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

N788640522

FACILITY: Hyundai America Technical Center Inc. (HATCI)		**SRN / ID:** N7886
LOCATION: 6800 GEDDES RD, SUPERIOR TWP		**DISTRICT:** Jackson
CITY: SUPERIOR TWP		**COUNTY:** WASHTENAW
CONTACT: Shawn Mirza , Senior Environmental Health & Safety Engineer		**ACTIVITY DATE:** 07/06/2017
STAFF: Diane Kavanaugh-Vetort	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Major Source, Title V, conducted full compliance inspection. FCE/PCE.		
RESOLVED COMPLAINTS:		

N7886 Hyundai-Kia America Technical Center, Inc. (HATCI)

Contact: Shawn Mirza, Senior Environmental, Health & Safety Engineer, office phone (734) 337-2975, Cell (313) 522-0606, email: imirza@hatci.com

On the morning of July 6, 2017 I conducted a complete, scheduled compliance inspection, announced a short time prior, at the above Hyundai America Technical Center facility (hereinafter HATCI) location in Superior Township. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state regulations, in particular Act 451, Part 55 Air Pollution Control regulations, the administrative rules and the conditions of HATCI's ROP-MI-N7886-2014. This is HATCI initial ROP and the inspection completes the Full Compliance Evaluation for fiscal year 2017.

Prior inspection was conducted on September 22, 2015 and the most recent performance test was of one Engine Test Cell Dynamometer conducted on September 27-28, 2011. HATCI is a Title V Major Source due to having CO emissions greater than 100 tons per year. HATCI submitted 2016 MAERS timely and their ROP Certification/Deviation reports were submitted timely and indicated compliance.

Upon my arrival to the site I did not observe any visible emissions or detect any odors. I provided my identification at the security/reception desk. I met with Shawn Mirza, Senior Environmental, Health & Safety Engineer. Shawn is fairly new to HATCI. He and I held a pre-inspection conference and he accompanied me during the inspection.

During the pre- inspection conference I went over the general aspects of the inspection and informed Shawn that I needed to observe the permitted equipment and some of the exempt equipment. I asked him about one area related to FG-DYNOS that is somewhat unclear to me having to do with the separate fuel meters installed in January 2015. Shawn explained these briefly and said we could observe this during the inspection.

I told Shawn that I would need to obtain copies of all required recordkeeping. He explained HATCI's recordkeeping system and he had a spreadsheet summary prepared with much of the required records. HATCI's ROP contains limits based on 12 month rolling periods as determined at the end of each month. I requested records for the previous 12 month period ending May 2017 (most recent complete month).

Shawn provided the following general facility information: HATCI currently employs 220 people. They operate normally 8 AM to 5 PM, however 2nd and 3rd shifts do operate for testing. Days of operation are Monday through Friday and less often now on weekends. Dynamometer engine testing however can of course run any schedule. Shawn said the test profiles primarily run are part-load, developmental, durability and Wide Open Throttle (WOT).

COMPLIANCE INSPECTION

During the inspection I met the following HATCI staff during portions of the physical inspection: Brian Kelly, Chassis Dynos, Lead technician; Don Gardner, Chief Technician, Powertrain; and Larry Quint, Senior Facility technician-HVAC and Boilers maintenance.

During the facility walk through inspection I observed all or portions of the following: **FG DYNOS** which includes four engine dynamometer test cells EU-Dyno1, EU-Dyno2, EU-Dyno3, EU-Dyno4; **FG-CHASSIS** which includes four Chassis dynamometers EU-VEC1, EU-VEC2, EU-VEC3, EU-MDYNE1; and **FG-UST** underground fuel storage tanks identified as EU-UST#2-3-4, EU-UST#5-6, and EU-UST#7. **FG-GASDISPGACT**

gasoline dispensing facilities (GDFs) located at an area source of HAPs subject to federal MACT Subpart (6) C: EU-UST#1, EU-GASAST1, and the above USTs. **FG-NSPS_SI-ICE** covers EU-EMERGEN a NSPS Subpart JJJJ emergency generator. **FG-MACT-ZZZZ-EMERGENCY** covers EU-FIREPUMP a MACT Subpart ZZZZ emergency generator.

