

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

N5582
FY 2017 Insp-
SM CMS

N558240688

FACILITY: ROBERT BOSCH L.L.C.		SRN / ID: N5582
LOCATION: 38000 HILLS TECH DR, FARMINGTN HLS		DISTRICT: Southeast Michigan
CITY: FARMINGTN HLS		COUNTY: OAKLAND
CONTACT:		ACTIVITY DATE: 06/27/2017
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2017 SM CMS inspection of Robert Bosch Corporation ("Bosch")		
RESOLVED COMPLAINTS:		

N5582 - SAR - 2017 06 27

Robert Bosch Corporation (N5582)
38000 Hills Tech Drive
Farmington Hills, Michigan 48331-3417

VN: Based upon the Fred Fung's letter dated May 23, 2005 (the description of ten dynamometers) and the FY 2005 inspection, AQD issued July 18, 2005, Violation Notice for violation of Act 451 of 1994, as amended, § 324.5522 (2) (a) (Category I facility fee, PTE > 100 tpy criteria pollutant, subject to MI ROP program) and Rule 336.1210 (Renewable Operating Permit [ROP]). As a result of this VN, Bosh obtained an opt-out PTI No. 259-05.

Fees: In interim until an ROP opt-out permit was obtained, Bosch was subject to Category I fees as a major source (>100 tpy criteria pollutant [e.g., CO]). Bosch paid \$20,205.00 (\$3,375.00 per year for 2000 & 2001 and \$4,485.00 per year for 2002, 2003 & 2004) as arrear fees and \$4,485.00 for 2005 as current CY 2005 fees; total of \$24,690.00. Bosch was subject to Clean Air Fees Category I because PTE > 100 tons of CO per year until a synthetic minor permit was obtained.

PTI Mod: PTI No. 259-05 (obtained as result of July 18, 2005, Violation Notice) → PTI No. 259-05A (PTI No. 259-05 was revised [Tom Julien] to incorporate NSPS Dc standards due errors in PTI No. 259-05 as a result of an inaccurate application; the revision was recommended by SEMI District based upon FY2007 inspection)

ROP Opt-out Permit-to-Install No. 259-05A (SC4.1 limit: 90 tpy CO) dated July 25, 2007

PTI Voids: Permit-to-Install No. 312-95 dated August 1, 1995 for ground water remediation (voided: 08/03/2005). PTI No. 259-05 (voided: 07/25/2007, NSPS Dc correction revision of PTI No. 259-05 to PTI No. 259-05A).

NSPS Dc: Of six boilers, two (> 10 million BTU / hour heat input, installed after June 9, 1989) boilers are subject to New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc or NSPS Dc). For natural gas only boilers, only requirement is NG usage records, which is also required by the permit. NSPS Dc revisions simplified the usage recordkeeping for NG only boilers.

Bosch's one (small 60 kW or 0.06 MW, manufactured in 2013 after April 01, 2006) of two (2) emergency generators is subject to: NSPS IIII or 4I, New Source Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 39154

Federal Register / Vol. 71, No. 132 / Tuesday, July 11, 2006 / Rules and Regulations / Final Rule; Page 48072 Federal Register / Vol. 79, No. 158 / Friday, August 15, 2014 / Rules and Regulations / Notice of final decision on reconsideration.

Bosch's emergency generators may be subject to Area Source NESHAP / MACT ZZZZ or RICE MACT 4Z, 40 CFR Parts 60 and 63, National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines; Final Rule (Page 6674 Federal Register / Vol. 78, No. 20 / Wednesday, January 30, 2013 / Rules and Regulations). In addition, Page 48072, Federal Register / Vol. 79, No. 158 / Friday, August 15, 2014 / Rules and Regulations / Notice of final decision on reconsideration. AQD has no delegation of these standards and therefore no attempt has been made to evaluate the Bosch's compliance with Area Source NESHAP / RICE MACT 4Z.

