

STATEMENT OF THE LEGAL AND FACTUAL BASIS
FOR THE TERMS OF THE PROPOSED PERMIT
[MDAQMD Rule 1203(B)(1)(a)(i)]

TITLE V FEDERAL PERMIT TO OPERATE
Facility named – Unlimited Performance Products

Title V -- Federal Operating Permit # 121902118

Re-Issue Date: June 23, 2010-June 23, 2015

Processing Engineer:
Roseana Navarro-Brasington

Air Quality Engineer

A. Facility Identifying Information:

<u>Owner/Company Name:</u>	Unlimited Performance Products
<u>Owner Mailing Address:</u>	Unlimited Performance Products 8770 Caliente Street Hesperia, California 92345
<u>Facility Name:</u>	Unlimited Performance Products
<u>Facility Location:</u>	8770 Caliente Street Hesperia, California 92345
<u>MDAQMD Federal Operating Permit Number:</u>	121902118
<u>MDAQMD Company Number:</u>	1219
<u>MDAQMD Facility Number:</u>	02118
<u>Responsible Official:</u>	Nick Adams
<u>Title:</u>	Owner
<u>Phone Number:</u>	760-948-0055
<u>Facility "Site" Contacts:</u>	Nick Adams
<u>Phone Number:</u>	760-948-0055
<u>Fax Number:</u>	760-947-8333
<u>Nature of Business:</u>	Fiberglass Automobile Parts Manufacturer Fiberglass Composite Boat Manufacturer
<u>SIC Code:</u>	3714 – Fiberglass Automobile Parts 3732 – Boat Building and Repairing
<u>Facility Location:</u>	UTM (Km) 473-E / 3808-N

STATEMENT OF THE LEGAL AND FACTUAL BASIS FOR THE TERMS OF THE PROPOSED PERMIT [1203(B)(1)(a)(i)]

Statutory and Regulatory Authorities: Pursuant MDAQMD Regulation 12, Program - Federal Operating Permits, a.k.a. Title V (Adopted 7/25/94, Amended 02/22/95, Additional Rules adopted 06/28/95, 7/31/95) and 02/05/96 FR 4217, in accordance with Rule 221 - *Federal Operating Permit Requirement*, 40 CFR 52.220(c)(216)(i)(A)(2) - 02/05/96 61 FR 4217 of the Clean Air Act of 1990, the Mojave Desert Air Quality Management District issues this permit.

Federal Operating Permit (FOP number: 121902118) for Unlimited Performance Products, Four digit SIC Codes: 3714 – Fiberglass Auto Parts. 3732 – Boat Building and Repairing.

Using District Permit conditions for existing equipment the District developed the Unlimited Performance Products Title V Federal Operating Permit, by consulting SIP Rules, NSPS and MACT requirements that may be applicable to the facility. MDAQMD Title V Program Rules were also consulted. ALL District permit conditions are included in this Title V Permit in Part III of the permit.

I. FACILITY & PROCESS DESCRIPTION:

Federal Operating Permit (FOP number: 121902118) is for Unlimited Performance Products, located at 8770 Caliente Street, Hesperia, California 92345.

For automotive parts manufacturing: A fiberglass mold of the automobile part is sprayed with a mixture of gel coat and catalyst using a spray gun in the spray booth. The gel coat then hardens at ambient temperature. Next, hand lay-up of fiberglass and polyester resin is carried out in the fiberglass lay-up room. Polyester resin is applied by brush in the hand lay-up operation.

For boats manufacturing: A fiberglass mold of a boat component is sprayed with a mixture of gel coat and catalyst using a spray gun. After the gel coat is hardened, vinyl ester or polyester ester resin is applied by wet-out guns or hand lay-up as laminations layers. After the lamination layers cure, boat components are then assembled into boat sections using adhesive and resin applications. These boat sections are further integrated to form the actual boat. The boat is then worked on to increase its aesthetic value followed by quality control/quality assurance. Finally, the boat is shipped out to customers.

II. BACKGROUND:

This *Statement of Legal and Factual Basis*, pursuant to Rule 1203(B)(1)(a)(i), is intended to assess the adequacy of this Title IV/V Application and to explain the District's basis in composing the Title V - Federal Operating Permit.

