

N6327
MAWILA

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N632732928

FACILITY: FEDERAL-MOGUL CORPORATION		SRN / ID: N6327
LOCATION: 47001 PORT ST, PLYMOUTH		DISTRICT: Detroit
CITY: PLYMOUTH		COUNTY: WAYNE
CONTACT: Terry Walter, Manager of Technical Services		ACTIVITY DATE: 01/11/2016
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY 2016 Targeted Inspection		
RESOLVED COMPLAINTS:		

Source: SRN N6327 – Federal-Mogul (PTC)

Location: 47001 Port Street, Plymouth, MI 48170

Date of Inspection: January 11, 2016

Date of Report: March 4, 2016

Reason for Inspection: Targeted Inspection

Inspector: Nazaret Sandoval, AQD

Personnel Present: Terry Walter, Manager of Technical Services, Federal-Mogul

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FACILITY BACKGROUND

Federal-Mogul Corporation is an automotive supplier with facilities worldwide. The head-quarter corporate office is in Southfield, Michigan. The corporation operates with two business divisions: Federal-Mogul Powertrain and Federal-Mogul Motorparts. Federal-Mogul Powertrain focuses on original equipment powertrain products for automotive, heavy-duty and industrial applications. Federal-Mogul Motorparts sells and distributes a broad portfolio of products in the global vehicle aftermarket, while also serving original equipment manufacturers with vehicle products including brake friction, chassis, wipers and other components.

Federal-Mogul Corporation at Plymouth (Technical Center PT R&D), is part of the Powertrain Division. The facility is located in a light industrial area near M-14 and Beck Road. The business organization and the ownership at this location have changed over the years to become what it is today. In 1997, T&N Industries built the T&N Technical Center in Plymouth. In 1998, two engine testing facilities (McCord Payen and AE Goetze) moved their operations into the T&N Technical Center. Federal-Mogul bought out T&N Industries and took over all facility operations. In 2010, Federal-Mogul Ignition Products (under the name Champion Spark Plugs) moved their developmental and testing operations from their Toledo facility to the Plymouth site.

Corporation laboratory facilities at the currently operating in Ann Arbor, MI will be relocated to Plymouth. The project was put on hold last year, but it looks like it will start construction in the spring of 2016.

The operations regulated by the Air Quality Division at Federal-Mogul Plymouth Technical Center (hereinafter Federal-Mogul) are those related to the testing of engines and engine

components in dynamometer cells. Federal-Mogul does testing for the Big 3 automakers as well as some small-engine manufacturers. The facility currently operates one shift, Monday through Friday (6:30 A.M. to 3:00 P.M.) and has about 160 employees. Some tests are only run on the day shift, but there are others that can run unattended overnight and sometimes over weekends.

EQUIPMENT/PROCESS DESCRIPTION:

Federal-Mogul is permitted to operate a total of sixteen dynamometer cells. Cells 1 to 8 are located in the west wing and Cells 9 to 16 are in the east wing. Each of the test cells is equipped with fuel lines that can accommodate gasoline, diesel and E-85. E-85 (a gasoline/ethanol blend) is tracked as gasoline for calculation of emission and material throughput. A variety of engines types and sizes, ranging from 250 to 600 brake horse power (bhp) are tested. During testing, the engine is connected to a dynamometer that simulates a vehicle load on the engine. Testing can last for a few hours up to several hours in duration. The type of testing is specified by the clients and could include Developmental, Deep Thermal Shock, and Durability. Engines are fueled directly from underground storage tanks through a "fuel bank", which meters various fuels into each test cell through flexible hoses.

Cells 1 through 12 and Cell 14 are generally used for the testing of gasoline engines; Cells 15 and 16 are for diesel engines; and Cell 13 has seven stands for testing small (2-cylinder) gasoline engines and ignition testing. However, with the exception of Cell 13, all cells may be used for either gasoline or diesel engines testing, if necessary.

During Durability testing the engines are usually tested for a period ranging from two weeks to three months. There are four cycles in which engines can be tested for durability: Durability Cycles A, B, C, and D.

Developmental testing consists of a variety of tests where engines typically operate at low and intermediate loads. The engines are operated in rich burn conditions (O₂ concentrations of less than 15 %) and the tests are usually of shorter durations than the durability tests.

Deep Thermal Shock or DTS testing is that in which engines alternate between idle and peak power.

