

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

N250337591

<b>FACILITY:</b> Spartan Motors USA, Inc.		<b>SRN / ID:</b> N2503
<b>LOCATION:</b> 1541 Reynolds Rd, CHARLOTTE		<b>DISTRICT:</b> Lansing
<b>CITY:</b> CHARLOTTE		<b>COUNTY:</b> EATON
<b>CONTACT:</b> Chris Konen , EHS Specialist		<b>ACTIVITY DATE:</b> 11/10/2016
<b>STAFF:</b> Michelle Luplow	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> SM OPT OUT
<b>SUBJECT:</b> Scheduled, unannounced inspection to determine compliance with Opt-out PTI112-09.		
<b>RESOLVED COMPLAINTS:</b>		

Inspected by: Michelle Luplow

Personnel Present: Chris Konen, EHS Specialist (christopher.konen@spartanmotors.com)

Paula WilliamsonDeBoe, EHS Manager (paula.williamsondeboe@spartanmotors.com)

**Purpose:** Conduct an unannounced, scheduled, partial compliance evaluation (PCE) inspection by determining compliance with Spartan Motors' Opt-Out Permit No. 112-09, including verification that Spartan Motors stayed within the permit's emission limits to remain an opt-out source and not enter into Title V status. This inspection was done as part of a full compliance evaluation (FCE). Inspection was also conducted because Spartan Motors expanded their operations by building an additional plant.

**Facility Background/Regulatory Overview:** Spartan Motors manufactures heavy truck chassis for fire department trucks, specialty vehicles (motor homes, government contract vehicles), and utility trucks. They also customize, finish, and install fire truck cabs on their respective chassis.

Spartan Motors (Spartan) is an opt-out facility for HAPs and VOCs. The opt-out permit consists of FGPAINBOTHES and FGFACILITY. FGPAINBOTHES encompasses 8 paint booths, an undercoat booth, and four paint repair booths all currently located in Plant 8. VOCs from these pieces of equipment are limited to 5.0 tpy combined. FGFACILITY limits VOCs to 90.0 tpy; individual HAPs to less than 9.0 tpy; and aggregate HAPs to less than 22.5 tpy on a 12-month rolling time period source-wide.

There are currently 11 plants located throughout Spartan's campus on Reynolds and Mikesell Roads (see attached map for plant locations and addresses). All are considered part of the same stationary source. Although the permit application for PTI 112-09 states 1000 Reynolds Road is the main office address, I was informed that 1541 Reynold Road (Plant 2) is the main office; therefore, MACES will be updated to reflect this change.

Plant 12 is a new plant that was constructed within the past year. It is located where one of Spartan's old buildings was demolished. Equipment has not been installed in this plant yet, but production in this building is planned to start March 27, 2017.

**Inspection:** At approximately 8:00 a.m. on November 10, 2016, I met with EHS Specialist, Chris Konen, in Plant 1, located at 1000 Reynolds Road. From there he directed me to Plant 2, where sign-in with the receptionist is required, before meeting him at Plant 4 where his office, as well as EHS manager, Paula WilliamsDeBoe's office is located. I provided C. Konen and P. WilliamsDeBoe each with a July 2014 Permit to Install Exemptions handbook, and also provided a Boiler MACT outreach brochure. I explained to them that the PTI Exemptions handbook should be used when determining whether or not equipment planned to be installed in Plant 12 needs an air permit. Future inspectors should sign in at Plant 2 and ask for the appropriate EHS Specialist prior to inspection.

Equipment installed at Spartan was inspected per plant and is identified per plant in this report. Equipment inspected includes both those exempt and permitted. There is no Plant 10.

Plant 1

Plant 1 is a Training Center for RV Owners and consists of the training center, offices (customer service) and a service garage for general repairs on the RV's. I did not visit this plant during the inspection.

