

P0380
MANILA

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

P038041634

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------|
| FACILITY: Sakthi Automotive Group USA, Inc | | SRN / ID: P0380 |
| LOCATION: 6401 WEST FORT STREET, DETROIT | | DISTRICT: Detroit |
| CITY: DETROIT | | COUNTY: WAYNE |
| CONTACT: Deepak Bhalla , Director of Purchasing and Facilities | | ACTIVITY DATE: 09/25/2017 |
| STAFF: Stephen Weis | COMPLIANCE STATUS: Compliance | SOURCE CLASS: SM OPT OUT |
| SUBJECT: Compliance inspection of the Sakthi Automotive Group facility in Detroit. The Sakthi facility is scheduled for inspection in FY 2017. | | |
| RESOLVED COMPLAINTS: | | |

Location:

Sakthi Automotive Group USA, Inc. (SRN P0380)
6401 West Fort Street
Detroit, MI 48209

Dates of Activity:

Monday, September 25, 2017

Personnel Present:

Steve Weis, DEQ-AQD Detroit Office
Deepak Bhalla, Director or Purchasing and Facilities, Sakthi
Tyrone Jarrett Sr., Manager Facilities and Safety, Sakthi
Muruganandam Pillai, Sakthi
Prem Anand, Sakthi
Jayakumar Sugumaran, Sakthi
Rong Pan, Sakthi
Yuv Bansal, Sakthi
Karan Jadhav, Sakthi

Purpose of Activity

A self-initiated inspection of the Sakthi Automotive Group USA, Inc. (hereinafter "Sakthi") facility was conducted on Monday, September 25, 2017. The Sakthi facility was on my list of sources targeted for an inspection during FY 2017. The purpose of this inspection was to determine compliance of operations at the Sakthi facility with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control), and with applicable Federal air quality standards. In addition, the facility is subject to terms of Permit to Install (PTI) No. 92-16, which was issued on October 31, 2016.

Facility Site Description

The Sakthi facility is located on the south side of Fort Street on either side of Waterman Street. The facility currently consists of three separate buildings on the south side of Fort Street; these three buildings constitute the Sakthi stationary source.

The offices of the Sakthi facility, as well as some of the facility's manufacturing processes, are located in a building on the south side of West Fort (6401 W. Fort), extending from Waterman east approximately 325 yards to a street called Reissman; this street separates the facility from the building next door, which houses Evans Distribution Systems/Progressive Distribution (6307 W. Fort St.). Sakthi has been operating at this location since 2012, when it purchased the building from Arvin Meritor. Another company, Mobis North America, LLC (hereinafter "Mobis", SRN P0543), leased office and manufacturing space from Arvin Meritor, and now has a similar lease agreement with Sakthi. Mobis' offices are in the northeastern part of the office portion of the building, and the manufacturing portion of their facility occupies a 211,000 square foot building at the east end of the building, right in back of and adjacent to the office area.

Sakthi also owns a building having addresses 100-150 American Way. American Way runs south of Fort Street to the west of the former Southwestern High School, and just east of Green Street. In addition, Sakthi has commenced operations in May of 2017 in a new building that is located south of the high school building; the address for this building is 201 Waterman Street. This building houses an aluminum die casting operation in the eastern portion of the building, and the same type of operation as occurs in Sakthi's other two buildings in the west side of the building. Sakthi is also breaking ground on a 60,000 building that will be located to the south of the 6401 W. Fort building that will be used for storage/warehousing. From the perspective of DEQ-AQD, all of the buildings in which Sakthi operates are considered a single stationary source - all of the buildings are under the common ownership and control of the same entity, the activities that occur in each building are classified under the same NAICS code, and all of the buildings are geographically located contiguously/in close proximity to one another.

The Sakthi facility is located in the Delray area of Southwest Detroit. The area around the facility is a mix of industrial, commercial, institutional and residential properties. The closest residential properties are located approximately 0.15 miles from the building at 6401 W. Fort St., ¼ mile from the building that contains the aluminum die casting operation, and ¼ mile from the building on American Way. The area directly to the south of the facility will be part of the Port of Entry footprint associated with the planned Gordie Howe Bridge. The area in which the facility is located is currently classified as non-attainment for the National Ambient Air Quality Standards (or NAAQS) for sulfur dioxide; the area is in attainment with the NAAQS for the other criteria pollutants. An area map that shows the location of the Sakthi facility and its associated buildings is attached to this report for reference.

