

**DRAFT Statement of Basis for  
Carlisle Construction Materials, LLC - Puyallup Facility  
Initial Air Operating Permit  
<Issuance Date TBD>**

## **1 Purpose of this Statement of Basis**

### **1.1 General**

This document summarizes the legal and factual bases for the draft permit conditions in the Carlisle Construction Materials, LLC (Puyallup) (hereafter known as CCM) air operating permit to be issued under the authority of the Washington Clean Air Act, Chapter 70.94 Revised Code of Washington, Chapter 173-401 of the Washington Administrative Code and Puget Sound Clean Air Agency Regulation I, Article 7. Unlike the permit, this document is not legally enforceable. It includes references to the applicable statutory or regulatory provisions that relate to CCM's emissions to the atmosphere. In addition, this Statement of Basis provides a description of CCM's activities and compliance history.

## **2 Why CCM is an Air Operating Permit Source**

CCM is required to have an air operating permit because the facility's potential to emit volatile organic compounds (VOC) exceeds 100 tons per year. The main VOC emitted is pentane, which is the blowing agent used in both of the facility's foam production processes. More specifically, the two processes are the urethane foam process, which produces polyisocyanurate (PolyIso) foam insulation boards and the polystyrene foam process. Potential emissions from this facility are limited to 249 tons per year of VOC, per Order of Approval 11336, issued June 1, 2017. Emissions of pentane released from each process are controlled by pentane collection systems that route emissions to its associated dedicated regenerative thermal oxidizer (RTO).

Potential emissions of all hazardous air pollutants (HAPs) listed under Section 112(b) of the Federal Clean Air Act are below the applicability thresholds of 10 tons per year for any single HAP, or 25 tons per year for all HAP combined, so CCM is classified as an "area source" for HAP. Pentane is not a HAP. HAP emissions from the facility consist of a small amount of methylene diphenyl diisocyanate (MDI) (less than 1 lb/yr) emitted from the process and a small amount of HAP emitted due to natural gas combustion.

## **3 Source Description**

### **3.1 CCM Operations that Pertain to Air Operating Permit**

CCM operates a polyisocyanurate (PolyIso) foam insulating board and expanded polystyrene (EPS) block molded products manufacturing facility at 19727 57th Avenue East in Puyallup, Washington. It has two associated NAICS, 326140 for the EPS production and 326150 for the PolyIso production. The plant was constructed in 2012.

The Puyallup facility has two divisions: Hunter Panels and Insulfoam. The Hunter Panels division manufactures the PolyIso foam insulating boards for use in commercial and industrial roofing and wall applications. The Insulfoam division manufactures the EPS block molded products including EPS blocks and cut products, which are mainly used in the construction and building materials industry for insulation and other specialty applications such as geofoam, architectural columns, and decorative facades. CCM has accepted a cap on VOC emissions from the entire facility to remain a minor source with respect to the Prevention of Significant Deterioration (PSD) program. CCM is a "natural minor" source of HAP. This facility was capped

at 249 tons per year of VOC, and the cap was included in Order of Approval 11336, issued June 1, 2017.

CCM also has one diesel engine that is used to power a fire suppression water pump. This engine is regulated under Subpart IIII of 40 CFR 60.

### **3.1.1 Hunter Panels Process**

For the Hunter Panels process, ISO foam insulating boards are produced by reacting a polyol in a blend of phosphate-based flame retardant and catalyst with polymeric diphenylmethane diisocyanate (PMDI). Pentane material (any blend of n-pentane, isopentane, and cyclopentane) is used as a blowing agent.

Polyol, flame retardant, surfactant, and catalysts are pumped from bulk storage tanks or totes to a mixer, where they are mixed together with pentane. The blend/pentane mixture is transferred to a mix head where it is mixed with PMDI pumped from bulk storage tanks. This final mixture is continually applied onto a facer substrate at a pour table at the front end of the laminator. The polyol blend reacts with PMDI and forms foam on top of the continuously-fed substrate. The foam and substrate are continually drawn into a natural gas-fired laminator oven, where the mixture expands, reacts, and adheres to the substrate and a top sheet as the solid foam is formed. At the exit of the laminator, the product has fully solidified, and it exits the laminator as a continuous sheet of solid foam. As the product exits the laminator, it enters a crosscut saw station, where the sheet is cut into long panels, and the side edges are trimmed to a precise 4-foot width. The trimmed panels move to a gang saw station where they are reduced to the desired length, typically 4 or 8 feet.

The primary pollutant emitted from this process is pentane. Pentane is emitted from the foam at the pour table and laminator. The process also emits small amounts of methylene diphenyl diisocyanate (MDI) (less than 1 lb/yr).

