



DEPARTMENT ORDER

**The Lane Construction Corporation  
Knox County  
Washington, Maine  
A-173-71-L-A (SM)**

**Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #1**

**FINDINGS OF FACT**

After review of the air emission license amendment application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (the Department) finds the following facts:

**I. REGISTRATION**

**A. Introduction**

The Lane Construction Corporation (Lane) was issued Air Emission License A-173-71-K-R/A on July 30, 2014, for the operation of emission sources associated with their portable hot mix asphalt plant and portable crushed stone and gravel facility located at 837 Waldoboro Road, Washington, Maine.

Lane has requested an amendment to their license to add a stationary generator unit formerly on their A-488 license, CAT 3412 (545 kW), to their license, to change the name of CAT 3412 to CAT 3412 (725 kW), and to remove the catalyst from CAT 3508 and reclassify it as a portable generator meeting the definition of a non-road engine as defined in 40 Code of Federal Regulations (C.F.R.) § 1068.30.

**B. Emission Equipment**

The following equipment is addressed in this Air Emission License Amendment:

**Generator Units**

<b>Unit ID</b>	<b>Max. Capacity (MMBtu/hr)</b>	<b>Max. Firing Rate (gal/hr)</b>	<b>Fuel Type, % sulfur</b>	<b>Date of Manuf.</b>
CAT 3412 (545 kW)*	3.84	28	distillate fuel, 0.0015%	1985
CAT 3412 (725 kW)**	6.6	48.2		1995
CAT 3508	8.8	64.4		2001

\*Previously included in license A-488

\*\*Previously named CAT 3412

C. Definitions

Distillate Fuel. For the purposes of this license, *distillate fuel* means the following:

- Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) in ASTM D396;
- Diesel fuel oil numbers 1 or 2, as defined in ASTM D975;
- Kerosene, as defined in ASTM D3699;
- Biodiesel, as defined in ASTM D6751; or
- Biodiesel blends, as defined in ASTM D7467.

D. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The modification of a minor source is considered a major or minor modification based on whether or not expected emissions increases exceed the “Significant Emissions” levels as defined in the Department’s *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. This amendment will not increase the facility’s annual licensed emissions; therefore, this modification is determined to be a minor modification and has been processed as such.

II. **BEST PRACTICAL TREATMENT**

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. CAT 3412 (545 kW)

CAT 3412 (545 kW) is a stationary engine with a maximum capacity of 3.84 MMBtu/hr, firing distillate fuel. CAT 3412 (545 kW) was manufactured in 1985 and is a Caterpillar Engine Model 3412. The fuel fired in CAT 3412 (545 kW) shall be included in the current generator fuel limit of 72,500 gallons/year on a calendar year total basis of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight).

1. BPT Findings

The BPT emission limits for CAT 3412 (545 kW) were based on the following:

- PM, PM<sub>10</sub> - 0.12 lb/MMBtu from 06-096 C.M.R. ch. 103
- SO<sub>2</sub> - combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
- NO<sub>x</sub> - 4.41 lb/MMBtu from AP-42, Table 3.3-1, dated 10/96
- CO - 0.95 lb/MMBtu from AP-42, Table 3.3-1, dated 10/96
- VOC - 0.35 lb/MMBtu from AP-42, Table 3.3-1, dated 10/96
- Visible Emissions - 06-096 C.M.R. ch. 115, BPT

The BPT emission limits for CAT 3412 (545 kW) are the following:

Unit	Pollutant	lb/MMBtu
CAT 3412 (545 kW)	PM	0.12

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CAT 3412 (545 kW) Distillate fuel	0.46	0.46	0.01	16.93	3.65	1.34

Visible emissions from CAT 3412 (545 kW) shall not exceed 20% opacity on a six-minute block average basis.

