LAW OFFICE OF
DAVID A. LUDDER
A Professional Limited Liability Company

April 15, 2025

Delivered Via Certified Mail
Hon. A. Frank McFadden, Chair
Environmental Management Commission
1400 Coliseum Boulevard
Montgomery, AL 36110-2400

Re: **Petition to Amend Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A**

Dear Chairman McFadden:

On behalf of the Environmental Defense Alliance, Black Warrior Riverkeeper, Inc., Cahaba Riverkeeper, Mobile Baykeeper, Choctawhatchee Riverkeeper, Inc., and Coosa Riverkeeper, Inc., I submit herewith a petition to amend Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A.

Appendix A contains toxicity values that are used in the calculation of water quality criteria to protect human health. The amendment proposes to revise the toxicity values in Appendix A for the following priority toxic pollutants: Cyanide, 1,3-Dichlorobenzene, 4,6-Dinitro-2-methylphenol, Ethylbenzene, Toluene, 1,3-Dichloropropylene, Hexachloroethane, Pentachorophenol, Trichoroethylene, Arsenic, and 1,2,4-Trichlorobenzene.

While the toxicity values for the toxic pollutants in Appendix A may have reflected the best science and scientific judgment available at the time of their adoption by the Commission, new information and scientific methods have become available which demonstrate that the toxicity values for the above-mentioned priority toxic pollutants are not sufficient to protect human health. The proposed amendment will revise those toxicity values to reflect the best available science and scientific judgment and protect human health.

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Protection of human health is certainly the highest priority for the Commission. It is more important than protection of Alabama's aquatic life and certainly more important than protection of the economic well-being of Alabama's industries. The Petitioners implore the Commission to initiate rulemaking proceedings to adopt these revisions without delay so that the health of Alabamians is protected.

Sincerely,

David A. Ludder
Attorney for Petitioners

Enc. Petition
Compact Disk (107 Exhibits)

cc: Hon. Scott Harris, State Health Officer
Alabama Department of Public Health
P.O. Box 303017
Montgomery, AL 36130-3017

[Note: 107 exhibits may be viewed and downloaded at:
https://mega.nz/folder/1SJU2TxJ#B1aIC0pdx3VkGQpQRztMQQ]

BEFORE THE
ALABAMA ENVIRONMENTAL MANAGEMENT COMMISSION

IN THE MATTER OF:

PETITION TO AMEND ALA. (ADEM) ADMIN. CODE CHAP. 335-6-10, APPENDIX A,

EMC Dkt. No.

Environmental Defense Alliance, Black Warrior Riverkeeper, Inc., Cahaba Riverkeeper, Mobile Baykeeper, Choctawhatchee Riverkeeper, Inc., Coosa Riverkeeper, Inc., and Alabama Rivers Alliance, Inc.,

Petitioners.
_____/

PETITION TO AMEND ALA. (ADEM) ADMIN. CODE CHAP. 335-6-10, APPENDIX A

I. INTRODUCTION

1. This petition is filed with the Alabama Environmental Management Commission pursuant to *Code of Alabama 1975*, § 41-22-8 and Ala. (ADEM) Admin. Code r. 335-2-2-.03. Section 41-22-8 "is intended to provide the members of the public with a mechanism for affecting the

content of an agency's rules . . .." Commentary to *Code of Alabama 1975*, § 41-22-8.

2. *Code of Alabama 1975*, § 41-22-8 is adopted from *Iowa Code* § 17A.7 (1976 Cum. Supp.). *Id.*

> The purpose of [*Iowa Code* § 17A.7] is to enable interested persons, on their own initiative, to induce a reasoned consideration of the propriety of the issuance, amendment, or repeal of a rule by those authorized to make and modify rules. Like section 4, it implements the ideal of participatory democracy. Section 7 demands that administrators at least consider, on their merits, commonly felt needs and wants. That is, this provision allows the public to prod an agency to action in a way that seeks to ensure that those satisfied with the status quo are forced to reexamine their positions in light of new views and changed conditions. In doing so, section 7 clearly benefits those subject to an agency's authority. The provision also benefits the agency and the public-at-large because it ensures wiser and sounder-government by directing the agency's attention to situations in which the issuance, amendment, or repeal of rules may be desirable.

Arthur Earl Bonfield, *The Iowa Administrative Procedure Act: Background, Construction, Applicability, Public Access to Agency Law, the Rulemaking Process*, 60 Iowa L. Rev. 731, 892 (April 1975).

3. The proposed amendments to Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A will update oral Reference Dose (RfD)[1] values for ficve toxic pollutants, update oral Cancer Potency Factor (CPF)[2] values for six toxic pollutants, and replace an oral RfD value with an oral CPF value for one toxic pollutant to protect human health. Adoption of the proposed amendments will result in lower water quality criteria for the twelve toxic pollutants, more stringent permit discharge limitations for the twelve

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[1] A Reference Dose (RfD) is "[a]n estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL [No Observed Adverse Effect Level], LOAEL [Lowest Observed Adverse Effect Level], or benchmark dose, with uncertainty factors generally applied to reflect limitations of the data used." U.S. Environmental Protection Agency, *Basic Information about the Integrated Risk Information System*, https://www.epa.gov/iris/basic-information-about-integrated-risk-information-system#basicinfo (accessed July 5, 2024).

[2] A Cancer Potency Factor (CPF) (a/k/a Oral Slope Factor) is "an estimate of the increased cancer risk from oral exposure to a dose of 1 mg/kg-day for a lifetime. The CPF (a/k/a OSF) can be multiplied by an estimate of lifetime exposure (in mg/kg-day) to estimate the lifetime cancer risk." U.S. Environmental Protection Agency, *Basic Information about the Integrated Risk Information System*, https://www.epa.gov/iris/basic-information-about-integrated-risk-information-system#basicinfo (accessed July 5, 2024).

pollutants, lower concentrations of the twelve toxic pollutants in surface waters and fish and shellfish tissues, and protection of the health of humans who consume water, fish, and shellfish.

II. PETITIONERS

4. The names, addresses and phone numbers of the Petitioners are as follows:

Environmental Defense Alliance
1116 20th Street South #526
Birmingham, AL 35205-2612
(205) 578-8167

Black Warrior Riverkeeper, Inc.
712 37th Street South
Birmingham, AL 35222
(205) 458-0095

Mobile Baykeeper
450C Government St.
Mobile, AL 36602
(251) 433-4229

Cahaba Riverkeeper
4650 Old Looney Mill Rd
Birmingham, AL 35243
(205) 967-2600

Choctawhatchee Riverkeeper, Inc.
P.O. Box 6734
Banks, AL 36005
(334) 807-1365

Coosa Riverkeeper, Inc.
102-B Croft St.
Mt. Laurel, AL 35242
(205) 981-6565

Alabama Rivers Alliance, Inc.
4439 5th South
Birmingham, Alabama 35222
(205) 322-6395

III. STATEMENT OF INTERESTS

The Petitioners are all Alabama nonprofit membership corporations. Their missions include advocacy for the protection and restoration of the quality of Alabama's waters for the benefit of their members and the public. Members of the Petitioners use, or have attempted to use, a variety of rivers, streams, and lakes across the state of Alabama for consumption of water and fish. The Commission's failure to adopt the revised Reference Dose (RfD) values and Cancer Potency Factor (CPF) values for the twelve (12) priority toxic pollutants identified in Appendix A has resulted in, or threatens to result in, less consumption of water and fish by the Petitioners' members and/or their exposure to excess concentrations of priority toxic pollutants in water and fish. The interests of Petitioners' members have been, are being, and will continue to be,

adversely affected by the Commission's failure to adopt revised Reference Dose (RfD) values and Cancer Potency Factor (CPF) values for the twelve toxic pollutants identified in Appendix A.

IV. PROPOSED AMENDMENTS TO ALA. (ADEM) ADMIN. CODE CHAP. 335-6-10, APPENDIX A

5. The proposed amendments to Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A are shown in **Attachment A** by strike-throughs (proposed deletions) and underlines (proposed additions). These amendments reflect long-delayed updates to oral Reference Dose (RfD) values and oral Cancer Potency Factor (CPF) values for twelve toxic pollutants recommended by EPA to protect human health. These proposed amendments would significantly alter the existing oral Reference Dose (RfD) values and oral Cancer Potency Factor (CPF) values for the twelve toxic pollutants previously adopted by the Alabama Environmental Management Commission. *See Chap. 335-6-10, Appendix A – Twelve Toxicity Revisions Necessary to Protect Human Health*, **Attachment B.**

V. EVIDENCE, DATA, AND INFORMATION SUPPORTING PROPOSED AMENDMENTS

6. The current oral Reference Dose (RfD) values for Cyanide (CAS No. 57-12-5), 1,3-Dichlorobenzene (CAS No. 541-73-1), 4,6-Dinitro-2-methylphenol (CAS No. 534-52-1), Ethylbenzene (CAS No. 100-41-4), and Toluene (CAS No. 108-88-3) in Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A are not sufficient to protect the health of humans who consume water, fish or shellfish from surface waters. EPA has determined that lower oral RfD values for these toxic pollutants are necessary to develop water quality criteria sufficient to protect human health.

7. The oral Cancer Potency Factor (CPF) values for 1,3-Dichloroproplyene (CAS No. 542-75-6), 2,4-Dinitrotoluene (CAS No. 122-14-2), Hexachloroethane (CAS No. 67-72-1), Pentachlorophenol (CAS No. 87-86-5), Trichloroethylene (CAS No. 79-01-6), and Arsenic (CAS No. 7440-38-2) in Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A are not sufficient to protect the health of humans who consume water, fish or shellfish from surface waters. EPA has determined that higher oral CPF

values for these toxic pollutants are necessary to develop water quality criteria sufficient to protect human health.

8. The oral Reference Dose (RfD) value for 1,2,4-Trichlorobenzene (CAS No. 120-82-1) in Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A is not sufficient to protect the health of humans who consume water, fish or shellfish from surface waters. EPA has determined that an oral Cancer Potency Factor (CPF) value, rather than an oral Reference Dose (RfD) value, is necessary to develop water quality criteria sufficient to protect human health.

9. ***Cyanide (CAS No. 57-12-5)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Reference Dose (RfD) for Cyanide of 0.02 mg/(kg-day). This RfD, based on a U.S. Environmental Protection Agency Integrated Risk Information System assessment published in 1985, was adopted by the Commission on February 20, 1991 (more than 33 years ago).

On September 28, 2010 (more than 14 years ago), EPA published a revised oral RfD value for Cyanide in the Integrated Risk Information System. That value is 6.3×10^{-4} mg/(kg-day) (0.0006 mg/(kg-day)).

Integrated Risk Information System Chemical Assessment Summary: Hydrogen Cyanide and Cyanide Salts (revised September 28, 2010).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: Cyanide 57-12-5*, EPA 820-R-15-031 (June 2015). Therein, EPA recommended that an oral reference dose (RfD) value of 0.0006 mg/(kg-day) be used to develop water quality criteria for Cyanide to protect human health based on the 2010 *Integrated Risk Information System Chemical Assessment*. EPA said:

> EPA selected an RfD of 0.0006 mg/kg-d for free cyanide based on a 2010 EPA IRIS assessment for hydrogen cyanide and cyanide salts (USEPA 2010a). This RfD replaces the previous value of 0.02 mg/kg-d (USEPA 2003b). EPA used the RfD of 0.0006 mg/kg-d to derive AWQC for noncarcinogenic effects. Assuming all other input parameters remain constant, a decrease in the RfD in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18. EPA provided the following additional explanation:

> EPA selected an RfD of 6×10^{-4} mg/kg-d (0.0006 mg/kg-d) for free cyanide based on a 2010 EPA IRIS assessment for hydrogen cyanide and cyanide salts (USEPA 2010a). EPA IRIS states that the "use of the RfD for free cyanide to calculate RfDs of other cyanide compounds may be merited, but the ability of the individual cyanogenic species to dissociate and release free cyanide in aqueous solution (and at physiological pHs) should be taken into consideration. If dissociation of the compound is expected, then liberated

> cations should be considered for potential toxicity independent of CN^-. Also, some metallocyanides, such as copper cyanide, have chemical-specific data and are not included in this (IRIS) analysis" (USEPA 2010a).
>
> EPA's IRIS program identified a study by the National Toxicology Program (NTP 1993) as the critical study and decreased cauda epididymis weight as the critical effect in male rats exposed to cyanide in drinking water (USEPA 2010a). The lower-bound confidence limit on the benchmark dose ($BMDL_{1SD}$) is 1.9 mg/kg-d. In deriving the RfD, EPA's IRIS program applied a composite uncertainty factor of 3000 to account for interspecies extrapolation (10), intraspecies variation (10), subchronic-to-chronic exposure extrapolation (10), and database deficiencies (3) (USEPA 2010a).
>
> EPA identified two other RfD sources through the systematic search described in section 5: a 2006 ATSDR assessment (ATSDR 2006) and a 1997 California EPA assessment (CalEPA 1997). Based on the selection process described in section 5, the IRIS RfD is preferred for use in AWQC development at this time. The 2010 EPA IRIS assessment is the most current RfD source.

Id. at 11-12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)1.(iii) provides that "[t]he values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that

"[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the reference dose (RfD) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . .."

The Environmental Management Commission has not considered a revision to the existing oral RfD value of 0.02 mg/(kg-day) for Cyanide since February 20, 1991 (more than 33 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral RFD value of 0.02 mg/(kg-day) for Cyanide in Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A to the EPA's 2010 recommended oral RfD value of 0.0006 mg/(kg-day).

Supporting Documents:

Exhibit 001: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: Cyanide 57-12-5*, EPA 820-R-15-031 (June 2015).

Exhibit 002: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment*

Summary: Hydrogen Cyanide and Cyanide Salts (revised September 28, 2010).

Exhibit 003: U.S. Environmental Protection Agency, *Toxicological Review of Hydrogen Cyanide and Cyanide Salts*, EPA/635/R-08/016F (September 2010).

Exhibit 004: Public Health Service, United States Department of Health and Human Services, *National Toxicology Program Technical Report on Toxicity Studies of Sodium Cyanide, Toxicity Report Series No. 37* (November 1993).

Related Documents:

Exhibit 005: *Revision of National Recommended Water Quality Criteria*, 67 Fed. Reg. 79091–79095 (December 27, 2002).

Exhibit 006: Office of Water, U.S. Environmental Protection Agency, *Ambient Water Quality Criteria for Cyanides*, EPA 440/5-80-037 (October 1980).

10. ***1,3-Dichlorobenzene (CAS No. 541-73-1)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Reference Dose (RfD) for 1,3-Dichlorobenzene of 0.0134 mg/(kg-day). This RfD, based on the lowest No Observable Adverse Effect Level of 0.0134 mg/(kg-day) for 1,2-Dichlorobenzene and 1,4-Dichlorobenzene published by EPA in *Ambient Water Quality Criteria*

for Dichlorobenzenes, EPA-440-5-80-039 (October 1980), was adopted by the Environmental Management Commission on December 3, 2004 (more than 20 years ago).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: 1,3-Dichlorobenzene 541-73-1,* EPA 820-R-15-079 (June 2015). Therein, EPA recommended that an adjusted Maximum Risk Level (MRL) of 0.002 mg/(kg-day) be used to develop water quality criteria for 1,3-Dichlorobenzene to protect human health based on a 2006 assessment of the toxicity of 1,3-Dichlorobenzene by the Agency for Toxic Substances and Disease Registry. EPA explained:

> In place of an RfD, EPA selected an intermediate-duration oral MRL of 0.02 mg/kg-d for 1,3-dichlorobenzene from a 2006 ATSDR assessment (ATSDR 2006) and adjusted it to 0.002 mg/kg-d for a chronic (lifetime) exposure (USEPA 2000a). This MRL replaces the previous acceptable daily intake value of 0.0134 mg/kg-d (USEPA 2002c). EPA used the intermediate-duration oral MRL of 0.002 mg/kg-d to derive AWQC for noncarcinogenic effects. Assuming all other input parameters remain constant, a decrease in the intermediate-duration oral MRL in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18. EPA provided the following additional explanation:

> In place of an RfD, EPA selected an intermediate-duration oral minimal risk level (MRL) of 2×10^{-2} mg/kg-d (0.02 mg/kg-d)

for 1,3-dichlorobenzene from a 2006 ATSDR assessment (ATSDR 2006) and adjusted it to 2×10^{-3} mg/kg-d (0.002 mg/kg-d) for a chronic (lifetime) exposure (USEPA 2000a). An intermediate-duration MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over an exposure period of 15-364 days.