Federal-Mogul installed an Air Injection Control System (AICS) in 2004 to control CO and VOC emissions from the test cells exhaust stacks. The AICS works by injecting a measured stream of air into the exhaust gas, which is hotter than the auto ignition point of CO, causing the CO to oxidize in the exhaust pipe. The exhaust temperature is monitored before and after air injection to assure sufficient destruction efficiency. The exhaust temperature must reach 1100F to oxidize CO; exhaust temperatures using the AICS usually exceed 1400F. The AICS does, however, cause a minor increase in NOx emissions. The air injection rate (scfm) is dependent on the type of test being performed. AICS is required to be operated when gasoline is used as fuel and during Durability and Deep Thermal Shock testing. No controls are required when using diesel fuel, or when testing small engines (Briggs & Stratton), or when Developmental testing is conducted.

The test cells are supported by multi-compartment underground storage tanks (USTs) located at the east wing of the building. To follow this description, please refer to the "Tank Layout" drawing received via email on 2/13/15 during the ROP renewal. The tank diagram has been filed with the records and documents gathered during the 2016 facility inspection.

One of the tanks has two (2) 6,000 gallon compartments, UST 1 and UST 2 storing motor fuels. The other tank is a 6,000 gallon UST with three (3) 2,000 gallon compartments; UST 10, UST 3 and UST 4 for storage of Ethanol E-100, Racing Fuel and E-85 respectively.

There are two (2) additional multi-compartment USTs with capacities of 8,000 gallons and 6,000 gallons. The 8,000 gallon tank is divided in two compartments; UST 5 (a 2,000 gallon blow-off tank) and UST 6 (6,000 gallon diesel tank). The 6,000 gallon tank has three 2,000 gallon

compartments identified as UST 7, UST 8 and UST 9 used for storage of lab blow off, used oil and used anti-freeze respectively.

The cold room chassis dynamometer was added in 2011 but has not been used much since its installation. The chassis-dynamometer is a fully enclosed unit, equipped with an exhaust stack, into which motor vehicles are placed for emissions testing under various use conditions. The vehicle that is being tested is mounted on the chassis dynamometer and the dynamometer measures the horse power and torque produced by the vehicle. The tested vehicles are EPA emission compliant vehicles that are equipped with a catalytic converter and fueled by diesel, E-85, or gasoline.

The facility has three parts washer using mineral spirits as solvents.

Federal-Mogul also performs thrust bearing testing in a "Thrust Ring Electric Driven Bearing Tester". The expected emissions from this equipment are oil mist from the use of bearing coolants.

COMPLIANCE HISTORY

The last inspection to this facility was conducted on April 9, 2014. The records show that the facility was found to be in compliance with the ROP requirements and all the Air Quality applicable regulations. Since the inspection there have been no complaints associated with the operations at this facility, no pending administrative consent orders, and no violation notices have been issued.

INSPECTION NARRATIVE:

The purpose of the inspection was 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 and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) rules.

On January 11, 2016 I arrived at the facility at approximately 11:30 PM and met with Mr. Terry Walter, Manager – Technical Services at Federal Mogul. I discussed the purpose of my visit. I asked Mr. Walter if there have been any changes in the facility operations, equipment additions and/or modifications in the type of testing they have been conducting during the last couple of years. He indicated that the facility continues conducting most of its operations utilizing diesel engines and gasoline engines during developmental testing, whereas durability tests and DTS testing are less common. He added that no additional equipment or emission units regulated by AQD have been incorporated into the facility since the last inspection.

After the initial meeting we conducted a walk-thru of the facility. During the visit we stopped at one of the cells where testing was not taking place. I asked Mr. Walter to show me the air injection ports and the locations of the thermocouples used to monitor the exhaust gas temperatures. I also observed the location of the fuel supply hoses feeding the stationary engine and the connections to the tanks receiving the fuels. I did not check the control panels during this site visit. I had checked the control panels and had observed the operational parameters that are recorded during an engine test when I witness the stack test in 2014.

I inspected the part washers and noticed that the equipment was not adequately identified and written operating procedures were not available. The identification numbers (I.D.s.) used on the material use reports did not match the IDs or serial numbers on the back of the equipment. It looks like the part washers had been replaced with new ones, but the IDs were not modified on the records. I requested revising the information and asked to place identification labels on the cold cleaners. The labels should contain: ID or serial number, the name of the solvent, the

capacity of the equipment in gallons, and the date the equipment was put in service. Mr. Walter proceeded with the corrective action within the next few days after the inspection. He provided a picture of the part washers with the posted labels.

