

**ENGINEERING ANALYSIS
ALABAMA DYNAMICS, INC.
SHELBY COUNTY
FACILITY NO. 411-0073**

On October 2, 2020, Alabama Dynamics submitted an Air Permit application after being acquired by McWane, Inc. This facility is an existing facility operating without an Air Permit and is located at 601 Foundry Road in the city of Calera. Alabama Dynamics has requested to be permitted as a synthetic minor source.

OPERATIONS:

Alabama Dynamics is considered a mid to large size fabrication, machining and paint shop facility. This facility specializes in building custom equipment and parts for a myriad of industries (i.e. waterworks, steel, oil and etc.) This facility operates approximately 2,496 hours per year and their NAICS code is 332999.

EMISSIONS:

Their main pollutants are volatile organic compounds (VOC), hazardous air pollutants, (HAP) and particulate matters (PM). The facility's main emissions are from their climate controlled surface coater and abrasive blast booths, baghouse, and their outdoors sand blaster. Based on their normal annual operating schedule of 2,496 hours, their operational potential ratio is $(8,760 / 2,496) = 3.51$.

VOC Emissions:

Their actual emissions are calculated from various coatings:

$(10 \text{ gal/hr}) \times (12.53 \text{ lbs/gal}) \times (31.92\% \text{ VOC}) \times (2,496 \text{ hr/yr}) = 99,829.42 \text{ lbs/yr}$ **(49.91 tpy)**

Their potential emissions are based on the ratio factor of 3.51: $(49.91 \text{ tpy}) \times (3.51) =$ **(175.2 tpy)**

HAP Emissions:

Toluene's actual annual emissions are: $(62.66 \text{ lbs/hr}) \times (2,496 \text{ hr/yr}) = 156,399.36 \text{ lbs/yr}$
(78.2 tpy)

Their potential emissions for Toluene are based on the ratio factor of 3.51: $(78.2 \text{ tpy}) \times (3.51) =$ **(275.5 tpy)**

PM Emissions:

Alabama Dynamics is in a Class 1 County. This facility is subject to the particulate emission rate limits for Process Industries – General sources and shall not discharge into the atmosphere particulate matter in any one hour in excess of $E = 3.59P^{0.62}$, when $P \leq 30 \text{ tons/hr}$, and $E = 17.31 P^{0.16}$ when $P \geq 30 \text{ tons/hr}$ in accordance with ADEM Rules 335-3-4.04.

$P = 31,400 \text{ lbs/hr} = 15.7 \text{ tons/hr}$,

$E = 3.59P^{0.62} = 3.59(15.7)^{0.62} = 19.8 \text{ lbs/hr}$

$[19.8 \text{ lbs/hr} \times 2,496 \text{ hr/yr}] / 2,000 \text{ lbs/ton} = \mathbf{24.7 \text{ tpy Actual}}$

$[19.8 \text{ lbs/hr} \times 8,760 \text{ hr/yr}] / 2,000 \text{ lbs/ton} = \mathbf{86.72 \text{ tpy Potential Allowable}}$

Their baghouse's manufacturer guaranteed an emission rate of 7.58 lbs/hr with a removal efficiency of 99.0%, which is used in estimating the actual and potential PM emissions. Alabama Dynamics actual emissions are estimated at 189.2 lbs/yr, while their potential emissions are estimated at 664.1 lbs per year.

REQUIRMENTS:

This facility is located in an attainment area for ozone. There are no NESHAPs, NSPS or State regulations specifically applicable to their operations. Alabama Dynamics has requested a SMOP to avoid a Major Source Operating Permit (MSOP), thus avoiding a PSD permit.

RECOMMENATION:

Based on Alabama Dynamics' application, I recommend issuing a SMOP, pending the receipt of their application fee and a 15-day public notice period.

Clarence Fairer III
Chemical Branch
Air Division

November 12, 2020

Date

CF/cf