Attachment B to Resolution 13-43

Staff's Suggested Modifications to the Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

This attachment shows suggested modifications to the originally proposed regulatory amendment language. The originally proposed regulatory amendment language is shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. The suggested modifications to the proposed regulation are shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions.

Shown below are only those portions of the originally proposed regulation for which staff is suggesting modifications. Additional changes are also described and modified regulatory language will be developed by staff as described, and the modified language will be made available to the public for a fifteen-day comment period prior to final adoption.

Article 2: Mandatory Greenhouse Gas Emissions Reporting

Subarticle 1. General Requirements for Greenhouse Gas Reporting

*** [No changes]

§ 95102. Definitions.

(a) For the purposes of this article, the ~~following~~ definitions in subsections (a), ~~and~~ (b) and (c) shall apply. Subsection (b) is specific to product data definitions. Subsection (c) is specific to definitions regarding refining and related processes.

*** [No changes except to renumber]

~~(67) "Carbon dioxide weighted tonne" or "CO_2 weighted tonne" or "CWT" means a metric created to evaluate the greenhouse gas efficiency of petroleum refineries and related processes, stated in units of metric tons. The CWT value for an individual refinery is calculated using actual refinery throughput to specified process units and emission factors for these process units. The emission factor is denoted as the CWT factor and is representative of the greenhouse gas emission intensity at an average level of energy efficiency, for the same standard fuel type for each process unit for production, and for average process emissions of the process units across a sample of refineries. Each CWT factor is expressed as a value weighted relative to crude distillation.~~

*** [No changes except to renumber]

(105) "Conventional wells" mean crude oil or gas wells in producing fields that do not employ hydraulic fracturing to produce commercially viable quantities of crude oil or natural gas.

*** [No changes except to renumber]

~~(111) "Criteria pollutant" is defined as emissions of oxides of nitrogen (NOx), oxides of sulfur (SOx), particulate matter 10 and 2.5 microns or less in diameter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), and volatile organic compounds (VOC (e.g., reactive organic gases)) as defined in 40 CFR 51.100 (s)(1).~~

*** [No changes except to renumber]

~~(135) "EIM Participating Resource Scheduling Coordinator" means the participating resource owner or operator, or a third-party designated by the resource owner or operator, that is certified by the CAISO and enters into the pro forma EIM Participating Resource Scheduling Coordinator Agreement, under which it is responsible for meeting the requirements specified in the CAISO tariff on behalf of the resource owner or operator.~~

*** [No changes except to renumber]

(~~351~~35~~6~~4) "Power contract" or "written power contract," as used for the purposes of documenting specified versus unspecified sources of imported and exported electricity, means a written document, including associated verbal or electronic records if included as part of the written power contract, arranging for the procurement of electricity. Power contracts may be, but are not limited to, power purchase agreements, enabling agreements, electricity transactions, applicable international treaties, and tariff provisions, without regard to duration, or written agreements to import or export on behalf of another entity, as long as that other entity also reports to ARB the same imported or exported electricity. A power contract for a specified source is a contract that is contingent upon delivery of power from a particular facility, unit, ~~system,~~ or asset-controlling supplier's system that is designated at the time the transaction is executed.

*** [No changes except to renumber]

~~(451) "System power" means wholesale electricity procured from a system power supplier and NERC e-tagged as a representative weighted average power output from all generation resources under the ownership or control of the system power supplier which contribute to the power output mix. For purposes of this article, this definition applies to cases where the~~

~~carbon intensity of the system power supplier's weighted average power output is greater than the default emission factor set forth in 95111(b)(1).~~

~~(452) "System power supplier" means an electric utility power system or balancing authority area with inter-connected electricity generating facilities which is assigned a supplier-specific identification number and system emission factor by ARB for the wholesale electricity procured as system power from its system and imported into California.~~

*** [No changes except to renumber]

~~(471) "Toxic air contaminant" is as defined in Health and Safety Code section §39655(a).~~

*** [No changes except to renumber]

~~(476) "Treaty power" means electricity returned to Canada from the United States under the Columbia River Treaty, an international treaty. The source of treaty power is neither specified nor unspecified. Treaty power shall be accorded an emission factor of zero.~~

*** [No changes except to renumber]

(b) For the purposes of this article, the following definitions associated with reported product data shall apply:

*** [No changes except to renumber]

~~(12) "Canned non-tomato additive" means a canned food product produced at a tomato processing facility that is not aseptic tomato paste, aseptic whole/diced, non-aseptic tomato paste, non-aseptic whole/diced, non-aseptic tomato juice, or canned non-tomato additive.~~

*** [No changes except to renumber]

~~(14) "Carbon dioxide weighted tonne" or "CO_2-weighted tonne" or "CWT" means a metric created to evaluate the greenhouse gas efficiency of petroleum refineries and related processes, stated in units of metric tons. The CWT value for an individual refinery is calculated using actual refinery throughput to specified process units and emission factors for these process units. The emission factor is denoted as the CWT factor and is representative of the greenhouse gas emission intensity at an average level of energy efficiency, for the same standard fuel type for each process unit for production, and for average process emissions of the process units across a sample of refineries. Each CWT factor is expressed as a value weighted relative to crude distillation.~~

*** [No changes except to renumber]

~~(19) "Complexity weighted barrel" or "CWB" means a metric created to evaluate the greenhouse gas efficiency of petroleum refineries and related processes. The CWB value for an individual refinery is calculated using actual refinery throughput to specified process units and emission factors for these process units. The emission factor is denoted as the CWB factor and is representative of the greenhouse gas emission intensity at an average level of energy efficiency, for the same standard fuel type for each process unit for production, and for average process emissions of the process units across a sample of refineries. Each CWB factor is expressed as a value weighted relative to crude distillation.~~

~~(20) "Concentrated milk" means the liquid food obtained by partial removal of water from milk. The milk fat and total milk solids contents of the food are not less than 7.5 and 25.5 percent, respectively. It is pasteurized, but is not processed by heat so as to prevent spoilage. It may be homogenized.~~

(~~2~~16) "Container Glass pulled" means the quantity of glass removed from the melting furnace in the container glass manufacturing process where "container glass" is defined as glass products intended~~used~~ for packaging.

(17) "Corn" means the kernels of the dent corn plant (*Zea mays* var. *indentata*.) that have been shelled and contain no more than 10.0 percent of other grains.

*** [No changes except to renumber]

(20) "Corn entering wet milling process" means corn entering the process in which feed corn is steeped in liquid in order to help separate the kernel's various components into starch, germ, fiber and protein (gluten) and then process the components into useful products such as starch, syrup, high fructose corn syrup (HFCS), animal feed and by-products such as gluten meal and germ.

*** [No changes except to renumber]

(22) Dairy product solids for animal feed" means modified dairy products (permeates and products derived there from) processed for animal consumption obtained by the removal of water, protein and/or lactose, and/or minerals from milk.

*** [No changes except to renumber]

(~~25~~32) "~~Crystal~~Dry color concentrate" means precipitated solids extracted from fruits and vegetables whose uses are for altering the color of materials and/or food.

(~~88~~33) "Dry ~~W~~whey protein concentrate" means the substance obtained by the removal of sufficient non-protein constituents from pasteurized whey so

that the finished dry product contains not less than 25 percent or more than 89.9 percent protein, and not more than 5.0 percent moisture~~> 25% protein~~. DWPC is produced by physical separation techniques such as precipitation or ultrafiltration. High protein concentration typically requires diafiltration in addition to filtration~~ or dialysis~~. The acidity of WPC may be adjusted by the addition of safe and suitable pH adjusting ingredients.

*** [No changes except to renumber]

(47) "Intermediate dairy ingredients" means intermediate dairy product feedstock entering rehydrating process using water and heat to manufacture powdered products.

*** [No changes except to renumber]

(57) "Non-Aseptic tomato sauce" means tomato sauce packaged using methods other than aseptic preparation. Non-Aseptic tomato sauce is normalized to 24 percent tomato soluble solids (TSS) using TSS = (%TSS - 5.28)/(24 - 5.28).

*** [No changes except to renumber]

(~~58~~60) "Pickled steel sheet" means hot rolled steel sheet that is sent through a series of hydrochloric acid baths that remove the oxides, and includes both finished pickled steel, and steel produced by the facility as an intermediate product for further processing.

*** [No changes except to renumber]

(6~~3~~5) "Powdered milk" means the manufactured dairy product made by evaporating milk to dryness. Powdered milk includes non fat dry milk powder, skimmed milk powder, whole milk powder and buttermilk powder.

*** [No changes except to renumber]

(8~~2~~4) "Tomato Juice" is the liquid obtained from mature tomatoes conforming to the characteristics of the fruit Lycopersicum esculentum P. Mill, of red or reddish varieties. Tomato juice may contain salt, lemon juice, sodium bicarbonate, water, spices and/or flavoring. This food shall contain not less than 5.0 percent by weight tomato soluble solids.

*** [No changes except to renumber]

(86) "Tomato puree" or "tomato sauce" is the semisolid food prepared from mature tomatoes conforming to the characteristics of the fruit Lycopersicum esculentum P. Mill, of red or reddish varieties. Tomato paste is prepared by concentrating tomato ingredients until the food

contains not less than 8.0 percent but less than 24.0 percent tomato soluble solids.

*** [No changes except to renumber]

(88) "Ultrafiltered milk products" means milk products produced by passing milk under pressure through a thin, porous membrane to separate the components of milk according to their size. Ultrafiltered milk products include ultrafiltered milk, ultrafiltered skim milk and ultrafiltered permeate.