Toward the end of the inspection, I took a quick look of the Bearing Testing machine and returned to Mr. Walter's office to conclude the inspection. During the closure meeting I collected some of the records and provided general comments.

The frequency of calibration and maintenance of the monitor devices and the fuel delivery procedures were some of the topics we discussed at the end of our meeting.

Mr. Walter handed out the facility monthly and the 12-month rolling records from January 2015 through November 2015. He indicated that he would provide the December records via email. I did not ask for the facility records for calendar year 2014 because they had been submitted on line with the Michigan Air Emission Reporting System (MAERS) report last year.

I also requested and collected the following records: natural gas usage, MSDS for the solvent used at the part washers, excerpt from their fuel delivery procedures pertaining the underground storage tanks (USTs), and lubricating oil usage records for the Bearing Testing equipment.

During the following two weeks after the inspection I requested (via email) additional information to clarify/complement the monitoring and recordkeeping data collected on site and to better evaluate compliance with the special conditions cited on the permit. The information was promptly provided by Federal-Mogul. All documents will be filed in the facility archives.

I left the facility at about 2:30 PM.

REGULATORY APPLICABILITY AND PERMIT UPDATES

The regulatory analysis for this source was described on the ROP Staff Report dated May 18, 2015. Here is a summary of the applicable requirements:

This stationary source is subject to Title 40 of the Code of Federal Regulations (CFR), Part 70, because has the potential to emit carbon monoxide over 100 tons per year.

The stationary source is considered to be a minor source of HAP emissions because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

The source is considered a synthetic minor source in regards to the prevention of Significant Deterioration regulations of 40 CFR, Part 52.21 because the stationary source accepted legally enforceable permit conditions limiting the potential to emit of carbon monoxide to less than 250 tons per year.

FG-ALLCELLS at the stationary source is subject to the federal Compliance Assurance Monitoring (CAM) rule under 40 CFR, Part 64. These emission units have a control device and potential pre-control emissions of carbon monoxide (CO) greater than the major source threshold level. An air injection control system (AICS) is used in all gasoline engine test cells to control CO and VOC emissions. The pre-control device potential VOC emissions from each emission unit are less than 100 tons per year.

Rule 201 exemptions:

- The Thrust Ring Electric Driven Bearing Tester is exempt from state permitting. The facility submitted a Rule 290 exemption analysis for this process when the equipment was installed and it was determined that an air permit was not required. During the inspection on 01/11/16 AQD staff determined that there have been no changes to the equipment

and/or its process operations. Therefore, the exemption analysis (on-file) is still valid. The facility keeps monthly records of the lubricant usage at this machine. Records for years 2014 and 2015 show no emissions.

- The part washers are exempt from permitting via Rule 281 (h). Solvent usage and solvent losses are monitored and recorded by the facility.
- Federal-Mogul submitted a demonstration on December 22, 2010 validating that the cold room chassis dynamometer is exempt from state permitting per Rule 285 (g). The demonstration (on file) is still appropriate because there have been no changes to the chassis and/or its operations. This exemption does not require recordkeeping.
- The facility has space heaters burning natural gas which are exempt from permitting via Rule 282 (b) (i). They keep monthly records of the natural gas usage in MMBTU per year.

Federal-Mogul operates under a Renewable Operating Permit (ROP) first issued in 2003 and renewed under No. MI-ROP-N6327-2015 on August 21, 2015. The ROP expires on August 21, 2020. The following is a summary of the changes that were incorporated into the ROP during the ROP renewal process that took place in 2015:

- The gasoline tanks associated with the dynamometers cells for the engine testing facilities were added to the ROP as EU-GASOLINE_TANKS. These emission units are subject to a MACT standard under the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Dispensing Facilities promulgated in 40 CFR, Part 63, Subparts A and CCCCC. The gasoline tanks at Federal Mogul were installed in 1996 and they were fully in service in 1998. Therefore, they are considered existing emission sources because the commenced construction date for the tanks preceded November 9, 2006, the date specified on §63.11112 (d) for new affected sources. According to the MACT, the compliance date for the standards of Subpart CCCCC was January 10, 2011, with recordkeeping to document monthly throughput starting no later than January 24, 2011. The facility has always maintained records of fuel usage. The records for the last four years, since 2011, show that the maximum monthly gasoline throughput has been below 10,000 gallons. Consequently, the applicable requirements for the gasoline tanks are those specified under §63.11116.
- Special Condition V.1 –Testing/Sampling, for FG-ALLCELLS was revised. The new approved language specifies that the “representative” number of test cells for stack testing shall be defined in the test plan and it is subject to AQD approval. This modification was approved pursuant to R 336.1216(2) throughout a Minor Modification to MI-ROP-N6327-2009 which incorporated PTI No. 368-97E into the ROP.
- Terms and conditions for EU-SAFETYKLEEN and EU-BEARINGTESTER were incorporated into Section D of the ROP using the specific ROP templates for Flexible Groups (i.e. FG-COLD CLEANERS and FG-RULE 290). These exempt emission units were not included in the previous ROP.

