



**west virginia department of environmental protection**

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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-2449I  
Plant ID No.: 065-00003  
Applicant: Caperton Furnitureworks, LLC  
Facility Name: Berkeley Springs  
Location: Berkeley Springs, Morgan County  
SIC Code: 2511  
Application Type: Class II Administrative Update  
Received Date: May 05, 2015  
Engineer Assigned: Thornton E. Martin Jr.  
Fee Amount: \$300  
Date Received: May 11, 2015  
Complete Date: May 21, 2015  
Applicant Ad Date: May 06, 2015  
Newspaper: *The Morgan Messenger*  
DAQ Ad Date: N/A  
UTM's: Easting: 737.8 km      Northing: 4,389.6 km      Zone:17  
Description: Applicant proposes to replace and relocate Spray Booth identified as emission source (3S) from the 'Old Finishing Room' to the 'New Finishing Building'. There are no emissions increase associated with this modification. In addition, the format of the permit has been converted to the NSR Permit, Revision 2-1-13, boilerplate language.

**PERMIT HISTORY**

R13-2449      Effective Date of Permit:      October 1, 2001

**Description:**

The application is to replace a series of small baghouses with a new, larger dust collector within an existing wood furniture manufacturing and finishing facility. The applicant has existed and operated as a grand-fathered minor source for many years and requests to remain a minor source by obtaining a "synthetic minor" permit, restricting the relative emissions below the major source thresholds.

R13-2449A

Effective Date of Permit:      October 15, 2002

**Description:**

Fact Sheet R13-2449I  
Caperton Furnitureworks, LLC  
Berkeley Springs Facility

The permit reflects a Class I Administrative Update requested by the company to include two Hazardous Air Pollutants (HAPs) in Specific Requirements A.8. that were inadvertently omitted from the reported HAPs emissions in the Engineering Evaluation. No increase in emissions or changes in operating procedures have been proposed.

R13-2449B

Effective Date of Permit: May 7, 2003

Description:

This permit reflects a Class I Administrative Update requested by the company to correct the hourly emission rate limit which calculated from a basis of a 16 hour period to an hourly emission rate limit based on 8 hour period.

R13-2449C

Effective Date of Permit: December 05, 2003

Description:

The applicant has proposed to expand the currently permitted coatings operation within its wood furniture manufacturing facility. The expansion shall reside within a new building expansion attached to the existing facility. In addition, the applicant has proposed to increase the capacity of the facility's comfort heat boiler for the purpose of heating the building expansion and warehouse.

R13-2449D

Effective Date of Permit: May 06, 2004

Description:

The applicant has proposed a Class I Administrative Update to modify the record keeping methods required for monitoring fuel consumption of existing and currently permitted propane combustion sources.

R13-2449E

Effective Date of Permit: November 04, 2004

Description:

The applicant has proposed a Class I Administrative Update to relocate the Stroke Sander to the Woodcutting Area and remove a permitted control device and emission point.

R13-2449F

Effective Date of Permit: February 23, 2006

Description:

The applicant is proposing to remove Methyl Ethyl Ketone (MEK) from the total HAP monitoring requirement. EPA delisted methyl ethyl ketone (MEK) from the list of hazardous air pollutants (HAPs) under Section 112.

R13-2449G

Effective Date of Permit: November 20, 2006

Description:

Class I Administrative Update application to simplify and make consistent the requirements for certification of the record.

R13-2449H

Effective Date of Permit: April 20, 2010

Description:

Class II Administrative Update for the addition of a biomass (waste wood) boiler and material

processing and handling equipment for the boiler's fuel and ash.

### SITE INSPECTION

Inspection reports for this facility date back to 1995 and the most recent entry into our database was for March 26, 2015. The facility was given a score of 30 - In Compliance and the notes state that opacity was 0% and all paperwork was in order. Since this facility is regularly inspected and there is no history of non-compliance; based on the scope and nature of the modification, the writer deemed that a site visit was not required at this time.

### ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions estimates were not provided within application (R13-2449I). Permitted emissions and operational limitations are specified in Section 4.0 (Source-Specific Requirements) and represent no change in emissions as permitted under R13-2449H.

### REGULATORY APPLICABILITY

Caperton's modification to their existing facility is viewed by the DAQ as being a class II administrative update requiring changes to be made to their 45CSR13 permit. The following state regulations apply to Caperton's facility:

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

The purpose of this rule is to establish limitations for smoke and particulate matter which are discharged from fuel burning units. Per this rule, Section 2.14 defines an indirect heat exchanger as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. Section 2.10 defines a fuel burning unit as any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. The facility is exempt from sections 4, 5, 6, 8, and 9 because the boilers are below 10 MMBtu/hr. The facility will be subject to the opacity requirements in this rule, which is 10% opacity based on a six minute block average.

45CSR4 - *To Prevent and Control the Discharge of Air Pollutants into the Open Air Which Causes or Contributes to an Objectionable Odor or Odors*

Caperton can not release objectionable odors at any location occupied by the public.

45CSR7 - *To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations*

The operation of this facility is subject to requirements of 45CSR7. Pertinent sections applying to this operation include, but are not limited to:

#### §45-7-3.1

No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is darker in shade or appearance than that designated as

No. 1 Ringlemann or twenty (20) percent opacity, except as noted in subsections 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7.

§45-7-3.2

The provisions of subsection 3.1 shall not apply to smoke and/or particulate matter emitted from any process source operation which is less than No. 2 Ringlemann or forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.

§45-7-3.7

No person shall cause, suffer, allow, or permit emissions of smoke and/or particulate matter into the open air from any storage structure associated with any manufacturing process.

§45-7-4.1

No person shall cause, suffer, allow, or permit particulate matter to be vented into the open air from any type source operation or duplicate source operation, or from all air pollution control equipment installed on any type source operation or duplicate source operation in excess of the quantity specified under the appropriate source operation type in Table 45-7A found at the end of this rule.

§45-7-5.1

No person shall cause, suffer, allow, or permit any manufacturing process generating fugitive particulate matter to operate that is not equipped with a system to minimize the emissions of fugitive particulate matter. To minimize means that a particulate capture or suppression system shall be installed to ensure the lowest fugitive particulate emissions reasonably achievable.

§45-7-5.2

The owner or operator of a plant shall maintain dust control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary dust suppressants shall be applied in relation to stockpiling and general material handling to prevent dust generation and atmospheric entrainment.

§45-7-8.1

At such reasonable times as the Director may designate the operator of any manufacturing process source operation may be required to conduct or have conducted stack tests to determine the particulate matter loading in exhaust gases when the Director has reason to believe that the stack emission limitations(s) is/are being violated. Such tests shall be conducted in such manner as the Director may specify and be filed on forms and in a manner acceptable to the Director. The Director, or his duly authorized representative, may at his option witness or conduct such stack tests. Should the Director exercise his option to conduct such tests, the operator will provide all the necessary sampling connections and sampling ports to be located in such manner as the Director may require, power for test equipment, and the required safety equipment such as scaffolding, railings, and ladders to comply with generally accepted good safety practices.

§45-7-8.2

The Director, or his duly authorized representative, may conduct such other tests as he or she may deem necessary to evaluate air pollution emissions.

45CSR10 - *To Prevent and Control Air Pollution from the Emission of Sulfur Oxides*

Caperton's boilers are less than 10 MM Btu/hr.

- 10.1. Any fuel burning units having a design heat input under ten (10) million BTU's per hour will be exempt from section 3 and sections 6 through 8. However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

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

The facility is subject to the following sections of this rule: reporting requirements, requirements for modifications of stationary sources, demonstrating compliance with stationary sources, public review procedures, and permit application fees. The facility will demonstrate compliance by following all the applicable rules and regulations that apply to the facility. They will also follow the terms and conditions set forth in permit R13-2449I. The applicant published a Class I legal advertisement in *The Morgan Messenger* on May 06, 2015 and submitted an application fee of \$300.00.