ATSDR derived an intermediate-duration oral MRL using a principal study by McCauley et al. (1995) based on the development of pituitary lesions, consisting of cytoplasmic vacuolation of the pars distalis in male rats orally exposed to 1,3-dichlorobenzene for 90 consecutive days (ATSDR 2006). A duration-adjusted, lower-bound confidence limit benchmark dose (BMDL10) of 2.1 mg/kg-d was derived from this study. In deriving the MRL, ATSDR applied a composite uncertainty factor of 100 to account for interspecies extrapolation (10) and intraspecies variation (10), resulting in an intermediate-duration oral MRL of 0.02 mg/kg-day (ATSDR 2006).

In this particular case, because there are no chronic oral toxicity values available for 1,3-dichlorobenze, EPA applied an additional uncertainty factor of 10 to account for intermediate-to-chronic duration to derive a chronic-duration oral MRL of 0.002 mg/kg-d for the purpose of AWQC development (USEPA 2000a).

EPA identified one other RfD source through the systematic search described in section 5: a 1980 EPA Office of Water (OW) assessment (USEPA 1980). The 1980 EPA OW RfD is based on toxicity studies for 1,2-dichlorobenzene and 1,4-dichlorobenzene – not for 1,3-dichlorobenzene. Hollingsworth et al. (1956; 1958) exposed several animal species over a period of 6-7 months in separate toxicity tests with 1,2-dichlorobenzene and 1,4-dichlorobenzene (i.e., no

> toxicity tests were performed with 1,3-dichlorobenzene) (USEPA 1980). OW derived the 1980 RfD based on the lowest NOAEL from those studies as a surrogate for 1,3-dichlorobenzene (USEPA 1980). Based on the selection process described in section 5, the 2006 ATSDR MRL is preferred for use in AWQC development at this time. The 2006 ATSDR assessment used a newer principal study specifically for 1,3-dichlorobenzene (McCauley et al. 1995) and applied more current benchmark dose (BMD) modeling in order to identify the point of departure for the MRL derivation (ATSDR 2006). According to EPA guidance, when data are amenable to modeling, the BMD approach is the preferred approach (USEPA 2012a). The ATSDR assessment represents the most current available human health assessment for 1,3-dichlorobenzene. In the event that a chronic toxicity value (RfD or chronic-duration MRL) for 1,3-dichlorobenzene becomes available in the future, EPA will update the AWQC to reflect the latest science.

Id. at 11-12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)1.(iii) provides that "[t]he values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the reference dose (RfD) . . . determined by the Department in consultation with the Alabama Department of

Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . .."

The Environmental Management Commission has not considered a revision to the existing oral RfD value of 0.0134 mg/(kg-day) for 1,3-Dichlorobenzene since December 3, 2004 (more than 20 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral RFD value of 0.0134 mg/(kg-day) for 1,3-Dichlorobenzene in Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A to the EPA's recommended oral MRL of 0.002 mg/(kg-day) after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 007: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: 1,3-Dichlorobenzene 541-73-1*, EPA 820-R-15-079 (June 2015).

Exhibit 008: P.T. McCauley, et al., *Toxicity studies of 1,3-dichlorobenzene in Sprague-Dawley rats*, Drug and Chemical Toxicology, Volume 18, Issues 2 and 3, pages 201–221 (1995).

Exhibit 009: Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, *Toxicological Profile for Dichlorobenzenes* (August 2006).

Related Documents:

Exhibit 010: Office of Water, U.S. Environmental Protection Agency, *Ambient Water Quality Criteria for Dichlorobenzenes*, EPA-440-5-80-039 (October 1980).

Exhibit 011: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment Summary: 1,3-Dichlorobenzene* (revised 1991).

11. ***4,6-Dinitro-2-methylphenol (CAS No. 534-52-1)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral reference dose (RfD) for 4,6-Dinitro-2-methylphenol (CAS No. 534-52-1) of 0.00039 mg/(kg-day). This RfD, based on *Ambient Water Quality Criteria for Nitrophenols*, EPA-440-5-80-063 (October 1980), was adopted by the Commission on July 20, 1994 (more than 30 years ago).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: 2-Methyl-4,6-dinitrophenol 534-52-1*, EPA 820-R-15-090 (June 2015). Therein, EPA recommended that an oral reference dose (RfD) of 0.0003

mg/(kg-day) be used to develop water quality criteria for 2-Methyl-4,6-dinitrophenol to protect human health based on a 2010 analysis of the toxicity of 4,6-Dinitro-2-methylphenol by EPA. EPA explained:

> EPA selected an RfD of 0.0003 mg/kg-d for 2-methyl-4,6-dinitrophenol based on a 2010 EPA OSWER PPRTV (USEPA 2010). This RfD replaces the previous value of 0.00039 mg/kg-d (USEPA 1980; USEPA 2002c). EPA used the RfD of 0.0003 mg/kg-d to derive AWQC for noncarcinogenic effects. Assuming all other input parameters remain constant, a decrease in the RfD in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18. EPA provided the following additional explanation:

> EPA selected an RfD of 3×10^{-4} mg/kg-d (0.0003 mg/kg-d) for 2-methyl-4,6-dinitrophenol based on a 2010 EPA Office of Solid Waste and Emergency Response (OSWER) Provisional Peer Reviewed Toxicity Value (PPRTV) (USEPA 2010). EPA OSWER identified Ibrahim et al. (1934) as the critical study and reduced BW, excessive perspiration and fatigue, elevated basal metabolic rate (BMR) and body temperature, and the development of greenish-yellow coloration of the conjunctivae as the critical effects in humans orally taking 2-methyl-4,6-dinitrophenol. The 5.5-week human study has a LOAEL of 0.8 mg/kg-d.
>
> Based on this human oral toxicity endpoint for 2-methyl-4,6-dinitrophenol, EPA OSWER developed a subchronic provisional RfD (subchronic p-RfD) and an oral screening chronic value (screening chronic p-RfD) (USEPA 2010). To derive the subchronic p-RfD, EPA OSWER applied a composite uncertainty factor of 1000 to account for intraspecies variation (10), use of a LOAEL instead of a

NOAEL (10), and database deficiencies (10), resulting in a subchronic p-RfD of 8×10^{-4} mg/kg-d. EPA OSWER applied an additional uncertainty factor of 10 (i.e., composite uncertainty factor of 10,000) to account for subchronic-to-chronic extrapolation in deriving the screening chronic p-RfD of 8×10^{-5} mg/kg-d (0.00008 mg/kg-d) (USEPA 2010). Based on current EPA OSWER guidelines and standard operating procedures, composite uncertainty factors greater than 3000 cannot be considered for provisional reference value derivation.

For the purpose of updating the AWQC for 2-methyl-4,6-dinitrophenol, EPA Office of Water (OW) selected the OSWER subchronic p-RfD (8×10^{-4} mg/kg-d) and applied an additional uncertainty factor of 3 to account for subchronic-to-chronic extrapolation [i.e., composite uncertainty factor of 3000, consistent with EPA guidance (USEPA 2000a)]. The resulting chronic RfD for the purpose of AWQC development is 3×10^{-4} mg/kg-d (0.0003 mg/kg-d).

Due to low confidence in the database – particularly the lack of chronic toxicity studies – confidence in the subchronic p-RfD for 2-methyl-4,6-dinitrophenol is low (USEPA 2010). However, other available RfD sources report values that are similar to the RfD of 3×10^{-4} mg/kg-d. EPA identified two other RfD sources through the systematic search described in section 5: a 1980 EPA OW assessment (USEPA 1980) and a 1995 ATSDR assessment (ATSDR 1995b). The EPA OW assessment – which was based on a National Institute for Occupational Safety and Health (NIOSH) occupational exposure standard for inhalation of 2-methyl-4,6-dinitrophenol (NIOSH 1978) – has an RfD of 3.9×10^{-4} mg/kg-d. (ATSDR 1995b) published an intermediate-duration MRL of 4×10^{-3} mg/kg-d based on a human study with a LOAEL of 0.35 (Plotz 1936) and a composite uncertainty factor of 100; if an additional uncertainty factor of 10 was applied for subchronic-to-chronic

> duration, the chronic value would be 4×10^{-4} mg/kg-d. In the event that more current toxicity data or assessments become available for 2-methyl-4,6-dinitrophenol in the future, as with all chemicals, EPA will work to update the AWQC to reflect the latest information.

Id. at 11-12.

Ala. (ADEM) Admin Code r. 335-6-10-.07(1)(d)1.(iii) provides that "[t]he values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the reference dose (RfD) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . .."

The Environmental Management Commission has not considered a revision to the existing oral RfD value of 0.00039 mg/(kg-day) for 2-Methyl-4,6-dinitrophenol since July 20, 1994 (more than 30 years ago).

This Petition asks the Commission to give fair consideration to revising the existing oral RFD value of 0.00039 mg/(kg-day) for 2-Methyl-4,6-dinitrophenol in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the EPA's recommended oral RfD value 0.0003 mg/(kg-day) after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 012: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: 2-Methyl-4,6-dinitrophenol 534-52-1*, EPA 820-R-15-090 (June 2015).

Exhibit 013: Superfund Health Risk Technical Support Center, U.S. Environmental Protection Agency, *Provisional Peer Reviewed Toxicity Values for 4,6 Dinitro-o-Cresols (CAS RN 534-52-1)*, EPA/690/R-10/012F (April 22, 2010).

Exhibit 014: Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, *Toxicological Profile for Dinitrocresols* (August 1995).

Exhibit 015: Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, *Toxicological Profile for Dinitrocresols* (January 2018).

Related Documents:

Exhibit 016: Office of Water, U.S. Environmental Protection Agency, *Ambient Water Quality Criteria for Nitrophenols*. EPA-440-5-80-063 (October 1980).

12. ***Ehylbenzene (CAS No. 100-41-4)***

Ala. (ADEM) Admin Code Chap. 335-6-10, Appendix A establishes an oral Reference Dose (RfD) for Ethylbenzene (CAS No. 100-41-4) of 0.1 mg/(kg-day). This RfD, based on an Integrated Risk Information System assessment published in 1987, was adopted by the Commission on February 20, 1991 (more than 33 years ago).

In June 2015, EPA (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: Ethylbenzene 100-41-4*, EPA 820-R-15-042 (June 2015). Therein, EPA recommended that an oral RfD of 0.022 mg/(kg-day) be used to develop water quality criteria for Ethylbenzene to protect human health based on a 2015 assessment of Ethylbenzene by Health Canada and a 1996 National Toxicology Program study of the effects Ethylbenzene on mice. *Update of Human Health Ambient Water Quality Criteria: Ethylbenzene 100-41-4*. EPA explained:

> EPA selected an RfD of 0.022 mg/kg-d for ethylbenzene based on a 2015 Health Canada assessment (HC 2015b). This RfD

> replaces the previous value of 0.1 mg/kg-d (USEPA 2003b). EPA used the RfD of 0.022 mg/kg-d to derive AWQC for noncarcinogenic effects. Assuming all other input parameters remain constant, a decrease in the RfD in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18. EPA provided the following additional explanation:

> EPA selected an RfD of 2.2×10^{-2} mg/kg-d (0.022 mg/kg-d) for ethylbenzene based on a 2015 Health Canada assessment (HC 2015b). Health Canada identified a study by the National Toxicology Program (NTP 1996) as the critical study and the development of hyperplasia of the pituitary gland and liver cellular alterations as the critical effects in mice exposed to ethylbenzene in an inhalation study. The chronic study had a NOAEL of 75 ppm (326 mg/m3). Health Canada used a physiologically based pharmacokinetic (PBPK) model to derive a human external dose of 0.54 mg/kg-d. In deriving the RfD, Health Canada applied a composite uncertainty factor of 25 to account for interspecies extrapolation (2.5) and intraspecies variation (10) (HC 2015b).

Id. at 11 (footnote omitted).

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)1.(iii) provides that "[t]he values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations

16, 17, 18, and 19 using values for the reference dose (RfD) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . .."

The Environmental Management Commission has not considered a revision to the existing oral RfD value of 0.1 mg/(kg-day) for Ethylbenzene since February 20, 1991 (more than 33 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral RFD value of 0.1 mg/(kg-d) for Ethylbenzene in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the EPA's recommended oral RfD value 0.022 mg/(kg-day) after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 017: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: Ethylbenzene 100-41-4*, EPA 820-R-15-042 (June 2015).

Exhibit 018: Health Canada, Guidelines for Canadian Drinking Water Quality, *Guideline Technical Document:*

Toluene, Ethylbenzene and Xylenes (August 2014, modified April 15, 2015).

Exhibit 019: Public Health Service, United States Department of Health and Human Services, *Toxicology and Carcinogenesis Studies of Ethylbenzene (CAS No. 100-41-4) in F344/n Rats and B6c3f Mice$_1$ (Inhalation Studies)*, National Toxicology Program Technical Report No. 466 (January 1999).

Related Documents:

Exhibit 020: *National Recommended Water Quality Criteria for the Protection of Human Health*, 68 Fed. Reg. 75507–75515 (December 31, 2003).

Exhibit 021: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment Summary: Ethylbenzene* (revised January 31, 1987).

13. ***Toluene (CAS No. 108-88-3)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Reference Dose (RfD) for Toluene (CAS No. 108-88-3) of 0.2 mg/(kg-day). This RfD, based on an Integrated Risk Information System assessment published on August 1, 1990, was adopted by the Commission on February 20, 1991 (more than 33 years ago).

EPA's current Integrated Risk Information System shows an oral RfD value of 0.08 mg/(kg-day) for Toluene. This RfD was published in the Integrated Risk Information System on September 23, 2005 (more than 19 years ago). *Integrated Risk Information System Chemical Assessment Summary: Toluene* (revised September 23, 2005).

In June 2015 (more than 9 years ago), the EPA published *Update of Human Health Ambient Water Quality Criteria: Toluene 108-88-3,* EPA 820-R-15-064 (June 2015). Therein, EPA recommended that an oral RfD value of 0.0097 mg/(kg-day) be used to develop water quality criteria for Toluene to protect human health based on a 2015 assessment of Toluene by Health Canada and 2004 and 2005 studies on the effects of Toluene in humans. EPA explained:

> EPA selected an RfD (Tolerable Daily Intake) of 0.0097 mg/kg-d for toluene based on a 2015 Health Canada assessment (HC 2015b). This RfD replaces the previous value of 0.2 mg/kg-d (USEPA 2003b). EPA used the RfD of 0.0097 mg/kg-d to derive AWQC for noncarcinogenic effects. Assuming all other input parameters remain constant, a decrease in the RfD in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 17. EPA provided the following additional explanation:

> EPA selected an RfD of 9.7×10^{-3} mg/kg-d (0.0097 mg/kg-d) for toluene based on a 2015 Health Canada assessment (HC 2015b). Health Canada identified studies by Seeber et al. (2004; 2005) as the critical studies and the development of various neurological symptoms as the critical effects in humans occupationally exposed to toluene (HC 2015b). The studies had NOAEL of 26 ppm (98 mg/m^3). Health Canada used a physiologically based pharmacokinetic (PBPK) model to derive the corresponding human external dose of 0.097 mg/kg-d. In deriving the RfD, Health Canada applied a composite uncertainty factor of 10 to account for intraspecies variation (10) (HC 2015b).
>
> EPA identified three other RfD sources through the systematic search described in section 5: a 2005 EPA IRIS assessment (USEPA 2005a), a 2000 ATSDR assessment (ATSDR 2000), and a 1999 California EPA assessment (CalEPA 1999). Based on the selection process described in section 5, the Health Canada RfD is preferred for use in AWQC development at this time.
>
> The 2015 Health Canada assessment is the most current available RfD source and is based on more recent critical studies (Seeber et al. 2004; Seeber et al. 2005) than is the IRIS assessment (NTP 1990).

Id. at 11-12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)1.(iii) provides that "[t]he values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established

pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the reference dose (RfD) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . .."

The Environmental Management Commission has not considered a revision to the existing oral RfD value of 0.2 mg/(kg-day) for Toluene since February 20, 1991 (more than 33 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral RfD value of 0.2 mg/(kg-day) for Toluene in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the EPA's recommended oral RfD value of 0.0097 mg/(kg-day) after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 022: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: Toluene 108-88-3*, EPA 820-R-15-064 (June 2015).

Exhibit 023: Health Canada, Guidelines for Canadian Drinking Water Quality, *Guideline Technical Document: Toluene, Ethylbenzene and Xylenes* (August 2014; online version updated April 15, 2015).

Exhibit 024: A. Seeber, et al., *Changes of neurobehavioral and sensory functions due to toluene exposure below 50 pm?*, Environmental Toxicology and Pharmacology 19(3):635–643 (2005).

Exhibit 025: A. Seeber, et al., *Toluene exposure below 50 ppm and cognitive function: a follow-up study with four repeated measurements in rotogravure printing plants*, International Archives of Occupational and Environmental Health 77:1–9 (2004).

Related Documents:

Exhibit 026: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment Summary: Toluene* (revised September 23, 2005).