Equipment	Description/Inspection Notes	Permit Exemption	Compliance Status

One parts washer	P. WilliamsDeBoe explained that this unit is similar in nature to a dishwasher; it is a closed system that is used to degrease parts.  Renegade Jet Wash Detergent is what is used in this unit (see attached SDS), which contains no VOCs.	Rule 281(e)	Compliance
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### Plant 2

Plant 2 is the administrative building for Spartan's campus. There is no manufacturing or production in this building. Visitors are required to sign in at this location.

Equipment	Description/Inspection Notes	Permit Exemption	Compliance Status
3 Lochinvar natural gas-fired boilers	Model # PBN 1302 for each. Serial #'s: C08H00207407, L07H00204266, D0800207594 Rated at 1.3 MMBtu/hr Used for space heating  Exempt from Boiler MACT Subpart JJJJJJ (gas-fired boiler)	Rule 282(b)(i)	Compliance

### Plant 3

Motorhome chassis and fire truck chassis are constructed in this building, as well as the "marriage" of the fire truck chassis to the fire truck cab, which includes adding the truck wheels to the chassis. The fire truck engines are also assembled and tested in this plant (bolting, wiring, hoses, adding engine fluids, radiator, etc).

There is an engine test stand dynamometer which tests the engine with its appropriate engine fluids. The engine, at this point in production, is a standalone unit installed on the chassis. Exhaust from the engines during testing is funneled to the outside ambient air via ventilation attached to the exhaust pipe. The engines on the test stand are exempt per Rule 285(g), as they are less than 10 MMBtu/hr; however, a Rule 278(a) demonstration must be conducted to ensure these units can be exempt. I will request that this demonstration also include calculating criteria pollutant and HAP pollutant potential emissions. Once this demonstration is received I will write a follow-up activity report on the findings and next steps, if necessary. Due date for this demonstration is December 23, 2016.

Equipment	Description/Inspection Notes	Permit Exemption	Compliance Status
Engine test stand dynamometer	Exhaust pipe is hooked up to a ventilation system which vents exhaust to the outside air. It is an engine under 10 MM Btu/hr. These operations were occurring during the inspection.	Rule 285(g)	TBD
~ 500 gallon Diesel Storage	Diesel storage container is present in the engine testing bay areas.	Rule 284(d)	Compliance

### Plant 4

Approximately ¼ of this plant is used for warehouse space. The remaining part of the building is utilized for assembly of Fed Ex trucks and "Fire Truck Body Build 180," stock trucks built within a 180-day turnover.

The undercoat spray booth was installed under exemption Rule 287(c). Spartan has not kept monthly usage records; however, C. Konen said on average they use 220 gallons (including water) of coating per month in this unit, which equates to 187 gallons of coating w/o water (15 vol% water) per month. The 220 gallons was determined by taking the quantity of gallons purchased between May 2016 and November 2016 and dividing by 6 months. While this practice is not acceptable, it is likely that Spartan still meets the exemption limit of 200 gallons. C. Konen said that currently the booth usage has halted because the REACH contract for this type of coating of vehicles has ended. He said that before the next contract starts (several months from now) they will incorporate a usage log for this undercoat booth. Failure to do so could result in a violation during future inspections.

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
Undercoat spray booth	This unit uses a Z-Guard 9902S coating which does not contain VOCs (SDS attached stating such). This is the only booth onsite that uses water-based coatings. All fabric filters were properly installed.	Rule 287(c)	Compliance
2 Welding Stations	Each welding station has canister ventilation systems to collect welding fumes	Rule 285(i)	Compliance
Drilling	Emissions are only vented to the general in-plant environment	Rule 285(l)(vi)	Compliance

### Plant 5

This plant is specifically allocated for the Isuzu N-gas production which involves assembly of the truck via torque tools and air tools to marry the chassis to the cab of the truck. I did not visit this plant during the inspection.

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
NA	NA	NA	NA

### Plant 6

C. Konen said that this plant is currently not being used for production and the space is currently being used to house inventory. He said it may be used for truck production in the future, but all the equipment that used to be housed in this plant was transferred to Plant 12.