Not Subject to: NESHAP/ MACT 5P, , Page 28774, Federal Register / Vol. 68, No. 101 / Tuesday, May 27, 2003 / Rules and Regulations / Final rule. Bosch is an Area MACT source and this MACT 5P applies only to Major Sources. Besides, the dynamometers were constructed before the applicability cut-off date: May 14, 2002

On June 27, 2017, I conducted a level-2 **FY 2017 SM CMS inspection** of Robert Bosch Corporation ("Bosch") located at 38000 Hills Tech Drive, Farmington Hills, Michigan 48331-1612. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994, PA 451; Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules; and ROP Opt-out Permit-to-Install No. 259-05A.

Mr. Mike Mansuetti (E-mail: Mike.Mansuetti@us.bosch.com), President, is a responsible official.

During the inspection, Mr. Herbert Daumann (Phone: 248-876-1496; Cell: 248-881-2507; Fax: 248-876-1132; E-mail: Herbert.Daumann@us.bosch.com), Coordinator, Security and Environmental, Health & Safety, assisted me. Mr. Todd Brigmon (Cell: 248-408-5578; E-mail Todd.Brigmon@us.bosch.com) HSE Manager, was not present.

Ms. Jill Kupcak (Phone: 248-876-2135; Fax: 248-876-1132; Cell: 248-505-7163; E-mail: jill.kupcak@us.bosch.com) is no longer carrying EHS responsibilities since May 2012. Mr. Benjamin J. Kroeger separated from Bosch in 2009

As a leading supplier in the automotive industry, Robert Bosch Corporation has made its Farmington Hills, Michigan, facility the headquarters for its North American automotive businesses. The facility houses more than 1,000 employees. The 410,000-square-foot facility contains outstanding research and development capabilities including a wiper lab, NVH (Noise, Vibration, Harshness) chambers and a software development lab, plus sales and administrative staff offices and meeting facilities. This building is an important cornerstone of the Farmington Hills campus, which also includes capabilities for vehicle tests, hydraulics labs and a vehicle test instrumentation group along with gage tracking support. Bosch delivers a variety of electrical, electronic, powertrain, chassis components and vehicle systems worldwide. Bosch also performs engineering and R&D at this facility for spark-plugs, fuel pumps, fuel injectors, oxygen sensors, occupancy sensors for air bags, door latches, windshield wipers, starters, etc.

ROP Opt-out Permit-to-Install No. 259-05A dated July 25, 2007,

Emission Unit Identification

EU-EngDyn1 - 250 HP Engine Test Dynamometer for engines burning indolene with a catalytic converter (CC) control - Permit Exemption: R336.1285(2)(g). Engine calibration is tested. Two catalytic converters (one turbo, one muffler) are present.

EU-EngDyn2 - 350 HP Engine Test Dynamometer for engines burning indolene with a catalytic converter (CC) control - Permit Exemption: R336.1285(2)(g). Engine calibration is tested. The emissions (CO, NOx) are checked everyday.

Dyno1 and Dyno2 are used for calibration work. 99 percent of time Indolene, which is a high Octaine (94) fuel, is used. Each dynamometer (Dyno1 and Dyno2) is equipped with a dedicated catalytic converter (CC).

EU-EngDyn3 - 200 HP Engine Test Dynamometer for engines burning indolene - Permit Exemption: R336.1285(2)(g). 4-stroke small (ATV / snowmobile) engine. No control is used (NC).

EU-EngDyn5 - 260 HP Engine Test Dynamometer for engines burning gasoline with a catalytic converter (CC) control - Permit Exemption: R336.1285(2)(g). Two catalytic converters are present. O2 sensor tests are performed. Unleaded gasoline is used.

EU-EngDyn6 - 90 HP Engine Test Dynamometer for engines burning indolene - Permit Exemption: R336.1285(2)(g). Lawn mower tractor engines are tested. Unleaded gasoline is used. No control is used (NC).

