



STATE OF DELAWARE  
**DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL**

OFFICE OF THE  
SECRETARY

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DOVER, DELAWARE 19901

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**Secretary's Order No.: 2016-A-0045**

**RE: Approving Final Regulations to Amend 7 DE Admin. Code §1125:  
*Requirements for Preconstruction Review, specifically, to revise Table 1-1,  
"Global Warming Potentials"***

**Date of Issuance: November 15, 2016**

**Effective Date of the Amendment: December 11, 2016**

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") pursuant to 7 *Del.C.* §§6006, 6010, the following findings of fact based on the record, reasons and conclusions are entered as an Order of the Secretary in the above-referenced regulatory proceeding.

**Background, Procedural History and Findings of Fact**

This Order relates to proposed *revised* regulation Amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*. The Department's Division of Air Quality ("DAQ") commenced the regulatory development process with Start Action Notice 2016-12 dated July 25, 2016. The Department published its initial proposed regulation Amendments in the October 1, 2016 *Delaware Register of Regulations*. The Department then held a public hearing on October 25, 2016. Consistent with 29 *Del.C.* §10118(a), the public hearing record remained open for public comment through November 9, 2016.

*Delaware's Good Nature depends on you!*

The United States Environmental Protection Agency (“U.S. EPA”, “EPA”) has published two final rules to amend the greenhouse gas (“GHG”) reporting program. These federal rules revised the global warming potential of numerous compounds that currently appear in Table 1-1. The Department proposes to adopt the aforementioned Amendments in order for Delaware to mirror these federal requirements.

GHG is a regulated pollutant under the federal Clean Air Act, and is specifically regulated under the Prevention of Significant Deterioration of Air Quality (“PSD”) provisions of 7 DE Admin. Code §1125. The EPA has published two final rules to amend the GHG reporting program, which impact Table 1-1 of 7 DE Admin. Code §1125. The first rule, published on November 29, 2013, revised the global warming potential (“GWP”) values of 23 of the 32 compounds that appear in Table 1-1. The second rule, published on December 11, 2014, added 30 new compounds to the EPA list of GHG. In this present action, the Department proposes to revise Table 1-1 to update the GWP values, and to include the new GHG compounds as provided for in the two EPA rules referenced above.

It should be noted that the Department identified a typographical error in the initial proposed Amendments published by the *Delaware Register of Regulations* on October 1, 2016. In Table 1-1 of the October 1, 2016 version of these proposed Amendments, the chemical formula for PFC-1114, also known as tetrafluoroethylene, should have been listed as C<sub>2</sub>F<sub>4</sub>. This error was corrected prior to the public hearing of October 25, 2016, and the proposed *revised* regulatory Amendments presented at the public hearing provided the correct chemical formula. It should also be noted that all

proper notification and noticing requirements concerning this matter were met by the Department. Proper notice of the hearing was provided as required by law.

The aforementioned proposed *revised* Amendments were presented and thoroughly vetted by the Department at the public hearing on October 25, 2016. Members of the public attended that public hearing, however, no additional comment was received by the Department at that time, nor at any time prior to the hearing record closing on November 9, 2016. All proper notification and noticing requirements concerning this matter were met by the Department. Proper notice of the hearing was provided as required by law.

Subsequent to the hearing record closing on November 9, 2016, The Department's presiding hearing officer, Lisa A. Vest, then prepared a Hearing Officer's Report dated November 10, 2016 ("Report"). The Report documents the proper completion of the required regulatory development process, establishes the record, and recommends the adoption of the proposed regulatory Amendments as attached to the Report as Appendix "A".

### **Reasons and Conclusions**

Based on the record developed by the Department's experts and established by the Hearing Officer's Report, I find that the proposed regulatory Amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*, are well-supported. Therefore, the recommendations of the Hearing Officer are hereby adopted, and I direct that the proposed regulatory Amendments be promulgated as final.