Facility Operations

Sakthi Automotive Group USA is a subsidiary of Sakthi Group, which is based in India. According to the company website (www.sakthigroup.com), Sakthi Group is involved in a variety of industry sectors, including power, logistics, IT services, textiles, and food products. Sakthi Automotive Group produces iron and aluminum cast, machined and assembled components.

The Sakthi facility in Detroit manufactures iron and aluminum automobile suspension components for automotive companies. Their main customers are currently General Motors, Ford Motor Company and Volkswagen. Cast iron axle arms and wheel knuckles and cast aluminum wheel knuckles are produced for use in customers' vehicles. During the site visit, I was told that the Sakthi facility is currently operating 7 days per week, 3 shifts per day (a 24/7-type operation), and that there are approximately 50 employees working in the casting building. A recent media story about the facility stated that the company currently has more than 600 employees in Detroit.

The iron castings that are used at the facility come from Cadillac Castings, Inc. in Cadillac, MI (SRN B2178), while the aluminum castings are now produced at the Sakthi facility in the casting building.

The castings are machined in various CNC (computer numerical controlled) lathes at the facility. These lathes machine the castings, shaping and sizing them to meet the specifications of the final product. It was mentioned during one of my site visits last year that for a typical iron casting that is processed at the facility, 10-15 pounds of iron is removed from the casting during the machining process to craft the final part.

The CNC lathe machines are self-contained units – castings are loaded into them, the units are closed, and the machining occurs. The units are not vented to the ambient air. Air from inside of the machines is passed through an air filtration system (a Losma air filtration device), then vented to the in-plant environment. These filters have an estimated life of 2000-3000 hours. All of the metal trimmings are collected and stored in separate, sealed containers, and shipped offsite for recycling.

The following is a description of the processes in each of the three buildings that currently comprise the Sakthi stationary source.

6401 W. Fort (former Arvin Meritor complex)

As mentioned earlier in this report, Sakthi purchased this building from Arvin Meritor in 2012, and a portion of the building is leased to Mobis, a separate stationary source. This address contains the office portion of the Sakthi facility, as well as a manufacturing area. The manufacturing area contains 11 CNC lathe machines; 4 of them are dedicated to cast iron products, and the remainder are used to machine aluminum castings. Sakthi has some

de-rusting compound that is used on an infrequent basis on cast iron parts adjacent to the lathes; it is not directly vented outside. There is a loading/unloading area at the rear of the building through which castings and finished parts enter and leave the building, respectively, and through which waste coolants and metal turnings are staged for recycling.

The processing area of this building is heated with small ceiling-mounted natural gas-fired heaters. The climate of the office portion of the building is controlled via a HVAC system. There are no boilers or process heaters located in this building. There are two Kohler emergency generators and one fire pump located at this facility, at the west side of the building that is leased by Mobis. These units were installed by Arvin Meritor to provide emergency back-up power, and they are now part of the Sakthi facility.

100-150 American Way

Sakthi purchased this building in 2014. The building was formerly used by American Mailer, but had stood empty prior to Sakthi purchasing it. I was told that Sakthi began moving equipment into the building in March 2015, and began operations in the summer of 2015.

This building contains 28 CNC lathe/horizontal milling machines. All of the machines at this location process aluminum castings. The metal trimmings from the lathes are processed in a "chip ringer", which is a machine that washes and spins the collected metal to separate the metal (aluminum) from the coolant. The aluminum scrap is directed to a truck for offsite recycling.

There is a quality control testing area located in the southern portion of this building. The testing area has hydraulic machines that simulate loads that the suspension components will encounter through typical usage.

The building has a loading dock/loading/offloading area through which inbound and outbound materials are moved in and out of the facility. This building is heated with small ceiling-mounted natural gas-fired heaters.

A copy of a plan view diagram of this building was provided to me during my site visit in 2016, and it is attached to this report.

