hydrochloride (EDC), to form the corresponding naphthenic acid-EDC derivatives. This means that there is a reaction with the carboxylic group, so that an acid-EDC complex is generated. This step is presumably performed to enhance the solubility, chromatography, and/or mass spectral pattern of the naphthenic acids. Analysis of the extracts is performed by high performance liquid chromatography (HPLC) with triple quadrupole mass spectrometer detection (LC-MS/MS). A fully detailed analysis report using this method would contain values for 60 different analytical groups of naphthenic acids (an amazing amount).

These 60 groups fit the generic formula $C_nH_{2n+z}O_2$, but are restricted as listed in Table 1 of the provided MSU-077C, R01 document (and reproduced later in this report):

- The number of carbon atoms allowed for this NA analysis are only in the range of C12 through C21.
- The carbon chain should not contain aromatic rings.

- The unsaturation factor "z" for the number of hydrogens can only be zero (saturated fatty acid), or negative even integers -2 (unsaturated), -4, -6, -8, -10, or -12 (these last are polyunsaturated). Not every carbon number includes this complete list of "z" values; this serves to limit the number of NA groups to 60 categories. Each category is capable of containing dozens or sometimes hundreds of compounds meeting the same generic formula for the group.

- The AXYS method analysis is supposed to be limited only to parent ions that originally had a single carboxylic acid group (that is the CO_2H element prior to derivatization).

B. Possible issues with the AXYS method for naphthenic acids

We are concerned about several potential problems when this method is applied to actual refinery wastewater.[1] Some of these problems may be left out of the short summary provided, but others might have a major effect on the interpretation of these results, and how they might be used for development of an effluent limitations guideline (ELG). The following bullets identify these issues. They are arranged roughly in order of concern.

1. The method only uses a single calibration curve to quantitate all 60 of the different analytical categories of naphthenic acids, and the calibration uses only a single compound, 1-pyrenebutyric acid (injected at three concentration levels). This particular compound does not even qualify as a naphthenic acid by the scientific definition of that class of compounds, due to the presence of an aromatic PAH group in the side-chain. This type of representative calibration is to our knowledge never employed when the compound itself is not included among the targeted analytes. The inter-laboratory studies discussed below provide little comfort in this area, since those studies are only evaluated on the total naphthenic acid concentration, and not on the 60 different sub-categories included in this method. For the total NA analysis, the AXYS laboratory performed reasonably well (an overall moderately high bias, as did most of the laboratories using some kind of LC/MS method), but for individual categories, the results might be very high or very low. We do not know how much importance EPA might place on individual naphthenic acid categories that have been measured, but if there are great differences in toxicity for these categories, this could be problematic. We realize there are other QC controls, including a Merichem Refined NA Mix that may give reproducible results, however, it appears that the individual compounds contained in this commercial mix are unknown.

[1] Please do not assume that any of the identified problems are a reflection on AXYS Laboratories, which we know is recognized as one of the premier environmental research laboratories in North America. Our concerns are about an experimental method still under development, its possible weaknesses, and how some of the results of this method might potentially be used in the development of a new refinery ELG by EPA.

Table 2. Reproduction of Table 1 in AXYS Method MLA-077: Molecular weights of NA groups that are analyzed with this method

n (C #)	Z # (hydrogen deficiency)						
	0	-2	-4	-6	-8	-10	-12
12	200	198	196	194		--	--
13	214	212	210	208			--
14	228	226	224	222	220		--
15	242	240	238	236	234	232 *	230 *
16	256	254	252	250	248	246	244 *
17	270	268	266	264	262	260	258 *
18	284	282	280	278	276	274	272
19	298	296	294	292	290	288	286
20		310	308	306	304	302	300
21		324	322	320	318	316	314

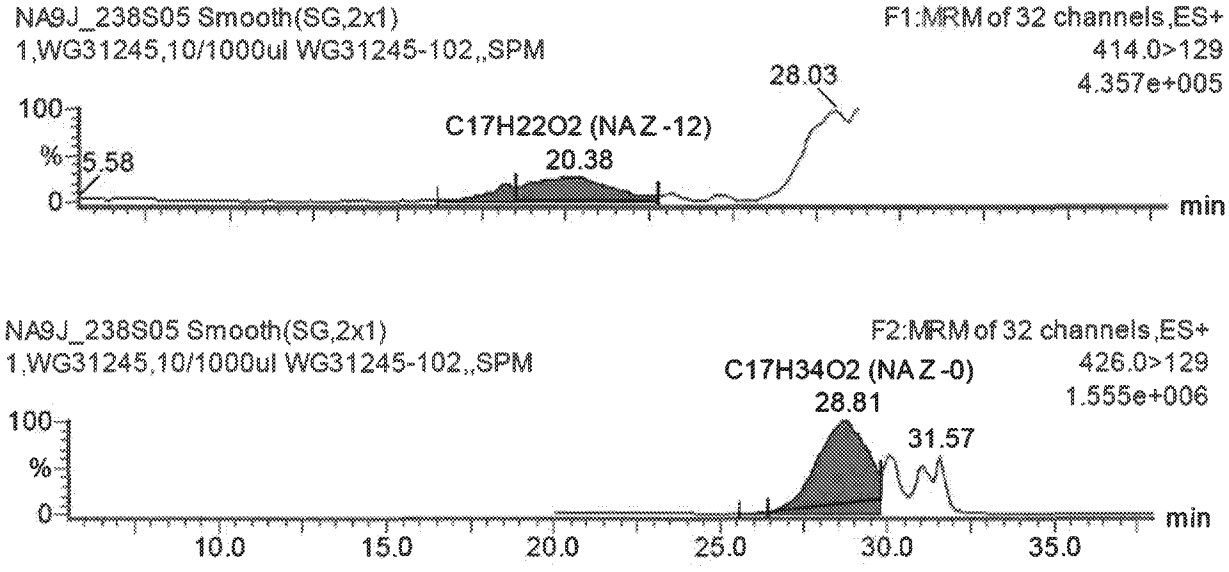
* Compounds that don't fit the strict definition of NA as they contain at least one aromatic ring may be included.

2. Table 2 is a copy of Table 1 from the AXYS Method (page 1 of the MSU-077C summary document. The table shows each of the sixty separate analytical categories of naphthenic acids reported to be analyzed using the AXYS method. Note that four of the 60 NA categories are asterisked, stating that it is possible that some of the compounds within those analytical groups might contain one or more aromatic rings, which do not fit the "strict definition" of a naphthenic acid. This also seems to suggest that the commercial mix "Merichem NA" that the method uses for control samples may also contain some aromatic acid species and possibly some di- or tricarboxylic acids.[2] Because the laboratory states that these aromatic compounds would be included within these categories, this logically seems to mean that the AXYS method cannot recognize whether the observed unsaturation in a particular parent mass spectral ion is caused by double bonds or by an aromatic ring (at least not by the molecular weight of the ion alone). A six-carbon aromatic ring is unsaturated by the equivalent of six hydrogens, so it would have a "z" number of "-6", before it is attached in some manner to the rest of the fatty acid chain, but this could be masked by the "z" factor present in the rest of the carbon chain. If the presence of aromatic rings could be determined by the method, then presumably such compounds could have been subtracted from the results for these analytical groups. This could have significant implications if the toxicological properties of NA's with aromatic rings are significantly different than those of the

[2] Environment Canada has concerns about the representativeness of the Merichem NA mixes compared to oil-sands process-affected water as described later in this report.

aliphatic NA compounds. Furthermore, if the presence of an aromatic ring in the carbon chain of an NA cannot be recognized, how does AXYS know whether there could be other aromatic NAs included within some of the other categories?

3. Ionization efficiency of NAs change with the structure of the compound and the matrix of the sample. This variation in ionization efficiency renders HPLC MS with electrospray ionization problematic for such complex mixtures.
4. On page six of the AXYS method summary, there are a series of seven chromatograms of groups of NAs containing 17 carbons, showing (presumably derivatized) mass values with parent MWs of 414 through 426. Presumably because these peaks are generated by a number of different isomers, the peaks have very broad retention times. Most are greater than five minutes, and all have undulations within each peak. In particular, in the mass 414 chromatogram the peak that crests at 20.38 minutes seems to have its low end retention time (RT) window clipped short due to another peak of the same mass appearing within the original RT window. Also, for mass 426, the peak at 28.81 minutes is clearly significantly influenced by some later peaks of the same mass, and apparently a manual integration was necessary. EPA requires all manual integration to be well documented. A highly experienced analyst can exercise his or her professional judgement on these integration issues (provided there is appropriate documentation), but this has its limits, and may become impossible if the chromatograms become too complex. Below are the chromatograms in question, for MW 414 and MW 426.



5. We do not know whether the chromatograms from page 6 (depicted above) are of a quality control (QC) sample or a real oil sands sample. Nor do we know if a smoothing

function has been used, as suggested by the label, "smooth," and if so, if that practice altered the analytical results. Particularly for untreated refinery wastewater which can be generated from many types of raw crude and be products of differing refinery processes, it is likely that these chromatograms could become far more complex, with substantially more likelihood of uncertainty entering into the analysis. Environment Canada mentioned this as one of their conclusions to the 2016 Inter-laboratory Study they conducted. They stated: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." Presumably this would also include refinery wastewater matrices for studying refineries. The 2016 Inter-laboratory was focused on oil-sands process-affected water and is not representative of refinery wastewater, either untreated or treated.

6. We note that this AXYS summary does not discuss any QC analytical check on the verification of the completeness of the derivatization efficiency, or address how the derivatization might perform on actual refinery samples, which presumably may contain di- or tri-carboxylic acids. Does the instrument recognize di and tri-carboxylic acids, even if they form fragments that contain only one carboxyl group? Does a fresh reagent fully derivatize all carboxyl groups in any compound? What if only one of the carboxylic groups is successfully derivatized in a di- or tri-carboxylic acid? Could the parent compound, or a potential mass ion fragment of the parent compound, be mistakenly identified as a monocarboxylic acid, and counted as a naphthenic acid? How is it determined whether stored derivatization reagent has become less effective over time? Finally, even if di- and tri-carboxylic acids are not included in the NA quantification when using the AXYS method, they possibly still could be present in acid extractions from samples containing naphthenic acids, which may have implications when performing toxicity studies on these extractions.

C. Inter-laboratory studies of the analysis of naphthenic acids

There were two inter-laboratory studies performed for the naphthenic acids analyses, one in 2012, and a second in 2016. However, the primary focus of both of these studies was the analysis of "total naphthenic acids" and only the total NA values were evaluated as to accuracy and precision among all of the participating laboratories. Triplicate samples were typically provided, and the laboratories reported their individual results as well as the mean of their triplicate analyses. (The mean value reported was the value that was evaluated in most cases.) The samples included reagent water blanks, spikes generated from Merichem naphthenic acid reference material, and other samples were of oil sands process-affected waters (OSPW). There were two main categories of analyses for total NA. An FTIR Method that can only give results as total naphthenic acids was used by many of the laboratories. There were a variety of LC/MS and LC/MS-MS methods also used by several laboratories. While these methods can achieve varying degrees of speciation

depending on the method, they also can be used to obtain a total NA value by summing up the values from all of the measured subcategories of NAs. Environment Canada evaluated the score for these laboratories only using the total naphthenic acid results since the degree and type of speciation varied greatly among the different laboratories and was evidently not comparable.

The 2012 Environment Canada Naphthenic Acids Inter-laboratory (ECNAIL) study found that some of the laboratories using both FTIR and some of the LC/MS methods could reasonably reproduce total naphthenic acid results. There was some speciation information displayed in Appendix A of the 2012 study from the various GC/MS, LC/MS, and LC/MS-MS methods, however the speciation was limited to different degrees of saturation (the "z" factor, even numbers zero through twelve, forming seven speciation categories). These categories did not differentiate based on the number of carbon atoms. The 2012 report concludes regarding speciation of the NA compounds: "The data demonstrated the capability of certain methodologies to characterize NA by carbon number as a percentage of the Total $C_nH_{2n+z}O_2$ species, however, complexity of the speciation data made comparative evaluation impractical."

The 2016 ECNAIL study report was smaller, involving only nine laboratories, but it did not address potential speciation of the NAs. Four of the nine laboratories used an FTIR method. Five of the nine laboratories used some variant of LC/MS or LC/MS-MS methods, but it is unknown whether any of these methods were identical to one-another. On average, the FTIR methods were biased low at 78% of the target values on average, with every FTIR laboratory having a negative bias. The LC/MS labs were biased somewhat high, on average 108% recovery, but the range of biases by laboratory was -19% on up to +40% (that is, the average percent recovery by laboratories performing an LC/MS method ranged from 81% to 140%). The OSPW samples had on average lower recovery by all methods, averaging 67% recovery, while the Merichem NA standard reference material had on average 113% recovery by all methods. These values demonstrated that for "total naphthenic acids" these analyses in general were reasonably quantitative among the different laboratories, but there were some significant differences depending on the sources of the reference materials.

The AXYS laboratory participated in both the 2012 and 2016 study. In both studies, they tended to be biased somewhat high for total NA (approximately +20% of the target values on samples with NA values greater than 1 mg/L), and they were approximately in the middle of the ranges for laboratories using one of the LC/MS or LC/MS-MS methods. Their in-lab precision was good, and they had no outlier results from either study.

The conclusions from the 2016 study (pages 18 and 19) contain some interesting comments that are reported below, roughly in order of importance:

- Environment Canada states in conclusion number 7: "The current definition of Total Naphthenic Acids ($C_nH_{2n+z}O_2$) as used in this study needs to be broadened to include aromatic

O2 species." API/AFPM does not agree with this conclusion, as described in Section VI of this report.

- Conclusion number 3 states: "The correlation coefficient for all laboratories is >0.96 for all laboratories indicating that main factor in any laboratory imprecision is a bias of some kind as opposed to some random errors or blunders in the laboratory." API/AFPM agree with this conclusion. Among the items that likely creates an inherent bias is trying to use a single calibration material to quantitate mixtures of compounds that can differ significantly in their overall makeup from site to site. It should be noted the calibration ranges were different across all of the methods in the interlaboratory study, with some being outside of the measured analyte range. This practice results in an inherent bias in the study.

- Conclusion number 6: "There is a need to establish a traceable quantification standard to achieve consistent analytical results. Merichem® is a commercially available mixture of naphthenic acids that allowed for an inter-laboratory comparison of laboratories' abilities to measure Total NA. It is currently the best available representation of the Total Naphthenic Acids ($C_nH_{2n+z}O_2$) which are reported in this study. However, it needs to be replaced with a commercially available, traceable material (single component or mixture) that better represents the NA components found in relevant matrices of the Athabasca oil sands region (e.g. OSPW)." This is also an important issue for API/AFPM. The assay information on these Merichem NA mixtures (from Appendix A of the 2016 study) indicates only that they are 95-99% naphthenic acids, and 1-5% petroleum distillates. It has a total acid number of 191 (with an acceptance range of 170-210). There is no information whatsoever as to specific quantities of which categories of naphthenic acids are included in this material, and it is not a traceable standard.

- Conclusion number 10 also discusses reference materials: "An OSPW derived reference material is required that can be used to compare without bias the various methods being used for NA analysis." API/AFPM is very concerned about this. Does this mean that each site or each refinery might need its own reference material for calibrations?

- Conclusion number 1 from the 2016 study discusses how the results from this study are significantly improved over much poorer results that were obtained from a 2014 inter-laboratory study for naphthenic acids, where the overall RSD values for the samples varied from 64% to 168%, with only the three highest samples having RSDs below 100%. (API/AFPM believes that if these RSD results are correct, this constitutes unacceptable method performance.) **This 2014 naphthenic acid study was not included in the information given to API/AFPM.**

- Conclusion number 8: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." API/AFPM agrees that this is needed, and has stated that actual refinery samples, especially untreated wastewater samples, can greatly complicate the analytical process for many well-established methods let alone these AXYS experimental procedures currently being developed.

IV. Discussion of Analytical Methods for Alkylated PAH Compounds and the 2015 Environment Canada Inter-laboratory Study

A. Overview of methodology

The analytical list for "alkylated PAHs usually includes the 16 standard EPA priority pollutant PAHs, "extended PAHs" (meaning additional single-compound PAHs or PAH-associated compounds), and alkylated PAHs, which are analyzed as individual groups of alkyl-substituted PAH homologs. Most laboratories use a GC/MS instrument as is used in EPA SW-846 Method 8270D.[3] Many labs operate the MS in a selective ion monitoring (SIM) mode to obtain greater sensitivity, with the possible drawback being they do not obtain a full mass spectrum of each compound. The SGS-AXYS Laboratory Method MSU-21C uses their MS operating in an Electron-Impact Ionization (EI) mode using Multiple Ion Detection (MID). We are not currently familiar with the advantages/disadvantages inherent to this type of MS setting. The main point here is that the methods used by the participating laboratories in the 2015 study discussed in Section B below, though similar in instrumentation, may not be exactly the same. In Section I of this report, we have also discussed that there is ongoing debate within the analytical community as to which extended PAH compounds and alkylated PAH homologs should routinely be included in the parameter list for this determination.

B. 2015 environment Canada inter-laboratory study shows major problems in quantifying the groups of PAH homologs

Environment Canada performed an Inter-laboratory Study for Alkylated PAH compounds, the report of which is dated April, 2015. API/AFPM received a copy of this report from EPA. Three sample matrices were tested (with four samples provided for each matrix): extract samples consisting of three different diluted oils, one National Institute of Standards and Technology (NIST) standard in methylene chloride, and synthetic soils samples spiked with three different oil sources. Four samples were provided for each matrix. Our primary concern here is on the four aqueous samples, but we also include a comparative discussion on the analyses of the extract that is spiked with the NIST certified mixture.

The results for the aqueous samples in this inter-laboratory study paint a completely different picture of two types of PAH analyses (see Table 3 below, which is a compilation of the aqueous results from Tables 3 and 4 on pages 10 and 11 from the 2015 Environment Canada Inter-laboratory study on Alkylated PAH analyses). As expected, all of the laboratories analyzed the parent PAHs (all single compounds, each with their own calibration curves) and achieved

[3] EPA, *Test Method for Evaluating Solid Waste: Physical-Chemical Methods Compendium (SW-846)*, Office of Land and Emergency Management, Washington, D.C.

acceptable Relative Target Standard Deviations (RTSD), with the average values being between 20 and 25% RTSD.[4] The parent PAH data for water and the other matrices is presented in Table 3 on page 9 of the Environment Canada Report.

However, for the PAH homolog analyses (found in Table 4 on page 11 of the Environment Canada report), the results of the RTSDs are shockingly different, and API/AFPM considers them unacceptable. (It is important to remember that the alkylated PAH homologs are actually groups of related PAH compounds, where the calibration is based only on a single compound intended to represent the entire group.) The average RTSD for the four water samples is almost 80%, an extremely high value, and some of the RTSDs for some homolog compound groups were over 100%. Typically, in these type studies, results outside of two standard deviations are given a warning, but are still considered acceptable, and results outside of three standard deviations are considered as unacceptable. To illustrate how terrible an RTSD of 80% is (which represents only a single standard deviation around the target value), consider a spiked sample with a value of 1,000 µg/L for a particular PAH homolog group. If a result within +/- 3 std. deviations is acceptable, then in this case (using an 80% RTSD for one standard deviation, multiplied by 3 SDs), any result between the values of 0 (or non-detected) up to 3,400 µg/L would be considered an acceptable result. It is difficult to rate such results as even "semi-quantitative", because many "acceptable" results would not even be within the same order of magnitude of the true value (1,000 µg/L). It is clear that the analytical method proposed for the PAH homolog groups does not "quantitate" these compounds within any acceptable definition of quantitation. Therefore, this analytical method is unacceptable for evaluating the concentrations of such compounds in refinery wastewater.

In the Table 3 below, API/AFPM compares the average percent RTSD for the parent PAHs in the four aqueous samples with the average RTSD for the PAH homologs in these same four samples. We find that for the water samples alone, the RTSD average for the PAH homologs is actually 3.41 times higher than for the parent PAH compounds. This is significantly worse than the discussions within the Environment Canada report, which estimated that overall, the RTSD for the homologs was 2.5 to 3 times higher than the RTSD for the parent compounds. This seems to suggest that the problems analyzing aqueous samples for these parameters is significantly greater than for soils or extracts. Again, API/AFPM asserts that this performance cannot be considered as quantification of these compound/compound groups in water samples.

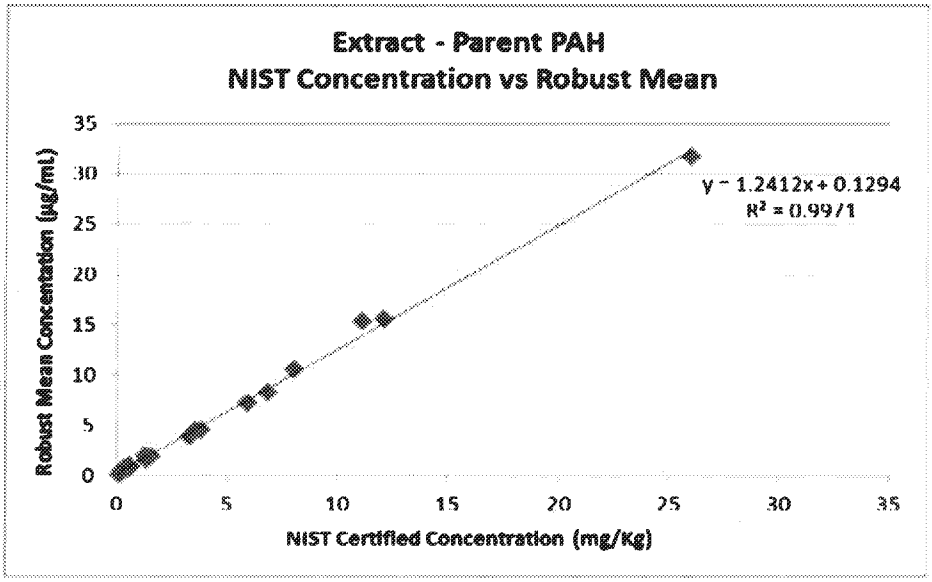
[4] An RTSD is the RSD around a known target value, instead of the mean of the reported results.

Table 3: Extracts of the Aqueous Analyses RTSDs data for alkyl-PAH Homologs (originally from Table 4 in the 2015 alkyl-PAH Inter-laboratory Study) and a summary of the average RTSDs from the aqueous analyses for the parent PAH compounds (calculated from Table 3 of 2015 report)

Aqueous samples Relative Target Standard Deviation% for PAH Homologs analyzed in Environment Canada 2015 Inter-lab Study				
Aqueous Sample Number	AAP-01	AAP-02	AAP-03	AAP-04
C1-Naphthalene	71	46	30	40
C2- Naphthalene	123	59	57	64
C3- Naphthalene	120	77	68	60
C4- Naphthalene	106	83	77	68
C1-Fluorene	91	76	66	60
C2-Fluorene	66	65	63	40
C3-Fluorene	100	95	86	91
C4-Fluorene	105	215	217	126
C1-Phenanthrene	55	45	44	29
C2- Phenanthrene	45	52	49	41
C3- Phenanthrene	80	77	79	81
C4- Phenanthrene	108	129	109	108
C1-Fluoranthene	91	76	66	60
C2- Fluoranthene	93	84	74	100
C3- Fluoranthene	68	50	57	68
C4- Fluoranthene	128	132	121	103
C1-Chrysene	27	29	31	34
C2- Chrysene	102	76	94	88
C3- Chrysene	96	96	98	81
C4- Chrysene	178	184	187	129
C1-Benzopyrene	73	78	78	78
C2-Benzopyrene	63	78	100	62
C1-Dibenzothiophene	54	42	42	42
C2-Dibenzothiophene	51	52	40	45
C3-Dibenzothiophene	83	55	57	66
C4-Dibenzothiophene	53	44	62	69
Average RTSD per sample for PAH homologs	85.77	80.58	78.92	70.50
Average RTSD per Aqueous sample for 18 parent PAH compounds	22.5	23.9	21.6	25.11
Overall RTSD Ratio Homolog over parent PAHs per sample	3.81	3.37	3.65	2.81
Average of all four ratios				3.41

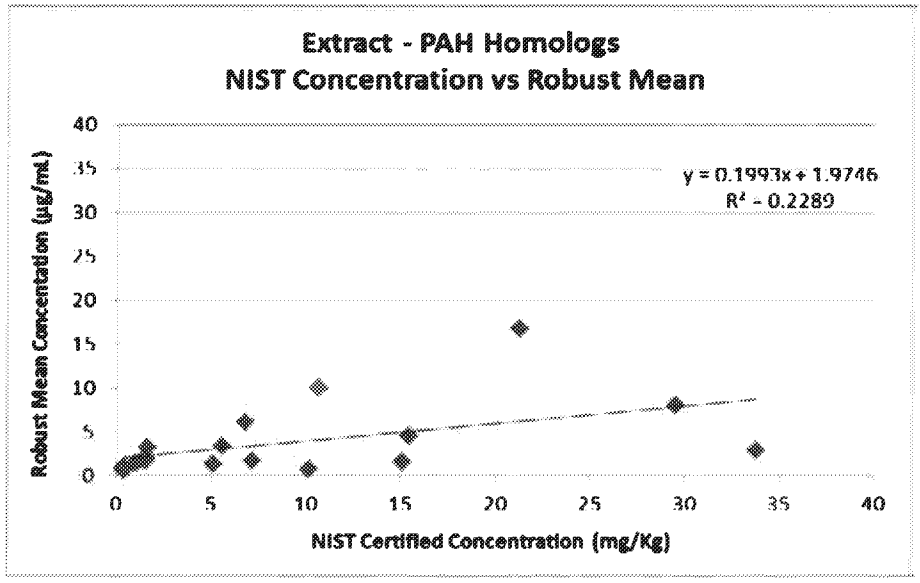
Another indication of problems related to the analysis of the PAH homologs can be seen in the extract sample that was spiked with the NIST standard. Here, any errors or biases due to sample extraction have been eliminated, and all of the values for the parent PAHs and their PAH homologs are certified. There are graphs of the analytical results of this sample on page 13 of the Environment Canada 2015 report, and two of these are shown below. It should be noted that these graphs are based on the "robust mean" and "robust standard deviation" of the data for this sample. "Robust" is defined as a statistical program that reduces the influence of any outlier results on the calculation of the "robust mean" and "robust SD" (without totally eliminating the outlying data points), so that these calculations are not unduly influenced by such outliers. Therefore, these graphs already contain a degree of correction for the worst outlier results.

The first graph (below) is for the results of the parent PAH compounds in the NIST sample extract:



As can be seen, the correlation coefficient of the parent PAH compounds versus the robust mean of the NIST extract sample is satisfactory ($R^2 = 1.0000$ is perfect correlation).

This second graph is for the PAH homologs:



The correlation coefficient of the PAH homolog compounds vs. the robust mean is only 0.2289. This is extremely poor, especially for a sample that is a simple dilution of an NIST standard that did not have to be extracted. The evidence is clear that there are severe problems with the calibrations being used for the PAH homologs.

C. Summary of Conclusions Discussed in the 2015 Environment Canada Inter-laboratory Study for PAH and PAH homolog analysis

The Environment Canada conclusions show they are aware of the issues with the quantification of the PAH homologs. They first state that the results of the analyses of the parent PAH compounds were not unexpected. They stated that most of these compounds have been routinely analyzed by most environmental labs since the 1980's, and that percent RSD's of 20 to 25% are typical for these compounds.

The following is the Environment Canada assessment of the PAH homolog analysis in the conclusion to the 2015 report:

"The results for the analysis of the alkyl-PAH homologs are consistent with an analytical method that relies on only a few select compounds to represent an entire class. The quantitation of the homologs is generally done using a single compound to represent the entire class of alkyl-PAH being quantitated instead of individual compounds and this could be responsible for the increase in relative target standard deviations observed. This would be especially true if all of the compounds in a class do not exhibit the same response factors. A number of homologs in the solid samples were also too low in concentration to be accurately quantitated or even detected in some cases. This included the NIST SRM (1941b). A lack of traceable individual calibration standards for homologs may also play a part in the apparent low recoveries of the homologs as could some unfamiliarity with the practical application of some elements of the recently promulgated ASTM

D7363-11, *Standard Test Method for Determination of Parent and Alkyl Polycyclic Aromatics in Sediment Pore Water Using Solid-Phase Microextraction and Gas Chromatography/Mass Spectrometry in Selected Ion Monitoring Mode*."

API/AFPM believes that based on the results of this study, Environment Canada has greatly understated the problems observed in the aqueous analyses, especially when they state: "The quantitation of the homologs is generally done using a single compound to represent the entire class of alkyl-PAH being quantitated instead of individual compounds and this could be responsible for the increase in relative target standard deviations observed. This would be especially true if all of the compounds in a class do not exhibit the same response factors." We also note that the problems with the aqueous samples were for all four samples, not simply the low concentration results.

Environment Canada also states that this first study may have been too ambitious and possibly included too many compounds and homologs for analysis:

"This first assessment of the current state of the PAH and alkyl-PAH analysis of environmental samples was rather ambitious. Over 100 separate measurands were asked to be reported in 3 separate matrices. Future studies will focus on a target list more closely approximating the one found in ASTM D7363-11."

API/AFPM believes that the analyses of so many types of alkylated PAHs is far too complex and that methods for measuring groups of alkylated PAHs are nowhere near sufficiently developed for any EPA study of refinery wastewaters, or any follow-up rulemaking effort.

V. Concerns About Blanket Toxicity Assessments of Groups and Categories of Compounds

A. Brief Background

In the EPA ELG process, the pollutants estimated to be removed by a proposed rule have been given a toxic weighting factor (TWF) based on toxicological tests having been performed in the past on that specific pollutant. The calculated TWF for each pollutant is actually the sum of an aquatic life toxicity value, and a human health toxicity value that are both normalized to the TWF of copper.[5] The TWF formula for pollutants in water is:

$$TWF = (5.6/AQ_{value}) + (5.6/HH_{value})$$

Where:

[5] Copper as a reference toxicant was selected by EPA years ago because its toxicity was about in the middle of pollutants being tested at the time.

5.6 (μg/L) = acute aquatic toxicity of copper at a specified hardness that is used as the scaling factor to normalize the TWF in relation to copper

AQ = Aquatic Life Value (μg/L). This is determined experimentally through toxicity testing on aquatic organisms.

HH = Human Health Value (μg/L). A few pollutants have acute human toxicity, but most times the HH factor is based on potential carcinogenic properties of the compound.

Except in rare cases, the TWF is dominated by either the AQ value, indicating toxicity to aquatic life is the predominant effect, or the HH value if there is a significant human health risk. While there are rare exceptions due to acutely toxic properties of specific compounds or potential unusual human exposure pathways—for trace organic compound contamination in water, the HH value is typically not going to be significant to the TWF calculation unless that compound is demonstrated to have potential or confirmed carcinogenic properties.

As example of this, consider the sixteen PAH compounds currently on the EPA priority pollutant list. Seven of these compounds have been identified as potentially carcinogenic through the aqueous-fish-shellfish exposure pathway, and these seven have by far the highest TWFs of the sixteen compounds. Benzo(a)pyrene is the highest of the seven with a TWF of 100, and the lowest two are benzo(b) and benzo(k) fluoranthene, both with a TWF of 30.66. Of the nine considered to be "non-carcinogenic" PAHs, the highest is fluoranthene, with a TWF of 1.27.[6] The lowest TWF of the nine "non-carcinogenic" PAHs is acenaphthylene, with a TWF of 0.0084. This compound was found to have "no observed effect" on mice, and has no HH value, so this TWF is totally based on aquatic life impacts. Note that the acenaphthylene TWF is more than 10,000 times lower than that of benzo(a)pyrene. It is an indication that if an individual compound is not carcinogenic, a TWF based entirely on aquatic life toxicity may be thousands of times lower.

B. Relating TWF factors to mixed groups of compounds, and testing for toxicity

Because the discussion above is applicable to assigning TWFs to categories of mixed compounds, it creates significant problems. Carcinogenic effects are applicable to only specific compounds because the carcinogenic interaction is produced at the molecular level, at specific sites of the molecules that mimic critical enzymes. The addition of a methyl group to a critical area of a molecule may create a stearic hindrance that may completely prevent this molecular interaction. This is why, even among the 16 PAH priority pollutant compounds that are very similar in structure some have been found to be carcinogenic and others show no carcinogenic effect whatsoever.

Each analytical group of naphthenic acids can be mixtures of dozens or hundreds of different compounds, and the total naphthenic acids can consist of thousands of compounds. The only

[6] Though fluoranthene is not classified as a class 3 carcinogen to humans as are the other seven, one study has found it to possess carcinogenic properties to newborn mice, so it still retains a HH value.

common denominator among these compounds is that they contain a single carboxylic acid group, and the attached carbon chains must be aliphatic, (but even this is being questioned by Environment Canada). As we have previously stated, most of *aliphatic* NAs (in the C12 to C21 carbon range), that meet the strict definition of NAs as used by the AXYS are naturally occurring aliphatic saturated or polyunsaturated fatty acids that are commonly found in foods and dairy products, and these compounds should not be toxic.

Some papers have discussed how oil-sands process-affected water contains numerous organic compounds, including naphthenic acids (NAs), and a few papers have asserted NAs as a source of acute toxicity in oil-sands process-affected water. Total NAs, however, defy generic characterization and the toxicity of "NAs" cannot be meaningfully expressed as though NAs constituted a single compound or a consistent, reproducible mixture of compounds. To quote one scientific review on naphthenic acids[7]: "The field continues to be challenged by the lack of a cost-effective, accurate analytical technique for NAs or an understanding of all the organic constituents in process-affected water that may be contributing to observed toxicity and thus requiring treatment."

As discussed in this report, even possibly the most specific analyses for NAs such as the method used by AXYS laboratories can still include other types of compounds that do not meet the definition of naphthenic acids. Just as in the example for PAH compounds discussed earlier, it is entirely possible for only a very few compounds to be the drivers for most or all of the apparent toxicity when addressing a situation of a mixture of hundreds or thousands of compounds. Also, it is unknown, and unlikely, that the naphthenic acids that remain in refinery wastewater after treatment contain the same toxic compounds/mixes that appear to be present in oil-sands process water.

The fact that the analytical method measures total NAs makes the toxicological testing of these naphthenic acid mixes (and also mixes of PAH homologs) a very difficult and inexact procedure. There must be some kind of reference chemical available commercially that is used to perform the toxicity testing. If the toxicity is due to only a few highly toxic compounds present in a mostly non-toxic mixture and one does not know which compounds they are, whether they are present in every mix, or whether they are present in some mixes from some sources and not others, how can a TWF for the mixture be estimated? Are they present in only some wastewaters that contain naphthenic acids and not others? Regulation of total NAs on this basis will invariably result in false positives prompting exceedance violations for dischargers presenting no significant increase to environmental toxicity. These issues are why toxicity testing has (mostly) been limited to testing one pure individual compound at a time, to increase the likelihood that consistent and reproducible results can be obtained when using the same standard reference material.

[7] Oil Sands Naphthenic Acids: A Review of Properties, Measurement, and Treatment, Brown and Ulrich, 2015

There are some very serious shortcomings to the current commercially available consensus reference material used by AXYS, which is the Merichem NA mixture. This mixture was used as a standard reference for the NA comparative studies, and AXYS Laboratory also uses Merichem mixtures as their quality assurance (QA) samples for their proprietary naphthenic acid test method. This Merichem reference material apparently contains relatively consistent proportions of the 60 naphthenic acid subcategories analyzed by AXYS, so it can be used as a QC sample to verify consistent results in their analyses over time. However, the exact makeup of the various specific compounds is unknown, and these samples only demonstrate that the unknown can be reproduced consistently. The summary API/AFPM received of the AXYS method indicates that the laboratory appears to believe some of the fractions found in the commercial Merichem NA mixture do contain some aromatic naphthenic acids. It is possible that some of these aromatic acids could have much higher toxicity than the normal aliphatic NAs. Our impression is that the AXYS method cannot quantify the aromatic NAs separately, otherwise they could be subtracted out of the total. Finally, Environment Canada, in their conclusion to the 2016 NA Inter-laboratory Study stated: "There is a need to establish a traceable quantification standard to achieve consistent analytical results. Merichem® is a commercially available mixture of naphthenic acids that allowed for an inter-laboratory comparison of laboratories' abilities to measure Total NA. It is currently the best available representation of the Total Naphthenic Acids ($C_nH_{2n+z}O_2$) which are reported in this study. However it needs to be replaced with a commercially available, traceable material (single component or mixture) that better represents the NA components found in relevant matrices of the Athabasca oil sands region (e.g. OSPW)." (Important to note: Environment Canada here appears to be asking for a reference material that is representative of a single site. Does this mean that each site and each refinery should obtain a mix that matches their site alone?)

C. Summary of the Main Issues for determining toxicity for Naphthenic Acids (also generally applicable to alkylated PAH homologs)

The following bullet items are just a few of the complex issues that must be dealt with, if one is to apply a single TWF to large groups of compounds such as naphthenic acids or alkylated PAH homologs:

- These NA or alkylated PAH homologs mixtures can contain hundreds of compounds, and if present, it is very likely that only a tiny fraction of these compounds may have a high TWF but this fraction might drive the overall toxicity of the entire group. These few toxic compounds have likely not yet been identified, but they may be present in samples from one source, and not present in another, with dramatic effect on the future evaluation of the TWF.