Exhibit 027: U.S. Environmental Protection Agency, *Toxicological Review of Toluene*, EPA/635/R-05/004 (September 2005).

Exhibit 028: Office of Water, U.S. Environmental Protection Agency, *Ambient Water Quality Criteria for Toluene*, EPA 440/5-80-075 (October 1980).

14. ***2,4-Dinitrotoluene (CAS No. 121-14-2)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Cancer Potency Factor (CPF) for 2,4-Dinitrotoluene (CAS No. 121-

14-2) of 0.31 (kg-day)/mg. This CPF value, based on an Integrated Risk Information System chemical assessment published in 1989 (since withdrawn), was adopted by the Commission on July 20, 1994 (more than 30 years ago).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: 2,4-Dinitrotoluene 121-14-2*, EPA 820-R-15-087 (June 2015). Therein, EPA recommended that an oral CPF value of 0.667 per mg/(kg-day) (0.667 (kg-day)/mg) be used to develop water quality criteria for 2,4-Dinitrotoluene to protect human health based on a 2008 assessment of 2,4-Dinitrotoluene by EPA and a 1979 study of the effects of 2,4-Dinitrotoluene on rats. EPA explained:

> EPA selected a CSF of 0.667 per mg/kg-d for 2,4-dinitrotolulene based on a 2008 EPA Office of Water assessment (USEPA 2008). This CSF replaces the previous value of 0.311 per mg/kg-d (USEPA 2002c). EPA used the CSF of 0.667 per mg/kg-d to derive AWQC for carcinogenic effects. Assuming all other input parameters remain constant, an increase in the CSF in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18 EPA provided the following additional explanation:

Under the 1986 EPA's Guidelines for Carcinogen Risk Assessment (USEPA 1986), 2,4-dinitrotoluene, in a mixture with 2,6-dinitrotoluene, is classified as Group B2, "probable human carcinogen" (USEPA 1986; USEPA 2008). Under the 2005 Guidelines for Carcinogen Risk Assessment (USEPA 2005), the 2,4-dinitrotoluene/2,6-dinitrotoluene mixture is characterized as "likely to be carcinogenic to humans" (USEPA 2008).

EPA selected a CSF of 6.67×10^{-1} per mg/kg-d (0.667 per mg/kg-d) for 2,4-dinitrotolulene based on a 2008 EPA Office of Water assessment (USEPA 2008). EPA Office of Water program identified a study by Ellis et al. (1979) as the critical study and development of mammary gland tumors as the critical effect in female rats orally exposed to a mixture of 98 percent 2,4-dinitrotoluene and 2 percent 2,6-dinitrotoluene (USEPA 2008). The benchmark dose (BMD) is estimated using the numbers of female rats with mammary gland tumors. For a benchmark risk (BMR) level of 0.10, the estimated BMD value is 0.25 mg/kg-d with a lower bound (95 percent) (BMDL) of 0.15 mg/kg-d using the multistage model. The BMDL is used as the point of departure selected for the quantification of cancer risk (USEPA 2008).

EPA identified one other CSF source through the systematic search described in section 5: a 1989 EPA IRIS assessment (USEPA 1989). Based on the selection process described in section 5, the 2008 Office of Water CSF is preferred for use in AWQC development at this time. The Office of Water assessment uses the same principal study (Ellis et al. 1979), but uses a more current BMD modeling approach than was used in the IRIS assessment.

Id. at 12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency factor (CPF) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS)."

The Environmental Management Commission has not considered a revision to the existing oral CPF value of 0.31 (kg-day)/mg for 2,4-Dinitrotoluene since July 20, 1994 (more than 30 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral CPF value of 0.31 (kg-day)/mg for 2,4-Dinitrotoluene in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the EPA's

recommended oral CPF value of 0.667 (kg-day)/mg after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 029: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: 2,4-Dinitrotoluene 121-14-2*, EPA 820-R-15-087 (June 2015).

Exhibit 030: Health and Ecological Criteria Division, U.S. Environmental Protection Agency, *Drinking Water Health Advisory for 2,4-Dinitrotoluene and 2,6-Dinitrotoluene*, EPA 822-R-08-010 (January 2008).

Exhibit 031: Harry V. Ellis, et al., *Mammalian Toxicity of Munitions Compounds., Phase III: Effects of Lifetime Exposure, Part I: 2,4-Dinitrotoluene, Final Report No. 7*, Midwest Research Institute. Contract No. DAMD 17-74-C-4073, ADA077692 (1979).

Related Documents:

Exhibit 032: Office of Water, U.S. Environmental Protection Agency, *Ambient Water Quality Criteria for Dinitrotoluene*, EPA 440/5-80-045 (October 1980).

15. ***Hexachloroethane (CAS No. 67-72-1)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Cancer Potency Factor (CPF) for Hexachloroethane (CAS No. 67-

72-1) of 0.014 (kg-day)/mg. This CPF value, based on an Integrated Risk Information System value published in 1987, was adopted by the Commission on February 20, 1991 (more than 33 years ago).

On September 23, 2011 (more than 13 years ago), EPA published a revised oral CPF value for Hexachloroethane in the Integrated Risk Information System. That value is 4.0×10^{-2} per mg/(kg-day) (0.04 per mg/(kg-day)). *Integrated Risk Information System Chemical Assessment Summary: Hexachlorethane* (revised September 23, 2011).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: Hexachloroethane 67-72-1*, EPA 820-R-15-052 (June 2015). Therein, EPA recommended that an oral CPF value of 4.0×10^{-2} per mg/(kg-day) (0.04 per mg/(kg-day)) be used to develop water quality criteria for Hexachloroethane to protect human health based on the 2011 Integrated Risk Information System Chemical Assessment. EPA explained:

> EPA selected a CSF of 0.04 per mg/kg-d for hexachloroethane based on a 2011 EPA IRIS assessment (USEPA 2011c). This CSF replaces the previous value of 0.014 per mg/kg-d (USEPA 2002c). EPA used the CSF of 0.04 per mg/kg-d to derive AWQC for carcinogenic effects. Assuming all other input

> parameters remain constant, an increase in the CSF in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 17. EPA provided the following additional explanation:

> Under the 2005 EPA Guidelines for Carcinogen Risk Assessment (USEPA 2005), hexachloroethane is "likely to be carcinogenic to humans" (USEPA 2011c).
>
> EPA selected a CSF of 4×10^{-2} per mg/kg-d (0.04 per mg/kg-d) for hexachloroethane based on a 2011 EPA IRIS assessment (USEPA 2011c). EPA's IRIS program calculated the CSF using a principal study by the National Toxicology Program (NTP 1989) based on development of renal adenomas and carcinomas in male rats with oral exposure to hexachloroethane (USEPA 2011c).
>
> EPA identified no other source of a CSF through the systematic search described in section 5.

Id. at 12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency

factor (CPF) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents."

The Environmental Management Commission has not considered a revision to the existing oral CPF value of 0.014 (kg-day)/mg for Hexachloroethane since February 20, 1991 (more than 33 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral CPF value of 0.014 (kg-day)/mg for Hexachloroethane in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the oral CPF value of 0.04 (kg-day)/mg in the 2011 Integrated Risk Information System Chemical Assessment of Hexachloroethane.

Supporting Documents:

Exhibit 033: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: Hexachloroethane 67-72-1*, EPA 820-R-15-052 (June 2015).

Exhibit 034: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated*

Risk Information System Chemical Assessment Summary: Hexachlorethane (revised September 23, 2011).

Exhibit 035: U.S. Environmental Protection Agency, *Toxicological Review of Hexachloroethane*, EPA/635/R-09/007F (September 2011).

Exhibit 036: Public Health Service, United States Department of Health and Human Services, *Toxicology and Carcinogenesis Studies of Hexachloroethane (CAS No. 67-72-1) in F344/n Rats (Gavage Studies)*, National Toxicology Program Technical Report Series No. 361 (August 1989).

16. ***Pentachlorophenol (CAS No. 87-86-5)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Cancer Potency Factor (CPF) for Pentachlorophenol (CAS No. 87-86-5) of 0.12 (kg-day)/mg. This CPF value, based on a March 1, 1991 Integrated Risk Information System chemical assessment, was adopted by the Commission on July 20, 1994 (more than 30 years ago).

On September 30, 2010 (more than 14 years ago), EPA published a revised oral CPF value of 4×10^{-1} per mg/kg-day (0.4 per mg/kg-day) for Pentachlorophenol in *Integrated Risk Information System Chemical Assessment Summary: Pentachlorophenol* (September 30, 2010).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: Pentachlorophenol 87-86-5*, EPA 820-R-15-060 (June 2015). Therein, EPA recommended that an oral CPF value of 4.0×10^{-1} per mg/(kg-day) (0.4 per mg/(kg-day) be used to develop water quality criteria for Pentachlorophenol to protect human health based on the 2010 Integrated Risk Information System Chemical Assessment. EPA explained:

> EPA selected a CSF of 0.4 per mg/kg-d for pentachlorophenol based on a 2010 EPA IRIS assessment (USEPA 2010b). This CSF replaces the previous value of 0.12 per mg/kg-d (USEPA 2002c). EPA used the CSF of 0.4 per mg/kg-d to derive AWQC for carcinogenic effects. Assuming all other input parameters remain constant, an increase in the CSF in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18. EPA provided the following additional explanation:

> Under the 2005 EPA Guidelines for Carcinogen Risk Assessment (USEPA 2005), pentachlorophenol is "likely to be carcinogenic to humans" (USEPA 2010b).
>
> EPA selected a CSF of 4×10^{-1} per mg/kg-d (0.4 per mg/kg-d) for pentachlorophenol based on a 2010 EPA IRIS assessment (USEPA 2010b). EPA's IRIS program calculated the CSF using a principal study by the National Toxicology Program (NTP 1989) based on development of hepatocellular adenomas or carcinomas and adrenal benign or malignant pheochromocytomas in male mice with oral exposure to pentachlorophenol (USEPA 2010b).

> EPA identified two other CSF sources through the systematic search described in section 5: a 2008 EPA OPP RED (USEPA 2008) and a 2009 California EPA assessment (CalEPA 2009). Based on the selection process described in section 5, the IRIS CSF is preferred for use in AWQC development at this time. The 2010 EPA IRIS assessment is the most current available CSF source. The OPP RED included a CSF of 0.07 per mg/kg-d based on the incidence of hepatocellular neoplasms, adrenal medullary neoplasms, and hemangiosarcomas in female mice in the same critical study as IRIS (USEPA 2008). The OPP RED, which was conducted using the 1986 EPA Guidelines for Carcinogen Risk Assessment (USEPA 1986), acknowledged the not-yet-final IRIS reassessment of carcinogenic potential of pentachlorophenol and indicated that OPP would use the existing CSF (0.07 per mg/kg-d) until the ongoing IRIS assessment had been fully peer reviewed and finalized (USEPA 2008).

Id. at 12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency factor (CPF) . . . determined by the Department in consultation with the

Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents."

The Environmental Management Commission has not considered a revision to the existing oral CPF value of 0.12 (kg-day)/mg for Pentachlorophenol since July 20, 1994 (more than 30 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral CPF value of 0.12 (kg-day)/mg for Pentachlorophenol in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the oral CPF value of 0.4 (kg-day)/mg in the 2010 Integrated Risk Information System Chemical Assessment for Pentachlorophenol.

Supporting Documents:

Exhibit 037: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: Pentachlorophenol 87-86-5*, EPA 820-R-15-060 (June 2015).

Exhibit 038: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment*

Summary: Pentachlorophenol (September 30, 2010).

Exhibit 039: U.S. Environmental Protection Agency, *Toxicological Review of Pentachlorophenol (CAS No. 87-86-5)*, EPA/635/R-09/004F (Sept. 2010).

Exhibit 040: U.S. Public Health Service, U.S. Department of Health and Human Services, *Toxicology and Carcinogenesis Studies of Two Pentachlorophenol Technical-grade Mixtures (CAS No. 87-86-5) in B6C3F1 Mice (Feed Studies)*, National Toxicology Program Technical Report Series No. 349 (March 1989).

17. ***Trichloroethylene (CAS No. 79-01-6)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Cancer Potency Factor (CPF) value for Trichloroethylene (CAS No. 79-01-6) of 0.0126 (kg-day)/mg. This CPF value, based on *Ambient Water Quality Criteria for Trichloroethylene*, EPA440/5-80-077 (October 1980), was adopted by the Commission on February 20, 1991 (more than 33 years ago).

On September 28, 2011 (more than 13 years ago), EPA published a revised oral CPF value for Trichloroethylene of 5×10^{-2} per mg/(kg-day) (0.05 (kg-day)/mg) in the Integrated Risk Information System. *Integrated*

Risk Information System Chemical Assessment Summary: Trichloroethylene (September 28, 2011).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: Trichloroethylene 79-01-6*, EPA 820-R-15-066 (June 2015). Therein, EPA recommended that an oral CPF value of 5×10^{-2} per mg/(kg-day) (0.05 (kg-day)/mg) be used to develop water quality criteria for Trichloroethylene based on the 2011 Integrated Risk Information System Chemical Assessment. EPA explained:

> EPA selected a CSF of 0.05 per mg/kg-d for TCE based on a 2011 EPA IRIS assessment (USEPA 2011c). This CSF replaces the previous value of 0.0126 per mg/kg-d (USEPA 2002c). EPA used the CSF of 0.05 per mg/kg-d to derive AWQC for carcinogenic effects. Assuming all other input parameters remain constant, an increase in the CSF in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 18. EPA provided the following additional explanation:

> Under the 2005 EPA Guidelines for Carcinogen Risk Assessment (USEPA 2005a), TCE is characterized as "carcinogenic to humans" by all routes of exposure (USEPA 2011c). EPA's IRIS program concluded, by a weight-of-evidence evaluation, that TCE is carcinogenic by a mutagenic mode of action for induction of kidney tumors (USEPA 2011c).

> EPA selected a CSF of 5×10^{-2} per mg/kg-d (0.05 per mg/kg-d) for TCE based on a 2011 EPA IRIS assessment (USEPA 2011c). EPA's IRIS program identified Charbotel et al. (2006) as the critical study and renal cell carcinoma as the critical effect (USEPA 2011c). The oral slope factor of 5×10^{-2} per mg/kg-d, calculated from data from adult exposure, does not reflect presumed increased early-life susceptibility to kidney tumors for this chemical (USEPA 2011c).
>
> EPA identified two other CSF sources through the systematic search described in section 5: a 2014 EPA Office of Pollution Prevention and Toxics (OPPT) assessment (USEPA 2014c) and a 2009 California EPA assessment (CalEPA 2009). Based on the selection process described in section 5, the 2011 EPA IRIS RfD is preferred for use in AWQC development at this time. The assessment from OPPT was published more recently; however, it is based on the same principal studies and is numerically the same as the 2011 EPA IRIS CSF.

Id. at 12-13.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency factor (CPF) . . . determined by the Department in consultation with the

Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents."

The Environmental Management Commission has not considered a revision to the existing oral CPF value of 0.0126 (kg-day)/mg for Trichloroethylene since February 20, 1991 (more than 33 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral CPF value of 0.0126 (kg-day)/mg for Trichloroethylene in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the oral CPF value of 0.05 (kg-day)/mg in the 2011 Integrated Risk Information System Chemical Assessment for Trichloroethylene.

Supporting Documents:

Exhibit 041: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: Trichloroethylene 79-01-6*, EPA 820-R-15-066 (June 2015).

Exhibit 042: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment Summary: Trichloroethylene* (September 28, 2011).

Exhibit 043: U.S. Environmental Protection Agency, *Toxicological Review of Trichloroethylene*, EPA/635/R-09/011F (September 2011).

Exhibit 044: Barbara Charbotel, et al., *Case-control study on renal cell cancer and occupational exposure to trichloroethylene. Part II: Epidemiological aspects*, The Annals of Occupational Hygiene 50(8):777–787 (July 13, 2006).

Related Documents:

Exhibit 045: U.S. Environmental Protection Agency, *Ambient Water Quality Criteria for Trichloroethylene*, EPA440/5-80-077 (October 1980).