HATCI has installed and is operating other exempt equipment including **FG-COLDCLEANERS**. I observed during today's inspection, a small maintenance spray booth with aerosol spray paint and a Safety Kleen type parts cold cleaner, both were not operating.

HATCI ROP contains a **FG-FACILITY** (facility wide) applicable requirements include emission limits and emission factors (controlled and uncontrolled), for NOx, CO, 1, 3-Butadiene, and Benzene. Most known fuels are allowed to be burned including, unleaded gasoline, ethanol blends, diesel, natural gas and hydrogen. Fuels limitation is 230,000 gallons of fuel (total combined usage of all allowed fuels) per 12 month rolling time period as determined at the end of each calendar month. Of these 75,000 gallons uncontrolled fuel is allowed per 12 month period. Wide Open Throttle (WOT) testing is considered uncontrolled. Gasoline remains HATCI's primary engine fuel.

FG-CHASSIS: 4 enclosed vehicle test stations: These emission units are identified as: EU-VEC1, EU-VEC2, EU-VEC3, and EU-MDYNE1. Note: An additional Chassis EU-VEC4 was later installed under permit exemption Rule 285(g) exemption and is not part of this FG. This is the flexible group containing permitted emission units where whole vehicles equipped with Catalytic Converters are tested.

During the inspection Shawn and I walked first to the Chassis testing area and walked through to observe the test cells. Only Chassis 3 was operating. I observed a competitor vehicle was in the Cell. Shawn introduced me to Brian Kelly, Chassis Dynos, Lead technician in this area. Brian explained that Cell 4 HOT/COLD was down for maintenance.

The EU-MDYNE1 Chassis dyno is located in a separate building behind the main building. HATCI refers to it as the "Mapping Dyno" and I observed during the prior inspection that it was not operating had not been used in a long time. Shawn confirmed the status is the same.

FG-CHASSIS special conditions require all vehicles be equipped and maintained with catalytic converter. Also requires a device to monitor and record natural gas usage rate used to fuel vehicles. Required record keeping includes days of operation, and the fuel used for vehicle testing. Shawn explained in our pre-inspection conference that the Chassis (department) controls the fuel usage/manifold and records it and sends it to him.

Shawn and I walked into the area behind the Chassis rooms where the soak rooms and/or other types of testing (non-fuel burning) are located. Soak Booths/Rooms: two separate booths with an exhaust stack. Basically cars are parked in these booths and shut off. They measure emissions from them without running that is to say emissions are from evaporation or off-gassing. Between these booths and the three chassis rooms there is an open room/area which is climate controlled and they do additional measurement of parked vehicles here. This area has no applicable requirements.

FG-DYNOS: Engine Test Cells (EU-Dyno1, 2, 3, 4):
Shawn introduced me to Don Gardner, Chief Technician Powertrain. He informed us that the AVL Technician was actually there today doing the annual calibration of the fuel cabinets. He said he will check each cell but it takes about 1 day to do each one. The meters are also AVL but they have different software. Don said it is called iTest, and AVL cabinet is Puma.

Cells 1 and 2 have two dynamometers in each cell. Only one can operate at a time but it allows them to start the install/prep of another engine while testing. Cell 3 and 4 each has one dynamometer. In 2015 I had noted that Cell 3 is used for thermal shock and WOT. Cell 4 is used for Durability (also considered WOT). Don said they are currently running 3 shifts, 5 days/week in this department. Cells 1 & 2 are Developmental, Cells 3 & 4 are Durability. Operational status today of the 4 Engine dynamometer Test Cells:

Cell 1 – Friction study

Cell 2 – not operating

Cell 3 – was down/out for 6 months.

Cell 4 – not operating

During the pre-inspection conference I requested information regarding the Fuel metering in each cell, specifically HATCI is required to track "uncontrolled vs controlled" fuel usage/testing. The AVL cabinets noted above do this and there is also an additional metering system located near the cabinets to assist with fuel monitoring per the ROP requirements. I informed Shawn that I would like to see this today.

Don explained both AVL cabinet and the meter are used and are accurate. AVL's is however much more accurate to much smaller measurements like ounces, etc...of fuel. Each Cell has a shift log and every shift they read the meter and log the usage. They zero the meters weekly. As a precaution the operators also take a screen shot of the ending values at the end of each shift.