For more details about this regulatory analysis and the applicable requirements, please refer to the permit to install database and the ROP staff report. The ROP staff report and technical notes are kept with the ROP development folder in the facility files at the AQD district office.

APPLICABLE RULES/ PERMIT CONDITIONS:

As it was indicated earlier, the facility operates under MI-ROP-N6327-2015 issued on August 21, 2015.

For the purposes of determining compliance with the ROP, fuel usage and emission records for years 2014 and 2015 were reviewed. When determining compliance with 12-month rolling time

period limits, the most recent month of with the highest fuel usage/emissions are cited in parentheses. A one-page summary of emissions and fuel usage is attached to this report; the monthly records can be found in the facility file.

ROP No. MI-ROP-N6327-2015 –FLEXIBLE GROUP CONDITIONS:

FG-ALLCELLS includes EU-TESTCELL1 through EU-TESTCELL16

I. Emission Limits: Evaluating period from January 2014 to December 2015

Pollutant	Emission Limit	Highest 12-Month Rolling Emission Total	Compliance Status
VOC	5.6 tons per 12-month rolling time period	2.7 tons (May 2015)	In compliance
CO	223.3 tons per 12-month rolling time period	98.5 tons (May 2015)	In compliance
NOx	62.1 tons per 12-month rolling time period	14.7 tons (March 2015)	In compliance

II. Material Limits

Material	Limit	Highest Fuel Usage	Compliance Status
Gasoline/E85	2,630,750 lbs. per 12-month rolling time period	372,201 lbs. (December 2014)	In compliance
Gasoline/E85	16,713 lbs. per day	2,365.3 lb./day (December 2014)	In compliance
Gasoline/E85	2,327 lbs. per hour	124.5 lbs./hr. (December 2014)	In compliance
Diesel	1,418,000 lbs. per 12-month rolling time period	317,408 lbs. (January 2014)	In compliance
Diesel	19,143 lbs. per day	2,730.2 lbs./day (January 2015)	In compliance
Diesel	0.30% sulfur content in fuel	<0.0015% sulfur*	In compliance

*Federal-Mogul uses an “ultra low sulfur premium diesel fuel” which has a specification of less than 15 ppm (0.0015%) sulfur content.

IV. Design/Equipment Parameters- In Compliance

Test	Minimum Air Injection Rate(scfm)	Compliance Status
Durability Cycle A	45	In compliance
Durability Cycle B	50	In compliance
Durability Cycle C	72	In compliance (see comment below)
Durability Cycle D	50	In compliance
Deep Thermal Shock	45	In compliance

AICS injection rate is monitored during testing. Monthly test records for year 2014 and 2015 were reviewed to verify that the AICS was reaching the minimum air injection rate during each

test cycle. There was one instance in January 2015 when airflow was reported as "zero". The facility was contacted and AQD requested an explanation. Federal-Mogul's Technical Manager responded via email dated 3/4/16. In his response, Mr. Walter said that the AICS was operating but apparently the original data file seems to have been corrupted such that the AICS airflow did not import into the database that calculates and generates the reports. Mr. Walter estimated the airflow using the "raw data file" for the test cycle.

In his email Mr. Walter added that the facility has safeguards programmed into the test code that require the minimum parameters to be met. As part of their CAM, if they are not met, the test shuts down.