The District's approach to the Title V program is to issue a single Federal Operating Permit for the entire facility that satisfies the federal requirement for a permit under Rule 221 [*NOTE: MDAQMD maintains separate Title V and District permits programs*]. All Federal, State and most District only requirements, associated with the emission of air contaminants, are included in the Federal Operating Permit. All documents, which are not readily available to the public, and are necessary to support the permit, are to be included. The District has taken the approach that the following documents are readily available to the public, and therefore, are not included: *Code of Federal Regulations, California Code of Regulations and Health and Safety Code, District Rules and Regulations [both documents are current and appear in the California State Implementation Plan], all test methods, copies of District Authorities to Construct and Permits to Operate [available at the District's office]*.

The USEPA, Region 9, was e-mailed a draft of the proposed renewal on November 22, 2011. The 30-day Public Notice will be published on November 22, 2011 and will end on December 22, 2011. The USEPA statutory 45-day review period will expire on or about January 5, 2012. Proposed Title V Permit Issue Date is June 23, 2010.

The District will review and consider all public and EPA comments and modify this "Statement of Basis" document and Title 5 Permit to address agreed to concerns before the proposed Title IV/V Permit is issued.

Rule 1203 (D)(1) outlines Title V Permit content requirements as follows:

III. TITLE V PERMIT CONTENTS [Rule 1203 (D)(1)]:

All Federal Operating Permits shall contain, at a minimum, the following terms, and conditions:

A. Identification of Applicable Requirements:

1. Standard conditions for generally applicable requirements do not list those processes to which they apply as allowed by EPA's White Paper One, page 11, section 4, last sentence of paragraph 2.
2. Minor New Source Review (NSR). All existing permit conditions, which are based on previous authority to construct conditions, are considered applicable federal requirements because those pre-construction review actions resulted from SIP Rule 203 - *Permit to Operate* and SIP Rule 204 - *Permit Conditions*.
3. Federal Applicable/Enforceable Requirements:
District Rule 1201 (P): "Federally Enforceable" - Any requirement, condition or other term which is fully enforceable by USEPA pursuant to the provisions of 42 U.S.C. §7413 (Federal Clean Air Act §113) or the public pursuant to the provisions of 42 U.S.C. §7604 (Federal Clean Air Act §304).

District Rule 1201 (G): "Applicable Requirement" - Any of the following requirements, including requirements that have been promulgated or approved by USEPA through rulemaking at the time of permit issuance but have future effective dates, as they apply to a Facility or Permit Unit: **Appropriate conditions are included in the Title V Permit to ensure compliance with the following requirements (a through i).**

- (a) Any standard or other requirement contained in the applicable implementation plan for the District, and any amendments thereto, approved or promulgated pursuant to the provisions of Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515).
- (b) Any term or condition of any preconstruction permit issued pursuant to regulations approved or promulgated under Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515).
- (c) Any standard or other requirement under 42 U.S.C. §§7411, Standards of Performance for New Stationary Sources (Federal Clean Air Act §111); 42 U.S.C. §7412, Hazardous Air Pollutants (Federal Clean Air Act §112); and any regulations promulgated thereunder.
- (d) Any standard or other requirement under Title IV of the Federal Clean Air Act (42 U.S.C. §§7651-7651o) or the regulations promulgated thereunder.
- (e) Any requirements regarding monitoring, analysis, and compliance established pursuant to 42 U.S.C. §7414(a)(3), Record keeping, Inspections, Monitoring and Entry (Federal Clean Air Act §114); 42 U.S.C. §7661c(b), Permit Requirements and Conditions (Federal Clean Air Act §504); and the regulations promulgated thereunder.
- (f) Any standard or other requirement governing Solid Waste Incineration Units under 42 U.S.C. §7429, Solid Waste Combustion (Federal Clean Air Act §129) and the regulations promulgated thereunder.
- (g) Any standard or other requirement for consumer or commercial products under 42 U.S.C. §7511b(e) (Federal Clean Air Act §183) and the regulations promulgated thereunder.
- (h) Any standard or other requirement of the regulations promulgated under Title VI of the Federal Clean Air Act (42 U.S.C. §§7671-7671q) unless the USEPA has determined that such requirement need not be contained in a Federal Operating Permit.
- (i) Any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515), but only as it would apply to temporary sources pursuant to the provisions of 42 U.S.C. 7661c(e) (Federal Clean Air Act §504(e)).

