AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-010 Scope. This rule establishes mandatory greenhouse gas (GHG) reporting requirements for owners and operators of certain facilities that directly emit GHG as well as for certain suppliers of liquid motor vehicle fuel, special fuel, or aircraft fuel. For suppliers, the GHGs reported are the quantity that would be emitted from the complete combustion or oxidation of the products supplied.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-020 Definitions. The definitions in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) **Definitions specific to this chapter:**

(a) "Biomass" means non-fossilized and biodegradable organic material originating from plants, animals, or microorganisms, including products, by-products, residues((~~,~~)) and waste from agriculture, forestry, and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material.

(b) "Carbon dioxide equivalent((~~s~~))" or "CO_2e" means a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

(c) "Department of licensing" or "DOL" means the Washington state department of licensing.

(d) "Director" means the director of the department of ecology.

(e) "Ecology" means the Washington state department of ecology.

(f) "Facility" unless otherwise specified in any subpart of 40 C.F.R. Part 98 as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014, means any physical property, plant, building, structure, source, or stationary equipment located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right of way and under common ownership or common control, that emits or may emit any greenhouse gas. Operators of military installations may classify such installations as more than a single facility based on distinct and independent functional groupings within contiguous military properties.

(g) "Greenhouse gas," "greenhouse gases," "GHG," and "GHGs" includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Beginning on January 1, 2012, "greenhouse gas" also includes any other gas or gases designated by ecology by rule in Table A-1 in WAC 173-441-040.

(h) "Person" includes:

(i) An owner or operator, as those terms are defined by the United States Environmental Protection Agency in its mandatory greenhouse gas reporting regulation in 40 C.F.R. Part 98, as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014; and

(ii) A supplier.

(i) "Supplier" means any person who is:

(i) A motor vehicle fuel supplier or a motor vehicle fuel importer, as those terms are defined in RCW 82.36.010;

(ii) A special fuel supplier or a special fuel importer, as those terms are defined in RCW 82.38.020; or

(iii) A distributor of aircraft fuel, as the term is defined in RCW 82.42.010.

(2) **Definitions specific to suppliers.** Suppliers must use the definitions found in the following regulations unless the definition is in conflict with a definition found in subsection (1) of this section. These definitions do not apply to facilities.

(a) WAC 308-72-800;

(b) WAC 308-77-005; and

(c) WAC 308-78-010.

(3) **Definitions from 40 C.F.R. Part 98.** For those terms not listed in subsection (1) or (2) of this section, the definitions found in 40 C.F.R. § 98.6 or a subpart as adopted in WAC 173-441-120, as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014, are adopted by reference as modified in WAC 173-441-120(2).

(4) **Definitions from chapter 173-400 WAC.** If no definition is provided in subsections (1) through (3) in this section, use the definition found in chapter 173-400 WAC.

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WAC 173-441-030 Applicability. The GHG reporting requirements and related monitoring, recordkeeping, and reporting requirements of this chapter apply to the owners and operators of any facility that meets the requirements of subsection (1) of this section; and any supplier that meets the requirements of subsection (2) of this section. In determining whether reporting is required, the requirements of subsection (1) must be applied independently of the requirements of subsection (2). Research and development activities are not considered to be part of any source category defined in this chapter.

(1) **Facility reporting.** Reporting is mandatory for an owner or operator of any facility located in Washington state with total GHG emissions that exceeds the reporting threshold defined in (a) of this subsection. GHG emissions from all applicable source categories listed in WAC 173-441-120 at the facility must be included when determining whether emissions from the facility meet the reporting threshold.

(a) **Facility reporting threshold.** Any facility that emits ten thousand metric tons CO_2e or more per calendar year in total GHG emissions from all applicable source categories listed in WAC 173-441-120 exceeds the reporting threshold.

(b) **Calculating facility emissions for comparison to the threshold.** To calculate GHG emissions for comparison to the reporting threshold, the owner or operator must:

(i) Calculate the total annual emissions of each GHG in metric tons from all applicable source categories that are listed and defined in WAC 173-441-120. The GHG emissions must be calculated using the

calculation methodologies specified in WAC 173-441-120 and available company records.

(ii) Include emissions of all GHGs that are listed in Table A-1 of WAC 173-441-040, including all GHG emissions from the combustion of biomass and all fugitive releases of GHG emissions from biomass, calculated as provided in the calculation methods referenced in Table 120-1.

(iii) Sum the emissions estimates for each GHG and calculate metric tons of CO_2e using Equation A-1 of this subsection.

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i \quad (Eq. A-1)$$

Where:

CO_2e	=	Carbon dioxide equivalent, metric tons/year.
GHG_i	=	Mass emissions of each greenhouse gas listed in Table A-1 of WAC 173-441-040, metric tons/year.
GWP_i	=	Global warming potential for each greenhouse gas from Table A-1 of WAC 173-441-040.
n	=	The number of greenhouse gases emitted.

(iv) Include in the emissions calculation any CO_2 that is captured for transfer ((~~off-site~~)) off site.

((~~(v) Research and development activities are not considered to be part of any source category defined in this chapter.~~))

(2) **Suppliers.** Reporting is mandatory for any supplier required to file periodic tax reports to DOL and has total carbon dioxide emissions that exceed the reporting threshold defined in (a) of this subsection.

(a) **Supplier reporting threshold.** Any supplier that supplies applicable fuels that are reported to DOL as sold in Washington state of which the complete combustion or oxidation would result in total calendar year emissions of ten thousand metric tons or more of carbon dioxide exceeds the reporting threshold.

(b) **Calculating supplier emissions for comparison to the threshold.** To calculate CO_2 emissions for comparison to the reporting threshold, a supplier must:

(i) Base its emissions on the applicable fuel quantities as established in WAC 173-441-130(1) and reported to DOL. A supplier must apply the mass in metric tons per year of CO_2 that would result from the complete combustion or oxidation of these fuels towards the reporting threshold.

(ii) Calculate the total annual carbon dioxide emissions in metric tons from all applicable fuel quantities and fuel types as established in WAC 173-441-130(1) and reported to DOL. The CO_2 emissions must be calculated using the calculation methodologies specified in WAC 173-441-130 and data reported to DOL.

(iii) Only include emissions of carbon dioxide associated with the complete combustion or oxidation of the applicable fuels. Include all CO_2 emissions from the combustion of biomass fuels.

((~~(iv) Research and development activities are not considered to be part of any source category defined in this chapter.~~))

(3) **Applicability over time.** A person that does not meet the applicability requirements of either subsection (1) or (2) of this section is not subject to this rule. Such a person would become subject to the rule and the reporting requirements of this chapter if they exceed the applicability requirements of subsection (1) or (2) of this section at a later time. Thus, persons should reevaluate the applicability to this chapter (including the revising of any relevant emissions calculations or other calculations) whenever there is any change that could cause a facility or supplier to meet the applicability requirements of subsection (1) or (2) of this section. Such changes include, but are not limited to, process modifications, increases in operating hours, increases in production, changes in fuel or raw material use, addition of equipment, facility expansion, and changes to this chapter.

(4) **Voluntary reporting.** A person may choose to voluntarily report to ecology GHG emissions that are not required to be reported under subsection (1) or (2) of this section. Persons voluntarily reporting GHG emissions must use the methods established in WAC 173-441-120(3) and 173-441-130 to calculate any voluntarily reported GHG emissions.

(5) **Reporting requirements when emissions of greenhouse gases fall below reporting thresholds.** Except as provided in this subsection, once a facility or supplier is subject to the requirements of this chapter, the person must continue for each year thereafter to comply with all requirements of this chapter, including the requirement to submit annual GHG reports (annual GHG reports, GHG report, emissions report, annual report), even if the facility or supplier does not meet the applicability requirements in subsection (1) or (2) of this section in a future year.

(a) If reported emissions are less than ten thousand metric tons CO_2e per year for five consecutive years, then the person may discontinue reporting as required by this chapter provided that the person submits a notification to ecology that announces the cessation of reporting and explains the reasons for the reduction in emissions. The notification ((~~shall~~)) must be submitted no later than ((~~March 31st~~)) the report submission due date, specified in WAC 173-441-050(2), of the year immediately following the fifth consecutive year of emissions less than ten thousand tons CO_2e per year. The person must maintain the corresponding records required under WAC 173-441-050(6) for each of the five consecutive years and retain such records for three years following the year that reporting was discontinued. The person must resume reporting if annual emissions in any future calendar year increase above the thresholds in subsection (1) or (2) of this section.

(b) If reported emissions are less than five thousand metric tons CO_2e per year for three consecutive years, then the person may discontinue reporting as required by this chapter provided that the person submits a notification to ecology that announces the cessation of reporting and explains the reasons for the reduction in emissions. The notification ((~~shall~~)) must be submitted no later than ((~~March 31st~~)) the report submission due date, specified in WAC 173-441-050(2), of the year immediately following the third consecutive year of emissions less than five thousand tons CO_2e per year. The person must maintain the corresponding records required under WAC 173-441-050(6) for each of the three consecutive years and retain such records for three years

following the year that reporting was discontinued. The person must resume reporting if annual emissions in any future calendar year increase above the thresholds in subsection (1) or (2) of this section.

(c) If the operations of a facility or supplier are changed such that all applicable GHG-emitting processes and operations listed in WAC 173-441-120 and 173-441-130 cease to operate, then the person is exempt from reporting in the years following the year in which cessation of such operations occurs, provided that the person submits a notification to ecology that announces the cessation of reporting and certifies to the closure of all GHG-emitting processes and operations no later than the report submission due date, specified in WAC 173-441-050(2), of the year following such changes. This provision does not apply to seasonal or other temporary cessation of operations. This provision does not apply to facilities with municipal solid waste landfills, industrial waste landfills, or to underground coal mines. The person must resume reporting for any future calendar year during which any of the GHG-emitting processes or operations resume operation.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-040 Greenhouse gases. (1) **Greenhouse gases.** Table A-1 of this section lists the GHGs regulated under this chapter and their global warming potentials.

(2) **CO_2e conversion.** Use Equation A-1 of WAC 173-441-030 (1)(b)(iii) and the global warming potentials (GWP) listed in Table A-1 of this section to convert emissions into CO_2e.

Table A-1:
Global Warming Potentials (100-Year Time Horizon)

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
Carbon dioxide	124-38-9	CO_2	1	1
Methane	74-82-8	CH_4	21	25
Nitrous oxide	10024-97-2	N_2O	310	298
((~~HFC-23~~	~~75-46-7~~	~~CHF_3~~	~~11,700~~	
~~HFC-32~~	~~75-10-5~~	~~CH_2F_2~~	~~650~~	
~~HFC-41~~	~~593-53-3~~	~~CH_3F~~	~~150~~	
~~HFC-125~~	~~354-33-6~~	~~C_2HF_5~~	~~2,800~~	
~~HFC-134~~	~~359-35-3~~	~~$C_2H_2F_4$~~	~~1,000~~	
~~HFC-134a~~	~~811-97-2~~	~~CH_2FCF_3~~	~~1,300~~	
~~HFC-143~~	~~430-66-0~~	~~$C_2H_3F_3$~~	~~300~~	
~~HFC-143a~~	~~420-46-2~~	~~$C_2H_3F_3$~~	~~3,800~~	
~~HFC-152~~	~~624-72-6~~	~~CH_2FCH_2F~~	~~53~~	
~~HFC-152a~~	~~75-37-6~~	~~CH_3CHF_2~~	~~140~~	