18. *1,3-Dichloropropylene (CAS No. 542-75-6)*

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes a Cancer Potency Factor (CPF) for 1,3-Dichloropropylene (CAS No. 542-75-6) of 0.1 (kg-day)/mg. This CPF, based on an Integrated Risk Information System assessment published on May 25, 2000 which relied upon U.S. Public Health Service, U.S. Department of Health and Human Services, *Toxicology and Carcinogenesis Studies of Telone II (Technical-grade 1,3-Dichloropropene Containing 1.0% Epichlorohydrin as a Stabilizer) in F344/N Rats and B6C3F1 Mice (Gavage Studies)*, National Toxicology Program Technical Report Series No. 269 (May 1985),

was adopted by the Commission on December 4, 2004 (more than 20 years ago).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: 1,3-Dichloropropylene 542-75-6*, EPA 820-R-15-080 (June 2015). Therein, EPA recommended that an oral CPF value of 0.122 per mg/(kg-day) (0.122 (kg-day)/mg) be used to develop water quality criteria for 1,3-Dichloropropylene to protect human health based on a 1998 EPA re-analysis of a 1985 National Toxicology Program study of urinary bladder tumors in mice. EPA explained:

> EPA selected a CSF of 0.122 per mg/kg-d for 1,3-dichloropropene based on a 1998 EPA OPP RED (USEPA 1998). This CSF replaces the previous value of 0.1 per mg/kg-d (USEPA 2003b). EPA used the CSF of 0.122 per mg/kg-d to derive AWQC for carcinogenic effects. Assuming all other input parameters remain constant, an increase in the CSF in the AWQC calculations (Eqs. 1 and 2) results in lower AWQC.

Id. at 17. EPA provided the following additional explanation:

> EPA selected a CSF of 1.22×10^{-1} per mg/kg-d (0.122 per mg/kg-d) for 1,3-dichloropropene based on a 1998 EPA OPP RED (USEPA 1998). EPA OPP derived the CSF using a principal study by the National Toxicology Program (NTP 1985) based on development of urinary bladder tumors in mice orally exposed to 1,3-dichloropropene (USEPA 1998).

Id. at 12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency factor (CPF) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents."

The Environmental Management Commission has not considered a revision to the existing oral CPF value of 0.1 (kg-day)/mg for 1,3-Dichloropropylene since December 4, 2004 (more than 20 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral CPF value of 0.1 (kg-day)/mg for 1,3-Dichloropropylene in

Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to the EPA's recommended oral CPF value of 0.122 (kg-day)/mg after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 046: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: 1,3-Dichloropropene 542-75-6*, EPA 820-R-15-080 (June 2015).

Exhibit 047: Office of Prevention, Pesticides, and Toxic Substances, U.S. Environmental Protection Agency, *Reregistration Eligibility Decision (RED) for 2,3-Dichloropropene*, EPA 738-R-98-016 (Dec. 1998).

Exhibit 048: U.S. Public Health Service, U.S. Department of Health and Human Services, *Toxicology and Carcinogenesis Studies of Telone II (Technical-grade 1,3-Dichloropropene Containing 1.0% Epichlorohydrin as a Stabilizer) in F344/N Rats and B6C3F1 Mice (Gavage Studies)*, National Toxicology Program Technical Report Series No. 269 (May 1985).

Related Documents:

Exhibit 049: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment Summary for 1,3-Dichloropropene* (May 25, 2000).

Exhibit 050: *National Recommended Water Quality Criteria for the Protection of Human Health*, 68 Fed. Reg. 75507–75515 (December 31, 2003).

19. ***Arsenic (CAS No. 7440-38-2)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Cancer Potency Factor (CPF) for Arsenic (CAS No. 7440-38-2) of 1.75 (kg-day)/mg. This CPF, based on the cancer potency factor for Arsenic used by EPA in *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance*, 57 Fed. Reg. 60858 (December 22, 1992) (calculated by EPA from the unit risk factor of 5×10^{-5} per μg/L in drinking water published in the Integrated Risk Information System), was adopted by the Commission on July 20, 1994 (more than 30 years ago).

On January 13, 2025, EPA published a revised oral CPF for Arsenic in the Integrated Risk Information System based on *IRIS Toxicological Review of Inorganic Arsenic*, EPA/635/R-25/005Fc (Jan. 2025). This CPF value of 32 (kg-day)/mg is based on combining a CPF value of 17.6 (kg-day)/mg for bladder cancer derived from eleven studies with a CPF value of 21.3 (kg-day)/mg for lung cancer derived from six studies.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency factor (CPF) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents."

The Environmental Management Commission has not considered a revision to the existing oral CPF value of 1.75 (kg-day)/mg for Arsenic since July 20, 1994 (more than 30 years ago). This Petition asks the Commission to give fair consideration to revising the existing oral CPF value of 1.75 (kg-day)/mg for Arsenic in Ala. (ADEM) Admin. Code chap.

335-6-10, Appendix A to the oral CPF value of 32 (kg-day)/mg in the 2025 Integrated Risk Information System assessment of Arsenic.

Supporting Documents:

Exhibit 051: Center for Public Health and Environmental Assessment, U.S. Environmental Protection Agency, *IRIS Toxicological Review of Inorganic Arsenic - Executive Summary*, EPA/635/R-25/005Fc (January 2025).

Exhibit 052: Center for Public Health and Environmental Assessment, U.S. Environmental Protection Agency, *IRIS Toxicological Review of Inorganic Arsenic*, EPA/635/R-25/005Fa (January 2025).

Exhibit 053: Center for Public Health and Environmental Assessment, U.S. Environmental Protection Agency, *IRIS Toxicological Review of Inorganic Arsenic Supplemental Information*, EPA/635/R-25/005Fb (January 2025).

Exhibit 054: Argos, M et al., *Arsenic and lung disease mortality in Bangladeshi adults*, Epidemiology 25:536-543 (2014).

Exhibit 055: Baris, D et al., *Elevated Bladder Cancer in Northern New England: The Role of Drinking Water and Arsenic*, J. Natl. Cancer Inst. 108:A3 (2016).

Exhibit 056: Bates, MN et al., *Case-control study of bladder cancer and arsenic in drinking water*, Am. J. Epidemiol. 141:523-530 (1995).

Exhibit 057: Bates, MN et al., *Case-control study of bladder cancer and exposure to arsenic in Argentina*, Am. J. Epidemiol. 159:381-389 (2004).

Exhibit 058: Chang, CH et al., *Association between levels of urinary heavy metals and increased risk of urothelial carcinoma*, Int. J. Urol. 23:233-239 (2016).

Exhibit 059: Chen, CL et al., *Arsenic in drinking water and risk of urinary tract cancer: A follow-up study from northeastern Taiwan*, Cancer Epidemiol. Biomarkers Prev., 19:101-110 (2010).

Exhibit 060: Chen, CL et al., *Ingested arsenic, characteristics of well water consumption and risk of different histological types of lung cancer in northeastern Taiwan*, Environmental Research 110:455-462 (2010).

Exhibit 061: Dauphiné, DC et al., *Case-control study of arsenic in drinking water and lung cancer in California and Nevada*, Int. J. Environ. Res. Public Health 10:3310-3324 (2013).

Exhibit 062: Ferreccio, C et al., *Lung cancer and arsenic concentrations in drinking water in Chile*, Epidemiology 11:673-679 (2000).

Exhibit 063: García-Esquinas, E et al., *Arsenic exposure and cancer mortality in a US-based prospective cohort: The strong heart study*, Cancer Epidemiol. Biomarkers Prev. 22: 1944-1953 (2013).

Exhibit 064: Karagas, MR et al., *Incidence of transitional cell carcinoma of the bladder and arsenic exposure in*

New Hampshire, Cancer Causes Control 15:465-472 (2004).

Exhibit 065: Meliker, J. R. et al. (2010). *Lifetime exposure to arsenic in drinking water and bladder cancer: A population-based case-control study in Michigan, USA*. Cancer Causes Control 21:745-757 (2010).

Exhibit 066: Michaud, DS et al., *Arsenic concentrations in prediagnostic toenails and the risk of bladder cancer in a cohort study of male smokers*, Am. J. Epidemiol. 160: 853-859 (2004).

Exhibit 067: Steinmaus, CM et al., *Case-control study of bladder cancer and drinking water arsenic in the western United States*, Am. J. Epidemiol. 158:1193-1201 (2003).

Exhibit 068: Steinmaus, CM et al., *Drinking water arsenic in northern Chile: High cancer risks 40 years after exposure cessation*, Cancer Epidemiol. Biomarkers Prev. 22:623-630. (2013).

Exhibit 069: Wu, C, -C et al., *Polymorphism of inflammatory genes and arsenic methylation associated with urothelial carcinoma*, Toxicol. Appl. Pharmacol. 272:30-36 (2013).

Related Documents:

Exhibit 070: *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance*, 57 Fed. Reg. 60858, 60887 (December 22, 1992).

Exhibit 071: Risk Assessment Forum, U.S. Environmental Protection Agency, *Special Report on Ingested Inorganic Arsenic*, EPA/625/3-87/013 (July 1988).

Exhibit 072: Tseng W.P., H.M. Chu, S.W. How, J.M. Fong, C.S. Lin, and S. Yen., *Prevalence of skin cancer in an endemic area of chronic arsenicism in Taiwan*, J. Natl. Cancer Inst. 40(3):453-463 (1968).

Exhibit 073: Tseng W.P. *Effects and dose-response relationships of skin cancer and Blackfoot disease with arsenic*, Environ. Health Perspect. 19:109-119 (1977).

20. ***1,2,4-Trichlorobenzene (CAS No. 120-82-1)***

Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix A establishes an oral Reference Dose (RfD) for 1,2,4-Trichlorobenzene (CAS No. 120-82-1) of 0.01 mg/(kg-day). This RfD, based on an Integrated Risk Information System assessment published on May 1, 1992, was adopted by the Commission on December 3, 2004 (more than 20 years ago).

In June 2015 (more than 9 years ago), EPA published *Update of Human Health Ambient Water Quality Criteria: 1,2,4-Trichlorobenzene 120-82-1.* Therein, EPA recommended that an oral Cancer Potency Factor (CPF) of 0.029 per mg/kg-day (0.029 (kg-day)/mg) be used to develop water quality criteria for 1,2,4-Trichlorobenzene to protect human health based

on a 2009 EPA assessment of 1,2,4-Trichlorobenzene and a 1994 study of liver cancer in mice. EPA explained:

> EPA selected a CSF of 0.029 per mg/kg-d for 1,2,4-trichlorobenzene based on a 2009 EPA OSWER PPRTV (USEPA 2009a). EPA used the CSF of 0.029 per mg/kg-d to derive AWQC for carcinogenic effects. EPA did not derive AWQC for carcinogenic effects of 1,2,4-trichlorobenzene in its previous criteria update (USEPA 2003b).

Id. at 19. EPA provided the following additional explanation:

> EPA selected a CSF of 2.9×10^{-2} per mg/kg-d (0.029 per mg/kg-d) for 1,2,4-trichlorobenzene based on a 2009 EPA OSWER PPRTV (USEPA 2009a). EPA OSWER derived the provisional CSF using a principal study by Chemical Manufacturers Association (CMA) (Moore 1994) based on an increase in hepatocellular carcinoma in male mice orally exposed to 1,2,4-trichlorobenzene. EPA OSWER obtained a point of departure (POD) for a quantitative assessment of cancer risk using dose-response modeling of the data. The lower-bound confidence limit on the benchmark dose (BMDL10[HED]) for liver tumors in male mice (3.50 mg/kg-day) was selected as the POD. The provisional CSF was calculated by dividing 0.1 (10 percent) by the BMDL10[HED] of 3.50 mg/kg-day (USEPA 2009a).

Id. at 12.

Ala. (ADEM) Admin. Code r. 335-6-10-.07(1)(d)2.(iii) provides that "[t]he values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated

Risk Information System (IRIS) . . . except where other values are established pursuant to subparagraph (1)(g)." Subparagraph (1)(g) provides that "[n]umeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the . . . cancer potency factor (CPF) . . . determined by the Department in consultation with the Alabama Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents."

The Environmental Management Commission has not considered a replacement of the existing oral RfD value of 0.01 mg/(kg-day) for 1,2,4-Trichlorobenzene since December 3, 2004 (more than 20 years ago). This Petition asks the Commission to give fair consideration to replacing the existing oral RfD value of 0.1 mg/(kg-day) for 1,2,4-Trichlorobenzene in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A with an oral CPF value of 0.029 (kg-day)/mg after consultation with the Alabama Department of Public Health.

Supporting Documents:

Exhibit 074: Office of Water/Office of Science and Technology, U.S. Environmental Protection Agency, *Update of Human Health Ambient Water Quality Criteria: 1,2,4-Trichlorobenzene 120-82-1*, EPA 820-R-15-072 (June 2015).

Exhibit 075: U.S. Environmental Protection Agency, *Provisional Peer - Reviewed Toxicity Values for 1,2,4-Trichlorobenzene* (June 16, 2009).

Exhibit 076: Moore, M., *Final report, 104-week dietary carcinogenicity study with 1,2,4-trichlorobenzene in mice,* with cover letter dated July 8, 1994 from L. Spurlock, Vice President of CHEMSTAR submitted to the U.S. Environmental Protection Agency (June 15, 1994).

Related Documents:

Exhibit 077: National Center for Environmental Assessment, U.S. Environmental Protection Agency, *Integrated Risk Information System Chemical Assessment Summary: 1,2,4-Trichlorobenzene* (September 28, 2011).

VI. OTHER FACTORS FOR CONSIDERATION

21. There are no constitutional impediments to the adoption of the proposed amendments to Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A. The Department is authorized to adopt the proposed

amendments to Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A by the following statutory provisions:

Code of Alabama 1975, § 22-22-9(f)

> It shall be the duty of the commission, after notice as provided in this subsection and after consideration of the purpose of this chapter, to establish such standards of quality for any waters in relation to their reasonable and necessary use as shall be in the public interest, recognizing that, because of variable factors and varied use of waters, no single standard of treatment and no single standard of quality are practical and that the degree of treatment of pollutants and other wastes must take into account the present and future uses, and such general policies relating to existing or proposed future pollution as it shall deem necessary to accomplish the purposes of this chapter and to modify, amend or cancel the same. * * *

Code of Alabama 1975, § 22-22-9(h)

> It shall be the duty of the commission, and it shall have the authority, to adopt rules and regulations to carry out the provisions of this chapter and to accomplish the purpose of this chapter.

Code of Alabama 1975, § 22-22A-8(a)

> All rules, regulations or standards shall be adopted by and promulgated by the Environmental Management Commission. * * *

22. The proposed amendments will promote the express legislative intent and purposes of the Alabama Water Pollution Control Act

(AWPCA). The legislative intent and purposes of the AWPCA are "to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses." *Code of Alabama 1975*, § 22-22-2.

23. This petition is supported by such substantive, credible and relevant evidence, data and information as would reasonably support the proposed amendments to Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A. That evidence, data and information is identified in paragraphs 9 through 20 hereof and **Exhibits 001** through **077** included herewith.

24. The Water Quality Act of 1987, Pub. L. No. 100-4, § 308(d), 101 Stat. 39 (1987), significantly amended the Clean Water Act with respect to the regulation of toxic pollutants. Congress had become dissatisfied with the piecemeal, slow progress being made by States in setting water quality standards for toxics. Congress reacted by legislating new requirements and deadlines directing the States to establish criteria for toxic pollutants, especially for those priority toxic pollutants that could

reasonably be expected to interfere with the designated uses of waters. *See Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants; States' compliance – Final Rule*, 57 Fed. Reg. 60848, 60856 (Dec. 22, 1992). In § 308(d) of the Water Quality Act of 1987 (now codified at 33 U.S.C. § 1313(c)(2)(B)), Congress amended the Clean Water Act and mandated:

> Whenever a State *reviews water quality standards* pursuant to paragraph (1) of this subsection,[3] *or revises or adopts new standards* pursuant to this paragraph, such State shall adopt criteria for all toxic pollutants listed pursuant to section 307(a)(1) of this Act for which criteria have been published under section 304(a), the discharge or presence of which in the affected waters could reasonably be expected to interfere with those designated uses adopted by the State, as necessary to support such designated uses.

(Emphasis added). Thus, Congress expressly required that States adopt new or revised toxic pollutant criteria necessary to protect the designated uses of waters whenever the State conducts a triennial review of water quality standards *and* whenever the State adopts new or revised water quality standards. This mandate requires that states undertake a review

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[3] These reviews of water quality standards are required every three years and are known as "triennial reviews." 33 U.S.C. § 1313(c)(1); 40 C.F.R. § 131.20(a).

of all available information and data to determine whether the discharge or the presence of a toxic pollutant is interfering or is likely to interfere with the attainment of the designated uses of any water body. "If a State is unsure whether a toxic pollutant is interfering with, or is likely to interfere with the designated use and therefore is unsure that control of the pollutant is necessary to support the designated use, the State should undertake to develop sufficient information upon which to make such a determination." *Memorandum from Rebecca W. Hanmer, Acting Assistant Administrator for Water, to Water Management Division Directors, EPA Regions I-X, and Directors, State Water Pollution Control Agencies, Transmittal of Final "Guidance for State Implementation of Water Quality Standards for CWA Section 303(c)(2)(B)*" (Dec. 12, 1988) at 3. A State's failure to complete the timely review and adoption of appropriate standards required by 33 U.S.C. § 1313(c)(2)(B), constitutes a failure "to meet the requirements of the Act" and is a sufficient basis for the Administrator of EPA to make a determination under 33 U.S.C. § 1313(c)(4)(B) that new or revised water quality criteria are necessary to ensure that designated uses are adequately protected. *Water Quality*

Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance – Final Rule, 57 Fed. Reg. 60848, 60857 (Dec. 22, 1992); *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California – Final rule*, 65 Fed. Reg. 31682, 31687 (May 18, 2000).