4. See the following discussions below:

40 CFR Part 61, Subpart M - National Emission Standard for Asbestos

This facility on an as needed basis is subject to Section 61.145 through 61.147 - standards for the demolition and renovation of asbestos. Historically, the facility has

been in compliance with the requirements of these standards. *Appropriate conditions are included in the Title V Permit to ensure compliance with these requirements.*

40 CFR Part 82 - Protection of Stratospheric Ozone

This facility is in compliance with the requirements of this part. Any servicing of air conditioners is performed by a qualified contracting company. *Appropriate conditions are included in the Title V Permit to ensure compliance with these requirements.*

40 CFR, Parts 60.7, 60.8 and 60.13; Subpart A - New Source Performance Standards, General Provisions

Facility processes & equipment are not subject to the requirements of this part.

- 4a. The MDAQMD determined the federally applicable/enforceable requirements listed in the proposed Title V Permit. These requirements are listed as follows and included in the proposed Unlimited Performance Products Title V Permit. See the following discussions below:
- 4b. National Emission Standards for Hazardous Air Pollutants for “Reinforced Plastic Composite Production”, 40 CFR 63 Subpart WWWW.
This facility is subject to the requirements of the “National Emission Standards for Hazardous Air Pollutants for “Reinforced Plastic Composite Production”, 40 CFR 63 Subpart WWWW. The owner/operator shall operate in compliance with EPA (MACT) standard. The below condition 4c has been added to the Title V Permit to ensure compliance with this MACT.
- 4c. Fiberglassing operations at this facility shall not emit more than 32.85 tons per year of VOC to the atmosphere (combined Subpart VVVV and WWWW emissions for entire plant). In addition the owner/operator, shall limit the amount of VOCs from this facility to 180 lb/day based on a 30-day rolling average of those days of actual production as per District Permits. The Owner/Operator shall comply with applicable MACT standard 40 CFR Part 63, Subpart WWWW. The compliance date for 40 CFR 63 subpart WWWW “Reinforced Plastic Composite Production” is April 21, 2006.
[40 CFR 63, National Emission Standards for Hazardous Air Pollutants for “Reinforced Plastic Composite Production”, subpart WWWW]
[Rule 204 - *Permit Conditions*; Version in SIP = CARB Ex. Order G-73, 40 CFR 52.220(c)(39)(ii)(B) - 11/09/78 43 FR 52237; Current Rule Version = 07/25/77]
[40 CFR 63, National Emission Standards for Hazardous Air Pollutants for Fiberglass Manufacturing, subpart WWWW]
- 4d. This facility is subject to the requirements of the “National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing, 40 CFR 63 Subpart VVVV, which has

a compliance date of August 22, 2004. Fiberglassing operations at this facility shall not emit more than 32.85 tons per year of VOC to the atmosphere (combined Subpart VVVV and WWWW emissions for entire plant). In addition the owner/operator, shall limit the amount of VOCs from this facility to 180 lb/day based on a 30-day rolling average of those days of actual production as per District Permits. The owner/operator shall operate in compliance with EPA NESHAP Boat Building Maximum Achievable Control Technology (MACT) standard. The below condition (along with other details) 4e has been added to the Title V Permit to ensure compliance with this MACT.

- 4e. Based upon the data Owner/Operator is in compliance with the MACT Standard for Boat Manufacturing Industry, 40CFR63 subpart VVVV, for materials used, using the 'emission averaging' of 40 CFR 63.5710. However, this MACT Standard requires that the facility use a 12-month rolling average starting with August 22, 2004. Therefore, this Title V Permit requires Owner/Operator to complete a similar spreadsheet monthly and retain the spreadsheet for 5 years from the date generated. Also, Owner/Operator is required to submit the spreadsheet to the MDAQMD, in an electronic format that can be read by the MDAQMD with each Annual Compliance Plan & Monitoring Report submittal. Further, this 12-month rolling average spreadsheet compliance determination shall be available for submittal to the District or USEPA upon request.
- [40 CFR 63, *National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing*, subpart VVVV]
[Rule 204 - *Permit Conditions*; Version in SIP = CARB Ex. Order G-73, 40 CFR 52.220(c)(39)(ii)(B) - 11/09/78 43 FR 52237; Current Rule Version = 07/25/77]
[40 CFR 70.6 (a)(3)(B) - *Periodic Monitoring Requirements*]