2. New Source Performance Standards

Due to the date of manufacture of CAT 3412 (545 kW), the engine is not subject to the New Source Performance Standards (NSPS) *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)*, 40 C.F.R. Part 60, Subpart III since the unit was manufactured prior to April 1, 2006. [40 C.F.R. § 60.4200]

3. National Emission Standards for Hazardous Air Pollutants (NESHAP)

CAT 3412 (545 kW) is a portable unit that may move to various sites. However, it is likely that this unit may stay in one location for multiple seasons. In that case it would be considered a stationary unit per 40 C.F.R. § 1068.30. Therefore, Lane has chosen to consider this engine stationary and comply with the requirements of *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. CAT 3412 (545 kW) is classified as an existing, non-emergency, stationary compressing ignition (CI) reciprocating internal combustion engine (RICE) located at an area source of HAP.

Per 40 C.F.R. Part 63, Subpart ZZZZ, CAT 3412 (545 kW) is subject to emission limits for CO. Lane will comply with the option to meet the 23 ppmvd CO at 15% O<sub>2</sub> emission limit or to reduce CO emissions by 70% or more through the use of an oxidation catalyst. Lane has elected to demonstrate compliance through a continuous parameter monitoring system (CPMS) instead of the use of a continuous emission monitoring system (CEMS).

The requirements of 40 C.F.R. Part 63, Subpart ZZZZ for CAT 3412 (545 kW) include, but are not necessarily limited to, the following:

a. Operation Requirements

	<b>Compliance Dates</b>	<b>Operating Limitations</b>
Non-Emergency, non-black start CI stationary RICE >500 HP	Beginning May 3, 2014	<ul style="list-style-type: none"> <li>- Limit concentration of CO in the exhaust to 23 ppmvd at 15% O<sub>2</sub> <u>or</u> reduce CO emissions by 70% or more (Table 2d);</li> <li>- Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply (Table 2d);</li> <li>- Maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test (Table 2b); and</li> <li>- Maintain the temperature of the exhaust so that the catalyst inlet temperature is 450°F – 1350°F. (Table 2b)</li> </ul>

- b. Crankcase Filtration  
Lane shall operate on CAT 3412 (545 kW) an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals. [40 C.F.R. §63.6625(g)(2)]
- c. Continuous Parameter Monitoring System (CPMS)
- (1) Lane shall install, operate, and maintain a CPMS on CAT 3412 (545 kW).
  - (2) Lane shall monitor the catalyst inlet temperature and reduce this data to 4-hour rolling averages to demonstrate compliance with the limitations on the catalyst inlet temperature range.
  - (3) Lane shall monitor the pressure drop across the catalyst once per month to demonstrate compliance with the operating limit established during the last performance test.
  - (4) Lane shall prepare a site-specific monitoring plan that addresses the requirements outlined in 40 C.F.R. § 63.6625(b)(1).
  - (5) The CPMS shall be continuously operated in accordance with the site-specific monitoring plan at all times that CAT 3412 (545 kW) is operating except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities.
  - (6) The CPMS shall collect data at least once every 15 minutes.
  - (7) The minimum tolerance for a CPMS measuring temperature is 5°F or 1% of the measurement range, whichever is larger.
  - (8) CPMS audit procedures shall be performed at least annually. [40 C.F.R. § 63.6625(b), § 63.6635, and Table 6]
- d. Performance Tests
- (1) Lane shall conduct an initial performance test in accordance with Table 4 of Subpart ZZZZ within 180 days of startup after installation of controls but no later than October 30, 2014. Lane completed the initial performance test on CAT 3412 (545 kW) on May 1, 2014. [40 C.F.R. § 63.6612(a)]
  - (2) Lane shall conduct three separate test runs for each performance test. Each test run must be at least 1 hour, unless otherwise specified. [40 C.F.R. § 63.6620(d)]
  - (3) The engine percent load during a performance test shall be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination shall be included in the notification of compliance status. The report shall contain the information specified in 40 C.F.R. § 63.6620(i).

