

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

N595538935

FACILITY: LOTUS ENGINEERING INC		SRN / ID: N5955
LOCATION: 1254 N. MAIN ST, ANN ARBOR		DISTRICT: Jackson
CITY: ANN ARBOR		COUNTY: WASHTENAW
CONTACT: Douglas Pennington , Facility Manager		ACTIVITY DATE: 03/16/2017
STAFF: Diane Kavanaugh-Vetort	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Complete scheduled FCE/PCE compliance inspection.		
RESOLVED COMPLAINTS:		

CONTACT: Douglas Pennington (DP) - Facility Manager, doug.pennington@lotus-usa.com (734) 995-2544

On March 16, 2017 I conducted a complete scheduled inspection, unannounced, of the Lotus Engineering, Inc. facility in Ann Arbor. The purpose of the inspection was to determine the Facility's compliance status with the applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, and conditions of Lotus' Renewable Operating Permit (ROP) No. MI-ROP-N5955-2014.

Lotus operates an automotive research and testing facility principally involved in non-production research and development activities, testing internal combustion engines and drive trains. They operate dynamometer engine test cells/stands and chassis dynamometers. They have an underground fuel storage area for diesel and gasoline fuels.

Lotus was last inspected on July 22, 2015. Lotus 2016 MAERS was recently received and reported: 68 tons CO, 3 tons NOx, and 3 tons VOC (all other pollutants are <1 ton). They conducted both diesel and gasoline engine testing. No catalytic converter control factor is used; Lotus assumes all testing as uncontrolled - a conservative and easier method of record keeping and calculation. They use MAERS emission factors and calculated emissions.

The Company's ROP is organized with the following Flexible Groups (FG):

FG TESTSITES - covers the only New Source Review (NSR) permitted Diesel Engine Test Cell dynamometer 17E and 17S.

FG OTHER TESTSITES - all the other (23) engine dynamometers, gasoline or diesel, and Rule 201 exempted pursuant to Rule 285 (g) (at that time).

FGCOLDCLEANERS - exempt cold cleaner template table. Lotus currently operates two Crystal Clean Units using mineral spirits. MAERS indicates there were 3 and one has been removed per Doug.

FGGDFMACT - includes existing and new/reconstructed stationary gasoline dispensing facility (GDF) located at an area source of HAPs. Covers EUTANK A/B (15,000), EUTANK C/D/E (12,000, 10,000, 8,000). Sometimes diesel is kept in one (or more) section of the tanks.

At the time the Lotus ROP was issued their underground fuel storage tanks (UST) for dispensing gasoline into Engine Test Cells and/or fleet vehicles were considered as an applicable facility subject to the Area Source Gasoline Distribution Facilities MACT. (EPA issued a revision to the initial standard clarifying that it was always their intent that the dispensing to Engine Test Cells be applicable). Lotus is considered to be a minor source of HAPs and is therefore an Area Source. I discussed the standard with Lotus briefly during the inspection. AQD does not currently have delegation of authority from EPA for the Area Source MACTs.

FACILITY INSPECTION

Upon my arrival to the facility I did not observe any visible emissions or odors. I entered the reception area, provided my identification and stated the purpose of the inspection. I held a pre-inspection

conference with Doug Pennington (DP), Facility Manager. DP took over last year for Michael Dykstra, former contact through 2015. During the inspection I gave DP a copy of the recently updated Handbook of Rule 201 Permit Exemptions.

I informed DP that we would need to have a facility tour, especially of the Engine Test Sites. Lotus prefers to use the term "Test Sites" for their dynamometers. I also requested copies of Lotus compliance recordkeeping for the most recent 2 months January and February 2017. AQD recently received Lotus' MAERS and ROP Certification/Deviation reports for 2016 and will be reviewing these therefore the prior 10 months of records are not being requested at this time.

I referenced their ROP applicable requirements, primarily FGTESTSITES and FGOTHERTESTSITES and discussed these with Doug. Doug said business is down and they now have @ 15 employees. They operate 24 hours/day, 7 days/wk or 24/5 at times.

DP said Lotus continues to operate a Vehicle emissions lab for ATVs and motorcycles (chassis dynamometers); they are conducting some end of line emissions testing (chassis dynamometers). Current customers are Aisin - testing Chrysler engines (2) diesel and (1) gasoline. They have a quote out for a GM Chassis job. AM General is a Dept of Defense customer coming soon to Cell 17 for diesel testing.

DP said activity in Cell 17 today is setting up for the A & M engine transmission work. During the walk through of the facility I observed several people in this large cell. I also observed that Cell 18 was operating /testing a gas engine today.