V.1 Testing/Sampling – In Compliance

Federal-Mogul is required to verify NOx and CO emission rates from a representative number of cells by testing once during the term of the ROP. A test protocol shall be submitted and approved by AQD staff previous to testing. To comply with this requirement for the term period from 2010 to 2015, Federal-Mogul submitted a test protocol on March 27, 2014. AQD field staff concurred with the proposed test protocol and approved the test conditions. NOx and CO emission testing was performed on May 13, 2014 with the attendance of AQD district staff, the facility's consultants, testing company personnel and facility representatives. The test was conducted on a medium size 3.6-liter engine, rated at 250 hp, using gasoline. The engine was tested on Cell 2 under two different testing conditions: Durability Cycle-D Test (with AICS) and Developmental Testing (without AICS). All tests ran smoothly and all the operational parameters remained within the expected ranges specified in the ROP. A separate record has been created in the Michigan Air Compliance and Enforcement System (MACES) for this activity, for details refer to report N632725151. A complete report (dated June 27, 2014) with the testing results was timely submitted to DEQ. For details about the stack test results refer to the summary excerpt from the testing company report, which has been filed with the 2016 backup inspection records.

AQD inspector wanted to assess Federal-Mogul latest trends in terms of type of testing and fuel usage. Data from years 2014 and 2015 were evaluated and the results are shown in the attached table. A total of 104 tests were conducted in 2014. There were 45 instances when Developmental Testing was conducted and 42 included diesel engine testing; these figures represent 43% and 42% respectively. Durability Testing and Small Gasoline Engines were a small percentage of the testing activities. The testing activities in 2015 showed an increase of about 20% with respect to 2014, with 122 total tests. However, gasoline Developmental Testing was about 60% of the total (73 counts) and only 29 % for Diesel engine testing. AQD understands that the type of testing varies from year to year and it is specified by the clients. However, based on the results shown for 2014, it would be appropriate to discuss the inclusion of diesel engine testing in the testing protocol for the period 2015-2020.

VI. Monitoring/Recordkeeping

Records are computerized/ maintained on file for a period of 5 years.

VI.1 to 5 – In compliance

The permittee calibrates, maintains and operates the Automatic Data Acquisition System (DAS) in a satisfactory manner to monitor and record on a continuous basis the following parameters: The gasoline and diesel flow for each engine tested; the exhaust gas temperature just upstream of the air injection point and downstream of the air injection point (when the AICS is operating); the air injection rate (in scfm) when the AICS is operating.

Calibration calendar and records are contained in Gage Trak, a program that notifies when calibrations are due. The program also stores the results of the completed calibrations. The interval for calibration is flagged by Gage Trak. Examples of the calibration procedures used at the facility were requested by AQD shortly after the inspection. The examples were provided via

email on February 4, 2016 and will be filed with the rest of the records collected during this inspection.

Certification and maintenance of the testing equipment is scheduled on a regular basis. Air flow meters are sent to the manufacturer at the time flagged by Gage Trak (usually every 2-3 years). Fuel totalizers are verified on-site and thermocouples are calibrated when flagged by Gage Trak (generally every 6 months internally)

Necessary parts for routine repair for some of the monitoring equipment are available on-site. Spare thermocouples and air flow meters are kept on-site. Fuel flow meters have never failed and therefore they do not keep spares. However, if a fuel flow meter should fail, the facility would swap one in from an idle test cell until repairs could be made. The DAS must be functional to operate the test cell; therefore, no test can be run unmonitored.

VI. 6 to 8 – In Compliance

The permittee keeps in a satisfactory manner, monthly and previous 12-month NO_x, CO and VOC emission calculation records for FG-ALLCELLS. The emissions are calculated according to the procedure explained in Appendix 7 of the ROP.

The permittee calculates the hourly gasoline usage rate for FG-ALLCELLS based upon calendar monthly recordkeeping prorated to an hourly rate using actual operating hours.

This rate represents the total amount of gasoline the facility is allowed to consume during "one clock hour". The permittee calculates the daily diesel and gasoline usage rate for FG-ALLCELLS based upon calendar monthly recordkeeping prorated to a daily rate using actual operating days.

During the first half of February 2016, AQD discussed (via email) the time periods and the calculation procedures used by the permittee to estimate the gasoline and diesel usages in lbs./hr. See next section for details about the discussions.

VI.9 to VI.15 – In Compliance

Records detailing fuel rate, hours of operation, and AICS operational parameters are recorded and maintained as required by the permit.

For this inspection, records from January 2014 through December 2015 were examined to determine compliance. Copies of the cited records can be found in the District Office facility file – Orange Folder. The attached one-page summary was prepared by AQD to simplify the evaluation of the facility compliance with the permit limits cited for FG-ALL CELLS - Section 1 of the ROP. The table shows records of fuel usage and emissions rates. The highest values are highlighted.