25. Since November 25, 2008, the Department has conducted five triennial reviews of water quality standards: 2009-2011 (hearing date June 29, 2009); 2012-2014 (hearing date July 19, 2012); 2015-2017 (hearing date July 16, 2015); 2018-2020 (hearing date July 26, 2018); and 2021-2023 (hearing date August 19, 2021). **Exhibit 078**.

26. On May 29, 2015, the Department announced the scheduling of a public hearing to be held on July 16, 2015 to provide the public an opportunity to comment on water quality standards for Alabama waters, including Ala. (ADEM) Admin. Code chapter 335-6-10, Water Quality Criteria. **Exhibit 079**. This hearing commenced the 2015-2017 triennial review of Alabama's water quality standards required by Clean Water Act § 303(c)(1), 33 U.S.C. § 1313(c)(1), and 40 C.F.R. § 131.20(a). On July 16, 2015, the Environmental Defense Alliance and Coosa Riverkeeper, Inc.

submitted written comments to the Department urging it to adopt new and revised water quality criteria for toxic pollutants. *Letter from David A. Ludder, Attorney, Environmental Defense Alliance, to ADEM Hearing Officer and AEMC* (July 16, 2015), **Exhibit 080**; *Letter from Justin Overton, Executive Director, and Frank Chitwood, Riverkeeper, Coosa Riverkeeper, Inc., to AEMC and ADEM Hearing Officer* (July 16, 2015). **Exhibit 081**. These comments included a recommendation that the Commission amend Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A to reflect the RfD values and CPF values recommended by EPA in 2015. On November 23, 2015, the Department stated, "As part of Alabama's 2015-2017 Triennial Review cycle, the Department will review EPA's Final Updated Water Quality Criteria for the Protection of Human Health and propose changes to our WQ Standards regulations as appropriate." *Electronic mail message from Chris L. Johnson, Chief, Water Quality Branch, ADEM, to David A. Ludder* (Nov. 23, 2015). **Exhibit 082**. The Department responded to the 2015-2017 triennial review comments on May 23, 2016, stating that it "will review EPA's Final Updated Ambient Water Quality Criteria for the Protection of Human Health and propose

changes as appropriate." *Letter from Chris L. Johnson, Chief, Water Quality Branch, ADEM, to David A. Ludder* (May 23, 2016), at 10. **Exhibit 083**. The Department did not propose, and the Commission did not adopt, new or revised water quality criteria for priority toxic pollutants after the conclusion of the 2015-2017 triennial review of Alabama's water quality standards.

27. On June 10, 2018, the Department announced the scheduling of a public hearing to be held on July 26, 2018 to provide the public an opportunity to comment on water quality standards for Alabama waters, including Ala. (ADEM) Admin. Code chapter 335-6-10, Water Quality Criteria. **Exhibit 084**. This hearing commenced the 2018-2020 triennial review of Alabama's water quality standards required by Clean Water Act § 303(c)(1), 33 U.S.C. § 1313(c)(1), and 40 C.F.R. § 131.20(a). On July 23 and 26, 2018, the Environmental Defense Alliance, Alabama Rivers Alliance, Inc., Friends of the Locust Fork River, Cahaba Riverkeeper, Inc., Friends of Hurricane Creek, Choctawhatchee Riverkeeper, Inc., Black Warrior Riverkeeper, Inc., Coosa Riverkeeper, Inc., Cahaba River Society, Inc., and Sierra Club submitted written comments to the Department

urging it to adopt new and revised water quality criteria for toxic pollutants incorporating the toxicity values recommended by the U.S. Environmental Protection Agency in 2015. *Letter from David A. Ludder, Attorney, Environmental Defense Alliance, to ADEM Hearing Officer* (July 23, 2018), **Exhibit 085**; *Letter from Nelson Brooke, Riverkeeper, John Kinney, Staff Scientist, and Eva Dillard, Staff Attorney, Black Warrior Riverkeeper, Inc.* (July 26, 2018). **Exhibit 086**. The Department responded on September 9, 2019 that it "will continue to review and evaluate all data and information . . . pertaining to the development of national recommended human health and aquatic life criteria during its 2018-2020 triennial review period." *Letter from Chris L. Johnson, Chief, Water Quality Branch, ADEM, to David A. Ludder* (Sept. 9, 2019), at 4. **Exhibit 087**. The Department did not propose, and the Commission did not adopt, new or revised water quality criteria for priority toxic pollutants after the conclusion of the 2018-2020 triennial review of Alabama's water quality standards.

28. On July 2, 2021, the Department announced the scheduling of a public hearing to be held on August 19, 2021 to provide the public an

opportunity to comment on water quality standards for Alabama waters, including Ala. (ADEM) Admin. Code chapter 335-6-10, Water Quality Criteria. **Exhibit 088**. This hearing commenced the 2021-2023 triennial review of Alabama's water quality standards required by Clean Water Act § 303(c)(1), 33 U.S.C. § 1313(c)(1), and 40 C.F.R. § 131.20(a). On August 18, 2021, the Environmental Defense Alliance submitted written comments to the Commission and Hearing Officer urging the adoption of new and revised water quality criteria for toxic pollutants. *Letter from David A. Ludder, Attorney, Environmental Defense Alliance, to Environmental Management Commission and ADEM Hearing Officer* (Aug. 18, 2021). **Exhibit 089**. These comments addressed the need to update RfD values and CPF values for a number of toxic pollutants and included a table entitled *Comparison of EPA and Alabama Human Health Ambient Water Quality Criteria and Derivation Inputs* which identifies EPA and Department RfD values and CPF values. **Exhibit 090**. Additional comments were submitted by Alabama Rivers Alliance, Inc. (Aug. 18, 2021), **Exhibit 091**; Coosa Riverkeeper, Inc. (Aug. 18, 2021), **Exhibit 092**; Cahaba River Society, Inc. (Aug. 19, 2021), **Exhibit 093**;

Black Warrior Riverkeeper, Inc. (Aug. 19, 2021), **Exhibit 094**; Mobile Baykeeper (Aug. 19, 2021), **Exhibit 095**; and Waterkeepers Alabama (Aug. 19, 2021), **Exhibit 096**. The Department responded on August 17, 2022 that it "will continue to review and evaluate all data and information and collaborate with EPA and other stakeholders pertaining to the development of national recommended human health and aquatic life criteria during its 2021-2023 triennial review period." *Letter from Jennifer M. Haslbauer, Chief, Standards and Planning Section, Water Quality Branch, Water Division, ADEM* (Aug. 17, 2022). **Exhibit 097**. The Department did not propose, and the Commission did not adopt, new or revised water quality criteria for priority toxic pollutants after the conclusion of the 2021-2023 triennial review of Alabama's water quality standards.

29. During the five triennial reviews of Alabama's water quality standards since November 25, 2008, the Department failed to complete a review water quality criteria for toxic pollutants and the Commission failed to adopt new or revised water quality criteria for toxic pollutants as required by Clean Water Act § 303(c)(2)(B), 33 U.S.C. § 1313(c)(2)(B),

despite the development of new and improved information and science on the toxicity of toxic pollutants (RfD values and CPF values). *See, e.g.*, *Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)*, 65 Fed. Reg. 66444 (Nov. 3, 2000); *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004, Oct. 2000); *Final Updated Ambient Water Quality Criteria for the Protection of Human Health*, 80 Fed. Reg. 36986 (June 29, 2015); *Human Health Ambient Water Quality Criteria: 2015 Update* (EPA 820-F-15-001, June 2015). Accordingly, the Department and Commission have failed "to meet the requirements of the [Clean Water] Act."

30. On July 3, 2024, the Department announced the scheduling of yet another public hearing to be held on August 21, 2024 to provide the public an opportunity to comment on water quality standards for Alabama waters, including Ala. (ADEM) Admin. Code chapter 335-6-10, Water Quality Criteria. **Exhibit 098**. This hearing commenced the 2024-2026 triennial review of Alabama's water quality standards required by Clean Water Act § 303(c)(1), 33 U.S.C. § 1313(c)(1), and 40 C.F.R. § 131.20(a).

On August 21, 2024, the Environmental Defense Alliance submitted written comments to the Commission and Hearing Officer urging the adoption of new and revised water quality criteria for toxic pollutants. *Letter from David A. Ludder, Attorney, Environmental Defense Alliance, to Environmental Management Commission and ADEM Hearing Officer* (Aug. 21, 2024). **Exhibit 099**. Enclosed with the comments is a 15-page *Rationale for Recommended Revisions to ADEM Water Quality Criteria for Priority Toxic Pollutants to Protect Human Health*. This rationale recommended "that the cancer potency factors (CPFs) and reference doses (RfDs) in Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A, be revised to conform to the cancer potency factors (CPFs) and reference doses (RfDs) determined by EPA." Neither the Department nor Commission have provided any assurances that the Department will propose, or the Commission will adopt, new or revised water quality criteria for priority toxic pollutants after the conclusion of the 2024-2026 triennial review of Alabama's water quality standards.

31. Since November 25, 2008, the Department has adopted new or revised water quality standards on at least seven occasions: January 19,

2010 (335-6-11-.02 Use Classifications); January 18, 2011 (335-6-10-.11 Water Quality Criteria Applicable to Specific Lakes; 335-6-10-.12 Implementation of the Antigradation Policy; 335-6-11-.02 Use Classifications); May 23, 2011 (335-6-10-.09 Specific Water Quality Criteria; 335-6-11-.02 Use Classifications); November 27, 2012 (335-6-11-.02 Use Classifications); April 1, 2014 (335-6-10-.07 Toxic Pollutant Criteria Applicable to State Waters; 335-6-10-.11 Water Quality Criteria Applicable to Specific Lakes; 335-6-11-.01 The Use Classification System; 335-6-11-.02 Use Classifications); February 3, 2017 (335-6-10-.02 Definitions; 335-6-10-.05 General Conditions Applicable to All State Waters; 335-6-10-.11 Water Quality Criteria Applicable to Specific Lakes; 335-6-10-.12 Implementation of the Antidegradation Policy; August 20, 2019 (335-6-11-.02 Use Classifications); and April 11, 2025 (335-6-10-.02 Definitions; 335-6-10-.05 (General Conditions Applicable to All Water Quality Criteria); 335-6-10-.07 (Toxic Pollutant Criteria Applicable to State Waters); 335-6-10-.09 (Specific Water Quality Criteria); 335-6-10-.11 (Water Quality Criteria Applicable to Specific Lakes); 335-6-11-.02 (Use Classifications). **Exhibit 100** and **Exhibit 101**.

32. During each of these adoptions of new or revised water quality standards, the Department failed to review, and the Commission failed to adopt, water quality criteria for toxic pollutants as required by Clean Water Act § 303(c)(2)(B), 33 U.S.C. § 1313(c)(2)(B), despite the development of new information and science on the toxicity of toxic pollutants (RfD values and CPF values). *See Revisions to the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)*, 65 Fed. Reg. 66444 (Nov. 3, 2000); *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004, Oct. 2000); *Final Updated Ambient Water Quality Criteria for the Protection of Human Health*, 80 Fed. Reg. 36986 (June 29, 2015); *Human Health Ambient Water Quality Criteria: 2015 Update* (EPA 820-F-15-001, June 2015). Accordingly, the Department has failed "to meet the requirements of the [Clean Water] Act."

33. On October 18, 2016, the Environmental Defense Alliance, Alabama Rivers Alliance, Inc., Black Warrior Riverkeeper, Inc., Cahaba River Society, Inc., Cahaba Riverkeeper, Inc., Choctawhatchee Riverkeeper, Inc., Coosa Riverkeeper, Inc., Friends of the Little Cahaba

River, Inc., and GASP petitioned the Environmental Management Commission to adopt new or revised water quality criteria for toxic pollutants that take into account the RfD values and CPF values recommended by EPA in 2015. *Letter from David A. Ludder, Attorney for Petitioners, enclosing Petition for Rulemaking to Amend ADEM Administrative Code Rule 335-6-10-.07 Water Quality Criteria for Toxic Pollutants, EMC Rulemaking Petition 17-02* (Oct. 18, 2016). **Exhibit 102**. The Director of the Department advised the Commission that the Department will consider the issues raised in the Petition in the context of the triennial review." *Memorandum from Lance R. LeFleur, Director of ADEM, to H. Lanier Brown, II, Chairman, EMC Rulemaking Committee* (Nov. 30, 2016), at 4. **Exhibit 103**. The Director further advised the Commission that "the Department has until 2019 to adopt new or revised criteria for which EPA has published new or updated recommendations, or provide an explanation when it submits the results of its triennial review to the Regional Administrator if nothing is adopted." *Id.*, at 3. On December 16, 2016, the Commission denied the petition because "the issues raised in the Petition will be considered in the context of ADEM's

triennial review of the State's water quality standards; . . .." *Order, In re Petition for Rulemaking to Amend ADEM Administrative Code Rule 335-6-10-.07 Water Quality Criteria for Toxic Pollutants, EMC Rulemaking Petition 17-02* (Dec. 16, 2016). **Exhibit 104**. The Department did not propose, and the Commission did not adopt, new or revised water quality criteria for priority toxic pollutants before, during, or after 2019.

34. The Petitioners have endeavored to secure adoption of amendments to the RfD values and CPF values in Ala. (ADEM) Admin. Code chap. 335-6-10 – Appendix A on multiple occasions since July 2015. Each time, the Commission or Department has rejected those efforts on the basis that rule-making would be undertaken during a triennial review of water quality standards. More than nine years after the EPA's publication of revised recommended human health water quality criteria for 94 pollutants, *Final Updated Ambient Water Quality Criteria for the Protection of Human Health – Notice of Availability*, 80 Fed. Reg. 36986 (June 29, 2015), the Department has not once announced that an ongoing

rulemaking effort to amend Ala. (ADEM) Admin. Code Chap. 335-6-10, Appendix has been initiated. **Exhibit 105**.

35. On November 1, 2017, EPA wrote the Department to recommend that it consider revisions to human health water quality criteria for toxic pollutants during the next (2018-2020) triennial review of water quality standards required by Clean Water Act § 303(c), 33 U.S.C. 1313(c), and 40 C.F.R. § 131.20, including "health toxicity values" recommended by EPA in June 2015. *Letter from Annie M. Godfrey, Chief, Water Quality Standards Section, EPA Region 4, to Chris Johnson, Chief, Water Quality Branch, ADEM* (Nov. 1, 2017). **Exhibit 106**. The Department failed to consider revisions to human health water quality criteria for toxic pollutants during the 2018-2020 triennial review.

36. The proposed amendments will promote the underlying policies of Alabama Water Pollution Control Act, i.e., "the public policy of this state and the purpose of this chapter to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, recreational and other legitimate

beneficial uses, *Code of Alabama 1975*, § 22-22-2; and to establish such standards of quality for any waters in relation to their reasonable and necessary use as shall be in the public interest, *Code of Alabama 1975*, § 22-22-9(f). The proposed amendments to Ala. (ADEM) Admin. Code chap. 335-6-10, Appendix A are consistent with the mission of the Commission and Department, i.e., to "[a]ssure for all citizens of the state a safe, healthful and productive environment." *See Alabama Environmental Management Commission and Alabama Department of Environmental Management – Unified Strategic Plan* (January 2024), **Exhibit 107**. The proposed amendments are also consistent with the identified value of "ensuring [that regulations, methods and actions] are based on objective, peer-reviewed scientific standards and that they provide protection and fair treatment for all citizens." *Id.*

VII. DISPOSITION OF PETITION

37. Ala. (ADEM) Admin. Code r. 335-2-2-.06 provides:

> Disposition of Petition. Within sixty days after a petition is filed with the Commission in accordance with Rule 335-2-2-.04, the Commission shall do one of the following, provided however, that upon written notice to the petitioner, such sixty day period may be extended for not more than thirty days if

the Commission's next regularly scheduled meeting is not within said sixty day period:

(a) initiate rule-making proceedings in accordance with Code of Alabama 1975, §§ 22-22A-8 and 41-22-5, as amended; or (b) deny the petition in writing on the merits stating the reasons therefor.

See also Code of Alabama 1975, § 41-22-8.