I find that the Department's experts in the Division of Air Quality fully developed the record to support adoption of these *revised* regulatory Amendments. The adoption of these *revised* regulatory Amendments will allow Delaware to revise Table 1-1 as contained in the existing regulation, in order to update the GWP values, and to include the new GHG compounds as provided for in the two EPA rules referenced above.

In conclusion, the following reasons and conclusions are entered:

1. The Department has the statutory basis and legal authority to act with regard to the proposed *revised* amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*, pursuant to 7 *Del.C.*, Ch. 60;

2. The Department has jurisdiction under its statutory authority, pursuant to 7 *Del.C.*, Ch. 60, to issue an Order adopting these proposed *revised* regulatory amendments as final;

3. The Department provided adequate public notice of the proposed regulatory amendments and all proceedings in a manner required by the law and regulations, provided the public with an adequate opportunity to comment on the proposed *revised* regulatory amendments, including at the time of the public hearing held on October 25, 2016, and held the record open through close of business on November 9, 2016, consistent with 29 *Del.C.* §10118(a), in order to consider public comment on these proposed *revised* regulatory amendments before making any final decision;

4. While the Department has made revisions to the initial proposed regulatory amendments to 7 DE Admin. Code §1125 to correct a typographical error as referenced above, such changes are non-substantive, as they neither alter the meaning or

intent of the proposed regulatory amendments, and therefore no additional re-publication or noticing of this proposed regulation is necessitated at this time;

5. The Department's Hearing Officer's Report, including its established record and the recommended proposed regulatory Amendments as set forth in Appendix "A", are hereby adopted to provide additional reasons and findings for this Order;

6. Promulgation of the proposed *revised* regulatory amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*, will enable the Department to mirror federal requirements by revising Table 1-1 to update the GWP values, and to include the new GHG compounds as provided for in the two EPA rules published on November 29, 2013 and December 11, 2014, as referenced above;

7. The Department has reviewed these proposed *revised* regulatory amendments in the light of the Regulatory Flexibility Act, consistent with 29 *Del.C.* Ch. 104 (version applicable to all regulations initially published on or after January 1, 2016), and has selected Exemption "B5" regarding same, as the proposed *revised* regulation Amendments are required by federal law (EPA has revised its table of global warming values, which changes the calculation of GHG emissions). Moreover, the Department believes these proposed *revised* regulatory Amendments to be lawful, feasible and desirable, and that the recommendations as proposed should be applicable to all Delaware citizens equally;

8. The Department's proposed *revised* regulatory amendments, as set forth in Appendix "A" hereto, are adequately supported, are not arbitrary or capricious, and are consistent with the applicable laws and regulations. Consequently, they should be

approved as final regulatory amendments, which shall go into effect ten days after their publication in the next available issue of the *Delaware Register of Regulations*; and

9. The Department shall submit this Order approving as final the proposed Amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review*, specifically, to revise Table 1-1, "Global Warming Potentials", to the *Delaware Register of Regulations* publication in its next available issue, and provide such other notice as the law and regulation require and as the Department determines is appropriate.



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David S. Small  
Secretary

## HEARING OFFICER'S REPORT

**TO:** The Honorable David S. Small  
Cabinet Secretary, Department of Natural Resources and Environmental Control

**FROM:** Lisa A. Vest   
Public Hearing Officer, Office of the Secretary  
Department of Natural Resources and Environmental Control

**RE:** **Proposed Regulation Amendments to 7 DE Admin. Code §1125, Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials".**

**DATE:** November 10, 2016

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### **I. BACKGROUND AND PROCEDURAL HISTORY:**

A public hearing was held on Tuesday, October 25, 2016, at 6:00 p.m. at the Department of Natural Resources and Environmental Control ("DNREC", "Department"), State Street Commons, 100 W. Water Street, Dover, Delaware to receive comment on proposed regulatory amendments ("Amendments") to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*. The United States Environmental Protection Agency ("U.S. EPA", "EPA") has published two final rules to amend the greenhouse gas ("GHG") reporting program. These federal rules revised the global warming potential of numerous compounds that currently appear in Table 1-1. The Department proposes to adopt the aforementioned Amendments in order for Delaware to mirror these federal requirements.