There are also particulate matter (PM) emissions from the foam cutting operations. The crosscut, side trim, gang, and foot saws are connected to a dust collection system that is routed to a baghouse. For pentane emission control, the baghouse exhaust is routed to a regenerative thermal oxidizer (RTO) with an inlet filter.

### **3.1.2 Insulfoam Process**

The raw materials for the Insulfoam process are EPS resins (beads). EPS beads are impregnated with a blowing agent (pentane) at typically 3.5-6.5% by weight, although sometimes ranging up to 7% by weight. Bags of EPS beads are dumped into a hopper and augured into a pre-expander, and with the aid of steam and mechanical agitation, the beads are pre-expanded in batches into small particles called pre-puff. The steam softens the polymer and causes the pentane to expand inside the bead. Each batch of pre-puff exiting the pre-expander is air-dried in a steam-heated fluid bed dryer. The pre-puff exits the dryer and is blown to a bag farm for aging and stabilization. The pre-puff is stored in large, air-permeable bags in the bag farm. The aging step allows the temperature of the pre-puff to equalize and allows additional blowing agent to off-gas. Once the aging step is complete, the aged pre-puff is conveyed to a mold. With the aid of various steam and pressure cycles, the aged pre-puff is fused into a foam billet or block. Some blocks are cut into various product size and shapes using an electric hot wire.

A natural gas-fired boiler is used to generate process steam for the pre-expander and molding cycle. The boiler has a heat input rating of 8.2 MMBtu/hr.

The only pollutant emitted from this process is pentane. A portion of the initial pentane content of the EPS beads is emitted during pre-expansion, and the emissions from the pre-expander vent are captured. A significant portion of the pentane remaining in the pre-puff is passively emitted from the aging bag farm. The bag farm has an enclosure that captures emissions. A portion of the remaining pentane in the aged pre-puff is emitted during the molding cycle, and pentane emissions from the mold vacuum exhaust system are captured. The captured emissions from the pre-expander, aging bag farm, and molding cycle are routed to a RTO (separate from the RTO used for the Hunter Panels process) with an inlet filter. A portion of the final product pentane content is emitted during storage as fugitive emissions. There are also emissions of combustion pollutants (e.g., nitrogen oxides, carbon monoxide) from the natural gas-fired boiler.

### **3.2 Permitted Equipment and Operations**

A review of new source permitting for the facility was conducted, as summarized in Section 4.1 of this document.

## **4 Permitting History**

### **4.1 New Source Review Permitting for the Facility**

A summary of the new source review permitting at the facility is provided below.

Notice of Construction #10404 (canceled and superseded by NOC 11336): On October 3, 2011, CCM submitted an NOC application for the establishment of a foam products manufacturing facility in Puyallup, WA. The project scope included both the Hunter Panels and Insulfoam processes. The original application included a complete best available control technology (BACT) analysis.

Order of Approval No. 10404 was issued on September 25, 2012 for the establishment of a foam products manufacturing facility including a polyisocyanurate foam pour table and lamination line, controlled by a baghouse rated at 27,000 cfm, and a 6.5 MMBtu/hr regenerative thermal oxidizer, rated at 36,000 cfm; a 24 foot Idro EPS foam vacuum block molder, with a pre-expander and aging bag farm, all controlled by a 2 MMBtu/hr regenerative thermal oxidizer rated at 8,400 cfm. A facility-wide limit was set at 99.0 tons per year of VOC emissions.

Notice of Construction #11336: On June 1, 2017, Order of Approval No. 11336 was issued to CCM to repeal the 99.0 ton per year VOC emission limit from Order of Approval No. 10404 and replace it with a limit of 249.0 ton per year VOC emission limit to remain a minor source with respect to the PSD program. Condition 3 of Order of Approval No. 11336 required CCM to submit a complete Title V application within 365 days of the issuance of the Order of Approval or emitting  $\geq 100.0$  tons of VOC in a consecutive 12-month period, whichever came first. CCM provided notice that they exceeded the 100 tpy in April 2017. A complete permit application was received within 365 days of the issuance of the Order of Approval. The facility has been operating under the application shield in WAC 173-401-705(2).

Notice of Construction #12019: On August 21, 2020, Order of Approval No. 12019 was issued to change the required frequency of RTO thermocouple replacements established in Order of Approval No. 11336 from every 2,000 hours of operation to every 12 months. In addition, the required frequency of dust collector inspections was changed from at least once per shift to at least once per day. Order of Approval No. 12019 canceled and superseded Order of Approval No. 11336.

#### **4.2 Regulatory Orders Issued to the Facility**

There have been no regulatory orders issued for the facility.

#### **4.3 Operating Permit Issuance**

An air operating permit application was received by the Puget Sound Clean Air Agency from the CCM facility on April 30, 2018. On May 22, 2018, the Puget Sound Clean Air Agency issued written notification to CCM that the application met the completeness criteria contained in WAC 173-401-500(7).