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
~~HFC-161~~	~~353-36-6~~	~~CH_3CH_2F~~	~~12~~	
~~HFC-227ea~~	~~431-89-0~~	~~C_3HF_7~~	~~2,900~~	
~~HFC-236cb~~	~~677-56-5~~	~~$CH_2FCF_2CF_3$~~	~~1,340~~	
~~HFC-236ea~~	~~431-63-0~~	~~CHF_2CHFCF_3~~	~~1,370~~	
~~HFC-236fa~~	~~690-39-1~~	~~$C_3H_2F_6$~~	~~6,300~~	
~~HFC-245ca~~	~~679-86-7~~	~~$C_3H_3F_5$~~	~~560~~	
~~HFC-245fa~~	~~460-73-1~~	~~$CHF_2CH_2CF_3$~~	~~1,030~~	
~~HFC-365mfc~~	~~406-58-6~~	~~$CH_3CF_2CH_2CF_3$~~	~~794~~	
~~HFC-43-10mee~~	~~138495-42-8~~	~~$CF_3CFHCFHCF_2CF_3$~~	~~1,300~~	
~~All other HFCs~~	~~NA~~	~~NA~~	~~Contact ecology~~	
~~Sulfur hexafluoride~~	~~2551-62-4~~	~~SF_6~~	~~23,900~~	
~~Trifluoromethyl sulphur pentafluoride~~	~~373-80-8~~	~~SF_5CF_3~~	~~17,700~~	
~~Nitrogen trifluoride~~	~~7783-54-2~~	~~NF_3~~	~~17,200~~	
~~PFC-14 (Perfluoromethane)~~	~~75-73-0~~	~~CF_4~~	~~6,500~~	
~~PFC-116 (Perfluoroethane)~~	~~76-16-4~~	~~C_2F_6~~	~~9,200~~	
~~PFC-218 (Perfluoropropane)~~	~~76-19-7~~	~~C_3F_8~~	~~7,000~~	
~~Perfluorocyclopropane~~	~~931-91-9~~	~~$C\text{-}C_3F_6$~~	~~17,340~~	
~~PFC-3-1-10 (Perfluorobutane)~~	~~355-25-9~~	~~C_4F_{10}~~	~~7,000~~	
~~Perfluorocyclobutane~~	~~115-25-3~~	~~$C\text{-}C_4F_8$~~	~~8,700~~	
~~PFC-4-1-12 (Perfluoropentane)~~	~~678-26-2~~	~~C_5F_{12}~~	~~7,500~~	
~~PFC-5-1-14 (Perfluorohexane)~~	~~355-42-0~~	~~C_6F_{14}~~	~~7,400~~	
~~PFC-9-1-18~~	~~306-94-5~~	~~$C_{10}F_{18}$~~	~~7,500~~	
~~All other PFCs~~	~~NA~~	~~NA~~	~~Contact ecology~~	
~~HCFE-235da2 (Isoflurane)~~	~~26675-46-7~~	~~$CHF_2OCHClCF_3$~~	~~350~~	
~~HFE-43-10pccc (H-Galden 1040x)~~	~~E1730133~~	~~$CHF_2OCF_2OC_2F_4OCHF_2$~~	~~1,870~~	
~~HFE-125~~	~~3822-68-2~~	~~CHF_2OCF_3~~	~~14,900~~	
~~HFE-134~~	~~1691-17-4~~	~~CHF_2OCHF_2~~	~~6,320~~	
~~HFE-143a~~	~~421-14-7~~	~~CH_3OCF_3~~	~~756~~	
~~HFE-227ea~~	~~2356-62-9~~	~~$CF_3CHFOCF_3$~~	~~1,540~~	
~~HFE-236ca12 (HG-10)~~	~~78522-47-1~~	~~$CHF_2OCF_2OCHF_2$~~	~~2,800~~	
~~HFE-236ea2 (Desflurane)~~	~~57041-67-5~~	~~$CHF_2OCHFCF_3$~~	~~989~~	
~~HFE-236fa~~	~~20193-67-3~~	~~$CF_3CH_2OCF_3$~~	~~487~~	
~~HFE-245cb2~~	~~22410-44-2~~	~~$CH_3OCF_2CF_3$~~	~~708~~	
~~HFE-245fa1~~	~~84011-15-4~~	~~$CHF_2CH_2OCF_3$~~	~~286~~	
~~HFE-245fa2~~	~~1885-48-9~~	~~$CHF_2OCH_2CF_3$~~	~~659~~	
~~HFE-254cb2~~	~~425-88-7~~	~~$CH_3OCF_2CHF_2$~~	~~359~~	
~~HFE-263fb2~~	~~460-43-5~~	~~$CF_3CH_2OCH_3$~~	~~11~~	
~~HFE-329mcc2~~	~~67490-36-2~~	~~$CF_3CF_2OCF_2CHF_2$~~	~~919~~	

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
~~HFE-338mcf2~~	~~156053-88-2~~	~~$CF_3CF_2OCH_2CF_3$~~	~~552~~	
~~HFE-338pcc13 (HG-01)~~	~~188690-78-0~~	~~$CHF_2OCF_2CF_2OCHF_2$~~	~~1,500~~	
~~HFE-347mcc3~~	~~28523-86-6~~	~~$CH_3OCF_2CF_2CF_3$~~	~~575~~	
~~HFE-347mcf2~~	~~E1730135~~	~~$CF_3CF_2OCH_2CHF_2$~~	~~374~~	
~~HFE-347pcf2~~	~~406-78-0~~	~~$CHF_2CF_2OCH_2CF_3$~~	~~580~~	
~~HFE-356mec3~~	~~382-34-3~~	~~$CH_3OCF_2CHFCF_3$~~	~~101~~	
~~HFE-356pcc3~~	~~160620-20-2~~	~~$CH_3OCF_2CF_2CHF_2$~~	~~110~~	
~~HFE-356pcf2~~	~~E1730137~~	~~$CHF_2CH_2OCF_2CHF_2$~~	~~265~~	
~~HFE-356pcf3~~	~~35042-99-0~~	~~$CHF_2OCH_2CF_2CHF_2$~~	~~502~~	
~~HFE-365mcf3~~	~~378-16-5~~	~~$CF_3CF_2CH_2OCH_3$~~	~~11~~	
~~HFE-374pc2~~	~~512-51-6~~	~~$CH_3CH_2OCF_2CHF_2$~~	~~557~~	
~~HFE-449sl (HFE-7100) Chemical blend~~	~~163702-07-6~~ ~~163702-08-7~~	~~$C_4F_9OCH_3$~~ ~~$(CF_3)_2CFCF_2OCH_3$~~	~~297~~	
~~HFE-569sf2 (HFE-7200) Chemical blend~~	~~163702-05-4~~ ~~163702-06-5~~	~~$C_4F_9OC_2H_5$~~ ~~$(CF_3)_2CFCF_2OC_2H_5$~~	~~59~~	
~~Sevoflurane~~	~~28523-86-6~~	~~$CH_2FOCH(CF_3)_2$~~	~~345~~	
~~HFE-356mm1~~	~~13171-18-1~~	~~$(CF_3)_2CHOCH_3$~~	~~27~~	
~~HFE-338mmz1~~	~~26103-08-2~~	~~$CHF_2OCH(CF_3)_2$~~	~~380~~	
~~(Octafluorotetramethy-lene) hydroxymethyl group~~	~~NA~~	~~$X-(CF_2)_4CH(OH)-X$~~	~~73~~	
~~HFE-347mmy1~~	~~22052-84-2~~	~~$CH_3OCF(CF_3)_2$~~	~~343~~	
~~Bis(trifluoromethyl) methanol~~	~~920-66-1~~	~~$(CF_3)_2CHOH$~~	~~195~~	
~~2,2,3,3,3-pentafluoropropanol~~	~~422-05-9~~	~~$CF_3CF_2CH_2OH$~~	~~42~~	
~~PFPMIE~~	~~NA~~	~~$CF_3OCF(CF_3)CF_2OCF_2OCF_3$~~	~~10,300~~))	
Fully Fluorinated GHGs				
Sulfur hexafluoride	2551-62-4	SF_6	23,900	22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF_5CF_3	17,700	17,700
Nitrogen trifluoride	7783-54-2	NF_3	17,200	17,200
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	$C\text{-}C_3F_6$	17,340	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	7,000	8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C\text{-}C_4F_8$	8,700	10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	7,500	9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	7,400	9,300
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	7,500	7,500
PFC-6-1-12 (Hexadecafluoroheptane)	335-57-9	C_7F_{16}; $CF_3(CF_2)_5CF_3$	7,820	7,820

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
PFC-7-1-18 (Octadecafluorooctane)	307-34-6	C_8F_{18}; $CF_3(CF_2)_6CF_3$	7,620	7,620
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300	10,300
Perfluorodecalin (cis)	60433-11-6	Z-$C_{10}F_{18}$	7,236	7,236
Perfluorodecalin (trans)	60433-12-7	E-$C_{10}F_{18}$	6,288	6,288
Saturated Hydrofluorocarbons (HFCs)				
HFC-23	75-46-7	CHF_3	11,700	14,800
HFC-32	75-10-5	CH_2F_2	650	675
HFC-41	593-53-3	CH_3F	150	92
HFC-125	354-33-6	C_2HF_5	2,800	3,500
HFC-134	359-35-3	$C_2H_2F_4$	1,000	1,100
HFC-134a	811-97-2	CH_2FCF_3	1,300	1,430
HFC-143	430-66-0	$C_2H_3F_3$	300	353
HFC-143a	420-46-2	$C_2H_3F_3$	3,800	4,470
HFC-152	624-72-6	CH_2FCH_2F	53	53
HFC-152a	75-37-6	CH_3CHF_2	140	124
HFC-161	353-36-6	CH_3CH_2F	12	12
HFC-227ca (1,1,1,2,2,3,3-Heptafluoropropane)	2252-84-8	$CF_3CF_2CHF_2$	2,640	2,640
HFC-227ea	431-89-0	C_3HF_7	2,900	3,220
HFC-236cb	677-56-5	$CH_2FCF_2CF_3$	1,340	1,340
HFC-236ea	431-63-0	CHF_2CHFCF_3	1,370	1,370
HFC-236fa	690-39-1	$C_3H_2F_6$	6,300	9,810
HFC-245ca	679-86-7	$C_3H_3F_5$	560	693
HFC-245cb (1,1,1,2,2-Pentafluoropropane)	1814-88-6	$CF_3CF_2CH_3$	4,620	4,620
HFC-245ea (1,1,2,3,3-Pentafluoropropane)	24270-66-4	$CHF_2CHFCHF_2$	235	235
HFC-245eb (1,1,1,2,3-Pentafluoropropane)	431-31-2	$CH_2FCHFCF_3$	290	290
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030	1,030
HFC-263fb (1,1,1-Trifluoropropane)	421-07-8	$CH_3CH_2CF_3$	76	76
HFC-272ca (2,2-Difluoropropane)	420-45-1	$CH_3CF_2CH_3$	144	144
HFC-329p (1,1,1,2,2,3,3,4,4-Nonafluorobutane)	375-17-7	$CHF_2CF_2CF_2CF_3$	2,360	2,360
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794	794
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	1,300	1,640
Partially Segregated Saturated Hydrofluoroethers (HFEs) and Hydrochlorofluoroethers (HCFEs)				
HFE-143a	421-14-7	CH_3OCF_3	756	756
HFE-245cb2	22410-44-2	$CH_3OCF_2CF_3$	708	708
HFE-254cb2	425-88-7	$CH_3OCF_2CHF_2$	359	359

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
HFE-263fb2	460-43-5	$CF_3CH_2OCH_3$	11	11
HFE-263m1; R-E-143a (1,1,2,2-Tetrafluoro-1-(trifluoromethoxy)ethane)	690-22-2	$CF_3OCH_2CH_3$	NA	29*
HFE-347mcc3 (HFE-7000)	375-03-1	$CH_3OCF_2CF_2CF_3$	575	575
HFE-347mmy1	22052-84-2	$CH_3OCF(CF_3)_2$	343	343
HFE-356mec3	382-34-3	$CH_3OCF_2CHFCF_3$	101	101
HFE-356mm1	13171-18-1	$(CF_3)_2CHOCH_3$	27	27
HFE-356pcc3	160620-20-2	$CH_3OCF_2CF_2CHF_2$	110	110
HFE-365mcf2 (1-Ethoxy-1,1,2,2,2-pentafluoroethane)	22052-81-9	$CF_3CF_2OCH_2CH_3$	NA	58*
HFE-365mcf3	378-16-5	$CF_3CF_2CH_2OCH_3$	11	11
HFE-374pc2	512-51-6	$CH_3CH_2OCF_2CHF_2$	557	557
HFE-449sl (HFE-7100) Chemical blend	163702-07-6 163702-08-7	$C_4F_9OCH_3$ $(CF_3)_2CFCF_2OCH_3$	297	297
HFE-569sf2 (HFE-7200) Chemical blend	163702-05-4 163702-06-5	$C_4F_9OC_2H_5$ $(CF_3)_2CFCF_2OC_2H_5$	59	59
HG'-01 (1,1,2,2-Tetrafluoro-1,2-dimethoxyethane)	73287-23-7	$CH_3OCF_2CF_2OCH_3$	NA	222*
HG'-02 (1,1,2,2-Tetrafluoro-1-methoxy-2-(1,1,2,2-tetrafluoro-2-methoxyethoxy)ethane)	485399-46-0	$CH_3O(CF_2CF_2O)_2CH_3$	NA	236*
HG'-03 (3,3,4,4,6,6,7,7,9,9,10,10-Dodecafluoro-2,5,8,11-tetraoxadodecane)	485399-48-2	$CH_3O(CF_2CF_2O)_3CH_3$	NA	221*
Difluoro(methoxy)methane	359-15-9	CH_3OCHF_2	NA	144*
2-Chloro-1,1,2-trifluoro-1-methoxyethane	425-87-6	CH_3OCF_2CHFCl	NA	122*
1-Ethoxy-1,1,2,2,3,3,3-heptafluoropropane	22052-86-4	$CF_3CF_2CF_2OCH_2CH_3$	NA	61*
2-Ethoxy-3,3,4,4,5-pentafluorotetrahydro-2,5-bis [1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-furan	920979-28-8	$C_{12}H_5F_{19}O_2$	NA	56*
1-Ethoxy-1,1,2,3,3,3-hexafluoropropane	380-34-7	$CF_3CHFCF_2OCH_2CH_3$	NA	23*
Fluoro(methoxy)methane	460-22-0	CH_3OCH_2F	NA	13*
1,1,2,2-Tetrafluoro-3-methoxy-propane; Methyl 2,2,3,3-tetrafluoropropyl ether	60598-17-6	$CHF_2CF_2CH_2OCH_3$	NA	0.5*
Non-segregated Saturated Hydrofluoroethers (HFEs) and Hydrochlorofluoroethers (HCFEs)				
HFE-125	3822-68-2	CHF_2OCF_3	14,900	14,900
HFE-134 (HG-00)	1691-17-4	CHF_2OCHF_2	6,320	6,320
HFE-227ea	2356-62-9	$CF_3CHFOCF_3$	1,540	1,540