GHG is a regulated pollutant under the federal Clean Air Act, and is specifically regulated under the Prevention of Significant Deterioration of Air Quality ("PSD") provisions of 7 DE Admin. Code §1125. The EPA has published two final rules to amend the GHG reporting program, which impact Table 1-1 of 7 DE Admin. Code §1125. The first rule, published on November 29, 2013, revised the global warming potential ("GWP") values of 23 of the 32

compounds that appear in Table 1-1. The second rule, published on December 11, 2014, added 30 new compounds to the EPA list of GHG. In this present action, the Department proposes to revise Table 1-1 to update the GWP values, and to include the new GHG compounds as provided for in the two EPA rules referenced above.

The Department has the statutory basis and legal authority to act with regard to the proposed amendments to 7 DE Admin. Code §1125, pursuant to 7 *Del.C.*, Chapter 60. The aforementioned proposed Amendments were presented and thoroughly vetted by the Department at the public hearing on October 25, 2016. Members of the public attended that public hearing, however, no comment was received by the Department at that time, or at any subsequent time prior to the hearing record closing with regard to public comment on November 9, 2016.

It should be noted that the Department identified a typographical error in the initial proposed Amendments published by the *Delaware Register of Regulations* on October 1, 2016. In Table 1-1 of the October 1, 2016 version of these proposed Amendments, the chemical formula for PFC-1114, also known as tetrafluoroethylene, should have been listed as C<sub>2</sub>F<sub>4</sub>. This error was corrected prior to the public hearing of October 25, 2016, and the proposed *revised* regulatory Amendments presented at the public hearing provided the correct chemical formula. It should also be noted that all proper notification and noticing requirements concerning this matter were met by the Department. Proper notice of the hearing was provided as required by law.

## **II. SUMMARY OF THE PUBLIC HEARING RECORD:**

The public hearing record consists of the following documents: (1) a verbatim transcript; and (2) six documents introduced by responsible Department staff at the public hearing held on October 25, 2016, and marked by this Hearing Officer accordingly as Department Exhibits 1-6.

As noted previously, the aforementioned proposed *revised* Amendments to 7 DE Admin. Code §1125 were presented and thoroughly vetted by the Department at the public hearing on October 25, 2016. Members of the public attended said public hearing, however, no comment was received by the Department with regard to this proposed regulatory promulgation. Pursuant to Delaware law, the record remained open for fifteen (15) additional days subsequent to the date of the public hearing, for the purpose of receiving public comment regarding these proposed Amendments. The hearing record formally closed on November 9, 2016, with no comment having been received by the Department with regard to this matter.

As noted previously, while there were no substantive revisions made by the Department subsequent to the proposed Amendments being published on October 1, 2016, the Department needed to correct the typographical error referenced above. For the Secretary's review, a copy of the Department's proposed *revised* Amendments (which reflect the aforementioned typographical correction) is attached hereto as Appendix "A". Again, all proper notification and noticing requirements concerning this proposed promulgation were met by the Department in this matter.

### **III. RECOMMENDED FINDINGS AND CONCLUSIONS:**

Based on the record developed, I find and conclude that the Department has provided appropriate reasoning regarding the need for the proposed *revised* Amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*. Accordingly, I recommend promulgation of these proposed *revised* regulatory amendments in the customary manner provided by law.