*** [No changes except to renumber]

~~(88) "Whey protein concentrate" means the substance obtained by the removal of sufficient non-protein constituents from pasteurized whey so that the finished dry product contains > 25% protein. WPC is produced by physical separation techniques such as precipitation, filtration or dialysis. The acidity of WPC may be adjusted by the addition of safe and suitable pH adjusting ingredients.~~

*** [No changes except to renumber]

(c) For the purposes of this article, the following definitions associated with refining and related processes shall apply:

(1) "Air separation unit" means a refinery unit which separates air into its components including oxygen utilizing a cryogenic or other method.

(2) "Alkylation/poly/dimersol" means a range of processes transforming C3/C4/C5 molecules into C7/C8/C9 molecules over an acidic catalyst. This can be accomplished by alkylation with sulfuric acid or hydrofluoric acid, polymerization with a C3 or C3/C4 olefin feed, or dimersol.

(3) "Ammonia recovery unit" means a refinery unit in which ammonia-rich sour water stripper overhead is treated to separate ammonia suitable for reuse in the refinery, for fertilizer, for other sales, for the reduction of NOx emissions, or other commercial activities. This unit is the second stage of a two stage sour water stripping unit. The ammonia recovery unit may include the adsorber, stripper and fractionator.

(4) "Aromatic saturation of distillates" means the saturation of aromatic rings over a fixed catalyst bed at low or medium pressure in the presence of hydrogen.

(5) "AROMAX®" means a special application of catalytic reforming for the specific purpose of producing light aromatics.

(6) "Aromatics production" means extraction of light aromatics from reformate and/or hydrotreated pyrolysis gasoline by a solvent.

(7) "Asphalt production" means the processing required to produce asphalts and bitumen, including bitumen oxidation (mostly for road paving). This includes polymer-modified asphalt.

(8) "Atmospheric Crude Distillation" means primary atmospheric distillation of crude oil and other feedstocks. The atmospheric crude distillation unit includes any ancillary equipment such as a crude desalter, naphtha splitting, gas plant and wet treatment of light streams for mercaptan removal and may have more than one distillation column.

(9) "Benzene saturation" means a selective hydrogenation of benzene in gasoline streams over a fixed catalyst bed at moderate pressure.

(10) "C4 isomer production" means conversion of n-butane into isobutane over a fixed catalyst bed in the presence of hydrogen at low to moderate pressure.

(11) "C5/C6 isomer production - including ISOSIV" means conversion of normal paraffins into isoparaffins over a fixed catalyst bed in the presence of hydrogen at low to moderate pressure.

(12) "Complexity weighted barrel" or "CWB" means a metric created to evaluate the greenhouse gas efficiency of petroleum refineries and related processes. The CWB value for an individual refinery is calculated using actual refinery throughput to specified process units and emission factors for these process units. The emission factor is denoted as the CWB factor and is representative of the greenhouse gas emission intensity at an average level of energy efficiency, for the same standard fuel type for each process unit for production, and for average process emissions of the process units across a sample of refineries. Each CWB factor is expressed as a value weighted relative to atmospheric crude distillation.

(13) "Conradson carbon level" means a measurement describing the mass of carbon residue which an oil deposits when evaporated, as defined by ASTM D189 - 06(2010)e1 "Standard Test Method for Conradson Carbon Residue of Petroleum Products" (2010), which is hereby incorporated by reference.

(14) "Conventional naphtha hydrotreating" means desulfurization of virgin and cracked naphthas over a fixed catalyst bed at moderate pressure in the presence of hydrogen. For cracked naphthas this also involves saturation of olefins.

(15) "Cryogenic LPG recovery" means a refinery unit in which liquefied petroleum gas (LPG) is extracted from refinery gas streams through cooling and removing the condensate heavy fractions. The processes and equipment for this unit may include refrigeration, drier, compressor, absorber, stripper and fractionation.

(16) "Cumene production" means the alkylation of benzene with propylene.

(17) "Cyclohexane production" means hydrogenation of benzene to cyclohexane over a catalyst at high pressure.

(18) "Delayed Coker" means a refinery unit which conducts a semi-continuous process where the heat of reaction is supplied by a fired heater. Coke is produced in alternate drums that are swapped at regular intervals. Coke is cut out of full coke drums as a product. For the purposes of analysis, facilities include coke handling and storage.

(19) "Desalination" means a refinery's desalination of seawater or contaminated water.

(20) "Desulfurization of C4–C6 Feeds" means desulfurization of light naphthas over a fixed catalyst bed, at moderate pressure in the presence of hydrogen.

(21) "Desulfurization of pyrolysis gasoline/naphtha" means selective or non-selective desulfurization of pyrolysis gasoline (by-product of light olefins production) and other streams over a fixed catalyst bed, at moderate pressure in the presence of hydrogen.

(22) "Diolefin to olefin saturation of gasoline" means selective saturation of diolefins over a fixed catalyst bed, at moderate pressure in the presence of hydrogen to improve stability of thermally cracked and coker gasolines.

(23) "Distillate hydrotreating" means desulfurization of distillate blends of components such as diesel and heating oil over a fixed catalyst bed at low or medium pressure in the presence of hydrogen.

(24) "Ethylbenzene production" means the process of combining benzene and ethylene to form ethylbenzene.

(25) "FCC gasoline hydrotreating with minimum octane loss" means selective desulfurization of FCC gasoline cuts with minimum olefins saturation, over a fixed catalyst bed, at moderate pressure and in the presence of hydrogen.

(26) "Flare gas recovery" means a refinery unit in which flare gas is captured and compressed for other uses. Usually recovered flare gas is treated and routed to the refinery fuel gas system. The equipment for this process may include the compressor and separator.

(27) "Flexicoker" means a refinery unit which conducts a proprietary process incorporating a fluid coker and where coke is gasified to produce a low BTU gas which is used to supply the refinery heaters and surplus coke is drawn off as a product.

(28) "Flue gas desulfurizing" means a process in which sulfur dioxide is removed from flue gases with contaminants. This often involves an alkaline sorbent which captures sulfur dioxide and transforms it into a solid product. Flue gas desulfurizing systems can be of the regenerative type or the non-regenerative type. The processes and equipment for this process may include the contactor, catalyst/reagent regeneration, scrubbing circulation and solids handling.

(29) "Fluid Catalytic Cracking" means cracking of a hydrocarbon stream typically consisting of gasoils and residual feedstocks over a catalyst. The finely divided catalyst is circulated in a fluidized state from the reactor where it becomes coated with coke to the regenerator where coke is burned off. The hot regenerated catalyst returning to the reactor may supply the heat for the endothermic cracking reaction and for most of the downstream fractionation of cracked products.

(30) "Fluid Coker" means a continuous process where the fluidized powder-like coke is transferred between the cracking reactor and the coke burning vessel and burned for process heat production. Surplus coke is drawn off as a product.

(31) "Fuel gas sales treating & compression" means treatment and compression of refinery fuel gas for sale to a third party.

(32) "Houdry catalytic cracking" means a method of catalytic cracking which uses a fixed or moving bed of pellets of an aluminum silicate type catalyst. The catalyst is not fluidized.

(33) "Hydrodealkylation" means dealkylation of toluene and xylenes into benzene over a fixed catalyst bed in the presence of hydrogen at low to moderate pressure.

(34) "Kerosene hydrotreater" means a refinery process unit which treats and upgrades kerosene and gasoil streams using aromatic saturation of distillates, distillate hydrotreating, middle distillate dewaxing, the S-Zorb™ process for kerosene and gasoil or selective hydrotreating of C3-C5 streams for alkylation.

(35) "Lube catalytic dewaxing" means the catalytic breakdown of long paraffinic chains in intermediate streams for the manufacture of lube oils.

(36) "Lube solvent dewaxing" means the solvent removal of long paraffinic chains (wax) from intermediate streams in the manufacture of lube oils. This may include solvent regeneration. Different processes use different solvents, such as chlorocarbon, MEK/toluene, MEK/MIBK, or propane.

(37) "Lube solvent extraction" means the solvent extraction of aromatic compounds from intermediate streams for the manufacture of base lube

oils. This includes solvent regeneration. Different processes use different solvents, such as Furfural, NMP, phenol, or sulfur dioxide.

(38) "Lube/Wax hydrofining" means the hydrotreating of lube oil fractions and wax for improving the quality of the lube and wax.

(39) "Lubricant hydrocracking" means hydrocracking of heavy feedstocks for the manufacture of lube oils.

(40) "Methanol synthesis" means the recombination of CO_2 and hydrogen to produce methanol. Methanol synthesis is only applicable when a refinery produces hydrogen via partial oxidation.

(41) "Middle distillate dewaxing" means the cracking of long paraffinic chains in gasoils to improve cold flow properties over a fixed catalyst bed at low or medium pressure in the presence of hydrogen. This process includes the desulfurization step.

(42) "Mild Residual FCC" means fluid catalytic cracking when the feed has a Conradson carbon level of 2.25% to 3.5% by weight.

(43) "Naphtha/Distillate Hydrocracker" means a refinery process unit which conducts cracking of a hydrocarbon stream typically consisting of gasoils and distillates over a fixed catalyst bed, at high pressure and in the presence of hydrogen. The process combines cracking and hydrogenation reactions.

(44) "Naphtha hydrotreater" means a refinery process unit that treats and upgrades naphtha/gasoline and lighter streams using any combination of one or more of the following processes: benzene saturation, desulfurization of C4–C6 feeds, conventional naphtha hydrotreating, diolefin to olefin saturation of gasoline, FCC gasoline hydrotreating with minimum octane loss, olefinic alkylation of thio sulfur, desulfurization of pyrolysis gasoline/naphtha. For naphtha/distillates, selective hydrotreating or the S-Zorb™ process may be used.

(45) "Non-Crude Input" means the total volume of barrels of raw materials processed in process units at the refinery, excluding returns from a lube refiner or a chemical plant within a refining/petrochemical complex and excluding non-processed blendstock.

