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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3414
Plant ID No.:	037-00110
Applicant:	TeMa North America, LLC
Facility Name:	Jefferson County Operations
Location:	Kearneysville, WV
NAICS Code:	326199
Application Type:	Construction
Received Date:	July 23, 2018
Engineer Assigned:	Steven R. Pursley, PE
Fee Amount:	$1,000.00
Date Received:	July 24, 2018
Complete Date:	August 23, 2018
Due Date:	November 21, 2018
Applicant Ad Date:	July 27, 2018
Newspaper:	*The Shepardstown Chronicle*
UTM's:	Easting: 252.63 Northing: 4,360.28 Zone: 18
Description:	Construction of a plastics extrusion facility.

DESCRIPTION OF PROCESS

TeMa North America LLC is a proposing to install an extrusion process in the Burr Business Park in Jefferson County, West Virginia. The facility will utilize polypropylene (PP) and polyethylene (PE), including high density polyethylene (HDPE). The facility will have three extrusion lines identified as Line 2000, Line 3000, and Line 4000 for the extrusion of the following types of products:

* Monofilaments spacer, anticorrosion and anticondensation layer on roofing and wall siding products, acoustic products as sound mat under gypsum concrete.

* Uncoupling products such as dimple membrane to be used in ceramic floors.

* Dampproofing and drainage membrane for foundations and wall protection and drainage.

Additions to the PE, PP, and HDPE include flame retardants, fluidizers and colorants.

Material will be delivered in bulk sacks (super sacks) via trucks which will be unloaded by forklift and placed in storage. The bulk sacks will then be handled again by the forklift to move the super sacks to the unloading stations and then the contents conveyed either pneumatically or via screw conveyors to the blending system. After blending, the materials are transferred to the hoppers that feed to the extruder. The three extrusion lines are equipped with electrical resistances heating which can reach the melting temperature of the materials to be extruded (typically in the area of about 250° Centigrade/480° Fahrenheit). The extruders will then extrude the product onto water cooled roller. The material is towed/pulled to the membrane trimmer which contains knife trimming systems to cut the width of the product and square off the edges. The material can then be cut to the required length. Additionally, if the extruded material is to be laminated with a fabric, then the material is not cooled and the laminate is applied to the extruded product prior to the product cooling. This allows the lamination to occur without the use of any adhesives. The final product (laminated or not) is then placed in storage. Additional cutting occurs to meet the final product dimensions and then the products are labeled and packaged.

Pieces of the material that are cut off for proper sizing of the product are sent to the shredder and placed in a super sack or returned to the process. There are two external Shredders that will also feed back to the process via super sacks.

There are four silos that are proposed for possible future installation. These silos will be filled pneumatically from trucks and then the material will be pneumatically transferred to the extrusion lines. The silos will have a dust collector for the filling process. The transfer of the material to the inside of the facility will be controlled by the existing line dust collection system. If the silos are used to store the plastics, then bulk sack deliveries would not be used. Therefore, the only additional emission point created for the use of the silos is silo filling.

There are several building heaters. These are comfort heaters which will burn propane until natural gas is available at the site.

SITE INSPECTION

A site inspection of the proposed facility was performed on September 4, 2018 by the writer who was accompanied by TeMa's CEO, Mr. Tonj Ciotti. The facility is currently under construction. The shell building is nearly completed and the first extrusion line is currently being stored onsite. According to Mr. Ciotti, the second extrusion line should arrive mid October and the third approximately 3 weeks after that. The parking lot was being prepared for paving on the day of the inspection.

The facility will be located in the Burr Business Park near Ranson. The vast majority of surrounding buildings are commercial/industrial. The nearest non commercial/industrial building to the facility is a day care center located approximately ½ mile from TeMa's site. Additionally, an elementary school is located approximately 1 mile from the site.

To get to the facility from Martinsburg take I-81 South to exit 12. Turn left on State Route 9 and go approximately 9.9 miles before taking the Bardane exit. At the end of the off ramp turn right on Wiltshire Road and go approximately 0.3 miles and turn left on W. Burr Blvd. Then go approximately 0.3 miles and turn right on McGary Blvd. Next, go approximately 0.2 miles and turn right on Steeley Way. Proceed approximately 0.2 miles and the facility is on the left.

The following pictures were taken by the writer on the day of the site inspection. The first picture is a photograph of extrusion line 1 currently being stored on site. The second picture is of a portion of the building that will be used for warehousing the raw material and finished product and for offices. The third picture is of the outside of the building.