During the review of the monthly records I requested clarification about the "time" basis used by the facility to estimate the hourly gasoline consumption rate in pounds per hour. I wanted to clarify the term "actual operating hours" cited on section VI.9 of the ROP. Mr. Walter response (via email) indicated that tests could be run concurrently. So, if all cells are running at the same time using gasoline, they will have 16 test hours during one hour of operation. The permit is limiting the total amount of gasoline they are allowed to consume during one clock hour. That one clock hour (consisting of up to 16 test hours) would use more gasoline/hour than if the consumption was calculated based on test hours. In other words, with a few exceptions (explained on the next paragraph) the number of tests hours is generally higher than the operating hours.

It was noticed that during August, September and November of year 2015, the "gasoline" test hours exceeded the operating hours. Mr. Walters explained that this situation is unusual, but it can happen under the following conditions: setup, operational adjustments, troubleshooting, etc. before starting the actual test. During these situations, the test cell /engine is running but actual test hours are not accumulating. This is what happened in August, 2015. The facility was getting

back on line after being shut down for the extensive work performed on their cooling water system in June and part of July. This situation combined with the very low total hours for the month made the difference stand out. Similar circumstances occurred in September and November as well, but to a lesser extent. The facility was still getting back up to speed.

The permit also established daily usage rates limits for gasoline and diesel. Mr. Walter confirmed that the term "actual operating days" as cited on ROP Section VI.10, is referred to any day of the month when testing is conducted; even if only one engine is being tested and run for a short time.

The days of the month when diesel engines are tested are tallied separately from the gasoline testing days. Therefore, in a particular month, there will be "diesel operating days" and "gasoline operating days". The duration of a test depends upon the type of testing. Some tests only run on the day shift (6:30 AM – 3:00 PM) M-F. Other tests, mainly the "Durability Tests", can run unattended overnight and sometimes over weekends.

For illustrative purposes, the details about an "actual" diesel testing conducted at Federal-Mogul on February 2014, will be saved and filed with the rest of the records for the 2016 inspection in the District Office facility file –Orange Folder.

VI.16 – In Compliance

The permittee keeps in a satisfactory manner, annual average CO and VOC destruction efficiency calculation records. The facility follows the procedure highlighted in Appendix 7. Records for the years 2014 and 2015 were provided via email on February 4, 2016. The annual average destruction efficiency for CO and VOC were within the permit requirements. For year 2014 the values were: 94% for CO and 95 % for VOC. For year 2015, 85% for CO and 93 % for VOC.

VI.17 – In Compliance

ROP specifies a maximum sulfur content of 0.30 % (3,000 ppm). To demonstrate compliance with this percent sulfur limit in fuel oil the permittee adequately maintains fuel purchased records. All fuel purchased is BP Amoco spec fuel. On February 4, 2016 the permittee provided (via email) the specification sheet for the fuel. He also provided the delivery receipts for 2014 and 2015, demonstrating the fuel purchased and confirming the sulfur content (15 ppm max.). These records will be filed in a new folder labeled "Fuels Specs and other MSDS". The inspector should check this folder in preparation for inspections. If there are changes in fuel specs, new information should be added to the folder; otherwise the existing records should satisfy the compliance of these conditions.

VI. 18 - In Compliance

Air injection control system (AICS) is always used when Durability and Deep Thermal Shock testing of gasoline engines is conducted. The AICS is maintained satisfactorily and the cycle average exhaust temperature just upstream of the air injection point and downstream of the air injection point is maintained at a minimum of 1300 °F. Records for year 2014 and 2015 were reviewed and they showed temperatures above 1300 °F when AICS had been used. Operating below 1300 °F for more than 30 minutes is an excursion. No excursions were reported during the analyzed period.

AICS is not needed nor is it intended for use with diesel tests. It has no effect on diesel emissions. However, it was noticed that there were a few instances where AICS data showed on the records (but without any emission changes) for diesel tests. According to the permittee explanation, sent via email on February 2, 2016; these occasions are the result of the test cell configuration not being changed for a diesel test. The air is being turned on "as if" a gasoline test was running. The facility agreed that it was an oversight on their part, but has no detrimental impact on emissions. Going forward, they will be taking into account our comments regarding

consistency.

It was also noticed that the facility didn't apply any reductions to the reported emissions for Developmental Testing cases when stack temperatures were above 1400 °F. A 50 % destruction efficiency is suggested by Appendix 7 of ROP for Developmental Testing, This reduction in emissions was only applied to two of the records.