45CSR22 - *Air Quality Management Fee Program*

In accordance with 45CSR22 - "Air Quality Management Fee Program", the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the Certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

Based on Caperton's permit application (R13-2449I) as submitted, the writer could find no applicable federal requirements, i.e., no NSPS (40 CFR 60) or MACTS (40 CFR 63) rules that apply.

### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The information was obtained from EPA's Air Toxics Website.

#### **Toluene**

Toluene is added to gasoline, used to produce benzene, and used as a solvent. Exposed 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.

#### **Xylene**

Commercial or mixed xylene usually contains about 40-65% *m*-xylene and up to 20% each of *o*-xylene and *p*-xylene and ethylbenzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto

exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity.

### **Methyl Isobutyl Ketone**

Methyl isobutyl ketone is used as a solvent for gums, resins, paints, varnishes, lacquers, and nitrocellulose. Acute (short-term) exposure to methyl isobutyl ketone may irritate the eyes and mucous membranes, and cause weakness, headache, nausea, lightheadedness, vomiting, dizziness, incoordination, narcosis in humans. Chronic (long-term) occupational exposure to methyl isobutyl ketone has been observed to cause nausea, headache, burning in the eyes, weakness, insomnia, intestinal pain, and slight enlargement of the liver in humans. Lethargy and kidney and liver effects have been observed in rats and mice chronically exposed by gavage (experimentally placing the chemical in the stomach), ingestion, and inhalation. EPA has classified methyl isobutyl ketone as a Group D, not classifiable as to human carcinogenicity.

### **Phenol**

Exposure to phenol may occur from the use of some medicinal products (including throat lozenges and ointments). Phenol is highly irritating to the skin, eyes, and mucous membranes in humans after acute (short-term) inhalation or dermal exposures. Phenol is considered to be quite toxic to humans via oral exposure. Anorexia, progressive weight loss, diarrhea, vertigo, salivation, a dark coloration of the urine, and blood and liver effects have been reported in chronically (long-term) exposed humans. Animal studies have reported reduced fetal body weights, growth retardation, and abnormal development in the offspring of animals exposed to phenol by the oral route. EPA has classified phenol as a Group D, not classifiable as to human carcinogenicity.

### **Ethylbenzene**

Ethylbenzene is mainly used in the manufacture of styrene. Acute (short-term) exposure to ethylbenzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness. Chronic (long-term) exposure to ethylbenzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethylbenzene. Limited information is available on the carcinogenic effects of ethylbenzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethylbenzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethylbenzene as a Group D, not classifiable as to human carcinogenicity.

### **Styrene**

Styrene is primarily used in the production of polystyrene plastics and resins. Acute (short-term) exposure to styrene in humans results in mucous membrane and eye irritation, and gastrointestinal effects. Chronic (long-term) exposure to styrene in humans results in effects on the central nervous system (CNS), such as headache, fatigue, weakness, and depression, CSN dysfunction, hearing loss, and peripheral neuropathy. Human studies are inconclusive on the reproductive and developmental effects of styrene; several studies did not report an increase in developmental effects in women who worked in the plastics industry, while an increased frequency of spontaneous abortions and decreased frequency of births were reported in another study. Several epidemiologic studies suggest there may be an association between styrene exposure and an increased risk of leukemia and lymphoma. However, the evidence is inconclusive due to confounding factors. EPA has not given a formal carcinogen classification to styrene.

### **Methyl methacrylate**

Methyl methacrylate is used in the manufacture of resins and plastics. Methyl methacrylate is irritating to the skin, eyes, and mucous membranes in humans. An allergic response to dermal exposure may develop. Respiratory effects have been reported in humans following acute (short-term) and chronic (long-term) inhalation exposures. Respiratory symptoms observed following acute exposures include chest tightness, dyspnea, coughing, wheezing, and reduced peak flow. Neurological symptoms have also been reported in humans following acute exposure to methyl methacrylate. Fetal abnormalities have been reported in animals exposed to methyl methacrylate by injection and inhalation. EPA considers methyl methacrylate not likely to be carcinogenic to humans.

