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**west virginia** department of environmental protection

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Earl Ray Tomblin, Governor  
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## **ENGINEERING EVALUATION / FACT SHEET**

### BACKGROUND INFORMATION

Application No.: R13-3089  
Plant ID No.: 087-00032  
Applicant: Mustang Survival Mfg, Inc.  
Facility Name: Spencer Facility  
Location: Roane County  
NAICS Code: 315299  
Application Type: Construction  
Received Date: June 6, 2013  
Engineer Assigned: Steven R. Pursley, PE  
Fee Amount: \$1,000.00  
Date Received: June 11, 2013  
Complete Date: July 5, 2013  
Due Date: October 3, 2013  
Applicant Ad Date: June 20, 2013  
Newspaper: *Roane County Reporter*  
UTM's: Easting: 470.635 km Northing: 4,293.843 km Zone: 17  
Description: Addition of gluing processes to an existing apparel manufacturing facility.

### DESCRIPTION OF PROCESS

Mustang Survival Mfg, Inc. Is a fabricator/assembly operation for apparel for use in different environments for personal, recreational, professional and military users. The items include life jackets, parkas, pressure suits, cold weather and cold water survival suits. These suits are made of varying fabrics to meet the demands of the customer. The majority of the operation is the assembly of the apparel and includes the typical fabric patterns and cutting and sewing. Where protection is required for waterproofing and/or pressure, the fabrics are required to be glued/cemented or a radio frequency process is used to bond the materials together.

In addition to production of new apparel there is also repairing of garments should a

seam fail or a rip in the material occur. Repairing utilizes some or all of the steps of the production process of a new garment depending on the type of repair being conducted. Fabrics will vary depending on the garment, however, the main fabrics utilized at the facility are rubber and nylon based materials.

The majority of the proposed emission resulting from the process are from the use of adhesives and solvents for joining the fabrics together. There is a proposed electrical oven for accelerated drying of the bonds. However, since some garments will not be placed in the oven, the emissions may occur anywhere. The facility also performs silk screening which has minor emissions. Emissions from the building are vented to the atmosphere through vents in the building. Delivery and storage of all solvents and adhesives are in containers which are 55 gallons or smaller.

### SITE INSPECTION

No site inspection was performed for this permit, however, the writer is familiar with the location. The facility is located at the site previously occupied by Spencer Veneer, LLC. It is in an industrial park setting approximately 3/4 mile from downtown Spencer. There are several homes adjacent to the facility. On July 9, 1013, Joshua Woody of DAQ's Compliance and Enforcement section visited the site. The following was taken directly from his entry into the Airtrax database:

"Site visit to determine if facility was constructing without a permit. No construction was taking place onsite and a permit application is currently being reviewed."

To get to the facility from Charleston take I79 north to exit 19. At the end of the off ramp turn right on County Route 5/3 and take an immediate left on US Route 119. Follow 119 north for approximately 26 miles. Then turn right on US Route 33. Go approximately 1 mile and turn right on General Woods Drive. Follow the road approximately 0.4 miles and the facility is on the right.

### ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

All VOC and HAP emissions are based on a simple mass balance assuming all VOCs/HAPs from all substances are emitted to the atmosphere. Emissions are based on the maximum hourly and annual projected usage. The applicant assumed annual usage would be equivalent to 2,000X the maximum hourly usage. The permit will contain appropriate monitoring and record keeping requirements to ensure that the facility meets the following limits:

Pollutant	Gluing (1S)		Silk Screening(2S)		Total	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
VOC	8.26	8.26	0.14	0.14	8.40	8.40
Toluene	6.04	6.04	--	--	6.04	6.04
Hexane	1.53	1.53	--	--	1.53	1.53
Methanol	0.29	0.29	--	--	0.29	0.29
Benzene	0.01	0.01	--	--	0.01	0.01
MDI	0.07	0.07	--	--	0.07	0.07
2,4 TDI	--	--	0.01	0.01	0.01	0.01
Total HAPs	7.94	7.94	0.01	0.01	7.95	7.95

REGULATORY APPLICABILITY

**45CSR13: *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation***

The construction of the Mustang facility has a potential to emit total Hazardous Air Pollutants in excess of two (2) lbs/hour and five (5) TPY on an aggregated basis and, therefore, pursuant to §45-13-2.24, the facility is defined as a “stationary source” under 45CSR13. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” Therefore, Mustang is required to obtain a permit under 45CSR13 for the construction and operation of the apparel manufacturing facility.

As required under §45-13-8.3 (“Notice Level A”), Mustang placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on June 20, 2013 in the *Roane County Reporter* and the affidavit of publication for this legal advertisement was submitted on June 26, 2013.