The response of the facility indicated that they had been conservatively using the "after" temperature to determine whether the 50% reduction was applied. During the most recent ROP renewal process a closer review of the requirements for AICS use with Developmental Tests showed that it was actually the upstream temperature that was intended to be used to evaluate if the emission reduction was applicable. So, the database was changed accordingly. Consequently reports run after the change (starting with the March 2015 report) applied the 50% reduction if the temperature upstream the air injection point was > 1400F and the air flow is >50 CFM. Going forward this will be the practice.

VI.19 - In Compliance

N/A -No excursions were reported during the analyzed period.

VI. 20 – In Compliance

As the permittee has indicated in the semiannual and annual ROP compliance reports, there have been no situations of monitor malfunction/downtime. All monitoring is done with the DAS. If DAS is not functioning the test cell cannot be operated, thus no operation is possible unless it is being monitored.

VI. 21 – N/A

A Quality Improvement Plan (QIP) is required under 40 CFR 64.8 for sources that experience excessive excursion/exceedances during a reporting period. Federal Mogul has not experienced any excursions or exceedances during the last two years, as reported in the semiannual ROP compliance reports and as such, AQD has not required a QIP. However, we have been informed that they have conducted various improvements at their facility. Test cell data acquisition system software and hardware upgrades are ongoing. They installed improved ventilation systems in (6) test cells during the summer of 2015. The central lab process cooling water system was reworked to improve reliability and function while reducing operating costs.

VII. Reporting - In compliance

Annual and Semiannual ROP Certification Reports and Deviation Reports are submitted in a timely manner, as required. During the last two years there have been no change in equipment for FG-ALLCELLS and no deviations have been reported. There has not been a change in land use.

VIII. Stack/Vent Restrictions - In compliance

There have been no changes to the stacks. The exhaust gases from the stacks are discharged vertically upwards to the ambient air. I did not climb to the roof of the building to take a close look at the stacks; however, no visible emissions were observed at the time of the inspection.

IX. Other requirements – N/A

Failures to achieve compliance have not been identified. No modifications to the CAM have been required.

NESHAP CCCCCC EU-GASOLINE_TANKS

The specific measures for a gasoline dispensing facility (GDF) with monthly throughput less than 10,000 gallons are cited under 40 CFR 63.11116(a)(1) to (4) and are listed on the FG-NESHAP CCCCCC flexible group special conditions ROP Section III.

III. Process/Operational restrictions 1 (a) to (e) – In Compliance

The Process/Operational restrictions 1 (a) to (e) require the permittee to handle gasoline adequately to prevent vapor releases to the atmosphere for extended periods of time, minimizing spills, etc.

To demonstrate compliance with this section of the permit the permittee provided a flow chart from their fuel provider outlining the transport delivery process. In addition, I received a copy of a five-page excerpt from the facility's Risk Management Plan. The information included the Fuel Delivery Procedures used at the facility with detailed instructions on how to handle fuel from the delivery point to the filling of the tanks.

To supplement the information Mr. Terry Walters provided a letter dated April 20, 2015, from the company responsible for the USTs. The letter confirmed that all USTs at Federal- Mogul Plymouth Center are equipped with automatic shut off drop tubes that extend to within 6" of the tank bottoms.

After the review of the documentation cited above and assuming the procedures are applied as instructed; it is concluded that the facility is in compliance with this section of the permit.

VI. Monitoring/Recordkeeping – In Compliance

Records are maintained on file for a period of five years.

Record of Gasoline Throughput

The permittee maintains records of gasoline throughput to demonstrate that their monthly throughput is less than the 10,000-gallon threshold level. The records were available for review and they were below the threshold level.

According to NESHAP CCCCC, monthly throughput shall be calculated by summing the volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the current day, plus the total volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the previous 364 days, and then dividing that sum by 12. To evaluate compliance with this section of the permit AQD staff calculated 12-month averages using MAERS gasoline usage records submitted by Federal-Mogul in 2014 and last year's 2015 records provided during this inspection. The results resulted in monthly averages approximately 5,011 gallons for 2014 and 2,712 gallons for 2015 (based on gasoline density of 6.2 lb. /gal.)

Going forward the facility is expected to maintain separate records to show compliance with SC VI.1.c.