(46) "Olefinic alkylation of thio sulfur" means a gasoline desulfurization process in which thiophenes and mercaptans are catalytically reacted with olefins to produce higher-boiling sulphur compounds removable by distillation. This process does not utilize hydrogen.

(47) "Other FCC" means early catalytic cracking processes on fixed catalyst beds, including Houdry catalytic cracking and Thermofor catalytic cracking.

(48) "Oxygenates" means ethers that are produced by reacting an alcohol with olefins.

(49) "Paraxylene production" means the physical separation of paraxylene from mixed xylenes.

(50) "Process CWB" means the total complexity-weighted barrels of a refinery excluding those contributed by the process units called total refinery input and non-crude input.

(51) "Propane/Propylene splitter (propylene production)" means a refinery unit that conducts separation of propylene from other mostly olefinic C3/C4 molecules generally produced in an FCC or coker. This unit produces chemical or polymer grade propylene.

(52) "POX syngas for fuel" means the production of synthesis gas by gasification (partial oxidation) of heavy residues. This includes syngas clean-up.

(53) "Reactor for selective hydrotreating" means a special configuration where a distillation/fractionation column contains a solid catalyst that converts diolefins in FCC gasoline to olefins or where the catalyst bed is in a preheat train reactor vessel in front of the column.

(54) "Reformer - including AROMAX" means a refinery unit which increases the octane rating of naphtha by dehydrogenation of naphthenic rings and paraffin isomerisation over a noble metal catalyst at low pressure and high temperature. The process also produces hydrogen.

(55) "Residual FCC" means fluid catalytic cracking when the feed has a Conradson carbon level of greater than or equal to 3.5% by weight.

(56) "Residual hydrotreater" means a refinery unit which conducts desulfurization of residues over a fixed catalyst bed at high pressure and in the presence of hydrogen. It results in a limited degree of conversion of the residue feed into lighter products.

(57) "Residual Hydrocracker" means a refinery unit which conducts hydrocracking of residual feedstocks. Different processes involve continuous or semi-continuous catalyst replenishment. The residual hydrocracker unit must process residuum with a Conradson carbon level of at least 3.5% by weight.

(58) "S-Zorb™ process for kerosene and gasoil" means desulfurization of gasoil using an absorption process. This process does not utilize hydrogen.

(59) "S-Zorb™ process for naphtha/distillates" means desulfurization of naphtha/gasoline streams using a proprietary fluid-bed hydrogenation adsorption process in the presence of hydrogen.

(60) "Selective hydrotreating of C3-C5 streams for alkylation" means selective saturation of diolefins for alkylation over a fixed catalyst bed, at moderate pressure and in the presence of hydrogen, or hydrotreatment of distillates for conversion of diolefins to olefins.

(61) "Solvent deasphalter" means a refinery unit which uses a solvent such as propane, butane or a heavier solvent to remove asphaltines from a residual oil stream and produce asphalt and a deasphalted gasoil.

(62) "Special Fractionation" means fractionation processes excluding solvents, propylene and aromatics fractionation, which are accomplished by a deethanizer, depropanizer, deisobutanizer, debutanizer, deisopentanizer, depentanizer, deisohexanizer, dehexanizer, deisoheptanizer, deheptanizer, naphtha splitter, alkylate splitter or reformate splitter.

(63) "Standard FCC" means fluid catalytic cracking when the feed has a Conradson carbon level of less than 2.25% by weight.

(64) "Sulfur Recovery" means a process where hydrogen sulfide is converted to elemental sulfur."

(65) "Sulfuric acid regeneration" means a catalytic process in which spent acid is regenerated to concentrated sulfuric acid. The equipment for this process may include the combustor, waste heat boiler, converter, absorber, SO_3 recycle, gas cleaning including electrostatic precipitator and amine regenerator.

(66) "Thermal Cracking" means thermal cracking of distillate feedstocks. A thermal cracking unit may include a vacuum flasher. Units that combine visbreaking and thermal cracking of distillate generate a contribution for both processes based on the residue and the distillate throughput respectively.

(67) "Thermofor catalytic cracking" means a method of catalytic cracking in which gravity is used to pass the catalyst through the feedstock or to pass the feedstock through the catalytic reactor bed. The catalyst is not fluidized.

(68) "Toluene disproportionation/transalkylation means a fixed-bed catalytic process for the conversion of toluene to benzene and xylene in the presence of hydrogen.

(69) "Total Refinery Input" means the total volume of the following brought in to the refinery: crude oil and condensate, excluding basic sediment and water; finished product additives such as dyes, diesel pour point depressants and cetane improvers; antiknock compounds; and other raw materials, including crude diluents, feedstock from outside the refinery which is processed in other process units or blend stock blended into refinery products.

(70) "Vacuum Distillation" means distillation of atmospheric residues under vacuum. Some units may have more than one main distillation column.

(71) "Visbreaker" means a refinery unit which conducts mild thermal cracking of residual feedstocks to produce some distillates and reduce the viscosity of the cracked residue. It may include a vacuum flasher. Units that combine visbreaking and thermal cracking of distillate generate a contribution for both processes based on the residue and the distillate throughput respectively.

(72) "VGO Hydrotreater" means a refinery unit which conducts desulfurization of a hydrocarbon stream typically made up of vacuum gasoils and cracked gasoils, principally destined to be used as FCC feed, over a fixed catalyst bed at medium or high pressure in the presence of hydrogen.

(73) "Wax deoiling" means solvent removal of lighter hydrocarbons from wax obtained from lube dewaxing. Different proprietary processes use different solvents, such as MEK/toluene, MEK/MIBK, or propane.

(74) "Xylene isomerization" means isomerization of mixed xylenes to paraxylene.

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§ 95103. Greenhouse Gas Reporting Requirements.

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(h) *Reporting in 2014.* For 2013 data reported in 2014, the following applies:

(1) Reporting entities may use best available methods for reporting and calculating the general requirements in sections 95101(a)(1)(B)(8) and 95101(b)(1)-(2), the information regarding *de minimis* reporting for suppliers in

section 95103(i), section 95103(j)(3), ~~section 95103(k)(7)(C), section 95103(k)(11)~~, section 95104(e), the information regarding mixed fuels in section 95115(c)(1), the information regarding mixed fuels in section 95115(e), the information regarding the percentage of aggregated fuel consumption in section 95115(h), section 95115(k)-(l), and the information regarding fuel characteristic data elements and Table 1 in section 95129(c)(3). Reporting entities must adhere to the general provisions found in section 95101(a)(3), section 95101(h)-(i), section 95103(k)(7)(C)~~, section 95103(k)(11)~~, section 95103(l), ~~the information regarding product data in~~ section 95103(m),~~ section 95103(m)(5),~~ section 95103(n), ~~and~~ section 95104(d)(4), and section 95105(c);

(2) Abbreviated reporters may use best available methods for reporting and calculating the requirements in sections 95103(a)(1)-(2). Abbreviated reporters must adhere to the general provisions found in sections 95103(a)(8)-(9);

(3) Operators of electricity generating facilities may use best available methods for reporting and calculating the requirements for the information regarding legacy contract transition assistance in section 95112(a), section 95112(a)(4)(C), section 95112(a)(5)(C), section 95112(b)(2), the information regarding ~~on~~ total thermal output in section 95112(b)(3), section 95112(c) and section 95112(c)(3);

(4) Facility operators may use best available methods for reporting and calculating covered product data listed in section 95113(l)(~~4~~3), the information regarding liquid hydrogen sold, on-purpose and by-product hydrogen gas in section 95114(j), section 95115(n)(5)-(18~~7~~), the information regarding the tissue produced with water absorption capacity in 95119(d), the information regarding lead and lead alloys in section 95124(d), the information regarding emulsion in sections 95156(a)(7)-(10), the information regarding a gas plant that produces less than 25 MMscf per day in section 95156(c), and section 95156(d);

(5) Operators of hydrogen plants who report under sections 95114(e)(1), (g), (i), (k), and (l) may use best available methods for calculating those reporting requirements. Operators of hydrogen plants who report under section 95114(e)(2) must report using the full requirements of that provision;

(6) Operators of a lead production facility who report under section 95124 must use best available methods for calculating their emissions ~~reporting requirements~~. Operators of a lime manufacturing facility may use best available methods to calculate emissions under sections 95117(c)(3) and 95117(e);

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(8) Electric power entities must report 2013 electricity transactions (MWh) and emissions (metric tons of CO2e) under the specifications of this article, including the requirements listed in sections ~~95111(a)(4)(A)(3)~~, 95111(a)(5)(E), ~~95111(b)(3)~~, ~~95111(f)(5)(F) and 95111(g)(1)(N)~~;

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(10) Operators for the petroleum and natural gas systems sector subject to sections 95150(a)(2), including the definitional change to an onshore petroleum and natural gas systems facility in section 95102(a), 95152(i)(9), 95153(y)(2)(C)-(D), 95157(c)(6), 95157(c)(18)(B), 95157(c)(19)(H) must use best available methods for these reporting requirements;

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(k) *Measurement Accuracy Requirement*.

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(11) When using an inventory measurement, stock measurement, or tank drop measurement method to calculate volumes and masses ~~and process throughputs in sections 95113(l)(3)-(4)~~, the method must be accurate to ±5 percent for the time periods required by this article, including annually for covered product data. Techniques used to quantify amounts stored at the beginning and end of these time periods are not subject to the calibration requirements of this section. Uncertainties in beginning and end amounts are subject to verifier review for material misstatement under section 95131(b)(12) of this article. If any devices used to measure inputs and outputs do not meet the requirements of paragraphs (1)-(10) above, the verifier must account for this uncertainty when evaluating material misstatements. Reported values must be calculated using the following equations:

Fuel consumed (volume or mass) = (inputs during time period – outputs during time period) + (amount stored at beginning of time period) – (amount stored at end of time period)

Product produced (volume or mass) = (outputs during time period - inputs during time period) + (amount stored at end of time period - amount stored at beginning of time period)

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§ 95104. Emissions Data Report Contents and Mechanism.