### **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.

### **Methylene Chloride**

Low levels of methyl chloride occur naturally in the environment. Higher levels may occur at chemical plants where it is made or used. Acute (short-term) exposure to high concentrations of methyl chloride in humans has caused severe neurological effects. Methyl chloride has also caused effects on the heart rate, blood pressure, liver, and kidneys in humans. Chronic (long-term) animal studies have shown liver, kidney, spleen, and central nervous system (CNS) effects. Inhalation studies have demonstrated that methyl chloride causes reproductive effects in male rats, with effects such as testicular lesions and decreased sperm production. Human cancer data are limited. EPA has classified methyl chloride as a Group D carcinogen (not classifiable as to human carcinogenicity).

### **Dibutyl phthalate**

Dibutyl phthalate is used in making flexible plastics that are found in a variety of consumer products. It appears to have relatively low acute (short-term) and chronic (long-term) toxicity. No information is available regarding the effects in humans from inhalation or oral exposure to dibutyl phthalate, and only minimal effects have been noted in animals exposed by inhalation. No studies are available on the reproductive, developmental, or carcinogenic effects of dibutyl phthalate in humans. Animal studies have reported developmental and reproductive effects from oral exposure. EPA has classified dibutyl phthalate as a Group D, not classifiable as to human carcinogenicity.

### **Cumene**

Cumene is used in a variety of petroleum products. Acute (short-term) inhalation exposure to cumene may cause headaches, dizziness, drowsiness, slight incoordination, and unconsciousness in humans. Cumene has a potent central nervous system (CNS) depressant action characterized by a slow induction period and long duration of narcotic effects in animals. Cumene is a skin and eye irritant. No information is available on the chronic (long-term), reproductive, developmental, or carcinogenic effects of cumene in humans. Animal studies have reported increased liver, kidney, and adrenal weights from inhalation exposure to cumene. EPA has classified cumene as a Group D, not classifiable as to human carcinogenicity.

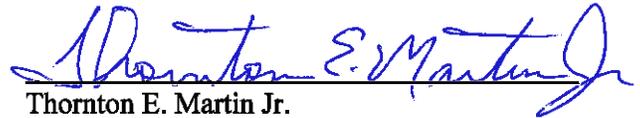
### **Ethylene glycol**

Ethylene glycol has many uses, including as antifreeze in cooling and heating systems, in hydraulic brake fluids, and as a solvent. Acute (short-term) exposure of humans to ethylene glycol by ingesting large quantities causes three stages of health effects: central nervous system (CNS) depression, followed by cardiopulmonary

effects, and later renal damage. The only effects noted in one study of individuals exposed to low levels of ethylene glycol by inhalation for about a month were throat and upper respiratory tract irritation. Rats and mice chronically (long-term) exposed to ethylene glycol in their diet exhibited signs of kidney toxicity and liver effects. Several studies of rodents exposed orally or by inhalation showed ethylene glycol to be fetotoxic. An epidemiologic study on renal cancer mortality did not find an increased risk for workers exposed to ethylene glycol. EPA has not classified ethylene glycol for carcinogenicity.

RECOMMENDATION TO DIRECTOR

This Class II Administrative Update to the Regulation 13 Construction Permit submitted by Caperton Furnitureworks, LLC for the replacement and relocation of a Spray Booth at their Berkeley Springs, Morgan County, WV facility has been reviewed and determined to meet all applicable requirements. Due to the location, nature of the process, and control methods in place, adverse impacts on the surrounding area should be minimized. Therefore, the granting of a permit to Caperton Furnitureworks, LLC is hereby recommended.



Thornton E. Martin Jr.  
Permit Engineer

May 21, 2015

Date