YODOCK


Stockey Builds
Ingersoll-Rand

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions from the facility can be broken down into the following categories:

* Material Handling emissions
* Extruder Emissions
* Natural gas combustion emissions (building heat only)
* Haul Road Emissions

Material Handling Emissions

Transfer point emissions were based on an emission factor of 0.80 pounds of PM per ton of material. This factor came from a permit application previously approved by WVDAQ (Flying W Plastics, R13-2243D). Although application R13-2243D did not give a source for this emission factor, it was accepted because it was more than twice as large as the emission factor used in Flying W's first permit (R13-2243). Specifically, the original permit used an emission factor of 0.33 lb/ton based on the AP-42 Chapter 6 emission factor for the storage of PET. All transfer point PM is conservatively assumed to be $PM_{2.5}$. Blenders, and Silos were calculated in the same manner with the same emission factor.

Extruder Emissions

Emissions from the extruders were based on stack testing on a combined discharge stack from Line 4000 and Line 4800 at a TeMa facility in Italy. A copy of the stack test report was included as an appendix to the permit application. All extruder PM is conservatively assumed to be $PM_{2.5}$.

Natural Gas Combustion Emissions

All natural gas combustion at the facility will be due to building heaters. Emissions from the natural gas combustion were based on AP-42 Chapter 1.4. There will be 10 building heaters with a total combined BTU rating of 2.22 MM BTU/hr. Annual emissions were based on all heaters operating 8,760 hours per year. This is obviously an overly conservative estimate.

Haul Road Emissions

Haul Road Emissions were based on AP-42 Chapter 13.2.2. Annual emissions were based on 10,540 trucks per year (based on total throughput of the plant delivered and

removed and multiplied by 1.5 to account for any other miscellaneous trucking.) Hourly emissions were based on an estimated maximum of 10 trucks per hour. This again seems conservative since even if all trucking is confined to an 8 hour workday, the average would be less than 4 trucks per hour.

Criteria emissions from the facility should be as follows:

	PM		PM_{10}		$PM_{2.5}$		NO_x		CO		SO_2		VOCs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Line 2000 Extruder	0.08	0.33	0.08	0.33	0.08	0.33	--	--	--	--	--	--	0.25	1.11
Line 2000 TPs	0.98	4.31	0.98	4.31	0.98	4.31	--	--	--	--	--	--	--	--
Line 2000 Blender	0.01	0.03	0.01	0.03	0.01	0.03	--	--	--	--	--	--	--	--
Line 2000 Shredder	0.01	0.03	0.01	0.03	0.01	0.03	--	--	--	--	--	--	--	--
Line 3000 Extruder	0.11	0.48	0.11	0.48	0.11	0.48	--	--	--	--	--	--	0.38	1.65
Line 3000 TPs	0.80	3.52	0.80	3.52	0.80	3.52	--	--	--	--	--	--	--	--
Line 3000 Blender	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--	--	--	--	--
Line 3000 Shredder	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--	--	--	--	--
Line 4000 Extruder	0.18	0.80	0.18	0.80	0.18	0.80	--	--	--	--	--	--	0.63	2.73
Line 4000 TPs	2.22	9.72	2.22	9.72	2.22	9.72	--	--	--	--	--	--	--	--
Line 4000 Blender	0.02	0.08	0.02	0.08	0.02	0.08	--	--	--	--	--	--	--	--
Line 4000 Shredder	0.02	0.08	0.02	0.08	0.02	0.08	--	--	--	--	--	--	--	--
Building Heaters	0.02	0.07	0.02	0.07	0.02	0.07	0.22	0.95	0.18	0.80	0.01	0.01	0.01	0.05
Haul Roads	27.49	14.49	8.10	4.27	0.80	0.42	--	--	--	--	--	--	--	--
Total	**31.96**	**34.04**	**12.57**	**23.82**	**5.27**	**19.97**	**0.22**	**0.95**	**0.18**	**0.80**	**0.01**	**0.01**	**1.27**	**5.54**

Hazardous Air Pollutant emissions from the facility should be as follows:

	Toluene		Hexane		Acetaldehyde		Formaldehyde		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Line 2000 Extruder	0.01	0.05	0.17	0.75	0.01	0.06	0.01	0.01	0.20	0.88
Line 3000 Extruder	0.02	0.07	0.26	1.12	0.02	0.09	0.01	0.02	0.30	1.30
Line 4000 Extruder	0.03	0.12	0.42	1.85	0.03	0.15	0.01	0.03	0.49	2.16
Building Heaters	--	--	--	--	--	--	--	--	0.01	0.02
Total	**0.06**	**0.24**	**0.85**	**3.72**	**0.07**	**0.30**	**0.02**	**0.06**	**1.00**	**4.36**

REGULATORY APPLICABILITY

The proposed facility will be subject to the following state rules (no federal rules apply):

STATE REGULATIONS: The following regulations apply to this facility:

45CSR2 To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.