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
HFE-236ca (1-(Difluoromethoxy)-1,1,2,2-tetrafluoroethane)	32778-11-3	$CHF_2OCF_2CHF_2$	NA	4,240*
HFE-236ca12 (HG-10)	78522-47-1	$CHF_2OCF_2OCHF_2$	2,800	2,800
HFE-236ea2 (Desflurane)	57041-67-5	$CHF_2OCHFCF_3$	989	989
HFE-236fa	20193-67-3	$CF_3CH_2OCF_3$	487	487
HFE-245fa1	84011-15-4	$CHF_2CH_2OCF_3$	286	286
HFE-245fa2	1885-48-9	$CHF_2OCH_2CF_3$	659	659
HFE-329mcc2	134769-21-4	$CF_3CF_2OCF_2CHF_2$	919	919
HFE-329me3 (1,1,1,2,3,3-Hexafluoro-3-(trifluoromethoxy)propane)	428454-68-6	$CF_3CFHCF_2OCF_3$	NA	4,550*
HFE-338mcf2	156053-88-2	$CF_3CF_2OCH_2CF_3$	552	552
HFE-338mmz1	26103-08-2	$CHF_2OCH(CF_3)_2$	380	380
HFE-338pcc13 (HG-01)	188690-78-0	$CHF_2OCF_2CF_2OCHF_2$	1,500	1,500
HFE-347mcf2	171182-95-9	$CF_3CF_2OCH_2CHF_2$	374	374
HFE-347mmz1; Sevoflurane (2-(Difluoromethoxy)-1,1,1,3,3,3-hexafluoropropane)	28523-86-6	$(CF_3)_2CHOCHF_2$	NA	216*
HFE-347pcf2	406-78-0	$CHF_2CF_2OCH_2CF_3$	580	580
HFE-356mff2 (bis(2,2,2-trifluoroethyl) ether)	333-36-8	$CF_3CH_2OCH_2CF_3$	NA	17*
HFE-356pcf2	50807-77-7	$CHF_2CH_2OCF_2CHF_2$	265	265
HFE-356pcf3	35042-99-0	$CHF_2OCH_2CF_2CHF_2$	502	502
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870	1,870
HCFE-235ca2 (Enflurane) (2-Chloro-1-(difluoromethoxy)-1,1,2-trifluoroethane)	13838-16-9	CHF_2OCF_2CHFCl	NA	583*
HCFE-235da2 (Isoflurane)	26675-46-7	$CHF_2OCHClCF_3$	350	350
HG-02 (1-(Difluoromethoxy)-2-(2-(difluoromethoxy)-1,1,2,2-tetrafluoroethoxy)-1,1,2,2-tetrafluoroethane)	205367-61-9	$HF_2C\text{-}(OCF_2CF_2)_2\text{-}OCF_2H$	NA	2,730*
HG-03 (1,1,3,3,4,4,6,6,7,7,9,9,10,10,12,12-Hexadecafluoro-2,5,8,11-tetraoxadodecane)	173350-37-3	$HF_2C\text{-}(OCF_2CF_2)_3\text{-}OCF_2H$	NA	2,850*
HG-20 ((Difluoromethoxy)((difluoromethoxy)difluoromethoxy)difluoromethane)	249932-25-0	$HF_2C\text{-}(OCF_2)_2\text{-}OCF_2H$	NA	5,300*
HG-21 (1,1,3,3,5,5,7,7,8,8,10,10-Dodecafluoro-2,4,6,9-tetraoxadecane)	249932-26-1	$HF_2C\text{-}OCF_2CF_2OCF_2OCF_2O\text{-}CF_2H$	NA	3,890*
HG-30 (1,1,3,3,5,5,7,7,9,9-Decafluoro-2,4,6,8-tetraoxanonane)	188690-77-9	$HF_2C\text{-}(OCF_2)_3\text{-}OCF_2H$	NA	7,330*

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
1,1,1,2,2,3,3-Heptafluoro-3-(1,2,2,2-tetrafluoroethoxy)-propane	3330-15-2	$CF_3CF_2CF_2OCHFCF_3$	NA	6,490*
1,1'-Oxybis[2-(difluoromethoxy)-1,1,2,2-tetrafluoroethane	205367-61-9	$HCF_2O(CF_2CF_2O)_2CF_2H$	NA	4,920*
1,1,3,3,4,4,6,6,7,7,9,9,10,10,12,12-hexadecafluoro-2,5,8,11-Tetraoxadodecane	173350-37-3	$HCF_2O(CF_2CF_2O)_3CF_2H$	NA	4,490*
1,1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15-eicosafluoro-2,5,8,11,14-Pentaoxapentadecane	173350-38-4	$HCF_2O(CF_2CF_2O)_4CF_2H$	NA	3,630*
1,1,2-Trifluoro-2-(trifluoromethoxy)-ethane	84011-06-3	$CHF_2CHFOCF_3$	NA	1,240*
1,1,2,2-Tetrafluoro-1-(fluoromethoxy) ethane	37031-31-5	$CH_2FOCF_2CF_2H$	NA	871*
Trifluoro (fluoromethoxy) methane	2261-01-0	CH_2FOCF_3	NA	751*
Difluoro (fluoromethoxy) methane	461-63-2	CH_2FOCHF_2	NA	617*
Fluoro (fluoromethoxy) methane	462-51-1	CH_2FOCH_2F	NA	130*
Unsaturated Perfluorocarbons (PFCs)				
PFC-1114; TFE (tetrafluoroethylene (TFE); Perfluoroethene)	116-14-3	$CF_2=CF_2$; C_2F_4	0.04	0.04
PFC-1216; Dyneon HFP (hexafluoropropylene (HFP); Perfluoropropene)	116-15-4	C_3F_6; $CF_3CF=CF_2$	0.05	0.05
PFC C-1418 (Perfluorocyclopentene; Octafluorocyclopentene)	559-40-0	c-C_5F_8	1.97	1.97
Perfluorobut-2-ene	360-89-4	$CF_3CF=CFCF_3$	1.82	1.82
Perfluorobut-1-ene	357-26-6	$CF_3CF_2CF=CF_2$	0.10	0.10
Perfluorobuta-1,3-diene	685-63-2	$CF_2=CFCF=CF_2$	0	0.03
Unsaturated Hydrofluorocarbons (HFCs) and Hydrochlorofluorocarbons (HCFCs)				
HFC-1132a; VF2 (vinylidiene fluoride)	75-38-7	$C_2H_2F_2$, $CF_2=CH_2$	0.04	0.04
HFC-1141; VF (vinyl fluoride)	75-02-5	C_2H_3F, $CH_2=CHF$	0.02	0.02
(E)-HFC-1225ye ((E)-1,2,3,3,3-Pentafluoroprop-1-ene)	5595-10-8	$CF_3CF=CHF(E)$	0.06	0.06
(Z)-HFC-1225ye ((Z)-1,2,3,3,3-Pentafluoroprop-1-ene)	5528-43-8	$CF_3CF=CHF(Z)$	0.22	0.22
Solstice 1233zd(E) (trans-1-chloro-3,3,3-trifluoroprop-1-ene)	102687-65-0	$C_3H_2ClF_3$; $CHCl=CHCF_3$	NA	1.34*
HFC-1234yf; HFO-1234yf (2,3,3,3-Tetrafluoroprop-1-ene)	754-12-1	$C_3H_2F_4$; $CF_3CF=CH_2$	0.31	0.31
HFC-1234ze(E) ((E)-1,3,3,3-Tetrafluoroprop-1-ene)	1645-83-6	$C_3H_2F_4$; cis-$CF_3CH=CHF$	0.97	0.97

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
HFC-1234ze(Z) ((Z)-1,3,3,3-Tetrafluoroprop-1-ene)	29118-25-0	$C_3H_2F_4$; trans-$CF_3CH{=}CHF$; $CF_3CH{=}CHF(Z)$	0.29	0.29
HFC-1243zf; TFP (trifluoro propene (TFP); 3,3,3-Trifluoroprop-1-ene)	677-21-4	$C_3H_3F_3$,$CF_3CH{=}CH_2$	0.12	0.12
(Z)-HFC-1336 ((Z)-1,1,1,4,4,4-Hexafluorobut-2-ene)	692-49-9	$CF_3CH{=}CHCF_3(Z)$	1.58	1.58
HFO-1345zfc (3,3,4,4,4-Pentafluorobut-1-ene)	374-27-6	$C_2F_5CH{=}CH_2$	0.09	0.09
Capstone 42-U (perfluorobutyl ethene (42-U); 3,3,4,4,5,5,6,6,6-Nonafluorohex-1-ene)	19430-93-4	$C_6H_3F_9$,$CF_3(CF_2)_3CH{=}CH_2$	0.16	0.16
Capstone 62-U (perfluorohexyl ethene (62-U); 3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooct-1-ene)	25291-17-2	$C_8H_3F_{13}$,$CF_3(CF_2)_5CH{=}CH_2$	0.11	0.11
Capstone 82-U (perfluorooctyl ethene (82-U); 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Heptadecafluorodec-1-ene)	21652-58-4	$C_{10}H_3F_{17}$,$CF_3(CF_2)_7CH{=}CH_2$	0.09	0.09
Unsaturated Halogenated Ethers				
PMVE; HFE-216 (perfluoromethyl vinyl ether (PMVE))	1187-93-5	$CF_3OCF{=}CF_2$	NA	0.17*
Fluoroxene ((2,2,2-Trifluoroethoxy) ethene)	406-90-6	$CF_3CH_2OCH{=}CH_2$	NA	0.05*
Fluorinated Aldehydes				
3,3,3-Trifluoro-propanal	460-40-2	CF_3CH_2CHO	NA	0.01*
Fluorinated Ketones				
Novec 1230 (FK-5-1-12 Perfluoroketone; FK-5-1-12myy2; perfluoro (2-methyl-3-pentanone))	756-13-8	$CF_3CF_2C(O)CF\ (CF_3)_2$	NA	0.1*
Fluorotelomer Alcohols				
3,3,4,4,5,5,6,6,7,7,7-Undecafluoroheptan-1-ol	185689-57-0	$CF_3(CF_2)_4CH_2CH_2OH$	NA	0.43*
3,3,3-Trifluoropropan-1-ol	2240-88-2	$CF_3CH_2CH_2OH$	NA	0.35*
3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-Pentadecafluorononan-1-ol	755-02-2	$CF_3(CF_2)_6CH_2CH_2OH$	NA	0.33*
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-Nonadecafluoroundecan-1-ol	87017-97-8	$CF_3(CF_2)_8CH_2CH_2OH$	NA	0.19*
Fluorinated GHGs with Carbon-Iodine Bond(s)				
Trifluoroiodomethane	2314-97-8	CF_3I	NA	0.4*
Other Fluorinated Compounds				
Trifluoromethyl formate	85358-65-2	$HCOOCF_3$	NA	588*
Perfluoroethyl formate	313064-40-3	$HCOOCF_2CF_3$	NA	580*
1,2,2,2-Tetrafluoroethyl formate	481631-19-0	$HCOOCHFCF_3$	NA	470*
Perfluorobutyl formate	197218-56-7	$HCOOCF_2CF_2CF_2CF_3$	NA	392*