201 Waterman

This building is located just behind the former Southwestern High School building. The building is 181,000 square feet in area. The western third (approximation) of the building (60,000 square feet) contains 18 CNC lathe/horizontal milling machines. I was told during this site visit that 18 additional CNC lathe machines will eventually be added to this portion of the building.

The aluminum die casting process encompasses 110,000 square feet of the building. At the time of this visit, a portion of the process has been installed and is operational. Melting line #1 began production in May of 2017, and line #3 began trial operation in August. The aluminum die casting portion of this building produces aluminum castings that will in turn be processed in the facility's CNC lathe machines to produce vehicle suspension parts. Permit to Install No. 92-16 was issued to address the operation of the die casting process. The following description of the aluminum die casting process is taken from the Fact Sheet of the Public Participation Documents for Permit Application Number 92-16:

"The proposed facility will consist of three melting furnaces with natural gas fired low-NOx burners rated at 6.7 million Btu per hour (MMBtu/hr) each, two heat treat furnaces with natural gas fired low-NOx burners rated at 6.2 MMBtu/hr each, and 30 electrically heated crucible holding furnaces. Emissions from each melting furnace will be captured by a hood for that furnace and exhausted to a stack for the furnace. Additional facility support processes include aluminum receiving and storage, dross storage and handling, a die cleaning enclosure, casting inspection, and facility heating, ventilation and air conditioning.

The melting furnaces will be charged with only clean ingots of aluminum, clean scrap produced within the facility, customer returns, and flux material (chloride and fluoride salts) which is used to remove impurities from the aluminum and also for weekly cleaning of the furnaces. The flux bonds with non-aluminum material in the melt, creating dross which rises to the surface where it is removed before casting. The melting furnaces will operate in melting mode five days per week and remain idle in heated standby mode for two days per week.

The crucible furnaces will be mobile units within the facility. Melted aluminum tapped from the melting furnaces will be transferred to the crucibles. Additional flux will be added while the crucible is under the melting furnace hood and/or after the tapping process step when the crucibles are outside the hood. The crucible furnaces then

transport the metal to the casting machines. When the crucibles are outside the hood, fugitive emissions during transport and casting are vented within the plant and exit through general plant wide roof exhaust ventilation consisting of 28 roof vents.

Completed castings will undergo a heat treat process to meet customer specifications. Heat treating can require more time than melting, so the two heat treat furnaces may need to be operated six days per week to process the throughput from five days of melting and casting production."

A copy of a plan view diagram of this building was provided to me during my site visit in 2016, and it is attached to this report. The facility has installed a Caterpillar Model 3512B diesel fired emergency generator to provide back-up power to the aluminum casting process.

It should be noted that DEQ-AQD operates an ambient air monitoring station on the opposite side of Waterman Street from the casting building, and adjacent to the site of the soon to be constructed warehouse/storage building. The monitoring equipment at this station monitors levels of PM2.5 (particulate matter less than or equal to 2.5 microns in size), PM10 (particulate matter less than or equal to 10 microns in size), sulfur dioxide (SO₂), manganese, arsenic, cadmium, nickel, VOCs, and carbonyl compounds in the ambient air, as well as providing meteorological data.

Inspection Narrative

I arrived at the facility at 10:40am. I was met by Deepak Bhalla, and we proceeded to the conference room of the building at 201 Waterman, where we were met by the rest of the Sakthi staff. We began the site visit by discussing the operations at the facility. I inquired about the other two buildings at the facility, and I was told that the operations in those buildings have not changed since my site visits in 2016.

We then discussed the operations in the aluminum casting building, and the compliance of the aluminum casting equipment with the terms and conditions of Permit to Install (PTI) No. 92-16. I was told that two of the three permitted melting furnaces are currently in operation. Stack melter number 1 started trial operation in March 2017, with production starting in May, and stack melter number 3 started trial operation in August 2017, and is not yet in production mode.

We then discussed the facility's compliance with the conditions of PTI No. 92-16. I went through the permit conditions, going through the permit in order from the EUMELTING, EUHOLDING, and EUHEATTREAT Emission Unit tables through the FGFLUXING Flexible Group table. Sakthi staff presented the records that they keep in both hard copy form, providing me with binders to look at, and by showing me the electronic version of the records, presenting and projecting them on a screen in the conference room. The facility's compliance with the terms and conditions of the permit will be discussed in the next section of this report. I requested copies of the records that Sakthi has been keeping. This information was provided to me via e-mail after the inspection, and is attached to this report for reference.