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
NA	NA	NA	NA

### Plant 7

This plant is composed of two plants: 7 North and 7 South. Plant 7 North contains various exempt equipment to fabricate metal. Plant 7 South is used as a warehouse but also contains a tire assembly area (assembling the wheel to the tire), an area for assembly of engines with accessories, and a welding station. The tires built in this plant are then sent to Plant.

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
1 welding station	Plant 7 South.	Rule 285(i)	Compliance
1 welding station, plasma cutting	Plant 7 North.	Rule 285(i)	Compliance
Mills, lathes, drill presses, metal shears, bandsaws	Plant 7 North. Emissions are only vented to the general in-plant environment	Rule 285(l)(vi)	Compliance

**Plant 8**

Plant 8 is devoted entirely to fire truck cab production. Pre-assembled raw metal cab frames are ordered in, prepped for painting, painted, and assembled (wiring, interior cab components, tread plates, lights, etc) in this plant. The finished cabs get transported to Plant 3 for marriage to the fire truck chassis. All emissions from this plant's permitted equipment are regulated under FGPAINBOTHHS.

Paint booths 1-8 are also designed as ovens for the curing of coated parts. All paint booths were checked to ensure proper installation of the exhaust fabric filters, except for those in use for oven-drying purposes. I did not observe any visible emissions from any of the stacks of Plant 8 during the inspection.

All calculations for FGPAINBOTHHS and FGFACILITY are calculated via an Emissions Tracking Excel spreadsheet that August Mack, a consulting firm, has constructed for Spartan Motors. Spartan Motors provides them with monthly coating usage data and August Mack converts that into daily, monthly and 12-month rolling VOC and HAP emissions, based on coating usage in gallons, coating density, VOC content and HAP content.

Each booth is limited to 5.0 tpy VOC. C. Konen provided me with the Emissions Tracking Excel spreadsheet with calculations of VOCs on a 12-month rolling basis for the time period of October 2015 – September 2016. As seen in the table below, each paint booth is in compliance with the 5.0 tpy VOC 12-month rolling limit for this time period.

See Plant 8 table for remaining compliance discussions.

Paint Booth #	VOC Emissions (tons)	Compliance Status
1	2.3	Compliance
2	2.3	Compliance
3	1.2	Compliance
4	1.3	Compliance
5	0.5	Compliance
6	1.4	Compliance
7	1.4	Compliance
8	0.01	Compliance
9	0.4	Compliance
10	0.04	Compliance
11	0.04	Compliance
12	0.1	Compliance
13	0.1	Compliance

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
2 Gun Washers	There is one gun washer that is vented to the ambient air and is located in 1 of the paint kitchens. This gun washer unit is attached to one of the solvent recyclers, EURECYCLERSK.  The other gun washer is located in a separate paint mixing area.	PTI 112-09	Compliance
EU00041	Paint Booth 1. All exhaust filters were properly installed	PTI 112-09	Compliance
EU00042	Paint Booth 2. All exhaust filters were properly installed	PTI 112-09	Compliance
EU00043	Paint Booth 3. Could not verify that exhaust filters were properly installed as booth was in use for oven-drying.	PTI 112-09	Compliance