- Performing the tests to determine toxicity: As stated by analysts and Environment Canada, there is not yet available a commercial material that is traceable quantitatively, where all the components are identified. If individual lot numbers of this commercial material are used as **a standard to determine toxicity**, it appears they face the same problem—do certain lots of the mix contain fewer or more of the limited number of compounds that can drive the toxicity,

and is the mix representative of the types of naphthenic acids present at various facilities? How do you prepare a mix to certain toxicity specifications, if you do not know what compounds are present in the wastewater that can create the most toxicity?

- In the case of determining the toxic-weighted pound equivalents (TWPE)[8] for a refinery effluent, the standard mix used to determine a TWF for NAs needs to be toxicologically representative of the naphthenic acids present in the discharge from a refinery after biological and other treatment. This is likely to be very different than the mix of naphthenic acids present in untreated refinery wastewater, and even further different than oil sands process water used to mine the oil.

- Environment Canada believes that aromatic-naphthenic acids (this term is seemingly self-contradictory, since the word "naphthenic" is used to define mixtures of organic fluids that are low in aromatic content) should be included in the analysis of NAs. If, as might be the case, the aromatic NAs have significantly different toxicological/environmental properties than the currently defined aliphatic NAs, then what is the justification for including them in the same category? Perhaps a separate definition and scientifically defensible analytical procedure should be devised that can analyze for aromatic NA's only.

[8] The TWPE is used by EPA to estimate the total mass loadings of all toxic pollutants in a specific industrial effluent category for the purposes of comparing industrial point source categories for their relative contribution ot surface water discharges of toxic pollutants.

Message

From: Lee Forsgren [LForsgren@hbwresources.com]
Sent: 6/20/2017 9:03:48 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Fwd: Meeting with Brian Foy ... Thursday, 22 June ... 6:00 PM

Sent from my iPhone

Begin forwarded message:

From: Chris Bahret <Ex. 6
Date: June 20, 2017 at 2:25:55 PM EDT
To: Joe Cox <Ex. 6>, Gary Gilbert <Ex. 6>, "Steve Blust" <Ex. 6>, Tom Harrelson <Ex. 6>, "Rogers, Roy R CTR MDA/DEI" <roy.rogers.ctr@mda.mil>, Roy R Rogers <Ex. 6>, "laila.i.linares@navy.mil" <laila.i.linares@navy.mil>, <Ex. 6>, <Ex. 6>, Ryan Denton <Ex. 6>, Turissini Daniel E. <dan@sol-pass.com>, "dlforsgren@hbwresources.com" <dlforsgren@hbwresources.com>
Subject: Meeting with Brian Foy ... Thursday, 22 June ... 6:00 PM

Greetings Mariners,

I am coordinating a get-together for this Thursday evening, to meet with Brian Foy. Brian is taking the place of Jerry Rehm, serving as congressional liaison on behalf of the AAF. Brian is interested in meeting with us to establish communications and gain some background on past interactions with DC folks. I have spoken with some of you about getting together, but was not able to contact everyone in advance; to those with whom I have not spoken, I apologize for the late notice.

I will host a meeting at my DC office. Here are the particulars:

Date: Thursday, 22 June
Time: 6:00 - 8:00 PM
Location: DELTA Resources | 1100 New Jersey Ave Suite 700 | Washington DC 20003

If you would, please let me know if you are able to participate. I'll get some sandwiches from Subway, so if you have a preference, let me know that too. I look forward to seeing you Thursday.

Many thanks and best regards,

Chris Bahret

KP'87

Message

From: Michael Whatley [MWhatley@hbwresources.com]
Sent: 6/26/2017 5:59:30 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: WOTUS Event

One correction (Farm Bureau)

From: Michael Whatley
Sent: Monday, June 26, 2017 1:51 PM
To: 'forsgren.lee@epa.gov' <forsgren.lee@epa.gov>
Subject: WOTUS Event

LAST	FIRST	AFFILIATION	EMAIL	CELL
Zehr	Michael	Consumer Energy Alliance		
Verma	Puneet	Chevron		
Stewart	Tim	US Oil & Gas Association		
Johnson	Luke	BHFS		
Dabbar	John	ConocoPhillips		
Diggins	Jennifer	Albemarle Corporation		
Charters	Tim	NOIA		
Campbell	Amanda	GE		
Bray	Kellie	Crop Life America		
Shute	Melissa	Statoil		
Panelo	Marcelo	BP		
Wiggins	Dena	NGSA		
Naatz	Dan	IPAA		
Steen	Ellen	American Farm Bureau		
Jason	Lynn	Caterpillar		

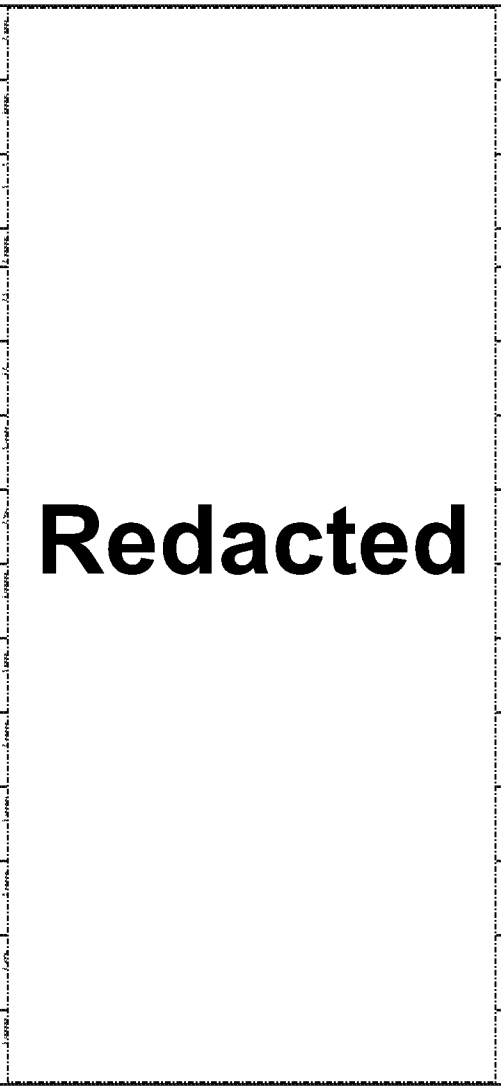
Redacted

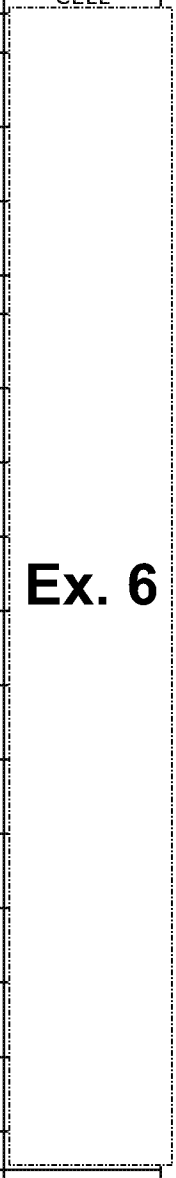
Ex. 6

Message

From: Michael Whatley [MWhatley@hbwresources.com]
Sent: 6/26/2017 5:50:44 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: WOTUS Event

LAST	FIRST	AFFILIATION	EMAIL	CELL
Zehr	Michael	Consumer Energy Alliance		
Verma	Puneet	Chevron		
Stewart	Tim	US Oil & Gas Association		
Johnson	Luke	BHFS		
Dabbar	John	ConocoPhillips		
Diggins	Jennifer	Albemarle Corporation		
Charters	Tim	NOIA		
Campbell	Amanda	GE		
Bray	Kellie	Crop Life America		
Shute	Melissa	Statoil		
Panelo	Marcelo	BP		
Wiggins	Dena	NGSA		
Naatz	Dan	IPAA		
Moore	Dale	American Farm Bureau		
Jason	Lynn	Caterpillar		





Message

From: William Chapman [b.chapman@millenniumbulk.com]
Sent: 5/3/2018 2:41:13 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
CC: Wendy Hutchinson [w.hutchinson@millenniumbulk.com]; Greenwalt, Sarah [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c13775b8f424e90802669b87b135024-Greenwalt,]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; dslone@archcoal.com
Subject: Re: Following up
Attachments: ATT00001.txt; ATT00002.txt

Thank you

Sent from my iPhone

On May 3, 2018, at 5:38 AM, Penman, Crystal <Penman.Crystal@epa.gov> wrote:

> All added.
>
> **From:** Wendy Hutchinson [mailto:w.hutchinson@millenniumbulk.com]
> **Sent:** Thursday, May 3, 2018 8:37 AM
> **To:** Greenwalt, Sarah <greenwalt.sarah@epa.gov>; Penman, Crystal <Penman.Crystal@epa.gov>
> **Cc:** Forsgren, Lee <Forsgren.Lee@epa.gov>; William Chapman <b.chapman@millenniumbulk.com>; dslone@archcoal.com
> **Subject:** RE: Following up
>
> Crystal,
> Could you also include Deck Slone on the calendar entry? Deck was going to join if he was able. He is copied above.
> Thank you,
> Wendy
>
> **From:** Greenwalt, Sarah <greenwalt.sarah@epa.gov>
> **Sent:** Thursday, May 03, 2018 5:34 AM
> **To:** Penman, Crystal <Penman.Crystal@epa.gov>
> **Cc:** Wendy Hutchinson <w.hutchinson@millenniumbulk.com>; Forsgren, Lee <Forsgren.Lee@epa.gov>; William Chapman <b.chapman@millenniumbulk.com>
> **Subject:** Re: Following up
>
> Works for me as well.
>
> Crystal, would you mind setting up a call-in number and I'll just meet Lee in his office? Thank you ma'am.
>
> Sent from my iPhone
>
> On May 3, 2018, at 8:04 AM, Penman, Crystal <Penman.Crystal@epa.gov> wrote:
>
> > Ok with Lee.

From: Wendy Hutchinson [mailto:w.hutchinson@millenniumbulk.com]
Sent: Thursday, May 3, 2018 8:01 AM
To: Penman, Crystal <Penman.Crystal@epa.gov>; Greenwalt, Sarah <greenwalt.sarah@epa.gov>
Cc: Forsgren, Lee <Forsgren.Lee@epa.gov>; William Chapman <b.chapman@millenniumbulk.com>
Subject: RE: Following up

Great! Does 4 pm work for everyone?

From: Penman, Crystal <Penman.Crystal@epa.gov>
Sent: Thursday, May 03, 2018 4:05 AM
To: Greenwalt, Sarah <greenwalt.sarah@epa.gov>; Wendy Hutchinson <w.hutchinson@millenniumbulk.com>
Cc: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Following up

Lee is available @ 9a, 10a and 4pm

From: Greenwalt, Sarah
Sent: Wednesday, May 2, 2018 3:24 PM
To: Wendy Hutchinson <w.hutchinson@millenniumbulk.com>
Cc: Forsgren, Lee <Forsgren.Lee@epa.gov>; Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: Following up

Hi Wendy,

I'm sorry for the delay. Are you guys available for a phone call sometime tomorrow?

Sarah A. Greenwalt

U.S. Environmental Protection Agency
Work: 202-564-1722 Ex. 6
Greenwalt.Sarah@epa.gov

From: Wendy Hutchinson [mailto:w.hutchinson@millenniumbulk.com]
Sent: Monday, April 23, 2018 7:33 PM
To: Greenwalt, Sarah <greenwalt.sarah@epa.gov>
Subject: FW: Following up

Sarah,
I was hoping Bill and I could catch up with you on a call in the next few days. Would any of these times work:

Tomorrow 4 pm ET
Wednesday 4 pm ET
Thursday anytime in the afternoon?

Bill and I will be in DC May 9-11. We would be very interested in following up with you and the administrator during that timeframe.

Thank you,
Wendy

Wendy Hutchinson
Senior Vice President
External Affairs

Millennium Bulk Terminals
Longview, LLC
PO Box 2098
4029 Industrial Way
Longview, WA 98632
P 360-425-2800
F 360-636-8340
w.hutchinson@millenniumbulk.com

From: Wendy Hutchinson
Sent: Tuesday, April 10, 2018 2:16 PM
To: 'Slone, Deck' <DSlone@archcoal.com>; Greenwalt, Sarah <greenwalt.sarah@epa.gov>
Cc: William Chapman <b.chapman@millenniumbulk.com>
Subject: RE: Following up

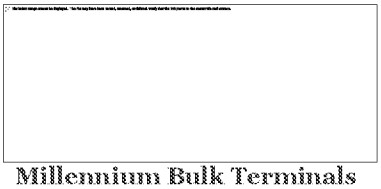
Deck,
Thank you for the introduction. We appreciate you sharing your knowledge of Millennium with Sarah. We do view the project as a key component in the supply chain to provide US coal to Asia.

Sarah,
Bill and I look forward to visiting with you. It would be our pleasure to provide you with an update on the permitting of the coal export terminal in Washington state. As Deck suggested, perhaps a get-acquainted call would be a place to start. Are there any particular days in the near future that would work best to schedule that conversation?

Thank you all again for your interest in our project. Our contact information is below:

Bill Chapman, President and CEO
M Ex. 6
b.chapman@millenniumbulk.com

Wendy Hutchinson
Vice President
Government & Public Affairs



Millennium Bulk Terminals

Longview, LLC
PO Box 2098
4029 Industrial Way
Longview, WA 98632
P. 360-425-2800
Ex. 6
w.hutchinson@millenniumbulk.com

From: Slone, Deck <DSlone@archcoal.com>
Sent: Tuesday, April 10, 2018 1:36 PM
To: Greenwalt, Sarah <greenwalt.sarah@epa.gov>
Cc: William Chapman <b.chapman@millenniumbulk.com>; Wendy Hutchinson <w.hutchinson@millenniumbulk.com>
Subject: Following up

It was a pleasure speaking with you this morning, Sarah. Thanks again for making the time, and – again – for all the great interest during the Black Thunder tour last week. As discussed, we view the Millennium project in Longview, Washington, as the centerpiece of any serious effort to export low-emitting American coal to the Pacific Rim. Bill Chapman and Wendy Hutchinson, Millennium's CEO and VP of Public Affairs, respectively, have been leading the charge in efforts to move U.S. coal off the West Coast, and I'm certain they will prove to be exceptional resources for you. (By way of introduction, I am copying both of them here and will ask that they send their full contact info to you directly.)

Bill and Wendy, I have conveyed to Sarah your interest in connecting, either in person or telephonically, at a time that proves convenient. While I have provided a quick synopsis of the state of affairs at Millennium, it's highly unlikely that I did the topic full justice. Consequently, I think a quick, get-acquainted call in the near future between the three of you would be very useful.

Again, many thanks, Sarah. Please don't hesitate to let me know if there is anything I can do to assist you, the Administrator or the rest of the team on this or any other matter in the days and weeks ahead.

Best,

Deck

Sarah A. Greenwalt

U.S. Environmental Protection Agency
Work: 202-564-1722 Ex. 6
Greenwalt.Sarah@epa.gov

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 6/4/2018 6:14:17 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]; Campbell, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b8c25a0c2fb648b6a947694a8492311e-Campbell, Ann]
Subject: Re: Visit of Native Alaskans this week

You're terrific. Thanks, Lee.

Peter

From: Forsgren, Lee <Forsgren.Lee@epa.gov>
Sent: Monday, June 4, 2018 2:13 PM
To: Peter Robertson
Cc: Penman, Crystal; Campbell, Ann
Subject: Re: Visit of Native Alaskans this week

Happy to meet with them when they come in.

Sent from my iPhone

On Jun 4, 2018, at 2:12 PM, Peter Robertson <peterrobertson@pebblepartnership.com> wrote:

> Lee and Crystal,
>
> We have had a change to the group of Native Alaskans that are visiting this week. Abe Williams and Margie Olympic are no longer able to come. The group still includes:
>
> - Brad Angasan, President & CEO of Alaska Peninsula Corporation *(Represents Port Heiden, South Naknek, Ugashik, Kokhanok & Newhalen);*
> - Ventura Samaniego, President & CEP of Kijik Corporation *(Represents Lake Clark area & Six Mile Lake); and*
> - Henry Olympic, President of Newhalen Tribal Council *(Represents Newhalen).*
>
> They will be accompanied by me and by Shalon Harrington, Chief of Staff for the Pebble LImited Partnership.
>
> Please let me know if you have any questions. We look forward to seeing you.
>
> Sincerely,

Peter

<Outlook-1517243019.png>

Peter D. Robertson
The Pebble Partnership
1330 Connecticut Avenue, NW
Washington, DC 20036

Redacted

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 6/4/2018 6:12:01 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: Visit of Native Alaskans this week

Lee and Crystal,

We have had a change to the group of Native Alaskans that are visiting this week. Abe Williams and Margie Olympic are no longer able to come. The group still includes:

- Brad Angasan, President & CEO of Alaska Peninsula Corporation *(Represents Port Heiden, South Naknek, Ugashik, Kokhanok & Newhalen);*
- Ventura Samaniego, President & CEP of Kijik Corporation *(Represents Lake Clark area & Six Mile Lake); and*
- Henry Olympic, President of Newhalen Tribal Council *(Represents Newhalen).*

They will be accompanied by me and by Shalon Harrington, Chief of Staff for the Pebble LImited Partnership.

Please let me know if you have any questions. We look forward to seeing you.

Sincerely,

Peter

THE pebble PARTNERSHIP

Peter D. Robertson
The Pebble Partnership
1330 Connecticut Avenue, NW
Washington, DC 20036

Redacted

Message

From: William Chapman [b.chapman@millenniumbulk.com]
Sent: 5/4/2018 3:41:48 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Slone, Deck [DSlone@archcoal.com]; Wendy Hutchinson [w.hutchinson@millenniumbulk.com]
Subject: FISH WATER Statements.pdf
Attachments: FISH WATER Statements.pdf

Lee:

Please find attached as requested above quotes pulled from the State's Final EIS and the Corps' Draft EIS regarding absence of water quality impacts from construction or operation. The boldface font is added for emphasis rather than in the original. As you likely know the analysis and text were prepared by an independent third party consultant, ICF; both the state and county formally approved content prior to publication. AS to the Federal Draft, you can see why publication of the Final would also add to the record constructively.

It was refreshing to learn your clear understanding of the issues and context; we look forward to following up next week during our stop in D.C. and thereafter, thank you, Bill

FISH

SEPA FEIS page 4.7-41

Unavoidable and Significant Adverse Environmental Impacts

Compliance with laws and implementation of the mitigation measures described above would reduce impacts on fish. **There would be no unavoidable and significant adverse impacts on fish.**

WATER QUALITY

SEPA FEIS page 4.5-19

Construction

Overall, the construction activities associated with the Proposed Action would not be expected to cause a measurable effect on water clarity, water quality, or biological indicators or affect designated beneficial uses.

NEPA DEIS page 5.5-14

Runoff from the project area would be required to meet the terms and conditions of all permits issued for the On-Site Alternative; thus, water quality conditions would be expected to be maintained and **construction would not cause a measurable impact on water quality or affect designated beneficial uses.**

NEPA DEIS page 5.5-17

Overall, the demolition activities associated with the On-Site Alternative would not cause a measurable impact on water quality or biological indicators, or affect designated beneficial uses.

SEPA FEIS page 4.5-23

Impacts on water quality from in- and over-water work would be addressed in the Water Quality Monitoring and Protection Plan to be prepared by the Applicant and approved by Ecology. Impacts on water quality from dredging would be minimized with the preparation and implementation of a dredging plan in compliance with the dredged material management program (DMMP) as required by state agencies (Ecology and Washington State Department of Natural Resources) and federal agencies (the U.S. Army Corps of Engineers [Corps] and EPA). Adhering to a plan developed in compliance with DMMP would minimize water-quality impacts, ensuring that potential impacts are temporary and localized in nature. **No long-term changes in the baseline conditions in the study area would be expected to occur.**

NEPA DEIS page 5.5-16

Impacts on water quality from in- and over-water work would be addressed in the Water Quality Monitoring and Protection Plan to be prepared by the Applicant. Impacts on water quality from dredging would be minimized with the preparation and implementation of a dredging plan in compliance with the dredged material management program (DMMP) as required by state agencies (Ecology and Washington State Department of Natural Resources) and federal agencies (the Corps and EPA). Adhering to a plan developed in compliance with DMMP would minimize water-quality impacts, ensuring potential impacts are temporary and localized in nature. **No long-term changes in the baseline conditions in the study area would be expected to occur.**

SEPA FEIS page 4.5-24

Temporarily Introduce Hazardous or Toxic Materials from Demolition Activities

Demolition of the existing structures in the project area (i.e., cable plant building, potline buildings, and small ancillary structures) has the potential to affect water quality by disturbing soil or building parts and debris that could contain hazardous or toxic materials such as asbestos, lead, and concrete dust, which could cause harm to aquatic environments and organisms. This impact would be minimized by the collection and removal of all concrete and other structural debris and the collection and treatment of all stormwater from the site prior to discharge to surface waters. The implementation of best management practices in compliance with the NPDES Construction Stormwater Permit that would be obtained for the Proposed Action would reduce the potential for demolition-related pollutants to enter and contaminate surface waters. **Overall, the demolition activities associated with the Proposed Action would not be expected to cause a measurable effect on water quality or biological indicators, or affect designated beneficial uses.**

NEPA DEIS page 5.5-17

Hazardous or Toxic Materials

Demolition of the existing structures (cable plant building, potline buildings, and small ancillary structures) in the project area has the potential to affect water quality by disturbing soil or building parts and debris containing hazardous or toxic materials such as asbestos, lead, and concrete dust, which could cause harm to aquatic environments and organisms. This impact would be minimized by the collection and removal of all concrete and other structural debris and the collection and treatment of all stormwater from the site prior to discharge to surface waters. The implementation of best management practices in compliance with the NPDES Construction Stormwater General Permit would be obtained for the On-Site Alternative, which would reduce the potential for demolition-related pollutants to enter and contaminate surface waters. **Overall, the demolition activities associated with the On-Site Alternative would not cause a measurable impact on water quality or biological indicators, or affect designated beneficial uses.**

SEPA FEIS page 4.5-25

Introduce Contaminants from Coal Spills and Coal Dust

However, at a maximum deposition rate of 1.99 g/m2/year adjacent to the project area, and at the minimum flow2 recorded over the 23-year period of record for 1 day, coal dust deposition directly into the river (assumed to be an area of approximately 3 million square meters [1.16 square miles]) in the study area would result in a change in suspended sediment concentration of less than 1 part per 10 billion (0.000075 milligrams per liter [mg/L]). **This change would not be measureable and is not anticipated to increase turbidity or water temperature, or affect marine organism functions (e.g., respiration, feeding).**

NEPA DEIS page 5.5-18

Contaminants

Continued discharges at existing levels would not cause a measureable increase in chemical indicators in the Columbia River and would not cause a measurable impact on water quality or biological indicators or affect designated beneficial uses. Any changes in concentrations of these pollutants that may occur during operations would be addressed under the NPDES Industrial Stormwater Permit to ensure water quality standards continue to be met post discharge to the Columbia River.

SEPA FEIS page 4.5-26

If coal dust from the project area accumulated without being disturbed throughout the dry season (assumed to be 120 days long), the anticipated change in TEEC concentration for the minimum recorded flow over one day would be on the order of 0.0000000001 to 0.000000000001 g/L, or 0.0001 to 0.000001 ppb. **Again, this change would not be measureable and is not anticipated to affect human health or affect marine organism functions (respiration, feeding).**

NEPA FEIS page 5.5-19

If coal dust from the project area accumulated without being disturbed throughout the dry season (assumed to be 120 days long), the anticipated change in TEEC concentration for the minimum recorded flow over one day would be on the order of 0.0000000001 to 0.000000000001 g/L, or 0.0001 to 0.000001 ppb. **Again, this change would not be measureable and is not anticipated to affect human health or affect marine organism functions (respiration, feeding).**

SEPA FEIS page 4.5-26

In summary, coal dust from operation of the Proposed Action is not expected to have a demonstrable effect on water quality. Additionally, the potential risk for exposure to toxic chemicals contained in coal (e.g., PAHs and trace metals) would be relatively low as these chemicals tend to be bound in the matrix structure and not quickly or easily leached.

Coal spilling into the Columbia River could occur during vessel loading operations. Cleanup efforts would be implemented quickly and it would be expected that the majority of the spilled coal would be recovered. **They would also not be expected to cause a measurable impact on water quality or biological indicators, or affect designated beneficial uses.**

Therefore, impacts of dispersed coal, coal dust, and coal dust constituents on water quality are anticipated to be low.

NEPA DEIS page 5.5-20

In summary, coal dust from operations of the terminal is not expected to have a demonstrable effect on water quality. Additionally, the potential risk for exposure to toxic chemicals contained in coal (e.g., PAHs and trace metals) would be relatively low as these chemicals tend to be bound in the matrix structure and not quickly or easily leached.

Coal spilling into the Columbia River could occur during vessel loading operations. Cleanup efforts would be implemented quickly and it would be expected the majority of the spilled coal would be recovered. **They would also not be expected to cause a measurable impact on water quality or biological indicators, or affect designated beneficial uses.**

SEPA FEIS page 4.5-29

Stormwater Runoff

Continued discharges at existing levels would not cause a measureable increase in chemical indicators in the Columbia River and would not cause a measurable impact on water quality or biological indicators or affect designated beneficial uses.

SEPA FEIS page 4.5-34

Unavoidable and Significant Adverse Environmental Impacts

Compliance with laws and implementation of the measures and design features described above would reduce impacts on water quality. **There would be no unavoidable and significant adverse environmental impacts on water quality.**

SURFACE WATER

SEPA FEIS page 4.2-17

Use Water for Operations

Operations of the Proposed Action would use water from rainfall runoff and on-site groundwater wells for dust suppression, washdown water, and fire-protection systems. Rainfall would be collected and treated and either stored in a detention pond to be constructed as part of the Proposed Action, or discharged to the Columbia River through the existing Outfall 002A. The Proposed Action would not withdraw water from the Columbia River or other surface waters in the study area to meet operations water demands. **Thus, no impacts on surface water and floodplains are anticipated related to water needs or use during operations.**

NEPA DEIS page 5.2-21

Water Use

The terminal would use water from rainfall runoff and on-site groundwater wells for dust suppression, washdown water, and fire-protection systems. Rainfall would be collected and treated and either stored in a detention pond or discharged to the Columbia River through the existing Outfall 002A. Water would not be drawn from the Columbia River or other surface water in the study area for operations. **Thus, no impacts on surface water and floodplains are anticipated during operations.**

SEPA FEIS page 4.2-18

Discharge Less Water to CDID #1 Ditches

Basins 2, 3, and 5 of the existing water management system at the project area currently discharge to CDID #1 drainage ditches. Once constructed, most of the project area would no longer drain to the CDID #1 ditches, with the exception of a portion of the access overpass and frontage improvements, which would continue to drain to the ditches. All stormwater and excess dust suppression water within the footprint of the project area would be collected, conveyed, treated, and either stored on site for reuse or discharged to the Columbia River. The ditches would remain as they exist today. Therefore, no negative impacts on the CDID #1 ditches would occur under the Proposed Action**. However, less water would be discharged to the ditches from the project area. As discussed below, this could have a beneficial indirect impact on the CDID #1 ditches.**

NEPA DEIS page 5.2-21

Discharge to CDID #1 Ditches

Basins 2, 3, and 5 of the existing water management system at the project area currently discharge to CDID #1 drainage ditches. Once constructed, most of the project area would no longer drain to the CDID #1 ditches, with the exception of a portion of the access overpass and frontage improvements. All stormwater and excess dust suppression water within the project area would be collected, conveyed, treated, and either stored on site for reuse or discharged to the Columbia River. **Therefore, no negative impacts on the CDID #1 ditches would occur, and**

less water would be discharged to the ditches. As discussed below, this could have a beneficial indirect impact on the CDID #1 ditches.

SEPA FEIS page 4.2-19

The CDID #1 ditches are much smaller than the Columbia River; therefore, changes to the volume of surface water discharged from the project area could potentially have a measurable effect on the capacity of the ditches. However, the proposed changes would reduce flow to the ditches from 88 million to 26.3 million gallons per year. This could be beneficial to the ditches because there would be additional capacity for drainage. As mentioned in Section 4.2.4.2, *Columbia River and Cowlitz River Floodplain*, the combined capacity of the CDID #1 pump stations is 700,000 gallons per minute. These pump stations are instrumental for removing stormwater and preventing local and area-wide flooding. **Any reduction in discharge to the CDID #1 ditch system could provide a benefit during significant rain events.**

SEPA FEIS page 4.2-21

Unavoidable and Significant Adverse Environmental Impacts

Compliance with laws and implementation of the mitigation and design features described above would reduce impacts on surface waters and floodplains. **There would be no unavoidable and significant adverse environmental impacts on surface waters and floodplains.**

Message

From: Lee Fuller [lfuller@ipaa.org]
Sent: 3/28/2018 6:03:34 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Clean Water Act -- Fourth Way Study

Lee,

It was good to see you, however briefly, at the Oil and Gas Roundtable in Denver. I wanted to follow up on a couple of items.

First, you indicated that the Fourth Way study would be kicking off soon. I wondered if you have a status report on the study.

Second, a number of member companies are interested in getting involved in the study in some manner and I'd like to facilitate that effort.

Thanks,

Lee

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 5/24/2018 7:27:26 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: Re: meeting request

Lee and Crystal,

Circling back to see if we can get a time on the books for this meeting. Then, if you need to cancel, we would certainly understand.

Thanks.

Peter

Peter D. Robertson
Ex. 6
Sent from my iPhone

From: Peter Robertson
Sent: Friday, May 11, 2018 4:03:47 PM
To: Forsgren, Lee; Penman, Crystal
Subject: Re: meeting request

Thanks, Lee. I completely understand, better than most, how busy you guys are. I appreciate your willingness to try to make time. And you understand better than anyone how tough it is to get here from Alaska, so I really home they will get to speak with you.

But we will stand by to hear more. Thanks for considering the request.

PDR

From: Forsgren, Lee <Forsgren.Lee@epa.gov>
Sent: Friday, May 11, 2018 4:01:04 PM
To: Peter Robertson; Penman, Crystal
Subject: RE: meeting request

Peter,

We are very busy and I know that my schedule that week is crazy as we try to get the WOTUS rules to OMB. Will see what the art of the possible might be but I can't make any promises. Crystal will do her best to accommodate but it will be tough.

Thanks,
Lee

D. Lee Forsgren

Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Peter Robertson [mailto:peterrobertson@pebblepartnership.com]
Sent: Friday, May 11, 2018 3:47 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>; Penman, Crystal <Penman.Crystal@epa.gov>
Subject: meeting request

Dear Lee and Crystal,

I hope all is well. I'm reaching out to you because a group of Alaskan natives is coming to Washington for meetings on June 5 and 6 regarding the Pebble mine. They are hopeful that Lee would have time to meet with them. At this point, their schedule is free on both days, except for 1:00 on the 6th, when they meet with Representative Young.

The group includes:

Abe Williams – PLP Employee, Commerical Fisherman, BBNC Shareholder, Grew up in Bristol Bay
Brad Angasan – VP of Corporate Affairs for Alaska Peninsula Corporation
Ventura Samaniego – President & CEO of Kijik Corporation
Margie Olympic – PLP Site Staff & Newhalen Tribal Member
Henry Olympic – President of Newhalen of Tribal Council.

Can you let me know if Lee has has time on either of those days?

Thanks.

Peter

THE pebble PARTNERSHIP

Peter D. Robertson
The Pebble Partnership
1330 Connecticut Avenue, NW
Washington, DC 20036

Redacted

Message

From: Bozek, Richard [RBozek@eei.org]
Sent: 2/15/2018 6:59:05 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Greenwalt, Sarah [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c13775b8f424e90802669b87b135024-Greenwalt,]
Subject: Speaker Request - March 7
Attachments: Speaker Request Form EEI March 2018 Greenwalt.docx

Lee, Sarah:
Following up on the conversation Lee and I had yesterday, attached please find a meeting request to have Sarah address the EEI Water Resources Subcommittee on March 7 sometime between 1:30-2:30 pm. Sarah, you had previously expressed an interest in meeting our group when I brought this up last fall. I hope your schedule permits you to join us. Please let me know. Thanks.

Cordially,
Rich

C. Richard Bozek
Director, Environmental and Health & Safety Policy
Edison Electric Institute
701 Pennsylvania Ave., N.W.
Washington, D.C. 20004-2696
Redacted
Rbozek@eei.org
Follow EEI on Twitter, Facebook, and YouTube.

Edison Electric Institute
701 Pennsylvania Avenue, NW
Washington, D.C. 20004-2696
202-508-5000 | www.eei.org

OFFICE OF WATER SPEAKER REQUEST FORM
U.S. Environmental Protection Agency

Deadline for Acceptance:	Any time prior to February 23; but preferably as early as possible
Event Title:	*EEI Water Resources Subcomittee*
Speech Date:	March 7, 2018
Is the Above Date Flexible:	No
Speech Time & Duration:	Anytime between 1:30 p.m. and 2:30 p.m. for 20 minutes plus 10 min Q&A
Speaker Requested:	Sarah Greenwalt
Event Location:	EEI, 701 Pennsylvania Ave NW; 4th Floor
Open Press/Closed Press:	Closed Press
Is Event Webcast/Recorded/Transcribed:	The meeting is not recorded or transcribed but a conference line for members will be open
Purpose of the Event:	Working Meeting of Energy Company Environmental Executives and staff
Speech Topic:	Administration's strategic and regulatory priorities on WOTUS, ELGs and other priority water, infrastructure and permit streamlining issues. A focus on the timing and key elements of the replacement rules for both topics would be of particular interest.
Requested Presentation Format:	Seated informal presentation
Speech/Presentation Duration:	20 minutes with about 10 minutes after for Q&A
Audience:	30-50 energy company V.P's., Directors and staff with responsibility for environmental management at the nation's investor-owned energy companies.
Event/Organization Web Site:	www.eei.org
Event Agenda/Program:	Ms. Greenwalt would be our one outside speaker at this Subcommittee and would have the opportunity to meet the community of executives and staff charged with addressing two of the CEO community's priorities – WOTUS and ELGs.
Notable Guests Attending:	
Point of Contact:	C. Richard Bozek, rbozek@eei.or Redacted

Message

From: Bozek, Richard [RBozek@eei.org]
Sent: 2/21/2018 1:17:55 PM
To: Greenwalt, Sarah [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c13775b8f424e90802669b87b135024-Greenwalt,]
CC: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Speaker Request - March 7

Sarah:
I understand, perhaps sometime in the future.

Yes I would like to speak with you on another matter - shouldn't take long, maybe 15 minutes or under. Do you have anytime today we can schedule a quick call?

Best,
Rich

Sent from my iPhone

On Feb 20, 2018, at 3:46 PM, Greenwalt, Sarah <greenwalt.sarah@epa.gov> wrote:

> This email originated from an external sender. Use caution before clicking links or opening attachments. For more information, visit The Grid. Questions? Please contact ITSupport@eei.org or ext. 5100.
>
> ---
>
> Rich,
>
> Thank you kindly for the invitation. Unfortunately I will not be able to attend on March 7th.
>
> I know that you and Lee spoke, but now that I'm back in-country please let me know if we still need to talk.
>
> Best,
> Sarah
>
> Sent from my iPhone
>
> On Feb 15, 2018, at 1:59 PM, Bozek, Richard <RBozek@eei.org> wrote:
>
> > Lee, Sarah:
> > Following up on the conversation Lee and I had yesterday, attached please find a meeting request to have Sarah address the EEI Water Resources Subcommittee on March 7 sometime between 1:30-2:30 pm. Sarah, you had previously expressed an interest in meeting our group when I brought this up last fall. I hope your schedule permits you to join us. Please let me know. Thanks.

Cordially,
Rich

C. Richard Bozek
Director, Environmental and Health & Safety Policy
Edison Electric Institute
701 Pennsylvania Ave., N.W.
Washington, D.C. 20004-2696
Redacted
Rbozek@eei.org
Follow EEI on Twitter, Facebook, and YouTube.

<image001.jpg>

<Speaker Request Form EEI March 2018 Greenwalt.docx>

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 2/26/2018 5:51:33 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: BBWA

Lee,

Thanks again for meeting with Tom Collier and me when Tom was here two weeks ago. We appreciated your making yourself available and your willingness to listen to our ongoing concerns.

As Tom and I have talked about our meetings in Washington, one of the issues that has come up is a continuing concern on our part about the Bristol Bay Watershed Assessment. You, and others with whom we have spoken in EPA and at other agencies, were not with the Agency when the BBWA was being drafted and completed. I suspect you have certainly not read the voluminous comments that we submitted, addressing concerns with both the substance of the Assessment and the process by which it was prepared. Those concerns are every bit as important today as they were when the BBWA came out, because the Agency is obviously still relying to a significant degree on the BBWA to make decisions regarding Pebble (as evidenced by the concerns about the risk of a mine as enunciated in the decision not to withdraw the Proposed Determination).

Tom would appreciate the opportunity to brief you, along with others in the Agency and perhaps representatives from other agencies involved in this process as well. He is out of the country now, but will be back in country and in Washington DC on Friday, March 9. He might also be in Washington during the following week.

If that timing doesn't work, we could almost certainly do this as a conference call (perhaps as a webinar with some slides as well). That may be the easiest way to do it and to involve people in other offices at EPA and in other agencies.

Please let me know if you have the time and inclination to hear our concerns. We believe that understanding them is crucial to making informed decisions. We appreciate your consideration of our request.