DP confirmed there have been no other changes since the prior inspection. He said they do not have an emergency generator at the facility. During the inspection I did not observe any obvious changes or additions.

DP accompanied me during the walk through facility inspection. Overall there did not appear to be many workers in the plant or many Test Sites operating today. I observed FG TESTSITE (17E & 17S) was not operating though as stated above there were people working in the room and there was equipment in the room. This is the only Dynamometer with emission limits for NOx (39.3 tpy) and CO (22.17 tpy) and a diesel fuel usage limit (341,000 gallons) per 12 month rolling time periods. 17E & 17S was originally constructed for a very large boat engine testing contract and required a Rule 201 permit. That contract finished long ago.

Lotus does have USTs for gasoline and/or diesel as indicated above. We walked outside to observe the fuel receiving and storage area directly outside the north side of the building. One tank has three compartments and the other has two. The area was well maintained and I did not observe any visible emission or odors in this area. The pipes are clearly marked for fuel type.

During the inspection we also walked outside around the back of the main plant building and inside several areas. Lotus has several storage warehouse areas.

I viewed inside one or more Dynamometer Sites and observed that each room has a fuel meter. There is a Tank fuel monitor on the wall and a fuel totalizer in the floor. DP opened up one of the floor panels and showed this to me. There are two Engine test sites per room.

The building area that contains engine testing is shaped like a horseshoe. There are 24 test sites in this area. DP affirmed my inquiry that they can conduct performance, development, catalyst aging (previously did and not currently doing), and transmission testing. He said it depends on the customer and request. They can run 24/7 for many days. They can re-fuel as they continue to test. They can change what type of test occurs in any particular cell if necessary. I observed a large truck engine in one Test Site.

Per DP, they can test all types of engines, including electric, motorcycles, cars and trucks, military, lawn & garden, and boats. I observed both motorcycles and ATVs in Test Site 7 and 8 Chassis dynos. I observed two dynos referred to as "SAD" per Doug, stands for "service accumulation dynamometer".

Doug and I inspected two Crystal Clean small cold cleaners. The AQD Orange sticker was posted and lids were closed.

During the inspection I observed the flammable fuel storage room inside the plant. It contains drums of specialty fuels that are used by filling portable tanks (located in this room) and taken directly to the dynos.

RECORDKEEPING REVIEW

DP showed me on his computer how all recordkeeping is kept in spreadsheets. They have daily, weekly, monthly, quarterly and then annual record summaries used for annual MAERS. It is noted that Lotus has submitted all their reports timely and has not yet reported any deviations over the most recent 12 month period.

It appears that Lotus is maintaining complete records in an acceptable format. During the inspection I requested copies of their fuel usage records and the resulting emissions of CO, NOx, PM10, PM2.5, SOx, and VOC for the 2 months January and February 2017. DP printed out the requested records for Test Site 17 (FG TESTSITES), for all Cells, and Fuel Usage total. Record is attached to this Report - to file.

ROP limits for FGTESTSITES: NOx 39.3 tpy; CO 22.17 tpy; diesel only allowed fuel; 341,000 gallons per 12 month rolling time period.

17E & 17S: Report 1,576 gallons fuel usage in January; Zero in February.

12 month rolling fuel usage month ending February 2017 for 17E & 17S: 8,278 gallons diesel (COMPLIANT)

Report Emissions for 17E & 17S for 12 month rolling time period as of February 2017: 0.48 tons CO; 0.9396 tons NOx; 0.0057 tons SOx; 0.0567 tons VOC (COMPLIANT)

ROP contains no limits for the remaining FGOTHERTESTSITES

ALL OTHER CELLS: Report all fuel throughput for January 2017 = 6140 total gallons.

12 MONTH ROLLING ENDING FEBRUARY 2017 ALL OTHER CELLS (ALL FUEL): = 57,439 gallons

COMPLIANCE SUMMARY

Following the inspection I reviewed the recordkeeping obtained and the summary tables included as hard copy with Lotus MAERS submittal. There are some recordkeeping issues as far as monthly versus 12 month rolling averages. Doug submitted a revised spreadsheet on March 28th and I identified some typos and was unable to cross reference with Lotus MAERS report. I requested Doug audit their spreadsheet and submit some background documents if necessary. Additional email and telephone conversations regarding record keeping format continued until April 28, 2017. It appears the records are now in the correct format to determine compliance with the ROP.

It appears that Lotus Engineering is in substantial compliance with the applicable requirements and their ROP MI-ROP-N5955-2014 at this time. Lotus has submitted all their required reports timely during the prior 12 month period.

NAME Dean Kip Velez

DATE 4/28/17

SUPERVISOR 