Further, I recommend the Secretary adopt the following findings and conclusions:

1. The Department has the statutory basis and legal authority to act with regard to the proposed *revised* amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review, specifically, to revise Table 1-1, "Global Warming Potentials"*, pursuant to 7 *Del.C.*, Ch. 60;

2. The Department has jurisdiction under its statutory authority, pursuant to 7 *Del.C.*, Ch. 60, to issue an Order adopting these proposed *revised* regulatory amendments as final;

3. The Department provided adequate public notice of the proposed regulatory amendments and all proceedings in a manner required by the law and regulations, provided the public with an adequate opportunity to comment on the proposed *revised* regulatory amendments, including at the time of the public hearing held on October 25, 2016, and held the record open through close of business on November 9, 2016, consistent with 29 *Del.C.* §10118(a), in order to consider public comment on these proposed *revised* regulatory amendments before making any final decision;

4. While the Department has made revisions to the initial proposed regulatory amendments to 7 DE Admin. Code §1125 to correct a typographical error as referenced above, such changes are non-substantive, as they neither alter the meaning or intent of the proposed regulatory amendments, and therefore no additional re-publication or noticing of this proposed regulation is necessitated at this time;

5. Promulgation of the proposed *revised* regulatory amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review*, specifically, to revise Table 1-1, “*Global Warming Potentials*”, will enable the Department to mirror federal requirements by revising Table 1-1 to update the GWP values, and to include the new GHG compounds as provided for in the two EPA rules published on November 29, 2013 and December 11, 2014, as referenced above;

6. The Department has reviewed these proposed *revised* regulatory amendments in the light of the Regulatory Flexibility Act, consistent with 29 *Del.C.* Ch. 104 (version applicable to all regulations initially published on or after January 1, 2016), and has selected Exemption “B5” regarding same, as the proposed *revised* regulation Amendments are required by federal law (EPA has revised its table of global warming values, which changes the calculation of GHG emissions). Moreover, the Department believes these proposed *revised* regulatory Amendments to be lawful, feasible and desirable, and that the recommendations as proposed should be applicable to all Delaware citizens equally;

7. The Department’s proposed *revised* regulatory amendments, as set forth in Appendix “A” hereto, are adequately supported, are not arbitrary or capricious, and are consistent with the applicable laws and regulations. Consequently, they should be approved as final regulatory amendments, which shall go into effect ten days after their publication in the next available issue of the *Delaware Register of Regulations*; and

8. The Department shall submit the proposed *revised* regulatory amendments as final regulatory amendments to 7 DE Admin. Code §1125, *Requirements for Preconstruction Review*, specifically, to revise Table 1-1, “*Global Warming Potentials*”, to the *Delaware Register of*

*Regulations* for publication in its next available issue, and provide such other notice as the law and regulation require and the Department determines is appropriate.



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LISA A. VEST  
Public Hearing Officer

\\ahear\ Reg. 1125 GHG Amendments.2016

Attachments/Appendix:  
Appendix A: Proposed Reg. Amendments

## **APPENDIX “A”**



- specified herein, provided the emission rates are determined and certified in a manner acceptable to the Department.
- 1.2.2 Sanitary landfills conforming to the State of Delaware Statewide Solid Waste Management Plan.
- 1.3 No owner or operator shall substitute either methyl chloroform or methylene chloride for any other Volatile Organic Compound (VOC) for any solvent metal cleaning purpose on or after the effective date of this regulation.
- 1.4 ~~The provisions of this regulation shall not apply to the startup and shutdown of equipment which operates continuously or in an extended steady state when emissions from such equipment during startup and shutdown are governed by an Operating Permit issued pursuant to the provisions of 2.0 of 7 DE Admin. Code 1102. Reserved.~~

**\*Please Note: As the rest of the sections were not amended, they are not being published. A copy of the regulation is available at:**

1124 Control of Volatile Organic Compound Emissions

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**DIVISION OF AIR QUALITY**  
Statutory Authority: 7 **Delaware Code**, Chapter 60; (7 **Del.C.**, Ch. 60)  
7 **DE Admin. Code** 1125

**REGISTER NOTICE**  
**SAN #2016-12**

1125 Requirements for Preconstruction Review

**1. TITLE OF THE REGULATION:**

Section 1.9 "Definitions" of 7 **DE Admin. Code** 1125 Requirements for Preconstruction Review.