Don explained that it is Durability testing that includes the "uncontrolled or WOT" testing, therefore uncontrolled testing is only currently done in Cells 3/4.

I inquired whether testing was done without catalyst at all or with blank catalysts. Shawn and Don clarified that **all** testing is done with production catalysts, even WOT. It is the type of testing that results in the catalyst not functioning properly to control emissions and therefore WOT is considered uncontrolled.

Manifold catalysts are referred to as "mani-cats". It can still be removed and replaced per notes from my last inspection. I inquired about mani-cats versus catalyst in exhaust pipe. Don said 4 cylinders have mani-cats. V-6 will have two, one on each side.

I observed a HATCI's shift log at one of the Cells. Per Don each Cell has one and each shift records data. I observed HATCI shift log recorded gallons for day, month, and total for the year. In Cell 1 I observed the total burned reading on the meter 7.85 gallons, per Don this would have been the amount used by AVL during their testing of the system.

FG-DYNOS conditions state the tested engines must be equipped and maintained with a catalytic converter when operating in controlled mode. Permit condition requires that each dynamometer be equipped with a fuel usage monitor capable of separately tracking fuel usage for engine testing in controlled and uncontrolled mode where WOT is considered uncontrolled. This was verified by observing the fuel monitor and recordkeeping was obtained. FG-DYNOS requires records of days of operation, type of test performed and length of test performed on a daily basis, quantity of fuel combusted in controlled and uncontrolled modes.

ROOF/STACKS AND UST/AST

During the inspection I requested to observe the Emergency generator (EU-EMERGEN) located on a portion of the roof (lower). Shawn contacted Larry Quint, Senior Facility technician-HVAC and Boilers maintenance to allow us access to emergency generators and the roof.

During the inspection Shawn, Larry, and I first went outside behind the facility to observe the areas where the underground and above ground fuel storage tanks are located. The predominant fuel used/stored is Gasoline. Some diesel is used by fleet vehicles. The area appeared to be well maintained. I did not observe anything unusual.

Prior to this inspection I was aware of two other fuel storage/use containers being reported and were part of recordkeeping but were not included in the ROP under FG-UST and FG-GASDISPGACT. These are: DieselAST2 – small above ground diesel tank, and Chassis Barrel Fuel – fuel in barrels used to directly fuel complete vehicles during chassis testing.

During today's inspection I was informed of a significant change since the last inspection. Earlier this year, about 2 months ago, an incident occurred involving the existing ASTs containing gasoline and diesel. Shawn explained a fleet /road test vehicle was accidentally filled with the incorrect fuel and driven. This resulted in HATCI installing new, larger tanks, 1000 gallons (were 300) with locks and clearer, prominent labeling to prevent a reoccurrence. The prior tank(s) were exempt from the requirement to obtain a permit to install and the replacement tanks appear to qualify under Rule 284 (g) (ii). HATCI is now operating two 1000 gallon fuel dispensing tanks; one gasoline and one diesel.

FG-UST#2-3-4, #5-6, #7 Underground Storage Tanks (UST)

HATCI's primary tanks are the USTs. Primarily gasoline fuel is used for fleet vehicles, Chassis testing, and all Engine Test Cell Dynos. I observed the ASTs discussed above are set up like gas-station pumps. Shawn said

they are tracking all fuel usage by fuel additions made.

FG-GASDISPGACT: EU-UST1, EU-UST#2-3-4, #5-6, #7, and EU-GASAST1

HATCI flexible group includes existing and new/reconstructed GDFs located at an area HAP source that have maximum monthly **gasoline** throughput of one of the following: 1.) Less than 10,000 gallons, 2.) At least 10,000 gallons and no more than 100,000 gallons. The applicable regulation is 40 CFR 60 Subpart CCCCCC (or (6) C). The regulation requires VOC minimization measures during handling/load/unload. Records of monthly throughput are required. HATCI records indicate compliance.