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(e) *Increases and Decreases in Facility ~~Criteria Pollutant and Toxic Air Contaminant~~ Greenhouse Gas Emissions*. The operator of a facility identified in section 95101(a)(1)(A)-(B) that is subject to the cap-and-trade regulation must include the following information in the emissions data report:

(1) Whether a change in the facility's operations or status ~~potentially~~ resulted in an increase or decrease of more than five percent in emissions of ~~criteria pollutants or toxic air contaminants~~ greenhouse gases in relation to the previous data year.

(2) Specify which of the following reason(s) would be the cause of the increase or decrease in ~~criteria pollutant, and/or toxic air contaminant~~ greenhouse gas emissions:

***

(3) A narrative description of how each reason identified in section 95104(e)(2) caused the increase or decrease in emissions. Include in this description any changes in your air permit status.

(4) This section is not subject to the third-party verification requirements of this article.

***

Subarticle 2. Requirements for the Mandatory Reporting of Greenhouse Gas Emissions from Specific Types of Facilities, Suppliers, and Entities

***

§ 95111. Data Requirements and Calculation Methods for Electric Power Entities.

***

(a) *General Requirements and Content for GHG Emissions Data Reports for Electricity Importers and Exporters.*

***

(4) *Imported Electricity from Specified Facilities or Units.*

***

(A) Claims of specified sources of imported electricity, defined pursuant to section 95102(a), are calculated pursuant to section 95111(b), must meet the requirements in section 95111(g), and must include the following information:

***

~~3. Supporting documentation must be provided for busbar claims.~~

(5) *Imported Electricity Supplied by Asset-Controlling Suppliers.* The reporting entity must separately report imported electricity supplied by asset-controlling suppliers recognized by ARB. ~~The asset-controlling supplier must be identified on the physical path of NERC e-Tags as the PSE at the first point of receipt regardless of whether the reporting entity and asset-controlling supplier are adjacent in the market path.~~ The reporting entity must:

***

(D) Report GHG emissions calculated pursuant to section 95111(b), ~~including~~ including ~~using the~~ transmission losses~~es factor of 1.02 in all instances~~.

(E) *Tagging ACS Power*. To claim power from an asset-controlling supplier, the asset-controlling supplier must be identified on the physical path of the NERC e-Tag as the PSE at the first point of receipt, or in the case of asset controlling suppliers that are exclusive marketers, as the PSE immediately following the associated generation owner~~, with the exception of path outs. Path outs are excess power, originally procured as part of a U.S. federal mandate to serve the operational or reliability needs of a U.S. federal system but which are no longer required due to changes in demand or system conditions~~.

***

~~(12) *Imported Electricity Supplied by System Power Supplier*. The reporting entity must separately report imported electricity supplied by system power suppliers identified by ARB, when the system power supplier is identified on the physical path of NERC e-Tags as the PSE at the first point of receipt. The reporting entity must:~~

~~(A) Report the system power supplier standardized PSE acronym or code, full name, and the ARB identification number;~~
~~(B) Report system power that was not acquired as specified power, as unspecified power;~~
~~(C) Report delivered electricity from system power suppliers as measured at the first point of delivery in the state of California; and,~~
~~(D) Report GHG emissions calculated pursuant to section 95111(b)(5), including using the transmission losses factor of 1.02 in all instances.~~

(b) *Calculating GHG Emissions*.

***

(3) Calculating GHG Emissions of Imported Electricity Supplied by ~~Specified~~ Asset-Controlling Suppliers.

$$CO_2e = MWh \times TL \times EF_{ACS}$$

Where:

~~TL = 1.0 when deliveries are reported as measured at a first point of receipt located within the balancing authority area of the asset-controlling supplier.~~

TL = 1.0 when deliveries are reported as measured at a first point of receipt located within the balancing authority area of the asset-controlling supplier.

The Executive Officer shall calculate the system emission factor for asset-controlling suppliers using the following equations:

EF_{ACS} = Sum of System Emissions MT of CO_2e / Sum of System MWh

Sum of System Emissions, MT of CO_2e = $\Sigma E_{asp} + \Sigma(PE_{sp} * EF_{sp}) + \Sigma(PE_{unsp} * EF_{unsp}) - \Sigma(SE_{sp} * EF_{sp})$

Sum of System MWh = $\Sigma EG_{asp} + \Sigma PE_{sp} + \Sigma PE_{unsp} - \Sigma SE_{sp}$

Where:

***

PE_{sp} = *Electricity Purchased from Specified Sources*. Amount of electricity purchased wholesale and taken from specified sources by the asset-controlling supplier for the data year as reported to ARB

under this article (MWh). ~~For purposes of this calculation, treaty power is included in this variable~~.

***

~~(5) *Calculating GHG Emissions of Imported Electricity Supplied by System Power Suppliers*. The Executive Officer shall calculate and publish, on the ARB Mandatory Reporting website prior to each calendar year, the system emission factor for all system power suppliers identified by ARB, for use in determining emissions associated with system power. The following equation shall be used for this purpose:~~

~~$EF_{sy} = E_{sy}/EG_{sy}$~~

~~Where:~~

~~EF_{sy} = CO_2e emission factors for system power recognized by ARB for the report year (MT of CO_2e/MWh). The emission factor is based on data from the year prior to the reporting year.~~

~~E_{sy} = CO_2e emissions for a system for the report year (MT of CO_2e).~~

~~EG_{sy} = Net generation from a system for the report year (MWh).~~

~~(A) For system power suppliers who voluntarily report under this article, E_{sy} shall be equal to the sum of CO_2e emissions reported pursuant to section 95111(b)(5).~~

~~(B) For the system power calculation, the Executive Officer may use publicly available information, information voluntarily made available, or other information accessible by ARB.~~

(5~~6~~5) Calculation of Covered Emissions. For imported electricity with covered emissions as defined pursuant to section 95102(a), the electric power entity must calculate and report covered emissions pursuant to the equation in 95852(b)(1)(B) of the cap-and-trade regulation and include the following information:

***

(f) *Requirements for Asset-Controlling Suppliers.*

To apply for asset-controlling supplier designation, the applicant must:

***

(5) To apply for and maintain asset-controlling supplier status, the entity shall submit as part of its emissions data report the following information, annually:

***

(E) A list and description of electricity generating facilities for which the reporting entity is a generation providing entity pursuant to 95102(a)~~, and~~

~~(F) For treaty power, the total amount of electricity received under the treaty~~; ~~and~~

(~~F~~G~~F~~) An attestation, in writing and signed by an authorized officer of the applicant, as follows:

***

(g) *Requirements for Claims of Specified Sources of Electricity, and for Eligible Renewable Energy Resources in the RPS Adjustment ~~and System Power Supplier Sources~~.*

Each reporting entity claiming specified facilities or units for imported or exported electricity must register its anticipated specified sources with ARB pursuant to subsection 95111(g)(1) and by February 1 following each data year to obtain associated emission factors calculated by ARB for use in the emissions data report required to be submitted by June 1 of the same year. Each reporting entity claiming specified facilities or units for imported or exported electricity must also meet requirements pursuant to subsection 95111(g)(2)-(5) in the emissions data report. Each reporting entity claiming an RPS adjustment, as defined in section 95111(b)~~(5)~~(6)(5), pursuant to section 95852(b)(4) of the cap-and-trade regulation must include registration information for the eligible renewable energy resources pursuant to subsection 95111(g)(1) in the emissions data report. Prior registration and subsection 95111(g)(2)-(5) do not apply to RPS adjustments. Registration information and the amount of electricity claimed in the RPS adjustment must be fully reconciled and corrections must be certified within 45 days following the emissions data report due date. ~~Each reporting entity claiming system power supplier sources for imported electricity must register its anticipated specified sources with ARB pursuant to section 95111(g)(6) and by July 1 prior to each data year to obtain associated emission factors calculated by ARB for use in the emissions data report required to be submitted by June 1 following the data year.~~

(1) *Registration Information for Specified Sources and Eligible Renewable Energy Resources in the RPS Adjustment.* The following information is required:

***

(N) For verification purposes, retain meter generation data to document that the power claimed by the reporting entity was generated by the facility or unit ~~at the time the power was directly delivered~~at the time the power was directly delivered.

***

~~(6) *Registration Information for System Power Sources.* The following information is required:~~

~~(A) The proposed system power supplier;~~
~~(B) A description of the system power source as well as the publicly available information that ARB may utilize in a system emission factor calculation;~~
~~(C) Information on current and historical NAESB/NERC e-tagging practices for the system power supplier.~~

***

§ 95113. Petroleum Refineries.

***

(l) *Additional Product and Process Data*.