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
Perfluoropropyl formate	271257-42-2	$HCOOCF_2CF_2CF_3$	NA	376*
1,1,1,3,3,3-Hexafluoropropan-2-yl formate	856766-70-6	$HCOOCH(CF_3)_2$	NA	333*
Dibromodifluoromethane (Halon 1202)	75-61-6	CBr_2F_2	NA	231*
Bis(trifluoromethyl)-methanol	920-66-1	$(CF_3)_2CHOH$	195	195
1,1,1,3,3,3-Hexafluoropropan-2-ol	920-66-1	$(CF_3)_2CHOH$	NA	182*
Methyl carbonofluoridate	1538-06-3	$FCOOCH_3$	NA	95*
(Octafluorotetramethy-lene) hydroxymethyl group	NA	$X-(CF_2)_4CH(OH)-X$	73	73
Methyl 2,2,2-trifluoroacetate	431-47-0	CF_3COOCH_3	NA	52*
2,2,3,3,3-pentafluoropropanol	422-05-9	$CF_3CF_2CH_2OH$	42	42
2-Bromo-2-chloro-1,1,1-trifluoroethane (Halon-2311/ Halothane)	151-67-7	$CHBrClCF_3$	NA	41*
2,2,3,3,4,4,4-Heptafluorobutan-1-ol	375-01-9	$C_3F_7CH_2OH$	NA	34*
2,2,2-Trifluoroethyl formate	32042-38-9	$HCOOCH_2CF_3$	NA	33*
1,1-Difluoroethyl 2,2,2-trifluoroacetate	1344118-13-3	$CF_3COOCF_2CH_3$	NA	31*
Difluoromethyl 2,2,2-trifluoroacetate	2024-86-4	$CF_3COOCHF_2$	NA	27*
1,1-Difluoroethyl carbonofluoridate	1344118-11-1	$FCOOCF_2CH_3$	NA	27*
2,2,2-Trifluoroethanol	75-89-8	CF_3CH_2OH	NA	20*
2,2,3,3,3-Pentafluoropropan-1-ol	422-05-9	$CF_3CF_2CH_2OH$	NA	19*
2,2,3,4,4,4-Hexafluoro-1-butanol	382-31-0	$CF_3CHFCF_2CH_2OH$	NA	17*
3,3,3-Trifluoropropyl formate	1344118-09-7	$HCOOCH_2CH_2CF_3$	NA	17*
2,2,3,3,4,4,4-Heptafluoro-1-butanol	375-01-9	$CF_3CF_2CF_2CH_2OH$	NA	16*
2,2,3,3-Tetrafluoro-1-propanol	76-37-9	$CHF_2CF_2CH_2OH$	NA	13*
2,2,2-Trifluoroethyl 2,2,2-trifluoroacetate	407-38-5	$CF_3COOCH_2CF_3$	NA	7*
Methyl 2,2-difluoroacetate	433-53-4	HCF_2COOCH_3	NA	3*
2,2-Difluoroethanol	359-13-7	CHF_2CH_2OH	NA	3*
Perfluoroethyl acetate	343269-97-6	$CH_3COOCF_2CF_3$	NA	2.1*
Trifluoromethyl acetate	74123-20-9	CH_3COOCF_3	NA	2.0*
Perfluoropropyl acetate	1344118-10-0	$CH_3COOCF_2CF_2CF_3$	NA	1.8*
Perfluorobutyl acetate	209597-28-4	$CH_3COOCF_2CF_2CF_2CF_3$	NA	1.6*
Ethyl 2,2,2-trifluoroacetate	383-63-1	$CF_3COOCH_2CH_3$	NA	1.3*
2-Fluoroethanol	371-62-0	CH_2FCH_2OH	NA	1.1*
4,4,4-Trifluorobutan-1-ol	461-18-7	$CF_3(CH_2)_2CH_2OH$	NA	0.05*

Name	CAS No.	Chemical Formula	((~~Global Warming Potential (100 yr.)~~)) GWP (100 yr.)[1,2]	
			2012-2013	≥ 2014[3,4]
Default GWPs for which Chemical-Specific GWPs are not Listed Above				
Fully fluorinated GHGs			NA	10,000*
Saturated PFCs			10,000	10,000
Saturated HFCs			2,200	2,200
Partially segregated saturated HFEs and HCFEs			NA	200*
Non-segregated saturated HFEs and HCFEs			NA	2,400*
Unsaturated PFCs and unsaturated HFCs			1	1
Unsaturated HCFCs, unsaturated halogenated ethers, unsaturated halogenated esters, fluorinated aldehydes, and fluorinated ketones			NA	1*
Fluorotelomer alcohols			NA	1*
Fluorinated GHGs with carbon-iodine bond(s)			NA	1*
Other fluorinated GHGs			NA	110

NA = not available.
[1] = **Determining applicability for emissions years 2013 and 2014.** For emissions year 2013 (reported in 2014) and emissions year 2014 (reported in 2015), facilities may use the GWPs in either column when calculating GHG emissions for comparison to the reporting threshold under WAC 173-441-030(1).
[2] = **Calculating annual GHG emissions for emissions year 2013.** For emissions year 2013 (reported in 2014), facilities may use the GWPs in either column when calculating GHG emissions for the annual GHG report.
[3] = **Determining applicability for emissions year 2015+.** For emissions year 2015 (reported in 2016) and subsequent years, facilities must use the GWPs in this column when calculating GHG emissions for comparison to the reporting threshold under WAC 173-441-030(1).
[4] = **Calculating annual GHG emissions for emissions year 2014+.** For emissions year 2014 (reported in 2015) and subsequent years, facilities must use the GWPs in this column when calculating GHG emissions for the annual GHG report.
* = Requirements to include emissions of this compound when calculating GHG emissions for comparison to the reporting threshold under WAC 173-441-030(1) and when calculating GHG emissions for the annual GHG report become effective beginning with emissions year 2016 (reported in 2017).

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-050 General monitoring, reporting, recordkeeping and verification requirements. Persons subject to the requirements of this chapter must submit GHG reports to ecology, as specified in this section.

(1) **General.** Follow the procedures for emission calculation, monitoring, quality assurance, missing data, recordkeeping, and reporting that are specified in each relevant section of this chapter.

(2) **Schedule.** The annual GHG report must be submitted as follows:

(a) Report submission due date:

(i) A person required to report GHG emissions to the United States Environmental Protection Agency under 40 C.F.R. Part 98 must submit the report required under this chapter to ecology no later than March 31st of each calendar year for GHG emissions in the previous calendar year.

(ii) A person not required to report GHG emissions to the United States Environmental Protection Agency under 40 C.F.R. Part 98 must submit the report required under this chapter to ecology no later than October 31st of each calendar year for GHG emissions in the previous calendar year.

(iii) Unless otherwise stated, if the final day of any time period falls on a weekend or a state holiday, the time period shall be extended to the next business day.

(b) Reporting requirements begin:

(i) For an existing facility or supplier that began operation before January 1, 2012, report emissions for calendar year 2012 and each subsequent calendar year.

(ii) For a new facility or supplier that begins operation on or after January 1, 2012, and becomes subject to the rule in the year that it becomes operational, report emissions beginning with the first operating month and ending on December 31st of that year. Each subsequent annual report must cover emissions for the calendar year, beginning on January 1st and ending on December 31st.

(iii) For any facility or supplier that becomes subject to this rule because of a physical or operational change that is made after January 1, 2012, report emissions for the first calendar year in which the change occurs.

(A) Facilities begin reporting with the first month of the change and ending on December 31st of that year. For a facility that becomes subject to this rule solely because of an increase in hours of operation or level of production, the first month of the change is the month in which the increased hours of operation or level of production, if maintained for the remainder of the year, would cause the facility or supplier to exceed the applicable threshold.

(B) Suppliers begin reporting January 1st and ending on December 31st the year of the change.

(C) For both facilities and suppliers, each subsequent annual report must cover emissions for the calendar year, beginning on January 1st and ending on December 31st.

(3) **Content of the annual report.** Each annual GHG report ((~~shall~~)) must contain the following information:

(a) Facility name or supplier name (as appropriate), facility or supplier ID number, and physical street address of the facility or supplier, including the city, state, and zip code. If the facility does not have a physical street address, then the facility must provide the latitude and longitude representing the geographic centroid or center point of facility operations in decimal degree format. This must be provided in a comma-delimited "latitude, longitude" coordinate pair reported in decimal degrees to at least four digits to the right of the decimal point.

(b) Year and months covered by the report.

(c) Date of submittal.

(d) For facilities, report annual emissions of each GHG (as defined in WAC 173-441-020) and each fluorinated heat transfer fluid, as follows:

(i) Annual emissions (including biogenic CO_2) aggregated for all GHGs from all applicable source categories in WAC 173-441-120 and expressed in metric tons of CO_2e calculated using Equation A-1 of WAC 173-441-030 (1)(b)(iii).

(ii) Annual emissions of biogenic CO_2 aggregated for all applicable source categories in WAC 173-441-120, expressed in metric tons.

(iii) Annual emissions from each applicable source category in WAC 173-441-120, expressed in metric tons of each applicable GHG listed in subsections (3)(d)(iii)(A) through ((~~(E)~~)) (F) of this section.

(A) Biogenic CO_2.

(B) CO_2 (including biogenic CO_2).

(C) CH_4.

(D) N_2O.

(E) Each fluorinated GHG.

(F) For electronics manufacturing each fluorinated heat transfer fluid that is not also a fluorinated GHG as specified under WAC 173-441-040.

(iv) Emissions and other data for individual units, processes, activities, and operations as specified in the "data reporting requirements" section of each applicable source category referenced in WAC 173-441-120.

(v) Indicate (yes or no) whether reported emissions include emissions from a cogeneration unit located at the facility.

(vi) When applying subsection (3)(d)(i) of this section to fluorinated GHGs and fluorinated heat transfer fluids, calculate and report CO_2e for only those fluorinated GHGs and fluorinated heat transfer fluids listed in WAC 173-441-040.

(vii) For reporting year 2014 and thereafter, you must enter into verification software specified by the director the data specified in the verification software records provision in each applicable recordkeeping section. For each data element entered into the verification software, if the software produces a warning message for the data value and you elect not to revise the data value, you may provide an explanation in the verification software of why the data value is not being revised. Whenever the use of verification software is required or voluntarily used, the file generated by the verification software must be submitted with the facility's annual GHG report.

(e) For suppliers, report the following information:

(i) Annual emissions of CO_2, expressed in metric tons of CO_2, as required in subsections (3)(e)(i)(A) and (B) of this section that would be emitted from the complete combustion or oxidation of the fuels reported to DOL as sold in Washington state during the calendar year.

(A) Aggregate biogenic CO_2.

(B) Aggregate CO_2 (including nonbiogenic and biogenic CO_2).

(ii) All contact information reported to DOL not included in (a) of this subsection.

(f) A written explanation, as required under subsection (4) of this section, if you change emission calculation methodologies during the reporting period.

(g) Each data element for which a missing data procedure was used according to the procedures of an applicable subpart referenced in WAC 173-441-120 and the total number of hours in the year that a missing data procedure was used for each data element.

(h) A signed and dated certification statement provided by the designated representative of the owner or operator, according to the requirements of WAC 173-441-060 (5)(a).

(i) NAICS code(s) that apply to the ((~~reporting entity~~)) facility or supplier.

(i) Primary NAICS code. Report the NAICS code that most accurately describes the ((~~reporting entity's~~)) facility or supplier's primary product/activity/service. The primary product/activity/service is the principal source of revenue for the ((~~reporting entity. A reporting entity~~)) facility or supplier. A facility or supplier that has two distinct products/activities/services providing comparable revenue may report a second primary NAICS code.

(ii) Additional NAICS code(s). Report all additional NAICS codes that describe all product(s)/activity(s)/service(s) at the ((~~reporting entity~~)) facility or supplier that are not related to the principal source of revenue. ((~~If more than one additional NAICS code applies, list the additional NAICS codes in the order of the largest revenue to the smallest.~~))

(j) Legal name(s) and physical address(es) of the highest-level United States parent company(s) of the ((~~reporting entity~~)) owners (or operators) of the facility or supplier and the percentage of ownership interest for each listed parent company as of December 31st of the year for which data are being reported according to the following instructions:

(i) If the ((~~reporting entity~~)) facility or supplier is entirely owned by a single United States company that is not owned by another company, provide that company's legal name and physical address as the United States parent company and report one hundred percent ownership.

(ii) If the ((~~reporting entity~~)) facility or supplier is entirely owned by a single United States company that is, itself, owned by another company (e.g., it is a division or subsidiary of a higher-level company), provide the legal name and physical address of the highest-level company in the ownership hierarchy as the United States parent company and report one hundred percent ownership.

(iii) If the ((~~reporting entity~~)) facility or supplier is owned by more than one United States company (e.g., company A owns forty percent, company B owns thirty-five percent, and company C owns twenty-five percent), provide the legal names and physical addresses of all the highest-level companies with an ownership interest as the United States parent companies and report the percent ownership of each company.

(iv) If the ((~~reporting entity~~)) facility or supplier is owned by a joint venture or a cooperative, the joint venture or cooperative is its own United States parent company. Provide the legal name and physical address of the joint venture or cooperative as the United States parent company, and report one hundred percent ownership by the joint venture or cooperative.

(v) If the ((~~reporting entity~~)) facility or supplier is entirely owned by a foreign company, provide the legal name and physical address of the foreign company's highest-level company based in the United States as the United States parent company, and report one hundred percent ownership.

(vi) If the ((~~reporting entity~~)) facility or supplier is partially owned by a foreign company and partially owned by one or more United States companies, provide the legal name and physical address of the foreign company's highest-level company based in the United States, along with the legal names and physical addresses of the other United States parent companies, and report the percent ownership of each of these companies.

(vii) If the ((~~reporting entity~~)) facility or supplier is a federally owned facility, report "U.S. Government" and do not report physical address or percent ownership.

(k) An indication of whether the facility includes one or more plant sites that have been assigned a "plant code" by either the Department of Energy's Energy Information Administration or by the Environmental Protection Agency's (EPA) Clean Air Markets Division.

(4) **Emission calculations.** In preparing the GHG report, you must use the calculation methodologies specified in the relevant sections of this chapter. For each source category, you must use the same cal-

culation methodology throughout a reporting period unless you provide a written explanation of why a change in methodology was required.

(5) **Verification.** To verify the completeness and accuracy of reported GHG emissions, ecology may review the certification statements described in subsection (3)(h) of this section and any other credible evidence, in conjunction with a comprehensive review of the GHG reports and periodic audits of selected reporting facilities. Nothing in this section prohibits ecology from using additional information to verify the completeness and accuracy of the reports.