Best,

Peter

THE pebble PARTNERSHIP

Peter D. Robertson
The Pebble Partnership

1330 Connecticut Avenue, NW
Washington, DC 20036

Redacted

Appointment

From: Penman, Crystal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=93662678A6FD4D4695C3DF22CD95935A-PENMAN, CRYSTAL]
Sent: 7/23/2018 4:12:32 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; McDonough, Owen [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=10a92c71b552413694fed6fa08522f4f-McDonough,]
CC: Campbell, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b8c25a0c2fb648b6a947694a8492311e-Campbell, Ann]; Caravelli, Margaret [mcaravelli@balch.com]

Subject: Refining Effluent Guidelines Letter
Attachments: Real ID Information.pdf; FW: Meeting Request with Assistant Administrator Ross
Location: 1201 Constitution Ave NW, Washington DC 20004; WJCE 3233; Pleae call 202-564-5700 for escort

Start: 8/24/2018 3:00:00 PM
End: 8/24/2018 3:30:00 PM
Show Time As: Tentative

Message

From: Caravelli, Margaret [mcaravelli@balch.com]
Sent: 6/28/2018 6:00:53 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
CC: Beeman, Guy M. (MPC) [gmbeeman@marathonpetroleum.com]
Subject: FW: Meeting Request with Assistant Administrator Ross
Attachments: RefiningEffluentGuidelinesLetter.pdf

Flag: Follow up

Crystal:
Again sincere apologies for sending this to Crystal Edwards and not directly to you!
And I know better since Anna Wildeman let me know a few weeks ago to work with you to schedule meetings.

Please see below for the original email meeting request. I've cc'd Guy Beeman from Marathon Petroleum as well.

Thank you in advance for your assistance.

Regards,
Margaret

From: Caravelli, Margaret
Sent: Monday, June 25, 2018 1:36 PM
To: 'Campbell.Ann@epa.gov'; 'Edwards.Crystal@epa.gov'
Cc: Beeman, Guy M. (MPC); 'Forsgren.Lee@epa.gov'
Subject: Meeting Request with Assistant Administrator Ross

Ms. Campbell & Ms. Edwards:
Your colleagues in the Office of Air and Radiation suggested I reach out to you both in regard to scheduling a meeting in July with Assistant Administrator Ross. This meeting would be in follow up to a letter recently sent to the Office of Water by API and AFPM regarding EPA's on-going study of effluent limitation guidelines for petroleum refining. (See attached).
Our client, Marathon Petroleum, would like to meet with Assistant Administrator Ross to discuss the letter. Copied on this request is Guy Beeman, Manager, Federal Affairs, Marathon Petroleum.
Please let us know what additional information and details you may need in regard to this request. You may reach me at Redacted

Thank you in advance for your assistance.

Regards,
Margaret

BALCH & BINGHAM LLP

Margaret Caravelli, Partner, Balch & Bingham LLP
601 Pennsylvania Avenue, NW ◦ Suite 825 South ◦ Washington, DC 20004-2601
Redacted : (866) 237-7416 e: mcaravelli@balch.com
www.balch.com

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 jgunnulfsen@afpm.org

June 8, 2018

Mr. Brian d'Amico
Branch Chief
Engineering and Analysis Division
Office of Science and Technology
Office of Water
United States Environmental Protection Agency
Mail Code 4303 T
1200 Pennsylvania Avenue Northwest
Washington, DC 20460

Dear Mr. D'Amico:

On behalf of our members, the American Petroleum Institute (API) and American Fuel and Petrochemical Manufacturers (AFPM) are providing the following update and comments concerning the Environmental Protection Agency's (EPA's) on-going Detailed Study of effluent limitation guidelines (ELGs) for the petroleum refining point source category. API is a nationwide, non-profit, trade association that represents over 625 members engaged in all aspects of the petroleum and natural gas industry, including exploration, production, refining, and distribution of petroleum products. AFPM is a national trade association representing nearly 400 companies that encompass virtually all U.S. refiners and petrochemical manufacturers. AFPM members operate 120 U.S. refineries comprising more than 95 percent of U.S. refining capacity. API and AFPM members are subject to effluent limitation guidelines, including those in the petroleum refining point source category, and so are directly affected by all aspects of the on-going Detailed Study.

We appreciate the cooperative and trusted relationship cultivated over the last several years we have worked together on the Detailed Study. As we have discussed on multiple occasions, API and AFPM members have invested heavily in wastewater treatment technologies where warranted for addressing local water quality concerns. API and AFPM believe EPA has sufficient data, including discharge monitoring reports, toxic release inventories, site visit reports, and the 308 Questionnaire responses, to determine that the existing effluent limitation guideline technology-based limits (TBELs), taken in combination with water-quality-based effluent limits (WQBELs), are protective of human health and the environment, and that revisions to existing petroleum refining TBELs are not warranted. We request EPA analyze the aforementioned discharge monitoring reports, toxic release inventories, site visit reports, and the 308 questionnaire responses, to inform whether it is necessary to proceed with the refinery self-

monitoring program. We believe EPA upon doing so will agree that the data support the conclusion that ELG revisions are not warranted.

If EPA determines the refinery self-monitoring program is justified, EPA should narrowly tailor the program to filling gaps in the available data. Also, EPA should remove naphthenic acids (NAs) and alkylated polynuclear aromatic hydrocarbons (alkylated-PAHs) from the scope of the sampling phase. While we have yet to receive EPA's preliminary analysis, we do appreciate the responsive nature by which EPA shared documentation for the analytical method(s) for alkylated-PAHs and NAs. That said, after thorough and critical review of the documentation by leading industry experts, our members' concerns (detailed in Attachment A) are not resolved. API and AFPM membership strongly oppose inclusion in the Detailed Study of the proprietary analytical method for naphthenic acids and the non-promulgated method for alkylated-PAHs. Data derived from these methods could result in the EPA facing substantial scientific and legal challenge.

Moreover, EPA's use of the proprietary method for naphthenic acids is in clear contradiction to EPA's recent proposed rule to strengthen transparency in regulatory science (83 Fed. Reg. 18768, April 30, 2018, "Strengthening Transparency in Regulatory Science"). The summary of EPA's proposed rule states, "The proposed regulation provides that when EPA develops regulations, including regulations for which the public is likely to bear the cost of compliance, with regard to those scientific studies that are pivotal to the action being taken, EPA should ensure that the data underlying those are publicly available in a manner sufficient for independent validation." Independent validation is clearly not possible when a proprietary analytical method is used to generate the data. In the interest of transparency, per its own proposed rule, EPA should abandon the use of this proprietary method in the Detailed Study.

API's and AFPM's remaining concerns are summarized as follows:

A. Analysis of collected data

EPA has yet to share preliminary analysis of existing data, including discharge monitoring reports, toxic release inventories, site visits, and the 308 Questionnaire responses. Sharing the analysis will clarify the necessity and scope of the sampling phase as well as attain early scientific concurrence with stakeholders. Analysis of existing data should be complete before EPA moves forward with additional data collection through the self-monitoring program.

B. Method not proved in analysis of refinery wastewaters

The method developed by Axys Laboratories, intended for use for analysis of samples in the Study, has never been tested on refinery wastewaters. The documentation provided by EPA suggests that interferences in complex matrices (e.g., refinery wastewaters and effluent), may impact data quality, giving rise to highly variable data, including false positive and/or negative results.

C. Proprietary method impairs validity of data

The proposed analytical method for naphthenic acids is neither an EPA-approved nor an industry-adopted method. In fact, it is Axys Laboratories' proprietary method which directly prevents our members from validating, evaluating or replicating any results. This is a deviation from past EPA procedures and provides neither sufficient transparency nor scientific validity to the Study.

D. Absence of documented environmental benefits

EPA has not identified the environmental concern for including NAs and alkylated-PAHs in the Study. As per the well-established procedures used in past effluent guideline studies, constituents should have an associated toxicity to determine the measurable environmental benefit that may result, if removed. The science and data for the toxicity of NAs and alkylated-PAHs are still a work in progress.

In this regard, we note that of the naphthenic acids and alkylated-PAHs that would be analyzed by the prescribed methods, the vast majority of specific compounds within these mixtures are of a size that could not cross biological membranes to cause toxicity. Typically, compounds with log octanol:water partition coefficients exceeding 6.4 are excluded from toxicity assessments by the target lipid model approach. Quantifying these analytes within "total NAs" or "total alkylated-PAHs" introduces error/bias.

EPA should make available API/AFPM for our review any petroleum refinery toxicity identification evaluation (TIE) data demonstrating naphthenic acid and/or alkylated-PAH toxicity constituting the basis for inclusion of these broad classes of analytes within the Detailed Study.

API and AFPM members believe in due diligence and support EPA in developing sound science. We therefore strongly recommend that EPA remove naphthenic acids and alkylated-PAHs from the Detailed Study. Rather, we recommend that these constituents and their analytical methods be addressed in a project outside of the Study, in which the industry will be a willing participant. A separate project would also allow EPA to follow the appropriate public notice and comment period required to gain method approval. API and AFPM will be happy to discuss the concerns and suggestions in a face-to-face meeting and come to an agreement that addresses the need for validated, reproducible science in support of environmental goals.

In summary, API/AFPM believe refining ELG revisions are not warranted. If EPA continues the Detailed Study, EPA should narrowly tailor the refinery self-monitoring program to filling gaps in the available data. And API/AFPM strongly recommend EPA remove naphthenic acids and alkylated PAHs from the Detailed Study. API/AFPM would participate with EPA in a project outside the Detailed Study to address analytical methods for naphthenic acids and alkylated PAHs.

If you have any questions about these concerns or would like to arrange a face-to-face meeting, please feel free to contact us.

Sincerely,

Roger E. Claff
Senior Scientific Advisor, API

Jeff Gunnulfsen
Director, Security and Risk Management Issues, AFPM

Attachment

cc: R. Wood, EPA
D. Ross, EPA
L. Forsgren, EPA

Attachment A - Report to API and AFPM on Issues with the EPA Proposed Analytical Methods for Groups of Naphthenic Acids and alkylated-PAHs, and the Potential Impact on an ELG Investigation

Introduction

The American Petroleum Institute and American Fuel and Petrochemical Manufacturers (API/AFPM) received a number of documents from the U.S. Environmental Protection Agency (EPA) concerning experimental methods used by AXYS Laboratories for the analysis of naphthenic acids (NAs) and alkylated polynuclear aromatic hydrocarbons (PAHs). Two documents were brief method summaries of the laboratory's analytical procedures. Also included in these documents were Inter-laboratory studies involving these two analytical methods. API/AFPM has examined these documents in considerable detail, and has a number of concerns about these methods, as described in the following report. Our overall conclusions are that these methods are currently highly experimental and should not be used to evaluate refinery wastewater or develop wastewater regulations for the refinery industry.

I. Summary of Issues

1. The AXYS method for naphthenic acids is proprietary to AXYS. As such, EPA did not and could not provide the method procedures for review and comment. EPA intends to require use of the AXYS naphthenic acids method in the petroleum refining detailed study refinery self-monitoring program, notwithstanding the method is proprietary to AXYS. This intention is in clear contradiction to EPA's recent proposed rule to strengthen transparency in regulatory science (83 Fed. Reg. 18768, April 30, 2018, "Strengthening Transparency in Regulatory Science). The summary of EPA's proposed rule states, "The proposed regulation provides that when EPA develops regulations, including regulations for which the public is likely to bear the cost of compliance, with regard to those scientific studies that are pivotal to the action being taken, EPA should ensure that the data underlying those are publicly available in a manner sufficient for independent validation." Independent validation is clearly not possible when a proprietary analytical method is used to generate the data. If EPA seeks transparency, per its own proposed rule, EPA will abandon the use of this proprietary method in the petroleum refining detailed study.

2. The exact definitions of compounds to be included in both the naphthenic acid compound and alkylated PAH compound groups are still not decided, and the analytical lists for each vary widely. In the Environment Canada Inter-laboratory Study on Alkylated PAHs, part of the conclusion states: "This first assessment of the current state of the PAH and alkyl-PAH analysis of environmental samples was rather ambitious. Over 100 separate measurands were asked to be reported in 3 separate matrices. Future studies will focus on a target list more closely approximating the one found in ASTM D7363-11." They also stated they should focus on one matrix per study. This is a concession that the analytical method is unwieldly and matrix

effects are poorly understood, and the reported quantitative results for many of the PAH homologs were extremely poor.

3. For the NAs, Environment Canada is promoting the concept that aromatic naphthenic acids should be included in the "total naphthenic acids" analytical categories. The aromatic NAs are not currently included in the category, and API/AFPM strongly opposes their inclusion. If they were included with other NAs, this would imply that the toxicological and physical-chemical properties of aromatic NAs are basically the same as the properties for the NAs with no aromatic rings in their structure, and this comparability is not known or understood at this time. To determine this, a dependable and vetted method must be developed to analyze aromatic NAs as separate entities, so that their properties can be determined. There currently is no EPA peer reviewed and approved method for either the non-aromatic or aromatic NA categories.

4. The summary AXYS Analytical Method for NAs provided by EPA (the version was dated February 15, 2018) is an extremely complex and detailed method that attempts to separate the NAs in aqueous samples into 60 different categories of compounds. API/AFPM has concerns about several specific issues, some of which may have been overlooked in the necessarily abbreviated AXYS summary overview of the method. Some of our concerns and reservations are discussed below. All of these concerns and others are discussed in the full report.

   - The calibration curve for all sixty categories of naphthenic acid compounds is only provided by a single compound: 1-pyrenebutyric acid, which does not even qualify as a naphthenic acid due to the aromatic rings in its side chain. Further, 1-pyrenebutryic acid is used to generate response factors for the quantification of target compounds. Using a single compound to calibrate perhaps a hundred compounds, without evaluation of consideration of the various structural groups, will result in response factors orders of magnitude apart and will generate a highly biased data set.

   - The summary method states that several of the sixty categories either can or do contain some aromatic NAs, particularly in categories where the "z value" equals minus ten or minus twelve. It is unclear if the method can recognize which compounds are aromatic, but it appears the answer may be no, because otherwise they could be subtracted out from the total for each group. It is also unclear whether additional aromatic compounds may be present in some of the other analytical groups but cannot be detected as such by molecular weight.

   - The summary provides no discussion, for example, of the QC controls on the completeness of the derivatization reaction. We are concerned that di- or tri-carboxylic acids might get counted if only one carboxyl group is derivatized, while mono-carboxylic acids might be missed. Conversely, if two or three carboxylic acid groups per molecule do get derivatized, could molecular weight (MW) fragments of an original di- or tri-carboxylic acid be mistaken for some of the mono-carboxylic acids that are the intended analytical target?

- We note that for at least two of the chromatograms depicted on page six, there seems to be significant interfering overlap of some peaks within the same molecular weight. We are concerned that the interference could be many times greater for actual refinery wastewater, and that these interferences might be "double-counted" in any final total result, especially in highly complex wastewater matrices.

5. For naphthenic acids, the two Inter-laboratory Studies provided by EPA from Environment Canada did not provide any comparison of the analyses of different categories of naphthenic acids. The quantitative assessment was limited only to "total naphthenic acids" and included analyses by several different methods. For total NAs, the AXYS laboratory was evaluated with a somewhat high overall recovery for total NA (115-120%), which was typical of the labs using some form of liquid chromatography/mass spectroscopy (LC/MS) method in this study. (We are again concerned whether in more complex wastewater samples, this slight high bias might be much higher.) Given the dates of these studies (2012 and 2016), it is unclear whether the version of the AXYS Method (dated 2/15/18) described in the summary provided by EPA/AXYS was the same version as used for these two earlier studies.

6. Conclusion Number 8 for the 2016 Naphthenic Acid Inter-laboratory Study stated the following: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." API/AFPM agrees that this is needed, and has stated that actual refinery samples, especially untreated wastewater samples, can greatly complicate the analytical process for many well established methods, let alone experimental procedures currently being developed.

7. EPA provided one Inter-laboratory Study for Alkylated PAHs. Most of the laboratories performed quite well on the traditional single-compound PAHs, with on average about a 22% Relative Target Standard Deviation (RTSD) per compound for aqueous samples. However, the story was entirely different for the alkyl-PAH homolog groups. For aqueous samples, the average RTSD was extremely large at 80%, with some PAH homolog groups being well over 100% RTSD. If the standard data acceptance criterion of plus or minus three standard deviations is applied to this data, it is difficult to describe the analysis of these PAH homologs as being even semi-quantitative. The literature documents errors associated with EPA 8270, resulting in overestimation of alkylated PAH concentrations (Wilton et al. *Analytica Chimica Acta* 977 (2017), pp. 20-27).

8. We are also concerned about how toxic weighting factors (TWF) might be developed and applied to analytical groups or subgroups (such as naphthenic acids or alkylated PAH compounds) that could include hundreds of different compounds. Typically, toxicity testing is performed using pure individual compounds; this assures that during toxicity testing, the

source of any toxicity can be attributed to that specific compound. We are concerned that for large groups of unidentified compounds, any perceived TWF observed during toxicity testing could be due to a very few compounds that are not representative of the overall group or are only present in that group of compounds when analyzed from a specific source. These few compounds may or may not be present in an analytical group from other sources or other types of wastewater. It should be noted that in Conclusion number 6 to the 2016 total Naphthenic Acid Inter-laboratory Study, Environment Canada expressed concern that the commercially available standard, Merichem Naphthenic Acid Solution (used to spike the samples, and presumably a similar mixture might be used for any toxicity testing), did not seem to match the contaminants in wastewater at the Athabasca oil sands region (sample OSPW in the study). By inference, this comment suggests that if the current naphthenic acid standard mixture solutions are not representative of oil sands process-affected water (OSPW), they are unlikely to be representative of other types of water matrices such as treated refinery wastewater either and therefore are inappropriate for determining what constituents might cause toxicity in refinery wastewater.

II. Issues Concerning an Exact and Appropriate Definition of the Compounds Being Analyzed for both Naphthenic Acids and alkyl-PAH Homologs

Based on published scientific literature discussing the analyses of both Alkylated PAHs and Naphthenic Acids, there are significant discrepancies as to exactly what types of compounds are considered appropriate to include into each of these groups. The grouping of compounds varies between different agencies (EPA, Canada, various US states), environmental papers, and also with the laboratories analyzing the samples (even in the inter-laboratory study by Environment Canada). There should be a clear and vetted definition of exactly what is intended to be measured and included within each of these broad analytical groups, and only peer-reviewed and approved methods should be used.

A. Naphthenic Acids: Strict Definition and Potential Issues

The AXYS Laboratory definition of a naphthenic acid is any configuration of fatty acid chain that 1) contains between twelve and twenty-one carbons, 2) that does not contain any aromatic carbon rings, 3) has only a single carboxylic acid group, and 4) is either saturated or has a degree of unsaturation defined by a negative "z" number that can equal the even numbers 0, -2, -4, -6, -8, -10, or -12, with each negative even number progressively corresponding to the loss of two more hydrogen atoms due to double bonds or alkyl carbon rings. The general formula is: $C_nH_{2n+z}O_2$. In common language, this definition and formula includes most naturally occurring fatty acids, and these can be saturated (maximum number of hydrogens: $z = 0$), monounsaturated (missing two hydrogen atoms due to a double-bond or cyclic non-aromatic ring: $z = -2$), or polyunsaturated (multiple double bonds, or more rarely, multiple cyclic, non-aromatic rings: z = higher even negative numbers up to -12). This definition of naphthenic acid (and, perhaps, any definition) is far from universally held, making data comparisons nearly impossible. There are some other

definitions in use (or that have been used) that utilize greater or lesser numbers of carbon atoms, a larger number of carboxylic acid groups, the presence (or absence) of some cyclo-alkane compounds, or different degrees of saturation. This particular definition used by AXYS might be due to the analytical method being used, or to the industrial wastewater being studied, or to certain common chemical properties these acids have in common. However, this definition of naphthenic acids is already very broad and can include hundreds or even thousands of compounds (including isomers).

Most of these fatty acids that meet this strict definition are essential components in vegetable oils, dairy products, animal fats, and also in processed foods such as dehydrogenated or polyunsaturated fats or fatty acids and are unlikely to be toxic. However, there evidently is a movement to broaden the definition of naphthenic acid to include carboxylic acids that contain aromatic rings, and Environment Canada has come out in favor of this. (Aromatic carbon rings are the primary constituents of benzene and PAH compounds.) API/AFPM would oppose such a move, because these compounds, if present in treated refinery wastewater, could possibly have significantly different characteristics from the normal aliphatic NAs that are presumably the main target for the analysis. API/AFPM opposes any such change on the grounds that any toxicity that might be measured could be due almost entirely to the inclusion of these aromatic compounds, which might then be transferred to other aliphatic NAs that have little or no toxicity to humans. (The human toxicity factor, or carcinogenicity, is nearly always the main driver when organic compounds are assigned a high TWF.) API/AFPM believes that the compounds that contain aromatic rings in their side-chains might have significantly different toxicological and physical-chemical properties than the standard defined naphthenic acids. Therefore, if they are found to be present in refinery wastewater, they should be evaluated separately from naphthenic acids. This is discussed in more detail in the portion of this report on the potential assignment of TWFs by EPA to analytical results that represent large groups of related compounds.

B. Alkylated PAHs: Definition has apparently been changed several times in recent years

In just the last few years, there have been numerous papers published discussing alkylated PAHs, and nearly all of the papers are different in assuming which types of compounds are to be included under that label. Many of the compounds discussed clearly do not fit the strict scientific definition of alkylated PAHs, i.e. a group of fused hydrocarbon aromatic rings (usually two to five) with substitutions of alkyl groups (methyl, ethyl, propyl, etc.) at some of the available locations around the fused rings. Some of these additional compounds have perhaps incorrectly been justified for inclusion in the group because they are frequently associated with PAH compounds, such as being common components of coal tar (which is to a large extent made up of PAH compounds). Others have even less justification for inclusion in the group. It appears that EPA is currently favoring the list of analytes that is provided with the AXYS Method (MSU 21C, provided by EPA).

Table 1 is a list of compound categories that are or have been suggested to be included in a list of alkylated PAH compounds that could be analyzed. The top three categories of compounds have been included in the AXYS analytical list, along with the traditional single compound PAHs. Compounds towards the bottom of Table 1 are not currently included in the AXYS list of analytical categories but are discussed in various other papers as possibly being identified as alkylated PAHs. It is unlikely that there is any single laboratory currently analyzing all of the compound/group categories in Table 1, and we believe it unlikely that any laboratory is using a method where all possible combinations within each compound group category are analyzed. Even AXYS and the other participants in the Environment Canada Inter-laboratory study (for alkylated PAHs) did not each perform the analysis on all of the over 100 "measurands" (combined individual compounds and homologous groups) requested by Environment Canada.

Table 1: Compounds/groups that do not meet the strict definitions of "PAH" or "alkylated-PAH"

Compound/Group	Comments
Biphenyl (plus alkyl-substituted Biphenyls)	Not really a PAH, as there are no fused rings. However, it is a common component of coal tar, and is therefore found with PAHs. They are on the AXYS analytical list.
Various alkyl substituted PAHs, also termed "alkyl-PAH Homologs"	While these type compounds do meet the "alkyl-PAH" definition, these are not analyzed as individual compounds, but as compound groupings. Each group can contain dozens of compounds, and there can be any number of different groupings possible. (No single laboratory analyzes for all possible alkyl-PAH groupings.) The AXYS Laboratory Analytical List does include an intermediate number of alkylated PAH groups, more than some laboratories, less than others. API/AFPM does not believe these groups should be included, because the quantitative analysis of the PAH homologs in aqueous samples in the 2015 Environment Canada Inter-laboratory Study was almost a complete failure (as described later in this report).
Dibenzothiophene, (plus alkyl-substituted DBTs)	This is a heterocycle (a sulfur atom in the middle ring), and therefore not a PAH. However, it is considered to be chemically similar to anthracene, and is frequently detected in heavy oil fractions. They are on the AXYS analytical list.
Dibenzofuran, other oxygen heterocycles	These are listed in the paper source below[1], and dibenzofuran is included in the alkyl-PAH listing for several laboratories, but these are not PAHs, since they contain oxygen in at least one of the fused rings. The AXYS list does not include dibenzofuran or any other oxygen heterocyclic compounds.
Nitro-pyrene, other nitro-substituted compounds	Some papers list these, and the Minnesota Pollution Control Board (MPCB) incorporates them into their "extended PAH" list. Nitro-substituted compounds have their own chemistry (explosives). These also can be groups of compounds. These are not included on the AXYS analytical list.

Nitrogen heterocycles such as Carbazole, dibenzocarbazole, dibenzoacridines (including groups of alkyl-substitutions)	Minnesota Pollution Control Board (MPCB) incorporates several of these nitrogen heterocyclic compounds into their "extended PAH" list. However, these all contain nitrogen in at least one of the aromatic rings, which greatly alters the chemistry of these compounds. They are polynuclear and aromatic but are not hydrocarbons. These are not included in the AXYS list.

[1]"Time to Say Goodbye to the 16 EPA PAHs? Toward an Up-to-Date Use of PACs for Environmental Purposes" Jan T. Andersson and Christine Achten (2015)

API/AFPM believes it is impractical to analyze samples for all of the possible combinations of compounds and compound groups in all of the above categories. The result would be hundreds of "measurands" (combined single compounds and homologous groups) where the compound groups could each further represent hundreds of additional compounds.

API/AFPM is also opposed to the analysis of alkyl-PAH homologs and any other groups of PAH-like compounds analyzed as a group, because they are not individual compounds, and the 2015 inter-laboratory study clearly indicates that currently they cannot be quantitatively analyzed. This would also apply to other compound groups that may not have been analyzed in the 2015 Inter-laboratory Study. Also, analogous to the argument for naphthenic acids, any toxicity assigned to a mixed group of alkyl-PAH isomers could be dominated by only one or a few compounds that may have unique features that are grouped with a larger number of compounds that have negligible toxicity. It should be noted that for the "traditional 16" PAH compounds, the assigned TWF ranges from 100 for benzo(a)pyrene to 0.008 for acenaphthylene. That is a TWF range of greater than four orders of magnitude. This problem with grouping alkyl-PAHs is discussed further in the portion of this report on the potential danger of assigning TWFs by EPA to analytical results that represent large groups of related compounds.

API/AFPM is not opposed to the analysis of individual non-PAH compounds if EPA can justify that such compounds can be or are often associated with other PAH compounds with similar physical-chemical and toxicological properties and an appropriate, recognized and vetted analytical method can be employed. We note that the AXYS analytical list already includes the analysis of biphenyl and dibenzothiophene as separate compounds. The individual compounds dibenzofuran and carbazole are already commonly included on many laboratory semi-volatile organic analytical lists and will likely be analyzed as independent compounds anyway. As to the other heterocycles, we think EPA should justify the investigation of those compounds, as some of them seem unlikely to be present and are rarely if ever analyzed by most laboratories.

III. Analytical Methods Used for Naphthenic Acids: Analytical Problems and Inter-laboratory Studies

Currently, all environmental laboratories only analyze naphthenic acids either as total naphthenic acids, or as groups of compounds with the general formula $C_nH_{2n+z}O_2$. There are no calibrations

performed that are utilized to quantitate individual compounds, and the type and number of calibration standards prepared for different compound groups varies by the method and laboratory using them. Naphthenic acids (NA) can be analyzed as a single result reported as "total naphthenic acids" using Fourier-transform Infrared Spectroscopy (FTIR, a type of infrared spectrophotometry). Using LC/MS methods, it may be possible to calibrate and analyze for some individual NA compounds, however each group of NA compounds can contain dozens or even hundreds of specific compounds and isomers, making this a daunting task. Laboratories utilizing an LC/MS method often simply report "total naphthenic acids" as the sum of the NA concentrations measured within each NA subgroup that is analyzed by their method.

A. A Brief Description of the AXYS method for analyzing NAs

The AXYS Method is a very complex and ambitious proprietary method for the measurement of naphthenic acids. EPA provided API/AFPM a short summary of this complicated method suitable for public review (MSU-077C, R01, dated February 15, 2018) that describes in general terms the various steps involved. Due to the very recent date assigned, it is not clear whether this exact version of the method was used in either of the inter-laboratory studies (performed in 2012 and 2016) provided by EPA and discussed later in this report. The general procedure is presented in the following.

Aqueous samples can be extracted in the laboratory, or samples can be collected in the field using up to three Polar Organic Chemical Integrative Sampler (POCIS) sampling disks, (which can be used to concentrate samples if desired). Each extract is derivatized with 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide hydrochloride (EDC), to form the corresponding naphthenic acid-EDC derivatives. This means that there is a reaction with the carboxylic group, so that an acid-EDC complex is generated. This step is presumably performed to enhance the solubility, chromatography, and/or mass spectral pattern of the naphthenic acids. Analysis of the extracts is performed by high performance liquid chromatography (HPLC) with triple quadrupole mass spectrometer detection (LC-MS/MS). A fully detailed analysis report using this method would contain values for 60 different analytical groups of naphthenic acids (an amazing amount).

These 60 groups fit the generic formula $C_nH_{2n+z}O_2$, but are restricted as listed in Table 1 of the provided MSU-077C, R01 document (and reproduced later in this report):

- The number of carbon atoms allowed for this NA analysis are only in the range of C12 through C21.
- The carbon chain should not contain aromatic rings.

- The unsaturation factor "z" for the number of hydrogens can only be zero (saturated fatty acid), or negative even integers -2 (unsaturated), -4, -6, -8, -10, or -12 (these last are polyunsaturated). Not every carbon number includes this complete list of "z" values; this serves to limit the number of NA groups to 60 categories. Each category is capable of containing dozens or sometimes hundreds of compounds meeting the same generic formula for the group.

- The AXYS method analysis is supposed to be limited only to parent ions that originally had a single carboxylic acid group (that is the CO_2H element prior to derivatization).

B. Possible issues with the AXYS method for naphthenic acids

We are concerned about several potential problems when this method is applied to actual refinery wastewater.[1] Some of these problems may be left out of the short summary provided, but others might have a major effect on the interpretation of these results, and how they might be used for development of an effluent limitations guideline (ELG). The following bullets identify these issues. They are arranged roughly in order of concern.

1. The method only uses a single calibration curve to quantitate all 60 of the different analytical categories of naphthenic acids, and the calibration uses only a single compound, 1-pyrenebutyric acid (injected at three concentration levels). This particular compound does not even qualify as a naphthenic acid by the scientific definition of that class of compounds, due to the presence of an aromatic PAH group in the side-chain. This type of representative calibration is to our knowledge never employed when the compound itself is not included among the targeted analytes. The inter-laboratory studies discussed below provide little comfort in this area, since those studies are only evaluated on the total naphthenic acid concentration, and not on the 60 different sub-categories included in this method. For the total NA analysis, the AXYS laboratory performed reasonably well (an overall moderately high bias, as did most of the laboratories using some kind of LC/MS method), but for individual categories, the results might be very high or very low. We do not know how much importance EPA might place on individual naphthenic acid categories that have been measured, but if there are great differences in toxicity for these categories, this could be problematic. We realize there are other QC controls, including a Merichem Refined NA Mix that may give reproducible results, however, it appears that the individual compounds contained in this commercial mix are unknown.

---

[1] Please do not assume that any of the identified problems are a reflection on AXYS Laboratories, which we know is recognized as one of the premier environmental research laboratories in North America. Our concerns are about an experimental method still under development, its possible weaknesses, and how some of the results of this method might potentially be used in the development of a new refinery ELG by EPA.

Table 2. Reproduction of Table 1 in AXYS Method MLA-077: Molecular weights of NA groups that are analyzed with this method

n (C #)	Z # (hydrogen deficiency)						
	0	-2	-4	-6	-8	-10	-12
12	200	198	196	194		--	--
13	214	212	210	208			--
14	228	226	224	222	220		--
15	242	240	238	236	234	232 *	230 *
16	256	254	252	250	248	246	244 *
17	270	268	266	264	262	260	258 *
18	284	282	280	278	276	274	272
19	298	296	294	292	290	288	286
20		310	308	306	304	302	300
21		324	322	320	318	316	314

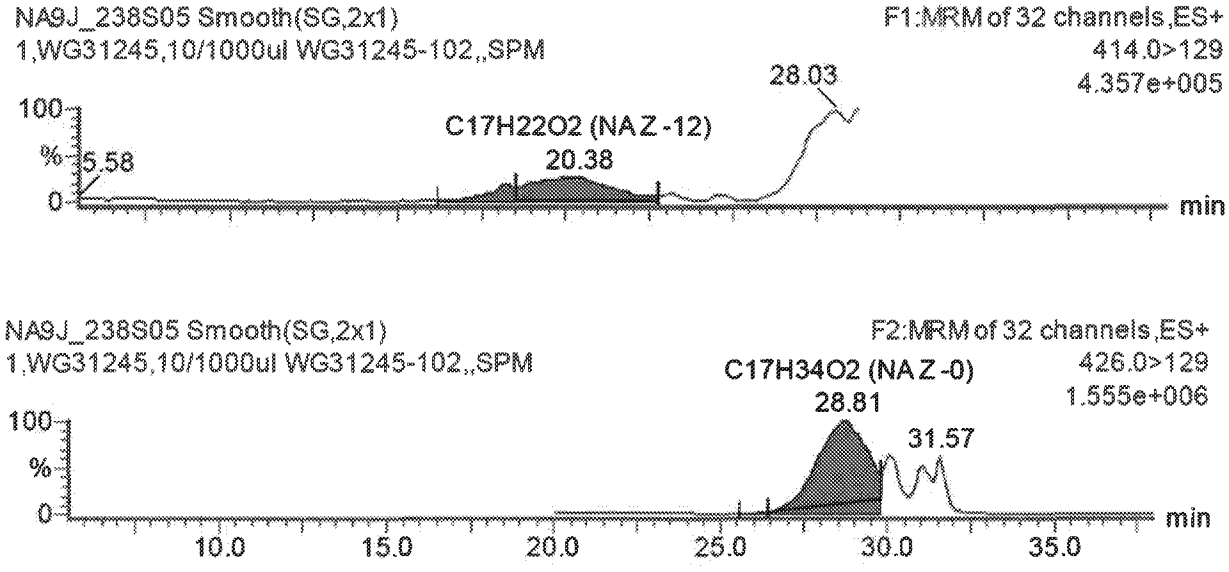
* Compounds that don't fit the strict definition of NA as they contain at least one aromatic ring may be included.

2. Table 2 is a copy of Table 1 from the AXYS Method (page 1 of the MSU-077C summary document. The table shows each of the sixty separate analytical categories of naphthenic acids reported to be analyzed using the AXYS method. Note that four of the 60 NA categories are asterisked, stating that it is possible that some of the compounds within those analytical groups might contain one or more aromatic rings, which do not fit the "strict definition" of a naphthenic acid. This also seems to suggest that the commercial mix "Merichem NA" that the method uses for control samples may also contain some aromatic acid species and possibly some di- or tricarboxylic acids.[2] Because the laboratory states that these aromatic compounds would be included within these categories, this logically seems to mean that the AXYS method cannot recognize whether the observed unsaturation in a particular parent mass spectral ion is caused by double bonds or by an aromatic ring (at least not by the molecular weight of the ion alone). A six-carbon aromatic ring is unsaturated by the equivalent of six hydrogens, so it would have a "z" number of "-6", before it is attached in some manner to the rest of the fatty acid chain, but this could be masked by the "z" factor present in the rest of the carbon chain. If the presence of aromatic rings could be determined by the method, then presumably such compounds could have been subtracted from the results for these analytical groups. This could have significant implications if the toxicological properties of NA's with aromatic rings are significantly different than those of the

[2] Environment Canada has concerns about the representativeness of the Merichem NA mixes compared to oil-sands process-affected water as described later in this report.

aliphatic NA compounds. Furthermore, if the presence of an aromatic ring in the carbon chain of an NA cannot be recognized, how does AXYS know whether there could be other aromatic NAs included within some of the other categories?

3. Ionization efficiency of NAs change with the structure of the compound and the matrix of the sample. This variation in ionization efficiency renders HPLC MS with electrospray ionization problematic for such complex mixtures.
4. On page six of the AXYS method summary, there are a series of seven chromatograms of groups of NAs containing 17 carbons, showing (presumably derivatized) mass values with parent MWs of 414 through 426. Presumably because these peaks are generated by a number of different isomers, the peaks have very broad retention times. Most are greater than five minutes, and all have undulations within each peak. In particular, in the mass 414 chromatogram the peak that crests at 20.38 minutes seems to have its low end retention time (RT) window clipped short due to another peak of the same mass appearing within the original RT window. Also, for mass 426, the peak at 28.81 minutes is clearly significantly influenced by some later peaks of the same mass, and apparently a manual integration was necessary. EPA requires all manual integration to be well documented. A highly experienced analyst can exercise his or her professional judgement on these integration issues (provided there is appropriate documentation), but this has its limits, and may become impossible if the chromatograms become too complex. Below are the chromatograms in question, for MW 414 and MW 426.



5. We do not know whether the chromatograms from page 6 (depicted above) are of a quality control (QC) sample or a real oil sands sample. Nor do we know if a smoothing

function has been used, as suggested by the label, "smooth," and if so, if that practice altered the analytical results. Particularly for untreated refinery wastewater which can be generated from many types of raw crude and be products of differing refinery processes, it is likely that these chromatograms could become far more complex, with substantially more likelihood of uncertainty entering into the analysis. Environment Canada mentioned this as one of their conclusions to the 2016 Inter-laboratory Study they conducted. They stated: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." Presumably this would also include refinery wastewater matrices for studying refineries. The 2016 Inter-laboratory was focused on oil-sands process-affected water and is not representative of refinery wastewater, either untreated or treated.