EU-EngDyn7 - 260 HP Engine Test Dynamometer for engines burning gasoline- Permit Exemption: R336.1285(2)(g). This is a flexible cell where a variety of tests are conducted. No control (NC) is used. Unleaded gasoline is used. According to Ms. Kupcak, Dyno No. 7 is converted to Diesel Dyno (FY 2012 inspection)

EU-EngDyn8dsl - 175 HP Engine Test Dynamometer for engines burning diesel - Permit Exemption: R336.1285(2)(g). Diesel fuel is used.

EU-EngDyn9 - 250 HP Engine Test Dynamometer for engines burning gasoline- Permit Exemption: R336.1285(2)(g). O2 sensor tests are performed. Catalytic control (CC) was installed about 2010 although permitted as no control. Unleaded gasoline is used.

EU-EngDyn10 - 235 HP Engine Test Dynamometer for engines burning gasoline with a catalytic converter (CC) control - Permit Exemption: R336.1285(2)(g). O2 sensor tests are performed. Unleaded gasoline is used.

EU-111BoilCB - Clever Brooks 8.37 mmBtu/hr natural gas boiler - Permit Exemption: R336.1282(2)(b)(i).

EU-113BoilPK - Penthouse - Kewanee 9.82 mmBtu/hr natural gas boiler - Permit Exemption: R336.1282(2)(b)(i). This boiler is revised as 10.5 million BTU per hour capacity during PTI revision and is subject to NSPS Dc (installed after June 9, 1989).

EU-121BoilF - Fulton 1.26 mmBtu/hr natural gas boiler - Permit Exemption: R336.1282(2)(b)(i).

EU-105BoilCB1 - Clever Brooks 6.28 mmBtu/hr natural gas boiler - Permit Exemption:

R336.1282(2)(b)(i).

EU-105BoilCB2 - Clever Brooks 6.28 mmBtu/hr natural gas boiler - Permit Exemption: R336.1282(2)(b)(i).

EU-105BoilPK - Kewanee 9.82 mmBtu/hr natural gas boiler - Permit Exemption: R336.1282(2)(b)(i). This boiler is revised as 10.5 million BTU per hour capacity during PTI revision and is subject to NSPS Dc (installed after June 9, 1989).

EU-EmerGen1 - 350 HP Emergency Generator burning diesel - Permit Exemption: R336.1285(2)(g).

EU-EmerGen2 - 350 HP Emergency Generator burning diesel - Permit Exemption: R336.1285(2)(g).

The emergency generators are used only during power interruptions; however periodic test runs are performed.

Flexible Group Identification

FG-EngDynNCgas - Gasoline/indolene Engine Dynamometers with no CO controls that are exempt from the requirements of R336.1201, including: EU-EngDyn3, EU-EngDyn6, EU-EngDyn7, EU-EngDyn9, and any such emission units meeting these requirements added in the future. NC means "no control"

FG-EngDynCCgas - Gasoline/indolene Engine Dynamometers with catalytic converter to control CO. The units are exempt from the requirements of R336.1201, including: EU-EngDyn1, EU-EngDyn2, EU-EngDyn5, EU-EngDyn10, and any such emission units meeting these requirements added in the future. CC means "catalytic converter"

FG-Boiler - EU-111BoilCB, EU-113BoilPK, EU-121BoilF, EU-105BoilCB1, EU-105BoilCB2, and EU-105BoilK and any miscellaneous natural gas-fired equipment considered part of the stationary source including the units (e.g. boilers) in the buildings at 38000 Hills Tech Drive.

FG-Diesel - Includes EU-EmerGen1, EU-EmerGen2, and EU-EngDyn8dsl.

FG-SpaceHeat - Miscellaneous space heating equipment considered part of the stationary source including the units in the buildings at 38455 Hills Tech Drive.

FG-FACILITY - All process equipment at the stationary source (including the units in the neighborhood buildings) including equipment covered by other permits, grandfathered equipment and exempt equipment. FG-FACILITY also includes process equipment located at other buildings at Hill Tech Dr. location in Farmington Hills that Bosch owns / leases / controls.