EU00044	Paint Booth 4. All exhaust filters were properly installed	PTI 112-09	Compliance
EU00045	Paint Booth 5. Could not verify that exhaust filters were properly installed as booth was in use for oven-drying.	PTI 112-09	Compliance
EU00046	Paint Booth 6. Could not verify that exhaust filters were properly installed as booth was in use for oven-drying.	PTI 112-09	Compliance
EU00047	Paint Booth 7. Booth 7 is used paint liner coating. The filters, while they all appeared to be installed properly, were baffling due to differences in air pressure within the booth; this may be an indication that the system was out of balance and may intrude upon proper operation of the air filters. I made C. Konen and P. WilliamsonDeBoe aware of this and they said they will have Steve Fazio look into it.	PTI 112-09	Compliance
EU00048	Paint Booth 8. Could not verify that exhaust filters were properly installed as booth was in use for oven-drying.	PTI 112-09	Compliance
EU00049	Undercoat Bay Booth 9. There is one filter that covers the exhaust system on this booth. The filter was not entirely installed in a satisfactory manner as there were sides of the filter not securely fastened down, allowing for paths of least resistance for paint particulate to travel through. I made C. Konen and P. WilliamsonDeBoe aware of this and they said they would ensure that the filter is more securely installed. I informed them that the booth is not to be used until the fabric filter is installed properly. Operating without proper installation, I mentioned, could result in a violation. As a more permanent solution, Steve Fazio mentioned that a magnetic filter frame could be installed to maintain a tight seal. Magnetic seal installed as of 11/16/16 per C. Konen.	PTI 112-09	Compliance
EU00050 & EU00051	Paint Repair Booth 10 & 11 (Spartan's designation is repair booths 1 & 2). These booths are combined to create 1 booth, but the booth can be broken down into 2 booths by a vinyl curtain. All exhaust filters appeared to be installed properly.	PTI 112-09	Compliance
EU00052	Paint Repair Booth 12 (Spartan designation repair booth 3). All exhaust filters were properly installed.	PTI 112-09	Compliance
EU00053	Paint Repair Booth 13 (Spartan designation repair booth 4). All exhaust filters were properly installed.	PTI 112-09	Compliance
EURECYCLERB	6 gallon solvent recycler vented to paint mix room exhaust. The recycler unit is connected to one of the gun cleaners. Solvent recovery is tracked on a daily basis.	PTI 112-09	Compliance
EURECYCLERSK	6 gallon, ventless, solvent recycler. Solvent recovery is tracked on a daily basis.	PTI 112-09	Compliance
EUROVAC aluminum shavings vacuum	This unit is used to clean up residual Al shavings from the plant floors when necessary. The plant's team leader said this is rarely used. The particulate from this system is captured outside in a EUROVAC cyclone dust collector, which collects its particulate in a 55 gallon drum beneath the unit. This is a closed system.	Rule 281(a)	Compliance
		Rule 285(l)(vi)	Compliance

2 metal cutting stations	These are used to customize the metal cab frames by cutting out doors and panels using templates. Emissions are vented to the mechanical pre-cleaner along the walls of the station which collect the particulate in "drawers" that the team leader for this plant said is then shoveled from the drawers into garbage bags that are placed into gondolas. He verified this is done inside.		
2 welding stations		Rule 285(i)	Compliance
2 grinding stations (housed in the same booths as the welding stations)	Emissions are vented to the mechanical pre-cleaner along the walls of the station which collect the particulate in "drawers" that the team leader for this plant said is then shoveled from the drawers into garbage bags that are placed into gondolas. He verified this is done inside.	Rule 285(l)(vi)	Compliance
Aqueous parts washer (open tub)	Renegade Jet Wash Detergent is what is used in this unit (see attached SDS), which contains no VOCs.	Rule 281(e)	Compliance
2 sanding/buffing stations	For all sanding a buffing jobs not conducted with local particulate control (via the hand-held buffers/sanders), ventilation is provided in these 2 stations where aluminum particulate will hit a mechanical pre-cleaner along the walls of the station before being captured outside in a Donaldson Torit dust collector which is connected to a 55 gallon drum. The captured particulate is then sent out as non-hazardous waste.	Rule 285(l)(vi)	Compliance
3 Buff & Sand booths	These 3 booths are separate from the other sanding/buffing stations. Each stands alone in its own box, similar in appearance to the 8 permitted paint booths. Each had ceiling and side filters which all appeared to be installed properly. None of these booths were in use during the inspection. Each booth is labeled with a "1," a "2," or a "3." They are vented to the in-plant environment; I did not see any ventilation ducts being run from these 3 booths.	Rule 285(l)(vi)	Compliance
Raytherm natural gas-fired boiler	Model WT2-940B; Serial No 0701261024 327,000 Btu/hr Used for warming the water in their truck wash station Exempt from Boiler MACT Subpart JJJJJ (gas-fired boiler)	Rule 282(b)(i)	Compliance

### Plant 8 Stack Heights

C. Konen said they physically measured the stack heights to come up with the following recorded heights. All stack heights exceed the minimum stack height requirement of 36 feet from ground level and are therefore in compliance.

