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NARRATIVE

TO: Jeng-Hon Su

FROM: Eddie Gomez

DATE: July 8, 2022

Facility Name:	TrinityRail Maintenance Facility – Plant 493
AIRS No.:	015-00056
Location:	Cartersville, GA (Bartow County)
Application #:	28454
Date of Application:	June 2, 2022

Background Information

TrinityRail Maintenance Facility – Plant 493 (hereinafter "facility") is a synthetic minor facility located at 190 Old Grassdale Road, Cartersville, Georgia 30120 (Bartow County). Bartow county is a non-attainment county for Ozone and in attainment for all other criteria air pollutants. The facility manufactures and cleans rail cars.

Synthetic Minor Permit No. 4789-015-0056-S-06-0 was issued August 10, 2020 for an operating status change from a Title V source to a Synthetic Minor source with a volatile organic compound (VOC) limit of 100 tons per year (tpy). This permit also allowed for the construction and operation of a new rail car cleaning operation and the removal of paint booths and stress relief ovens in Building 1 (Emission Unit ID No.'s 120, 140, 420, 430). Moreover, the permit fulfilled a facility request to change the SIC Code from 3743 to 4789.

Due to high cleaning standards for certain materials, the facility extensively cleans some of the tanks within rail cars when they arrive onsite. Steam is injected into empty cars to remove any residual volatiles that may remain. Pressure washing and a cold-water rinse are used in conjunction with this steam assisted cleaning. Volatiles emitted as a result of the cleaning process are be routed to a flare for control.

Currently the facility utilizes a rental flare to control emissions from the rail car cleaning operation which is rated at 40 million British Thermal Units per hour (MMBtu/hr.). This flare fires natural gas and has a design removal efficiency for VOC and combined hazardous air pollutants (HAP) of at least 98%.

Purpose of Application

On June 2, 2022 the facility submitted Application No. 28454 for the replacement of the current rental flare with a permanent flare rated at 75 MMBtu/hr. and the update of the facility mailing address from 2525 N Stemmons Fwy, Dallas, Texas 75207 to 14221 N. Dallas Pkwy Suite 1100 Dallas, TX 75254.

Emissions Summary

Table 1 includes a comparison of pre-project facility wide potential to emit (PTE) emission values to post-project facility wide PTE emissions.

Table 1 – Facility-wide Pre and Post Project Emission Comparison:

Pollutant	Pre-Project PTE	Emission Increase	Post-Project PTE
Filterable PM	0.86	0.28	1.14
Total PM_{10}	2.95	1.14	4.08
Total $PM_{2.5}$	2.95	1.14	4.05
SO_2	0.22	0.09	0.31
VOC*	<100	0.00	<100
CO	30.8	12.6	43.3
NO_x	36.6	14.9	51.5
Lead	0.000183	0.0000747	0.000258
Total Combined HAP	1.95	0.28	2.23
Greenhouse Gasses (GHGs) (in Carbon Dioxide equivalent or CO_2 e)	44,200	18,000	62,200

***** VOC emissions are limited to below 100 tpy per Condition 2.1 of Permit No. 4789-015-0056-S-06-0. Thus, this is considered the maximum authorized PTE.

Regulatory Applicability

Federal Rules:

The new flare proposed by the facility is not subject to any New Source Performance Standards (NSPS) in 40 CFR 60 or any National Emission Standards of Hazardous Air Pollutants (NESHAP) in 40 CFR 63.

Potential emissions at the facility will remain below 25 tpy for combined HAP, and 10 tpy for individual HAP. Therefore, the facility will remain as an area source of HAP emissions. Therefore, the NESHAP applicability will not change due to the proposed modification.

Georgia State Rules:

Georgia Air Quality Rule 391-3-1-.02(2)(b) "Visible Emissions" which limits the opacity of emissions to 40%, is applicable to the railcar cleaning operations controlled by the proposed flare. This was already included in existing Condition 2.2 of Permit No. 4789-015-0056-S-06-0. Firing natural gas only in the new flare will emit a very small amount of PM emissions; combining the fuel combustion exhaust with the flared exhaust from the railcar cleaning operations, the facility is still expected to comply the GA Rule (b) limit.

Georgia Air Quality Rule 391-3-1-.02(2)(d) "Fuel Burning Equipment" limits emissions from fuel burning equipment, which is defined as:

> *Equipment, the primary purpose of which is the production of thermal energy from the combustion of any fuel. Such equipment is generally that used for, but not limited to, heating water, generating or super heating steam, heating air as in warm air furnaces, furnishing process heat indirectly, through transfer by fluids or transmissions through process vessel walls.*

The proposed flare does not meet the definition of fuel burning equipment because the purpose of the flare is not production of thermal energy, and the flare burns the fuel and railcar cleaning exhaust directly. Therefore, GA Rule (d) does not apply.

Georgia Air Quality Rule 391-3-1-.02(2)(g) "Sulfur Dioxide" which establishes Sulfur Dioxide (SO_2) limits for fuel burning sources. The facility is planning to install a flare with a heat capacity of less than 100 MMBtu/hr.; therefore, this rule is applicable to the proposed flare. The facility intends to comply with this regulation by restricting the fuel used to natural gas. The fuel sulfur content limit is included in existing Condition 2.4.

Toxic Impact Assessment

The proposed flare will emit Cadmium (Cd) and Chromium (Cr) in its hexavalent (VI) form in levels which exceed the Minimum Emissions Rate (MER) thresholds. Therefore, a toxic impact assessment was conducted via Screen 3 to make sure the emissions of Cd and Cr VI were below the acceptable ambient concentrations (AAC). The results of this assessment are presented in Table 3 below:

Table 2: Facility-wide HAP/TAP PTE and MER Comparison

Pollutant	CAS	Facility-Wide PTE (lb./yr.)	MER	Modeling Required?
Dichlorobenzene	106467	2.87	195,000	No
Arsenic Compounds	7440382	0.00657	0.0567	No
Benzene	71432	5.02	31.6	No
Beryllium Compounds	7440417	0.0287	0.970	No
Cadmium Compounds	**7440439**	**2.63**	**1.35**	**Yes**
Chromium (VI), Mist	**18540299**	**0.0577**	**0.0195**	**Yes**
Cobalt Compounds	7440484	0.21	11.7	No
Formaldehyde	50000	179	267	No
Hexane	110543	4,300	170,000	No
Lead	7439921	1.20	5.84	No
Manganese Compounds	7439965	11.3	12.2	No
Mercury Compounds	7439976	0.620	73.0	No
Naphthalene	91203	1.46	730	No
Nickel Compounds	7440020	5.47	38.6	No
Selenium Compounds	7782492	0.0574	23.4	No
Toluene	108883	8.13	1,220,000	No

Table 3: Screen 3 Results							
Pollutant	**Maximum Concentration (Hourly)[1] (µg/m³)**	**Maximum Concentration (Annual)[2] (µg/m³)**	**AAC (Annual) (µg/m³)**	**Result > AAC?**	**Maximum Concentration (15-min)[2] (µg/m³)**	**AAC (15-min) (µg/m³)**	**Result > AAC?**
Cadmium Compounds	0.018	0.000942	0.00556	No	0.0155	30.00	No
Chromium VI	0.000597	0.0000478	0.00008	No	0.000788	No Data	N/A

Summary & Recommendations

I recommend that Permit Amendment No. 4789-015-0056-S-06-2 be issued to the facility. A Public Advisory was issued on June 15, 2022 and comments were due by July 15, 2022, no comments were received. The Mountain District (Cartersville) Office will remain responsible for inspections and complaints/investigations.