- (4) During the performance test the facility must establish the pressure drop across the catalyst to be used to demonstrate compliance per the CPMS. [40 C.F.R. § 63.6630(b)]
  - (5) If the facility changes the catalyst, Lane shall reestablish the values of the operating parameters measured during the performance test. In order to reestablish the operating parameters, the facility shall conduct a performance test to demonstrate that the required emission limitation is being met. [40 C.F.R. § 63.6640(b)]
  - (6) Lane shall perform additional performance tests every 8,760 hours of operation or 3 years, whichever comes first. The first additional performance test was completed on April 11, 2017. [40 C.F.R. § 63.6640(a), Table 3, and Table 6]
- e. Ultra-Low Sulfur Fuel Requirement  
The fuel fired in CAT 3412 (545 kW) shall not exceed 15 ppm sulfur (0.0015% sulfur) by weight. [40 C.F.R. § 63.6604(a)]
- f. General Requirement to Minimize Emissions  
At all times the facility shall operate and maintain CAT 3412 (545 kW), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 C.F.R. § 63.6605(b)]
- g. Reporting  
Lane shall submit to EPA all reports required by Subpart ZZZZ including, but not limited to, the following:
- (1) Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin. [40 C.F.R. § 63.6645(g)]
  - (2) Notification of Compliance Status within 60 days of completion of the initial compliance test. [40 C.F.R. § 63.6645(h)]
  - (3) Semiannual Compliance Reports. [40 C.F.R. § 63.6650 and Table 7]
- h. Record Keeping  
Lane shall keep all records required by Subpart ZZZZ including, but not limited to, the following:
- (1) A copy of each notification and report that was submitted to comply with Subpart ZZZZ, including all supporting documentation;
  - (2) Records of the occurrence and duration of each malfunction of the engine, pollution control equipment, or monitoring equipment;
  - (3) Records of performance tests and performance evaluations;
  - (4) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions taken to restore normal operation;

- (5) Monitoring data from the CPMS; and
- (6) Records of maintenance conducted on CAT 3412 (545 kW) and control equipment to demonstrate the equipment was operated and maintained according to the maintenance plan.

[40 C.F.R. § 63.6655]

C. CAT 3508

Prior to this license amendment, Lane used CAT 3508 to power the rock crushers and considered CAT 3508 a stationary engine because the unit would be moved between sites, but not often enough to fit the definition of a portable, non-road engine. CAT 3508 was therefore designated as an existing, non-emergency, **stationary** compression ignition (CI) reciprocating internal combustion engine (RICE) under *NESHAP for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. This designation required that the unit meet a CO emissions limit. Lane complied with this limit by using an oxidation catalyst. After their current license was issued, however, Lane has decided it would be more beneficial to repurpose CAT 3508 as a portable back-up generator that will be moved to different sites as needed. Because of this change, Lane has requested that CAT 3508 be re-designated as an existing, non-emergency, **portable** CI RICE that meets the definition of a non-road engine as defined in 40 C.F.R. § 1068.30.

The definition in 40 C.F.R. § 1068.30 states that a non-road engine is an internal combustion engine that meets certain criteria, including: "Portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform." 40 C.F.R. § 1068.30 further states that an engine is not a non-road engine if it remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. An engine located at a seasonal source (a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year) is an engine that remains at a seasonal source during the full annual operating period of the seasonal source.

As a portable, non-road engine, CAT 3508 is no longer subject to 40 C.F.R. Part 63, Subpart ZZZZ and thus is no longer required to operate with an oxidation catalyst. The emission limits for CAT 3508 shall remain unchanged because the currently licensed emission limits were based on the unit's performance prior to the use of an oxidation catalyst. Similarly, CAT 3508 shall continue to be included in the facility's generator fuel use limit of 72,500 gal/year of distillate fuel based on a calendar year total. [40 C.F.R. § 63.6585]

D. Annual Emissions

This amendment will not change the facility's licensed annual emissions.