CO emission factors

Flexible Group or Emission Unit(s)	CO Emission Factor*
FG-EngDynCCgas and FG-EngDynNCgas	3,940 lbs./kgal gasoline/indolene
FG-Boiler	84 lbs./MMscf natural gas

FG-Diesel	130 lbs./kgal diesel
*kgal is defined as 1000 gallons and MMscf is defined as million standard cubic feet. A CO destruction efficiency of 96 percent (by weight) shall be applied for each of the catalytic converters when calculating emissions from FG-EngDynCCgas. CC = catalytic converter. NC = no catalytic converter.	

PTI Exemption - Boilers

Pursuant to Rule 336.1282((2)b), the boilers burning sweet natural gas (up to 50 million BTU per hour) are exempt from Rule 336.1201 (Permit-to-Install). In addition, Pursuant to Rule 336.1282(2)(b), the fuel oil fired boilers (up to 20 million BTU per hour) are exempt from Rule 336.1201 (Permit-to-Install) subject to the condition that fuel oil (limited to No.1 and No.2) burnt has sulfur content no greater than 0.40 percent by mass. It may be noted that NSPS Dc allows sulfur content up to 0.50 percent sulfur by mass (0.5 pounds of sulfur dioxide per million BTU heat input).

All boilers at Bosch meet the exemption conditions. However, the boilers are part of the permit for ROP opt-out conditions / requirements. In addition, Bosch must include all boilers in the Hills Tech Dr. neighborhood buildings that it operates / controls for emission calculations.

PTI Mod: PTI No. 259-05 → PTI No. 259-05A

The PTI No. 259-05A includes ten dynamometer test stands, six natural gas fired boilers (each less than 10 million BTU per hour capacity as written; see below) and two emergency diesel generators. PTI No. 259-05 listed two Penthouse Kewanee boilers as 9.82 million BTU per hour each. This was incorrect based upon the boilerplate information and January 29, 2007, inspection. Each of the two boilers has a maximum input capacity of 10.5 million BTU per hour. Hence, the two boilers are subject to federal New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc or NSPS Dc).

As a result of January 29, 2007, inspection and SEMI District recommendation to Mr. Tom Julien of AQD-Permits, PTI No. 259-05 was revised as PTI No. 259-05A dated July 25, 2007 to include NSPS Dc standards for two boilers in question. Bosch was previously in violation of federal NSPS Dc regulations but came into compliance upon PTI revision and upon starting natural gas usage recordkeeping.

NSPS Dc Notification

Ms. Jill Kupcak submitted an NSPS Dc Notification dated October 19, 2007 (AQD received on October 23). Each boiler (EU-105BoilPK & EU-113BoilPK) is 10.5 million BTU per hour design capacity natural gas fired boiler; no fuel oil back-up capability.

NSPS Dc natural gas usage records are a part of the ROP opt-out permit. **62** (CY 2016) million standard cubic feet (MM SCF) of natural gas per year was used (PTI No. 259-05A SC 1.1:submit NSPS Dc notification, 1.2:monthly natural gas usage records, 4.3: fuel usage and emissions info).

NSPS Dc Revisions:

1. 72 FR 32759 = Page 32759 Federal Register / Vol. 72, No. 113 / Wednesday, June 13, 2007 / Rules and

Regulations / Final Rule – to add compliance alternatives and to revise certain recordkeeping and reporting requirements.

2. 74 FR 5091 = Page 5091 Federal Register / Vol. 74, No. 17 / Wednesday, January 28, 2009 / Rules and Regulations / Final Rule - to correct technical and editorial errors.

The NSPS Dc revisions simplified the natural gas usage recordkeeping.

Area Boiler MACT 6J – Exempt for burning only pipeline quality sweet natural gas

The Bosch was subject to Boiler MACT, 40 CFR, Part 63, Subpart DDDDD--National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. At any rate, on June 8, 2007, US Court of Appeals mandated that EPA vacate the Boiler MACT Rule in its entirety. For existing (< January 13, 2003) large (> 10 MM BTU / hour) boilers (gas and fuel oil), only **Initial Notification** was applicable.