After we discussed the permit, I toured the aluminum casting area with some of the Sakthi staff. I was shown the location of stack melter numbers 1 and 3, and the flow of material in the process was described to me. We looked at the CNC lathes in the west part of the building. I was told that there are currently 18 CNC lathes operating in this part of the building, and that there are plans to install and operate an additional 18 CNC lathes.

Deepak and I then walked outside to look at the diesel fired emergency engine, which is located on the north side of the building at 201 Waterman. He opened the access door, and I was able to read the information on the label that is affixed to the engine. The unit is a Caterpillar Model 3512B engine. There is a 2,000 gallon capacity day tank at the base of the unit that stores fuel for the engine. I requested that Deepak send me specification information for the engine in order to assist me in determining the applicability of regulations to the engine, and to determine whether the engine requires a PTI from DEQ-AQD.

I left the facility at 12 noon.

Permits/Regulations/Orders/Other

Permits

The processes and operations at the 6401 W. Fort and at the American Way buildings appear to be exempt from the requirement to obtain a Permit to Install from DEQ-AQD. The equipment used to heat these two buildings meets the exemption requirements of Administrative Rule 282(b)(i) (Rule 282(b)(i)) due to the small size of this equipment.

The machining operations in both buildings are also exempt from permitting requirements. The CNC lathes are self-contained, closed operations that do not directly vent to the ambient air. The air from inside of these machines is vented to an air filtration device, which is designed to remove coolant mists and other particulates from the air prior to it being vented to the in-plant environment. This type of operation is typically exempted from permit requirements through meeting the exemption criteria of Rule 285(l)(vi)(B); this provision exempts equipment used for various machining operations of metal products that is vented only to the general in-plant environment. This exemption also applies to the CNC lathe machines operating inside of the building at 201 Waterman Street.

The aluminum die casting operation is required to obtain a permit in order to operate. PTI No. 92-16 was issued to Sakthi on October 31, 2016. In issuing this permit, DEQ-AQD's Permit Unit determined that the installation and operation of the die casting facility, as proposed by Sakthi and with conditions as determined by DEQ-AQD, will not violate any of DEQ-AQD's rules, nor the Federal NAAQS. The permit contains limitations on the amount of metal that may be charged to the furnaces, as well as the amount a flux that can be injected during the processing of the aluminum. These material usage restrictions serve to limit the potential emissions from the operation of the die casting facility, so the PTI serves as a synthetic minor permit. The Fact Sheet that was been prepared by DEQ-AQD's Permit Unit staff as part of the Public Participation Documents for the PTI included the following table that summarizes the estimated emissions associated with the operation of the die casting process:

| Pollutant | Estimated Emissions (tpy) |
|------------------------------------|---------------------------|
| Particulate Matter (PM) | 1.6 |
| PM10* | |
| PM2.5** | |
| Sulfur Dioxide (SO ₂) | 0.1 |
| Carbon Monoxide (CO) | 18.0 |
| Nitrogen Oxides (NO _x) | 10.7 |
| Volatile Organic Compounds (VOCs) | 1.2 |
| Lead | 1.07E-04 |
| Fluorides | 1.04 (HF) |
| Sulfuric Acid Mist | not applicable |

The following paragraphs provide a description of Sakthi's compliance with the terms and conditions put forth by PTI No. 92-16, with the headings representing the Emission Units and Flexible Groups identified in the PTI.

EUMELTING

This Emission Unit addresses the three natural gas fired stack melter melting furnaces. As of the date of the site visit that is addressed by this report, two of the furnaces are in operation, and the third has not yet been constructed.

I. Emission Limits

Special Conditions (SCs) I.1 through I.4 – These SCs put forth emission limits on visible emissions, PM, PM10 and PM2.5. The Testing/Monitoring Method for these emission limits is SC V.1, which puts forth that the company shall perform compliance emissions testing, if requested by DEQ-AQD. To this point, DEQ-AQD has

not requested that Sakthi perform compliance emissions testing for these pollutants. Based on the low amount of material that has been charged in the two furnaces relative to the permit limit in the Material Limits section of the PTI, the emissions should be well in compliance.