III. **AMBIENT AIR QUALITY ANALYSIS**

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

<u>Pollutant</u>	<u>Tons/Year</u>
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

**ORDER**

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License Amendment A-173-71-L-A, subject to the conditions found in Air Emission License A-173-71-K-R/A and the following condition.

Severability. The invalidity or unenforceability of any provision of this License or part thereof shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.



**SPECIFIC CONDITIONS**

The following Condition shall replace Condition (19) of Air Emission License A-173-71-K-R/A (dated July 30, 2014):

(19) **Generators**

A. Fuel Use

1. CAT 3508, CAT 3412 (725 kW), and CAT 3412 (545 kW) are all licensed to fire distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight). Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 C.M.R. ch. 115, BPT and 40 C.F.R. § 63.6604(a)]
2. Total fuel use for CAT 3508, CAT 3412 (725 kW), and CAT 3412 (545 kW) combined shall not exceed 72,500 gal/yr of distillate fuel. Compliance shall be demonstrated by fuel records from the supplier showing the quantity and type of fuel delivered. Records of annual fuel use shall be kept on a monthly and calendar year total basis. [06-096 C.M.R. ch. 115, BPT]

B. Emissions shall not exceed the following:

<b>Unit</b>	<b>Pollutant</b>	<b>lb/MMBtu</b>	<b>Origin and Authority</b>
CAT 3508	PM	0.12	06-096 C.M.R. ch. 103 § (2)(B)(1)(a)
CAT 3412 (725 kW)	PM	0.12	
CAT 3412 (545 kW)	PM	0.12	

C. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

<b>Unit</b>	<b>PM (lb/hr)</b>	<b>PM<sub>10</sub> (lb/hr)</b>	<b>SO<sub>2</sub> (lb/hr)</b>	<b>NO<sub>x</sub> (lb/hr)</b>	<b>CO (lb/hr)</b>	<b>VOC (lb/hr)</b>
CAT 3508	1.06	1.06	0.01	28.22	7.50	0.79
CAT 3412 (725 kW)	0.79	0.79	0.01	21.12	5.61	0.59
CAT 3412 (545 kW)	0.46	0.46	0.01	16.93	3.65	1.34

D. Visible emissions from CAT 3508, CAT 3412 (725 kW), and CAT 3412 (545 kW) shall each not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

E. CAT 3508 shall be maintained as a portable, non-road engine and shall not remain at any location for more than 12 consecutive months. If CAT 3508 remains at any location for more than 12 consecutive months, the unit shall

become subject to 40 C.F.R. Part 63, Subpart ZZZZ at that time and Lane shall comply with all applicable requirements for the unit. [06-096 C.M.R. ch. 115, BPT]

F. CAT 3412 (725 kW) and CAT 3412 (545 kW) shall meet the applicable requirements of 40 C.F.R. Part 63, Subpart ZZZZ, including the following: [incorporated under 06-096 C.M.R. ch. 115, BPT]

1. Lane shall meet the following operational limitations for CAT 3412 (725 kW) and CAT 3412 (545 kW):

- a. Limit the concentration of CO in the exhaust to 23 ppmvd at 15% O<sub>2</sub> or Reduce CO emissions by 70% or more;
- b. Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply;
- c. Maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test; and
- d. Maintain the temperature of the exhaust so that the catalyst inlet temperature is 450°F – 1350°F.