6. We note that this AXYS summary does not discuss any QC analytical check on the verification of the completeness of the derivatization efficiency, or address how the derivatization might perform on actual refinery samples, which presumably may contain di- or tri-carboxylic acids. Does the instrument recognize di and tri-carboxylic acids, even if they form fragments that contain only one carboxyl group? Does a fresh reagent fully derivatize all carboxyl groups in any compound? What if only one of the carboxylic groups is successfully derivatized in a di- or tri-carboxylic acid? Could the parent compound, or a potential mass ion fragment of the parent compound, be mistakenly identified as a monocarboxylic acid, and counted as a naphthenic acid? How is it determined whether stored derivatization reagent has become less effective over time? Finally, even if di- and tri-carboxylic acids are not included in the NA quantification when using the AXYS method, they possibly still could be present in acid extractions from samples containing naphthenic acids, which may have implications when performing toxicity studies on these extractions.

C. Inter-laboratory studies of the analysis of naphthenic acids

There were two inter-laboratory studies performed for the naphthenic acids analyses, one in 2012, and a second in 2016. However, the primary focus of both of these studies was the analysis of "total naphthenic acids" and only the total NA values were evaluated as to accuracy and precision among all of the participating laboratories. Triplicate samples were typically provided, and the laboratories reported their individual results as well as the mean of their triplicate analyses. (The mean value reported was the value that was evaluated in most cases.) The samples included reagent water blanks, spikes generated from Merichem naphthenic acid reference material, and other samples were of oil sands process-affected waters (OSPW). There were two main categories of analyses for total NA. An FTIR Method that can only give results as total naphthenic acids was used by many of the laboratories. There were a variety of LC/MS and LC/MS-MS methods also used by several laboratories. While these methods can achieve varying degrees of speciation

depending on the method, they also can be used to obtain a total NA value by summing up the values from all of the measured subcategories of NAs. Environment Canada evaluated the score for these laboratories only using the total naphthenic acid results since the degree and type of speciation varied greatly among the different laboratories and was evidently not comparable.

The 2012 Environment Canada Naphthenic Acids Inter-laboratory (ECNAIL) study found that some of the laboratories using both FTIR and some of the LC/MS methods could reasonably reproduce total naphthenic acid results. There was some speciation information displayed in Appendix A of the 2012 study from the various GC/MS, LC/MS, and LC/MS-MS methods, however the speciation was limited to different degrees of saturation (the "z" factor, even numbers zero through twelve, forming seven speciation categories). These categories did not differentiate based on the number of carbon atoms. The 2012 report concludes regarding speciation of the NA compounds: "The data demonstrated the capability of certain methodologies to characterize NA by carbon number as a percentage of the Total $C_nH_{2n+z}O_2$ species, however, complexity of the speciation data made comparative evaluation impractical."

The 2016 ECNAIL study report was smaller, involving only nine laboratories, but it did not address potential speciation of the NAs. Four of the nine laboratories used an FTIR method. Five of the nine laboratories used some variant of LC/MS or LC/MS-MS methods, but it is unknown whether any of these methods were identical to one-another. On average, the FTIR methods were biased low at 78% of the target values on average, with every FTIR laboratory having a negative bias. The LC/MS labs were biased somewhat high, on average 108% recovery, but the range of biases by laboratory was -19% on up to +40% (that is, the average percent recovery by laboratories performing an LC/MS method ranged from 81% to 140%). The OSPW samples had on average lower recovery by all methods, averaging 67% recovery, while the Merichem NA standard reference material had on average 113% recovery by all methods. These values demonstrated that for "total naphthenic acids" these analyses in general were reasonably quantitative among the different laboratories, but there were some significant differences depending on the sources of the reference materials.

The AXYS laboratory participated in both the 2012 and 2016 study. In both studies, they tended to be biased somewhat high for total NA (approximately +20% of the target values on samples with NA values greater than 1 mg/L), and they were approximately in the middle of the ranges for laboratories using one of the LC/MS or LC/MS-MS methods. Their in-lab precision was good, and they had no outlier results from either study.

The conclusions from the 2016 study (pages 18 and 19) contain some interesting comments that are reported below, roughly in order of importance:

- Environment Canada states in conclusion number 7: "The current definition of Total Naphthenic Acids ($C_nH_{2n+z}O_2$) as used in this study needs to be broadened to include aromatic

O2 species." API/AFPM does not agree with this conclusion, as described in Section VI of this report.

- Conclusion number 3 states: "The correlation coefficient for all laboratories is >0.96 for all laboratories indicating that main factor in any laboratory imprecision is a bias of some kind as opposed to some random errors or blunders in the laboratory." API/AFPM agree with this conclusion. Among the items that likely creates an inherent bias is trying to use a single calibration material to quantitate mixtures of compounds that can differ significantly in their overall makeup from site to site. It should be noted the calibration ranges were different across all of the methods in the interlaboratory study, with some being outside of the measured analyte range. This practice results in an inherent bias in the study.

- Conclusion number 6: "There is a need to establish a traceable quantification standard to achieve consistent analytical results. Merichem® is a commercially available mixture of naphthenic acids that allowed for an inter-laboratory comparison of laboratories' abilities to measure Total NA. It is currently the best available representation of the Total Naphthenic Acids ($C_nH_{2n+z}O_2$) which are reported in this study. However, it needs to be replaced with a commercially available, traceable material (single component or mixture) that better represents the NA components found in relevant matrices of the Athabasca oil sands region (e.g. OSPW)." This is also an important issue for API/AFPM. The assay information on these Merichem NA mixtures (from Appendix A of the 2016 study) indicates only that they are 95-99% naphthenic acids, and 1-5% petroleum distillates. It has a total acid number of 191 (with an acceptance range of 170-210). There is no information whatsoever as to specific quantities of which categories of naphthenic acids are included in this material, and it is not a traceable standard.

- Conclusion number 10 also discusses reference materials: "An OSPW derived reference material is required that can be used to compare without bias the various methods being used for NA analysis." API/AFPM is very concerned about this. Does this mean that each site or each refinery might need its own reference material for calibrations?

- Conclusion number 1 from the 2016 study discusses how the results from this study are significantly improved over much poorer results that were obtained from a 2014 inter-laboratory study for naphthenic acids, where the overall RSD values for the samples varied from 64% to 168%, with only the three highest samples having RSDs below 100%. (API/AFPM believes that if these RSD results are correct, this constitutes unacceptable method performance.) **This 2014 naphthenic acid study was not included in the information given to API/AFPM.**

- Conclusion number 8: "The complexity of the background matrix needs to be increased further. The synthetic toxicity testing matrix is suitable for method validation purposes but future inter-laboratory studies should use a natural water matrix for all samples." API/AFPM agrees that this is needed, and has stated that actual refinery samples, especially untreated wastewater samples, can greatly complicate the analytical process for many well-established methods let alone these AXYS experimental procedures currently being developed.

IV. Discussion of Analytical Methods for Alkylated PAH Compounds and the 2015 Environment Canada Inter-laboratory Study

A. Overview of methodology

The analytical list for "alkylated PAHs usually includes the 16 standard EPA priority pollutant PAHs, "extended PAHs" (meaning additional single-compound PAHs or PAH-associated compounds), and alkylated PAHs, which are analyzed as individual groups of alkyl-substituted PAH homologs. Most laboratories use a GC/MS instrument as is used in EPA SW-846 Method 8270D.[3] Many labs operate the MS in a selective ion monitoring (SIM) mode to obtain greater sensitivity, with the possible drawback being they do not obtain a full mass spectrum of each compound. The SGS-AXYS Laboratory Method MSU-21C uses their MS operating in an Electron-Impact Ionization (EI) mode using Multiple Ion Detection (MID). We are not currently familiar with the advantages/disadvantages inherent to this type of MS setting. The main point here is that the methods used by the participating laboratories in the 2015 study discussed in Section B below, though similar in instrumentation, may not be exactly the same. In Section I of this report, we have also discussed that there is ongoing debate within the analytical community as to which extended PAH compounds and alkylated PAH homologs should routinely be included in the parameter list for this determination.

B. 2015 environment Canada inter-laboratory study shows major problems in quantifying the groups of PAH homologs

Environment Canada performed an Inter-laboratory Study for Alkylated PAH compounds, the report of which is dated April, 2015. API/AFPM received a copy of this report from EPA. Three sample matrices were tested (with four samples provided for each matrix): extract samples consisting of three different diluted oils, one National Institute of Standards and Technology (NIST) standard in methylene chloride, and synthetic soils samples spiked with three different oil sources. Four samples were provided for each matrix. Our primary concern here is on the four aqueous samples, but we also include a comparative discussion on the analyses of the extract that is spiked with the NIST certified mixture.

The results for the aqueous samples in this inter-laboratory study paint a completely different picture of two types of PAH analyses (see Table 3 below, which is a compilation of the aqueous results from Tables 3 and 4 on pages 10 and 11 from the 2015 Environment Canada Inter-laboratory study on Alkylated PAH analyses). As expected, all of the laboratories analyzed the parent PAHs (all single compounds, each with their own calibration curves) and achieved

[3] EPA, *Test Method for Evaluating Solid Waste: Physical-Chemical Methods Compendium (SW-846)*, Office of Land and Emergency Management, Washington, D.C.

acceptable Relative Target Standard Deviations (RTSD), with the average values being between 20 and 25% RTSD.[4] The parent PAH data for water and the other matrices is presented in Table 3 on page 9 of the Environment Canada Report.

However, for the PAH homolog analyses (found in Table 4 on page 11 of the Environment Canada report), the results of the RTSDs are shockingly different, and API/AFPM considers them unacceptable. (It is important to remember that the alkylated PAH homologs are actually groups of related PAH compounds, where the calibration is based only on a single compound intended to represent the entire group.) The average RTSD for the four water samples is almost 80%, an extremely high value, and some of the RTSDs for some homolog compound groups were over 100%. Typically, in these type studies, results outside of two standard deviations are given a warning, but are still considered acceptable, and results outside of three standard deviations are considered as unacceptable. To illustrate how terrible an RTSD of 80% is (which represents only a single standard deviation around the target value), consider a spiked sample with a value of 1,000 µg/L for a particular PAH homolog group. If a result within +/- 3 std. deviations is acceptable, then in this case (using an 80% RTSD for one standard deviation, multiplied by 3 SDs), any result between the values of 0 (or non-detected) up to 3,400 µg/L would be considered an acceptable result. It is difficult to rate such results as even "semi-quantitative", because many "acceptable" results would not even be within the same order of magnitude of the true value (1,000 µg/L). It is clear that the analytical method proposed for the PAH homolog groups does not "quantitate" these compounds within any acceptable definition of quantitation. Therefore, this analytical method is unacceptable for evaluating the concentrations of such compounds in refinery wastewater.

In the Table 3 below, API/AFPM compares the average percent RTSD for the parent PAHs in the four aqueous samples with the average RTSD for the PAH homologs in these same four samples. We find that for the water samples alone, the RTSD average for the PAH homologs is actually 3.41 times higher than for the parent PAH compounds. This is significantly worse than the discussions within the Environment Canada report, which estimated that overall, the RTSD for the homologs was 2.5 to 3 times higher than the RTSD for the parent compounds. This seems to suggest that the problems analyzing aqueous samples for these parameters is significantly greater than for soils or extracts. Again, API/AFPM asserts that this performance cannot be considered as quantification of these compound/compound groups in water samples.

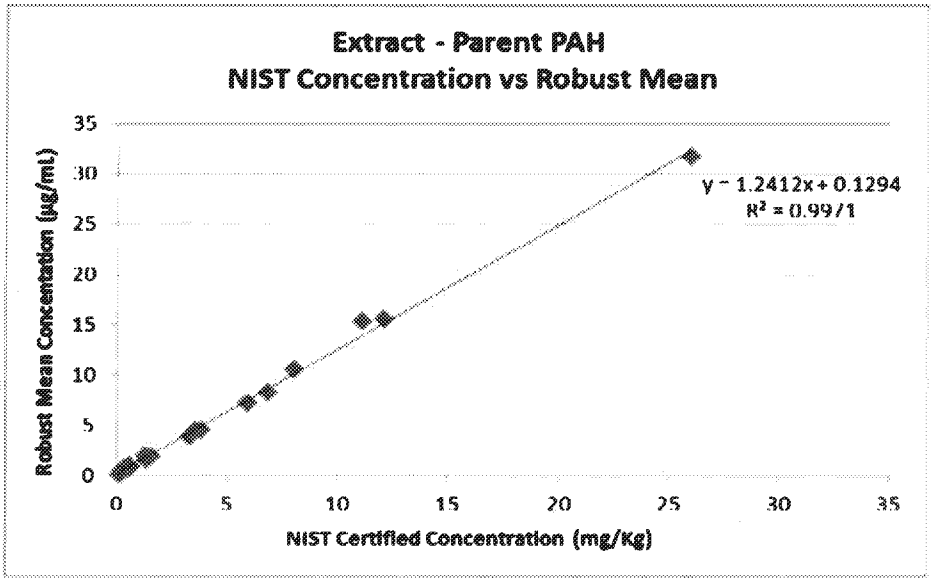
[4] An RTSD is the RSD around a known target value, instead of the mean of the reported results.

Table 3: Extracts of the Aqueous Analyses RTSDs data for alkyl-PAH Homologs (originally from Table 4 in the 2015 alkyl-PAH Inter-laboratory Study) and a summary of the average RTSDs from the aqueous analyses for the parent PAH compounds (calculated from Table 3 of 2015 report)

Aqueous samples Relative Target Standard Deviation% for PAH Homologs analyzed in Environment Canada 2015 Inter-lab Study				
Aqueous Sample Number	AAP-01	AAP-02	AAP-03	AAP-04
C1-Naphthalene	71	46	30	40
C2- Naphthalene	123	59	57	64
C3- Naphthalene	120	77	68	60
C4- Naphthalene	106	83	77	68
C1-Fluorene	91	76	66	60
C2-Fluorene	66	65	63	40
C3-Fluorene	100	95	86	91
C4-Fluorene	105	215	217	126
C1-Phenanthrene	55	45	44	29
C2- Phenanthrene	45	52	49	41
C3- Phenanthrene	80	77	79	81
C4- Phenanthrene	108	129	109	108
C1-Fluoranthene	91	76	66	60
C2- Fluoranthene	93	84	74	100
C3- Fluoranthene	68	50	57	68
C4- Fluoranthene	128	132	121	103
C1-Chrysene	27	29	31	34
C2- Chrysene	102	76	94	88
C3- Chrysene	96	96	98	81
C4- Chrysene	178	184	187	129
C1-Benzopyrene	73	78	78	78
C2-Benzopyrene	63	78	100	62
C1-Dibenzothiophene	54	42	42	42
C2-Dibenzothiophene	51	52	40	45
C3-Dibenzothiophene	83	55	57	66
C4-Dibenzothiophene	53	44	62	69
Average RTSD per sample for PAH homologs	85.77	80.58	78.92	70.50
Average RTSD per Aqueous sample for 18 parent PAH compounds	22.5	23.9	21.6	25.11
Overall RTSD Ratio Homolog over parent PAHs per sample	3.81	3.37	3.65	2.81
Average of all four ratios				3.41

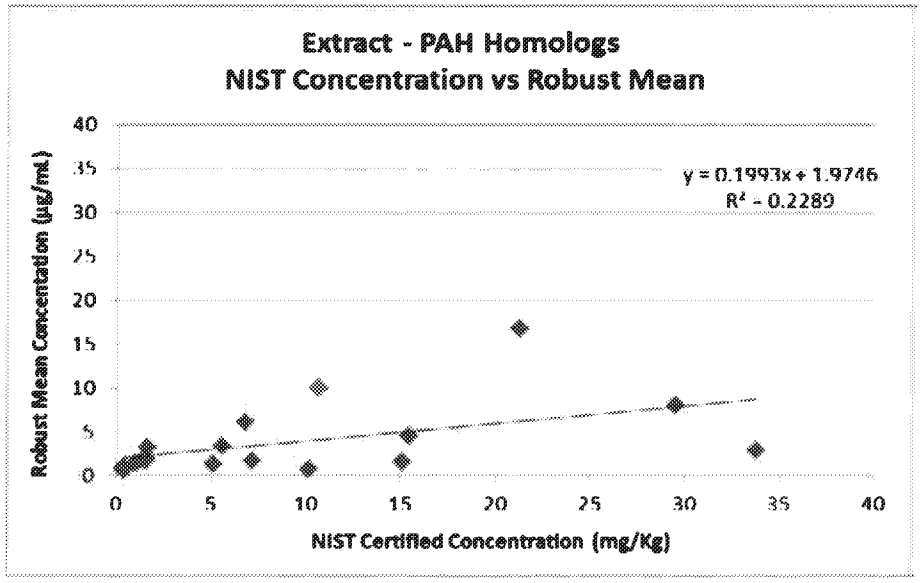
Another indication of problems related to the analysis of the PAH homologs can be seen in the extract sample that was spiked with the NIST standard. Here, any errors or biases due to sample extraction have been eliminated, and all of the values for the parent PAHs and their PAH homologs are certified. There are graphs of the analytical results of this sample on page 13 of the Environment Canada 2015 report, and two of these are shown below. It should be noted that these graphs are based on the "robust mean" and "robust standard deviation" of the data for this sample. "Robust" is defined as a statistical program that reduces the influence of any outlier results on the calculation of the "robust mean" and "robust SD" (without totally eliminating the outlying data points), so that these calculations are not unduly influenced by such outliers. Therefore, these graphs already contain a degree of correction for the worst outlier results.

The first graph (below) is for the results of the parent PAH compounds in the NIST sample extract:



As can be seen, the correlation coefficient of the parent PAH compounds versus the robust mean of the NIST extract sample is satisfactory ($R^2 = 1.0000$ is perfect correlation).

This second graph is for the PAH homologs:



The correlation coefficient of the PAH homolog compounds vs. the robust mean is only 0.2289. This is extremely poor, especially for a sample that is a simple dilution of an NIST standard that did not have to be extracted. The evidence is clear that there are severe problems with the calibrations being used for the PAH homologs.

C. Summary of Conclusions Discussed in the 2015 Environment Canada Inter-laboratory Study for PAH and PAH homolog analysis

The Environment Canada conclusions show they are aware of the issues with the quantification of the PAH homologs. They first state that the results of the analyses of the parent PAH compounds were not unexpected. They stated that most of these compounds have been routinely analyzed by most environmental labs since the 1980's, and that percent RSD's of 20 to 25% are typical for these compounds.

The following is the Environment Canada assessment of the PAH homolog analysis in the conclusion to the 2015 report:

"The results for the analysis of the alkyl-PAH homologs are consistent with an analytical method that relies on only a few select compounds to represent an entire class. The quantitation of the homologs is generally done using a single compound to represent the entire class of alkyl-PAH being quantitated instead of individual compounds and this could be responsible for the increase in relative target standard deviations observed. This would be especially true if all of the compounds in a class do not exhibit the same response factors. A number of homologs in the solid samples were also too low in concentration to be accurately quantitated or even detected in some cases. This included the NIST SRM (1941b). A lack of traceable individual calibration standards for homologs may also play a part in the apparent low recoveries of the homologs as could some unfamiliarity with the practical application of some elements of the recently promulgated ASTM

D7363-11, *Standard Test Method for Determination of Parent and Alkyl Polycyclic Aromatics in Sediment Pore Water Using Solid-Phase Microextraction and Gas Chromatography/Mass Spectrometry in Selected Ion Monitoring Mode*."

API/AFPM believes that based on the results of this study, Environment Canada has greatly understated the problems observed in the aqueous analyses, especially when they state: "The quantitation of the homologs is generally done using a single compound to represent the entire class of alkyl-PAH being quantitated instead of individual compounds and this could be responsible for the increase in relative target standard deviations observed. This would be especially true if all of the compounds in a class do not exhibit the same response factors." We also note that the problems with the aqueous samples were for all four samples, not simply the low concentration results.

Environment Canada also states that this first study may have been too ambitious and possibly included too many compounds and homologs for analysis:

"This first assessment of the current state of the PAH and alkyl-PAH analysis of environmental samples was rather ambitious. Over 100 separate measurands were asked to be reported in 3 separate matrices. Future studies will focus on a target list more closely approximating the one found in ASTM D7363-11."

API/AFPM believes that the analyses of so many types of alkylated PAHs is far too complex and that methods for measuring groups of alkylated PAHs are nowhere near sufficiently developed for any EPA study of refinery wastewaters, or any follow-up rulemaking effort.

V. Concerns About Blanket Toxicity Assessments of Groups and Categories of Compounds

A. Brief Background

In the EPA ELG process, the pollutants estimated to be removed by a proposed rule have been given a toxic weighting factor (TWF) based on toxicological tests having been performed in the past on that specific pollutant. The calculated TWF for each pollutant is actually the sum of an aquatic life toxicity value, and a human health toxicity value that are both normalized to the TWF of copper.[5] The TWF formula for pollutants in water is:

$$TWF = (5.6/AQ_{value}) + (5.6/HH_{value})$$

Where:

[5] Copper as a reference toxicant was selected by EPA years ago because its toxicity was about in the middle of pollutants being tested at the time.

5.6 (μg/L) = acute aquatic toxicity of copper at a specified hardness that is used as the scaling factor to normalize the TWF in relation to copper

AQ = Aquatic Life Value (μg/L). This is determined experimentally through toxicity testing on aquatic organisms.

HH = Human Health Value (μg/L). A few pollutants have acute human toxicity, but most times the HH factor is based on potential carcinogenic properties of the compound.

Except in rare cases, the TWF is dominated by either the AQ value, indicating toxicity to aquatic life is the predominant effect, or the HH value if there is a significant human health risk. While there are rare exceptions due to acutely toxic properties of specific compounds or potential unusual human exposure pathways—for trace organic compound contamination in water, the HH value is typically not going to be significant to the TWF calculation unless that compound is demonstrated to have potential or confirmed carcinogenic properties.

As example of this, consider the sixteen PAH compounds currently on the EPA priority pollutant list. Seven of these compounds have been identified as potentially carcinogenic through the aqueous-fish-shellfish exposure pathway, and these seven have by far the highest TWFs of the sixteen compounds. Benzo(a)pyrene is the highest of the seven with a TWF of 100, and the lowest two are benzo(b) and benzo(k) fluoranthene, both with a TWF of 30.66. Of the nine considered to be "non-carcinogenic" PAHs, the highest is fluoranthene, with a TWF of 1.27.[6] The lowest TWF of the nine "non-carcinogenic" PAHs is acenaphthylene, with a TWF of 0.0084. This compound was found to have "no observed effect" on mice, and has no HH value, so this TWF is totally based on aquatic life impacts. Note that the acenaphthylene TWF is more than 10,000 times lower than that of benzo(a)pyrene. It is an indication that if an individual compound is not carcinogenic, a TWF based entirely on aquatic life toxicity may be thousands of times lower.

B. Relating TWF factors to mixed groups of compounds, and testing for toxicity

Because the discussion above is applicable to assigning TWFs to categories of mixed compounds, it creates significant problems. Carcinogenic effects are applicable to only specific compounds because the carcinogenic interaction is produced at the molecular level, at specific sites of the molecules that mimic critical enzymes. The addition of a methyl group to a critical area of a molecule may create a stearic hindrance that may completely prevent this molecular interaction. This is why, even among the 16 PAH priority pollutant compounds that are very similar in structure some have been found to be carcinogenic and others show no carcinogenic effect whatsoever.

Each analytical group of naphthenic acids can be mixtures of dozens or hundreds of different compounds, and the total naphthenic acids can consist of thousands of compounds. The only

[6] Though fluoranthene is not classified as a class 3 carcinogen to humans as are the other seven, one study has found it to possess carcinogenic properties to newborn mice, so it still retains a HH value.

common denominator among these compounds is that they contain a single carboxylic acid group, and the attached carbon chains must be aliphatic, (but even this is being questioned by Environment Canada). As we have previously stated, most of *aliphatic* NAs (in the C12 to C21 carbon range), that meet the strict definition of NAs as used by the AXYS are naturally occurring aliphatic saturated or polyunsaturated fatty acids that are commonly found in foods and dairy products, and these compounds should not be toxic.

Some papers have discussed how oil-sands process-affected water contains numerous organic compounds, including naphthenic acids (NAs), and a few papers have asserted NAs as a source of acute toxicity in oil-sands process-affected water. Total NAs, however, defy generic characterization and the toxicity of "NAs" cannot be meaningfully expressed as though NAs constituted a single compound or a consistent, reproducible mixture of compounds. To quote one scientific review on naphthenic acids[7]: "The field continues to be challenged by the lack of a cost-effective, accurate analytical technique for NAs or an understanding of all the organic constituents in process-affected water that may be contributing to observed toxicity and thus requiring treatment."

As discussed in this report, even possibly the most specific analyses for NAs such as the method used by AXYS laboratories can still include other types of compounds that do not meet the definition of naphthenic acids. Just as in the example for PAH compounds discussed earlier, it is entirely possible for only a very few compounds to be the drivers for most or all of the apparent toxicity when addressing a situation of a mixture of hundreds or thousands of compounds. Also, it is unknown, and unlikely, that the naphthenic acids that remain in refinery wastewater after treatment contain the same toxic compounds/mixes that appear to be present in oil-sands process water.

The fact that the analytical method measures total NAs makes the toxicological testing of these naphthenic acid mixes (and also mixes of PAH homologs) a very difficult and inexact procedure. There must be some kind of reference chemical available commercially that is used to perform the toxicity testing. If the toxicity is due to only a few highly toxic compounds present in a mostly non-toxic mixture and one does not know which compounds they are, whether they are present in every mix, or whether they are present in some mixes from some sources and not others, how can a TWF for the mixture be estimated? Are they present in only some wastewaters that contain naphthenic acids and not others? Regulation of total NAs on this basis will invariably result in false positives prompting exceedance violations for dischargers presenting no significant increase to environmental toxicity. These issues are why toxicity testing has (mostly) been limited to testing one pure individual compound at a time, to increase the likelihood that consistent and reproducible results can be obtained when using the same standard reference material.

[7] Oil Sands Naphthenic Acids: A Review of Properties, Measurement, and Treatment, Brown and Ulrich, 2015

There are some very serious shortcomings to the current commercially available consensus reference material used by AXYS, which is the Merichem NA mixture. This mixture was used as a standard reference for the NA comparative studies, and AXYS Laboratory also uses Merichem mixtures as their quality assurance (QA) samples for their proprietary naphthenic acid test method. This Merichem reference material apparently contains relatively consistent proportions of the 60 naphthenic acid subcategories analyzed by AXYS, so it can be used as a QC sample to verify consistent results in their analyses over time. However, the exact makeup of the various specific compounds is unknown, and these samples only demonstrate that the unknown can be reproduced consistently. The summary API/AFPM received of the AXYS method indicates that the laboratory appears to believe some of the fractions found in the commercial Merichem NA mixture do contain some aromatic naphthenic acids. It is possible that some of these aromatic acids could have much higher toxicity than the normal aliphatic NAs. Our impression is that the AXYS method cannot quantify the aromatic NAs separately, otherwise they could be subtracted out of the total. Finally, Environment Canada, in their conclusion to the 2016 NA Inter-laboratory Study stated: "There is a need to establish a traceable quantification standard to achieve consistent analytical results. Merichem® is a commercially available mixture of naphthenic acids that allowed for an inter-laboratory comparison of laboratories' abilities to measure Total NA. It is currently the best available representation of the Total Naphthenic Acids ($C_nH_{2n+z}O_2$) which are reported in this study. However it needs to be replaced with a commercially available, traceable material (single component or mixture) that better represents the NA components found in relevant matrices of the Athabasca oil sands region (e.g. OSPW)." (Important to note: Environment Canada here appears to be asking for a reference material that is representative of a single site. Does this mean that each site and each refinery should obtain a mix that matches their site alone?)

C. Summary of the Main Issues for determining toxicity for Naphthenic Acids (also generally applicable to alkylated PAH homologs)

The following bullet items are just a few of the complex issues that must be dealt with, if one is to apply a single TWF to large groups of compounds such as naphthenic acids or alkylated PAH homologs:

- These NA or alkylated PAH homologs mixtures can contain hundreds of compounds, and if present, it is very likely that only a tiny fraction of these compounds may have a high TWF but this fraction might drive the overall toxicity of the entire group. These few toxic compounds have likely not yet been identified, but they may be present in samples from one source, and not present in another, with dramatic effect on the future evaluation of the TWF.

- Performing the tests to determine toxicity: As stated by analysts and Environment Canada, there is not yet available a commercial material that is traceable quantitatively, where all the components are identified. If individual lot numbers of this commercial material are used as **a standard to determine toxicity**, it appears they face the same problem—do certain lots of the mix contain fewer or more of the limited number of compounds that can drive the toxicity,

and is the mix representative of the types of naphthenic acids present at various facilities? How do you prepare a mix to certain toxicity specifications, if you do not know what compounds are present in the wastewater that can create the most toxicity?

- In the case of determining the toxic-weighted pound equivalents (TWPE)[8] for a refinery effluent, the standard mix used to determine a TWF for NAs needs to be toxicologically representative of the naphthenic acids present in the discharge from a refinery after biological and other treatment. This is likely to be very different than the mix of naphthenic acids present in untreated refinery wastewater, and even further different than oil sands process water used to mine the oil.

- Environment Canada believes that aromatic-naphthenic acids (this term is seemingly self-contradictory, since the word "naphthenic" is used to define mixtures of organic fluids that are low in aromatic content) should be included in the analysis of NAs. If, as might be the case, the aromatic NAs have significantly different toxicological/environmental properties than the currently defined aliphatic NAs, then what is the justification for including them in the same category? Perhaps a separate definition and scientifically defensible analytical procedure should be devised that can analyze for aromatic NA's only.

[8] The TWPE is used by EPA to estimate the total mass loadings of all toxic pollutants in a specific industrial effluent category for the purposes of comparing industrial point source categories for their relative contribution ot surface water discharges of toxic pollutants.

REAL ID

Does it affect me?

If the state of residence is marked in blue, you will need to present a form of acceptable ID other than a driver's license or state-issued identification card to access this facility.

The list of jurisdictions subject to enforcement changes over time. For the most recent list, please visit http://www.dhs.gov/secure-drivers-licenses#1.

Homeland Security

Department of Homeland Security Office of Policy
www.dhs.gov/secure-drivers-licenses

Message

From: Lee Fuller [lfuller@ipaa.org]
Sent: 1/23/2018 7:04:33 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: ELG Discussion

Will do.

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Tuesday, January 23, 2018 2:04 PM
To: Lee Fuller <lfuller@ipaa.org>
Subject: RE: ELG Discussion

Lee,

Happy to talk to you. Call me when you have some time. If I am not available I will call you back ASAP. Use my desk line a **Ex. 6**

Lee

From: Lee Fuller [mailto:lfuller@ipaa.org]
Sent: Tuesday, January 23, 2018 2:01 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: ELG Discussion

Lee,

Thanks for your letter of January 4. I regret not being able to attend the recent meeting that you had with several of my member companies, API and AXPC.

I have a question regarding that meeting. Several of the attendees indicated that you raised a number of questions related to the impact of revisiting in some form the ELG for POTWs on permits for hydraulic fracturing. The descriptions from the attendees have been confusing and imprecise. Consequently, I wanted to reach out to you to better understand your concerns.

Thanks,

Lee Fuller

Message

From: Brent Fewell [brent.fewell@earthandwatergroup.com]
Sent: 12/10/2017 4:17:37 PM
To: Tracy Mehan [tmehan@awwa.org]; Brian Mannix [Brian@Mannix.com]; Rob Sisson [rsisson@conservamerica.org]; Alex Echols [Alex@ecoexch.com]; Michael Deane [michael@nawc.com]; Mike Mears - Strategic Partnerships [mmears@gop.com]; Wagner, Kenneth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=048236ab99bc4d5ea16c139b1b67719c-Wagner, Ken]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Timothy Male [tmale@policyinnovation.org]; scottjcameron@verizon.net; Bozek [rbozek@eei.org]; aschulman@thenewatlantis.com; Bakst, Daren [Daren.Bakst@heritage.org]; matthew@acc.eco; Nancy Stoner [nstoner@piscesfoundation.org]; Annie Bronez [abronez@piscesfoundation.org]; Charles Hernick [redacted] Alex Hosmar [redacted] Rick Otis [rdotis@yahoo.com]; Alex Beehler [redacted]
CC: 'Kenneth von Schaumburg' [kvonschaumburg@clarkhill.com]; 'Jim Presswood' [redacted] Ed Russo [redacted]
Subject: Reminder - Stewardship Roundtable, Wed.
Attachments: Stewardship Roundtable - Dec. 13, 2017 (Russo).pdf

All, look forward to seeing folks bright and early Wednesday morning - coffee and light breakfast beginning at 8 a.m. Very excited to welcome Ed Russo to the Roundtable. We have a terrific discussion lined up amongst a great group of friends and colleagues. See you Wednesday.

Brent
[redacted]

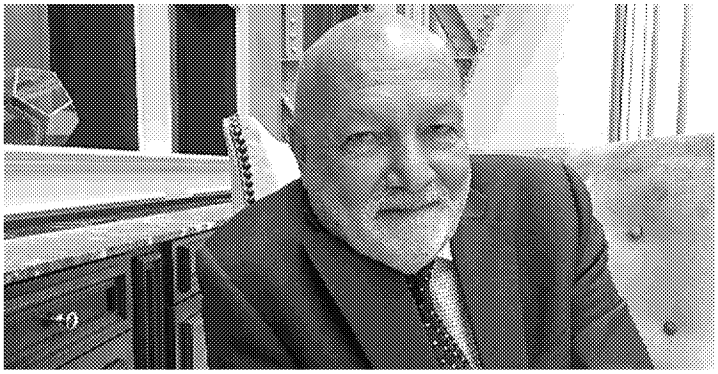
From: Brent Fewell
Sent: Tuesday, November 21, 2017 3:37 PM
To: Brent Fewell <brent.fewell@earthandwatergroup.com>
Cc: 'Jim Presswood' <jpresswood@esalliance.org>; 'von Schaumburg, Kenneth' <kvonschaumburg@clarkhill.com>; Ken Maynard <ken.maynard@earthandwatergroup.com>; Tracy Meha[redacted] Kameran Onley <konley@TNC.ORG>; John Murdock [redacted]
Subject: Invitation to next Stewardship Roundtable - December 13

The Stewardship Roundtable is pleased to invite you to its next Roundtable with special guest, Ed Russo, longtime environmental consultant to Donald Trump's businesses and author of the book, "Donald J. Trump, An Environmental Hero." Ed will engage with the Roundtable on what it means to be a "practical environmentalists" and share some thoughts on the current Administration's approach to environmental protection. It's bound to be a fun and lively discussion.
A special thanks to Ken von Schaumburg and Clark Hill for co-hosting this Roundtable at their offices.

Next Roundtable: Co-Hosted with Clark Hill PLC
When: December 13, 8 a.m. – 9: 30 a.m. (coffee and networking from 8-8:30)
Where: Law Offices of Clark Hill, 1001 Pennsylvania Ave NW #1300, Washington DC
RSVP to Brent Fewell, brent.fewell@earthandwatergroup.com

Trump's green consigliere wants to make brains melt

Robin Bravender, E&E News reporter



Published: Tuesday, November 14, 2017

Ed Russo is one environmentalist who loves what President Trump is doing. Robin Bravender/E&E News

Ed Russo is an anomaly. He describes himself as a "dirt-kisser tree hugger" and an "environmental crusader." He's also a Trump loyalist.

"I think he's doing a great job," said Russo, 71, who was a longtime environmental consultant for President Trump's businesses.

Last September, Russo wrote a book titled, "Donald J. Trump: An Environmental Hero." The Key West, Fla., resident was in Washington, D.C., last week to push his new venture that aims to produce clean drinking water by sucking it from the air. He met with U.S. EPA officials to discuss water standards, and he stayed at the Trump International Hotel across the street from that agency's headquarters.

Russo, who said he turned down a job as Trump's White House environmental adviser, remains a staunch defender of his former boss and golfing partner. (Russo says Trump is "a great golfer" but he "can't chip worth shit.") He thinks Trump has been unfairly targeted by greens and the media, and he says the president and his team have been hard at work on the issues that really matter.

During his 17 years working for Trump, Russo said, "he was a staunch supporter of clean air and clean water. He focuses on that. ... He has a practical approach to environmental protection."

Trump and his administration have been under fire from the left for their environmental policies, including their assault on President Obama's climate regulations. Trump famously said before his election that global warming was an "expensive hoax" created "by and for the Chinese."

But while that line from Trump often gets quoted, Russo said, "I've never heard anyone come back and say, 'Well, what do you think he meant by that?' ... He meant that the climate is always changing and global warming is distracting a lot of people."

Russo said he's now an informal adviser of sorts to the president. They spoke about climate change in New Jersey earlier this year, he said, just before Trump formally announced that he's withdrawing the U.S. from the Paris accord.

In the Trump Hotel last week, Russo scrolled through photos on his phone, showing one in which he's dining with Trump. Others showed Russo talking with Ivanka Trump and her husband, Jared Kushner. They were asking him to convince Trump to reconsider pulling out of the Paris deal, Russo said.

"They were absolutely against pulling out of the climate summit," he said. They thought Russo might have better luck changing Trump's mind. "I'm his age, and we've had some screaming matches in the past."

Russo pointed to one spat he had with Trump before the presidential election, when Russo was in the hospital after a heart attack. They hadn't spoken for several months when Trump called the hospital. Trump told him, "You shouldn't worry about anything having to do with health because only the good die young, so you're going to be around for a while," Russo said, laughing. "He's a ball-breaker from the beginning."

Earlier this year, they talked about the Paris Agreement. Russo said the president "asked very serious, probing questions" about the deal. "His point was this: Why the hell should we be giving billions upon billions of dollars ... to our global competitors — China, Russia, India — when they continue to pollute? There's more coal-fired energy plants opening in China every day, and nobody covers that."