**2. BRIEF SYNOPSIS OF THE SUBJECT, SUBSTANCE AND ISSUES:**

To bring Delaware's table of global warming potentials (GWP), as shown in Table 1-1 under the definition of greenhouse gases (GHG) in Section 1.9 up-to-date with the most current federal rules for calculating the CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e) for regulated major sources emitting GHG. In 2010, the Delaware rule was revised to require GHG permitting consistent with EPA rules which included a method for calculating those emissions based upon GWP. GHG emissions, for the purposes of the federal rule, include the aggregate of six GHG; carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>). The mass of each of these components emitted is multiplied by the EPA determined GWP for each. EPA has added 30 new compounds to the prior list of GHG bringing the total compounds to 62 and revised the GWP of 24 of the original 32.

**3. POSSIBLE TERMS OF THE AGENCY ACTION:**

None.

**4. STATUTORY BASIS OR LEGAL AUTHORITY TO ACT:**

7 Delaware Code, Chapter 60.

**5. OTHER REGULATIONS THAT MAY BE AFFECTED BY THE PROPOSAL:**

None.

**6. NOTICE OF PUBLIC COMMENT:**

There will be a public hearing on this proposed amendment on Tuesday October 25, 2016 beginning at 6pm in the Dover DAQ offices at State Street Commons, 100 West Water Street, Suite 6A, Dover, DE 19904. Interested

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**PROPOSED REGULATIONS**

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parties may submit comments in writing to David Fees, Division of Air Quality, State Street Commons, 100 West Water Street, Suite 6A, Dover, DE 19904 and/or statements and testimony may be presented either orally or in writing at the public hearing.

**7. PREPARED BY:**

David Fees david.fees@state.de.us 302-739-9402

**\*Please Note:**

(1) The Regulatory Flexibility Analysis and Impact Statement for this regulation, as required by 29 Del.C. Ch. 104, is available at:

<http://regulations.delaware.gov/register/october2016/proposed/20 DE Reg 257RFA 10-01-16.pdf>

(2) Due to the size of the proposed regulation, it is not being published here. A copy of the regulation is available at:

1125 Requirements for Preconstruction Review

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**DIVISION OF AIR QUALITY**

Statutory Authority: 7 Delaware Code, Chapter 60 (7 Del.C. Ch. 60)

**7 DE Admin. Code 1142**

**REGISTER NOTICE**

**SAN # 2016-06**

1142 Specific Emission Control Requirements

**1. TITLE OF THE REGULATION:**

Revise 7 DE Admin. Code 1142 Specific Emission Control Requirements

**2. BRIEF SYNOPSIS OF THE SUBJECT, SUBSTANCE AND ISSUES:**

EPA, in 80 FR 33840 (6/12/2015 - final) identified the State Implementation Plans (SIPs) of 36 states as inadequate because they allegedly allowed unregulated excess emissions. Seven Delaware regulations were cited in this SIP Call because the EPA believes the regulations do not appropriately restrict emissions during start-up or shutdown events. This action is to revise one of the cited Delaware's regulations to comply with the EPA SIP Call and avoid the imposition of federal sanctions.

**3. POSSIBLE TERMS OF THE AGENCY ACTION:**

None.

**4. STATUTORY BASIS OR LEGAL AUTHORITY TO ACT:**

7 Delaware Code, Chapter 60.

**5. OTHER REGULATIONS THAT MAY BE AFFECTED BY THE PROPOSAL:**

None.