FG-NSPS_SI-ICE: EU-EMERGEN

HATCI currently has one Generac natural gas emergency generator located outdoors on a balcony type roof. This RICE is subject to NSPS Subpart JJJJ and was demonstrated to meet the manufacturer emission certification during the ROP Technical review. HATCI is required to follow recommended maintenance to maintain certification. Larry indicated it is set to automatically run one hour per week for testing. Its purpose is to keep HATCI Michigan & California computer servers operating. A non-resettable hour meter is required and it is allowed a maximum of 100 hours per calendar year for maintenance/readiness testing. HATCI records indicate compliance.

OVERALL RECORDKEEPING REVIEW:

FG-FACILITY Recordkeeping is required monthly including: the days of operation; the load the engine was tested for natural gas testing (condition limits loads to no greater than 90 percent); gallons fuel usage controlled/uncontrolled; natural gas use; monthly & 12 month rolling emission calculations (NOx, CO, 1,3-Butadiene, Benzene); average daily fuel use based on monthly fuel use divided by the number of days operated during the month; daily 1,3-Butadiene emission calculations based on monthly emissions divided by number of day operated during the month; and a record of maximum sulfur content in the diesel fuel for each delivery. HATCI is currently using Barr Engineering Consultants to assist with their record keeping.

HATCI CO emissions for the 12 month rolling period ending May 2017 = 86.62 tons CO. This is **Compliant** with limit of 224 tons per year.

HATCI NOx emissions for the 12 month rolling period ending May 2017 = 4.86 tons NOx. This is **Compliant** with limit of 15 tons per year.

HATCI Benzene emissions for the 12 month rolling period ending May 2017 = 0.09 tons Benzene. This is **Compliant** with limit of 0.263 tons per year.

HATCI 1,3-Butadiene emissions are limited to 5.232 pounds per day (lbs/day). HATCI records show a monthly total and this is divided by the total operating days in the month to obtain the daily average pounds for each month. In May 2017 operated 19 days and monthly emissions = 4.95E-03 1,3-Butadiene. Daily Average emissions in lbs = 2.61E-04. This is **Compliant** with 5.232 lbs/day 1,3-Butadiene emission limit.

HATCI 1,3-Butadiene emissions for the 12 month rolling period ending May 2017 = 0.04778 tons 1,3-Butadiene. This is **Compliant** with limit of 0.109 tons per year.

Fuel Use is reported as Sum of UST2-7 (gallons per month). As of month ending May 2017, 12 month rolling was: 51,026.11 gallons. This is **Compliant** with 230,000 gallon per year limit.

FG-DYNOS **controlled fuel use**: 117.88 gal/mo for May 2017. FG-DYNOS **uncontrolled fuel use**: 4628.00 gal/mo for May 2017.

FG-CHASSIS fuel usage: 336.00 gal/mo for May 2017.

HATCI records indicate the 12 month rolling **combined fuel use** for ALL DYNOS month ending May 2017 = **48,840 gallons**. This is compliant with permit limit of **230,000 gallons** per 12 month rolling time period as determined at the end of each calendar month.

Of the 230,000 gallons HATCI is not to burn more than a total of **75,000 gallons of uncontrolled** fuel per 12 month rolling time period. HATCI records indicate the 12 month rolling uncontrolled fuel use for month ending May 2017 = **43,092 gallons**. This is compliant with the limit.

CLOSING CONFERENCE

I gave Shawn some Environmental Assistance developed cold cleaner Orange Stickers that include the

applicable administrative rules from Part 6 and 7. I indicated that the facility appeared to be in compliance with the conditions of their ROP and applicable regulations, however it is necessary that I review all the required recordkeeping prior to making this determination. Shawn stated he will email to me the background recordkeeping for the summary spreadsheet soon. If either of us have any questions we agreed to contact each other. I informed Shawn that a formal inspection report will be prepared and an email with a copy will be sent to Shawn. Shawn said that he does not think he received the prior inspection report. AQD will include the prior report.

COMPLIANCE SUMMARY

Complete records for the period January 2016 through May 2017 were provided to me by hard copy during the inspection and in electronic Xcel format following the inspection. All records obtained are attached to this report to be placed in AQD files.

The AQD has determined that HATCI is in substantial compliance with the federal and state applicable requirements of their current ROP and with the applicable exemptions.

NAME _____ DATE 8/4/17 SUPERVISOR _____