Trump asked Russo: "How do you think we're doing?" And Russo told him: "I think we're doing great, if you look at the amount of renewable energy that we're transferring to in the United States ... we are way ahead of the requirements of the Paris climate summit, without any government oversight or regulations."

Trump, according to Russo, "realizes that just let the open market play out and we're going to get rid of all the dirty, filthy, disgusting fuel sources that we've had to use."

Russo doesn't think climate change is a hoax. "It's a serious concern." He serves on Florida's Monroe County Climate Change Advisory Committee. "I am totally engrossed in resilience."

When Hurricane Irma recently hit Florida, Russo's wife was evacuated from their home; Russo was in Texas volunteering with the Federal Emergency Management Agency after Hurricane Harvey hit that state. Many scientists have said hurricanes are getting stronger due to climate change.

But Russo isn't stressing it.

"Shut up and clean up the toxic waste dumps in the town. Don't try to use every time there's lightning or thunder that, oh, it's climate change," he said. "Climate change is a natural change in balance of the Earth, it happens all the time. There's been ice ages and warming trends, it goes back and forth. And yes, pollution accelerates that. But that should be used to mobilize people to clean up the mess we made."

Russo says climate change has been "hijacked to do nothing" and warns that there are more pressing environmental problems, like the "pollution that's being emitted from thousands and thousands of toxic waste dumps and landfills throughout our country."

Instead of focusing on cleaning up toxic waste, Russo said, Trump's detractors are preoccupied. "Oh, let's have a rally and wear pink hats and do stupid shit, but not do any practical environmental work to stop pollution," he said.

Recently, he heard environmental professors make a pitch for combating climate change: "Don't use your car, wash your clothes less, don't take commercial, don't fly planes and change your diet to a plant-based diet.

"I'm not making this up," he said. "I sent them both an email, I said what are you guys, nuts? The only one I agree with is the plant-based diet because I've been on a plant-based diet for over seven years now and I'm healthier and I'm making the planet healthier. It's great stuff."

Future White House environmental adviser?

So far, Russo has been happy with what Trump and his top environmental official, U.S. EPA boss Scott Pruitt, are doing.

"He is having Scott Pruitt focusing on cleaning up ... brownfields and toxic waste sites. ... Of course a lot more needs to be done, but that's where the EPA should focus."

Last November, Russo — a New Jersey native who served on local environmental commissions in the Garden State — fielded phone calls from his environmentalist friends who were worried by Trump's surprise victory.

"One of the top environmentalists in New Jersey called me up the day after the election and said, 'Oh, my God, we're going to pull out of the Paris climate accords, we're all going to die.' I said, 'Hey, David, what are you doing? What are you talking about? Once you start to roll up your sleeves and clean up all the toxic waste mess in New Jersey, then come to me, we can talk about the Paris climate accords. Until then, shut up. And this guy is one of the top guys, and I've worked with him for years shoulder to shoulder cleaning up toxic waste dumps back in the day."

Russo declined to give David's last name, saying it was a personal conversation.

Some — including Russo's daughter, an actress — say it's possible to tackle toxics and climate change simultaneously.

"My daughter who's an environmentalist [says], 'Oh, well, we should be able to do both.' Yes, we should be able to do both, but we're not," Russo said.

In his book about Trump, Russo chronicles how he was once skeptical of Trump's motives but was won over as Trump gave him leeway to develop aggressive sustainability plans for major development projects — including golf courses in New Jersey, Scotland and along the Potomac River in Virginia.

But Russo says Trump has never gotten the credit he deserves when it comes to the environment.

"No one is going to wake up tomorrow and say, 'Hey, you know what, Donald Trump's right. I'm going to go join a local organization and try to close the landfill down in my town, or there's a dead zone out in the Gulf of Mexico and I'm going to start taking water quality samples and see if I can get somebody's attention.'"

And he said Trump's policies aren't getting any positive press coverage because "they're too busy saying to themselves, 'Well, this might actually make Donald Trump look reasonable on the environment, and we can't have any of that.'"

He added, "The proof of that is, you've never seen me on TV." He said some of the interviews he's done haven't been published because he doesn't fit into the media's narrative.

Russo was offered a job as senior adviser to the president on environmental and energy issues, he said. "My wife wants me to go, but I keep on just kicking the can down the road." He might accept the post eventually, "maybe 2018," he said.

"I think I'm having a better impact from the outside," he said. And "if I was in the White House, I'd be in arguments with everyone, because no one would get me there, either."

A better job for him might be EPA spokesman, he said. "I think I could challenge the media or redirect the media."

His strategy would be to press reporters about why conversations turned from "global warming" to "climate change."

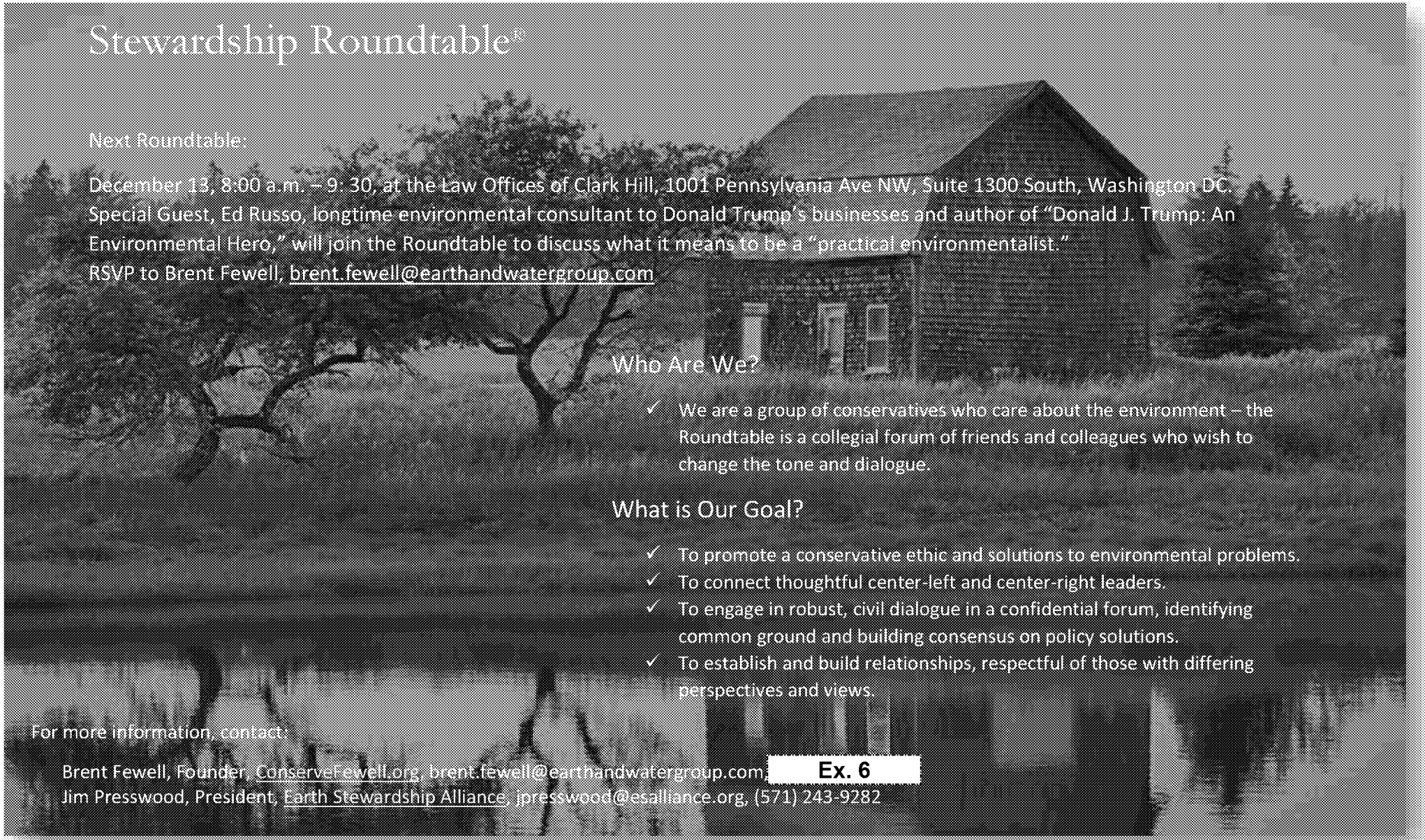
He said, "If I was an EPA spokesman, as soon as the first question came up, 'Do you believe in climate change?' No, hold the phone, stop, what happened to global warming, everybody? I would stick to that until their brains melted. ... I want to get them to understand how important the environment is, and not just this gotcha crap that's been going on for all these years."

Twitter: @rbravender Email: rbravender@eenews.net

Brent Fewell, Esq. | Earth & Water Law Group
1455 Pennsylvania Ave., NW, Suite 400, Washington, DC 20004
(202) 280-6362 (o) | Ex. 6 c) | www.earthandwatergroup.com

Earth & Water Law LLC
SOLUTIONS FOR BUSINESS AND THE PLANET

Stewardship Roundtable®



Next Roundtable:

December 13, 8:00 a.m. – 9: 30, at the Law Offices of Clark Hill, 1001 Pennsylvania Ave NW, Suite 1300 South, Washington DC. Special Guest, Ed Russo, longtime environmental consultant to Donald Trump's businesses and author of "Donald J. Trump: An Environmental Hero," will join the Roundtable to discuss what it means to be a "practical environmentalist."

RSVP to Brent Fewell, brent.fewell@earthandwatergroup.com

Who Are We?

- ✓ We are a group of conservatives who care about the environment – the Roundtable is a collegial forum of friends and colleagues who wish to change the tone and dialogue.

What is Our Goal?

- ✓ To promote a conservative ethic and solutions to environmental problems.
- ✓ To connect thoughtful center-left and center-right leaders.
- ✓ To engage in robust, civil dialogue in a confidential forum, identifying common ground and building consensus on policy solutions.
- ✓ To establish and build relationships, respectful of those with differing perspectives and views.

For more information, contact:

Brent Fewell, Founder, Conserve.Fewell.org, brent.fewell@earthandwatergroup.com; Ex. 6

Jim Presswood, President, Earth Stewardship Alliance, jpresswood@esalliance.org, (571) 243-9282

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 2/2/2018 8:19:12 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]; Edwards, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0d40b5f15b2a4c438f44bbae579d829a-Edwards, Crystal]
CC: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: meeting with Lee Forsgren

Dear Crystal,

The meeting for Tom Collier and me with Lee Forsgren, previously scheduled for January 23, had to be canceled because of scheduling difficulties.

If possible, I would like to come in to see Lee next week. If for any reason that is not possible, Mr. Collier will be here the entire week of the February 12, and I would like to bring him in to meet Lee during that week. He is available any day that week.

There is significant urgency to this issue, because EPA's recent decision has caused the price of our stock to drop some 50%. The survival of this company is genuinely at risk. We need to speak with Mr. Forsgren about this as soon as possible.

Thank you so much for considering my request.

Sincerely,

Peter Robertson

Peter D. Robertson
The Pebble Partnership
1330 Connecticut Avenue, NW
Washington, DC 20036

Redacted

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 1/22/2018 7:11:54 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: meeting tomorrow

Lee and Crystal,

I'm wondering whether our meeting tomorrow is still on, assuming the House passes the funding bill. Right now, it looks like the invitation says, "to be rescheduled". Tom Collier is leaving town tomorrow afternoon, so if it's possible to keep it on the schedule, that would be great.

Thanks.

Peter

Message

From: Greenwalt, Sarah [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=6C13775B8F424E90802669B87B135024-GREENWALT,]
Sent: 2/20/2018 8:46:51 PM
To: Bozek, Richard [RBozek@eei.org]
CC: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Speaker Request - March 7

Rich,

Thank you kindly for the invitation. Unfortunately I will not be able to attend on March 7th.

I know that you and Lee spoke, but now that I'm back in-country please let me know if we still need to talk.

Best,
Sarah

Sent from my iPhone

On Feb 15, 2018, at 1:59 PM, Bozek, Richard <RBozek@eei.org> wrote:

> Lee, Sarah:
> Following up on the conversation Lee and I had yesterday, attached please find a meeting request to have Sarah address the EEI Water Resources Subcommittee on March 7 sometime between 1:30-2:30 pm. Sarah, you had previously expressed an interest in meeting our group when I brought this up last fall. I hope your schedule permits you to join us. Please let me know. Thanks.
>
> Cordially,
> Rich
>
> *C. Richard Bozek*
> *Director, Environmental and Health & Safety Policy*
> *Edison Electric Institute*
> *701 Pennsylvania Ave., N.W.*
> *Washington, D.C. 20004-2696*
> **Ex. 6**
> *Rbozek@eei.org*
> **Follow EEI** on Twitter, Facebook, and YouTube.
>
> <image001.jpg>
>
> <Speaker Request Form EEI March 2018 Greenwalt.docx>

Message

From: Chris Bahret [Redacted]
Sent: 12/12/2017 2:01:24 AM
To: Joe Cox [jjc[Ex. 6]n]; Gary Gilbert [Ex. 6]; Lee Kincaid [Ex. 6]; Melissa Mejias [melissa.mejias@iadc.org]; Riaz Latifullah [Ex. 6]; Sean Connaughton [sconnaughton@vhha.com]; Steve Blust [Ex. 6]; Tom Harrelson [Ex. 6]; Roy R CTR MDA/DEI [roy.rogers.ctr@mda.mil]; Roy R Rogers [Ex. 6]; Owen.Doherty@dot.gov; laila.i.linares@navy.mil; laila.i.linares[Ex. 6] Ryan Denton [Ex. 6]; Turissini Daniel E. [Ex. 6] stephanie.e.waller@uscg.mil; Luis.Corzo@WillisTowersWatson.com; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Pribyl, Sean [SPribyl@BlankRome.com]
Subject: Grace Marshall Interment

Mariners,

Bob Marshall let me know that Grace's interment at Arlington National Cemetery will occur on Thursday, 21 December, 0930. Attendees should meet at the Administration Building at 0900.

Grace passed away on 17 September. Grace and Bob were married on June 7, 1958. After her marriage, Grace followed Bob in his career as an officer in the U.S. Navy. Their family lived in such varied places as Rhode Island, Brooklyn, Charleston, San Francisco, Portsmouth (Virginia), Kings Point, NY, and Annandale. Grace and Bob actively attended many reunions of ships' crews, as well as functions with U.S. Merchant Marine Academy alumni. Grace personified her name, and was very much a member of the Kings Point family.

Feel free to forward.

Best regards,

Chris

Message

From: Stout, Robert [Robert.Stout@bp.com]
Sent: 1/4/2018 5:21:29 PM
Subject: FW: Invitation to BP Open House & Viewing of Vermeer Exhibit at National Gallery on Wed. Jan 10 at 6:30-8:30 pm.

Happy New Year and I hope that 2018 is off to a good start for you!

I hope and expect that you will have previously received the invitation below to our Open House at the National Gallery next week, but I am forwarding it now to be sure you have been included. It would be our honor and pleasure if you could join us.

Apologies if you have RSVP'd already but if not and you are able to join please RSVP to the National Gallery phone number or e-mail printed below.

Best regards and hope to see you soon!

Bob Stout
Robert L. Stout, Jr.
Vice President & Head of Regulatory Affairs
BP America Communications & External Affairs

1101 New York Avenue NW
Washington, DC 20005

Office: (202) 346-8566
Mobile: Ex. 6

BP is proud to sponsor the National Gallery's Vermeer Exhibit as part of our broader support of the arts in the U.S. and the U.K.
In past years we held BP America's annual D.C. open house at our office on New York Avenue,
but this year we are pleased to invite you to the Gallery for both a reception and a viewing of the new exhibition.
Please join us to kick off the New Year!

The Trustees of the National Gallery of Art
on behalf of BP America
request the pleasure of your company
at a viewing of the exhibition

Vermeer and the Masters of Genre Painting
Inspiration and Rivalry

and reception
on Wednesday, the tenth of January
Two thousand and eighteen
from six-thirty to eight-thirty o'clock
National Gallery of Art
West Building

Please reply to (202) 789-4548
or Jan10VermeerEvent@nga.gov

Fourth Street Entrance

This invitation is non-transferable

Message

From: Allen Jamerson [AJamerson@bockornygroup.com]
Sent: 2/16/2018 6:53:28 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Campbell, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b8c25a0c2fb648b6a947694a8492311e-Campbell, Ann]; Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: Re: Meeting Request for Navy Pier of Chicago

Great, thank you for your consideration.

Looking forward to connecting with Ann and Crystal.

Thank you all!

Sent from my iPhone

On Feb 16, 2018, at 1:51 PM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:

> Not sure what my availability might be those days. Ann Campbell or Crystal Penman will follow up you on a possible meeting.
> Sent from my iPhone
>
> On Feb 16, 2018, at 5:30 PM, Allen Jamerson <AJamerson@bockornygroup.com> wrote:
>
> > Hi Lee,
> >
> > I wanted to reach out to you to see if you would be available for a meeting on March 5th or 6th with Patrick Sheahan, Chief Development Officer of Navy Pier in Chicago. Navy Pier has become one of the world's largest tourist attractions with over 9.2M annual visitors and stretches near 2/3 of a mile over Lake Michigan with thousands of people engaging with the infrastructure above the water each day. While the Pier has made great strides with its environmental sustainability efforts in its recent efforts to revamp its facilities there is still much work to be done. I wanted to bring Patrick in to explain the upcoming projects and see if there would be opportunities to match up with EPA water infrastructure initiatives.
> >
> > We have briefed John, copied here, about Navy Pier as an overall regional presence for the Midwest, but would love to have the opportunity to speak specifically about to you about water infrastructure.
> >
> > Thank you for any consideration,
> >
> > Allen J. Jamerson
> > BOCKORNYGROUP
> > 1350 I Street, NW Suite 800
> > 202-659-9128 (W)
> > **Ex. 6**

Message

From: Wormmeester, Justin T [Justin.Wormmeester@BNSF.com]
Sent: 11/29/2017 9:46:45 PM
To: Greenwalt, Sarah [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c13775b8f424e90802669b87b135024-Greenwalt,]
CC: Ferguson, Lincoln [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=08cd7f82606244de96b61b96681c46de-Ferguson, L]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: Contact

Hi Sarah – I just want to circle back with you as we have not been able to schedule a time to discuss the issue raised in the meeting prior to Thanksgiving. Thanks for your attention.

Justin

From: Greenwalt, Sarah [mailto:greenwalt.sarah@epa.gov]
Sent: Wednesday, November 15, 2017 9:41 PM
To: Wormmeester, Justin T <Justin.Wormmeester@BNSF.com>
Cc: Ferguson, Lincoln <ferguson.lincoln@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Re: Contact

EXTERNAL EMAIL

I will check with my colleague, Lee Forsgren, to see if he might be available on Friday. Lee serves as our Deputy Assistant Administrator in the Office of Water and I believe it would be useful for him to be involved as well.

Sent from my iPhone

On Nov 15, 2017, at 9:36 PM, Wormmeester, Justin T <Justin.Wormmeester@BNSF.com> wrote:

> Absolutely. Thank you. I am available at whatever time is convenient for you on Friday.
>
> I greatly appreciate the follow up.
>
> Justin
>
> Sent from my iPhone
>
> On Nov 15, 2017, at 8:25 PM, Greenwalt, Sarah <greenwalt.sarah@epa.gov> wrote:
>
> EXTERNAL EMAIL
>
> Justin,
>
> The Administrator has asked me to reach out to discuss an issue that was raised in the meeting you had earlier this afternoon. I would be happy to set aside some time for a phone call on Friday if you're available.
>
> Best,
>
> **Sarah A. Greenwalt**
> Senior Advisor to the Administrator

for Water and Cross-Cutting Issues

U.S. Environmental Protection Agency
Work: 202-564-1722 Ex. 6
Greenwalt.Sarah@epa.gov

Message

From: Greenwalt, Sarah [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=6C13775B8F424E90802669B87B135024-GREENWALT,]
Sent: 11/16/2017 2:40:41 AM
To: Wormmeester, Justin T [Justin.Wormmeester@BNSF.com]
CC: Ferguson, Lincoln [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=08cd7f82606244de96b61b96681c46de-Ferguson, L]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Contact

I will check with my colleague, Lee Forsgren, to see if he might be available on Friday. Lee serves as our Deputy Assistant Administrator in the Office of Water and I believe it would be useful for him to be involved as well.

Sent from my iPhone

On Nov 15, 2017, at 9:36 PM, Wormmeester, Justin T <Justin.Wormmeester@BNSF.com> wrote:

> Absolutely. Thank you. I am available at whatever time is convenient for you on Friday.
>
> I greatly appreciate the follow up.
>
> Justin
>
> Sent from my iPhone
>
> On Nov 15, 2017, at 8:25 PM, Greenwalt, Sarah <greenwalt.sarah@epa.gov> wrote:
>
> EXTERNAL EMAIL
>
> Justin,
>
> The Administrator has asked me to reach out to discuss an issue that was raised in the meeting you had earlier this afternoon. I would be happy to set aside some time for a phone call on Friday if you're available.
>
> Best,
>
> **Sarah A. Greenwalt**
> Senior Advisor to the Administrator
> for Water and Cross-Cutting Issues
>
> U.S. Environmental Protection Agency
> Work: 202-564-1722 **Ex. 6**
> Greenwalt.Sarah@epa.gov

Message

From: Wormmeester, Justin T [Justin.Wormmeester@BNSF.com]
Sent: 12/8/2017 7:52:05 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Follow up from discussion this morning
Attachments: deptEcology401denial.pdf; Millennium401.pdf

Lee –

I wanted to follow up with you on a few of the items we discussed this morning. Attached you will find:

1. WA Dept of Ecology 401 Cert Denial
2. Millennium Bulk Terminal letter to Army Corps

You might also be interested in *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700 (1994). The U.S. Supreme Court has indicated that states may base their conditions on other laws that protect water quality, but has not adopted a standard that says states may base conditions on laws that have no impact on water quality. In that case, one Justice concurred in the opinion and stated that he believed that the state's ability to condition its 401 permits was unlimited. No other justice joined in that concurrence, so the law as it stands does not allow conditions for other than water quality-related laws, such as laws that require a certain flow rate.

Thanks.

Justin Wormmeester
General Director, Federal Government Affairs
BNSF Railway Company
500 New Jersey Avenue, NW, Suite 550
Washington, DC 20001
Redacted
Fax: 202-347-8675

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

September 26, 2017

Millennium Bulk Terminals-Longview, LLC
ATTN: Ms. Kristin Gaines
4029 Industrial Way
Longview, WA 98632

RE: Section 401 Water Quality Certification Denial (Order No. 15417) for Corps Public Notice No. **2010-1225** Millennium Bulk Terminals-Longview, LLC Coal Export Terminal – Columbia River at River Mile 63, near Longview, Cowlitz County, Washington

Dear Ms. Gaines:

The Washington State Department of Ecology (Ecology) has reached a decision on the Millennium Bulk Terminals-Longview request for a Section 401 Water Quality Certification for the proposed coal export terminal near Longview. After careful evaluation of the application and the final State Environmental Policy Act environmental impact statement, Ecology is denying the Section 401 Water Quality Certification with prejudice.

The attached Order describes the specific considerations and determinations made by Ecology in support of this decision to deny the Certification with prejudice. Your right to appeal this decision is described in the enclosed denial Order.

Sincerely,

Maia D. Bellon
Director

Enclosure

By certified mail [91 7199 9991 7034 8935 6995]

cc: Muffy Walker, U.S. Army Corps of Engineers
Danette Guy, U.S. Army Corps of Engineers
Glenn Grette, Grette Associates, LLC

IN THE MATTER OF DENYING SECTION 401 WATER QUALITY CERTIFICATION TO Millennium Bulk Terminals-Longview, LLC in accordance with 33 U.S.C. §1341 (FWPCA § 401), RCW 90.48.260, RCW 43.21C.060, WAC 197-11-660, WAC 173-802-110, and Chapter 173-201A WAC	))))))))	**ORDER # 15417** **Corps Reference #NWS-2010-1225** Millennium Bulk Terminals-Longview, LLC Coal Export Terminal – Columbia River at River Mile 63, near Longview, Cowlitz County, Washington

TO: Millennium Bulk Terminals-Longview, LLC
Attention: Ms. Kristin Gaines
4029 Industrial Way
Longview, Washington 98632

On February 23, 2012, Millennium Bulk Terminals-Longview, LLC (Millennium) submitted a Joint Aquatic Resources Permit Application (JARPA) to the Department of Ecology (Ecology) requesting a Section 401 Water Quality Certification to construct a coal export terminal in Longview, Washington. Then on January 28, 2013, Millennium sent a letter to the U.S. Army Corps of Engineers (Corps) and Ecology in which Millennium withdrew the request for the Section 401 Certification. Millennium stated that it would submit a new request when the Environmental Impact Statement (EIS) process concluded. In addition, on February 6, 2013, Millennium submitted an Ecology Water Quality Certification Processing Request form stating that it wished to withdraw its request and would resubmit near the end of the EIS process.

On July 18, 2016, Millennium submitted a new JARPA and request for Section 401 Water Quality Certification. A notice regarding this request was distributed as part of a Corps joint public notice on September 30, 2016. On June 22, 2017, Ecology received a withdrawal/reapply form from Millennium, which triggered another public notice that was issued on June 27, 2017.

Millennium proposes to construct and operate a coal export terminal (Project) in and adjacent to the Columbia River (at approximately river mile 63) that would transfer up to a nominal 44 million metric tons per year (MMTPY) of coal from trains to ocean-going vessels. The completed coal export terminal would cover approximately 190 acres of the approximately 540-acre property. The Project would consist of two docks, ship loading systems, stockpiles and equipment, rail car unloading facilities, an operating rail track, rail storage tracks to park up to eight trains, associated facilities, conveyors, and necessary dredging. The Project would be constructed in two stages over several years.

- Stage 1 of the Project would consist of facilities to unload coal from trains, stockpile the coal on site, and load coal into ocean-going vessels at one of the two new docks. During Stage 1, Millennium would construct two docks (Dock 2 and 3), one ship loader and related conveyors on Dock 2, berthing facilities on Dock 3, a stockpile area including two stockpile pads, railcar unloading facilities, one operating rail track, up to eight rail storage tracks for train parking, Project site

ground improvements, and associated facilities and infrastructure. Once Stage 1 is completed, the Project would be capable of a throughput capacity of a nominal 25 MMTPY.

- During Stage 2, MBTL would construct an additional ship loader on Dock 3, two additional stockpile pads, conveyors, and equipment necessary to increase throughput by approximately 19 MMTPY, to a total nominal throughput of 44 MMTPY.

The main elements of Stage 1 development would include:

- Rail bed.
- Rail loop with arrival and departure tracks to include one operating track (turn around track) and eight rail storage tracks.
- One tandem rotary unloader (capable of unloading two rail cars) for operations, and one tandem rapid discharge unloader to be used during startup and maintenance.
- Two coal stockpile pads, Pads A and B.
- Two rail-mounted luffing/slewing stackers and associated facilities for Pads A and B.
- Two rail-mounted bucket-wheel reclaimers and associated facilities for Pads A and B.
- Two shipping docks (Dock 2 and Dock 3), with one ship loader and associated facilities on Dock 2.
- Conveyors, transfer stations, and surge bin from the stockpile pads to the ship loading facilities.
- In-bound and out-bound coal sampling stations.
- Support structures, electrical transformers, switchgear and equipment buildings, and process control systems.
- Upland facilities, including roadways, service buildings, water management facilities, utility infrastructure, and other ancillary facilities.

The main elements of Stage 2 development would include:

- Associated conveyors and transfer stations to the stockpile Pads C and D from the rail receiving station.
- Two additional coal stockpile pads, Pads C and D.
- Two additional rail-mounted luffing/slewing stackers and associated facilities.
- Two additional rail-mounted bucket-wheel reclaimers and associated facilities.
- One additional ship loader and associated facilities on Dock 3.
- Conveyors, transfer stations, and surge bins from stockpile Pads C and D to the ship loading facilities.

The Project proposes impacting over 32 acres of wetlands (24 acres of which will be new impacts) and almost 6 acres of ditches. To offset these impacts Millennium has proposed to

construct a wetland mitigation site that encompasses approximately 100 acres. The Project will also have 4.83 acres of new overwater coverage, and includes constructing an off-channel slough mitigation site to address those impacts.

I. AUTHORITIES

In exercising its authority under 33 U.S.C. § 1341, RCW 43.21C.060, and RCW 90.48.260, Ecology has examined this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pre-treatment effluent limitations as provided under 33 U.S.C. §§ 1311, 1312, 1313, 1316, and 1317 (FWPCA §§ 301, 302, 303, 306, and 307).

2. Conformance with the state water quality standards contained in Chapter 173-201A WAC and authorized by 33 U.S.C. § 1313 and by Chapter 90.48 RCW, and with other applicable state laws.

3. Conformance with the provision of using all known, available, and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

4. Conformance with applicable State Environmental Policy Act (SEPA) policies under RCW 43.21C.060 and WAC 173-802-110.

Pursuant to the foregoing authorities and in accordance with 33 U.S.C. § 1341, RCW 90.48.260, RCW 43.21C.060, Chapter 173-200 WAC, Chapter 173-201A WAC, WAC 197-11-660, WAC 173-802-110, and Chapter 173-201A WAC, as more fully explained below, Ecology is denying the Millennium Bulk Terminals-Longview request for Section 401 Water Quality Certification with prejudice.

II. STATE ENVIRONMENTAL POLICY ACT (SEPA)

The Final Environmental Impact Statement (FEIS) issued by Cowlitz County and Ecology on April 28, 2017, identified nine areas of unavoidable and significant adverse impacts that would result from the construction and operations of the Project. As analyzed in the FEIS, the detrimental environmental consequences related to these impacts cannot be reasonably mitigated. Further, the adverse impacts to the built and natural environments conflict with Ecology's SEPA policies found in WAC 173-802-110. These policies state:

> (1)(a) The overriding policy of the department of ecology is to avoid or mitigate adverse environmental impacts which may result from the department's decisions.
>
> (b) The department of ecology shall use all practicable means, consistent with other essential considerations of state policy, to improve and coordinate plans, functions, programs, and resources to the end that the state and its citizens may:

(i) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(ii) Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

(iii) Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(iv) Preserve important historic, cultural, and natural aspects of our national heritage;

(v) Maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(vi) Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(vii) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(c) The department recognizes that each person has a fundamental and inalienable right to a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

(d) The department shall ensure that presently unquantified environmental amenities and values will be given appropriate consideration in decision making along with economic and technical considerations.

A. Significant Unavoidable Adverse Impacts

1. **Air Quality.** The FEIS found a significant increase in cancer risk for areas along rail lines and around the Project site in Cowlitz County where diesel emissions primarily from trains would increase. The study found that residents in some areas in Cowlitz County, including those living in portions of the Highlands neighborhood, would experience an increase in cancer risk rate up to 30 cancers per million. These levels of increased risk exceed the approvability criteria in WAC 173-460-090 for new sources that emit toxic air pollutants. Although WAC 173-460 only applies to stationary sources, the health risks from mobile sources in this case, primarily locomotives, would be considered significant using the same approvability criteria. Thus, the FEIS concluded the emission of diesel particulate primarily from train locomotives would be a significant unavoidable adverse impact. As the FEIS explained, this impact could be mitigated, but not eliminated, by use of cleaner burning Tier 4 locomotives. However, use of such locomotives is outside the control of Millennium and may not

occur for decades because use of older locomotives is currently allowed under federal law. Other mitigation measures identified in the FEIS related to air quality, such as use of best management practices and compliance with permits, would not reduce diesel emissions from Project related locomotives.

The increased cancer risk associated with the Project is a significant adverse unmitigated impact that is inconsistent with the following substantive SEPA policies in WAC 173-82-110:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

2. **Vehicle Transportation.** The FEIS found that there would be significant unavoidable adverse impacts to vehicle traffic from the proposed action when the Project reaches full operation in 2028 due to vehicle delays caused by increased train traffic that would block rail crossings in Cowlitz County. With current track infrastructure on the Reynolds Lead and BNSF Railway (BNSF) spur, Project-related trains in 2028 would increase the total gate downtime by over 130 minutes during an average day at the six crossings listed below. Project-related trains would cause these crossings to operate at Level of Service E or F[1] if one Project-related train traveled during peak traffic hours through the following crossings:

- Project area access opposite 38th Avenue
- Weyerhaeuser access opposite Washington Way
- Industrial Way
- Oregon Way
- California Way
- 3rd Avenue

[1] "Level of Service" is a report card rating based on the delay experienced by vehicles at an intersection or railroad crossing. Level of Service A, B, and C indicate conditions where traffic moves without substantial delays. Level of Service D and E represent progressively worse operating conditions. Level of Service F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.

Millennium and BNSF may make track improvements to the Reynolds Lead and BNSF spur that would allow trains to travel faster through these intersections and thereby reduce gate downtimes. However, even with these planned track improvements to the Reynolds Lead and BNSF Spur, the Project at full build out in 2028 would still adversely impact and add delays at four crossings, and cause the following crossings to operate at Level of Service E or F if two proposed Project-related trains traveled through them during peak traffic hours:

- Project area access opposite 38th Ave
- Weyerhaeuser access opposite Washington Way
- 3rd Avenue
- Dike Road

On the BNSF main line in Cowlitz County, the increased Project-related trains at full build out in 2028 could adversely impact vehicle transportation at two crossings during peak traffic hours. The following crossings would operate Level of Service E if two Project-related trains travel during the peak hours:

- Mill Street
- South River Road

Delay of emergency vehicles at rail crossing would also increase because of additional Project-related trains.

As described in the FEIS, Millennium has agreed or may be required to implement several mitigation measures to address these impacts. These measures include funding crossing gates at the intersection of Industrial Way, holding safety review meetings, and notifying agencies about increases in operations on the Reynolds Lead. However, these measures will not reduce or eliminate the vehicle delays identified in the FEIS. Vehicle delays could be reduced by further improvements to rail and road infrastructure, however, it is currently unknown when or if such improvements would occur. Therefore, when the Millennium Project is at full operation in 2028, unavoidable and significant adverse impacts would occur on vehicle transportation at certain crossings in Cowlitz County including delays of emergency vehicles. This impact is inconsistent with the following substantive SEPA policies:

- Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
- Maintain, wherever possible, an environment which supports diversity and variety of individual choice.

- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.

3. **Noise and Vibration.** The FEIS found that there would be significant unavoidable adverse impacts to residences near four public at-grade crossings along the Reynolds Lead and BNSF spur from train-related noise. Train-related noise levels would increase from train operations and locomotive horn sounding intended for public safety.

Residences near the at-grade crossings at 3rd Avenue, California Way, Oregon Way, and Industrial Way would experience increased daily noise levels that would exceed applicable noise criteria per Federal Transportation Administration/Federal Rail Administration guidance.

Approximately 229 residences would be exposed to moderate noise impacts, and approximately 60 residences would be exposed to severe noise impacts. Although these impacts would be reduced near the Industrial Way and Oregon Way crossings if a grade-separated intersection is constructed there as currently proposed, the proposal has not yet received permits and its completion date is unknown.

As described in the FEIS, Millennium has agreed or may be required to implement several mitigation measures to address these train-related noise impacts. These measures include funding two "quiet crossings" at Oregon Way and Industrial Way grade crossings by installing crossing gates, barricades, and additional electronics. This proposed "quiet crossing" is not the same as a Quiet Zone, which requires the approval of the Federal Railroad Administration. The reduction of noise pollution from the proposed "quiet crossing" is unknown because Millennium trains may still be required to sound their horns at the intersections. Other measures include requiring Millennium to work with the City of Longview, Cowlitz County, Longview Switching Company, the affected community, and other applicable parties to apply for and implement a Quiet Zone that would include the 3rd Avenue and California Avenue crossings. However, as a Quiet Zone requires the approval of the Federal Railroad Administration, it is beyond the control of Millennium and it is unknown if it will ever be implemented. Consequently, Quiet Zones are not considered an applicable mitigation measure.

The FEIS states that, if the Quiet Zone is not implemented, Millennium would fund a sound-reduction study to identify ways to mitigate the moderate and severe impacts from train noise. However, it is unknown who would fund, implement, and maintain recommendations to mitigate moderate and severe noise impacts identified in the sound noise reduction study. The study itself does not mitigate the impacts. The Project's significant adverse impacts from noise are inconsistent with the following substantive SEPA policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

- Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Maintain, wherever possible, an environment which supports diversity and variety of individual choice.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

4. **Social and Community Resources.** The FEIS found that social and community resources would be significantly and adversely impacted by increased noise, vehicle delays, and air pollution. Impacts from the construction and operation of the Project would impact minority and low-income populations by causing disproportionately high and adverse effects. Impacts from noise, vehicle delay, and diesel particulate matter inhalation risk would affect the Highlands neighborhood, a minority and low-income neighborhood adjacent to the Reynolds Lead in Longview, Washington.

a. Adverse Health Impact from Increased Cancer Risk Rate: Project-related trains and other operations would increase diesel particulate pollution along the Reynolds Lead, BNSF Spur, and BNSF mainline in Cowlitz County at levels that would result in increased cancer risk rates. The modeled cancer risk rate in the FEIS found a majority of the Highlands neighborhood would experience an increased cancer risk rate, varying from 3% to 10%. Use of Tier 4 locomotives, which produce less diesel pollution, by BNSF would reduce but not eliminate diesel particulate matter emissions and the associated potential cancer risk in the Highlands neighborhood. However, requiring Tier 4 locomotives is outside the control of Millennium and may not occur for decades. Therefore, the Project's disproportionately high adverse effects related to increased cancer risk rates from diesel particulate matter inhalation on minority and low-income populations would be unavoidable.

b. Adverse Noise Impact: The Project would add 16 trains per day on the Reynolds Lead and increase average daily noise levels, which would exceed applicable criteria for noise impacts and cause moderate to severe impact to 289 residences in the Highlands neighborhood. Approval, funding, and construction of Quiet Zones for four highway and rail intersections would reduce noise levels. However, there is no sponsor(s) identified to apply for, fund, and maintain Quiet Zones that would reduce noise levels at the four rail crossings. Quiet Zones are outside the control of Millennium and require approval from the Federal Railroad Administration. Therefore, Project-related trains would cause significant adverse unavoidable impacts to portions of the Highlands neighborhood and cause a disproportionately high adverse effect on minority and low-income populations.

c. Adverse Vehicle Traffic Impact: Project-related trains would increase vehicle delays at highway and rail intersections within the Highlands

neighborhood. With the current track infrastructure on the Reynolds Lead, a Millennium-related train traveling during the peak traffic hours would result in a vehicle-delay impact at four public at-grade crossings in or near the Highlands neighborhood by 2028. This would constitute a disproportionately high adverse effect on minority and low-income populations. If planned improvements to the Reynolds Lead are made, the adverse impacts related to vehicle delay could be reduced but not eliminated. However, rail improvements have not received permits and their completion is unknown. Therefore, Millennium's disproportionately high adverse effects to vehicle traffic on minority and low-income populations would be unavoidable.