**6. NOTICE OF PUBLIC COMMENT:**

There will be a hearing on this proposed amendment and the other EPA cited Delaware rules on October 25, 2016 beginning at 6pm in the Dover DAQ offices at State Street Commons, 100 West Water Street, Suite 6A, Dover, DE 19904. Interested parties may submit comments in writing to David Fees, Division of Air Quality, 100

# DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

## DIVISION OF AIR QUALITY Air Quality Management Section

Proposed revised rule 10/25/2016

### 1125 Requirements for Preconstruction Review

01/11/14 xx/11/2016

#### 1.0 General Provisions

(Break in Continuity of Sections)

**Table 1-1  
GLOBAL WARMING POTENTIALS**

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO <sub>2</sub>	1
Methane	74-82-8	CH <sub>4</sub>	24 <u>25</u>
Nitrous oxide	10024-97-2	N <sub>2</sub> O	310 <u>298</u>
HFC-23	75-46-7	CHF <sub>3</sub>	11,700 <u>14,800</u>
HFC-32	75-10-5	CH <sub>2</sub> F <sub>2</sub>	650 <u>675</u>
HFC-41	593-53-3	CH <sub>3</sub> F	450 <u>92</u>
HFC-125	354-33-6	C <sub>2</sub> HF <sub>5</sub>	2,800 <u>3,500</u>
HFC-134	359-35-3	C <sub>2</sub> H <sub>2</sub> F <sub>4</sub>	1,000 <u>1,100</u>
HFC-134a	811-97-2	CH <sub>2</sub> FCF <sub>3</sub>	1,300 <u>1,430</u>
HFC-143	430-66-0	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub>	300 <u>353</u>
HFC-143a	420-46-2	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub>	3,800 <u>4,470</u>
HFC-152	624-72-6	CH <sub>2</sub> FCH <sub>2</sub> F	53
HFC-152a	75-37-6	CH <sub>3</sub> CHF <sub>2</sub>	440 <u>124</u>
HFC-161	353-36-6	CH <sub>3</sub> CH <sub>2</sub> F	12
<u>HFC-227ca</u>	<u>2252-84-8</u>	<u>CF<sub>3</sub>CF<sub>2</sub>CHF<sub>2</sub></u>	<u>2,640</u>
HFC-227ea	431-89-0	C <sub>3</sub> HF <sub>7</sub>	2,900 <u>3,220</u>
HFC-236cb	677-56-5	CH <sub>2</sub> FCF <sub>2</sub> CF <sub>3</sub>	1,340
HFC-236ea	431-63-0	CHF <sub>2</sub> CHFCF <sub>3</sub>	1,370
HFC-236fa	690-39-1	C <sub>3</sub> H <sub>2</sub> F <sub>6</sub>	6,300 <u>9,810</u>

HFC-245ca	679-86-7	$C_3H_3F_5$	560 693
HFC-245cb	1814-88-6	$CF_3CF_2CH_3$	4,620
HFC-245ea	24270-66-4	$CHF_2CHFCHF_2$	235
HFC-245eb	431-31-2	$CH_2FCHFCF_3$	290
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030
HFC-263fb	421-07-8	$CH_3CH_2CF_3$	76
HFC-272ca	420-45-1	$CH_3CF_2CH_3$	144
HFC-329p	375-17-7	$CHF_2CF_2CF_2CF_3$	2,360
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	1,300 1,640
HFC-1132a	75-38-7	$CF_2=CH_2$	0.04
HFC-1141	75-02-5	$CH_2=CHF$	0.02
(E)-HFC-1225ye	5595-10-8	$CF_3CF=CHF(E)$	0.06
(Z)-HFC-1225ye	5528-43-8	$CF_3CF=CHF(Z)$	0.22
HFC-1234yf, HFO-1234yf	745-12-1	$CF_3CF=CH_2$	0.31
HFC-1234ze(E)	1645-83-6	(trans)- $CF_3CH=CHF$	0.97
HFC-1234ze(Z)	29118-25-0	(cis)- $CF_3CH=CHF$	0.29
HFC-1243zf	677-21-4	$CF_3CH=CH_2$	0.12
(Z)-HFC-1336	692-49-9	$CF_3CH=CHCF_3(Z)$	1.58
HFC-1345zfc	374-27-6	$C_2F_5CH=CH_2$	0.09
Capstone 42-U	19430-93-4	$CF_3(CF_2)_3CH=CH_2$	0.16
Capstone 62-U	25291-17-2	$CF_3(CF_2)_5CH=CH_2$	0.11
Capstone 82-U	21652-58-4	$CF_3(CF_2)_7CH=CH_2$	0.09
Sulfur hexafluoride	2551-62-4	$SF_6$	23,900 22,800
PFC-14 (Perfluoromethane)	75-73-0	$CF_4$	6,500 7,390
PFC-116 (Perfluoroethane)	76-16-4	$C_2F_6$	9,200 12,200
PFC-218 (Perfluoropropane)	76-19-7	$C_3F_8$	7,000 8,830
Perfluorocyclopropane	931-91-9	$C_3F_6$	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	$C_4F_{10}$	7,000 8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C_4F_8$	8,700 10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	$C_5F_{12}$	7,500 9,160
PFC-5-1-14 (Perfluorohexane)	355-42-0	$C_6F_{14}$	7,400 9,300