Respectfully submitted,

David A. Ludder
Attorney for Petitioners

Address and Phone:
Law Office of David A. Ludder, PLLC
9150 McDougal Ct.
Tallahassee, FL 32312-4208
Tel. (850) 386-5671

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO-CONCENTRATION FACTOR l/kg	RELATIVE SOURCE CONTRIBUTION
Acenaphthene	83329	0.06		242	1.0
Acrolein	107028	0.0005		215	1.0
Acrylonitrile	107131		0.54	30	
Aldrin	309002		17	4670	
Anthracene	120127	0.3		30	1.0
Antimony	7440360	0.0004		1	0.4
Arsenic	7440382		~~1.75~~ 32	44	
Benzene	71432		0.029	5.2	
Benzidine	92875		230	87.5	
Benzo(a)anthracene	56553		7.3	30	
Benzo(a)pyrene	50328		7.3	30	
Benzo(b)fluoranthene	205992		7.3	30	
Benzo(k)fluoranthene	207089		7.3	30	
Bis(2-chloroethyl)ether	111444		1.1	6.9	
Bis(2-chloroisopropyl)ether	108601	0.04		2.47	1.0
Bis(2-ethylhexyl)phthalate	117817		0.014	130	
Bromoform	75252		0.0079	3.75	
Butylbenzyl phthalate	85687	0.2		414	1.0
Carbon tetrachloride	56235		0.13	18.75	
Chlordane	57749		0.35	14100	
Chlorobenzene	108907	0.02		10.3	0.2
Chlorodibromomethane	124481		0.084	3.75	
Chloroform	67663		0.0061	3.75	

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO-CONCENTRATION FACTOR l/kg	RELATIVE SOURCE CONTRIBUTION
2-Chloronaphthalene	91587	0.08		202	1.0
2-Chlorophenol	95578	0.005		134	1.0
Chrysene	218019		7.3	30	
Cyanide	57125	~~0.02~~ **0.0006**		1	0.2
4,4'-DDD	72548		0.24	53600	
4,4'-DDE	72559		0.34	53600	
4,4'-DDT	50293		0.34	53600	
Dibenzo(a,h)anthracene	53703		7.3	30	
1,2-Dichlorobenzene	95501	0.09		55.6	0.2
1,3-Dichlorobenzene	541731	~~0.0134~~ **0.002**		55.6	1.0
1,4-Dichlorobenzene	106467	0.0134		55.6	0.2
3,3'-Dichlorobenzidine	91941		0.45	312	
Dichlorobromomethane	75274		0.062	3.75	
1,2-Dichloroethane	107062		0.091	1.2	
1,1-Dichloroethylene	75354	0.05		5.6	0.2
2,4-Dichlorophenol	120832	0.003		40.7	1.0
1,2-Dichloropropane	78875		0.067	4.1	
1,3-Dichloropropylene	542756		~~0.1~~ **0.122**	1.9	
Dieldrin	60571		16	4670	
Diethyl phthalate	84662	0.8		73	1.0
2,4 Dimethylphenol	105679	0.02		93.8	1.0
Dimethyl phthalate	131113	10		36	1.0
Di-n-butyl phthalate	84742	0.1		89	1.0

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO-CONCENTRATION FACTOR l/kg	RELATIVE SOURCE CONTRIBUTION
4,6-Dinitro-2-methylphenol	534521	~~0.00039~~ **0.0003**		5.5	1.0
2,4-Dinitrophenol	51285	0.002		1.5	1.0
2,4 Dinitrotoluene	121142		~~0.31~~ **0.677**	3.8	
Dioxin (2,3,7,8-TCDD)	1746016		17500	5000	
1,2-Diphenylhydrazine	122667		0.8	24.9	
Endosulfan (alpha)	959988	0.006		270	1.0
Endosulfan (beta)	33213659	0.006		270	1.0
Endosulfan sulfate	1031078	0.006		270	1.0
Endrin	72208	0.0003		3970	0.2
Endrin aldehyde	7421934	0.0003		3970	1.0
Ethylbenzene	100414	~~0.1~~ **0.022**		37.5	0.2
Fluoranthene	206440	0.04		1150	1.0
Fluorene	86737	0.04		30	1.0
Heptachlor	76448		4.5	11200	
Heptachlor epoxide	1024573		9.1	11200	
Hexachlorobenzene	118741		1.6	8690	
Hexachlorobutadiene	87683		0.078	2.78	
Hexachlorocyclohexane (alpha)	319846		6.3	130	
Hexachlorocyclohexane (beta)	319857		1.8	130	
Hexachlorocyclohexane (gamma)	58899	0.0003		130	0.2
Hexachlorocyclopentadiene	77474	0.006		4.34	0.2
Hexachloroethane	67721		~~0.014~~ **0.04**	86.9	
Indeno (1,2,3-cd) pyrene	193395		7.3	30	

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO-CONCENTRATION FACTOR l/kg	RELATIVE SOURCE CONTRIBUTION
Isophorone	78591		0.00095	4.38	
Mercury	7439976	0.0001		5500	1.0
Methyl bromide	74839	0.0014		3.75	1.0
Methylene chloride	75092		0.0075	0.9	
Nickel	7440020	0.02		47	1.0
Nitrobenzene	98953	0.0005		2.89	1.0
N-Nitrosodimethylamine	62759		51	0.026	
N-Nitrosodi-n-propylamine	621647		7	1.13	
N-Nitrosodiphenylamine	86306		0.0049	136	
PCB-1016 [1]	12674112		2.0	31200	
PCB-1221 [1]	11104282		2.0	31200	
PCB-1232 [1]	11141165		2.0	31200	
PCB-1242 [1]	53469219		2.0	31200	
PCB-1248 [1]	12672296		2.0	31200	
PCB-1254 [1]	11097691		2.0	31200	
PCB-1260 [1]	11096825		2.0	31200	
Pentachlorophenol	87865		~~0.12~~ **0.4**	11	
Phenol	108952	0.3		1.4	1.0
Pyrene	129000	0.03		30	1.0
Selenium	7782492	0.005		4.8	1.0
1,1,2,2-Tetrachloroethane	79345		0.2	5	
Tetrachloroethylene	127184		0.039776	30.6	
Thallium	7440280	0.000068		116	0.2

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO-CONCENTRATION FACTOR l/kg	RELATIVE SOURCE CONTRIBUTION
Toluene	108883	~~0.2~~ **0.0097**		10.7	0.2
Toxaphene	8001352		1.1	13100	
1,2-Trans-dichloroethylene	156605	0.02		1.58	0.2
1,2,4-Trichlorobenzene	120821	~~0.01~~	**0.029**	114	0.2
1,1,2-Trichloroethane	79005		0.057	4.5	
Trichloroethylene	79016		~~0.0126~~ **0.05**	10.6	
2,4,6-Trichlorophenol	88062		0.011	150	
Vinyl chloride	75014		1.4	1.17	
Zinc	7440666	0.3		47	1.0

[1] The criteria for Polychlorinated Biphenyls (PCBs) apply to total PCBs, which is defined as the sum of the seven particular Aroclors (1016, 1221, 1232, 1242, 1248, 1254, and 1260) listed in this table.

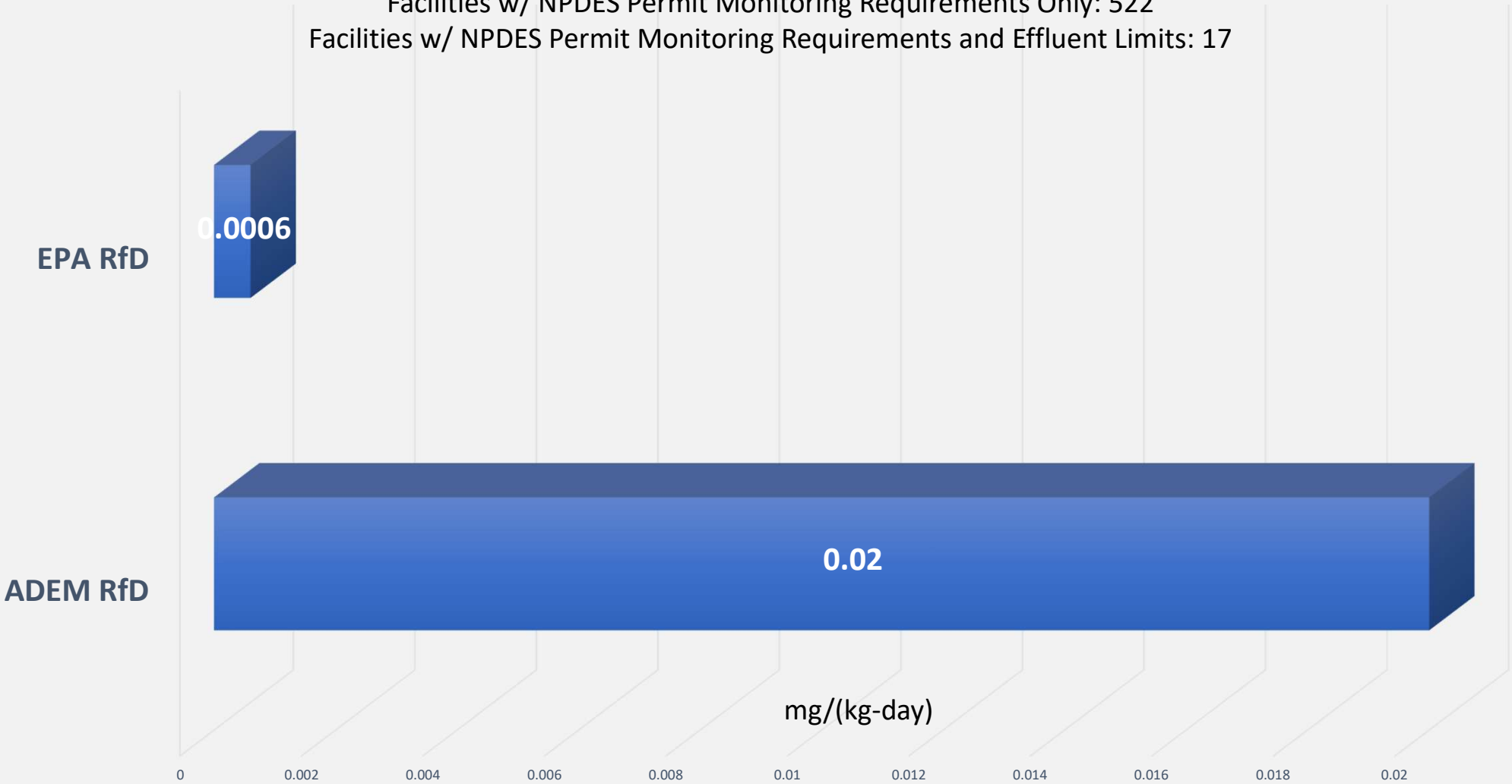
Attachment B

CHAP. 335-6-10
APPENDIX A

TWELVE TOXICITY REVISIONS NECESSARY TO PROTECT HUMAN HEALTH

Cyanide

Facilities w/ NPDES Permit Monitoring Requirements Only: 522
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 17



1,3-Dichlorobenzene

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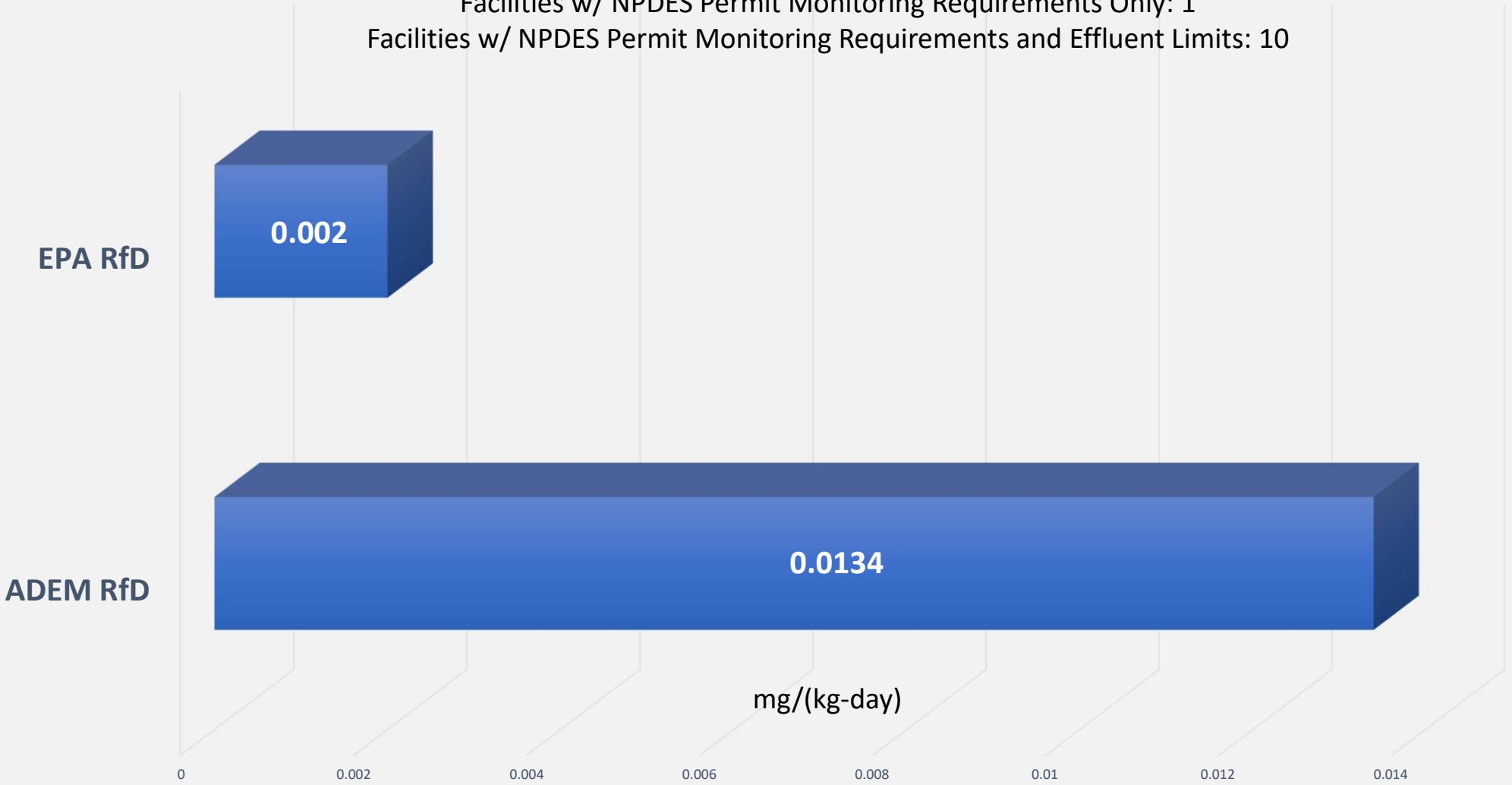
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 10



4,6-Dinitro-2-methylphenol

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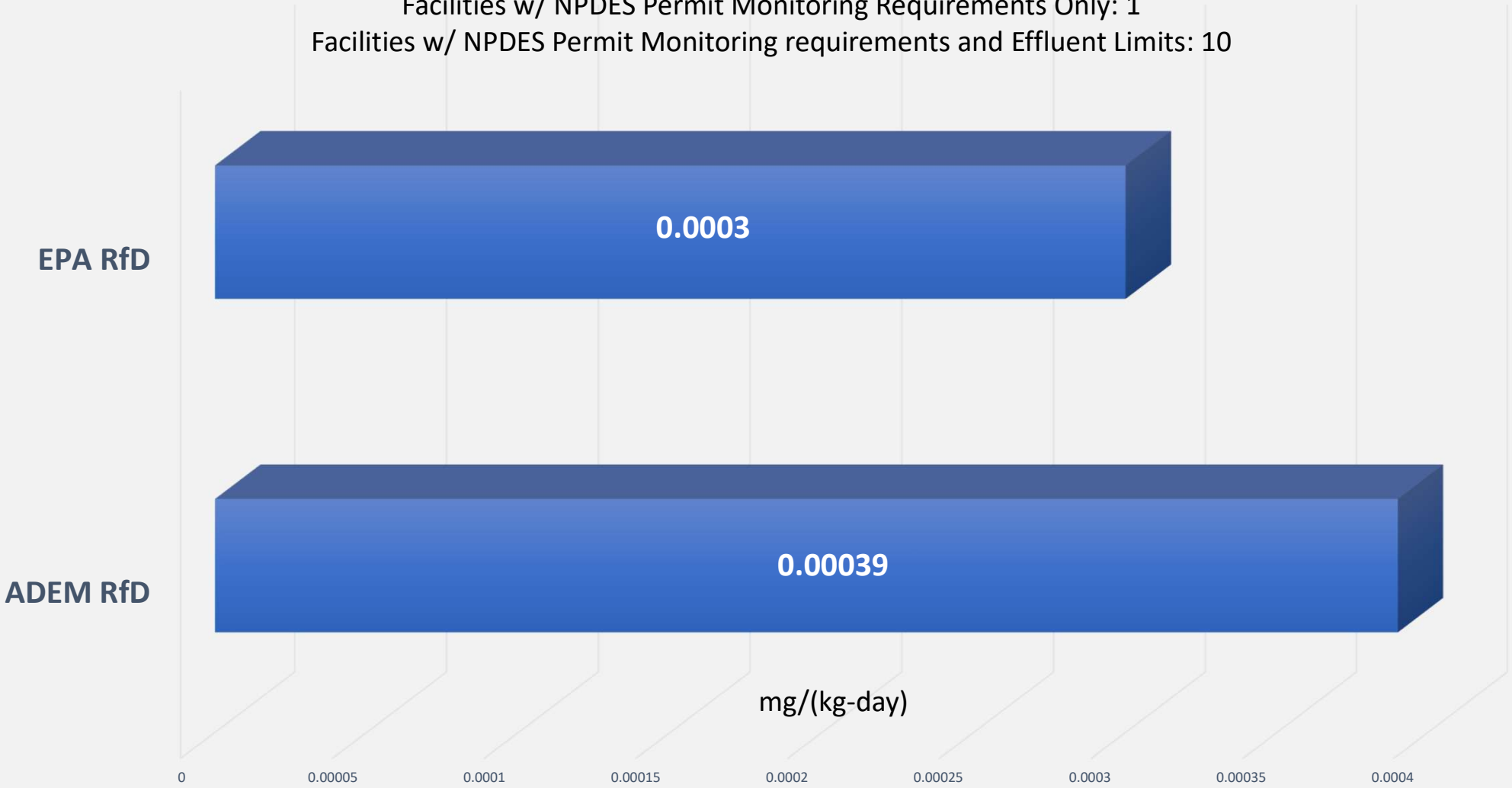
Facilities w/ NPDES Permit Monitoring requirements and Effluent Limits: 10