FG-COLD CLEANERS

The cold cleaners are "new" cold cleaners because they were put into service after July 1, 1979. They are exempt from Rule 201 pursuant Rule 281 (h)

EU-SAFETYKLEEN

II. Material Limits – N/A

The permittee does use cleaning solvents containing halogenated compounds. For the physical and chemical properties of the cleaning solvent refer to the MSDS in file.

III. Process/Operational Restrictions

1. Cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. The cold cleaners were not in operation at the time of the visit. **Not evaluated**
2. The permittee performs routine maintenance on each cold cleaner as recommended by the manufacturer. **In Compliance -**

IV. Design /Equipment Parameteres – In Compliance

The cold cleaners at Federal-Mogul meet the following design requirements:

- 1b .The cold cleaners are used for cleaning metal parts and the emissions are released to the

general in-plant environment.

2. The cold cleaners were equipped with a device for draining cleaned parts.

3. All the cold cleaners were equipped with a cover and the covers are closed when they are not in use.

4. The Reid vapor pressure of the cleaning solvent used at Federal-Mogul is less than 0.1 psia. The solvent is not agitated, nor heated. Therefore, the requirement of having a mechanically assisted cover does not apply.

5. This condition is not applicable to Federal-Mogul's cold cleaners

V. Testing/Sampling – N/A

VI. Monitoring/Recordkeeping – In Compliance

Records are maintained on file for a period of five years

1 – N/A

2. The following information (required by section VI. 2) was not available at the time of the inspection but it was provided to AQD within the next few days after the inspection. The information was written on stickers labels and posted on the cleaners:

a. A serial number, model number, or other unique identifier for each cold cleaner.

b. The date the unit was installed, manufactured or that it commenced operation.

c. N/A

d. The applicable Rule 201 exemption is cited

e. The Reid vapor pressure of each solvent used. This information is listed on the MSDS.

f. N/A

For details about the capacities and dates of installation of the cold cleaners, please refer to the 2016 inspection backup data kept in an "Orange" folder in the facility record files.

3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. AQD inspector handed out the DEQ orange-stickers with the outline of the operating procedures and instructed Mr. Walters to post them near each one of the cold cleaners

4. The solvent is not a safety hazard. Records of solvent usage and solvent lost are kept in a monthly basis. Closed containers are used for the storage of solvent cleaner.

FG-RULE 290 – In Compliance

As indicated earlier in this report the Thrust Ring Electric Driven Bearing Tester (EU-BEARINGTESTER) is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290. The facility submitted a Rule 290 exemption analysis for this process when the equipment was installed and it was determined that an air permit was not required. The facility keeps monthly records of the lubricant usage at this machine. The permittee is in compliance with all the special conditions listed in the ROP for this flexible group.

MAERS REPORT REVIEW

The facility is required to report to the Michigan Air Emission Reporting System (MAERS). Facility submitted MAERS for reporting year 2014 in a timely manner. AQD audited the report and observed that the facility increased the total fuel throughput from 93,760 gals in 2013 to 97,769 gals in 2014. The total emissions slightly decreased; from 106 tons in 2013 to 103 tons in 2014. There was a 28% increase in gasoline usage and a 20 % decrease in diesel usage with respect to 2013.

In 2013 the proportion of gasoline to diesel usage was about 50/50, compared to 58/42 in 2014. This reflected in a decrease in NOx emissions from estimated 30,171 pounds (approx. 15 tons) in 2013, to 25,358 pounds (approx. 13 tons). However, the CO emissions in 2014 were quite similar to the CO emissions reported for 2013, even when there was an increase in gasoline usage. In

2013 the report showed 171,110 pounds of CO (approx.85.5 tons) and in 2014 the CO emissions were 167,812 (approx. 84 tons). These observations about the CO emissions prompted AQD staff to further evaluate the data and the type of testing conducted in both years. As a result of the assessment, AQD found that the number of engine tested for Durability during 2014 (21 tests) were more than double than the Durability tests conducted in 2013 (10 tests). Consequently, the estimated CO emissions in 2014 were lower because the facility calculated and reported controlled emissions, with reductions ranging from 92 to 95% with respect to the estimated uncontrolled CO emissions.

FINAL COMPLIANCE DETERMINATION

Federal-Mogul Corporation appears to be in compliance with the evaluated ROP No. MI-ROP-N6327-20015 requirements and the evaluated state and federal air emissions standards, rules and regulations.

NAME Atandoral

DATE 3/4/16

SUPERVISOR JK