***

~~*(3) CO_2 Weighted Tonne (CWT) Calculation.*~~

~~(A) *Reporting of CWT Throughput Functions.* For data years 2013 and later tThe operator must report values for the CWT functions listed in Table 1 of this section. Report quantities of net fresh feed (F), reactor feed (R, includes recycle), product Feed (P), or synthesis gas production for POX units (SG) as indicated. Beginning with data year 2013, CWT is considered covered product data and subject to material misstatement.~~

~~(B) *Total facility CWT.* The total facility CWT production value must be calculated according to the following formula.~~

$$CWT = \sum CWT_{Factor} * Throughput$$

~~Where:~~

~~"CWT" = The total amount of CO_2 Weighted Tonnes from a petroleum refinery.~~

~~"CWT_{Factor}" = The CWT factor for each process found in Table 1 of this section.~~

~~"Throughput" = The reported value for each CWT function identified in Table 1 of this section reported pursuant to section 95113(m)(3)(A).~~

~~(C) *Units and Accuracy.* Report annual volume in both barrels and mass, in thousands of metric tons, unless other basis units are indicated in column 3 of Table 1 of this section. In order to meet the desired accuracy for CWT, throughput values reported in thousands of metric tons per year must use a certain number of decimals depending on the magnitude of the CWT factor:~~

~~(i)1. For factors up to 1.99: 0 decimals~~
~~(ii)2. For factors between 2.00 and 19.99: 1 decimal~~
~~(iii)3. For factors between 20.00 and 99.99: 2 decimals~~
~~(iv)4. For factors above 100.00: 3 decimals~~

~~(D) *Density.* The density of each throughput must be known for purposes of converting each throughput from barrel to mass units. If the throughput has a known density, a default value may be used. The default value reference must be retained for verification purposes. If the throughput is not known, the measurements must follow the requirements of section 95103(k).~~

(34) *Complexity Weighted Barrel (CWB) Calculation.*

(A) *Reporting of CWB Throughput Functions.* The operator must report annual volume in barrels for each applicable throughput in Table 1 of this section, unless other units are listed in column 3 of Table 1 of this section. The percent of coke on the catalyst also must be reported for each catalytic cracking unit. Beginning with data year 2013, CWB is considered covered product data and subject to material misstatement.

(B) *Total facility CWB.* The total facility CWB production must be calculated according to the following formula.

$$CWB = \sum (CWB_{Factor} * Throughput) + CWB_{Off-Sites\ and\ Non-Energy\ Utilities}$$

Where:

"CWB" = The total amount of complexity weighted barrels from a petroleum refinery.

"CWB_{Factor}" = The CWB factor for each process found in Table 1 of this section.

"Throughput" = The reported value for each CWB function identified in Table 1 of this section reported pursuant to section 95113(l)(43)(A).

"$CWB_{Off\text{-}Sites\ and\ Non\text{-}Energy\ Utilities}$" = 0.327 * Total Refinery Input + [0.0085 * $\sum(CWB_{Factor} * Throughput)$]

(C) *Catalytic Cracking Correction.* For fluid catalytic cracking, mild residual catalytic cracking, and residual catalytic cracking that result in coke on the catalyst, the following equation must be used in substitution for CWB_{Factor} * Throughput:

$$CWB_{CC} = (A + (B * COC)) * Throughput_{CC}$$

Where:

"CWB_{CC}" = The complexity weighted barrel amount from catalytic cracking.

"A" = The first CWB factor listed in column 4 of Table 1 of this section.

"B" = The second CWB factor listed in column 4 of Table 1 of this section.

"COC" = The percent of coke on the catalyst in the catalytic cracking unit.

(D) *Density.* In cases where a density measurement is needed for purposes of converting a throughput from barrel to mass units, the following applies:

1. Default value, for a throughput with a known density;
2. If the throughput is not known, it must be determined following the requirements of section 95103(k).

(E) *Measurement Accuracy.* All throughputs must follow the accuracy requirements outlined in sections 95103(k)(1)-(10). No single refinery activity may be reported under more than one CWB function.

Table 1. CW~~T~~B Functions and Factors

~~CWT function~~	***~~Description~~***	***~~Basis (Thousands of Metric Tons/Year)~~***	***~~CWT factor~~***
~~Atmospheric Crude Distillation~~	~~Mild Crude Unit, Standard Crude Unit~~	~~F~~	~~1.00~~
~~Vacuum Distillation~~	~~Mild Vacuum Fractionation, Standard Vacuum Column, Vacuum Fractionating Column~~ ~~Vacuum distillation factor also includes average energy and emissions for Heavy Feed Vacuum (HFV) unit. Since this is always in series with the MVU, HFV capacity is not counted separately~~	~~F~~	~~0.85~~
~~Solvent Deasphalting~~	~~Conventional Solvent, Supercritical Solvent~~	~~F~~	~~2.45~~
~~Visbreaking~~	~~Atmospheric Residuum (w/o a Soaker Drum), Atmospheric Residuum (with a Soaker Drum), Vacuum Bottoms Feed (w/o a Soaker Drum), Vacuum Bottoms Feed (with a Soaker Drum)~~ ~~Visbreaking factor also includes average energy and emissions for Vacuum Flasher Column (VAC VFL) but capacity is not counted separately~~	~~F~~	~~1.40~~

Thermal Cracking	Thermal cracking factor also includes average energy and emissions for Vacuum Flasher Column (VAC-VFL) but capacity is not counted separately	F	2.70
Delayed Coking	Delayed Coking	F	2.20
Fluid Coking	Fluid Coking	F	7.60
Flexicoking	Flexicoking	F	16.60
Coke Calcining	Vertical Axis Hearth, Horizontal Axis Rotary Kiln	P	12.75
Fluid Catalytic Cracking	Fluid Catalytic Cracking, Mild Residuum Catalytic Cracking, Residual Catalytic Cracking	F	5.50
Other Catalytic Cracking	Houdry Catalytic Cracking, Thermofor Catalytic Cracking	F	4.10
Distillate/Gasoil Hydrocracking	Mild Hydrocracking, Severe Hydrocracking, Naphtha Hydrocracking	F	2.85
Residual Hydrocracking	H-Oil, LC-Fining™ and Hycon	F	3.75
Naphtha/Gasoline Hydrotreating	Benzene Saturation, Desulphurisation of C4–C6 Feeds, Conventional Naphtha H/T, Diolefin to Olefin Saturation, Diolefin to Olefin Saturation of Alkylation Feed, FCC Gasoline hydrotreating with minimum octane loss, Olefinic Alkylation of Thio S, S-Zorb™ Process, Selective H/T of Pygas/Naphtha, Pygas/Naphtha Desulphurisation, Selective H/T of Pygas/Naphtha Naphtha hydrotreating factor includes energy and emissions for Reactor for Selective H/T (NHYT/RXST) but capacity is not counted separately	F	1.10
Kerosene/Diesel Hydrotreating	Aromatic Saturation, Conventional H/T, Solvent aromatics hydrogenation, Conventional Distillate H/T, High Severity Distillate H/T, Ultra-High Severity H/T, Middle Distillate Dewaxing, S-Zorb™ Process, Selective Hydrotreating of Distillates	F	0.90

~~Residual Hydrotreating~~	~~Desulphurisation of Atmospheric Residuum, Desulphurisation of Vacuum Residuum~~	~~F~~	~~1.55~~
~~VGO Hydrotreating~~	~~Hydrodesulphurisation/denitrification, Hydrodesulphurisation~~	~~F~~	~~0.90~~
~~Hydrogen Production~~	~~Steam Methane Reforming, Steam Naphtha Reforming, Partial Oxidation Units of Light Feeds~~ ~~Factor for hydrogen production includes energy and emissions for purification (H_2PURE), but capacity is not counted separately~~	~~P~~	~~300.00~~
~~Catalytic Reforming~~	~~Continuous Regeneration, Cyclic, Semi-Regenerative, AROMAX~~	~~F~~	~~4.95~~
~~Alkylation~~	~~Alkylation with HF Acid, Alkylation with Sulfuric Acid, Polymerisation C3 Olefin Feed, Polymerisation C3/C4 Feed, Dimersol~~ ~~Factor for alkylation/polymerisation includes energy and emissions for acid regeneration (ACID), but capacity is not counted separately~~	~~P~~	~~7.25~~
~~C4 Isomerisation~~	~~C4 Isomerisation~~ ~~Factor also includes energy and emissions related to average EU-27 special fractionation (DIB) correlated with C4 isomerisation~~	~~R~~	~~3.25~~
~~C5/C6 Isomerisation~~	~~C5/C6 Isomerisation~~ ~~Factor also includes energy and emissions related to average EU-27 special fractionation (DIH) correlated with C5 isomerisation~~	~~R~~	~~2.85~~
~~Oxygenate Production~~	~~MTBE Distillation Units, MTBE Extractive Units, ETBE, TAME, Isooctene Production~~	~~P~~	~~5.60~~
~~Propylene Production~~	~~Chemical Grade, Polymer grade~~	~~F~~	~~3.45~~
~~Asphalt Manufacture~~	~~Asphalt and Bitumen Manufacture Production figure should include Polymer Modified Asphalt. CWT factor includes blowing~~	~~P~~	~~2.10~~
~~Polymer Modified Asphalt Blending~~	~~Polymer Modified Asphalt Blending~~	~~P~~	~~0.55~~

~~Sulfur Recovery~~	~~Sulfur Recovery~~ ~~Factor for sulfur recovery includes energy and emissions for tail gas recovery (TRU) and H_2S Springer Unit (U32), but capacity is not counted separately~~	~~P~~	~~18.60~~
~~Aromatic Solvent Extraction~~	~~ASE: Extraction Distillation, ASE: Liquid/Liquid Extraction, ASE: Liq/Liq w/Extr. Distillation~~ ~~CWT factor cover all feeds including Pygas after hydrotreatment. Pygas hydrotreating should be accounted under naphtha hydrotreatment~~	~~F~~	~~5.25~~
~~Hydrodealkylation~~	~~Hydrodealkylation~~	~~F~~	~~2.45~~
~~TDP/TDA~~	~~Toluene Disproportionation/Dealkylation~~	~~F~~	~~1.85~~
~~Cyclohexane production~~	~~Cyclohexane production~~	~~P~~	~~3.00~~
~~Xylene Isomerisation~~	~~Xylene Isomerisation~~	~~F~~	~~1.85~~
~~Paraxylene production~~	~~Paraxylene Adsorption, Paraxylene Crystallisation~~ ~~Factor also includes energy and emissions for Xylene Splitter and Orthoxylene Rerun Column~~	~~P~~	~~6.40~~
~~Metaxylene production~~	~~Metaxylene production~~	~~P~~	~~11.10~~
~~Phthalic anhydride production~~	~~Phthalic anhydride production~~	~~P~~	~~14.40~~
~~Maleic anhydride production~~	~~Maleic anhydride production~~	~~P~~	~~20.80~~
~~Ethylbenzene production~~	~~Ethylbenzene production~~ ~~Factor also includes energy and emissions for Ethylbenzene distillation~~	~~P~~	~~1.55~~
~~Cumene production~~	~~Cumene production~~	~~P~~	~~5.00~~
~~Phenol production~~	~~Phenol production~~	~~P~~	~~1.15~~