II. Material Limits

SC II.1 – The three furnaces are limited to charging no more than 27,158 tons of metal per 12 month rolling period. I was provided with records that track the amount of metal charged/tapped from the furnaces, which are attached to this report for reference. Keep in mind that Melter 1 has been in operation since March, and Melter 3 has been in operation since August. If the month with the highest reported monthly charge (August 2017 for Melter 1 – 489,205.76 lbs) is extrapolated over the course of 12 months for three furnaces, the total charge would be 8,805 tons, well below the permitted limit. Compliance.

SC II.2 – Compliance. Facility staff told me they are charging aluminum ingots and clean aluminum scrap that is generated at the facility. This meets the requirement of using only clean charge, as defined in 40 CFR Part 63 Subpart RRR, in the melting furnaces.

SC II.3 – Compliance. Only natural gas is used to fuel the melting furnaces.

III. Process/Operational Restrictions

SC III.1 – The furnaces must only be operated with their respective low NOx burners installed and maintained. I was told during the site visit that the burners are operated according to the manufacturer standards. Compliance.

V. Testing/Sampling

SC V.1 – As mentioned in the discussion for Emission Limits, DEQ-AQD has not requested that Sakthi perform a compliance emissions test. I was told during the site visit that Sakthi has gotten a quote from a local stack test consultant regarding performing stack tests at the facility when all of the process equipment is operational.

VI. Monitoring/Recordkeeping

SC VI.1 – The facility is completing all calculations in a timely manner. Compliance.

SC VI.2 – Compliance. The facility is maintaining monthly records of the amount of metal charged to the furnaces. The furnaces have not yet operated for 12 months.

SC VI.3 – Compliance. Records are being kept of the amount of cleaning and cover flux that is being used in the furnaces. I have attached the monthly records of flux usage that Sakthi provided to me. I was also shown daily flux usage records during the site visit.

SC VI.4 – Compliance. I was told during the site visit that Sakthi receives information regarding the chemical composition of the flux materials used at the facility from the supplier of the flux material. This information includes the chlorine and fluorine content of the materials. I was shown an example of a safety data sheet for some of the fluxing agents.

SC VI.5 – The facility is not currently calculating emissions of PM, PM10, PM2.5, HCl and HF from the melting furnaces. Sakthi staff told me during the site visit that they contacted a test consultant regarding having a stack test performed. They planned to use the results of the stack tests to determine emission factors for these pollutants. Based on conversations during the site visit, I agreed that Sakthi should consider performing the stack test, but that they could also opt to find emission factors for the melting furnaces from another valid source, and utilize those to estimate emissions for these pollutants. At this time, Sakthi is working to determine proper emission factors to use in calculating emissions estimates, as required in the SC. The facility will keep me updated as to the progress in determining emission factors.

SC VI.6 – Compliance. The facility keeps records of the charge material used in the melting furnaces. I was provided with a couple of summary sheets that track the amount and type of material that is charged in the furnaces each month. As previously mentioned, Sakthi is currently charging aluminum ingots, and material that is generated on site. The summary sheets list the amount of material originating as ingots, scrap and sprue. Copies of the summary sheets for Melter 1 and Melter 3 are attached to this report.

SC VI.7 – Compliance. Sakthi is tracking and recording the hours of operation of the melting furnaces. I was provided with copies of the records of hours of operation for Melter 1 and Melter 3, which are attached to this report for reference.

VIII. Stack/Vent Restrictions

The stack/vent dimensions were provided as part of the PTI application materials that were submitted to DEQ-AQD's Permit Unit. The stack/exhaust dimensions were not discussed during this site visit.

EUHOLDING

This Emission Unit addresses 30 electrically heated crucible holding furnaces. There are no permit Special Conditions in this Emission Unit table.

EUHEATTREAT

This Emission Unit addresses two natural gas fired heat treating furnaces.

II. Material Limits

SC I.1 – Compliance. Only natural gas is burned in the heat treating furnaces.

III. Process/Operational Restrictions

SC III.1 – Compliance. The heat treat furnaces must only be operated with their respective low NOx burners installed and maintained. I was told during the site visit that the burners are operated according to the manufacturer standards.