As the boilers are not capable of burning liquid fuels such as fuel oil, also as an Area MACT source, Bosch's boilers are not subject to: NESHAP / MACT 6J, 40 CFR Part 63, Subpart JJJJJJ / 6J National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers, Page 15554, Federal Register / Vol. 76, No. 54 / Monday, March 21, 2011 / Rules and Regulations / Final rule. This Area Source NESHAP / MACT 6J rule does NOT apply to boilers that burn only gaseous fuels or any solid waste. However, for HAP Major Sources, NESHAP / MACT 5D applies (for NG only, initial & biennial tune-up, natural gas usage reporting, etc.); Bosch is an Area Source.

PTI No. 259-05A Compliance

In Dynos (Nos. 1, 2, 5 & 10) with catalytic converters (CC), **37,882** gallons of gasoline per year was used (PTI No. 259-05A, SC 2.1, no fuel usage limits because of catalytic converters providing 96% control for CO). In Dynos (Nos. 3, 6, 7 & 9) with no catalytic converters (NC), **1,045** gallons of gasoline per year was used (PTI No. 259-05A, SC 3.1 limit: 41,000 gallons per year combined gasoline/indolene). Plant-wide carbon monoxide (CO) emissions were **13.61** tons per year (PTI No. 259-05A, SC 4.1 limit: 90 tpy CO). The emission calculations are done using Excel spreadsheets (PTI No. 259-05A, SC 4.2: the required monthly calculations & 4.3: emissions info and emissions factors). **20,162** gallons of diesel per year [**0** gal NC [No Control] diesel & **20,162** gal CC [Catalytic Control] diesel) and **61.55** million standard cubic feet (MM SCF) of natural gas per year were used (PTI No. 259-05A SC 1.2:monthly natural gas usage records, 4.3: emissions info).

1. Total gasoline = **75,228** gallons per year
2. NC (no catalytic converter) gasoline = **1,045** gallons per year
3. CC (catalytic converter) gasoline = **37,882** gallons per year
4. Vehicle testing (chassis) gasoline = **35,363** gallons per year. These are fully assembled vehicles.
5. Start-stop gasoline = **938** gallons per year (reduced from 2,577 [2015] to 938 [2016] gallons per year as the program matured).
6. CNG (Compressed Natural Gas) = **129,201** SCF per year (CNG reduced from 300,731,900 [2015] to 129,201 [2016] SCF per year due to low gasoline prices and hence CNG is not competitively priced).
7. Diesel =**20,162** gallons of diesel per year [**0** gal NC [No Control] diesel & 20,162 gal CC

[Catalytic Control] diesel).

8. NG = **61.55** million standard cubic feet (MM SCF) of natural gas per year. Most natural gas is used for space heating.
9. MAERS-2016: CO = **13.61**, NO_x = **5.84**, VOC = **3.43** and SO_x = **0.6** tons per year.

All data are based on **CY 2016** records.

Permit-to-Install No. 312-95 dated August 1, 1995 (Remediation)

Per the letter dated July 19, 2005, remediation system was shutdown because the hydrocarbon removal had stabilized. Therefore, Permit-to-Install No. 312-95 dated August 1, 1995 was voided on August 3, 2005. On April 12, 1996, soil vapor extraction (SVE) had switched from catalytic oxidation to carbon adsorption. The remediation project is in the process of permanent closure per MDEQ-RD procedures.

About July 2, 2002, Ms. Jill Kupcak submitted a closure report. RD Facility ID No. is 00017150. Ms. Terri Gola of MDEQ-RRD is Project Manager.

Ten dynamometers and violation notice

Bosh has ten dynamometers; refer to the Fred Fung's letter dated May 23, 2005, for description of ten dynamometers. As a result of the letter of violation dated July 18, 2005, for violation of Act 451 of 1994, as amended, § 324.5522 (2) (a) (Category I facility fee) and Rule 336.1210 (Renewable Operating Permit), Bosh obtained an opt-out PTI No. 259-05, which contained errors due to incorrect PTI application. Based upon SEMI District recommendation, AQD revised PTI No. 259-05 to PTI No. 259-05A to include NSPS Dc standards. In addition, AQD issued the typographical correction letter dated September 18, 2007: Special Condition No. 4.3a is deleted and 4.3c is corrected to read "natural gas".