~~Lube solvent extraction~~	~~Lube solvent extraction: Solvent is Furfural, Solvent is NMP, Solvent is Phenol, Solvent is SO_2~~	~~F~~	~~2.10~~
~~Lube solvent dewaxing~~	~~Lube solvent dewaxing: Solvent is Chlorocarbon, Solvent is MEK/Toluene, Solvent is MEK/MIBK, Solvent is propane~~	~~F~~	~~4.55~~
~~Catalytic Wax Isomerisation~~	~~Catalytic Wax Isomerisation and Dewaxing, Selective Wax Cracking~~	~~F~~	~~1.60~~
~~Lube Hydrocracker~~	~~Lube Hydrocracker w/Multi-Fraction Distillation, Lube Hydrocracker w/Vacuum Stripper~~	~~F~~	~~2.50~~
~~Wax Deoiling~~	~~Wax Deoiling: Solvent is Chlorocarbon, Solvent is MEK/Toluene, Solvent is MEK/MIBK, Solvent is Propane~~	~~P~~	~~12.00~~
~~Lube/Wax Hydrotreating~~	~~Lube H/F w/Vacuum Stripper, Lube H/T w/Multi-Fraction Distillation, Lube H/T w/Vacuum Stripper, Wax H/F w/Vacuum Stripper, Wax H/T w/Multi-Fraction Distillation, Wax H/T w/Vacuum Stripper~~	~~F~~	~~1.15~~
~~Solvent Hydrotreating~~	~~Solvent Hydrotreating~~	~~F~~	~~1.25~~
~~Solvent Fractionation~~	~~Solvent Fractionation~~	~~F~~	~~0.90~~
~~Mol sieve for C10 + paraffins~~	~~Mol sieve for C10 + paraffins~~	~~P~~	~~1.85~~
~~Partial Oxidation of Residual Feeds (POX) for Fuel~~	~~POX Syngas for Fuel~~	~~SG~~	~~8.20~~
~~Partial Oxidation of Residual Feeds (POX) for Hydrogen or Methanol~~	~~POX Syngas for Hydrogen or Methanol, POX Syngas for Methanol~~ ~~Factor includes energy and emissions for CO Shift and H_2 Purification (U71) but capacity is not counted separately~~	~~SG~~	~~44.00~~
~~Methanol from syngas~~	~~Methanol~~	~~P~~	~~– 36.20~~
~~Air Separation~~	~~Air Separation~~	~~P (MNm^3O_2)~~	~~8.80~~
~~Fractionation of purchased NGL~~	~~Fractionation of purchased NGL~~	~~F~~	~~1.00~~
~~Flue gas treatment~~	~~DeSOx and DeNOx~~	~~F (MNm^3)~~	~~0.10~~

~~Treatment and Compression of Fuel Gas for Sales~~	~~Treatment and Compression of Fuel Gas for Sales~~	~~Elec. Consumption (kW)~~	~~0.15~~
~~Seawater Desalination~~	~~Seawater Desalination~~	~~P~~	~~1.15~~
~~*Basis for CWT factors: Net fresh feed (F), Reactor feed (R, includes recycle), Product feed (P), Synthesis gas production for POX units (SG).*~~			

CWB unit	**Throughput Basis**	**Unit of Measure**	**CWB Factor**	**EIA Number**	**Process Subtypes**
Atmospheric Crude Distillation	Feed	thousands of barrels/year	1	401	Mild Crude Unit, Standard Crude Unit
Vacuum Distillation	Feed	thousands of barrels/year	0.91	402	Mild Vacuum Fractionation, Standard Vacuum Column, Vacuum Fractionating Column, Vacuum Flasher Column, Heavy Feed Vacuum Unit
Visbreaker	Feed	thousands of barrels/year	1.6	403	Processing Atmospheric Residual (w/o a Soaker Drum), Processing Atmospheric Residual (with a Soaker Drum), Processing Vacuum Bottoms Feed (w/o a Soaker Drum), Vacuum Bottoms Feed (with a Soaker Drum)
Delayed Coker	Feed	thousands of barrels/year	2.55	405	Delayed Coking
Fluid Coker	Feed	thousands of barrels/year	10.3	404	Fluid Coking
Flexicoker	Feed	thousands of barrels/year	23.6		Flexicoking
Fluid Catalytic Cracking	Feed	thousands of barrels/year	1.150, Coke-on-Catalyst CWB: 1.041	407	Fluid Catalytic Cracking (Feed ConCarbon <2.25 wt%)
Mild Residual FCC	Feed	thousands of barrels/year	0.6593, Coke-on-Catalyst CWB: 1.1075		Mild Residualuum Catalytic Cracking (Feed ConCarbon 2.25-3.5 wt %)
Other FCC	Feed	thousands of barrels/year	4.65		Houdry Catalytic Cracking
Other FCC	Feed				Thermofor Catalytic Cracking

Thermal Cracking	Feed	thousands of barrels/year	2.95	406	Thermal Cracking
Naphtha/Distillate Hydrocracker	Feed	thousands of barrels/year	3.15	439 / 440	Mild Hydrocracking (Normally less than 1,500 psig and consumes between 100 and 1,000 SCF H2/b) Severe Hydrocracking Naphtha Hydrocracking
Residual Hydrocracker (H-Oil; LC-Fining and Hycon)	Feed	thousands of barrels/year	4.4	441	H-Oil LC-Fining™ and Hycon
Naphtha Hydrotreater	Feed	thousands of barrels/year	0.91	420/425/426	Benzene Saturation Desulfurization of C4–C6 Feeds Conventional Naphtha Hydrotreating Diolefin to Olefin Saturation of Gasoline FCC gasoline hydrotreating with minimum octane loss Olefinic Alkylation of Thio Sulfur Selective Hydrotreating of Pyrolysis Gasoline/Naphtha Combined with Desulfurization Pyrolysis Gasoline/Naphtha Desulfurization Selective Hydrotreating of Pyrolysis Gasoline/Naphtha Combined with Desulfurization Reactor for Selective Hydrotreating S-Zorb™ Process
CWB unit	**Throughput Basis**	**Unit of Measure**	**CWB Factor**	**EIA Number**	**Process Subtypes**
Kerosene Hydrotreater	Feed	thousands of barrels/year	0.75	421	Aromatic Saturation of Kerosene Conventional Hydrotreating of Kerosene/Jet Fuel High Severity Hydrotreating Kerosene/Jet Fuel
Diesel/Selective Hydrotreater	Feed	thousands of barrels/year	0.9	422 / 423	Aromatic Saturation of Distillates Conventional Distillate Hydrotreating High Severity Distillate Hydrotreating Ultra-High Severity Hydrotreating

					Middle Distillate Dewaxing S-Zorb™ Process Diolefin to Olefin Saturation of Alkylation Feed Selective Hydrotreating of C3-C5 Streams for Alkylation
Residual Hydrotreater	Feed	thousands of barrels/year	1.8	424	Desulfurization of Atmospheric Residual Desulfurization of Vacuum Residual
VGO Hydrotreater	Feed	thousands of barrels/year	1	413	Hydrodesulfurization/denitrification Hydrodesulfurization
Reformer - including AROMAX	Feed	thousands of barrels/year	3.5	430 / 431	Continuous Regeneration, Cyclic, Semi-Regenerative, and AROMAX
Solvent Deasphalter	Feed	thousands of barrels/year	2.8	432	Conventional Solvent, Supercritical Solvent
CWB unit	**Throughput Basis**	**Unit of Measure**	**CWB Factor**	**EIA Number**	**Process Subtypes**
Alkylation/Poly/Dimersol	C5+ Alkylate C5+ Product	thousands of barrels/year	5	415	Alkylation with Hydrofluoric Acid Alkylation with Sulfuric Acid Polymerization C3 Olefin Feed Polymerization C3/C4 Feed Dimersol
C4 Isomer Production	Feed	thousands of barrels/year	1.25	615/644	C4 Isomerization
C5/C6 Isomer Production - including ISOSIV	Feed	thousands of barrels/year	1.8	438	C5/C6 Isomerization ISOSIV
POX Syngas for Fuel POX Syngas for Fuel	Product	millions of standard cubic feet/year[1]	2.75		POX Syngas for Fuel Air Separation Unit
Sulfur Recovery	Product Sulfur Sulfur Sprung	thousands of long tons/year	140	435	sulfur Recovery Unit Tail Gas Recovery Unit H2S Springer Unit
Aromatics Production (All)	Feed	thousands of barrels/year	3.3	437	Aromatics Solvent Extraction: Extraction Distillation Aromatics Solvent Extraction: Liquid/Liquid Extraction Aromatics Solvent Extraction: Liq/Liq w/ Extr. Distillation Benzene Column