The building heaters meet the definition of "fuel burning units" under 45CSR2 and are, subject to the applicable requirements therein.

45CSR2 Opacity Standard - Section 3.1

Pursuant to 45CSR2, Section 3.1, the fuel burning units are subject to an opacity limit of 10%. Proper maintenance and operation of the natural gas fired units should keep the opacity of the units well below 10% during normal operations.

45CSR2 Weight Emission Standard - Section 4.1.b

The heat inputs of the proposed heaters are below 10 mmbtu/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

45CSR7 To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations.

The extruders are subject to the process weight rate based emission limitations of 45CSR7. The rule 7 emission limitation for Extruder 2E (based on a type 'a' source and a maximum process weight rate of 900 lb/hr) is 1.08 pounds per hour. Actual controlled emissions from Extruder 2E are expected to be 0.07 pounds per hour. Therefore, the requirements of 45CSR7 should be met.

The rule 7 emission limitation for Extruder 7E (based on a type 'a' source and a maximum process weight rate of 1400 lb/hr) is 1.608 pounds per hour. Actual controlled emissions from Extruder 7E are expected to be 0.11 pounds per hour. Therefore, the requirements of 45CSR7 should be met.

The rule 7 emission limitation for Extruder 8E (based on a type 'a' source and a maximum process weight rate of 2,200 lb/hr) is 2.64 pounds per hour. Actual controlled emissions from Extruder 8E are expected to be 0.18 pounds per hour. Therefore, the requirements of 45CSR7 should be met.

45CSR13 Permits for Construction, Modification, Relocation And Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation.

Potential (uncontrolled) emissions from the construction of the proposed TeMa North America, LLC facility would exceed 6 pounds per hour and 10 tons per year of PM. Therefore, a permit is required. As required under §45-13-8.3 ("Notice Level A"), TeMa placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on July 27, 2018 in the *Shepardstown Chronicle* and the affidavit of publication for this legal advertisement was submitted on August 14, 2018.

45CSR22 Air Quality Management Fee Program

The facility is not subject to any NSPS, MACT or NESHAP. Additionally, the facility is defined as a minor source under 45CSR30. Therefore the facility is not subject to 45CSR30 and will pay its annual fees through the Rule 22 program.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This section provides general toxicity information for those pollutants not classified as "criteria pollutants." Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), and Sulfur Dioxide (SO_2). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and state programs designed to limit their emissions and public exposure. These programs include federal source-specific HAP limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT).

The majority of non-criteria regulated pollutants fall under the definition of Hazardous Air Pollutants (HAPs). All non-criteria regulated pollutants proposed to be emitted by this facility are defined as Hazardous Air Pollutants (HAPs).

HAPs

Section 112(b) of the Clean Air Act (CAA) identifies 188 compounds as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. However, the potential HAP emissions from the facility are well below the levels that define a major HAP source. Therefore, the facility is considered a minor (or area) HAP source, and no source-specific major source NESHAP or MACT

standards apply. The following table lists each HAP potentially emitted by the facility in excess of 20 pounds/year (0.01 tons/year) and the carcinogenic risk associated thereto (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAPs	Type	Known/Suspected Carcinogen	Classification
Acetaldehyde	VOC	Yes	B2 - Probable Human Carcinogen
Formaldehyde	VOC	Yes	B1 - Probable Human Carcinogen
Hexane	VOC	No	Inadequate Data
Toluene	VOC	No	Inadequate Data

AIR QUALITY IMPACT ANALYSIS

Because this application addresses the construction of a facility that is not defined as major under 45CSR14, no modeling was performed.

MONITORING OF OPERATIONS

The permit will require the following parameters to be monitored and recorded:

* Throughput of resin (polypropylene, polyethylene and high density polyethylene) to each extruder on a monthly basis.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-3414 be granted to TeMa North America, LLC for their Jefferson County Facility.

Steven R. Pursley, PE
Engineer

September 5, 2018