(6) **Recordkeeping.** A person that is required to report((~~s~~)) GHGs under this chapter must keep records as specified in this subsection. Retain all required records for at least three years((~~. The records shall be kept in an electronic or hard copy format (as appropriate) and recorded in a form that is suitable for expeditious inspection and review~~)) from the date of submission of the annual GHG report for the reporting year in which the record was generated. Upon request by ecology, the records required under this section must be made available to ecology. Records may be retained off-site if the records are readily available for expeditious inspection and review. For records that are electronically generated or maintained, the equipment or software necessary to read the records ((~~shall~~)) must be made available, or, if requested by ecology, electronic records ((~~shall~~)) must be converted to paper documents. You must retain the following records, in addition to those records prescribed in each applicable section of this chapter:

(a) A list of all units, operations, processes, and activities for which GHG emissions were calculated.

(b) The data used to calculate the GHG emissions for each unit, operation, process, and activity, categorized by fuel or material type. These data include, but are not limited to, the following information:

(i) The GHG emissions calculations and methods used.

(ii) Analytical results for the development of site-specific emissions factors.

(iii) The results of all required analyses for high heat value, carbon content, and other required fuel or feedstock parameters.

(iv) Any facility operating data or process information used for the GHG emission calculations.

(c) The annual GHG reports.

(d) Missing data computations. For each missing data event, also retain a record of the cause of the event and the corrective actions taken to restore malfunctioning monitoring equipment.

(e) Owners or operators required to report under WAC 173-441-030(1) must keep a written GHG monitoring plan (monitoring plan, plan).

(i) At a minimum, the GHG monitoring plan ((~~shall~~)) must include the following elements:

(A) Identification of positions of responsibility (i.e., job titles) for collection of the emissions data.

(B) Explanation of the processes and methods used to collect the necessary data for the GHG calculations.

(C) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems, flow meters, and other instrumentation used to provide data for the GHGs reported under this chapter.

(ii) The GHG monitoring plan may rely on references to existing corporate documents (e.g., standard operating procedures, quality as-

surance programs under appendix F to 40 C.F.R. Part 60 or appendix B to 40 C.F.R. Part 75, and other documents) provided that the elements required by (e)(i) of this subsection are easily recognizable.

(iii) The owner or operator ((~~shall~~)) must revise the GHG monitoring plan as needed to reflect changes in production processes, monitoring instrumentation, and quality assurance procedures; or to improve procedures for the maintenance and repair of monitoring systems to reduce the frequency of monitoring equipment downtime.

(iv) Upon request by ecology, the owner or operator ((~~shall~~)) must make all information that is collected in conformance with the GHG monitoring plan available for review during an audit. Electronic storage of the information in the plan is permissible, provided that the information can be made available in hard copy upon request during an audit.

(f) The results of all required certification and quality assurance tests of continuous monitoring systems, fuel flow meters, and other instrumentation used to provide data for the GHGs reported under this chapter.

(g) Maintenance records for all continuous monitoring systems, flow meters, and other instrumentation used to provide data for the GHGs reported under this chapter.

(h) Suppliers must retain any other data specified in WAC 173-441-130(5).

(7) **Annual GHG report revisions.**

(a) A person ((~~shall~~)) must submit a revised annual GHG report within forty-five days of discovering that an annual GHG report that the person previously submitted contains one or more substantive errors. The revised report must correct all substantive errors.

(b) Ecology may notify the person in writing that an annual GHG report previously submitted by the person contains one or more substantive errors. Such notification will identify each such substantive error. The person ((~~shall~~)) must, within forty-five days of receipt of the notification, either resubmit the report that, for each identified substantive error, corrects the identified substantive error (in accordance with the applicable requirements of this chapter) or provide information demonstrating that the previously submitted report does not contain the identified substantive error or that the identified error is not a substantive error.

(c) A substantive error is an error that impacts the quantity of GHG emissions reported or otherwise prevents the reported data from being validated or verified.

(d) Notwithstanding (a) and (b) of this subsection, upon request by a person, ecology may provide reasonable extensions of the forty-five day period for submission of the revised report or information under (a) and (b) of this subsection. If ecology receives a request for extension of the forty-five day period, by e-mail to ((~~an address prescribed by ecology~~)) ghgreporting@ecy.wa.gov, at least two business days prior to the expiration of the forty-five day period, and ecology does not respond to the request by the end of such period, the extension request is deemed to be automatically granted for thirty more days. During the automatic thirty-day extension, ecology will determine what extension, if any, beyond the automatic extension is reasonable and will provide any such additional extension.

(e) The owner or operator ((~~shall~~)) must retain documentation for three years to support any revision made to an annual GHG report.

(8) **Calibration and accuracy requirements.** The owner or operator of a facility that is subject to the requirements of this chapter must

meet the applicable flow meter calibration and accuracy requirements of this subsection. The accuracy specifications in this subsection do not apply where either the use of company records (as defined in WAC 173-441-020(3)) or the use of "best available information" is specified in an applicable subsection of this chapter to quantify fuel usage and/or other parameters. Further, the provisions of this subsection do not apply to stationary fuel combustion units that use the methodologies in 40 C.F.R. Part 75 to calculate CO_2 mass emissions. Suppliers subject to the requirements of this chapter must meet the calibration accuracy requirements in chapters 308-72, 308-77, and 308-78 WAC.

(a) Except as otherwise provided in (d) through (f) of this subsection, flow meters that measure liquid and gaseous fuel feed rates, process stream flow rates, or feedstock flow rates and provide data for the GHG emissions calculations, ((~~shall~~)) must be calibrated prior to January 1, 2012, using the procedures specified in this subsection when such calibration is specified in a relevant section of this chapter. Each of these flow meters ((~~shall~~)) must meet the applicable accuracy specification in (b) or (c) of this subsection. All other measurement devices (e.g., weighing devices) that are required by a relevant subsection of this chapter, and that are used to provide data for the GHG emissions calculations, ((~~shall~~)) must also be calibrated prior to January 1, 2012; however, the accuracy specifications in (b) and (c) of this subsection do not apply to these devices. Rather, each of these measurement devices ((~~shall~~)) must be calibrated to meet the accuracy requirement specified for the device in the applicable subsection of this chapter, or, in the absence of such accuracy requirement, the device must be calibrated to an accuracy within the appropriate error range for the specific measurement technology, based on an applicable operating standard including, but not limited to, manufacturer's specifications and industry standards ((~~and manufacturer's specifications~~)). The procedures and methods used to quality-assure the data from each measurement device ((~~shall~~)) must be documented in the written monitoring plan, pursuant to subsection (6)(e)(i)(C) of this section.

(i) All flow meters and other measurement devices that are subject to the provisions of this subsection must be calibrated according to one of the following: You may use the manufacturer's recommended procedures; an appropriate industry consensus standard method; or a method specified in a relevant section of this chapter. The calibration method(s) used ((~~shall~~)) must be documented in the monitoring plan required under subsection (6)(e) of this section.

(ii) For facilities and suppliers that become subject to this chapter after January 1, 2012, all flow meters and other measurement devices (if any) that are required by the relevant subsection(s) of this chapter to provide data for the GHG emissions calculations ((~~shall~~)) must be installed no later than the date on which data collection is required to begin using the measurement device, and the initial calibration(s) required by this subsection (if any) ((~~shall~~)) must be performed no later than that date.

(iii) Except as otherwise provided in (d) through (f) of this subsection, subsequent recalibrations of the flow meters and other measurement devices subject to the requirements of this subsection ((~~shall~~)) must be performed at one of the following frequencies:

(A) You may use the frequency specified in each applicable subsection of this chapter.

(B) You may use the frequency recommended by the manufacturer or by an industry consensus standard practice, if no recalibration frequency is specified in an applicable subsection.

(b) Perform all flow meter calibration at measurement points that are representative of the normal operating range of the meter. Except for the orifice, nozzle, and venturi flow meters described in (c) of this subsection, calculate the calibration error at each measurement point using Equation A–2 of this subsection. The terms "R" and "A" in Equation A–2 must be expressed in consistent units of measure (e.g., gallons/minute, ft^3/min). The calibration error at each measurement point ((~~shall~~)) must not exceed 5.0 percent of the reference value.

$$CE = \frac{|R-A|}{R} \times 100 \qquad \text{(Eq. A-2)}$$

Where:

CE = Calibration error (%)

R = Reference value

A = Flow meter response to the reference value

(c) For orifice, nozzle, and venturi flow meters, the initial quality assurance consists of in situ calibration of the differential pressure (delta-P), total pressure, and temperature transmitters.

(i) Calibrate each transmitter at a zero point and at least one upscale point. Fixed reference points, such as the freezing point of water, may be used for temperature transmitter calibrations. Calculate the calibration error of each transmitter at each measurement point, using Equation A–3 of this subsection. The terms "R," "A," and "FS" in Equation A–3 of this subsection must be in consistent units of measure (e.g., milliamperes, inches of water, psi, degrees). For each transmitter, the CE value at each measurement point ((~~shall~~)) must not exceed 2.0 percent of full-scale. Alternatively, the results are acceptable if the sum of the calculated CE values for the three transmitters at each calibration level (i.e., at the zero level and at each upscale level) does not exceed 6.0 percent.

$$CE = \frac{|R-A|}{FS} \times 100 \qquad \text{(Eq. A-3)}$$

Where:

CE = Calibration error (%)

R = Reference value

A = Transmitter response to the reference value

FS = Full-scale value of the transmitter

(ii) In cases where there are only two transmitters (i.e., differential pressure and either temperature or total pressure) in the immediate vicinity of the flow meter's primary element (e.g., the orifice plate), or when there is only a differential pressure transmitter in close proximity to the primary element, calibration of these existing transmitters to a CE of 2.0 percent or less at each measurement point is still required, in accordance with (c)(i) of this subsection; alternatively, when two transmitters are calibrated, the results are acceptable if the sum of the CE values for the two transmitters at each calibration level does not exceed 4.0 percent. However, note that installation and calibration of an additional transmitter (or transmitters) at the flow monitor location to measure temperature or total pressure or both is not required in these cases. Instead, you may use

assumed values for temperature and/or total pressure, based on measurements of these parameters at a remote location (or locations), provided that the following conditions are met:

(A) You must demonstrate that measurements at the remote location(s) can, when appropriate correction factors are applied, reliably and accurately represent the actual temperature or total pressure at the flow meter under all expected ambient conditions.

(B) You must make all temperature and/or total pressure measurements in the demonstration described in (c)(ii)(A) of this subsection with calibrated gauges, sensors, transmitters, or other appropriate measurement devices. At a minimum, calibrate each of these devices to an accuracy within the appropriate error range for the specific measurement technology, according to one of the following: You may calibrate using a manufacturer's specification or an industry consensus standard((~~s or a manufacturer's specification~~)).

(C) You must document the methods used for the demonstration described in (c)(ii)(A) of this subsection in the written GHG monitoring plan under subsection (6)(e)(i)(C) of this section. You must also include the data from the demonstration, the mathematical correlation(s) between the remote readings and actual flow meter conditions derived from the data, and any supporting engineering calculations in the GHG monitoring plan. You must maintain all of this information in a format suitable for auditing and inspection.

(D) You must use the mathematical correlation(s) derived from the demonstration described in (c)(ii)(A) of this subsection to convert the remote temperature or the total pressure readings, or both, to the actual temperature or total pressure at the flow meter, or both, on a daily basis. You ((~~shall~~)) must then use the actual temperature and total pressure values to correct the measured flow rates to standard conditions.

(E) You ((~~shall~~)) must periodically check the correlation(s) between the remote and actual readings (at least once a year), and make any necessary adjustments to the mathematical relationship(s).

(d) Fuel billing meters are exempted from the calibration requirements of this section and from the GHG monitoring plan and recordkeeping provisions of subsections (6)(e)(i)(C) and (g) of this section, provided that the fuel supplier and any unit combusting the fuel do not have any common owners and are not owned by subsidiaries or affiliates of the same company. Meters used exclusively to measure the flow rates of fuels that are used for unit startup ((~~or ignition~~)) are also exempted from the calibration requirements of this section.

(e) For a flow meter that has been previously calibrated in accordance with (a) of this subsection, an additional calibration is not required by the date specified in (a) of this subsection if, as of that date, the previous calibration is still active (i.e., the device is not yet due for recalibration because the time interval between successive calibrations has not elapsed). In this case, the deadline for the successive calibrations of the flow meter ((~~shall~~)) must be set according to one of the following: You may use either the manufacturer's recommended calibration schedule or you may use the industry consensus calibration schedule.

(f) For units and processes that operate continuously with infrequent outages, it may not be possible to meet the deadline established in (a) of this subsection for the initial calibration of a flow meter or other measurement device without disrupting normal process operation. In such cases, the owner or operator may postpone the initial calibration until the next scheduled maintenance outage. The best

available information from company records may be used in the interim. The subsequent required recalibrations of the flow meters may be similarly postponed. Such postponements ((~~shall~~)) must be documented in the monitoring plan that is required under subsection (6)(e) of this section.