5. **Rail Transportation.** The FEIS found that the Project would cause significant adverse effects on rail transportation that cannot be mitigated. At full build out of the Project, 16 trains a day (8 loaded and 8 empty) would be added to existing rail traffic. Three segments on the BNSF main line routes in Washington (Idaho/Washington State Line–Spokane, Spokane–Pasco, and Pasco–Vancouver) are projected to exceed capacity with the current projected baseline rail traffic in 2028. Adding the 16 additional Millennium-related trains would contribute to these three segments exceeding capacity by 2028, based on the analysis in the FEIS and assuming existing infrastructure. As described in the FEIS, Millennium would mitigate some of the impacts by notifying BNSF and Union Pacific (UP) about upcoming increases in operations at the Millennium site. This proposed mitigation measure is informational and does not commit BNSF or UP to take action to increase capacity.

BNSF and UP could make necessary investments or operating changes to accommodate the rail traffic growth, but it is unknown when these actions would be taken or permitted. Improving rail infrastructure is outside the control of Millennium and cannot be guaranteed. Under current conditions Millennium-related trains would contribute to these capacity exceedances at three rail segments on the main line and could result in an unavoidable and significant adverse impact on rail transportation, including delays and congestion.

This impact is inconsistent with the following substantive SEPA policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

6. **Rail Safety.** The FEIS found that Millennium-related trains would increase the train accident rate by 22 percent along the rail routes in Cowlitz County and Washington. As described in the FEIS, Millennium would notify BNSF and UP about upcoming increases in operations at the Millennium site. However, this notification measure does not commit BNSF or UP to take action or make changes that would reduce accident rates.

To reduce some of the impacts to rail safety, the Longview Switching Yard, BNSF, and UP could improve rail safety through investments or operational changes, but it is unknown when or whether those actions would be taken or permitted. Improving rail infrastructure to increase rail safety is outside the control of Millennium and cannot be guaranteed. Therefore, the 22 percent increase to the rail accident rate over baseline conditions attributable to Millennium would result in unavoidable and significant adverse impacts on rail safety.

This impact is inconsistent with the following substantive SEPA policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

7. **Vessel Transportation.** The FEIS found that the Project would have significant adverse effects on vessel transportation that cannot be mitigated. Millennium would add 1,680 ship transits to the current 4,440 ship transits on the Columbia River per year, for a total of 6,120 at full build out. Thus, the Project would be responsible for over one quarter of the traffic in the Columbia River.

Based on marine accident transportation modeling, the FEIS found the increased vessel traffic would increase the frequency of incidents such as collisions, groundings, and fires by approximately 2.8 incidents per year. While the chance that an incident would result in serious damage or spill is low, if a spill were to happen, the impacts to the environment and people would be significant and unavoidable.

An increase in vessels calling at the proposed new docks increases the risk of vessel-related emergencies, such as fire or vessel allision. An increase in vessels calling at the new docks also increases risk of spills from refueling ships at berth, although Millennium has stated there would be no refueling at the new docks. The FEIS proposes a mitigation measure that if refueling at the docks were to start, the company would notify Cowlitz County and Ecology. Another mitigation measure in the FEIS involves Millennium's attending at least one Lower Columbia Harbor Safety Committee meeting per year.

Although these proposed mitigation measures would support communication and awareness, they would not reduce environmental harm or the impact of an incident.

If a Millennium-related vessel incident such as a collision or allision were to occur, impacts could be adverse and significant, depending on the nature and location of the incident, the weather conditions at the time, and whether any oil were discharged. Although the likelihood of a serious Millennium-related vessel incident is low, the consequences would be severe and there are no mitigation measures that can completely eliminate the possibility of an incident or the resulting impacts. *See* WAC 197-11-794(2) (an impact may be significant if its chance of occurrence is not great but the resulting environmental impact would be severe if it occurred).

This adverse impact is inconsistent with the following Ecology SEPA policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all people of Washington safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

8. **Cultural Resources.** The FEIS found that construction of the coal export terminal would demolish the Reynolds Metals Reduction Plant Historic District, which would be an unavoidable and significant adverse environmental impact. Construction of the Project would demolish 30 of the 39 identified resources that contribute to the historical significance of the Historic District. The anticipated adverse impacts on these resources would diminish the integrity of design, setting, materials, workmanship, feeling, and association that make the Historic District eligible for listing in the National Register of Historic Places.

A Memorandum of Agreement is currently being negotiated among the Corps, Cowlitz County, the Washington Department of Archaeologic and Historic Preservation, the City of Longview, the Bonneville Power Administration, the National Park Service, potentially affected Native American tribes, and Millennium in a separate federal process. The Memorandum may resolve this impact in compliance with Section 106 of the National Historic Preservation Act of 1966. However, there is no indication when or if this Memorandum will be signed by all parties. Without the Memorandum, the impacts to the Reynolds Metal Reduction Plant Historic District are considered adverse, significant, and unavoidable.

Demolition of historic properties without mitigation is inconsistent with the following Ecology SEPA policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Preserve important historic, cultural, and natural aspects of our national heritage.

9. **Tribal Resources.** The FEIS found that construction and operation of the Millennium coal export terminal could result in unavoidable indirect impacts on tribal resources. Tribal resources refer to tribal fishing and gathering practices and treaty rights. These resources may include plants or fish used for commercial, subsistence, and ceremonial purposes.

Construction activities such as building new docks, river bottom dredging, and pile driving would cause physical and behavioral responses in fish that could result in injury, and would affect aquatic habitat. Fish stranding associated with wakes from the additional 1,680 vessel trips per year would also cause injury. Eulachon would potentially be impacted by the initial and maintenance sediment dredging.

Fugitive coal dust particles generated by the Millennium operations and additional trains would enter the aquatic environment through movement of coal into and around the Project area and during rail transport. Fugitive coal dust and potential spills would increase suspended solids in the Columbia River.

These impacts could reduce the number of fish surviving to adulthood and returning to Zone 6 of the Columbia River, and could affect the number of fish available for harvest by Native American Tribes.

The increase in 16 additional Millennium-related trains per day travelling through areas adjacent to and within the usual and accustomed fishing areas of Native American Tribes would restrict access to 20 tribal fishing sites set aside by the U.S. Congress above Bonneville Dam in the Columbia River. There are additional access sites that are not mapped that would also be impacted.

To reduce impacts to tribal resources from construction, Millennium could be required to minimize underwater noise during pile driving, conduct advance underwater surveys for eulachon prior to in-water work, and conduct fish monitoring prior and during dredging.

These mitigation steps are inadequate because although noise impacts from construction would be reduced, they would not be eliminated, and fish behavior could be altered and affect the number of fish available for harvest by Native American Tribes.

Improving rail infrastructure for access to tribal fishing sites along the Columbia River above Bonneville Dam is outside the control of Millennium. The additional Project-related trains travelling through areas adjacent to and within the usual and accustomed fishing areas of Native American Tribes could restrict access to tribal fishing areas in the

Columbia River. Because other factors besides rail operations affect fishing opportunities, such as number of fishers, fish distribution, and the timing and duration of fish migration periods, the extent to which Project-related rail operations would affect tribal fishing is difficult to quantify. However, SEPA policies state that "presently unquantified environmental amenities and values will be given appropriate consideration in decision making along with economic and technical considerations." Consistent with this policy, Ecology concludes that Millennium at full operations would result in unavoidable significant adverse impacts to tribal resources.

Impacts to tribal resources are inconsistent with the following Ecology SEPA policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Preserve important historic, cultural, and natural aspects of our national heritage.
- The department shall ensure that presently unquantified environmental amenities and values will be given appropriate consideration in decision making along with economic and technical considerations.

III. SECTION 401 WATER QUALITY CERTIFICATION

Pursuant to Section 401 of the Clean Water Act, in order for Ecology to issue a water quality certification it must have reasonable assurance that the Project as proposed will meet applicable water quality standards and other appropriate requirements of state law. Consequently, an applicant must submit adequate information regarding a project for agency review before Ecology can determine compliance with the state water quality standards and other applicable regulations. Millennium's current application and supplemental documents fails to demonstrate reasonable assurance in the following areas:

A. Wetlands Impacts and Mitigation

The Project would impact (fill) 32.31 acres of wetlands, 8.1 acres of which occurred prior to Millennium's tenancy of the site, and 0.11 of which would be impacted at the mitigation site. The impacts include 28.32 acres of Category III wetlands and 3.99 acres of Category IV wetlands. For the reasons stated below, Millennium failed to demonstrate that the impacts and mitigation associated with the wetlands within the Project area will comply with Washington State water quality standards. Thus, Millennium failed to demonstrate reasonable assurance that the Project will meet water quality standards.

1. **Mitigation Plan.** The draft wetland mitigation plan is inadequate and does not demonstrate that the proposed mitigation will offset the Project's wetland impacts. Millennium submitted a conceptual mitigation plan to Ecology on June 8, 2017 (*Millennium Coal Export Terminal, Longview, Washington Coal Export Terminal including Docks 2 and 3 and Associated Trestle Conceptual Mitigation Plan—Wetlands and Aquatic Habitat*, dated May 25, 2017). In response to Ecology's questions,

Millennium submitted additional information on September 20, 2017. However, the submitted information continues to be deficient because it lacks an adequate credit/debit analysis, a boundary verification, and adequate hydrologic information regarding the mitigation site.

2. **Wetland Boundaries at the Impact Site.** Millennium has not demonstrated that the boundaries of the wetlands to be impacted have been verified by the Corps. There is no jurisdictional determination (JD) from the Corps stating whether the wetlands are waters of the United States or whether the Corps agrees with the boundaries as shown in the delineation report (Millennium Coal Export Terminal, Longview, Washington, Coal Export Terminal Wetland and Stormwater Ditch Delineation Report – Parcel 619530400, dated September 1, 2014). Millennium's application therefore does not adequately quantify the extent of the wetland impacts and does not adequately demonstrate that the proposed mitigation will offset those impacts.

3. **Credit-Debit Analysis.** This analysis is needed to determine whether proposed mitigation would adequately offset the Project's wetland impacts. It is especially important for a project of this scale, and where the impacted wetlands were rated using what is now an outdated version of the wetland rating system. The credit-debit analysis Millennium submitted to Ecology on September 20, 2017, did not include scoring forms for any of the wetlands to be impacted. Without these forms, Ecology cannot evaluate the credit-debit analysis. Millennium has not provided a complete analysis to Ecology, thereby failing to demonstrate that the proposed mitigation would be adequate.

4. **Hydrologic and Soil Investigations.** The conceptual mitigation plan states that: "The nature of this surface water will be further investigated as part of planned hydrologic investigations to support final Site design." The plan further states that "hydrologic data are being collected." The plan also states that: "Additional, site-specific soil investigations are planned at the Mitigation Site to inform final mitigation design." Millennium has not provided the results of these hydrologic and soil analyses to Ecology. In its September 20, 2017, responses to Ecology's questions about the proposed mitigation site, Millennium stated that it is still in the process of collecting hydrologic and soil data and that it will submit a technical report once compilation of the data has been completed. Because Millennium has not submitted detailed information supported by data about the hydrologic and soil conditions at the proposed mitigation site, Millennium has not demonstrated that the site is suitable and can provide adequate mitigation.

B. Stormwater and Wastewater

Sufficiently detailed information and analyses necessary to understand, evaluate, and condition wastewater and stormwater discharges are needed to assure compliance with Washington State water quality. Without complete information such as that noted below, Ecology does not have reasonable assurance that the Project will meet water quality standards.

1. **Wastewater Characterization.** Wastewater characterization information is necessary for Ecology to evaluate the impact of discharges from the Project on the receiving water (surface water, ground water, and sediments) and to determine the need for effluent limits, monitoring requirements, and other special conditions to ensure that the Project will meet state water quality standards. This information is typically required in an application for a National Pollutant Discharge Elimination System (NPDES) permit (WAC 173-220-040 and 40 C.F.R. § 122.21).

In response to Ecology's requests, Millennium submitted additional information on September 20, 2017. However, the submittals still do not provide detailed information to adequately characterize process wastewater and stormwater that will be generated at the site, including:

- Sources of wastewater (points of generation).
- Estimated wastewater volumes.
- Estimated pollutant concentrations.

2. **All Known, Available and Reasonable Methods of Prevention, Control and Treatment (AKART) and Engineering Reports.** AKART is required by three state statutes dealing with water pollution and water resources (Chapter 90.48 RCW, Chapter 90.52 RCW, and Chapter 90.54 RCW) and the state NPDES regulations that implement these laws (WAC 173-220). These laws and regulations state that in order to ensure the purity of all waters of the state and regardless of the quality of the waters of the state, discharges must be treated with all known, available, and reasonable methods of prevention, control, and treatment.

Chapter 173-240 WAC requires submittal of engineering reports and plans for new and modified industrial wastewater conveyance, discharge, and treatment facilities. Industrial wastewater includes contaminated stormwater. Ecology uses the information in the engineering report to determine whether AKART is being met and to ensure that effluent from the Project will meet applicable effluent limitations to protect aquatic life.

Millennium's submittals, including the submittal of September 20, 2017, did not provide sufficient information to determine whether AKART will be met for both process wastewater and stormwater generated from the Project. The following is a list of information deficiencies:

- The current AKART analysis does not address the wastewater generated during construction and operation of the Project (i.e., the current AKART analysis addresses only existing Millennium operations).
- Specific best management practices (BMPs) for stormwater management on site, at and near rail lines, and for rail car unloading were not provided.
- Engineering reports were not submitted for the following:

- Stormwater collection and treatment facilities (including dock and trestle).
- The new wastewater treatment system.
- Any proposed modifications to the existing wastewater treatment system.
- Changes to hydraulic loading through the existing wastewater treatment system and through the conveyance and outfall structures.

3. **Mixing Zone.** Ecology may authorize a mixing zone to meet water quality criteria once it has been determined that AKART has been met (WAC 173-201A-400). Water quality criteria must be met at the edge of a mixing zone boundary. Ecology uses the dilution factors determined for each mixing zone in analyzing the potential for violation of water quality standards and to derive effluent limitations as necessary.

Millennium's submittals did not provide updated mixing zone information, which Ecology would need in order to determine potential to violate water quality standards. Missing information includes a new mixing zone analysis to evaluate changes in dilution factors due to changes in the final effluent at Outfall 002A and updated receiving water information.

4. **Construction.** Contaminated stormwater and ground water will be generated during construction of the Project. Ecology needs sufficient information to evaluate the impact of construction activities and the discharges from these activities on waters of the state. This is information that is necessary for reasonable assurance and to demonstrate AKART as discussed above.

Millennium's submittals provided very little information concerning the unique construction of the Project. Missing information includes the following:

- How compaction of soils will potentially impact groundwater and surface water.
- Specific construction BMPs.
- Construction stormwater and groundwater characterization information, including estimated volumes and pollutant concentrations.
- Whether construction wastewater will be adequately treated.

5. **Antidegradation.** The Clean Water Act requires that state water quality standards protect existing uses by establishing the maximum levels of pollutants allowed in state waters. The antidegradation process helps prevent unnecessary lowering of water quality. Washington State's antidegradation policy follows the federal regulation guidance and has three tiers of protection. Tier II (WAC 173-201A-320) is used to ensure that waters of a higher quality than water quality criteria are not degraded unless such lowering of water quality is necessary and in the overriding public interest. A Tier

II analysis must be conducted for new or expanded actions when the resulting action has the potential to cause a measurable change in the physical, chemical, or biological quality of a water body.

Millennium's submittals did not include a detailed Tier II analysis for process wastewater and stormwater to determine whether the Project has the potential to cause measurable degradation at the edge of the chronic mixing zone.

Ecology notified Millennium during various meetings, conference calls, and site visits during 2017 (June 8, June 19, June 28, August 16, August 29, and September 8, 2017) that detailed information regarding the stormwater and process wastewater would need to be submitted to Ecology in order to provide reasonable assurance that the discharges from the Project would meet state water quality standards.

C. Water Rights

The Millennium proposal includes operational descriptions for ongoing reuse of stormwater for industrial dust control. If stormwater is collected and reused for a beneficial use, a water right permit would be required in accordance with Chapter 90.03 RCW.

The Millennium property formerly supported the Reynolds aluminum smelter. During the operations as an aluminum smelter, Reynolds had three water right claims and six water right certificates with a combined total annual quantity (Qa) of 31,367 acre-feet per year at a withdrawal rate of 23,150 gallons per minute (Qi). The Reynolds smelter closed in 2000.

These claims and certificates are now owned by Northwest Alloys, who purchased the property from Reynolds in the early 2000s. No information has been provided to Ecology that documents continued beneficial use of water since about the early 2000s.

In December 2016, Ecology met with Millennium and requested records and other relevant information to document what the current and recent water uses have been on the Millennium property. To date, Millennium has not provided this information. If these water rights have been partially or fully relinquished, Millennium would need to apply for and obtain the necessary water rights to legally put water to beneficial use at the Project site for its proposed operations.

As of September 26, 2017, no information has been provided by Millennium to Ecology in order to quantify the extent and validity (or continued beneficial use) of the existing water rights that are appurtenant to the property, and no water right application(s) have been received by Ecology requesting any new use of water or change in beneficial use(s) of water.

Without a water right, Ecology does not have reasonable assurance that Millennium will be able to legally carry out its proposal.

D. Toxics Cleanup

The proposed location for the Project is the former Reynolds Metals aluminum smelter site. This is a Model Toxics Control Act cleanup site. The principal contaminants are fluoride, polycyclic aromatic hydrocarbons (PAHs), cyanide, and total petroleum hydrocarbons (TPHs). Millennium and Northwest Alloys (a subsidiary of Alcoa) are potentially liable persons (PLPs) for the site. Alcoa owns the property. Millennium leases the property from Alcoa. The PLPs have been working to define the extent of the contamination at the site and evaluate the potential cleanup alternatives. Public notice of a draft cleanup action plan outlining the proposed cleanup was issued in March 2016. Ecology has been working with the PLPs to provide additional sampling along the Columbia River to address comments received on the draft cleanup action plan. To date, the cleanup action plan and consent decree have not been finalized.

Portions of the Project's infrastructure are located on contaminated soil and a historic landfill at the site. The majority of the site contains contaminated ground water. Proposed construction and operation of the Project would likely alter the migration of contaminated ground water at the site. The ballast that will be used during construction could force ground water to the surface with potential for discharge to the Columbia River.

Millennium's submittals do not provide sufficient information to evaluate the impact of the potential discharge of contaminated stormwater and ground water during the construction and operation of the Project. As a result, Millennium failed to demonstrate reasonable assurance that the Project will meet water quality standards.

YOUR RIGHT TO APPEAL

You have a right to appeal this Denial Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Denial Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Denial Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Denial Order on Ecology in paper form—by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel RD SW, Suite 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Maia D Bellon, Director
Department of Ecology

9/26/17
Date

STOEL RIVES LLP

600 University Street, Suite 3600
Seattle, WA 98101
T. 206.624.0900
F. 206.386.7500
www.stoel.com

BETH S. GINSBERG
D. 206.386.7581
beth.ginsberg@stoel.com

October 2, 2017

VIA EMAIL AND FIRST CLASS MAIL

Colonel Mark A. Geraldi
Seattle District Commander
U.S. Army Corps of Engineers
PO Box 3755
Seattle, WA 98124-3755

Michelle (Muffy) Walker
Chief Regulatory Affairs
U.S. Army Corps of Engineers
PO Box 3755
Seattle, WA 98124-3755

Re: Status of Millennium Bulk Terminal- Longview's JARPA

Dear Colonel Geraldi and Ms. Walker:

We are writing on behalf of Millennium Bulk Terminals-Longview ("MBT-Longview") to urge the U.S. Army Corps of Engineers ("Corps") to continue to process MBT-Longview's Joint Aquatic Resources Permit Application ("JARPA") for its proposed Coal Export Terminal ("CET") notwithstanding the Washington State Department of Ecology's ("Ecology's) September 26, 2017 decision to deny the company a certification pursuant to Clean Water Act ("CWA") section 401, 33 U.S.C. §1341. *See In the Matter of Denying Section 401 Water Quality Certification*, Order # 15417- Corps Reference #NWS-2010-1225 (September 26, 2017).

The section 401 certification denial is not final and instead, is simply the first step in a multi-pronged state process. MBT-Longview will be appealing that decision to the Pollution Control Hearings Board ("PCHB") by the end of this month and is contemplating other federal and state judicial challenges as well. MBT-Longview will urge the PCHB and/or other courts to invalidate that decision as *ultra vires* because it runs counter to and exceeds the statutory authority Congress granted Washington State under CWA section 401. The decision also violates the Commerce Clause of the U.S. Constitution, U.S. Const. art. I, Section 8, cl.3, the Supremacy Clause of the U.S. Constitution, art. VI, cl. 2, section 1983 of the Civil Rights Act, and is otherwise arbitrary and capricious.

Ecology's 401 decision, as the Corps is likely aware, is also squarely inconsistent with the Corp's Draft Environmental Impact Statement ("EIS") issued pursuant to the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.*, and, perhaps even more surprisingly, expressly contradicts technical water quality findings made by Ecology itself, in the Final EIS Ecology issued under the State Environmental Policy Act ("SEPA"). Ecology used its non-water quality related SEPA findings to deny MBT-Longview certification under CWA section 401 while entirely ignoring its water quality findings unambiguously concluding that the project

would result in no unavoidable and significant adverse impacts. In fact, and more specifically, the SEPA EIS concluded that the project would result in "no unavoidable and significant impacts on fish" (SEPA FEIS at 4.7-41); it further found that "the construction activities associated with the proposed activity would not be expected to cause a measurable effect on water clarity, water quality, or biological indicators or affect designated uses." SEPA FEIS at 4.5-19. And in addressing public concerns associated with coal dust and contamination from coal runoff, it concluded that these impacts "would not be measurable" and that any change in water quality resulting from those activities are "not anticipated to increase turbidity or water temperature or affect marine organism functions." SEPA FEIS at 4.5-25.

In short, Ecology's 401 denial is simply impossible to square with its prior findings, and especially, the conclusion it reached in its own EIS that "coal dust from operation of the Proposed Action is not expected to have a demonstrable effect on water quality." *Id.* Because the 401 denial is also contrary to the plain language of the CWA, is at odds with state and federal case law interpreting section 401, and is the sort of illegal action that Corps regulatory guidance has previously found "clearly unacceptable," the Corps should maintain the path it has forged over these past 6 years and complete its permitting process.

I. MBT-Longview's Extraordinary Investment In Regulatory Excellence Over 6 Years

As you know, MBT-Longview has been working with the Corps to obtain a permit to construct two new docks and to dredge and fill wetlands in connection with its proposal to construct a CET on the Columbia River in Longview, Washington, since 2011. During these past 6 years, MBT-Longview and permitting agencies including the Corps have devoted countless hours and tens of millions of dollars in efforts toward completing the protracted and multi-level regulatory process associated with obtaining a joint CWA section 404 dredge and fill/ Rivers and Harbors Act section 10 permit from the Corps. In so doing, the Applicant has worked with the Corps to complete a (i) Draft Environmental Impact Statement ("EIS") under the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321 *et seq.*, (ii) a Memorandum of Agreement between the company and federal, state, local, tribal entities (in addition to the Advisory Council on Historic Preservation) under section 106 of the National Historic Preservation Act, 16 U.S.C. § 470 *et seq.*; (iii) formal consultation with both NOAA Fisheries and the U.S. Fish and Wildlife Service ("FWS") under section 7 of the Endangered Species Act, 16 U.S.C. §1536; in addition to (iv) a concurrence from the Portland District of the Corps under section 14 of the Rivers and Harbors Act of 1889, as codified at 33 U.S.C. §408.

In conversations with the Seattle District, we have been led to understand that the Corps has all but completed a Final EIS and is simply awaiting input from its sister federal agencies, including NOAA Fisheries and the FWS. At this stage of this extraordinary level of effort, it would be

wasteful of public and private resources as well as imprudent for the Corps to do anything but proceed with completing its federal permitting efforts. Thus, while MBT-Longview expeditiously appeals its section 401 denial, the Corps should proceed to finalize its regulatory obligations associated with this project. Any other decision would be counter to the Corps' own interests in conserving scarce regulatory resources- resources which include the tens of thousands of hours of Corps' staff time devoted to processing MBT-Longview's permit application since 2011.[1]

II. Ecology's Ultra Vires Actions

The Corps' self-interest in preserving its resources should be reason enough to continue to finalize MBT-Longview's permit application. But there are other reasons, as well. For example, the Corps has interpreted CWA section 401 to enable it to reject state decisions when clearly contrary to the CWA or the Corps' own interests. Under Regulatory Guidance Letter ("RGL") 92-04, the Corps gave itself authority to not accept illegal state conditions inserted into a CWA section 401 certification that are "clearly unacceptable." Such conditions were defined to include those where the condition itself would result in a violation of law or regulation or require that the Corps take an illegal action.[2] The RGL further explained that an unacceptable condition would be one "that would require the Corps to take an action that it would not otherwise take or choose to take." *Id.*

Here, Ecology would have its 401 decision lead the Corps to deny MBT-Longview's permit application on the basis of state findings of fact and conclusions of law that are totally unrelated to the CWA. In this case, Ecology purported to use its SEPA "supplemental authority"—RCW 43.21C.060—as a basis to expand its rationale for certification denial. Using findings included in its Final EIS dated April 28, 2017, Ecology asserted that the possibility (however remote, and speculative) that trains and vessels in interstate commerce serving the CET would lead to "significant unavoidable adverse impacts" concerning air quality, vehicle transportation, noise

[1] This situation is different, in both context and posture, from Ambre Energy's application to build a coal export terminal, where the Corps dismissed a pending permit application without prejudice in response to a state permit denial. Additionally, the Oregon Department of State Lands' decision on Ambre Energy's proposed CET is not binding on the Seattle District and is otherwise clearly distinguishable. That decision revolved around a finding that the company had not comprehensively evaluated alternatives that would not impact tribal fishing opportunities. That case did not involve a clearly *ultra vires* application of a state's 401 certification authority.

[2] Although this RGL expired on January 21, 1997, the sentiments expressed therein hold true today and demonstrate Corps authority to refuse to accept state action that is "clearly unacceptable" and otherwise illegal.

and vibration, social and community resources, rail transportation and safety, and cultural and tribal resources, and, in a novel 401 interpretation, that these alleged impacts were sufficient grounds to deny the CWA certification under SEPA.

But as established above, Ecology's Final EIS otherwise expressly found that the project will not result in significant adverse effects on water quality, wetlands, or fish, and that any effects it would generate in these areas can be fully mitigated. http://millenniumbulkeiswa.gov/sepa-eishtml. *Id.* Vol. III.B (SEPA Water Quality Technical report). *See* MBT-Longview's September 20, 2017 submission to Ecology (attached as Exhibit A). Ecology therefore appears to assert that its authority under SEPA allowed it to bootstrap sufficient state authority to deny MBT-Longview's certification upon a finding of significant and unavoidable adverse effects un-related to water quality, and bearing no relevance to the expressly limited certification authority granted it under CWA section 401(a)(1) (state's certification decision is limited to whether the "discharge" for which the certification is required "will comply with the applicable provisions of [CWA] sections [301, 302, 303, 306, and 307]," which include state water quality standards approved by EPA pursuant to CWA section 303.). *See infra* at 5-6 (statutory analysis and explanation of case law establishing that statute limits state denial authority to the actual on-site discharge). [3] Ecology's attempt to broaden its denial authority to extend to effects generated by other actors including interstate railroads or vessels is contrary to section 401. [4]

Ecology's denial of a certification pursuant to CWA section 401 is *ultra vires*, runs afoul of 42 U.S.C. § 1983, and violates the United States Constitution's Commerce Clause, 14th Amendment, and Supremacy Clause. Ecology is tasked with certifying whether a project will comply with Washington's water quality standards, effluent, and other CWA limitations. As

[3] For purposes of section 401, a "discharge" is limited to a discharge from a "point source," *i.e.*, "any discernible, confined, and discrete conveyance." *See* 33 U.S.C. § 1362(14) (defining "point source"); *Oregon Natural Desert Ass'n v. Dombeck*, 172 F.3d 1092, 1097 (9th Cir. 1998) ("The term 'discharge' in § 1341 [CWA section 401] is limited to discharges from point sources."). The only point source discharges associated with Millennium's proposed coal terminal are those for which it will need a National Pollutant Discharge Elimination System (NPDES) permit from Ecology under CWA section 402 or a CWA section 404 permit from the Corps.

[4] Ecology's attempt to use its SEPA authority to deny the section 401 certification based on concerns about railroad safety, congestion, noise, and pollution is similarly barred under the federal preemption doctrine. The Ninth Circuit has held that the federal Surface Transportation Board has "exclusive jurisdiction" over rail line operations and that state environmental regulation of railroads is preempted by the Interstate Commerce Commission Termination Act ("ICCTA"). *City of Auburn v. U.S. Gov't*, 154 F.3d 1025, 1030 (9th Cir. 1998). Likewise, the Washington Supreme Court found that ICCTA preempts local regulation of railroads. *City of Seattle v. Burlington N. R. Co.*, 145 Wash. 2d 661, 669, 41 P.3d 1169, 1172 (2002)

described above, Ecology has exceeded the certification process proscribed by the CWA. Moreover, Ecology's abrupt decision was issued just six days after it received voluminous materials submitted in response to its water quality-related inquiries; these inquiries followed years of delay. *See* September 20, 2017 letter from Beth S. Ginsberg to Loree Randall and Thomas J. Young, (attached as part of Exhibit A.).[5]

MBT-Longview will seek the public documents that will allow it to understand how Ecology arrived at its decision. At a minimum, however it is clear that Ecology reached a decision that is directly and unambiguously contrary to the unchallenged Final SEPA EIS that concluded the project will not result in significant adverse effects on water quality, wetlands, or fish. Simply put, Ecology's Final and unchallenged EIS water quality findings preclude it as a matter of law from denying MBT-Longview a section 401 certification.

In light of Ecology's overreaching, illegal, and *ultra vires* CWA section 401 certification decision, the Corps' safest course of conduct is to proceed with processing MBT-Longview's permit. While others may clamor for a different result, the rule of law, due process considerations, and principles of fairness strongly counsel against any Corps decision to stop work on MBT-Longview's permit application because of Ecology's *ultra vires* actions. Simply put, a federal agency cannot rely on the unlawful actions of a state agency to deny a permit application. *See also* RGL 92-04 (same). Postponement or denial of MBT-Longview's permit application on the basis of a state's *ultra vires* action, is itself an unlawful, and arbitrary and capricious action under the Administrative Procedure Act. 5 U.S.C. §706. Although the Corps must rely on a lawful state certification, it must not rely on a denial of state certification that is clearly outside of Washington's authority under the CWA.

---

[5] Ecology also acted patently arbitrarily in demanding that MBT-Longview submit reams of technical water quality data, engineering and water treatment information pertinent to project stormwater and process wastewater discharges only to refuse to evaluate that data. *Indeed, Ecology summarily denied the certification less than one week after receiving that voluminous information pursuant to a September 20, 2017 deadline established by Ecology.* The record will show that Ecology waited months, if not years, to request additional water quality information from MBT-Longview, and instead of working with the company to assimilate that information, decided instead to utterly ignore it. Finally, the record will also show that there is nothing unique about the proposed CET that could possibly prevent Ecology from obtaining "reasonable assurance" that project discharges would meet water quality standards. Ecology, in fact, recently issued a CWA section 402 NPDES permit to the TransAlta coal-fired generating facility in Centralia, Washington. The TransAlta plant generates stormwater and process wastewater discharges from a similarly sized coal stockpile as that proposed by MBT-Longview. *See* Ginsberg letter attached as Exhibit A. In short, to the extent Ecology attempts to cloak aspects of its denial on water quality grounds, that attempt will be found arbitrary and capricious and utterly unsupportable under the State Administrative Procedure Act.

III. The Corps Should Continue to Process the Permit Application

The CWA, case law applying section 401, and the Corps' regulations and regulatory guidance letters all exhort against any agency action to further postpone or deny the joint section 404/10 Corps permit process and review. First, the CWA grants states the ability to deny a section 401 certification only upon a finding that a discharge would violate requirements under CWA sections 301, 302, 303, 306 and 307. 33 U.S.C. §1341(a)(1)(applicant must obtain a state certification" that any discharge will comply with applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title."). The enumerated sections of the statute listed in section 401(a)(1) are exclusive and do not provide states with plenary power to deny water quality certifications on other grounds. While states have authority to *condition* certification on "other appropriate requirements of state law" under CWA section 401(d), that authority is constrained and must bear direct relationship to water quality.

Indeed, that was the express holding of the Oregon Court of Appeals in *Arnold Irr. Dist. v. Oregon Dept. of Envt'l Quality*, 717 P.2d 1274 (Or. App. 1986)(invalidating certification denial by Oregon Department of Environmental Quality ("DEQ") because denial was issued on grounds other than the five specified sections under CWA section 401). There, the Oregon Court of Appeals expressly rejected DEQ's attempt to attach state land use conditions to its section 401 certification authority. The Court interpreted DEQ's conditioning authority under section 401(d) on the basis of other "appropriate requirements of State law" to be limited to requirements that bear "relationship to water quality."

Denying the permit application is also premature because it is likely that Washington state courts will find that Ecology exceeded its authority in issuing the certification denial. State courts have rejected state denials of CWA section 401 certifications when the state has based its denial on grounds other than that the discharge would fail to comply with the five CWA statutory sections expressly enumerated under section 401(a). *Arnold Irr. Dist*, 717 P.2d 1274. Significantly, the Washington State Court of Appeals (Div II) expressly adopted the reasoning in *Arnold. See State v. Public Utility Dist. No. 1*, 121 Wash.2d 179, 192 (Wash. 1993) *aff'd by PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700 (1994) (in stream flow condition imposed by Ecology constituted an "appropriate requirement of State law.").

In fact, as held by the D.C. Circuit, the Corps is uniquely positioned to assert its authority to continue processing MBT-Longview's permit application where, as here, a state acts in a manner that exceeds its authority under the plain language of section 401. *City of Tacoma v. FERC*, 460 F.3d 53, 67-69 (D.C. Cir. 2006). While the *City of Tacoma* Court acknowledged that a federal agency in most cases is required to adhere to a state's 401 decision, the statute compels the agency to be mindful of the "outer limits" of section 401 which are bounded by water quality

standards. *Id.* The Court held that when a state acts under section 401, the federal agency has an obligation to confirm that the state complied with the statutory limitations imposed under section 401. *Id.* (requiring FERC to ensure that state acted within the statute of limitations required by section 401). Accordingly, the Corps should follow suit and ensure that any action it takes on the basis of Ecology's denial, is lawful and within the bounds of section 401(a)(1). See RGL 92-04 (requiring Corps to determine if state action is legal under section 401).

In addition, there are at least two other compelling reasons that the Corps should continue to process MBT-Longview's permit. *First*, federal agencies conditionally grant permits to applicants on the requirement to obtain a section 401 certification. *See, e.g., Delaware Riverkeeper Network v. FERC*, 857 F.3d 388, 397 (D.C. Cir. 2017) (upholding agency's conditional permit approval preventing project construction until applicant obtained section 401 certification); *Millennium Pipeline Company, LLC*, CP16-17-000, 160 FERC ¶ 61,065 (Sept. 15, 2017) (same).

MBT-Longview is confident that Washington Courts will remand Ecology's certification denial with instructions for the agency to follow the plain language of section 401(a)(1). Once the agency properly adheres to the plain language of section 401 in making its remanded certification decision, it will be incumbent on Ecology to grant MBT-Longview a certification as the record will demonstrate that "reasonable assurance" exists to certify the proposed CET under CWA section 401. 40 C.F.R. §121.2(a). Prematurely denying the JARPA at this time would be fundamentally unfair to MBT-Longview in light of the extraordinary time and effort invested by the Company and the Corps in this process, and the significant progress the Corps has made to date in completing the permitting process.