<u>PFC-6-1-12</u> <u>(Perfluoroheptane)</u>	<u>335-57-9</u>	<u>CF<sub>3</sub>(CF<sub>2</sub>)<sub>5</sub>CF<sub>3</sub></u>	<u>7,820</u>
<u>PFC-7-1-18</u> <u>Perfluorooctane</u>	<u>307-341-6</u>	<u>CF<sub>3</sub>(CF<sub>2</sub>)<sub>6</sub>CF<sub>3</sub></u>	<u>7,620</u>
<u>PFC-9-1-18</u> <u>(Perfluorodecalin)</u>	<u>306-94-5</u>	<u>C<sub>10</sub>F<sub>18</sub></u>	<u>7,500</u>
<u>Perfluorodecalin (cis)</u>	<u>60433-11-6</u>	<u>Z-C<sub>10</sub>F<sub>18</sub></u>	<u>7,236</u>
<u>Perfluorodecalin (trans)</u>	<u>60433-12-7</u>	<u>E-C<sub>10</sub>F<sub>18</sub></u>	<u>6,288</u>
<u>PFC-1114</u> <u>Tetrafluoroethylene (TFE)</u>	<u>116-14-3</u>	<u>[C<sub>2</sub>F<sub>2</sub>] [C<sub>2</sub>F<sub>4</sub>]</u>	<u>0.004</u>
<u>PFC-1216</u> <u>Perfluoropropene</u>	<u>116-15-4</u>	<u>CF<sub>3</sub>CF=CF<sub>2</sub></u>	<u>0.05</u>
<u>PFC C-1418</u> <u>Perfluorocyclopentene</u>	<u>559-40-0</u>	<u>c-C<sub>5</sub>F<sub>8</sub></u>	<u>1.97</u>
<u>Perfluorobut-2-ene</u>	<u>360-89-4</u>	<u>CF<sub>3</sub>CF=CFCF<sub>3</sub></u>	<u>1.82</u>
<u>Perfluorobut-1-ene</u>	<u>357-26-6</u>	<u>CF<sub>3</sub>CF<sub>2</sub>CF=CF<sub>2</sub></u>	<u>0.10</u>
<u>Perfluorobuta-1,3-diene</u>	<u>685-63-2</u>	<u>CF<sub>2</sub>=CFCF=CF<sub>2</sub></u>	<u>0.003</u>

(Break in Continuity of Sections)

2 DE Reg. 2148 (05/01/99)  
 9 DE Reg. 246 (08/01/05)  
 12 DE Reg. 347 (09/01/08)  
 14 DE Reg. 1207 (05/01/11)  
 15 DE Reg. 1169 (02/01/12)  
 15 DE Reg. 1676 (06/01/12)  
 16 DE Reg. 214 (08/01/12)  
 16 DE Reg. 1279 (06/01/13)  
 17 DE Reg. 744 (01/01/14)