[40 CFR 63, *National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing*, subpart VVVV]

- B. Emissions limitations and/or standards, including operational limitations, which assure compliance with all Applicable Requirements and a reference to the origin and authority of each term or condition contained in the Federal Operating Permit: **Completed, Processes and Control Equipment Requiring Emission and Operational Limitations are stated in the Title IV/V Permit conditions.**
- C. Monitoring requirements including but not limited to: [40 CFR 70.6(a)(1)] [see following] **Completed, Processes and Control Equipment Requiring Monitoring and Recordkeeping are stated in permit conditions. Records for 5 years stated in Title IV/V Permit conditions.**
- (i) All emissions monitoring and analysis methods required by an Applicable Requirement.

- (ii) Periodic monitoring, testing or record keeping (including test methods sufficient to yield reliable data) to determine compliance with an Applicable Requirement that does not directly require such monitoring.
 - (iii) Necessary requirements concerning use and maintenance of equipment including the installation and maintenance of monitoring equipment.
- D. Record keeping requirements, where applicable, including but not limited to: [see following] **Processes and Control Equipment Requiring Monitoring and Recordkeeping are stated in Title V Permit conditions. Records for 5 years stated in Title IV/V Permit conditions.**
- (i) Records of required monitoring information including dates and times of sampling, operating conditions at the time of sampling, date of analysis, analytical techniques and methods, the person or company performing the analysis, and the results of the analysis.
 - (ii) The retention of all records for a period of at least five (5) years from the date of monitoring.
- E. Reporting requirements, where applicable, including but not limited to: [see following] **COMPLETED, requirements (i through ii) are in proposed Title IV/V Permit.**
- (i) Submittal of any required monitoring reports at least every six (6) months.
 - (ii) Prompt reporting of all deviations from permit requirements including those attributable to breakdown conditions. Prompt reporting shall be determined in compliance with District Rule 430.
- F. Various Standardized Provisions and/or Conditions: [see following] **COMPLETED, requirements (i through xii) are in proposed Title IV/V Permit.**
- (i) A severability clause.
 - (ii) A provision, which states that the permit holder shall comply with all conditions of the Federal Operating Permit. Any noncompliance constitutes a violation of the Federal Clean Air Act and is grounds for enforcement action; the termination, revocation and reissuance, or modification of the Federal Operating Permit; and/or grounds for denial of a renewal application.
 - (iii) A provision which states that the need to halt or reduce activity to maintain compliance with the provisions of the Federal Operating Permit, or for any other reason, is not a defense in an enforcement action.
 - (iv) A provision, which states that the Federal Operating Permit may be modified, revoked, reopened, reissued or terminated for cause.
 - (v) A provision which states that the filing of an application for modification; a request for revocation and re-issuance, or termination; or notifications of planned changes, or anticipated noncompliance does not stay any condition of the Federal Operating Permit.

- (vi) A provision, which states that the permit does not convey any property rights of any sort, or any exclusive privilege.
 - (vii) A provision which states that the Permit holder shall furnish to the District, within a reasonable time as specified by the District, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, terminating or determining compliance with the Federal Operating Permit.
 - (viii) Provision which states that the Permit holder shall, upon request, furnish to the District copies of records required to be kept pursuant to conditions of the Federal Operating Permit.
 - (ix) A provision requiring the payment of annual permit renewal fees and other applicable fees as prescribed in District Rule 312.
 - (x) A provision stating that no permit revision shall be required under any approved economic incentives, marketable permits, emissions trading or other similar programs provided for in the permit.
 - (xi) Terms and conditions, if applicable, for reasonably anticipated operating scenarios identified by the Facility in its application which require the Facility, contemporaneously with making the change from one operating scenario to another, to record in a log at the Facility a record of the scenario under which it is operating; and ensure that each alternative operating scenario meets all Applicable Requirements.
 - (xii) Terms and conditions, if requested by the applicant, for the trading of emissions increases and decreases within the Facility to the extent any Applicable Requirements allow for such trading without case-by-case approval. Such terms and conditions shall include all terms and conditions to determine compliance with all Applicable Requirements; and meet all Applicable Requirements.
- G. Compliance Conditions: [see following] **COMPLETED, requirements (i through x) are in proposed Title IV/V Permit.**
- (i) Inspection and entry requirements which require that the Permit Holder allow an authorized representative of the District to enter upon the Permit holder's premises, at reasonable times.
 - (ii) Provisions, which allow an authorized representative of the District to have access to and copy any records that must be kept under conditions of the Federal Operating Permit.
 - (iii) Provisions, which allow an authorized representative of the District to inspect any Permit Unit, equipment, practice, or operation regulated or required under the Federal Operating Permit.
 - (iv) Provisions which allow an authorized representative of the District to sample or monitor substances or parameters for the purpose of assuring compliance with the Federal Operating Permits or with any Applicable Requirement.
 - (v) A Compliance Plan.