Second, section 401 and Corps implementing regulations permit, and arguably, require the Corps to find that Washington State has waived its right to certification under section 401. The Corps' regulations and regulatory guidance letters make clear that unreasonable delays in processing a request for certification justify finding waiver, and the Corps has established that anything beyond 60 days is unreasonable, unless expressly authorized by the district engineer (which is not the case here). 33 U.S.C. § 1341(a)(1); 33 C.F.R. § 325.2(b)(ii); 401 Water Quality Certification, Army Corps Regulatory Guidance Letter 87-03, April 14, 1987 ("Corps regulation 33 C.F.R. § 325.2(b)(1)(ii) defines this period to be 60 days unless the district engineer" determines a different "period is reasonable for the state to act"). Moreover, the Executive Order "Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects" calls for "timely decisions with the goal of completing all Federal environmental reviews and authorization decisions for major infrastructure projects within 2 years," and includes projects, "public and private . . . that are designed to provide or support services" including "ports, including navigational channels . . . energy production and

generation, including from fossil" fuels. Exec. Order No. 13,807, 82 Fed. Reg. 40,463-40,469 (August 24, 2017). The Executive Order provides a framework for agency accountability and streamlining environmental reviews for major projects so that the reviews no longer go on for years and years. It also establishes a federal policy to apply NEPA in a manner that reduces unnecessary burdens and delays as much as possible. *Id.*

MBT-Longview submitted a certification application to Ecology three times: February 23, 2012 (withdrawn on January 28, 2013 at the Corps' urging to allow the agency to seek public comment on the JARPA when the Corps completed its Draft EIS); July 18, 2016 (withdrawn on June 22, 2017 at the request of the Department of Ecology); and June 22, 2017 (denied with prejudice on September 26, 2017). In each of these pending application periods, the Corps' 60-day limit elapsed without Ecology action. Finding waiver is therefore appropriate given Ecology's unreasonably delayed certification decision, and the unquestionably spurious and illegal means used to reach that decision. *See, e.g., Puerto Rico Sun Oil Co. v. EPA*, 8 F.3d 73, 79–80 (1st Cir. 1993) (state agency's failure to render a certification decision within EPA's 60-day regulatory deadline justifies waiver); *Millennium Pipeline Company, LLC*, 160 FERC ¶ 61,065 (finding that the New York Department of Environmental Conservation waived its water quality certification authority).

IV. Summary

In summary, MBT-Longview requests that the Corps continue to process the JARPA and examine whether Ecology's delay amounts to a waiver of its section 401 authority. At the very least, the Corps should continue its review, publish its FEIS, and certainly not deny MBT-Longview's JARPA application on the basis of Ecology's *ultra vires* actions. We are available to discuss any questions this letter raises and thank you in advance for your serious consideration of this matter.

Very truly yours,

Beth S. Ginsberg

Message

From: Billie Rae Gillas [BRGillas@hbwresources.com]
Sent: 6/7/2017 4:16:03 PM
To: Lee Forsgren [LForsgren@hbwresources.com]
Subject: Thursday will be PAY DAY

Lee,

HBW Resources has scheduled payment of your expenses in the amount of $688.12 for Thursday, 8 June 2017.

Happy Day,
Billie Rae

Billie Rae Gillas
Finance, HR & Operations
HBW Resources LLC
2211 Norfolk St Ste 410 | Houston, TX 77098
O: 713-337-8801 | M: Ex. 6 | F: 866-273-8998

Message

From: Barrett Bles [barrettb@fb.org]
Sent: 11/9/2017 6:36:41 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
CC: Cal Odom (COdom@eei.org) [COdom@eei.org]; Don Parrish [donp@fb.org]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Speaker Request Form - 11/16/2017
Attachments: Speaker Request Form.docx

Good afternoon,

Please find attached the Speaker Request Form for Mr. Forsgren to speak with the Waters Advocacy Coalition on Thursday November 16th. Please do not hesitate to reach out if you have any questions or need additional information.

Best,

Barrett Bles | Temporary Assistant, Public Policy
American Farm Bureau Federation®
barrettb@fb.org | **Redacted**

OFFICE OF WATER SPEAKER REQUEST FORM
U.S. Environmental Protection Agency

Deadline for Acceptance:	N/a
Event Title:	Clean Water
Speech Date:	Thursday November 16, 2017 @ 2:00 pm
Is the Above Date Flexible:	N/a
Speech Time & Duration:	2:00 to 3:00 pm
Speaker Requested:	Lee Forsgren
Event Location:	Edison Electric Institute, 701 Pennsylvania Avenue NW, 4th Floor (Ben Franklin Conference Room)
Open Press/Closed Press:	Closed
Is Event Webcast/Recorded/Transcribed:	No
Purpose of the Event:	Introduction and discussion of Office of Water Priorities
Speech Topic:	Office of Water priorities
Requested Presentation Format:	Casual roundtable discussion
Speech/Presentation Duration:	30 min
Audience:	Approximately 40
Event/Organization Web Site:	Watersadvocacy.org
Event Agenda/Program:	Regular meeting
Notable Guests Attending:	None
Point of Contact:	Don Parrish (donp@fb.org) and Barrett Bles (barrettb@fb.org)

Message

From: Michael Whatley [MWhatley@hbwresources.com]
Sent: 10/6/2017 12:00:43 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Andrew Wheeler Nominated as EPA Deputy Administrator

Nice.

About time.

On Oct 6, 2017, at 7:59 AM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:

FYI

From: EPA Press Office [mailto:press=epa.gov@cmail20.com] **On Behalf Of** EPA Press Office
Sent: Thursday, October 5, 2017 4:22 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Andrew Wheeler Nominated as EPA Deputy Administrator

CONTACT: press@epa.gov

Andrew Wheeler Nominated as EPA Deputy Administrator

WASHINGTON (October 5, 2017) Today, President Donald J. Trump announced his intention to nominate Andrew Wheeler as deputy administrator for the U.S. Environmental Protection Agency (EPA).

Mr. Wheeler has spent his entire career working in environmental policy. In addition to spending four years at EPA's Office of Pollution Prevention and Toxics during the George H. W. Bush and Bill Clinton administrations, he also spent many years on Capitol Hill. After serving as general counsel to U.S. Senator James Inhofe, he worked as staff director and chief counsel for two Senate Committees with vital roles in protecting human health and the environment: the U.S. Senate Committee on Environment and Public Works (EPW) and the U.S. Senate Subcommittee for Clean Air Wetlands and Nuclear Safety. Mr. Wheeler currently works as a principal at FaegreBD Consulting providing guidance on federal regulatory and legislative environmental and energy issues.

"Andrew will bring extraordinary credentials to EPA that will greatly assist the Agency as we work to implement our agenda," **said Administrator Pruitt.** "He has spent his

entire career working to improve environmental outcomes for Americans across the country and understands the importance of providing regularity certainty for our country."

His nomination is receiving high accolades from across the country:

U.S. Senator James Inhofe: "I am pleased that President Trump has nominated Andrew Wheeler to serve as deputy administrator at the EPA. There is no one more qualified than Andrew to help Scott Pruitt restore EPA to its proper size and scope. When he served as my staff director of the Environment and Public Works Committee, he provided me with invaluable guidance, and in turn became a close friend. I am confident he will serve the American people and President Trump with exceptional skill in this position, and I look forward to ensuring his swift confirmation."

U.S. Congressman Bill Johnson: "Andrew Wheeler will do a fine job at EPA, helping to ensure the agency's mission of protecting the environment is maintained without the EPA becoming an unnecessary impediment to responsible energy exploration and job creation."

U.S. Congressman David B. McKinley: "With extensive experience working on Capitol Hill, in the Executive branch, and in the private sector, Andrew Wheeler is eminently qualified and a great pick to serve as Deputy Administrator of the EPA. There are few people in Washington who have the same depth of knowledge and experience on energy and environment issues. I look forward to continuing working with Andrew once he is confirmed in his new role."

Former U.S. Senator Joe Lieberman: "Andrew was Republican staff director during part of the time I was on the Senate Environment Committee. We worked together on some issues and disagreed on others. He conducted himself in a fair and professional manner. I hope his nomination will receive similarly fair consideration by the Senate."

Jay Timmons, President and CEO, National Association of Manufactures: "Andrew's significant experience on Capitol Hill, and his extensive background working on environmental and natural resource policy makes him an outstanding choice to join the leadership at the EPA. Manufacturers have welcomed Administrator Pruitt's efforts to bring balance to rulemaking at the agency and focus on the EPA's core mission. We're confident Andrew will help advance that mission and ensure that our country can achieve the dual goals of responsible environmental stewardship and strong economic growth."

<!--[if !vml]--><image001.png><!--[endif]-->

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
Washington, D C. 20004

Message

From: Samantha McDonald [SMcDonald@ipaa.org]
Sent: 9/15/2017 7:51:50 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Thank you!

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, September 15, 2017 3:52 PM
To: Samantha McDonald <SMcDonald@ipaa.org>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Let me see if we can find an appropriate person!

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Friday, September 15, 2017 3:49 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Either or both would be acceptable topics to cover with our group.

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, September 15, 2017 3:48 PM
To: Samantha McDonald <SMcDonald@ipaa.org>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Would you focus be on dealing with wastewater from drilling operations, WOTUS or both?

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Friday, September 15, 2017 3:45 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Is there anyone else you would deputize to speak to our group?

From: Samantha McDonald
Sent: Wednesday, September 6, 2017 1:34 PM
To: 'Forsgren, Lee' <Forsgren.Lee@epa.gov>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

I'm sorry that day isn't ideal for you. Unfortunately, it was the one day in mid-October we could secure a big room in our building. Is there someone else you would recommend to talk on one or both of those issues?

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Wednesday, September 6, 2017 1:18 PM
To: Samantha McDonald <SMcDonald@ipaa.org>

Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Samantha,
Unfortunately I have already committed to an out of town speaking engagement on October 17th. I would be happy to speak to or meet with IPAA any other time that might work.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Wednesday, September 6, 2017 11:19 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: IPAA Speaking Invitation 10.1.7.17

Lee,

I hope this note finds you well. IPAA is having an IPAA Regulators' Forum on Tuesday, October 17 at our building in DC where we fill a day with speakers from various agencies. Would you be able to speak to our group on EPA water? Our members were obviously very concerned about WOTUS and ELGs, both of which are under your issue portfolio. We'd take any amount of time you were willing to commit, but ask that you allow about 15 minutes for questions, if possible. This meeting is off the record.

Thanks in advance for the consideration!

Sam

Samantha McDonald
Director of Government Relations
Independent Petroleum Association of America
Redacted / Visit IPAA / Visit ESA Watch

Message

From: Gibson, Mark [mark_gibson@americanchemistry.com]
Sent: 9/26/2017 12:41:32 PM
To: Hernandez-Quinones, Samuel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4c46d56b82f143df82f81d322bd109d7-Hernandez-Quinones, Samuel]
CC: Nordgren, Judith [Judith_Nordgren@americanchemistry.com]; Shapiro, Mike [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2c70af880ba747b5a8b6baa45a040125-MShapiro]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]; Grevatt, Peter [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d3caa0c39ebe44cb9d3ae44da7543733-Grevatt, Peter]; Burneson, Eric [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2cacb9a8d49f49af80531e9e2ccb9018-eburneso]
Subject: ACC request for comment period extension: perchlorate draft MCLG Approaches Report
Attachments: ACC request for comment period extension_perchlorate 9-26-17.pdf

Good morning Mr. Hernandez.

I am sending this email and attached letter requesting a 45-day extension to the comment period on "Proposed Approaches to Inform the Derivation of a Maximum Contaminant Level Goal for Perchlorate in Drinking Water" on behalf of Judith Nordgren, Managing Director of ACC's Chlorine Chemistry Division.

Thank you.

Mark C. Gibson | American Chemistry Council
Director, Chlorine Issues
Mark_Gibson@americanchemistry.com
700 2nd Street NE | Washington, DC | 20002
O: 202-249-6738 | **Ex. 6**
www.americanchemistry.com

American Chemistry Council

September 26, 2017

SUBMITTED VIA EMAIL
Mr. Samuel Hernandez
U.S. Environmental Protection Agency
Office of Ground Water and Drinking Water
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

RE: Request for comment period extension on the draft report titled, "Proposed Approaches to Inform the Derivation of a Maximum Contaminant Level Goal for Perchlorate in Drinking Water" (draft MCLG Approaches Report; 82 FR 43354; EPA-HQ-OW-2016-0438)

Mr. Hernandez:

The American Chemistry Council (ACC) respectfully requests that EPA extend the comment period on the draft report, "Proposed Approaches to Inform the Derivation of a Maximum Contaminant Level Goal for Perchlorate in Drinking Water," by 45 days to December 14, 2017. We appreciate EPA's responsiveness in addressing the recommendations made by the first peer review panel in January 2017. However, given the complexity and length of the revisions in the Biologically Based Dose-Response (BBDR) model and supporting documentation being used to develop the MCLG, a 90-day comment period is necessary to allow sufficient time for public review and comment.

All parties, but especially the second peer review panel, will benefit from additional time to evaluate the changes and technical assumptions in the updated BBDR model.

We would appreciate a response to this request at your earliest convenience. Should you have questions or would like to discuss this request, please contact me at judith_nordgren@americanchemistry.com or Mark Gibson at mark_gibson@americanchemistry.com.

Sincerely,

Judith Nordgren

Judith Nordgren
Managing Director
Chlorine Chemistry Division

cc:
Michael Shapiro – EPA, OW
Lee Forsgren – EPA, OW
Peter Grevatt – EPA, OGWDW
Eric Burneson – EPA, OGWDW

Message

From: MaryTheresa Wall-Rogers [Ex. 6]
Sent: 9/20/2017 2:27:21 PM
To: Chris Bahret [Ex. 6]
CC: Joe Cox [Ex. 6] Gary Gilbert [Ex. 6] Lee Kincaid [Ex. 6]; Melissa Mejias [melissa.mejias@iadc.org]; Riaz Latifullah [riazdc@gmail.com]; Sean Connaughton [sconnaughton@vhha.com]; Steve Blust [Ex. 6] Tom Harrelson [Ex. 6]; Roy R CTR MDA/DEI [roy.rogers.ctr@mda.mil]; Owen.Doherty@dot.gov; laila.i.linares@navy.mil; [Ex. 6] Ryan Denton [Ex. 6] Turissini Daniel E. [Ex. 6]; stephanie.e.waller@uscg.mil; Luis.Corzo@WillisTowersWatson.com; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Passing of Grace Marshall

All

ROY and I will also send a donation for flowers. I'll deposit a check in the KP Club bank in the amount of $25 tomorrow. As you know I have the account number because of the blazer patches.

Also ROY has asked me to attend the services on Friday as he's out of town for the week. Therefore I'll be there on Friday

Mary Rogers

Mary and Roy Rogers
Sent from my iPhone

On Sep 19, 2017, at 8:00 PM, Chris Bahret [Ex. 6] wrote:

> Mariners - Please see below. Sad news.
>
> Laila/Luis - Let's discuss sending a floral arrangement from KPCWDC. I'm happy to make a donation.
>
> R/
>
> Chris
>
> **From:** Kings Point Club of Washington DC [Ex. 6]
> **Sent:** Tuesday, September 19, 2017 4:41 PM
> **To:** Steven Blust; Chris Bahret; Ryan Denton; Sang Yi
> **Subject:** Passing of Grace Marshall

I'll send an email out to the greater distribution list tonight.
****
Mariners,

It is with great sadness that I inform you of the passing of Grace Marshall, Captain Bob Marshall's wife. She passed this past Sunday in the afternoon surrounded by her two sons, and her husband.

Viewings will be from 2pm-4pm and 6pm-8pm on Thursday, September 21st, at Fairfax Memorial, 9902 Braddock Road, Fairfax, VA 22032.

The service will be at 11am on Friday, September 22nd, at St. Matthews United Methodist Church, 8617 Little River Turnpike, Annandale, VA.

Regards,

Kate Woods, '08
Kings Point Club of Washington DC

Message

From: Mike Biagi [mike@therotundagroup.com]
Sent: 9/13/2017 7:23:59 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Brydon Ross [BRoss@hbwresources.com]
Subject: Re: Connecting you with Mike Biagi
Attachments: PastedGraphic-1.tiff

Lee, I'd welcome the chance to stop by and briefly introduce myself to you. I'll be visiting an old friend of mine, Tate Bennett, at EPA at 2:00 PM this coming Monday, 9/18. Can I drop by see you at 1:40?

Brydon—thanks so much for connecting us.

Mike Biagi
Partner
The Rotunda Group
Government Relations - Business Development
Ex. 6
LinkedIn.com/in/MikeBiagi
TheRotundaGroup.com

On Sep 13, 2017, at 11:37 AM, Brydon Ross <BRoss@hbwresources.com> wrote:

Thanks much Lee!

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Wednesday, September 13, 2017 11:04 AM
To: Brydon Ross <BRoss@hbwresources.com>
Cc: Mike Biagi <mike@therotundagroup.com>
Subject: RE: Connecting you with Mike Biagi

Bryon – Thanks for the intro.

Mike – Nice to meet you by email. I would look forward to working with you.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460

Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Brydon Ross [mailto:BRoss@hbwresources.com]
Sent: Wednesday, September 13, 2017 9:09 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Mike Biagi <mike@therotundagroup.com>
Subject: Connecting you with Mike Biagi

Lee,
Hope you are doing well this morning. I know this has been an incredibly hectic time in your shop with all the Harvey and Irma issues going on these days.

My reason for reaching out was to connect you with a good friend and colleague of mine in Kentucky named Mike Biagi (cc'd here and contact info below). He's a former McConnell guy and was Cassidy's LD during his time in the House and is top shelf. We work together on some energy/environment issues here in the Commonwealth and he was going to be in DC over the next few days. Didn't know if you may have availability this upcoming Monday afternoon to get together?

Thanks much for your time and I know it's super busy these days.

Best,
Brydon

Ex. 6

Mike Biagi
Partner
The Rotunda Group
Government Relations - Business Development
Ex. 6

Message

From: Corzo, Luis F. [Luis.Corzo@WillisTowersWatson.com]
Sent: 9/20/2017 2:24:49 AM
To: Chris Bahret [Ex. 6]
CC: Joe Cox [Ex. 6]; Gary Gilbert [Ex. 6]; Lee Kincaid [Ex. 6]; Melissa Mejias [melissa.mejias@iadc.org]; Riaz Latifullah [Ex. 6]; Sean Connaughton [sconnaughton@vhha.com]; Steve Blust [Ex. 6]; Tom Harrelson [Ex. 6]; Roy R CTR MDA/DEI [roy.rogers.ctr@mda.mil]; Roy R Rogers [Ex. 6]; Owen.Doherty@dot.gov; laila.i.linares@navy.mil; [Ex. 6]; Ryan Denton [Ex. 6]; Turissini Daniel E. [Ex. 6]; stephanie.e.waller@uscg.mil; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Passing of Grace Marshall

Chris,

Copy and you bet.

Luis

Sent from my iPhone

On Sep 19, 2017, at 8:00 PM, Chris Bahret [Ex. 6] wrote:

> Mariners - Please see below. Sad news.
>
> Laila/Luis - Let's discuss sending a floral arrangement from KPCWDC. I'm happy to make a donation.
>
> R/
>
> Chris

From: Kings Point Club of Washington DC [Ex. 6]
Sent: Tuesday, September 19, 2017 4:41 PM
To: Steven Blust; Chris Bahret; Ryan Denton; Sang Yi
Subject: Passing of Grace Marshall

I'll send an email out to the greater distribution list tonight.
****
Mariners,

It is with great sadness that I inform you of the passing of Grace Marshall,

Captain Bob Marshall's wife. She passed this past Sunday in the afternoon surrounded by her two sons, and her husband.

Viewings will be from 2pm-4pm and 6pm-8pm on Thursday, September 21st, at Fairfax Memorial, 9902 Braddock Road, Fairfax, VA 22032.

The service will be at 11am on Friday, September 22nd, at St. Matthews United Methodist Church, 8617 Little River Turnpike, Annandale, VA.

Regards,

Kate Woods, '08
Kings Point Club of Washington DC

Message

From: Aspatore, Amanda [AAspatore@nma.org]
Sent: 9/8/2017 8:15:53 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: RE: Speaking Invitation

Absolutely, thank you so much for the quick reply! Crystal, please let me know if there are any hour-long openings between 10:30-4:30 on Oct. 16. We are very flexible on our end. Thank you, and I hope that you both have wonderful weekends!

Sincerely,
Amanda

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, September 8, 2017 4:10 PM
To: Aspatore, Amanda <AAspatore@nma.org>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: Speaking Invitation

Amanda,

I know I will be unavailable on the 17th but might be able to do something on the 16th. Can you work with Crystal Penman of my office to see if we could find a time that works for both of us.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Aspatore, Amanda [mailto:AAspatore@nma.org]
Sent: Friday, September 8, 2017 4:05 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Speaking Invitation

Dear Mr. Forsgren:

On behalf of the National Mining Association (NMA), I would like to invite you to address a broad section of the

mining industry at our upcoming meeting of NMA's Environment Committee. NMA represents the producers of most of the nation's coal, metals, industrial, and agricultural minerals; the manufacturers of mining and mineral processing machinery, equipment, and supplies; and other firms serving the mining industry. NMA's Environment Committee consists of those environmental professionals whose job it is to understand and guide compliance with the many federal, state, and local environmental regulations governing mining activities.

This meeting is an informal setting that gives our industry representatives a chance to meet with key agency staff that work on their priority issues. Notably, NMA has a subcommittee of member companies devoted to water quality issues, including National Pollutant Discharge Elimination System permitting, water quality criteria, and the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, to name a few. We welcome your participation in this meeting given your work in these areas, and hope you can join us.

The meeting will be on Oct. 16-17, 2017, at the Renaissance Washington, D.C. Downtown Hotel located at 999 Ninth Street, N.W., Washington, DC. We would welcome an opportunity for you to meet with our members for 60 minutes during either day. The meeting begins on Oct. 16 at 10:30 a.m. and concludes at 4:30 p.m. The meeting continues on Oct. 17 at 8:30 a.m. and concludes at 1 p.m. We are currently flexible with the agenda and will work to accommodate your schedule.

I look forward to hearing from you or your staff. Thank you for your consideration of this outreach opportunity.

Regards,
Amanda

Amanda E. Aspatore
Vice President, Water Law & Policy
National Mining Association
101 Constitution Ave. NW, Suite 500 East
Washington, D.C. 20001
Phone: (202) 463-2600
Ex. 6
aaspatore@nma.org

Message

From: Samantha McDonald [SMcDonald@ipaa.org]
Sent: 9/18/2017 3:14:26 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Thanks for checking!

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, September 15, 2017 3:52 PM
To: Samantha McDonald <SMcDonald@ipaa.org>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Let me see if we can find an appropriate person!

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Friday, September 15, 2017 3:49 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Either or both would be acceptable topics to cover with our group.

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, September 15, 2017 3:48 PM
To: Samantha McDonald <SMcDonald@ipaa.org>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Would you focus be on dealing with wastewater from drilling operations, WOTUS or both?

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Friday, September 15, 2017 3:45 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Is there anyone else you would deputize to speak to our group?

From: Samantha McDonald
Sent: Wednesday, September 6, 2017 1:34 PM
To: 'Forsgren, Lee' <Forsgren.Lee@epa.gov>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

I'm sorry that day isn't ideal for you. Unfortunately, it was the one day in mid-October we could secure a big room in our building. Is there someone else you would recommend to talk on one or both of those issues?

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Wednesday, September 6, 2017 1:18 PM
To: Samantha McDonald <SMcDonald@ipaa.org>

Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: IPAA Speaking Invitation 10.1.7.17

Samantha,
Unfortunately I have already committed to an out of town speaking engagement on October 17th. I would be happy to speak to or meet with IPAA any other time that might work.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Wednesday, September 6, 2017 11:19 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: IPAA Speaking Invitation 10.1.7.17

Lee,

I hope this note finds you well. IPAA is having an IPAA Regulators' Forum on Tuesday, October 17 at our building in DC where we fill a day with speakers from various agencies. Would you be able to speak to our group on EPA water? Our members were obviously very concerned about WOTUS and ELGs, both of which are under your issue portfolio. We'd take any amount of time you were willing to commit, but ask that you allow about 15 minutes for questions, if possible. This meeting is off the record.

Thanks in advance for the consideration!

Sam

Samantha McDonald
Director of Government Relations
Independent Petroleum Association of America
(202)857-4722 / **Visit IPAA** / **Visit ESA Watch**

Message

From: MaryTheresa Wall-Rogers [Ex. 6]
Sent: 9/21/2017 6:48:43 PM
To: Corzo, Luis F. [Luis.Corzo@WillisTowersWatson.com]
CC: Chris Bahret [Ex. 6]; Joe Cox [Ex. 6] Gary Gilbert [Ex. 6]; Lee Kincaid [Ex. 6]; Melissa Mejias [melissa.mejias@iadc.org]; Riaz Latifullah [Ex. 6]; Sean Connaughton [sconnaughton@vhha.com]; Steve Blust [Ex. 6]; Tom Harrelson [Ex. 6] Roy R CTR MDA/DEI [roy.rogers.ctr@mda.mil]; Owen.Doherty@dot.gov; laila.i.linares@navy.mil; [Ex. 6]; Ryan Denton [Ex. 6] Turissini Daniel E. [Ex. 6]; stephanie.e.waller@uscg.mil; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Passing of Grace Marshall

Luis

Our donation of $25 was deposited in the Wells Fargo checking account this afternoon.

Also I made a deposit of $40 for a blazer patch either Tuesday 19 Sept or yesterday 20 Sep

Thanks

Mary Rogers

Mary and Roy Rogers
Sent from my iPhone

On Sep 21, 2017, at 6:31 AM, Corzo, Luis F. <Luis.Corzo@WillisTowersWatson.com> wrote:

> Any other donations please make to KPWDC and send to Chris home address.
>
> I'm in for $25.
>
> Sent from my iPhone
>
> On Sep 20, 2017, at 10:27 AM, MaryTheresa Wall-Rogers [Ex. 6] wrote:
>
> > All
> >
> > ROY and I will also send a donation for flowers. I'll deposit a check in the KP Club bank in the amount of $25 tomorrow. As you know I have the account number because of the blazer patches.
> >
> > Also ROY has asked me to attend the services on Friday as he's out of town for the week. Therefore I'll be there on Friday
> >
> > Mary Rogers
> >
> > Mary and Roy Rogers
> > Sent from my iPhone

On Sep 19, 2017, at 8:00 PM, Chris Bahret Ex. 6 wrote:

Mariners - Please see below. Sad news.

Laila/Luis - Let's discuss sending a floral arrangement from KPCWDC. I'm happy to make a donation.

R/

Chris

From: Kings Point Club of Washington DC Ex. 6
Sent: Tuesday, September 19, 2017 4:41 PM
To: Steven Blust; Chris Bahret; Ryan Denton; Sang Yi
Subject: Passing of Grace Marshall

I'll send an email out to the greater distribution list tonight.
****
Mariners,

It is with great sadness that I inform you of the passing of Grace Marshall, Captain Bob Marshall's wife. She passed this past Sunday in the afternoon surrounded by her two sons, and her husband.

Viewings will be from 2pm-4pm and 6pm-8pm on Thursday, September 21st, at Fairfax Memorial, 9902 Braddock Road, Fairfax, VA 22032.

The service will be at 11am on Friday, September 22nd, at St. Matthews United Methodist Church, 8617 Little River Turnpike, Annandale, VA.

Regards,

Kate Woods, '08
Kings Point Club of Washington DC

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 9/21/2017 5:19:17 PM
To: Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
CC: Best-Wong, Benita [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6ee79b3d0fc0429b99f2c05481b0b957-bbestwon]
Subject: Re: hearings

Thanks, Lee.

Peter

From: Forsgren, Lee <Forsgren.Lee@epa.gov>
Sent: Thursday, September 21, 2017 1:17:06 PM
To: Peter Robertson
Cc: Best-Wong, Benita
Subject: Re: hearings

Peter

We received a request for hearings from several tribes and ANCSA corporations.

Regards
Lee

Sent from my iPhone

On Sep 21, 2017, at 12:34 PM, Peter Robertson <peterrobertson@pebblepartnership.com> wrote:

> Lee,
>
> Thanks again for meeting with me this morning. I should have asked you the following about the hearings when you raised them with me this morning. Did EPA get a request to hold public hearings, or was it simply the Agency's internal decision in order to ensure adequate opportunity for public comment?
>
> Thanks.
>
> Peter

Message

From: Chris Bahret [Ex. 6]
Sent: 9/21/2017 11:59:22 AM
To: Corzo, Luis F. [Luis.Corzo@WillisTowersWatson.com]; MaryTheresa Wall-Rogers [Ex. 6]
CC: Joe Cox [Ex. 6]; Gary Gilbert [Ex. 6] Lee Kincaid [Ex. 6] Melissa Mejias [melissa.mejias@iadc.org]; Riaz Latifullah [Ex. 6] Sean Connaughton [sconnaughton@vhha.com]; Steve Blust [Ex. 6] Tom Harrelson [Ex. 6] Roy R CTR MDA/DEI [roy.rogers.ctr@mda.mil]; Owen.Doherty@dot.gov; laila.i.linares@navy.mil; [Ex. 6] Ryan Denton [Ex. 6] Turissini Daniel E. [Ex. 6] stephanie.e.waller@uscg.mil; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Passing of Grace Marshall

My home address is:

Ex. 6

Check made payable to: KPCWDC.

Many thanks,

Chris

From: Corzo, Luis F. <Luis.Corzo@WillisTowersWatson.com>
Sent: Thursday, September 21, 2017 6:31 AM
To: MaryTheresa Wall-Rogers
Cc: Chris Bahret; Joe Cox; Gary Gilbert; Lee Kincaid; Melissa Mejias; Riaz Latifullah; Sean Connaughton; Steve Blust; Tom Harrelson; Roy R CTR MDA/DEI; Owen.Doherty@dot.gov; laila.i.linares@navy.mil [Ex. 6] Ryan Denton; Turissini Daniel E.; stephanie.e.waller@uscg.mil; forsgren.lee@epa.gov
Subject: Re: Passing of Grace Marshall

Any other donations please make to KPWDC and send to Chris home address.

I'm in for $25.

Sent from my iPhone

On Sep 20, 2017, at 10:27 AM, MaryTheresa Wall-Roger [Ex. 6] wrote:

> All
>
> ROY and I will also send a donation for flowers. I'll deposit a check in the KP Club bank in the amount of $25 tomorrow. As you know I have the account number because of the blazer patches.
>
> Also ROY has asked me to attend the services on Friday as he's out of town for the week. Therefore I'll be there on Friday

Mary Rogers

Mary and Roy Rogers
Sent from my iPhone

On Sep 19, 2017, at 8:00 PM, Chris Bahret Ex. 6 wrote:

> Mariners - Please see below. Sad news.
>
> Laila/Luis - Let's discuss sending a floral arrangement from KPCWDC. I'm happy to make a donation.
>
> R/
>
> Chris

From: Kings Point Club of Washington DC Ex. 6
Sent: Tuesday, September 19, 2017 4:41 PM
To: Steven Blust; Chris Bahret; Ryan Denton; Sang Yi
Subject: Passing of Grace Marshall

I'll send an email out to the greater distribution list tonight.
****
Mariners,

It is with great sadness that I inform you of the passing of Grace Marshall, Captain Bob Marshall's wife. She passed this past Sunday in the afternoon surrounded by her two sons, and her husband.

Viewings will be from 2pm-4pm and 6pm-8pm on Thursday, September 21st, at Fairfax Memorial, 9902 Braddock Road, Fairfax, VA 22032.

The service will be at 11am on Friday, September 22nd, at St. Matthews United Methodist Church, 8617 Little River Turnpike, Annandale, VA.

Regards,

Kate Woods, '08
Kings Point Club of Washington DC

Message

From: Peter Robertson [peterrobertson@pebblepartnership.com]
Sent: 9/14/2017 3:31:28 PM
To: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]; Forsgren, Lee [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a055d7329d5b470fbaa9920ce1b68a7d-Forsgren, D]
Subject: Re: Introduction

Crystal,

Thanks so much for this prompt response. I'll just take the first available time, 1:00 p.m. on the 21st. Which side of the tower entrance do I come to? North or south.

Regards and thanks again.

Peter

From: Penman, Crystal <Penman.Crystal@epa.gov>
Sent: Thursday, September 14, 2017 10:50:25 AM
To: Forsgren, Lee; Peter Robertson
Subject: RE: Introduction

Lee is available on the following dates/times:

9/21 @ 1p
9/22 @ 9a, 10a, 3p
10/6 @ 9a, 10a, 1p
10/24 @ 11am

Crystal Penman
Program Specialist
Office of Water
Immediate Office
U.S. Environmental Protection Agency
Work: 202-564-3318
Penman.Crystal@epa.gov

From: Forsgren, Lee
Sent: Wednesday, September 13, 2017 5:24 PM
To: Peter Robertson <peterrobertson@pebblepartnership.com>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: RE: Introduction

Look forward to us getting together as soon as we can work it out.

From: Peter Robertson [mailto:peterrobertson@pebblepartnership.com]
Sent: Wednesday, September 13, 2017 5:17 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Penman, Crystal <Penman.Crystal@epa.gov>
Subject: Re: Introduction

I fully understand! The timeframe was obviously just a suggestion. I'll look forward to seeing you whenever your schedule permits.

Peter D. Robertson
202-629-3392
Sent from my iPhone

From: Forsgren, Lee <Forsgren.Lee@epa.gov>
Sent: Wednesday, September 13, 2017 5:14:56 PM
To: Peter Robertson
Cc: Penman, Crystal
Subject: RE: Introduction

Peter,

My schedule for the next two weeks is pretty full but Crystal Penman will try to find a time for us to get together at the first possible opportunity.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Peter Robertson [mailto:peterrobertson@pebblepartnership.com]
Sent: Wednesday, September 13, 2017 5:00 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Introduction

Lee,

My name is Peter Robertson, and I'm the Senior Vice President for Corporate Affairs for the Pebble Partnership; my office is here in DC.

I spoke today with my friend and attorney Alan Mintz, and was hoping I could come in to meet with you sometime in the not too distant future to talk about where we are with Pebble and what's coming up for us.

Do you have some time to meet this week or next?

Thanks for considering my request. I look forward to hearing back from you.

Best wishes,

Peter

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 9/1/2017 10:37:36 PM
To: Canaan, Gabriel [Gabriel.Canaan@bp.com]
CC: Stout, Robert [Robert.Stout@bp.com]; Nolan, James [James.Nolan@bp.com]; MWhatley@hbwresources.com; Panelo, Marcelo [marcelo.panelo@bp.com]
Subject: RE: TX/LA Flooding

Gentlemen,

I certainly hope that "No News is Good News" on the BP front in the Gulf. If you have anything you think I should know please email me or give me a call at 2 **Ex. 6**

Have a good weekend.

Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Canaan, Gabriel [mailto:Gabriel.Canaan@bp.com]
Sent: Wednesday, August 30, 2017 2:12 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Stout, Robert <Robert.Stout@bp.com>; Nolan, James <James.Nolan@bp.com>; MWhatley@hbwresources.com; Panelo, Marcelo <marcelo.panelo@bp.com>
Subject: RE: TX/LA Flooding

Good Afternoon Lee,

10:30 EDT tomorrow morning will work for Bob Stout and Jim Nolan. I will send you a calendar notice shortly.

Best,

Gabriel Canaan
BP America
Staff Assistant | Communications & External Affairs
1101 New York Avenue, NW, 20001, Washington DC
ph. 202.457.6573 m **Ex. 6**
gabriel.canaan@bp.com

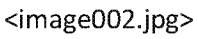
From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Wednesday, August 30, 2017 2:07 PM
To: Stout, Robert
Cc: Michael Whatley; Nolan, James; marcelo.panelo@bp.gov; Canaan, Gabriel
Subject: Re: TX/LA Flooding

How about a short call at 10:30 EDT?

Sent from my iPhone

On Aug 30, 2017, at 2:02 PM, Stout, Robert <Robert.Stout@bp.com> wrote:

> Thanks, Lee. Great to re-connect after spending time together at dinner, even if amidst some very challenging circumstances for our friends in TX and now LA too.
>
> Would be happy to talk tomorrow morning; let us know what times might work. I am pretty open except for 9-10 Eastern. Jim is in Chicago tomorrow so let's set up a call-in. I am copying my asst Gabriel to help with the logistics.
>
> Best,
> Bob
>
> Sent from my iPhone
>
> On Aug 30, 2017, at 12:10 PM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:
>
> > Thanks Michael.
> >
> > Bob and Jim I look forward to talking with you all soon. Let's all pray we don't have anything catastrophic to talk about at your facilities.
> >
> > Can we find a time to talk tomorrow morning?
> >
> > Lee
> >
> > Sent from my iPhone
> >
> > On Aug 30, 2017, at 11:59 AM, Michael Whatley <MWhatley@hbwresources.com> wrote:
> >
> > > Bob, Jim and Lee –
> > >
> > > Want to introduce you (at least electronically) and open up a line of communications between BP and Lee regarding the flooding in Texas and Louisiana.
> > >
> > > Lee is serving as the Acting Assistant Administrator for Water at EPA.
> > >
> > > Bob and Jim are in the DC office for BP.
> > >
> > > Please let me know if I can do anything to further aid your conversations.
> > >
> > > Michael



Michael Whatley
HBW Resources
1666 K Street, NW, Suite 500
Washington, DC 20006
202-674-1750

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/31/2017 2:23:48 PM
To: Stout, Robert [Robert.Stout@bp.com]
Subject: RE: Lee Forsgren/Bob Stout/Jim Nolan

That would be better! Thanks.

From: Stout, Robert [mailto:Robert.Stout@bp.com]
Sent: Thursday, August 31, 2017 10:19 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Re: Lee Forsgren/Bob Stout/Jim Nolan

Sure. Want to make it 1045 to be safe?