Ethylbenzene

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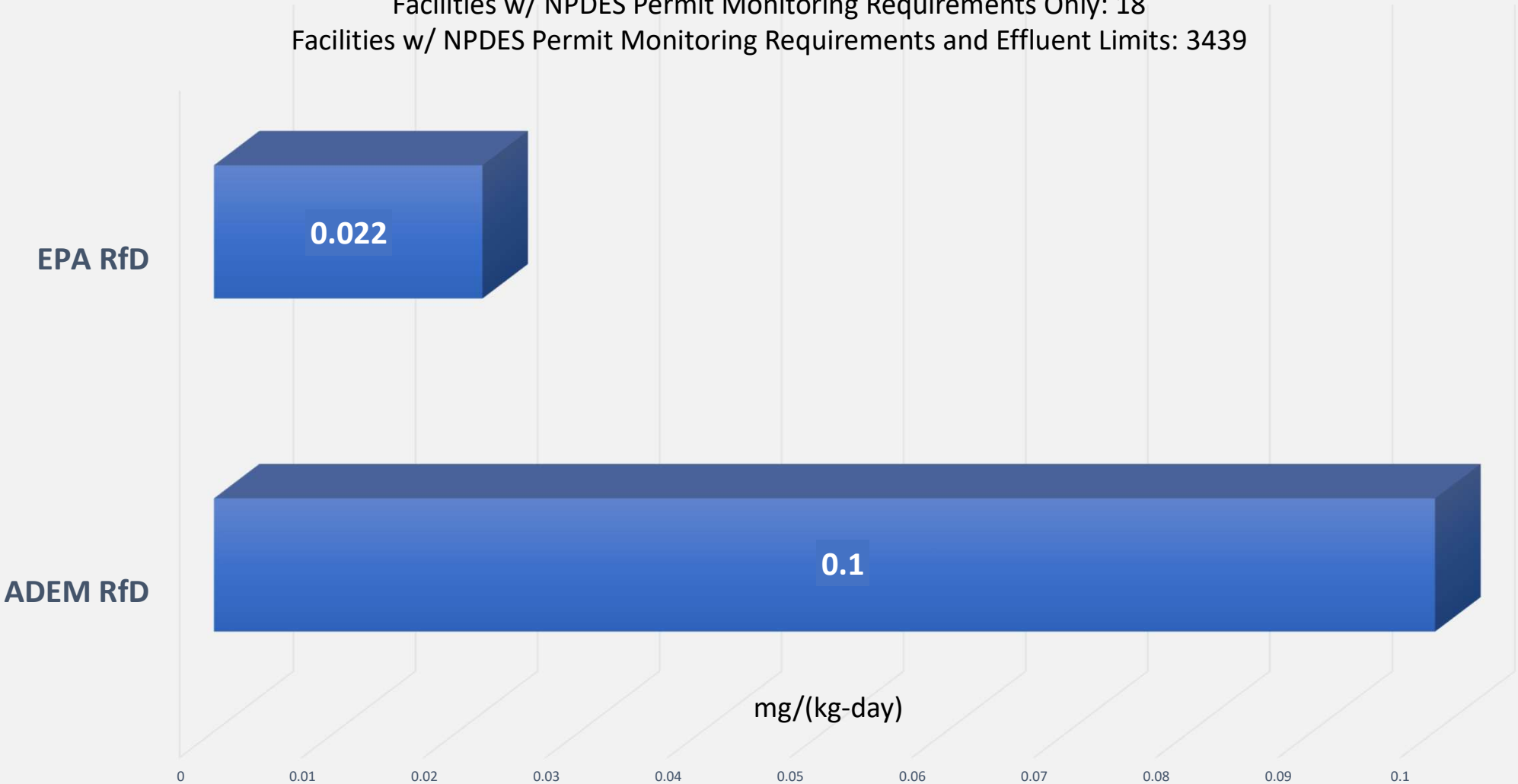
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 3439



Toluene

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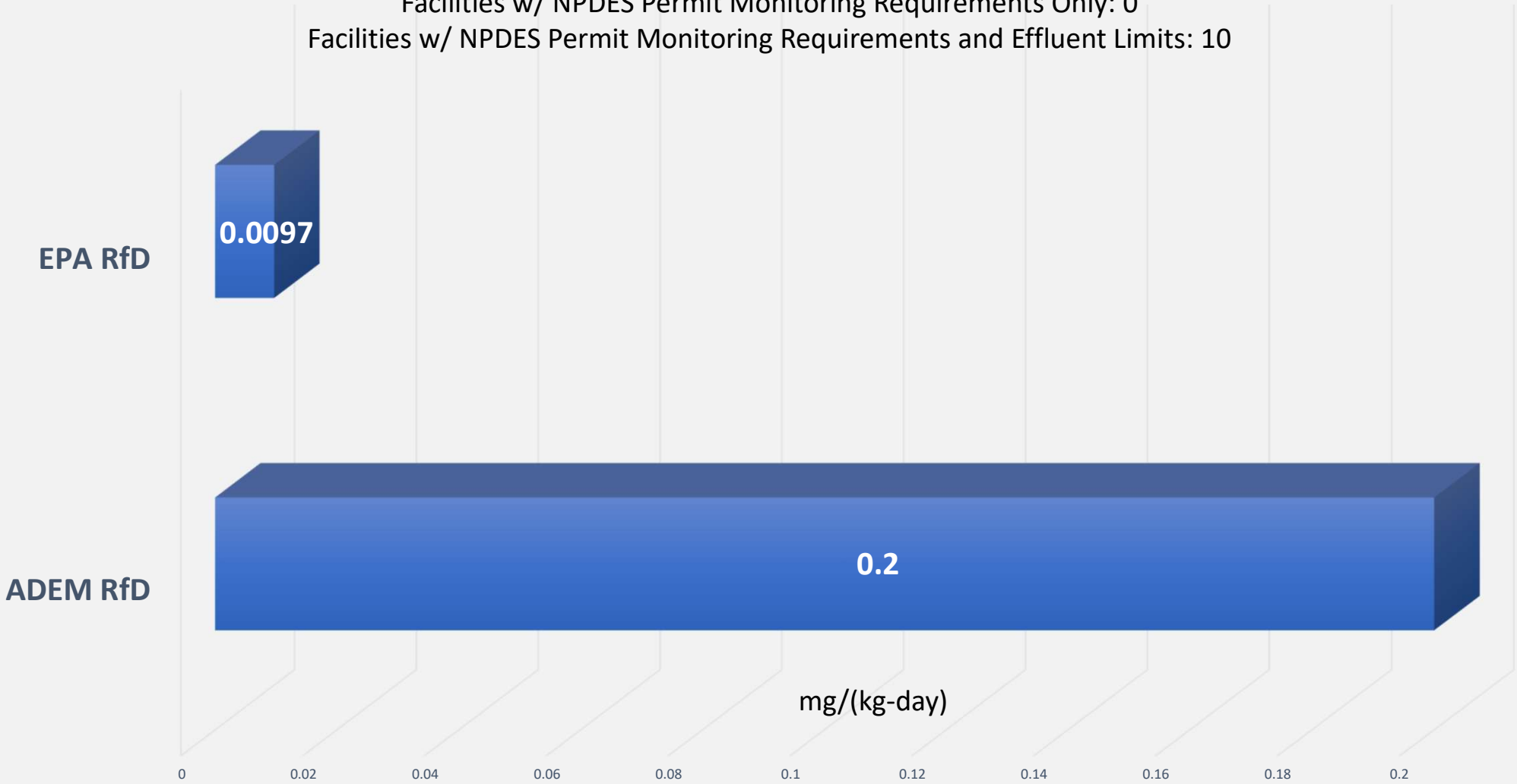
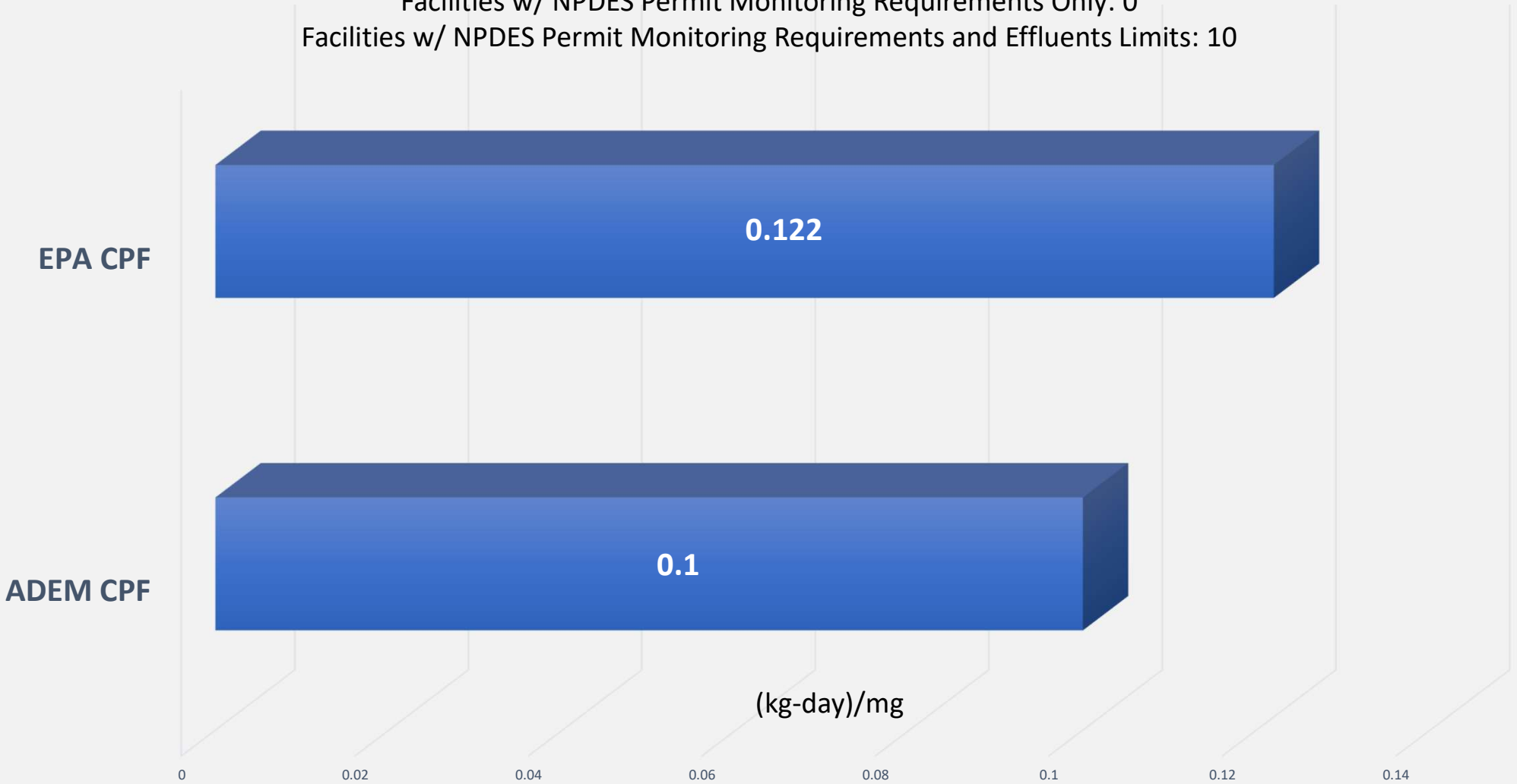
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 10