STACK ID	Permitted Stack Height minimum (ft)	Recorded Height above ground level (ft)
SV00056 (paint booth 1)	36	38.5
SV00057 (paint booth 2)	36	38.5
SV00028 (paint booth 3)	36	38.5
SV00029 (paint booth 4)	36	38.5
SV00030 (paint booth 5)	36	38.5
SV00031 (paint booth 6)	36	38.5

SV00032 (paint booth 7)	36	38.5
SV00033 (paint booth 8)	36	38.5
SV00034 (undercoat paint booth 9)	36	38.5
SV00035 (paint repair booth 10)	36	44
SV00036 (paint repair booth 11)	36	44
SV00037 (paint repair booth 12)	36	44
SV00038 (paint repair booth 13)	36	44

### Plant 9

C. Konen said that Plant 9 is currently not being used, does not have any equipment in it, and there are no plans to use Plant 9 in the foreseeable future.

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
NA	NA	NA	NA

### Plant 11

Research and development is conducted in this plant: prototyping, modifications, and maintenance on the vehicles they are producing and others. Research and development also includes dynamometer rolling chassis tests. The testing of the vehicle's engine at these test stands is exempt per Rule 285(g) because the engine is less than 10 MMBtu/hr max heat input; however, a Rule 278(a) demonstration will have to be made to determine if this process is truly exempt. In addition to requesting the Rule 278(a) demonstration I will also request that they determine potential emissions from their rolling chassis test stand units. The request will ask them if the dynamometer tests on the vehicles are validation checks (in which case, the units would be considered mobile sources and would not be regulated by the MDEQ AQD), if not, what is the testing used for, and how many vehicles out of their production fleet are tested on these units. I will write a follow-up activity report once I receive this demonstration and include any necessary steps to take moving forward.

Equipment	Description/Inspection Notes	Permit Exemption/ PTI Number	Compliance Status
1 plasma cutting and 1 welding station	Exhaust is vented to local ventilation units.	Rule 285(i)	Compliance
Chassis Rolling Dynamometer rolling test stand	Bay area where roller dynamometer testing is conducted. These operations were not occurring during the inspection.	Rule 285(g)	TBD

### Plant 12

C. Konen said that Plant 12 will have dynamometer testing, crane systems, hoists, and DC electric tools, and will be used to assemble Isuzu trucks. Although the dynamometers in Plant 12 have not run, I will request that Spartan conduct a potential to emit analysis from the dynamometer units they plan on using here, in addition to information on what the testing is used for, how often it will be used (including the number of vehicles projected to be tested here on a yearly basis). The information they provide in their Rule 278(a) demonstrations (for plants 3 and 11) and potential to emit demonstrations will determine whether criteria air pollutant major source thresholds have been exceeded. A follow-up report will be written once Spartan's demonstrations have been received. These demonstrations are required to be provided by 12/16/2016.

### **Emergency Generator**

Spartan Motors has 1 natural gas-fired Onan 100 kW generator that is used for emergency lighting and IT room power. It is rated at 1,392,560 Btu/hr, 6.8 L, 176 hp and installed 10/22/2008. C. Konen said that the engine is tested every month for 15 minutes [for maintenance/readiness testing]. He said the unit has a non-resettable hours meter and is currently at 172.7 hours. This engine is subject to the area source RICE MACT Subpart ZZZZ, but there are currently no requirements under this regulation. The regulation punts the requirement to the NSPS Subpart JJJJ for spark ignition engines. NSPS Subpart JJJJ applies to emergency stationary SI ICE with an order date after June 12, 2006 (which applies to Spartan) and manufactured after January 1, 2009 (for engines greater than 19 kW), which does not apply to Spartan. Requirement 40 CFR 60.4236 is applicable to all engines ordered after June 12, 2006: Emergency engines greater than 19 kW cannot be installed after January 1, 2011 without being in compliance with the requirements in 40 CFR 60.4233. This does not apply to Spartan as the engine was installed in 2008.