(g) If the results of an initial calibration or a recalibration fail to meet the required accuracy specification, data from the flow meter ((~~shall~~)) must be considered invalid, beginning with the hour of the failed calibration and continuing until a successful calibration is completed. You ((~~shall~~)) must follow the missing data provisions provided in the relevant missing data sections during the period of data invalidation.

(9) **Measurement device installation.** 40 C.F.R. § 98.3(j) and 40 C.F.R. § 98.3(d) as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014, are adopted by reference as modified in WAC 173-441-120(2).

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-060 Authorization and responsibilities of the designated representative. (1) **General.** Except as provided under subsection (6) of this section, each facility, and each supplier, that is subject to this chapter, ((~~shall~~)) must have one and only one designated representative, who ((~~shall~~)) must be responsible for certifying, signing, and submitting GHG emissions reports and any other submissions for such facility and supplier respectively to ecology under this chapter. If the facility is required to submit ((~~an~~)) a GHG emissions report to EPA under 40 C.F.R. Part 98, ((~~the designated representative responsible for certifying, signing, and submitting the GHG emissions reports and all such other emissions reports to EPA shall~~)) that designated representative must also be the designated representative responsible for certifying, signing, and submitting GHG emissions reports to ecology under this chapter.

(2) **Authorization of a designated representative.** The designated representative of the facility or supplier ((~~shall~~)) must be an individual selected by an agreement binding on the owners and operators of such facility or supplier and ((~~shall~~)) must act in accordance with the certification statement in subsection (9)(d)((~~(iv)~~)) of this section.

(3) **Responsibility of the designated representative.** Upon receipt by ecology of a complete certificate of representation under this section for a facility or supplier, the designated representative identified in such certificate of representation ((~~shall~~)) must represent and, by his or her representations, actions, inactions, or submissions, legally bind each owner and operator of such facility or supplier in all matters pertaining to this chapter, notwithstanding any agreement between the designated representative and such owners and operators. The owners and operators ((~~shall~~)) must be bound by any decision or order issued to the designated representative by ecology, pollution control hearings board, or a court.

(4) **Timing.** No GHG emissions report or other submissions under this chapter for a facility or supplier will be accepted until ecology has received a complete certificate of representation under this sec-

tion for a designated representative of the facility or supplier. Such certificate of representation ((~~shall~~)) must be submitted at least sixty days before the deadline for submission of the facility's or supplier's initial emission report under this chapter.

(5) **Certification of the GHG emissions report.** Each GHG emission report and any other submission under this chapter for a facility or supplier ((~~shall~~)) must be certified, signed, and submitted by the designated representative or any alternate designated representative of the facility or supplier in accordance with this section and 40 C.F.R. § 3.10 as adopted on October 13, 2005.

(a) Each such submission ((~~shall~~)) must include the following certification statement signed by the designated representative or any alternate designated representative: "I am authorized to make this submission on behalf of the owners and operators of the facility or supplier, as applicable, for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

(b) Ecology will accept a GHG emission report or other submission for a facility or supplier under this chapter only if the submission is certified, signed, and submitted in accordance with this section.

(6) **Alternate designated representative.** A certificate of representation under this section for a facility or supplier may designate one alternate designated representative, who ((~~shall~~)) must be an individual selected by an agreement binding on the owners and operators, and may act on behalf of the designated representative, of such facility or supplier. The agreement by which the alternate designated representative is selected ((~~shall~~)) must include a procedure for authorizing the alternate designated representative to act in lieu of the designated representative.

(a) Upon receipt by ecology of a complete certificate of representation under this section for a facility or supplier identifying an alternate designated representative:

(i) The alternate designated representative may act on behalf of the designated representative for such facility or supplier.

(ii) Any representation, action, inaction, or submission by the alternate designated representative ((~~shall~~)) must be deemed to be a representation, action, inaction, or submission by the designated representative.

(b) Except in this section, whenever the term "designated representative" is used in this chapter, the term ((~~shall~~)) must be construed to include the designated representative or any alternate designated representative.

(7) **Changing a designated representative or alternate designated representative.** The designated representative or alternate designated representative identified in a complete certificate of representation under this section for a facility or supplier received by ecology may be changed at any time upon receipt by ecology of another later signed, complete certificate of representation under this section for the facility or supplier. Notwithstanding any such change, all representations, actions, inactions, and submissions by the previous designated

representative or the previous alternate designated representative of the facility or supplier before the time and date when ecology receives such later signed certificate of representation ((~~shall~~)) must be binding on the new designated representative and the owners and operators of the facility or supplier.

(8) **Changes in owners and operators.** In the event an owner or operator of the facility or supplier is not included in the list of owners and operators in the certificate of representation under this section for the facility or supplier, such owner or operator ((~~shall~~)) must be deemed to be subject to and bound by the certificate of representation, the representations, actions, inactions, and submissions of the designated representative and any alternate designated representative of the facility or supplier, as if the owner or operator were included in such list. Within ninety days after any change in the owners and operators of the facility or supplier (including the addition of a new owner or operator), the designated representative or any alternate designated representative ((~~shall~~)) must submit a certificate of representation that is complete under this section except that such list ((~~shall~~)) must be amended to reflect the change. If the designated representative or alternate designated representative determines at any time that an owner or operator of the facility or supplier is not included in such list and such exclusion is not the result of a change in the owners and operators, the designated representative or any alternate designated representative ((~~shall~~)) must submit, within ninety days of making such determination, a certificate of representation that is complete under this section except that such list ((~~shall~~)) must be amended to include such owner or operator.

(9) **Certificate of representation.** A certificate of representation shall be complete if it includes the following elements in a format prescribed by ecology in accordance with this section:

(a) Identification of the facility or supplier for which the certificate of representation is submitted.

(b) The name, organization name (company affiliation-employer), address, e-mail address (if any), telephone number, and facsimile transmission number (if any) of the designated representative and any alternate designated representative.

(c) A list of the owners and operators of the facility or supplier identified in (a) of this subsection, provided that, if the list includes the operators of the facility or supplier and the owners with control of the facility or supplier, the failure to include any other owners ((~~shall~~)) must not make the certificate of representation incomplete.

(d) The following certification statements by the designated representative and any alternate designated representative:

(i) "I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the facility or binding on the supplier, as applicable."

(ii) "I certify that I have all the necessary authority to carry out my duties and responsibilities under chapter 173-441 WAC on behalf of the owners and operators of the facility and on behalf of suppliers, as applicable, and that each such owner and operator ((~~shall~~)) must be fully bound by my representations, actions, inactions, or submissions."

(iii) "I certify that the supplier or owners and operators of the facility, as applicable, ((~~shall~~)) must be bound by any order issued

to me by ecology, the pollution control hearings board, or a court regarding the facility or supplier."

(iv) "If there are multiple owners and operators of the facility or multiple suppliers, as applicable, I certify that I have given a written notice of my selection as the 'designated representative' or 'alternate designated representative,' as applicable, and of the agreement by which I was selected to each owner and operator of the facility and each supplier."

(e) The signature of the designated representative and any alternate designated representative and the dates signed.

(10) **Documents of agreement.** Unless otherwise required by ecology, documents of agreement referred to in the certificate of representation shall not be submitted to ecology. Ecology shall not be under any obligation to review or evaluate the sufficiency of such documents, if submitted.

(11) **Binding nature of the certificate of representation.** Once a complete certificate of representation under this section for a facility or supplier has been received, ecology will rely on the certificate of representation unless and until a later signed, complete certificate of representation under this section for the facility or supplier is received by ecology.

(12) **Objections concerning a designated representative.**

(a) Except as provided in subsection (7) of this section, no objection or other communication submitted to ecology concerning the authorization, or any representation, action, inaction, or submission, of the designated representative or alternate designated representative ((~~shall~~)) must affect any representation, action, inaction, or submission of the designated representative or alternate designated representative, or the finality of any decision or order by ecology under this chapter.

(b) Ecology will not adjudicate any private legal dispute concerning the authorization or any representation, action, inaction, or submission of any designated representative or alternate designated representative.

(13) **Delegation by designated representative and alternate designated representative.**

(a) A designated representative or an alternate designated representative may delegate his or her own authority, to one or more individuals, to submit an electronic submission to ecology provided for or required under this chapter, except for a submission under this subsection.

(b) In order to delegate his or her own authority, to one or more individuals, to submit an electronic submission to ecology in accordance with (a) of this subsection, the designated representative or alternate designated representative must submit electronically to ecology a notice of delegation, in a format prescribed by ecology, that includes the following elements:

(i) The name, organization name (company affiliation-employer), address, e-mail address (if any), telephone number, and facsimile transmission number (if any) of such designated representative or alternate designated representative.

(ii) The name, address, e-mail address, telephone number, and facsimile transmission number (if any) of each such individual (referred to as an "agent").

(iii) For each such individual, a list of the type or types of electronic submissions under (a) of this subsection for which authority is delegated to him or her.

(iv) For each type of electronic submission listed in accordance with subsection (13)(b)(iii) of this section, the facility or supplier for which the electronic submission may be made.

(v) The following certification statements by such designated representative or alternate designated representative:

(A) "I agree that any electronic submission to ecology that is by an agent identified in this notice of delegation and of a type listed, and for a facility or supplier designated, for such agent in this notice of delegation and that is made when I am a designated representative or alternate designated representative, as applicable, and before this notice of delegation is superseded by another notice of delegation under WAC 173-441-060 (13)(c) ((~~shall~~)) must be deemed to be an electronic submission certified, signed, and submitted by me."

(B) "Until this notice of delegation is superseded by a later signed notice of delegation under WAC 173-441-060 (13)(c), I agree to maintain an e-mail account and to notify ecology immediately of any change in my e-mail address unless all delegation of authority by me under WAC 173-441-060(13) is terminated."

(vi) The signature of such designated representative or alternate designated representative and the date signed.

(c) A notice of delegation submitted in accordance with (b) of this subsection ((~~shall~~)) must be effective, with regard to the designated representative or alternate designated representative identified in such notice, upon receipt of such notice by ecology and until receipt by ecology of another such notice that was signed later by such designated representative or alternate designated representative, as applicable. The later signed notice of delegation may replace any previously identified agent, add a new agent, or eliminate entirely any delegation of authority.

(d) Any electronic submission covered by the certification in (b)(v)(A) of this subsection and made in accordance with a notice of delegation effective under (c) of this subsection ((~~shall~~)) must be deemed to be an electronic submission certified, signed, and submitted by the designated representative or alternate designated representative submitting such notice of delegation.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-070 Report submittal. ((~~Each GHG report and certificate of representation for a facility or supplier must be submitted electronically in accordance with the requirements of WAC 173-441-050 and 173-441-060 and in a format specified by ecology.~~)) The following must be submitted electronically in accordance with the requirements of WAC 173-441-050 and 173-441-060 and in a format specified by ecology.

(1) Facility reporters:

(a) GHG report;

(b) Certificate of representation; and

(c) Verification software file.

(2) Transportation fuel suppliers:

(a) GHG report; and

(b) Certificate of representation.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-080 Standardized methods and conversion factors incorporated by reference. (1) The materials incorporated by reference by EPA in 40 C.F.R. § 98.7, as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014, are incorporated by reference in this chapter for use in the sections of this chapter that correspond to the sections of 40 C.F.R. Part 98 referenced here.

(2) Table A–2 of this section provides a conversion table for some of the common units of measure used in this chapter.

Table A-2:
Units of Measure Conversions

To convert from	To	Multiply by
Kilograms (kg)	Pounds (lbs)	2.20462
Pounds (lbs)	Kilograms (kg)	0.45359
Pounds (lbs)	Metric tons	4.53592×10^{-4}
Short tons	Pounds (lbs)	2,000
Short tons	Metric tons	0.90718
Metric tons	Short tons	1.10231
Metric tons	Kilograms (kg)	1,000
Cubic meters (m^3)	Cubic feet (ft^3)	35.31467
Cubic feet (ft^3)	Cubic meters (m^3)	0.028317
Gallons (liquid, US)	Liters (l)	3.78541
Liters (l)	Gallons (liquid, US)	0.26417
Barrels of liquid fuel (bbl)	Cubic meters (m^3)	0.15891
Cubic meters (m^3)	Barrels of liquid fuel (bbl)	6.289
Barrels of liquid fuel (bbl)	Gallons (liquid, US)	42
Gallons (liquid, US)	Barrels of liquid fuel (bbl)	0.023810
Gallons (liquid, US)	Cubic meters (m^3)	0.0037854
Liters (l)	Cubic meters (m^3)	0.001
Feet (ft)	Meters (m)	0.3048
Meters (m)	Feet (ft)	3.28084
Miles (mi)	Kilometers (km)	1.60934
Kilometers (km)	Miles (mi)	0.62137
Square feet (ft^2)	Acres	2.29568×10^{-5}
Square meters (m^2)	Acres	2.47105×10^{-4}
Square miles (mi^2)	Square kilometers (km^2)	2.58999
Degrees Celsius (°C)	Degrees Fahrenheit (°F)	°C = (5/9) x (°F - 32)
Degrees Fahrenheit (°F)	Degrees Celsius (°C)	°F = (9/5) x (°C + 32)
Degrees Celsius (°C)	Kelvin (K)	K = °C + 273.15
Kelvin (K)	Degrees Rankine (°R)	1.8
Joules	Btu	9.47817×10^{-4}
Btu	MMBtu	1×10^{-6}
Pascals (Pa)	Inches of Mercury (in Hg)	2.95334×10^{-4}
Inches of Mercury (in Hg)	Pounds per square inch (psi)	0.49110

To convert from	To	Multiply by
Pounds per square inch (psi)	Inches of Mercury (in Hg)	2.03625

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-090 Compliance and enforcement. (1) **Violations.** Any violation of any requirement of this chapter ((~~shall~~)) must be a violation of chapter 70.94 RCW and subject to enforcement as provided in that chapter. A violation includes, but is not limited to, failure to report GHG emissions by the reporting deadline, failure to report accurately, failure to collect data needed to calculate GHG emissions, failure to continuously monitor and test as required, failure to retain records needed to verify the amount of GHG emissions, failure to calculate GHG emissions following the methodologies specified in this chapter, and failure to pay the required reporting fee. Each day of a violation constitutes a separate violation.