					Toluene Column
					Xylene Rerun Column
					Heavy Aromatics Column
Hydrodealkylation	Feed	thousands of barrels/year	2.5		Hydrodealkylation
Toluene Disproportionation/ Transalkylation	Feed	thousands of barrels/year	1.9		Toluene Disproportionation / Transalkylation
CWB unit	**Throughput Basis**	**Unit of Measure**	**CWB Factor**	**EIA Number**	**Process Subtypes**
Cyclohexane production	Cyclohexane Product	thousands of barrels/year	2.8		Cyclohexane
Xylene Isomerization	Feed	thousands of barrels/year	1.9		Xylene Isomerization
Paraxylene Production	Paraxylene Product	thousands of barrels/year	6.5		Paraxylene Adsorption
		thousands of barrels/year			Paraxylene Crystallization
	Feed	thousands of barrels/year			Xylene Splitter
		thousands of barrels/year			Orthoxylene Rerun Column
Ethylbenzene production	Ethylbenzene Product	thousands of barrels/year	1.6		Ethylbenzene Manufacture
	Feed	thousands of barrels/year			Ethylbenzene Distillation
Cumene production	Cumene Product	thousands of barrels/year	5		Cumene
Lubricant solvent extraction	Feed	thousands of barrels/year	2.2	815/854	Extraction: Solvent is Duo-Sol, Furfural, NMP, Phenol, or SO2
Lubricant solvent dewaxing	Feed	thousands of barrels/year	4.55		Dewaxing: Solvent is Chlorocarbon, MEK/Toluene, MEK/MIBK, or Propane
Lubricant Catalytic Dewaxing	Feed	thousands of barrels/year	1.6		Catalytic Wax Isomerization and Dewaxing, Selective Wax Cracking
Lubricant Hydrocracking	Feed	thousands of barrels/year	2.5		Lube Hydrocracker with Multi-fraction Distillation, Lube Hydrocracker with Vacuum Stripper
Lubricant Wax Deoiling	Product	thousands of barrels/year	11.8		Deoiling: Solvent is Chlorocarbon, MEK/Toluene, MEK/MIBK, or Propane
Lubricant and Wax Hydrofining	Feed	thousands of barrels/year	1.15		Lube Hydrofinishing with Vacuum Stripper

					Lube Hydrotreating with Multi-Fraction Distillation, Lube Hydrotreating Vacuum Stripper
					Wax Hydrofinishing with Vacuum Stripper, Wax Hydrotreating with Multi-Fraction Distillation, Wax Hydrotreating with Vacuum Stripper
CWB unit	**Throughput Basis**	**Unit of Measure**	**CWB Factor**	**EIA Number**	**Process Subtypes**
Asphalt Production	Total Asphalt Production	thousands of barrels/year	2.7	931	Asphalt Production
Oxygenates	Product	thousands of barrels/year	4.9		Distillation Units
					Extraction Units
					ETBE
					TAME
Methanol Synthesis	Product	thousands of barrels/year	-36		Methanol Synthesis
Desalination	Product (Water)	millions of gallons/year	32.7		Desalination
Special Fractionation	Feed	thousands of barrels/year	0.8		All Special Fractionation ex Solvents, Propylene, and Aromatics
Propane/Propylene Splitter (Propylene Production)	Feed	thousands of barrels/year	2.1		Chemical Grade
					Polymer grade
Fuel Gas Sales Treating & Compression (hp)	Horsepower	hp	0.92		Fuel Gas Sales Treating & Compression
Sulfuric Acid Regeneration	Product	thousands of short tons/year	37.8		Sulfuric Acid Regeneration
Ammonia Recovery Unit	Product	thousands of short tons/year	453		Ammonia Recovery Unit: PHOSAM
Cryogenic LPG Recovery	Feed	millions of standard cubic feet/year	0.25		Cryogenic LPG Recovery
Flare Gas Recovery	Feed	millions of standard cubic feet/year	0.13		Flare Gas Recovery
Flue Gas Desulfurizing	Feed	millions of standard cubic feet/year	0.02		Flue Gas Desulfurizing
CWB unit	**Throughput Basis**	**Unit of Measure**	**CWB Factor**	**EIA Number**	**Process Subtypes**
CO2 Liquefaction	CO2 product	short tons/year	-160	.	CO2 liquefaction
Total Refinery Input	Feed	thousands of barrels/year	0.327		-

Non-Crude Input	Feed	thousands of barrels/year	0.44		-
Process CWB	CWB	CWB/year	.0085		CWB Excluding Contributions from Total Refinery Input and Non-Crude Input
[1] Standard cubic feet are dry @ 60° F and 14.696 psia or 15 °C and 1 atmosphere.					

***

§ 95115. Stationary Fuel Combustion Sources.

***

(nm) *Additional Product Data.* Operators of the following types of facilities must also report the production quantities indicated below.

***

(10) The operator of a tomato processing facility must report the quantity of aseptic tomato paste, aseptic whole/diced tomato, non-aseptic tomato paste, non-aseptic whole/diced tomato, and non-aseptic tomato juice, and non-aseptic tomato sauce~~canned non-tomato~~ produced in the data year (short tons).

***

(16) The operator of a dairy product facility must report the production of milk, buttermilk, skim milk, cream, butter, sweetened condensed milk, evaporated milk, ~~powdered milk, concentrated milk,~~ intermediate dairy ingredients, dairy product solids for animal feed ~~cheese~~, lactose, whey permeate, dry whey protein concentrate (DPWC), and deproteinized whey during the data year (short tons). The operator must also report the production of cheese by cheese type, the production of powdered milk by the type of heat treatment (low heat, medium or high heat), and the production of ultrafiltered milk products by product type during the data year (short tons). The operator must report the production of total DPWC and DPWC with high protein concentration using dialifration process during the data year (short tons).

***

(18) The operator of a wet corn milling facility must report the production of corn entering wet milling process during the data year (short tons).

§ 95119. Pulp and Paper Manufacturing

***

(d) *Additional Product Data.* In addition to the information required by 40 CFR §98.276, the operator must report the annual production (air dried short tons) of

recycled boxboard, recycled linerboard, recycled medium and tissue ~~and tissue~~. The operator producing tissue products must also report the annual production (air dried short tons) of tissue produced adjusted by water absorbency capacity. ~~For tissue, t~~The operator producing tissue products must also report:

***

(2) Weighted average water absorption capacity of ~~each~~ tissue ~~product type~~ manufactured using the following equation:

Weighted average water capacity for tissue type =

$$\sum_{i=1}^{n} Oi\,WACi$$

Where:

O_i = annual product output in air dried ton for each tissue product type

WAC_i = water absorption capacity measured at least annually for each product type using the methodology specified by ISO 12625-8:2010, except the humidity and temperature conditions shall be 50% relative humidity ±2%, and 23C ±1 C.

Subarticle 3. Additional Requirements for Reported Data

§ 95129. Substitution for Missing Data Used to Calculate Emissions from Stationary Combustion and CEMS Sources.

***

(c) *Missing Data Substitution Procedures for Fuel Characteristic Data.*

***

(3) If the operator is unable to obtain fuel characteristic data such that less than 80.0 percent of ~~emissions from a source~~a fuel characteristic data element are directly accounted for, the operator must then substitute for each missed data point as follows: ~~the greater of the following:~~

(A) If historical fuel characteristics data are available and kept according to the requirements of section 95105, substitute with the greater of the following:

~~(A)~~(1) The highest valid value recorded for that type of fuel for all records kept under the requirements of section 95105, or

~~(B)~~(2) The default value in Table 1 of this section (for carbon content) or Table C-1 of 40 CFR Part 98 (for high heat value). If a substitute value is not available in Table 1 of this section or Table C-1 of 40 CFR Part 98, the operator must substitute the highest value recorded

for that type of fuel for all records kept pursuant to the requirements of section 95105.

(B) For carbon content data, if historical fuel characteristics data are not available and a default value is not listed in Table 1 of this section, use 90% for other liquid and gaseous fuels and 100% for other solid fuels in substituting for missed carbon content data.

Table 1. Default Carbon Content

Parameter	Missing Data Value
Anthracite Coal	*90%*
Bituminous	*85%*
Subbituminous/Lignite	*75%*
Oil	*90%*
Natural Gas	*75%*
~~*Other Liquid and Gaseous Fuels*~~	~~*90%*~~
~~*Other Solid Fuels*~~	~~*100%*~~

***

Subarticle 4. Requirements for Verification of Greenhouse Gas Emissions Data Reports and Requirements Applicable to Emissions Data Verifiers; Requirements for Accreditation of Emissions Data and Offset Project Data Report Verifiers

***

§ 95131. Requirements for Verification Services.

***

(b) Verification services shall include, but are not limited to, the following*:*

***

(8) *Data Checks.* To determine the reliability of the submitted emissions data report, the verification team shall use data checks. Such data checks shall focus on the largest and most uncertain estimates of emissions, product data and fuel and electricity transactions, and shall include the following:

(F) The verification team is responsible for ensuring via data checks that there is reasonable assurance that the emissions data report conforms to the requirements of this article. In addition, and as applicable, the verifier's review of conformance must confirm the following information is correctly reported:

1. For facilities that combust natural gas, natural gas provider, account identification number, where available, and annual MMBtu of natural gas delivered, reported pursuant to section 95115(k);

***

(14) *Review of Product Data.*

***

(B) For product data reported by operators of petroleum refineries subject to section 95113:

***

3. Verifiers must separately evaluate conformance and separately assess material misstatement for the total facility ~~CO_2 weighted tonne and~~ complexity weighted barrel beginning with 2013 data reported in 2014

4. Verifiers must submit ~~multiple~~ two product data verification statements for 2013 and 2014 data reports:

***

B. ~~A verification statement for the evaluation of CO_2 weighted tonne;~~

~~C.~~ A verification statement for the evaluation of complexity weighted barrel.

5. Beginning with 2015 data reported in 2016, only the verification statement~~s~~ for the ~~CO_2 weighted tonne and~~ complexity weighted barrel is ~~are~~ submitted. ~~Evaluation of other product data conformance is included in the verification statement for CO_2 weighted tonne.~~

***

§ 95132. Accreditation Requirements for Verification Bodies, Lead Verifiers, and Verifiers of Emissions Data Reports and Offset Project Data Reports.