Sent from my iPhone

On Aug 31, 2017, at 10:16 AM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:

> Am hung up on another issue. Can we delay the call 10 minutes?
>
> -----Original Appointment-----
> **From:** Stout, Robert [mailto:Robert.Stout@bp.com]
> **Sent:** Wednesday, August 30, 2017 2:40 PM
> **To:** Stout, Robert; Nolan, James; Forsgren, Lee
> **Subject:** Lee Forsgren/Bob Stout/Jim Nolan
> **When:** Thursday, August 31, 2017 10:30 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
> **Where:** Conference call
>
> Join by phone
> USA: +1 281 892 7000
>
> **Ex. 6**
>
> Join Skype Meeting
> Try Skype Web App

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 9/1/2017 5:18:00 PM
To: Michael Whatley [MWhatley@hbwresources.com]; Higley, Stephen D. (MPC) [sdhigley@marathonpetroleum.com]
Subject: RE: TX/LA Flooding

Thanks Michael.

Steve. It is very nice to meet you. Perhaps we could chat later this afternoon, after 4:30 pm EDT would work best for me. My direct number is **Ex. 6**

Thanks,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Michael Whatley [mailto:MWhatley@hbwresources.com]
Sent: Friday, September 1, 2017 12:25 PM
To: Higley, Stephen D. (MPC) <sdhigley@marathonpetroleum.com>; Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: TX/LA Flooding

Steve and Lee –

Want to introduce you (at least electronically) and open up a line of communications between Marathon Petroleum and Lee regarding the flooding in Texas and Louisiana.

Lee is serving as the Acting Assistant Administrator for Water at EPA. Steve is in the DC office for Marathon Petroleum.

Please let me know if I can do anything to further aid your conversations.

Michael

Michael Whatley
HBW Resources
1666 K Street, NW, Suite 500

Washington, DC 20006

Redacted

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/30/2017 6:15:21 PM
To: Canaan, Gabriel [Gabriel.Canaan@bp.com]
CC: Stout, Robert [Robert.Stout@bp.com]; Nolan, James [James.Nolan@bp.com]; MWhatley@hbwresources.com; Panelo, Marcelo [marcelo.panelo@bp.com]; Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: Re: TX/LA Flooding

Great. Let Crystal Penman know if you need a call in number.
Sent from my iPhone

On Aug 30, 2017, at 2:13 PM, Canaan, Gabriel <Gabriel.Canaan@bp.com> wrote:

> Good Afternoon Lee,
>
> 10:30 EDT tomorrow morning will work for Bob Stout and Jim Nolan. I will send you a calendar notice shortly.
>
> Best,
>
> Gabriel Canaan
> BP America
> Staff Assistant | Communications & External Affairs
> 1101 New York Avenue NW, #700, Washington DC
> ph. 202.457.6573 Ex. 6
> gabriel.canaan@bp.com
>
> ---
>
> **From:** Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
> **Sent:** Wednesday, August 30, 2017 2:07 PM
> **To:** Stout, Robert
> **Cc:** Michael Whatley; Nolan, James; marcelo.panelo@bp.gov; Canaan, Gabriel
> **Subject:** Re: TX/LA Flooding
>
> How about a short call at 10:30 EDT?
>
> Sent from my iPhone
>
> On Aug 30, 2017, at 2:02 PM, Stout, Robert <Robert.Stout@bp.com> wrote:
>
> > Thanks, Lee. Great to re-connect after spending time together at dinner, even if amidst some very challenging circumstances for our friends in TX and now LA too.
> >
> > Would be happy to talk tomorrow morning; let us know what times might work. I am pretty open except for 9-10 Eastern. Jim is in Chicago tomorrow so let's set up a call-in. I am copying my asst Gabriel to help with the logistics.
> >
> > Best,
> > Bob
> >
> > Sent from my iPhone

On Aug 30, 2017, at 12:10 PM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:

> Thanks Michael.
>
> Bob and Jim I look forward to talking with you all soon. Let's all pray we don't have anything catastrophic to talk about at your facilities.
>
> Can we find a time to talk tomorrow morning?
>
> Lee
>
> Sent from my iPhone
>
> On Aug 30, 2017, at 11:59 AM, Michael Whatley <MWhatley@hbwresources.com> wrote:
>
> > Bob, Jim and Lee –
> >
> > Want to introduce you (at least electronically) and open up a line of communications between BP and Lee regarding the flooding in Texas and Louisiana.
> >
> > Lee is serving as the Acting Assistant Administrator for Water at EPA.
> >
> > Bob and Jim are in the DC office for BP.
> >
> > Please let me know if I can do anything to further aid your conversations.
> >
> > Michael
> >
> > <image002.jpg>
> >
> > **Michael Whatley**
> > HBW Resources
> > 1666 K Street, NW, Suite 500
> > Washington, DC 20006
> > **Redacted**

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/30/2017 4:10:36 PM
To: Michael Whatley [MWhatley@hbwresources.com]
Subject: Re: Hurricane Harvey Flooding - Chevron/EPA Contacts

Got it

Sent from my iPhone

On Aug 30, 2017, at 12:01 PM, Michael Whatley <MWhatley@hbwresources.com> wrote:

> Chevron will want you to work with Koetzle and Washington.
>
> Keep the Maria conversation at 50,000 feet.
>
> **From:** Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
> **Sent:** Wednesday, August 30, 2017 11:35 AM
> **To:** Michael Whatley <MWhatley@hbwresources.com>; MPica@chevron.com; Washington, Gregory J (GWashington) <GWashington@chevron.com>; Koetzle, William A <bkoetzle@chevron.com>
> **Subject:** RE: Hurricane Harvey Flooding - Chevron/EPA Contacts
>
> Thanks Michael,
>
> Maria – It is great to meet you if only electronically. I would love it if we might find time to talk later today or early tomorrow on the state of play on your facilities in the Harvey impacted area. And please don't believe what Whately, Washington, and Koetzle say about me I am really not THAT bad.
>
> Regards,
> Lee
>
> **D. Lee Forsgren**
> Deputy Assistant Administrator
> Office Of Water
> Environmental Protection Agency
> 1200 Pennsylvania Avenue, VW
> Room 3219 WJCE
> Washington, DC 20460
> Phone: 202-564-5700
> Forsgren.Lee@epa.gov
>
> **From:** Michael Whatley [mailto:MWhatley@hbwresources.com]
> **Sent:** Wednesday, August 30, 2017 11:28 AM
> **To:** MPica@chevron.com; Washington, Gregory J (GWashington) <GWashington@chevron.com>; Koetzle, William A <bkoetzle@chevron.com>; Forsgren, Lee <Forsgren.Lee@epa.gov>
> **Subject:** Hurricane Harvey Flooding - Chevron/EPA Contacts

Maria and Lee –

Want to introduce you (at least electronically) and open up a line of communications between Chevron and Lee regarding the flooding in Texas and Louisiana.

Lee is serving as the Acting Assistant Administrator for Water at EPA.

Maria runs the DC shop for Chevron and is communicating daily with the folks in Houston and San Ramon. I have also copied Bill Koetzle and Greg Washington, who are working on these issues from the DC office.

Please let me know if I can do anything to further aid your conversations.

Michael

<image002.jpg>

Michael Whatley
HBW Resources
1666 K Street, NW, Suite 500
Washington, DC 20006
Redacted

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/28/2017 9:33:51 PM
To: Michael Whatley [MWhatley@hbwresources.com]
Subject: RE: Hurricane Harvey and Gulf Coast Refiners

We had a great call. Thanks.

From: Michael Whatley [mailto:MWhatley@hbwresources.com]
Sent: Monday, August 28, 2017 5:22 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Hurricane Harvey and Gulf Coast Refiners

I will skip this unless you want me on for followup.

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Monday, August 28, 2017 5:18 PM
To: Jeff Gunnulfsen <JGunnulfsen@afpm.org>; Michael Whatley <MWhatley@hbwresources.com>
Cc: Richard Moskowitz <rmoskowitz@afpm.org>; David Friedman <DFriedman@afpm.org>
Subject: RE: Hurricane Harvey and Gulf Coast Refiners

The line should be open. Let me know if you can't get in.

From: Jeff Gunnulfsen [mailto:JGunnulfsen@afpm.org]
Sent: Monday, August 28, 2017 4:05 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>; Michael Whatley <MWhatley@hbwresources.com>
Cc: Richard Moskowitz <rmoskowitz@afpm.org>; David Friedman <DFriedman@afpm.org>
Subject: RE: Hurricane Harvey and Gulf Coast Refiners

Sure we will call you –thanks!

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Monday, August 28, 2017 4:02 PM
To: Jeff Gunnulfsen <JGunnulfsen@afpm.org>; Michael Whatley <MWhatley@hbwresources.com>
Cc: Richard Moskowitz <RMoskowitz@afpm.org>; David Friedman <DFriedman@afpm.org>
Subject: RE: Hurricane Harvey and Gulf Coast Refiners

That would be great. Do you want to do a call in? You can use my call number **Ex. 6**

From: Jeff Gunnulfsen [mailto:JGunnulfsen@afpm.org]
Sent: Monday, August 28, 2017 3:59 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>; Michael Whatley <MWhatley@hbwresources.com>
Cc: Richard Moskowitz <rmoskowitz@afpm.org>; David Friedman <DFriedman@afpm.org>
Subject: RE: Hurricane Harvey and Gulf Coast Refiners
Importance: High

Hi Lee—
Sorry just got off a hurricane call---how about we talk at 5:15?

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Monday, August 28, 2017 2:08 PM
To: Michael Whatley <MWhatley@hbwresources.com>; Jeff Gunnulfsen <JGunnulfsen@afpm.org>
Cc: Richard Moskowitz <RMoskowitz@afpm.org>
Subject: RE: Hurricane Harvey and Gulf Coast Refiners

Thanks Michael.

Jeff It is very nice to meet you electronically. I could talk for a half hour (shouldn't take much more than that) from 3:30 – 4:00 pm or any time after 5:00 pm EDT whatever would work best for you.

I really appreciate this.

Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Michael Whatley [mailto:MWhatley@hbwresources.com]
Sent: Monday, August 28, 2017 2:05 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>; Jeff Gunnulfsen <JGunnulfsen@afpm.org>
Cc: Richard Moskowitz <rmoskowitz@afpm.org>
Subject: Hurricane Harvey and Gulf Coast Refiners

Lee –

Jeff Gunnulfsen is the point for AFPM on the response to flooding from Hurricane Harvey.

He is available for a call anytime this afternoon or evening other than 4:30-5:00.

Will let you two take it from here. Please let me know what else we can do to help.

Michael

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 8/9/2018 3:08:57 PM
To: Thiede, Kurt [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=3cc09fac5acc4ce1ba689fb2ce70d459-Thiede, Kur]
CC: Franco, Omar [OFranco@bplegal.com]
Subject: RE: EPA GT90 Exemption

Great! Will send him to OAIR. Thanks Kurt.

From: Thiede, Kurt
Sent: Thursday, August 9, 2018 10:19 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: EPA GT90 Exemption

Hi Lee,

I just learned that the Ann Arbor lab is under OAR. Mandy may be the best contact for the company…as you suggested. I'm not sure that there is a nexus for R5. That said, I'm still learning the organization, so let me know if I'm missing something.

Kurt

From: Forsgren, Lee
Sent: Thursday, August 9, 2018 7:57 AM
To: Franco, Omar <OFranco@bplegal.com>
Cc: Thiede, Kurt <thiede.kurt@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Re: EPA GT90 Exemption

Omar,

Since this issue was initially adjudicated by EPA Region 5, I would suggest that you reach out to the Region 5 Chief of Staff Kurt Thiede or if you need to appeal the policy question to the program office I would suggest that you reach out to my counterpart in the Office of Air and Radiation Many Gunasekara.

Regards,
Lee

From: Franco, Omar [mailto:OFranco@beckerlawyers.com]
Sent: Wednesday, August 8, 2018 10:07 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: EPA GT90 Exemption

Lee,

I have one more quick favor. Who could I talk to about the attached exemption denial?

I have a strong case but I need to tell it to the right people at EPA.

Please let me know.

Thanks.

Omar Franco
Office Managing Director

Becker

Becker & Poliakoff
1275 K Street, N.W.
Suite 850
Washington, DC 20005

T: 202.731.3401 | Ex. 6

OFranco@beckerlawyers.com

beckerlawyers.com
Connect on LinkedIn | Follow on Twitter

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 7/27/2017 7:44:20 PM
To: Lee Fuller [lfuller@ipaa.org]
Subject: RE: Follow Up on IPAA Meeting

So it would seem.

From: Lee Fuller [mailto:lfuller@ipaa.org]
Sent: Thursday, July 27, 2017 3:42 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Follow Up on IPAA Meeting

Lee,

I guess he is really, really interested in talking to you.

Lee

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Thursday, July 27, 2017 3:39 PM
To: Lee Fuller <lfuller@ipaa.org>
Cc: Samantha McDonald <SMcDonald@ipaa.org>
Subject: RE: Follow Up on IPAA Meeting

Lee,

I was happy to meet with you as well on the Effluent Limitation Guidelines your input was very helpful. Regarding the possibility of a beneficial reuse proposal, Leonard Levine of Gulf Coast Waste Disposal Authority has reached out to me and my staff is currently reviewing the range of options on this matter.

Thanks again for taking the time to meet with me.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Lee Fuller [mailto:lfuller@ipaa.org]
Sent: Thursday, July 27, 2017 2:30 PM

To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Samantha McDonald <SMcDonald@ipaa.org>
Subject: Follow Up on IPAA Meeting

First, I want to thank you for meeting with IPAA this week. I appreciated the discussion and your candor about the Effluent Limitations Guidelines (ELG) issues.

Second, during the conversation, we discussed some issues related to challenges in the ELG for produced water pretreatment requirements at POTWs regarding possible unique circumstances regarding potential beneficial use of water that would be precluded by the ELG. More specifically, we talked about a project involving the Gulf Coast Waste Disposal Authority. Following our meeting, I spoke with its staff and recommended that they reach out to you. Consequently, you may receive a contact from Leonard Levine on the issue. Additionally, I have attached comments submitted by the Gulf Coast Waste Disposal Authority that were sent to me for your use as background.

Again, thanks for meeting with us and I look forward to future opportunities to address issues with you,

Lee Fuller

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/29/2017 7:23:59 PM
To: Billie Rae Gillas [BRGillas@hbwresources.com]
Subject: Re: Name of the HBW IRA contact

Thanks BR

Sent from my iPhone

On Jun 29, 2017, at 2:19 PM, Billie Rae Gillas <BRGillas@hbwresources.com> wrote:

> Here is the information from the payroll summary:
>
> 80,000.00 Salary YTD gross
> 6,000.00 Simple IRA contribution
> 16,509.37 Federal Withholding
> 4,960.00 Social Security
> 1,160.00 Medicare
> 3,959.77 VA State Withholding
>
> BRae
>
> ---
>
> **From:** Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
> **Sent:** Wednesday, June 28, 2017 9:21 PM
> **To:** Billie Rae Gillas
> **Subject:** Re: Name of the HBW IRA contact
>
> The pay stub should suffice for what I need.
>
> Sent from my iPhone
>
> On Jun 28, 2017, at 8:04 PM, Billie Rae Gillas <BRGillas@hbwresources.com> wrote:
>
> > I sent you your last pay stub on Monday to your home address. It should have your Year-to-date totals. I will be in the office tomorrow and can look it up - records from the payroll service are all paper copies. Nothing is digital.
> >
> > On Jun 28, 2017, at 6:13 PM, Forsgren, Lee <Forsgren.Lee@epa.gov> wrote:
> >
> > Billie Rae
> >
> > Could you tell me my total income from HBW for 2017. I need that number as well for my financial disclosure documents.
> >
> > Lee
> >
> > Sent from my iPhone

On Jun 28, 2017, at 11:18 AM, Billie Rae Gillas <BRGillas@hbwresources.com> wrote:

You are welcome. If you need anything, you know who to ask.

BRae

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Wednesday, June 28, 2017 10:13 AM
To: Billie Rae Gillas <BRGillas@hbwresources.com>
Subject: RE: Name of the HBW IRA contact

Thanks Billie Rae!!!!!!

From: Billie Rae Gillas [mailto:BRGillas@hbwresources.com]
Sent: Wednesday, June 28, 2017 9:34 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Name of the HBW IRA contact

Mark Selldin, The Selldin Group
Morgan Stanley
2800 Post Oak Blvd., Ste. 1800
Houston, TX 77056
Ex. 6 Toll Free 800 829-6838
Fax 713 965-5050
mark.selldin@ms.com

His very helpful assistant is Diona Sonnier and her direct line is Ex. 6
Ex. 6

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Tuesday, June 27, 2017 8:03 PM
To: Billie Rae Gillas <BRGillas@hbwresources.com>
Subject: Name of the HBW IRA contact

Billie Rae,

I need the name of the person who handles the HBW Resources IRA at Morgan Stanley. I lost his contact info when we shut down my HBW account and I need some info to complete my Federal Financial Disclosure documents.

Your assistance is much appreciated.

Lee

D. Lee Forsgren

Deputy Assistant Administrator

Office Of Water

Environmental Protection Agency

1200 Pennsylvania Avenue, VW

Room 3219 WJCE

Washington, DC 20460

Phone: 202-564-5700

Forsgren.Lee@epa.gov

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/23/2017 8:57:02 PM
To: mzehr@hbwresources.com
Subject: Contact information

Michael,

I am now a seasoned EPA veteran of a week (well more like 4.5 days).

My new contact information is as follows:

Ex. 6

Main Office of Water Number: 202-564-5700

Email: Forsgren.lee@epa.gov

If it is a non-work matter please contact me at:

Ex. 6

Look forward to continuing to work with you.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvaina Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/23/2017 8:25:54 PM
To: David Holt [dholt@hbwresources.com]
Subject: RE: Contact information

Will see what is possible. Probably going to be on travel that week.

From: David Holt [mailto:dholt@hbwresources.com]
Sent: Friday, June 23, 2017 4:20 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Contact information

Thank you good sir. And thanks for your quality service to the nation!

I'm in DC week of July 17th. Let's grab lunch.

David

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Friday, June 23, 2017 3:11 PM
To: David Holt <dholt@hbwresources.com>
Subject: Contact information

David,

I am now a seasoned EPA veteran of a week (well more like 4.5 days).

My new contact information is as follows:

Ex. 6
Main Office of Water Number: 202-564-5700

Email: Forsgren.lee@epa.gov

If it is a non-work matter please contact me at:

Ex. 6

Look forward to continuing to work with you.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency

1200 Pennsylvaina Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/28/2017 3:26:39 PM
To: Billie Rae Gillas [BRGillas@hbwresources.com]
Subject: RE: Name of the HBW IRA contact

Will do!

From: Billie Rae Gillas [mailto:BRGillas@hbwresources.com]
Sent: Wednesday, June 28, 2017 11:18 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Name of the HBW IRA contact

You are welcome. If you need anything, you know who to ask.

BRae

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Wednesday, June 28, 2017 10:13 AM
To: Billie Rae Gillas <BRGillas@hbwresources.com>
Subject: RE: Name of the HBW IRA contact

Thanks Billie Rae!!!!!!

From: Billie Rae Gillas [mailto:BRGillas@hbwresources.com]
Sent: Wednesday, June 28, 2017 9:34 AM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: RE: Name of the HBW IRA contact

Mark Selldin, The Selldin Group
Morgan Stanley
2800 Post Oak Blvd., Ste. 1800
Houston, TX 77056
Ex. 6 / Toll Free 800 829-6838
Fax 713 965-5050
mark.selldin@ms.com

His very helpful assistant is Diona Sonnier and her direct line is Ex. 6

From: Forsgren, Lee [mailto:Forsgren.Lee@epa.gov]
Sent: Tuesday, June 27, 2017 8:03 PM
To: Billie Rae Gillas <BRGillas@hbwresources.com>
Subject: Name of the HBW IRA contact

Billie Rae,

I need the name of the person who handles the HBW Resources IRA at Morgan Stanley. I lost his contact info when we shut down my HBW account and I need some info to complete my Federal Financial Disclosure documents.

Your assistance is much appreciated.

Lee

D. Lee Forsgren

Deputy Assistant Administrator

Office Of Water

Environmental Protection Agency

1200 Pennsylvania Avenue, VW

Room 3219 WJCE

Washington, DC 20460

Phone: 202-564-5700

Forsgren.Lee@epa.gov

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/27/2017 8:17:07 PM
To: mwhatley@hbwresources.com
Subject: FW: EPA, U.S. Army Move to Rescind 2015 "Waters of the U.S."

FYI

From: Bennett, Tate
Sent: Tuesday, June 27, 2017 3:49 PM
To: Greenwalt, Sarah <greenwalt.sarah@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Fwd: EPA, U.S. Army Move to Rescind 2015 "Waters of the U.S."

Begin forwarded message:

From: Paul Schlegel <pauls@fb.org>
Date: June 27, 2017 at 2:30:26 PM EDT
To: "Bennett, Tate" <Bennett.Tate@epa.gov>
Subject: RE: EPA, U.S. Army Move to Rescind 2015 "Waters of the U.S."

fyi

News
www.newsroom.fb.org

AMERICAN FARM BUREAU FEDERATION®
600 Maryland Ave. SW | Suite 1000W | Washington, DC 20024 | 202.406.3600

Contacts: Will Rodger
(202) 406-3642
willr@fb.org

Kari Barbic
(202) 406-3672
karib@fb.org

Farm Bureau Applauds EPA Move to Ditch Flawed WOTUS Rule

WASHINGTON, D.C., June 27, 2017 – The following statement may be attributed to Zippy Duvall, president, American Farm Bureau Federation:

"Farmers and ranchers across this country are cheering EPA's proposal today to ditch its flawed Waters of the U.S. rule. We know the importance of clean water, and farmers and ranchers work hard to protect our natural resources every day.

"But this rule was never really about clean water. It was a federal land grab designed to put a straightjacket on farming and private businesses across this nation. That's why our federal courts blocked it from going into effect for the past two years. Today's announcement shows EPA

Administrator Pruitt recognizes the WOTUS rule for what it is—an illegal and dangerous mistake that needs to be corrected.

"Farm Bureau looks forward to supporting Administrator Pruitt's proposal. EPA should ditch this rule once and for all, go back to the drawing board, and write a new rule that protects water quality without trampling the rights of businesses and the states."

Paul Schlegel
Director, Energy and Environment Team
Ex. 6
Email: pauls@fb.org

From: Bennett, Tate [mailto:Bennett.Tate@epa.gov]
Sent: Tuesday, June 27, 2017 2:29 PM
To: Paul Schlegel
Subject: Fwd: EPA, U.S. Army Move to Rescind 2015 "Waters of the U.S."

Begin forwarded message:

> **From:** "Bennett, Tate" <Bennett.Tate@epa.gov>
> **Date:** June 27, 2017 at 2:26:44 PM EDT
> **To:** "Bennett, Tate" <Bennett.Tate@epa.gov>
> **Cc:** "Cory, Preston (Katherine)" <Cory.Preston@epa.gov>
> **Subject: EPA, U.S. Army Move to Rescind 2015 "Waters of the U.S."**
>
> Good afternoon! This Federal Register notice was just signed by Administrator Pruitt. Let us know if you have any questions.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NEWS RELEASE
WWW.EPA.GOV/NEWSROOM

EPA, U.S. Army Move to Rescind 2015 "Waters of th U.S."

WASHINGTON - (June 27, 2017) The Environmental Protection Agency, Department of Army, and Army Corp of Engineers (the agencies) are proposing a rule to rescind the Clean Water Rule and re-codify the regulato

text that existed prior to 2015 defining "waters of the United States" or WOTUS. This action would, when finalized, provide certainty in the interim, pending a second rulemaking in which the agencies will engage a substantive re-evaluation of the definition of "waters of the United States." The proposed rule would be implemented in accordance with Supreme Court decisions, agency guidance, and longstanding practice.

"**We are taking significant action to return power to the states and provide regulatory certainty to our nation's farmers and businesses,**" said Administrator Scott Pruitt. "**This is the first step in the two-step process to redefine 'waters of the U.S.' and we are committed to moving through this re-evaluation to quickly provide regulatory certainty, in a way that is thoughtful, transparent and collaborative with other agencies and the public.**"

This proposed rule follows the February 28, 2017, Presidential Executive Order on "Restoring the Rule of La Federalism, and Economic Growth by Reviewing the 'Waters of the United States' Rule." The February Orde states that it is in the national interest to ensure that the Nation's navigable waters are kept free from pollution, while at the same time promoting economic growth, minimizing regulatory uncertainty, and showing due regard for the roles of Congress and the States under the Constitution. To meet these objectives, the agencies intend to follow an expeditious, two-step process that will provide certainty acro the country.

The proposed rule would recodify the identical regulatory text that was in place prior to the 2015 Clean Water Rule and that is currently in place as a result of the U.S. Court of Appeals for the Sixth Circuit's stay the 2015 rule. Therefore, this action, when final, will not change current practice with respect to how the definition applies.

The agencies have also begun deliberations and outreach on the second step rulemaking involving a re-evaluation and revision of the definition of "waters of the United States" in accordance with the Executive Order.

"The Army, together with the Corps of Engineers, is committed to working closely with and supporting the EPA on these rulemakings. As we go through the rulemaking process, we will continue to make the implementation of the Clean Water Act Section 404 regulatory program as transparent as possible for the regulated public, " said Mr. Douglas Lamont, senior official performing the duties of the Assistant Secretary of the Army for Civil Works.

For the pre-publication Federal Register Notice and additional information: http://www.epa.gov/wotus-ru

Visit The EPA's Newsroom

Elizabeth Tate Bennett
Senior Deputy Associate Administrator
Congressional and Intergovernmental Affairs
Office of the Administrator
U.S. Environmental Protection Agency

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/27/2017 8:15:50 PM
To: mwhatley@hbwresources.com
Subject: Pre publication version - WOTUS

FYI

From: Drinkard, Andrea
Sent: Tuesday, June 27, 2017 3:22 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Pre publication version

I also promised you a link to the pre-publication version of the rule. So here it is:
https://www.epa.gov/sites/production/files/2017-06/documents/wotus_prepublication_version.pdf

Let me know if you need anything else.

Thanks!

Andrea Drinkard
Acting Communications Director
EPA Office of Water
Desk: 202.564.1601
Ex. 6

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 7/6/2017 7:20:39 PM
To: Samantha McDonald [SMcDonald@ipaa.org]
CC: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: RE: Meeting request from IPAA

Sam,
I would be happy to meet with you and Lee Fuller over the next couple of weeks. Unfortunately I will be on travel from the 10th to the 17th and am booked solid on the 18th. We can definitely get together any time after that. I will have Crystal Penman find some time for us to meet.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Samantha McDonald [mailto:SMcDonald@ipaa.org]
Sent: Thursday, July 6, 2017 2:49 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Meeting request from IPAA

Lee,

Congratulations on your new post with the Office of Water. I didn't get a chance to introduce myself at the OW Coffee last week, and for that I apologize.

Would you have a few minutes to meet with Lee Fuller and I to discuss the 2016 ELGs? We are relatively flexible in the next couple of weeks and could work around your schedule.

Thanks in advance for the consideration! I look forward to hearing from you.

Best,

Sam

Samantha McDonald

Director of Government Relations
Independent Petroleum Association of America
(202)857-4722 / **Visit IPAA** / **Visit ESA Watch**

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 4/25/2018 7:45:29 PM
To: rbozek@eei.org
CC: Campbell, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b8c25a0c2fb648b6a947694a8492311e-Campbell, Ann]; Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
Subject: RE: Meeting with EEI

Richard,

There must have been some kind of a mix up since you all are not here. I have a hard 4:10 stop for our meeting to brief our new Deputy Administrator so I would strongly suggest that we reschedule the meeting for another time.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

-----Original Appointment-----
From: Penman, Crystal **On Behalf Of** Forsgren, Lee
Sent: Monday, April 23, 2018 9:57 AM
To: Forsgren, Lee; rbozek@eei.org
Cc: Campbell, Ann
Subject: Meeting with EEI
When: Wednesday, April 25, 2018 3:30 PM-4:15 PM (UTC-05:00) Eastern Time (US & Canada).
Where: 1201 Constitution Ave NW, Washington DC 20004 WJCE 3219B Please call 202-564-5700 for escort

Attendees:
Richard Bozek
Riaz Mohammed
Henri Bartholomot

C. Richard Bozek
Director, Environmental and Health & Safety Policy
Edison Electric Institute
701 Pennsylvania Ave., N.W.
Washington, D.C. 20004-2696
(202) 508-5641
Rbozek@eei.org

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 6/4/2018 6:13:34 PM
To: Peter Robertson [peterrobertson@pebblepartnership.com]
CC: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]; Campbell, Ann [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b8c25a0c2fb648b6a947694a8492311e-Campbell, Ann]
Subject: Re: Visit of Native Alaskans this week

Happy to meet with them when they come in.

Sent from my iPhone

On Jun 4, 2018, at 2:12 PM, Peter Robertson <peterrobertson@pebblepartnership.com> wrote:

> Lee and Crystal,
>
> We have had a change to the group of Native Alaskans that are visiting this week. Abe Williams and Margie Olympic are no longer able to come. The group still includes:
>
> - Brad Angasan, President & CEO of Alaska Peninsula Corporation *(Represents Port Heiden, South Naknek, Ugashik, Kokhanok & Newhalen);*
> - Ventura Samaniego, President & CEP of Kijik Corporation *(Represents Lake Clark area & Six Mile Lake); and*
> - Henry Olympic, President of Newhalen Tribal Council *(Represents Newhalen).*
>
> They will be accompanied by me and by Shalon Harrington, Chief of Staff for the Pebble LImited Partnership.
>
> Please let me know if you have any questions. We look forward to seeing you.
>
> Sincerely,
>
> Peter
>
> <Outlook-1517243019.png>
>
> Peter D. Robertson
> The Pebble Partnership
> 1330 Connecticut Avenue, NW
> Washington, DC 20036

Ex. 6

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 12/12/2017 10:19:39 PM
To: Peter Robertson [peterrobertson@pebblepartnership.com]
CC: Penman, Crystal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=93662678a6fd4d4695c3df22cd95935a-Penman, Crystal]
BCC: Fotouhi, David [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=febaf0d56aab43f8a9174b18218c1182-Fotouhi, Da]; Greenwalt, Sarah [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c13775b8f424e90802669b87b135024-Greenwalt,]
Subject: RE: Briefing

Peter,

Am always happy to meet with all sides of folks who have a perspective on environmental matters. Not sure my exact schedule at that time in that I may be at a conference in New York that week. Crystal Penman who handles my schedule will get with you about a time that works for everyone.

Regards,
Lee

From: Peter Robertson [mailto:peterrobertson@pebblepartnership.com]
Sent: Tuesday, December 12, 2017 4:31 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Briefing

Lee,

I hope all is well. I told you when we met some time ago that I would like to come back and brief you on the new mine plan when it was ready. It's ready (though we are still soliciting comments on it from Alaskans), and I'm wondering whether we can come in and see you.

My boss, Pebble's CEO Tom Collier, will be here in January. He has time available on Wednesday, January 17 and Thursday morning January 18. If those dates don't work, he might have time on Friday morning, January 19, as well as the following Monday and Tuesday, January 22 and 23.

Would you have some time to meet then?

Thanks.

Peter

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 10/30/2017 8:13:52 PM
To: mzehr@hbwresources.com
Subject: FW: Wind turbines

Michael,

Can you give me a call on this when you have a few minutes. This is the person behind the conversation we had when I got back from Alaska.

Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Newhalen Triba Ex. 6
Sent: Monday, October 30, 2017 3:15 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Re: Wind turbines

Sorry to bother you Mr. Forsgren
I'm still excited for the information for the wind mill. I hope your travel has been safe. Thank you for your time.

Joanne Wassillie
Newhalen Tribal Council
Administrator
P.O. Box 207
Newhalen, Alaska 99606
Redacted
(907) 571-1537 fax

From: "Forsgren, Lee" <Forsgren.Lee@epa.gov>
To: Joanne Wassillie < Ex. 6
Cc: "Campbell, Ann" <Campbell.Ann@epa.gov>
Sent: Saturday, October 21, 2017 4:30 AM
Subject: Re: Wind turbines

Joanne,

I have been on travel since we talked in Newhalen and am not where I can get you some information. Will get back to you next week with a more complete response.

Regards,
Lee

Sent from my iPhone

On Oct 19, 2017, at 6:59 PM, Joanne Wassillie **Ex. 6** wrote:

> Good afternoon Mr. Forsgren
> This is Joanne Wassillie an I work for Newhalen Tribal Council. It was a pleasure meeting you an also was my pleasure to show you our community. You mentioned that the wind turbines might work in Newhalen an would send me the information. I'm just wondering if I can get it so that we can look into this. Thank you again for visiting our community. Joanne
>
> Sent from my iPhone

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 10/20/2017 9:52:20 PM
To: Aspatore, Amanda [AAspatore@nma.org]
Subject: RE: Thank You

Amanda,

Thanks for the note. I enjoyed meeting with your members and look forward to working with you and them going forward.

Regards,
Lee

D. Lee Forsgren
Deputy Assistant Administrator
Office Of Water
Environmental Protection Agency
1200 Pennsylvania Avenue, VW
Room 3219 WJCE
Washington, DC 20460
Phone: 202-564-5700
Forsgren.Lee@epa.gov

From: Aspatore, Amanda [mailto:AAspatore@nma.org]
Sent: Friday, October 20, 2017 5:29 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Thank You

Lee –

Thank you so much for taking the time to come speak to NMA's Environment Committee on Monday. It was so nice to get to meet you, and to hear about all of the work the agency is doing. Several member company representatives came up to me after your presentation and said how much they appreciated getting to hear directly from you about the issues you are working on, as well as your willingness to take their questions and listen to their concerns. I look forward to engaging with you and the Office of Water staff as you move forward with the agency's priorities. Again, thank you for the very informative presentation.

Sincerely,
Amanda

Amanda E. Aspatore
Vice President, Water Law & Policy
National Mining Association
101 Constitution Ave. NW, Suite 500 East
Washington, D.C. 20001
Phone: (202) 463-2600

Ex. 6
aaspatore@nma.org

Message

From: Forsgren, Lee [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A055D7329D5B470FBAA9920CE1B68A7D-FORSGREN, D]
Sent: 10/5/2017 9:19:32 PM
To: MWhatley@hbwresources.com
Subject: FW: Andrew Wheeler Nominated as EPA Deputy Administrator

FYI

From: EPA Press Office [mailto:press=epa.gov@cmail20.com] **On Behalf Of** EPA Press Office
Sent: Thursday, October 5, 2017 4:22 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Andrew Wheeler Nominated as EPA Deputy Administrator

CONTACT: press@epa.gov

Andrew Wheeler Nominated as EPA Deputy Administrator

WASHINGTON (October 5, 2017) Today, President Donald J. Trump announced his intention to nominate Andrew Wheeler as deputy administrator for the U.S. Environmental Protection Agency (EPA).

Mr. Wheeler has spent his entire career working in environmental policy. In addition to spending four years at EPA's Office of Pollution Prevention and Toxics during the George H. W. Bush and Bill Clinton administrations, he also spent many years on Capitol Hill. After serving as general counsel to U.S. Senator James Inhofe, he worked as staff director and chief counsel for two Senate Committees with vital roles in protecting human health and the environment: the U.S. Senate Committee on Environment and Public Works (EPW) and the U.S. Senate Subcommittee for Clean Air Wetlands and Nuclear Safety. Mr. Wheeler currently works as a principal at FaegreBD Consulting providing guidance on federal regulatory and legislative environmental and energy issues.

"Andrew will bring extraordinary credentials to EPA that will greatly assist the Agency as we work to implement our agenda," **said Administrator Pruitt**. "He has spent his entire career working to improve environmental outcomes for Americans across the country and understands the importance of providing regularity certainty for our country."

His nomination is receiving high accolades from across the country:

U.S. Senator James Inhofe: "I am pleased that President Trump has nominated Andrew Wheeler to serve as deputy administrator at the EPA. There is no one more

qualified than Andrew to help Scott Pruitt restore EPA to its proper size and scope. When he served as my staff director of the Environment and Public Works Committee, he provided me with invaluable guidance, and in turn became a close friend. I am confident he will serve the American people and President Trump with exceptional skill in this position, and I look forward to ensuring his swift confirmation."

U.S. Congressman Bill Johnson: "Andrew Wheeler will do a fine job at EPA, helping to ensure the agency's mission of protecting the environment is maintained without the EPA becoming an unnecessary impediment to responsible energy exploration and job creation."

U.S. Congressman David B. McKinley: "With extensive experience working on Capitol Hill, in the Executive branch, and in the private sector, Andrew Wheeler is eminently qualified and a great pick to serve as Deputy Administrator of the EPA. There are few people in Washington who have the same depth of knowledge and experience on energy and environment issues. I look forward to continuing working with Andrew once he is confirmed in his new role."

Former U.S. Senator Joe Lieberman: "Andrew was Republican staff director during part of the time I was on the Senate Environment Committee. We worked together on some issues and disagreed on others. He conducted himself in a fair and professional manner. I hope his nomination will receive similarly fair consideration by the Senate."

Jay Timmons, President and CEO, National Association of Manufactures: "Andrew's significant experience on Capitol Hill, and his extensive background working on environmental and natural resource policy makes him an outstanding choice to join the leadership at the EPA. Manufacturers have welcomed Administrator Pruitt's efforts to bring balance to rulemaking at the agency and focus on the EPA's core mission. We're confident Andrew will help advance that mission and ensure that our country can achieve the dual goals of responsible environmental stewardship and strong economic growth."

Visit The EPA's Newsroom

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue Northwest
Washington, D.C. 20004