- (vi) A restatement, if applicable, of the requirement that the Permit holder submit progress reports at least semiannually pursuant to a schedule of compliance. Such progress reports shall comply with the provisions of District Rule 1201(I)(3)(iii).
- (vii) Certification requirements including the frequency of submission, not less than annually, for Compliance Certifications.
- (viii) Requirements that method for monitoring compliance be included in the Compliance Certifications.
- (ix) Requirements that all Compliance Certifications be contemporaneously submitted to USEPA.
- (x) Any additional certification requirements as specified in 42 U.S.C §7414(a)(3), Recordkeeping Inspections Monitoring and Entry (Federal Clean Air Act §114(a)(3)) and 42 U.S.C. §7661c(b), Permit Requirements and Conditions (Federal Clean Air Act §503(b)) or in regulations promulgated thereunder.

H. Fugitive Emissions: **COMPLETED, control equipment and requirements are addressed in proposed Title IV/V Permit.**

- (i) Fugitive emissions shall be included in the permit and permit conditions in the same manner as stack emissions.

IV. CONCLUSIONS AND RECOMMENDATION:

In conclusion, the proposed Unlimited Performance Products Title V Federal Operating Permit # 121902118 has been found to satisfy all of the requirements of District Rule 221, Rule 312, Regulation XII Rules, and the District's Title V Permit Program requirements.

Therefore, it is recommended that this Title V - Federal Operating Permit be RE- ISSUED to satisfy these requirements on June 23, 2010.

APPENDIX "A"

DISTRICT / SIP RULE COMPLIANCE DEMONSTRATIONS:

- A. Rule 406: Owner/Operator shall not discharge into the atmosphere from this facility, from any single source of emissions whatsoever, Sulfur compounds, which would exist as a liquid or gas at standard conditions, calculated as sulfur dioxide (SO₂) greater than or equal to 500 ppm by volume.

[40 CFR 70.6 (a)(1) - Periodic Monitoring Requirements] (for Periodic Monitoring Requirements, see: Part II, section A, condition 22; Part III, section C, conditions 11 and 22; Part V, section C, condition 4; Part V, section D, condition 3; Part V, section I, condition 3)

[Rule 406 - Specific Contaminants; Version in SIP = 07/25/77, 40 CFR 52.220(c)(42)(xiii)(A) - 12/21/78 43 FR 52489, Subpart (a) only; Current Rule Version = 02/20/79]

Rule 406 specifies standard conditions, but not dry. Standard conditions for Rule 406 will be calculated as wet.

Calculate the SO₂ concentration in the diesel fueled IC engine exhaust gas using the following assumptions/calculations:

1. Maximum sulfur content of the diesel fuel is by permit condition: 0.05 % by weight.
2. Specific gravity of diesel fuel is 0.84: weight of one gallon of diesel fuel is: 8.33 lb/gal x 0.84 = 7 lb/gal.
3. Heating value of diesel fuel from U.S. EPA AP-42, Section 3.3: 19,300 Btu/lb.
4. Gallons of fuel required for 10⁶ Btu: 1 lb/19,300 Btu = x lb/ 10⁶ Btu: x = 51.8 lb: (51.8 lb)(1 gal/7 lb) = 7.4 gallons per 10⁶ Btu.
5. Pounds of sulfur per 10⁶ Btu (7.4 gallons): (7.4 gal)(7 lb/gal)(0.0005) = 0.0259 pounds.
6. Mols of sulfur per 10⁶ Btu: 0.0259 lb/ 32 lb/mol = 8.09 x 10⁻⁴ mols.
7. Volume of SO₂ produced; assuming that one mol of sulfur produces one mol of SO₂; 8.09 x 10⁻⁴ mols of SO₂ are produced per 10⁶ Btu of diesel burned: (385 ft³ / mol)(8.09 x 10⁻⁴ mols) = 0.312 ft³: (385 ft³/mol is at 68 degrees Fahrenheit).
8. From 40 CFR 60, Appendix A, Method 19 the F_w factor for diesel is 10,320 wscf / 10⁶ Btu (68 degrees Fahrenheit, 0 % excess O₂). Rule 406 specifies the SO₂ concentration at standard conditions, wet, not dry.