VI. Monitoring/Recordkeeping

SC VI.1 – Compliance. Facility staff track and record the operating hours of the heat treating furnaces. I was provided with a monthly summary of the hours of operation of the heat treating furnaces, which is attached to this report for reference. During the site visit, I was shown a log book that included the daily hours of operation of the furnaces.

VIII. Stack/Vent Restrictions

The stack/vent dimensions were provided as part of the PTI application materials that were submitted to DEQ-AQD's Permit Unit. The stack/exhaust dimensions were not discussed during this site visit.

FGFLUXING

This Flexible Group includes all process equipment source-wide where flux material is added to the melted metal or is used in a furnace.

II. Material Limits

SCs II.1 through II.3 – Compliance. Sakthi keeps records of the monthly flux usage in the melters, and flux used for degassing. I was provided with records, which are attached to this report, that present the monthly flux usage, and include calculations of the chlorine and fluorine injection rates in pounds per ton of charge. This information indicates compliance with the permitted limits.

VI. Monitoring/Recordkeeping

SC VI.1 – Compliance. Records are being kept of the amount of cleaning and cover flux that is being used in the furnaces. I have attached the monthly records of flux usage that Sakthi provided to me. I was also shown daily flux usage records during the site visit.

SC VI.2 – Compliance. I was told during the site visit that Sakthi receives information regarding the chemical composition of the flux materials used at the facility from the supplier of the flux material. This information includes the chlorine and fluorine content of the materials. I was shown an example of a safety data sheet for some of the fluxing agents.

Regulations

The die casting facility is not subject to 40 CFR Part 63, Subpart RRR (National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production). The applicability criteria for this regulation, as put forth in 63.1500, exempts aluminum die casting facilities from the provisions of this regulation provided that the only materials that are melted at the facility are clean charge, customer returns or internal scrap, and if the facility does not operate sweat furnaces, thermal chip dryers, or scrap dryers/delacquering kilns/decoating kilns. The draft permit contains a condition limiting the melting furnace to only melting clean charge, as defined by Subpart RRR, to ensure that the process is not subject to Subpart RRR.

Regarding the emergency generators that are located outside of the building at 2401 W. Fort, they appear to be classified as "Existing emergency compression ignition (CI) engines less than 500 hp located at area source, constructed before June 12, 2006" for the purposes of applicability with 40 CFR Part 63, Subpart ZZZZ. Given that the generators were installed prior to June 12, 2006, and the facility is a minor/area source of HAPs, the generators must abide by the provisions of 63.6640(f) to be classified by Subpart ZZZZ as emergency generators. The requirements of 40 CFR Part 60, Subpart IIII (New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines) do not appear to apply to these existing generators as this regulation applies to CI engines that were manufactured on or after April 1, 2006. During the review process for PTI No. 92-16, I provided information about these generators to the permit reviewers, but they were not included in the permit.

The new emergency generator that was installed outside of the building on Waterman Street to provide back-up power to the aluminum casting process may be subject to the requirements of Subpart ZZZZ and Subpart IIII. It also may be subject to the permitting requirements in Michigan Administrative Rule 201. At the time of my site visit, I did not have information relating to the specifications of the Caterpillar engine. Per my request, Sakthi will provide me with the needed information to determine the operating specifications of the engine, which will be used to determine the regulatory requirements associated with the engine.

Compliance Determination

Based upon the results of the September 25, 2017 site visit and subsequent records review, the Sakthi facility appears to be in compliance with all of the terms and conditions of Permit to Install No. 92-16. The facility has installed an emergency engine may be subject to DEQ-AQD permitting requirements. If the engine does need a permit, Sakthi will be directed to work with DEQ-AQD to apply for the necessary permit/permit modification to ensure that the operation of all of the emergency engines/generators at the Sakthi facility are addressed in terms of regulatory requirements.

Attachments to this report: a facility site map of the Sakthi stationary source; a plan view of the building on American Way; a plan view of the building on Waterman Street; records provided by Sakthi that are kept in accordance with the recordkeeping requirements in PTI No. 92-16.

NAME

Steve Wiles

DATE

10/19/17

SUPERVISOR

JK