[40 C.F.R. § 63.6603(a), Table 2(b), Table 2(d) and 06-096 C.M.R. 115, BPT]

2. Crankcase Filtration

Lane shall operate an open crankcase filtration emission control system on CAT 3412 (725 kW) and CAT 3412 (545 kW) that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals. [40 C.F.R. § 63.6625(g)(2) and 06-096 C.M.R. 115, BPT]

3. Continuous Parameter Monitoring System (CPMS)

- a. Lane shall install, operate, and maintain a CPMS on CAT 3412 (725 kW) and CAT 3412 (545 kW).
- b. Lane shall monitor the catalyst inlet temperature and reduce this data to 4-hour rolling averages to demonstrate compliance with the limitations on the catalyst inlet temperature range.
- c. Lane shall monitor the pressure drop across the catalyst once per month to demonstrate compliance with the operating limit established during the last performance test.
- d. Lane shall prepare a site-specific monitoring plan that addresses the requirements outlined in 40 C.F.R. § 63.6625(b)(1).

- e. The CPMS shall be continuously operated in accordance with the site-specific monitoring plan at all times that CAT 3412 (725 kW) and CAT 3412 (545 kW) is operating except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities.
  - f. The CPMS shall collect data at least once every 15 minutes.
  - g. The minimum tolerance for a CPMS measuring temperature is 5°F or 1% of the measurement range, whichever is larger.
  - h. CPMS audit procedures shall be performed at least annually.  
[40 C.F.R. § 63.6625(b), § 63.6635, Table 6, and 06-096 C.M.R. 115, BPT]
4. Performance Tests
- a. Lane shall perform performance tests every 8,760 hours of operation or 3 years, whichever comes first. [40 C.F.R. § 63.6640(a), Table 3, and Table 6]
  - b. Lane shall conduct three separate test runs for each performance test. Each test run must be at least 1 hour, unless otherwise specified. [40 C.F.R. § 63.6620(d)]
  - c. The engine percent load during a performance test shall be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination shall be included in the notification of compliance status. The report shall contain the information specified in 40 C.F.R. § 63.6620(i).
  - d. During the performance test the facility must establish the pressure drop across the catalyst to be used to demonstrate compliance per the CPMS. [40 C.F.R. § 63.6630(b)]
  - e. If the facility changes the catalyst, Lane shall reestablish the values of the operating parameters measured during the performance test. In order to reestablish the operating parameters, the facility shall conduct a performance test to demonstrate that the required emission limitation is being met. [40 C.F.R. § 63.6640(b)]  
[06-096 C.M.R. 115, BPT]
5. General Requirement to Minimize Emissions
- At all times the facility shall operate and maintain CAT 3412 (725 kW) and CAT 3412 (545 kW), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 C.F.R. § 63.6605(b) and 06-096 C.M.R. 115, BPT]

6. Reporting

Lane shall submit to EPA all reports required by Subpart ZZZZ including, but not limited to, the following:

- a. Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.  
[40 C.F.R. § 63.6645(g)]
- b. Semiannual Compliance Reports. [40 C.F.R. § 63.6650 and Table 7]  
[06-096 C.M.R. 115, BPT]

7. Record Keeping

Lane shall keep all records required by Subpart ZZZZ including, but not limited to, the following:

- a. A copy of each notification and report that was submitted to comply with Subpart ZZZZ, including all supporting documentation;
- b. Records of the occurrence and duration of each malfunction of the engine, pollution control equipment, or monitoring equipment;
- c. Records of performance tests and performance evaluations;
- d. Records of actions taken during periods of malfunction to minimize emissions, including corrective actions taken to restore normal operation;
- e. Monitoring data from the CPMS; and
- f. Records of maintenance conducted on CAT 3412 (725 kW) and CAT 3412 (545 kW) and control equipment to demonstrate the equipment was operated and maintained according to the maintenance plan.

[40 C.F.R. § 63.6655 and 06-096 C.M.R. 115, BPT]

DONE AND DATED IN AUGUSTA, MAINE THIS 16 DAY OF May, 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Maia Allen Robert Care for  
PAUL MERCER, COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-173-71-K-R/A.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 3/13/17  
Date of application acceptance: 3/14/17

Date filed with the Board of Environmental Protection:

This Order prepared by Jonathan E. Rice, Bureau of Air Quality.