**45CSR21: *To Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds (NON-APPLICABILITY)***

§45-21-14.2.a defines “Fabric Coating Line” as “a web coating line where coating is

applied to fabric.” §45-21-.2.81 defines “web coating line” as “all of the coating applicator(s), drying area(s), or oven(s), located between an unwind station and a rewind station, that are used to apply coating onto a **continuous** strip of substrate (the web)” (emphasis added). The Mustang facility does not apply any coating to a continuous strip.

#### **45CSR22 Air Quality Management Fee Program**

The facility does not have the Potential to Emit (PTE) more 100 tons per year of any regulated pollutant and does not have the PTE more than 10 tons per year of any individual HAP nor 25 tons per year of all aggregated HAPS. Additionally, the facility is not subject to any NSPS or NESHAP. Therefore, the facility is not subject to 45CSR 30 and, therefore, will pay its annual fees through the Rule 22 program.

#### **45CSR27: To Prevent and Control the Emissions of Toxic Air Pollutants (NON-APPLICABILITY)**

Although the facility emits benzene and meets the 45CSR27 definition of “chemical process unit”, the permit will limit benzene emissions to 20 pounds per year. Far less than the 1,000 pound per year applicability threshold of Table A of 45CSR27.

#### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The facility will emit the following HAPs:

The following information comes directly from EPA’s Air Toxics Website:

##### **Benzene:**

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

##### **Hexane:**

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Hexane is used to extract edible oils from seeds and vegetables, as a special-use solvent, and as a cleaning agent. Acute (short-term) inhalation exposure of humans to high levels of hexane causes mild central nervous system (CNS) effects, including dizziness, giddiness, slight nausea, and headache. Chronic (long-term) exposure to hexane in air is associated with polyneuropathy in humans, with numbness in the extremities, muscular weakness, blurred vision, headache, and fatigue observed. Neurotoxic effects have also been exhibited in rats. No information is available on the carcinogenic effects of hexane in humans or animals. EPA has classified hexane as a Group D, not classifiable as to human carcinogenicity.

### **Methanol:**

Methanol is released to the environment during industrial uses and naturally from volcanic gases, vegetation, and microbes. Exposure may occur from ambient air and during the use of solvents. Acute (short-term) or chronic (long-term) exposure of humans to methanol by inhalation or ingestion may result in blurred vision, headache, dizziness, and nausea. No information is available on the reproductive, developmental, or carcinogenic effects of methanol in humans. Birth defects have been observed in the offspring of rats and mice exposed to methanol by inhalation. EPA has not classified methanol with respect to carcinogenicity.

### **Toluene:**

Toluene is added to gasoline, used to produce benzene, and used as a solvent. Exposure to toluene may occur from breathing ambient or indoor air. The central nervous system (CNS) is the primary target organ for toluene toxicity in both humans and animals for acute (short-term) and chronic (long-term) exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to toluene by inhalation; symptoms include fatigue, sleepiness, headaches, and nausea. CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache. Human studies have reported developmental effects, such as CNS dysfunction, attention deficits, and minor craniofacial and limb anomalies, in the children of pregnant women exposed to toluene or mixed solvents by inhalation. Reproductive effects, including an association between exposure to toluene and an increased incidence of spontaneous abortions, have also been noted. However, these studies are not conclusive due to many confounding variables. EPA has classified toluene as a Group D, not classifiable as to human carcinogenicity.

### **Methylene diphenyl diisocyanate (MDI):**

The commercial form of 4,4'-methylenediphenyl diisocyanate (MDI) is used to produce polyurethane foams. Acute (short-term) inhalation of high concentrations of MDI may

cause sensitization and asthma in humans. Acute dermal contact with MDI has induced dermatitis and eczema in workers. MDI has been observed to irritate the skin and eyes of rabbits. Chronic (long-term) inhalation exposure to MDI has been shown to cause asthma, dyspnea, and other respiratory impairments in workers. Respiratory effects have also been observed in animals. No adequate information is available on the reproductive, developmental, or carcinogenic effects of MDI in humans. EPA has classified MDI as a Group D, not classifiable as to human carcinogenicity.

#### AIR QUALITY IMPACT ANALYSIS

Since the facility will be a minor source as defined in 45CSR14, no modeling was performed.

#### MONITORING OF OPERATIONS

The permittee shall be required to monitor and record the amount of each VOC or HAP containing material (glue, solvent, cleaner, ink, catalyst, etc.) used on a monthly basis. Calculations will then be performed to ensure compliance with the permits emission limits.

#### 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 R13-3089 for the addition of gluing processes at the existing apparel manufacturing facility near, Spencer, Roane County, be granted to Mustang Survival Mfg., Inc.

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Steven R. Pursley, PE  
Engineer

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August 6, 2013

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