While Dyno Nos. 1, 2, 5 & 10 are equipped with the catalytic converters providing 96% control for carbon monoxide, Dynos Nos. 3, 6, 7 & 9 have no control.

According to Ms. Kupcak, Dyno No. 7 is converted to Diesel Dyno (FY 2012 inspection).

Engine Test Cells Vs Dynos

According to Ms. Kupcak's July 11, 2011, letter Bosch would be installing ten new engine test cell for testing start-stop engines. AQD has at this time allowed installation of the test engines pursuant to Rule 336.1285(2)(g) subject to restrictions of Rue 278. AQD further added that the existing opt-out permit (PTI No. 259-05A) may not be used to satisfy Rule 278. It may be noted that the start-stop program is using substantially less gasoline as the program matures (since 2016).

Since car / truck idling emissions factors are used to satisfy Rule 278, an equivalent or better control for the test cell engine emissions must be installed.

The engines are continuously (within a period such as one year) installed and removed depending upon customer requests. Diesel and gasoline engine mix is continuously changed within a given period, say a year.

As of FY 2017, ten start-stop engines (10 engines = 3 gas + 7 diesel) were installed. During the FY 2017 inspection, zero engine was running although all ten start-stop test stations are

present; however, in CY2017 only one start-stop engine test cell was used as the program matured. Gasoline engine test had begun by March 2012. Diesel engine test began about June 2012. All start-stop engines are computer controlled; manual start-stop is not done. The engines were not equipped with catalytic converters in the beginning as it was assumed not effective due to cold exhaust. Based upon the FY 2017 inspection, Bosh installed catalytic converters for all ten stop-engines as it figured out proper catalyst.

AQD (Ms. Lynn Fiedler) allowed installation of engine test cells pursuant to Rule 336.1285(2)(g) subject to Rule 278 restrictions. The opt-out permit may not be used to satisfy Rule 278 restrictions. Further, AQD may be developing General Permit-to-Install for engine test cells; however, AQD has decided this GPTI is not a priority.

Bosch is using car / truck idling vehicle emission factors to calculate emissions pursuant to Emission Facts EPA-420-F-98-014 dated April 1998. Hence, equivalent or better than motor vehicle controls must be installed for engine test cells for US EPA factors to be valid. It may be noted that US EPA tests may include warm catalysts and cars equipped with catalytic converters. However, Bosch does not control start-stop engine emissions.

The start-stop test cell engines do not have any load. All dyno (dynamometer) engines have load.

Mr. Victor Calles (Phone: 248-876-2569; E-mail: Victor.Calles@USBosch.com) is supervisor of the test labs.

As the start-stop program matured and most testing on the starters has already been done, fuel usage in these engines has significantly reduced.

Right to unfettered access

On September 19, 2012, Mr. Brigmon stated that the start-stop engines are exempt and therefore records were not necessary. This is incorrect. Bosch is required to keep separate records of emissions to satisfy Rule 278. In addition, Bosch must keep description, installation and removal dates of the engines. In addition, all emissions are subject the limits of the ROP opt-out permit. Mr. Brigmon also stated that all inspections must be done with prior appointment and seemed suggest restrictions on facility access. I explained to him that an inspection with an appointment or any restriction to facility access is against US EPA and MDEQ-AQD policy. As a matter of fact, US EPA requires states to perform unannounced inspections. As a result of a subsequent letter to President, Bosch Labs, and agreement, AQD is able conduct unannounced inspections.

August 16, 2010, Hyundai letter

In connection with Hyundai America Technical Center, Inc., AQD sought US EPA determination, via December 10, 2008, letter, regarding potential-to-emit (PTE) calculations and permitting of engine and chassis dynamometers. EPA communicated to AQD, via August 16, 2010, letter, its determination that chassis dynamometers were regulated as stationary sources since the vehicles were not put into commerce. AQD Chief Hellwig wrote a letter dated September 1, 2010, to each known affected source with a copy of US EPA's determination (August 16, 2010, letter to Mr. Hellwig from Ms. Cheryl L. Newton of Region V).