1,3-Dichloropropylene

Facilities w/ NPDES Permit Monitoring Requirements Only: 0

Facilities w/ NPDES Permit Monitoring Requirements and Effluents Limits: 10



2,4-Dinitrotoluene

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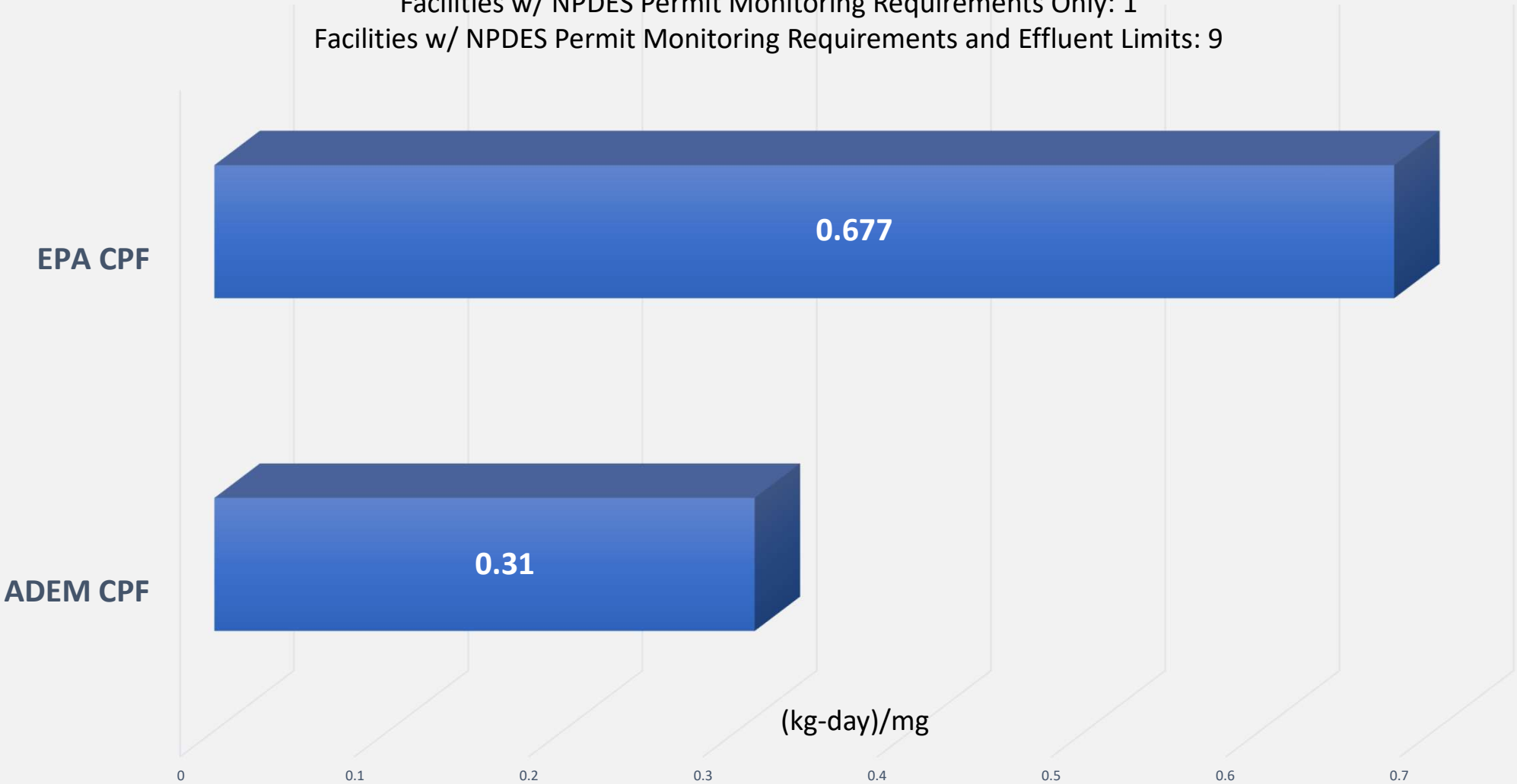
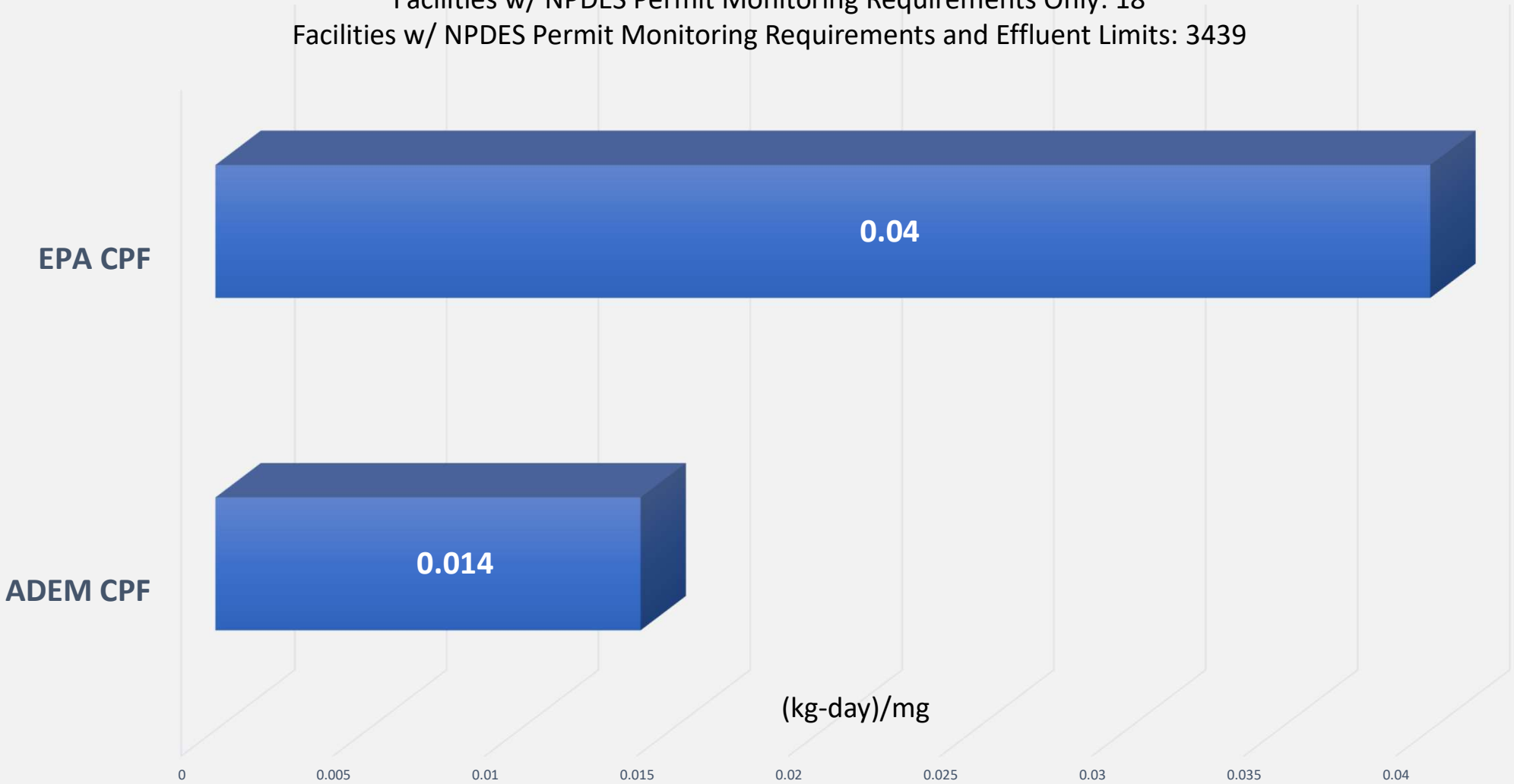
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 9



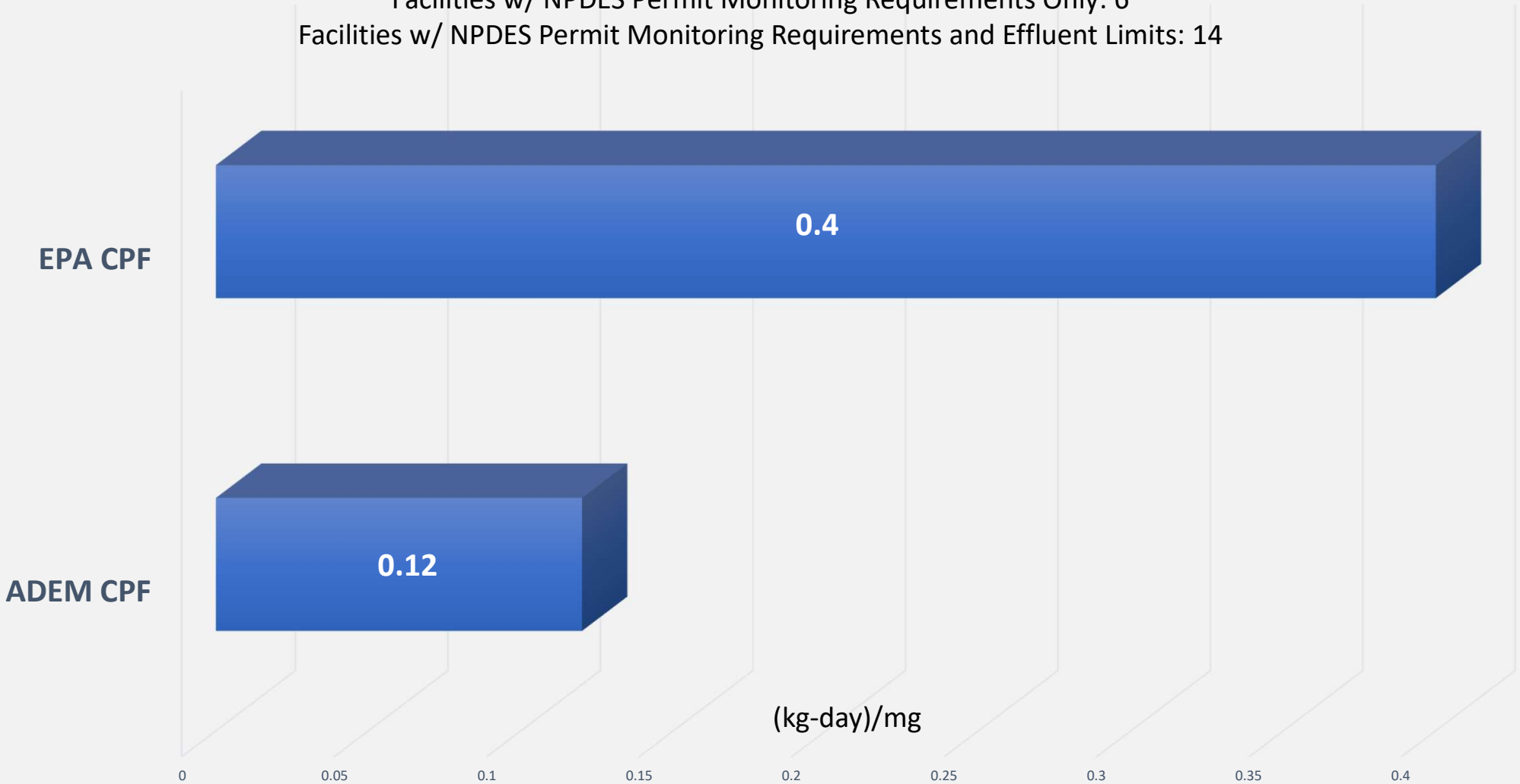
Hexachloroethane

Facilities w/ NPDES Permit Monitoring Requirements Only: 18
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 3439



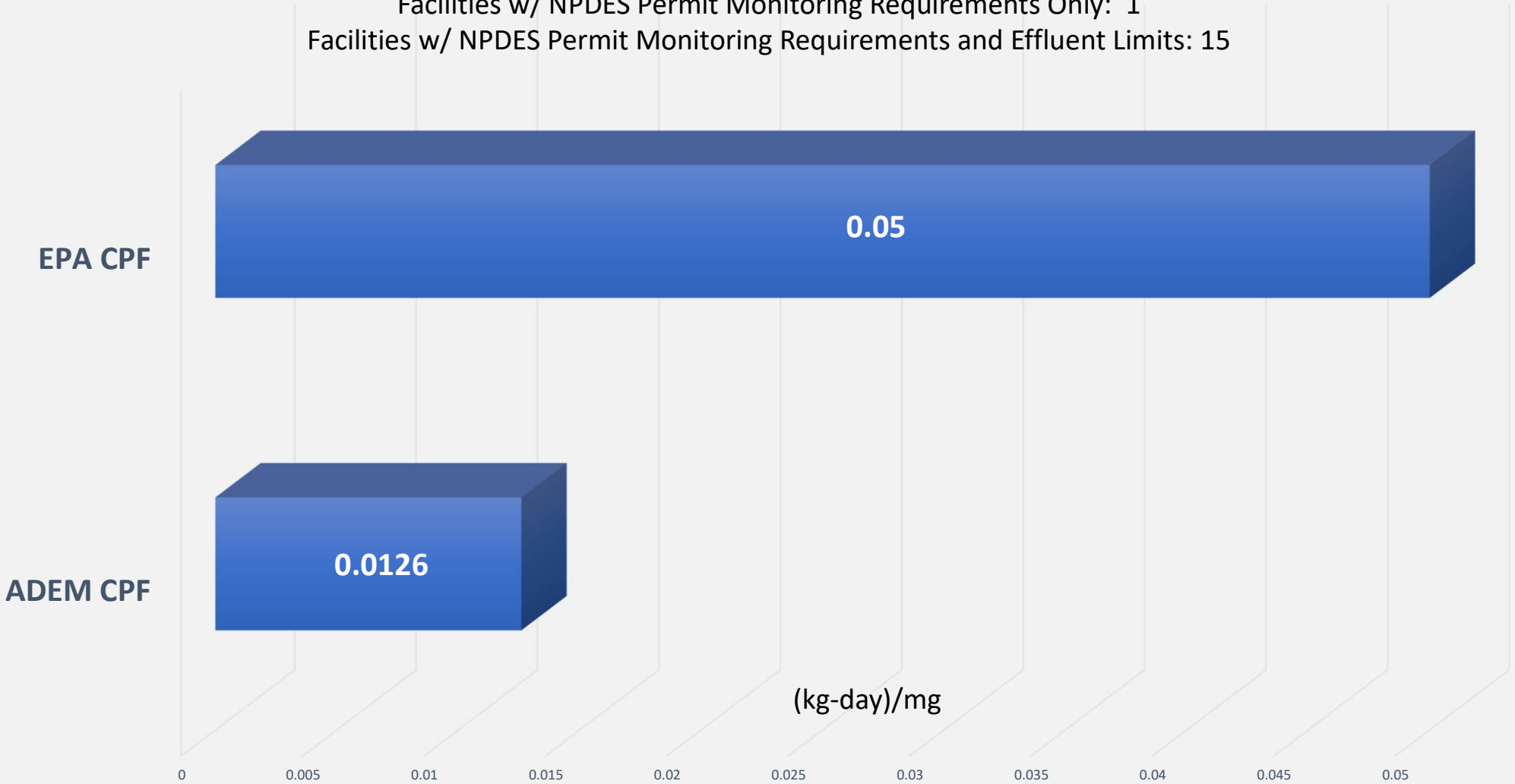
Pentachorophenol

Facilities w/ NPDES Permit Monitoring Requirements Only: 6
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 14



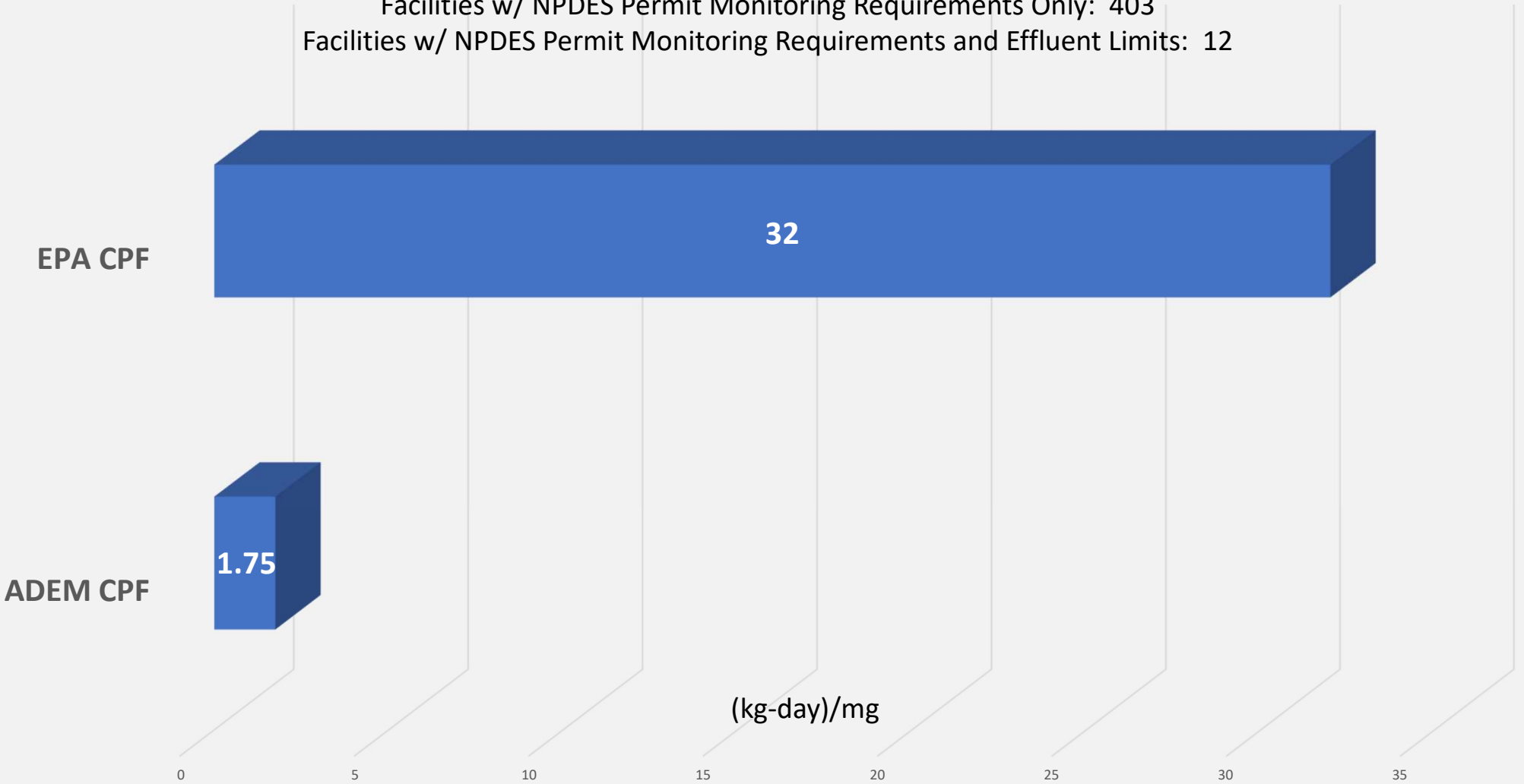
Trichloroethylene

Facilities w/ NPDES Permit Monitoring Requirements Only: 1
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 15



Arsenic

Facilities w/ NPDES Permit Monitoring Requirements Only: 403
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 12



1,2,4-Trichlorobenzene

Facilities w/ NPDES Permit Monitoring Requirements Only: 0
Facilities w/ NPDES Permit Monitoring Requirements and Effluent Limits: 10

EPA CPF = 0.029 (kg-day)/mg

ADEM RfD = 0.01 mg/(kg-day)

CERTIFICATE OF SERVICE

I certify that the original of the foregoing Petition was sent by U.S. Mail as certified, return receipt requested with instructions to the delivering postal employee to show to whom delivered, date of delivery, and address where delivered, to:

Chairman
Alabama Environmental Management Commission
c/o Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, Alabama 36130-1463

Done this 15th day of April, 2025.

David A. Ludder
Attorney for Petitioners