(2) **Enforcement responsibility.** Ecology ((~~shall~~)) must enforce the requirements of this chapter unless ecology approves a local air authority's request to enforce the requirements for persons operating within the authority's jurisdiction.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-100 Addresses. All requests, notifications, and communications to ecology pursuant to this chapter, ((~~other than submittal of the annual GHG report, shall~~)) must be submitted ((~~to~~)) in a format as specified by ecology to either of the following ((~~address~~)):

(1) For U.S. mail. Greenhouse Gas Report, Air Quality Program, Department of Ecology, P.O. Box 47600, Olympia, WA 98504-7600.

(2) For e-mail. ghgreporting@ecy.wa.gov.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-120 Calculation methods incorporated by reference from 40 C.F.R. Part 98 for facilities. Owners and operators of facilities that are subject to this chapter must follow the requirements of this chapter and all subparts of 40 C.F.R. Part 98 listed in Table 120-1 of this section. If a conflict exists between a provision in WAC 173-441-050(3) through 173-441-080 and any applicable provision of this section, the requirements of this section ((~~shall~~)) must take precedence.

(1) **Source categories and calculation methods for facilities.** An owner or operator of a facility subject to the requirements of this chapter must report GHG emissions, including GHG emissions from bio-

mass, from all applicable source categories in Washington state listed in Table 120-1 of this section using the methods incorporated by reference in Table 120-1. Table 120-1 and subsection (2) of this section list modifications and exceptions to calculation methods adopted by reference in this section. CO_2 collected and transferred ((~~off-site~~)) off site must be included in the emissions calculation as required under WAC 173-441-030 (1)(b)(iv) using the methods established in 40 C.F.R. Part 98 Subpart PP as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014. Owners or operators are not required to comply with requirements in Subpart PP that do not address CO_2 collected and transferred ((~~off-site~~)) off site.

Table 120-1:
Source Categories and Calculation Methods
Incorporated by Reference from 40 C.F.R. Part 98 for Facilities

Source Category	40 C.F.R. Part 98 Subpart*	Exceptions to Calculation Method or Applicability Criteria+#
General Stationary Fuel Combustion Sources	C	
Electricity Generation	D	
Adipic Acid Production	E	
Aluminum Production	F	
Ammonia Manufacturing	G	
Cement Production	H	
Electronics Manufacturing	I	In § 98.91, replace "To calculate total annual GHG emissions for comparison to the 25,000 metric ton CO_2e per year emission threshold in paragraph § 98.2 (a)(2), follow the requirements of § 98.2(b), with one exception" with "To calculate GHG emissions for comparison to the emission threshold in WAC 173-441-030(1), follow the requirements of WAC 173-441-030 (1)(b), with one exception."
Ferroalloy Production	K	
Fluorinated Gas Production	L	In § 98.121, replace "To calculate GHG emissions for comparison to the 25,000 metric ton CO_2e per year emission threshold in § 98.2 (a)(2)" with "To calculate GHG emissions for comparison to the emission threshold in WAC 173-441-030(1)."
Glass Production	N	
HCFC-22 Production and HFC-23 Destruction	O	
Hydrogen Production	P	
Iron and Steel Production	Q	
Lead Production	R	
Lime Manufacturing	S	
Magnesium Production	T	
Miscellaneous Uses of Carbonate	U	
Nitric Acid Production	V	
Petroleum and Natural Gas Systems	W	§ 98.231(a) should read: "You must report GHG emissions under this subpart if your facility contains petroleum and natural gas systems and the facility meets the requirements of WAC 173-441-030(1)."
Petrochemical Production	X	
Petroleum Refineries	Y	

Source Category	40 C.F.R. Part 98 Subpart*	Exceptions to Calculation Method or Applicability Criteria+#
Phosphoric Acid Production	Z	
Pulp and Paper Manufacturing	AA	
Silicon Carbide Production	BB	
Soda Ash Manufacturing	CC	
((~~Use of~~)) Electrical Transmission and Distribution Equipment Use	DD	§ 98.301 should read: "You must report GHG emissions under this subpart if your facility contains any ((~~use of~~)) electrical transmission and distribution equipment use process and the facility meets the requirements of WAC 173-441-030(1)." See subsection (2)(f) of this section.
Titanium Dioxide Production	EE	
Underground Coal Mines	FF	
Zinc Production	GG	
Municipal Solid Waste Landfills	HH	CO_2 from combustion of landfill gas must also be included in calculating emissions for reporting and determining if the reporting threshold is met.
Industrial Wastewater Treatment	II	CO_2 from combustion of wastewater biogas must also be included in calculating emissions for reporting and determining if the reporting threshold is met.
Manure Management	JJ	See subsection (2)(e) of this section.
Suppliers of Carbon Dioxide	PP	Owners or operators are only required to calculate and report emissions specified in WAC 173-441-030 (1)(b)(iv).
((~~Carbon Dioxide Injection and~~)) Geologic Sequestration of Carbon Dioxide	RR((~~**~~))	§ 98.441(a) should read: "You must report GHG emissions under this subpart if any well or group of wells within your facility injects any amount of CO_2 for long-term containment in subsurface geologic formations and the facility meets the requirements of WAC 173-441-030(1)."
Electrical Equipment Manufacture or Refurbishment	SS	§ 98.451 should read: "You must report GHG emissions under this subpart if your facility contains an electrical equipment manufacturing or refurbishing process and the facility meets the requirements of WAC 173-441-030(1)."
Industrial Waste Landfills	TT	CO_2 from combustion of landfill gas must also be included in calculating emissions for reporting and determining if the reporting threshold is met.
Injection of Carbon Dioxide	UU	§ 98.471 should read: "(a) You must report GHG emissions under this subpart if your facility contains an injection of carbon dioxide process and the facility meets the requirements of WAC 173-441-030(1). For purposes of this subpart, any reference to CO_2 emissions in WAC 173-441-030 means CO_2 received."

* Unless otherwise noted, all calculation methods are from 40 C.F.R. Part 98, as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014. ((~~** From 40 C.F.R. Part 98, as proposed on April 12, 2010.~~))

\+ Modifications and exceptions in subsection (2) of this section and WAC 173-441-173-010 through 173-441-050(2) also apply.

\# Whenever the use of verification software is required or voluntarily used, the file generated by the verification software must be submitted with the facility's annual GHG report.

(2) **Modifications and exceptions to calculation methods adopted by reference.** Except as otherwise specifically provided:

(a) Wherever the term "administrator" is used in the rules incorporated by reference in this chapter, the term "director" ((~~shall~~)) must be substituted.

(b) Wherever the term "EPA" is used in the rules incorporated by reference in this chapter, the term "ecology" ((~~shall~~)) must be substituted.

(c) Wherever the term "United States" is used in the rules incorporated by reference in this chapter, the term "Washington state" ((~~shall~~)) must be substituted.

(d) Wherever a calculation method adopted by reference in Table 120-1 of this section or a definition adopted by reference from 40 C.F.R. Part 98.6 refers to another subpart or paragraph of 40 C.F.R. Part 98:

(i) If Table 120-2 of this section lists the reference, then replace the reference with the corresponding reference to this chapter as specified in Table 120-2.

(ii) If the reference is to a subpart or subsection of a reference listed in Table 120-2 of this section, then replace the reference with the appropriate subsection of the corresponding reference to this chapter as specified in Table 120-2.

(iii) If the reference is to a subpart or paragraph of 40 C.F.R. Part 98 Subparts C through ((~~TT~~)) UU incorporated by reference in Table 120-1, then use the existing reference except as modified by this chapter.

(e) For manure management, use the following subsections instead of the corresponding subsections in 40 C.F.R. § 98.360 as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014.

(i) 40 C.F.R. § 98.360(a): This source category consists of livestock facilities with manure management systems.

(A) § 98.360 (a)(1) is not adopted by reference.

(B) § 98.360 (a)(2) is not adopted by reference.

(ii) 40 C.F.R. § 98.360(b): A manure management system (MMS) is a system that stabilizes and/or stores livestock manure, litter, or manure wastewater in one or more of the following system components: Uncovered anaerobic lagoons, liquid/slurry systems with and without crust covers (including, but not limited to, ponds and tanks), storage pits, digesters, solid manure storage, dry lots (including feedlots), high-rise houses for poultry production (poultry without litter), poultry production with litter, deep bedding systems for cattle and swine, manure composting, and aerobic treatment.

(iii) 40 C.F.R. § 98.360(c): This source category does not include system components at a livestock facility that are unrelated to the stabilization and/or storage of manure such as daily spread or pasture/range/paddock systems or land application activities or any method of manure utilization that is not listed in § 98.360(b) as modified in WAC 173-441-120 (2)(e)(ii).

(iv) 40 C.F.R. § 98.360(d): This source category does not include manure management activities located off-site from a livestock facility or off-site manure composting operations.

(v) 40 C.F.R. § 98.361: Livestock facilities must report GHG emissions under this subpart if the facility contains a manure management system as defined in 98.360(b) as modified in WAC 173-441-120 (2)(e)(ii), and meets the requirements of WAC 173-441-030(1).

(vi) 40 C.F.R. § 98.362 (b) and (c) are not adopted by reference.

(vii) 40 C.F.R. § 98.362(a), 40 C.F.R. § 98.363 through 40 C.F.R. § 98.368, Equations JJ-2 through JJ-15, and Tables JJ-2 through JJ-7 as adopted ((~~or proposed by December 1, 2010~~)) by October 1, 2014, remain unchanged unless otherwise modified in this chapter.

(viii) CO_2 from combustion of gas from manure management must also be included in calculating emissions for reporting and determining if the reporting threshold is met.

(f) For electrical transmission and distribution equipment use facilities where the electrical power system crosses Washington state boundaries, limit the GHG report to emissions that occur in Washington state using one of the following methods:

(i) Direct, state specific measurements;

(ii) Prorate the total emissions of the electric power system based upon either nameplate capacity or transmission line miles in the respective service areas by state using company records. Update the nameplate capacity or transmission line miles factor each reporting year and include the data used to establish the nameplate capacity or transmission line miles factor with your annual GHG report.

(iii) Prorate the total emissions of the electric power system based upon population in the respective service areas by state using the most recent U.S. Census data. Update the population factor each reporting year and include the data used to establish the population factor with your annual GHG report.

(g) Use the following method to obtain specific version or date references for any reference in 40 C.F.R. Part 98 that refers to any document not contained in 40 C.F.R. Part 98:

(i) If the reference in 40 C.F.R. Part 98 includes a specific version or date reference, then use the version or date as specified in 40 C.F.R. Part 98.

(ii) If the reference in 40 C.F.R. Part 98 does not include a specific version or date reference, then use the version of the referenced document as available on the date of adoption of this chapter.