Therefore, the emissions from chassis dynamometers (fully-assembled vehicles) must be included as part of PTI No. 259-05A record-keeping. Bosch decided not to modify PTI No.

259-05A to incorporate the Hyundai determination. However, it must include chassis dyno emissions (PTI No. 259-05A, FG-Facility, SC 4.1 limit: 90 tpy CO). All calculations must be performed by 15th day of the calendar month (PTI No. 259-05A, FG-Facility, SC 4.2).

The emergency generators (2)

The two diesel fired emergency generators (350 HP Spectrum Detroit Diesel 400) are used only during power interruptions; however periodic test runs are performed.

1. Engine Model: John Deere 5030; Engine Serial No. 5030I119550; Generator Model: MTU 60; Generator Serial No. 359047-1-10413; 60 kW (480 volts). This engine, which was installed about 1995, was removed about 2013 and replaced by new engine (see below)
2. Engine Model: 6063HK35; Engine Serial No. 06R0540227; Generator Model: 400DSE; Generator Serial No. 0659723; 405 kW (480 volts). Installed about 1995.
3. Engine Model: DS 00060065RAK0574 (2013); Engine Serial No. NA; Generator Model: MTU 60; Generator Serial No. 359047-1-0713; 60 kW (480 volts). This engine is subject to NSPS 4I. About June 28, 2017, Bosch submitted an NSPS 4I Certificate issued by US EPA (Certificate number: DJDXL04.5141-003, Model Year: 2013, Engine family: DJDXL04.5141) and hence not required to conduct a performance test for the emissions. Installed about 2013. This engine replaced an older engine (1995). Compliance with NSPS 4I is deemed to be compliance with Area Source NESHAP / MACT ZZZZ or 4Z.

The engines are tested once per week (Wednesdays: large 400 kW engine and Fridays: small 60 kW engine)

The engines may be subject to Area Source NESHAP / MACT ZZZZ or 4Z, 40 CFR Parts 60 and 63, National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines; Final Rule (Page 6674 Federal Register / Vol. 78, No. 20 / Wednesday, January 30, 2013 / Rules and Regulations). In addition, Page 48072, Federal Register / Vol. 79, No. 158 / Friday, August 15, 2014 / Rules and Regulations / Notice of final decision on reconsideration. AQD has decided not to take delegation of these standards and therefore no attempt has been made to evaluate the Bosch's compliance with NESHAP / MACT 4 Z.

Area RICE MACT 4Z Diesel Emergency Generator - Existing (October 10, 1996 before Dec 19, 2002) RICE engines

Change oil/filter & inspect hoses/belts every 500 hours or annually; inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours or annually. No emission standards.

These activities appear to be performed as part of preventive maintenance.

PTI Exemption - CI RICE Engines

Fuel usage for Caterpillar Generators is as follows:

1500 kW → 105 gallons per hour diesel (DMC)
1050 kW → 74 gallons per hour diesel
750 kW → 55 gallons per hour diesel
600 kW → 46 gallons per hour diesel
300 kW → 28 gallons per hour diesel

Based upon the above information, assuming 1 MW generator consumes 75 gallons of diesel per hour, knowing 138,000 BTU per gallon of diesel, heat input of 1 MW generator is 10.4 million BTU per hour. Hence, a diesel generator up to 1 MW is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(2)(g). It may be noted that some engines convert heat to work more efficiently than others. Recent engine designs have efficiencies up to 40% for heat to shaft work conversion. Converting mechanical work to electricity is up to 95% efficient.

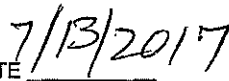
Conclusion

Robert Bosch Corporation is in compliance with NSPS Dc standards for two boilers and PTI No. 259-05A. The start-stop engines are subject to Rule 278 limits and attendant record-keeping.

NAME



DATE



SUPERVISOR