For purposes of this calculation, excess air from the combustion process will not be considered in calculating the SO₂ concentration & is the most conservative assumption:

Concentration of SO₂ at zero percent oxygen:

$$0.312 \text{ ft}^3 / (0.010320 \times 10^6 \text{ wscf}) = 30.2 \text{ ppmv}$$

Conclusion: Diesel fueled IC Engine exhaust SO₂ concentration of 30.2 ppmv complies with Rule 406 SO₂ limit of 500 ppmv.

It is assumed that the SO₂ concentration in natural gas fueled IC engine exhaust gas will be conservatively less than that demonstrated above for diesel combustion:

Calculate the CO concentration in boiler exhaust gas using the following assumptions/calculations:

1. Based on U.S. EPA AP-42; Section 1.4, Table 1.4-2, lists the CO emission factor for natural gas combustion in boilers to be 35 lb CO per 10⁶ ft³ of natural gas burned. Assume 1000 Btu / ft³ of natural gas.
2. From 40 CFR 60 Appendix A, Method 19, the F_d factor for natural gas is 8710 dscf / 10⁶ Btu (68 degrees Fahrenheit). Rule 407 specifies the CO concentration on a dry basis.
3. For the purposes of this calculation, excess air will not be considered in calculating the CO concentration (most conservative):

Cubic feet of CO produced per 10⁶ ft³ of natural gas burned:
(35 lb) (1 lb mol / 28 lb) (385 ft³ / mol) = 481 ft³ CO (385 ft³ / mol at 68 degrees Fahrenheit)

Dry cubic feet of combustion gas formed from 10⁶ ft³ of natural gas burned:
(10⁶ ft³ gas) (1000 Btu / ft³) (8710 dscf / 10⁶ Btu) = 8,710,000 dscf

CO concentration = 481 ft³ / 8.71 10⁶ ft³ = 55.2 ppm (most conservative)

Conclusion: Boiler exhaust CO concentration of 55.2 ppmv complies with Rule 407 CO limit of 2000 ppmv.

- B.** Rule 409: Owner/Operator shall not discharge into the atmosphere from this facility from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO₂) at standard conditions averaged over a minimum of 25 consecutive minutes.
[Rule 409 - *Combustion Contaminants*; Version in SIP = CARB Ex. Order G-73, 40 CFR 52.220(c)(39)(ii)(C) - 09/08/78 43 FR 40011; Current Rule Version = 07/25/77]

Calculate the Total Particulate Concentration in the diesel fueled IC engine exhaust gas using the following assumptions/calculations:

1. Based on U.S. EPA AP-42, Section 3.4, Table 3.4-5, the emission factor for total particulate is 0.0697 lb/10⁶ Btu. (= 487.9 grains/10⁶ Btu)
2. From 40 CFR 60, Appendix A, Method 19 the F_w factor for diesel is 10,320 wscf/10⁶ Btu (68 degrees Fahrenheit, 0 % excess O₂). Rule 409 specifies the Particulate concentration at standard conditions, wet, not dry.

For purposes of this calculation, excess air from the combustion process will not be considered in calculating the Particulate concentration & is the most conservative assumption:

Concentration of Particulate at zero percent oxygen:

$$(487.9 \text{ grains}/10^6 \text{ Btu}) / (10,320 \text{ wscf}/10^6 \text{ Btu}) = 0.047 \text{ grain}/\text{ft}^3$$

Conclusion: Diesel fueled IC Engine exhaust Total Particulate concentration of 0.047 grain per cubic foot complies with Rule 409 limit of 0.1 grain per cubic foot.

It is assumed that the Total Particulate concentration in natural gas fueled IC engine exhaust gas will be conservatively less than that demonstrated above for diesel combustion.