Table 120-2:
Corresponding References in 40 C.F.R. Part 98 and Chapter 173-441 WAC

Reference in 40 C.F.R. Part 98		Corresponding Reference in Chapter 173-441 WAC	
Section	**Topic**	**Section**	**Topic**
40 C.F.R. Part 98 or "part"	Mandatory Greenhouse Gas Reporting	Chapter 173-441 WAC	Reporting of Emissions of Greenhouse Gases
Subpart A	General Provision	WAC 173-441-010 through 173-441-100	General Provisions
§ 98.1	Purpose and scope	WAC 173-441-010	Scope
§ 98.2	Who must report?	WAC 173-441-030	Applicability
§ 98.2(a)	Applicability: Facility reporting	WAC 173-441-030(1)	Applicability: Facility reporting
§ 98.2 (a)(1)	Applicability: Facility reporting Table A-3	WAC 173-441-030(1)	Applicability: Facility reporting
§ 98.2 (a)(2)	Applicability: Facility reporting Table A-4	WAC 173-441-030(1)	Applicability: Facility reporting
§ 98.2 (a)(3)	Applicability: Facility reporting source categories that meet all three of the conditions listed in this paragraph (a)(3)	WAC 173-441-030(1)	Applicability: Facility reporting
§ 98.2 (a)(4)	Applicability: Facility reporting Table A-5 source categories	WAC 173-441-030(1)	Applicability: Facility reporting
§ 98.2(b)	Calculating emissions for comparison to the threshold	WAC 173-441-030 (1)(b)	Calculating facility emissions for comparison to the threshold
§ 98.2(i)	Reporting requirements when emissions of greenhouse gases fall below reporting thresholds	WAC 173-441-030(5)	Reporting requirements when emissions of greenhouse gases fall below reporting thresholds
§ 98.3	What are the general monitoring, reporting, recordkeeping and verification requirements of this part?	WAC 173-441-050	General monitoring, reporting, recordkeeping and verification requirements
§ 98.3(c)	Content of the annual report	WAC 173-441-050(3)	Content of the annual report
§ 98.3(g)	Recordkeeping	WAC 173-441-050(6)	Recordkeeping
§ 98.3 (g)(5)	A written GHG monitoring plan	WAC 173-441-050 (6)(e)	A written GHG monitoring plan

Reference in 40 C.F.R. Part 98		Corresponding Reference in Chapter 173-441 WAC	
§ 98.3(i)	Calibration accuracy requirements	WAC 173-441-050(8)	Calibration and accuracy requirements
§ 98.3 (i)(6)	Calibration accuracy requirements: Initial calibration	WAC 173-441-050 (8)(f)	Calibration accuracy requirements: Initial calibration
§ 98.4	Authorization and responsibilities of the designated representative	WAC 173-441-060	Authorization and responsibilities of the designated representative
§ 98.5	How is the report submitted?	WAC 173-441-070	Report submittal
§ 98.5(b)	Verification software	WAC 173-441-070(1)	Facility report submittal
§ 98.6	Definitions	WAC 173-441-020	Definitions
§ 98.7	What standardized methods are incorporated by reference into this part?	WAC 173-441-080	Standardized methods and conversion factors incorporated by reference
§ 98.8	What are the compliance and enforcement provisions of this part?	WAC 173-441-090	Compliance and enforcement
§ 98.9	Addresses	WAC 173-441-100	Addresses
Table A-1 to Subpart A of Part 98 —Global Warming Potentials, Table A-1 of this part, or Table A-1 of this subpart	Global Warming Potentials	Table A-1 of WAC 173-441-040	Global Warming Potentials
Table A-2 to Subpart A of Part 98 —Units of Measure Conversions	Units of Measure Conversions	Table A-2 of WAC 173-441-080	Units of Measure Conversions

(3) **Calculation methods for voluntary reporting.** GHG emissions reported voluntarily under WAC 173-441-030(4) must be calculated using the following methods:

(a) If the GHG emissions have calculation methods specified in Table 120-1 of this section, use the methods specified in Table 120-1.

(b) If the GHG emissions have calculation methods specified in WAC 173-441-130, use the methods specified in WAC 173-441-130.

(c) For all GHG emissions from facilities not covered in Table 120-1 of this section or persons supplying any product other than those listed in WAC 173-441-130, contact ecology for an appropriate calculation method no later than one hundred eighty days prior to the emissions report deadline established in WAC 173-441-050(2) or submit a petition for alternative calculation methods according to the requirements of WAC 173-441-140.

(4) **Alternative calculation methods approved by petition.** An owner or operator may petition ecology to use calculation methods other than those specified in Table 120-1 of this section to calculate its facility GHG emissions. Such alternative calculation methods must be approved by ecology prior to reporting and must meet the requirements of WAC 173-441-140.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-130 Calculation methods for suppliers. Suppliers of liquid motor vehicle fuel, special fuel, or aircraft fuel subject to the requirements of this chapter must calculate the CO_2 emissions that would result from the complete combustion or oxidation of each fuel that is reported to DOL as sold in Washington state using the methods in this section.

(1) **Applicable fuels.** Suppliers are responsible for calculating CO_2 emissions from the following applicable fossil fuels and biomass derived fuels:

(a) All taxed liquid motor vehicle fuel that the supplier is required to report to DOL as part of the supplier's filed periodic tax reports of motor vehicle fuel sales under chapter 308-72 WAC.

(b) All taxed special fuel that the supplier is required to report to DOL as part of the supplier's filed periodic tax reports of special fuel sales under chapter 308-77 WAC.

(c) All taxed and untaxed aircraft fuel supplied to end users that the supplier is required to report to DOL as part of the supplier's filed periodic tax reports of aircraft fuel under chapter 308-78 WAC.

(2) Calculating CO_2 emissions separately for each fuel type. CO_2 emissions must be calculated separately for each applicable fuel type using Equation 130-1 of this section. Use Equation 130-2 of this section to separate each blended fuel into pure fuel types prior to calculating emissions using Equation 130-1.

$$CO_{2i} = \text{Fuel Type}_i \times EF_i \quad \text{(Eq. 130 - 1)}$$

Where:

CO_{2i}	=	Annual CO_2 emissions that would result from the complete combustion or oxidation of each fuel type "i" (metric tons)
Fuel Type_i	=	Annual volume of fuel type "i" supplied by the supplier (gallons).
EF_i	=	Fuel type-specific CO_2 emission factor (metric tons CO_2 per gallon) found in Table 130-1 of this section.

$$\text{Fuel Type}_i = \text{Fuel}_i \times \%\text{Vol}_i \quad \text{(Eq. 130 - 2)}$$

Where:

Fuel Type_i	=	Annual volume of fuel type "i" supplied by the supplier (gallons).
Fuel_i	=	Annual volume of blended fuel "i" supplied by the supplier (gallons).
$\%\text{Vol}_i$	=	Percent volume of product "i" that is fuel type_i.

(3) **Calculating total CO_2 emissions.** A supplier must calculate total annual CO_2 emissions from all fuels using Equation 130-3 of this section.

$$CO_{2x} = \sum (CO_{2i}) \quad (Eq. 130 - 3)$$

Where:

CO_{2x}	=	Annual CO_2 emissions that would result from the complete combustion or oxidation of all fuels (metric tons).
CO_{2i}	=	Annual CO_2 emissions that would result from the complete combustion or oxidation of each fuel type "i" (gallons).

(4) **Monitoring and QA/QC requirements.** Comply with all monitoring and QA/QC requirements under chapters 308-72, 308-77, and 308-78 WAC.

(5) **Data recordkeeping requirements.** In addition to the annual GHG report required by WAC 173-441-050 (6)(c), the following records must be retained by the supplier in accordance with the requirements established in WAC 173-441-050(6):

(a) For each fuel type listed in Table 130-1 of this section, the annual quantity of applicable fuel in gallons of pure fuel supplied in Washington state.

(b) The CO_2 emissions in metric tons that would result from the complete combustion or oxidation of each fuel type for which subsection (5)(a) of this section requires records to be retained, calculated according to subsection (2) of this section.

(c) The sum of biogenic CO_2 emissions that would result from the complete combustion oxidation of all supplied fuels, calculated according to subsection (3) of this section.

(d) The sum of nonbiogenic and biogenic CO_2 emissions that would result from the complete combustion oxidation of all supplied fuels, calculated according to subsection (3) of this section.

(e) All records required under chapters 308-72, 308-77, and 308-78 WAC in the format required by DOL.

Table 130-1:
Emission Factors for Applicable Liquid Motor Vehicle Fuels, Special Fuels, and Aircraft Fuels

Fuel Type (pure fuel)	Emission Factor (metric tons CO_2 per gallon)
Gasoline	0.008960
Ethanol (E100)	0.005767
Diesel ((~~(B100)~~))	0.010230
Biodiesel (B100)	0.009421
Propane	0.005593
Natural gas	0.000055*
Kerosene	0.010150
Jet fuel	0.009750
Aviation gasoline	0.008310

Contact ecology to obtain an emission factor for any applicable fuel type not listed in this table.
*In units of metric tons CO_2 per scf. When using Equation 130-1 of this section, enter fuel in units of scf.

AMENDATORY SECTION (Amending WSR 10-24-108, filed 12/1/10, effective 1/1/11)

WAC 173-441-140 Petitioning ecology to use an alternative calculation method to calculate greenhouse gas emissions. An owner or operator may petition ecology to use calculation methods other than those specified in WAC 173-441-120 to calculate GHG emissions. Alternative calculation methodologies are not available for GHG emissions covered by a source category adopted by reference in WAC 173-441-130. The following requirements apply to the submission, review, and approval or denial of a petition:

(1) **Petition submittal.** An owner or operator must submit a petition that meets the following conditions before ecology may review the petition and issue a determination.

(a) An owner or operator must submit a complete petition no later than one hundred eighty days prior to the emissions report deadline established in WAC 173-441-050(2). Such petition must include sufficient information, as described in (b) of this subsection, for ecology to determine whether the proposed alternative calculation method will provide emissions data sufficient to meet the reporting requirements of RCW 70.94.151. Ecology will notify the owner or operator within thirty days of receipt of a petition of any additional information ecology requires to approve the proposed calculation methods in the petition. If a petition is under review by ecology at the time an annual emissions report is due under WAC 173-441-050(2), the owner or operator must submit the emissions report using the calculation methods approved under this chapter at the time of submittal of the emissions report.

(b) The petition must include, at a minimum, the following information:

(i) Identifying information as specified in WAC 173-441-060 (9)(b) and 173-441-060 (13)(b)(ii) of the designated representative and any agent submitting a petition;

(ii) Identifying information as specified in WAC 173-441-050 (3)(a) of the facility or facilities where the owner or operator proposes to use the alternative calculation method;

(iii) A clear and complete reference to the subparts or sections in EPA's mandatory greenhouse gas reporting regulation that contain the alternative calculation method and the date that EPA adopted the subparts or sections;

(iv) The source categories that will use the alternative calculation method;

(v) The date that the owner or operator intends to start using the alternative calculation method;

(vi) Any other supporting data or information as requested by ecology as described in subsection (2) of this section; and

(vii) The designated representative must sign and date the petition.

(2) **Ecology review of the petition.** Ecology must approve the alternative calculation method before the owner or operator may use it to report GHG emissions. Ecology will issue a determination within sixty days of receiving a complete petition. The alternative calculation method must meet the following conditions:

(a) Except as noted in (b) of this subsection, alternative calculation methods for facilities required to report under WAC 173-441-030(1) must be methods adopted by the United States Environmental Protection Agency in its mandatory greenhouse gas reporting regulation. The alternative calculation method must be more recent than the method for the given source category adopted by reference in WAC 173-441-120.

(b) ((~~As of November 9, 2010, the United States Environmental Protection Agency had not adopted a final GHG reporting protocol for carbon dioxide injection and geologic sequestration. Facilities with emissions in this source category that are required to report under WAC 173-441-030(1) may use alternative calculation methods approved by ecology using the criteria established in (c)(ii)(A) and (B) of this subsection until the United States Environmental Protection Agency adopts a final protocol for that source category in 40 C.F.R. Part 98.~~

~~Beginning January 1st of the first year reporting is required for the source category by the United States Environmental Protection Agency under a final protocol in 40 C.F.R. Part 98, emissions from the source category must be reported to ecology using either the protocol adopted in Table 120-1 of WAC 173-441-120 or a protocol approved by ecology under (a) of this subsection.~~

~~(c)~~)) For GHG emissions reported voluntarily under WAC 173-441-030(4), ecology must apply the following criteria when evaluating an alternative calculation method:

(i) If the GHG emissions are covered by a source category adopted by reference in WAC 173-441-120, then the requirements of (a) and (b) of this subsection apply.

(ii) If the GHG emissions are not covered by a source category adopted by reference in WAC 173-441-120 or 173-441-130, then ecology must consider whether the methods meet the following criteria:

(A) The alternative calculation method is established by a nationally or internationally recognized body in the field of GHG emissions reporting such as:

(I) Ecology;

(II) EPA;

(III) The International Panel on Climate Change;

(IV) The Western Climate Initiative;

(V) The Climate Registry;

(B) If an alternative calculation method is not available from sources listed in ((~~(c)~~)) (b)(ii)(A) of this subsection, then ecology may accept a method from an industry or trade association or devised by the owner or operator if ecology determines the alternative calculation method is consistent with the requirements established under RCW 70.94.151.

((~~(d)~~)) (c) For all source categories, including those covered in (a)((~~, (b),~~)) and ((~~(c)~~)) (b) of this subsection, the alternative calculation method must be consistent in content and scope with the requirements established under RCW 70.94.151. In the event that a proposed alternative calculation method does not include all required GHG emissions, the owner or operator must use the calculation methods specified in subsection (3) of this section to calculate those emissions.

(3) **Calculating emissions not included in alternative calculation method.** An owner or operator must report all source categories of GHG emissions for which reporting is required under RCW 70.94.151 and for which calculation methods have been established in WAC 173-441-120 or 173-441-130. If an approved alternative calculation method does not include calculation methods for all required source categories of emissions, then the owner or operator must use a method described in WAC 173-441-120, 173-441-130, or approved for the owner or operator by ecology in a separate petition to calculate and report those emissions.

(4) **Appeal of determination.** An approval or denial issued by ecology in response to a written petition filed under this subsection is a determination appealable to the pollution control hearings board per RCW 43.21B.110 (1)(h).