***

(b) The Executive Officer may issue accreditation to verification bodies, lead verifiers, and verifiers that meet the requirements specified in this section.

(1) *Verification Body Accreditation Application.*

***

(F) The verification body shall notify ARB within 30 days of when it no longer meets the requirements for accreditation as a verification body in section 95132(b)(1). The verification body may request that the Executive Officer provide ~~an~~ additional time to hire additional staff to meet the requirements of this section.

***

§ 95133. Conflict of Interest Requirements for Verification Bodies.

***

(b) The potential for a conflict of interest must be deemed to be high where:

***

(2) ~~Within the previous five years, a~~Any ~~staff member~~ employee of the verification body, or any employee of a related entity, or a subcontractor who is a member of the verification team has provided to the reporting entity any of the following services within the previous five years:

***

Subarticle 5. Reporting Requirements and Calculation Methods for Petroleum and Natural Gas Systems.

***

§95152. Greenhouse Gases to Report.

***

(c) For an onshore petroleum and natural gas production facility, the operator must report CO_2, CH_4, and N_2O emissions from the following source types on a well-pad, ~~or~~ associated with a well-pad or associated with equipment to which an emulsion is transferred:

***

(6) ~~Crude oil or g~~GGas well venting during well completions and workovers;

***

(8) ~~Onshore production and storage tanks~~Dump valves;

***

(i) For natural gas distribution, the operator must report CO_2, CH_4, and N_2O emissions from the following sources:

***

(9) Pipeline main equipment leaks.

***

§ 95153. Calculating GHG Emissions.

***

(f) *~~Crude oil and g~~GGas well venting during well completions and well workovers*. Using one of the calculation methodologies in this paragraph (f)(1) through (f)(5) below, operators must calculate CH_4, CO_2 and N_2O (when flared) annual emissions from ~~crude oil and~~ gas well venting during both conventional completions and completions involving hydraulic fracturing in wells and during both conventional well workovers and well workovers involving hydraulic fracturing.

***

(h) ~~Dump *Valves*~~*~~Onshore production and storage tanks~~ Dump Valves*. Calculate emissions from occurrences of gas-liquid separator liquid dump valves not closing during the calendar year by using the method found in 95153(i).

***

(k) *Associated gas venting and flaring.*

***

(A) Use an appropriate standard method published by a consensus-based standards organization if such a method exists, including ARB's sampling methodology and flash liberation test procedure in Appendix B of this regulation; or

***

(p) *Population count and emission factors.* This paragraph applies to emissions sources listed in sections 95152(c)(1~~7~~6), (f)(~~5~~7), (g)(3), (h)(3), (i)(2), (i)(3), (i)(4), ~~(i)(5),~~ and (i)(6) and (i)(9) on streams with gas content greater than 10 percent CH_4 plus CO_2 by weight. Emissions sources in streams with gas content less than 10 percent CH_4 plus CO_2 by weight do not need to be reported. Tubing systems equal to or less than one half inch diameter are exempt from the requirements of paragraph (p) of this section and do not need to be reported. Calculate emissions from all sources listed in this paragraph using Equation 27 of this section.

(v) *Crude Oil, Condensate, and Produced Water Dissolved CO_2 and CH_4.*

***

(1) Calculate CO_2 and CH_4 emissions from crude oil, condensate, and produced water using Equation 33A:

***

(A) S (the mass of CO_2 or CH_4 per barrel of crude oil, condensate, or produced water) shall be determined using one of the following methods:

1. Flash liberation test. Measure the amount of CO_2 and CH_4 liberated from crude oil, condensate, or produced water when the crude oil, condensate, or produced water changes temperature and pressure from well stream to standard atmospheric conditions, using ~~a~~ARB's sampling methodology and ~~a ARB's~~ flash liberation test ~~such as~~ procedure entitled "Flash Emissions of Greenhouse Gases and Other Compounds from Crude Oil and Natural Gas Separator and Tank Systems," which is included as Appendix B of this article. ~~adopted Gas Processor Association, American Society for Testing and Materials, or U.S. EPA standards.~~ The flash liberation test results must provide the metric tons of CO_2 and CH_4 liberated per barrel of crude oil, condensate, or produced water. The test results from the flash liberation test must be submitted to ARB as part of the emissions data report.

***

(y) *Onshore petroleum and natural gas production and natural gas distribution combustion emissions.*

***

(1) If a fuel combusted in the stationary or portable equipment is listed in Table C-1 of Subpart C of 40 CFR Part 98, or is a blend ~~containing~~ completely consisting of one or more fuels listed in Table C-1, calculate emissions

according to paragraph (y)(1)(A). If the fuel combusted is natural gas and is of pipeline quality specification, use the calculation methodology described in paragraph (y)(1)(A) and the facility operator may use the emission factor provided for natural gas as listed in Subpart C, Table C-1. If the fuel is natural gas, and is not pipeline quality calculate emissions according to paragraph (y)(2). The operator must use the appropriate gas composition for each stream of hydrocarbon going to the combustion unit as specified in paragraph (s)(2) of this section. If the fuel is field gas, process vent gas, or a blend containing field gas or process vent gas, calculate emissions according to paragraph (y)(2).

***

(2) For fuel combustion units that combust field gas, process vent gas, a blend containing field gas or process vent gas, or natural gas that is not of pipeline quality, calculate combustion emissions as specified below ~~follows~~:

***

(B) If a continuous gas composition analyzer is installed and operational on fuel supply to the combustion unit, the operator must use these compositions for determining the concentration of gas hydrocarbon constituent in the flow of gas to the unit. If a continuous gas composition analyzer is not installed on gas to the combustion unit, the facility operator must use the appropriate gas compositions for each stream of hydrocarbons going to the combustion unit ~~as specified in paragraph (s)(2) of this section~~.

(C) Calculate GHG volumetric emissions at actual conditions using Equations 35 and 36 of this section:

$$E_{a,CO2} = \sum_{n=1}^{12}\left[(V_a * Y_{CO2}) + \eta \sum_{j=1}^{5} V_a * Y_j * R_j\right] \quad \text{(Eq. 35)}$$

$$E_{a,CH4} = \sum_{n=1}^{12}[V_a * (1 - \eta) * Y_{CH4}] \quad \text{(Eq. 36)}$$

Where:

$E_{a,CO2}$ = Contribution of annual CO_2 emissions from portable or stationary fuel combustion sources in cubic feet, under actual conditions.

V_a = Volume of fuel gas sent to combustion unit in cubic feet, during the ~~year~~month.

Y_{CO2} = Monthly ~~C~~concentration of CO_2 constituent in gas sent to combustion unit.

$E_{a,CH4}$ = Contribution of annual CH_4 emissions from portable or stationary fuel combustion sources in cubic feet, under actual conditions.

Ƞ = Fraction of gas combusted for portable and stationary equipment determined using an engineering estimation. For internal combustion devices, a default of 0.995 can be used.

Y_j = Monthly ~~C~~concentration of gas hydrocarbon constituent j (such as methane, ethane, propane, butane and pentanes plus) in gas sent to combustion unit.

R_j = Number of carbon atoms in the gas hydrocarbon constituent j; 1 for methane, 2 for ethane, 3 for propane, 4 for butane, and 5 for pentanes plus, in gas sent to combustion unit.
Y_{CH4} = Monthly ~~C~~concentration of methane constituent in gas sent to combustion unit.
n = Month of the year

Calculate CO_2 and CH_4, volumetric emissions at standard conditions using the provisions of section 95153(r). Use the provisions in sections 95153(s) and (t) to convert volumetric gas emissions to GHG volumetric and GHG mass emissions respectively.

***

§95156. Additional Data Reporting Requirements.

***

(c~~d~~) The operator of a natural gas liquid fractionating facility, ~~or~~ a natural gas processing facility, or an onshore petroleum and natural gas production facility with a ~~gas plant~~ natural gas processing plant that ~~produces~~processes less than 25 MMscf per day must report the annual production of the following natural gas liquids in barrels corrected to 60 degrees Fahrenheit:

***

§95157. Activity Data Reporting Requirements.

***

(c) Report the information listed in this paragraph for each applicable source type in metric tons for each GHG type. If a facility operates under more than one industry segment, each piece of equipment should be reported under the unit's respective majority use segment. When a source type listed under this paragraph routes gas to flare, separately report the emissions that were vented directly to the atmosphere without flaring, and the emissions that resulted from flaring of the gas. Both the vented and flared emissions will be reported under respective source types and not under flare source type.

***

(6) For well completions and workovers, report the following for each basin category:

(A) Total field count of gas well completions and total field count of oil well completions by average depth (in thousands of feet) in calendar year.
1. Total number of gas well completions using hydraulic fracturing;
2. Total number of oil well completions by average depth (in thousands of feet) using hydraulic fracturing;

(B) Total field count of gas well workovers and total field count of oil well workovers by average depth (in thousands of feet) in calendar year.
1. Total number of gas well workovers using hydraulic fracturing;

2. Total number of oil well workovers by average depth (in thousands of feet) using hydraulic fracturing;

***

(G) The following field average activity data for oil wells:

1. Casing diameter;
2. Tubing diameter;
3. Typical pressure inside the well at the wellhead, immediately prior to removing the wellhead for well work activities;
4. Typical producing temperature inside the well;
5. Time, in hours, to complete well work (workover or completion).

***

(18) For ~~EOR hydrocarbon liquids~~ crude oil, condensate, and produced water dissolved CO_2 and CH_4 (refer to section 95153(v)), report the following:

***

(19) For onshore petroleum and natural gas production and natural gas distribution combustion emissions, report the following:

***

(H) Annual volume of associated gas produced (~~Mscf~~MMBtu) using thermal enhanced oil recovery and non-thermal enhanced oil recovery.

***