Based on my review of the NSPS, there are no requirements under the RICE MACT Subpart ZZZZ, nor the NSPS Subpart JJJJ for

**FGFACILITY**

Individual and aggregate HAPS are calculated and recorded in the Emissions Tracking Excel spreadsheet, which August Mack populates. I was provided with SDS's of 6 of Spartan's most-used coatings and used these to spot check the emissions data. Upon review of the data in the spreadsheet I found that the HAPs were not calculated correctly: the wt% of each HAP was multiplied by the gallons of coating used (rather than multiply by the density, then by the wt%), which underestimated the HAPs emissions. Additionally, the consultant did not use the more conservative wt% for each HAP: if a range for wt% of the HAP was provided in the SDS, the consultant chose to use a middle-of-the-range wt% versus the maximum wt%. I also found that one of the most-used coatings was not accounted for at all. I informed C. Konen of these discrepancies, and the consultant revised the spreadsheets to correct the data appropriately. I spot-checked the data in the corrected Emissions Tracking spreadsheet to verify that the mistakes had been corrected. Attached are the examples of the corrected and uncorrected spreadsheets.

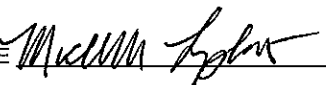
Individual and aggregate HAPs, based on review of the revised spreadsheet, appear to be calculated correctly; however, HAPs from the gun cleaners and solvent recovery systems were not included in the individual and aggregate HAP 12-month rolling emissions calculations. In the spreadsheet the consultants state that HAP emissions from the gun cleaners are not kept monthly, but instead are kept on a calendar year basis and added to the HAP emissions from December's emissions for that year. I have informed Spartan that this practice is not acceptable for calculating facility-wide HAP emissions and to update the spreadsheet for these to be included in the FGFACILITY monthly HAP emissions. The solvent recovery HAP emissions (toluene and methanol) are captured on a monthly basis, however these were not added to the calculations for facility-wide HAP emissions. I will inform Spartan that this must also be done and be clear that FGFACILITY calculations must include emissions from all emissions sources, facility-wide.

Facility-wide, 12-month rolling VOC emissions only included VOC emissions from the booths in FGPAINTBOOTHs. As with the facility-wide HAPs emissions, gun cleaner VOC's were not kept on a monthly basis, and while the solvent recovery VOCs were calculated, they were not added to facility-wide VOC emissions. I will inform Spartan that these two items, as well as any additional units facility-wide that emit VOCs or HAPs, should include these emissions in their facility-wide emissions calculations.

That said, the emissions missing from these two sources were approximately less than 1 ton each for HAPs and VOCs and therefore Spartan is still in compliance with their FGFACILITY emission limits for VOC and HAPs and shown in the table below October 2015 – September 2016 (gun cleaning emissions were captured in this 12-month rolling period, as it covers December 2015). VOC limit: 90.0 tpy; HAP aggregate limit: <22.5 tpy; HAP individual limit: 9.0 tpy.

12-month Rolling Totals (tons)		
VOC (including gun cleaning & solvent recovery)	Individual HAP (including gun cleaning & solvent recovery)	Aggregate HAP (including gun cleaning & solvent recovery)
14.1	All <<1	0.43

**Compliance statement:** Spartan Motors is in compliance at this time. All recordkeeping discrepancies found during this inspection have been made known to Spartan Motors. Additionally, I have made Spartan Motors aware that it is their responsibility to ensure that all recordkeeping is kept accurately and appropriately. Failure to correct these discrepancies may result in a violation of recordkeeping requirements at future inspections.

NAME  DATE 12/20/16 SUPERVISOR 