Puget Sound Clean Air Agency published the draft air operating permit for public comment on March 9, 2021.

After the public comment period closes, the Puget Sound Clean Air Agency will address any issues raised. When and if all issues raised during the public comment period can be and are addressed, the Agency will send a proposed permit to EPA Region X for their review. If there are no outstanding issues prohibiting the issuance of the permit, the Agency will issue the Air Operating Permit after the EPA review period.

### **5 Compliance History**

#### **5.1 Compliance and Inspection History Prior to Issuance of the Original AOP**

The CCM facility has been inspected at least annually by the Puget Sound Clean Air Agency since 2013.

There have been odor complaints filed with the Puget Sound Clean Air Agency naming the CCM facility as a potential source of the odor. The Agency was not able to verify whether or not CCM was the source of the odor.

The Agency has taken the following enforcement actions prior to issuance of the original AOP.

- Notice of Violation 3-008290 was issued to CCM on March 21, 2019 for violating Conditions 5 and 9 of Order of Approval No. 11336 by not calibrating or replacing the thermocouples for the RTO temperature control system every 2,000 hours of operation, or at least once per year, whichever comes first. The date range of the violation was May 25, 2018 to February 20, 2019. The facility also did not have adequate records to demonstrate compliance with the recordkeeping requirements. In addition, CCM violated PSCAA Regulation I, Section 5.05(c) since Agency staff determined CCM did not have an adequate O&M Plan that addressed compliance with the conditions in the permit. This NOV replaced NOV 3-009278. CCM provided a completed work order for the February 20, 2019 RTO thermocouple replacement on February 22, 2019.
- Notice of Violation 3-009061 was issued to CCM on March 21, 2018 for violating PSCAA Regulation I, Section 9.20 by allowing the Insulfoam RTO to operate outside of the differential pressure range for its filter. During an inspection on March 20, 2018, the Agency reviewed inspection records that showed the differential pressure of the filter was between 2 and 2.4" w.c. from March 16, 2018 through March 20, 2018, compared to a range of 1 to 2" w.c. On March 21, 2018, CCM emailed the Agency indicating that the RTO filters were replaced immediately after the inspection on March 20, 2018. The Notice of Violation was closed on July 31, 2019.

## 6 Emission Inventory

Emissions from this facility are primarily from blowing agent released during various steps of each process. Emissions of pentane released from each process are controlled by pentane collection systems that route emissions to a RTO. The table below shows emissions reported by the facility for the last five years.

**Table 1. Emission Inventory Summary Prior to Issuance of Original AOP**

Pollutant	Emissions (tpy)				
	2015	2016	2017	2018	2019
Volatile Organic Compounds (Total VOC)	84.6	95.2	107.4	103.0	102.7

Potential emissions from the entire facility are presented in Table 2 below.

**Table 2. Facility-wide Potential Emissions**

Line	PM (tpy)	SO <sub>2</sub> (tpy)	NO <sub>x</sub> (tpy)	CO (tpy)	VOC (tpy)
Hunter Panels	0.8	0.02	2.6	2.2	37.5
Insulfoam	0.4	0.03	5.0	4.2	211.1
<b>Total</b>	1.2	0.1	7.6	6.4	248.6

## 7 Compliance Assurance Monitoring, NESHAP, and NSPS Applicability Review

### 7.1 Compliance Assurance Monitoring

The Compliance Assurance Monitoring rule in 40 CFR Part 64 requires owners and operators to monitor the operation and maintenance of their control equipment, so they can evaluate the performance of their control devices and report whether or not their facilities meet established emission standards. If owners and operators of these facilities find that their control equipment is not working properly, the CAM rule requires them to take action to correct any malfunctions and to report such instances to the appropriate enforcement agency (i.e., State and local environmental agencies). Additionally, the CAM rule provides some enforcement tools that help State and local environmental agencies require facilities to respond appropriately to the monitoring results and improve pollution control operations.

The CAM rule applies at major sources with emission units that have control devices, and the potential emissions from the emission unit are 100 tons per year or more if the control device was not operated. In addition, the unit must be subject to an emission limitation or standard for the applicable pollutant. CAM applicability determinations are made on a pollutant-by-pollutant basis.

In 2017, actual VOC emissions for the Hunter Panels process were 5.9 tons. The Hunter Panels process is required to have 86% capture efficiency and 97% destruction efficiency for the captured emissions. Using the 2017 emissions, actual pre-control emissions were 35 tons. Based on the worksheet for Order of Approval No. 10404, potential annual pre-control emissions for the Hunter Panels process are 182 tons. The Hunter Panels process is classified as an "other pollutant-specific emission unit". An "other pollutant-specific emission unit" is one

that has a potential to emit more than 100 tons per year of a pollutant without the control device but has a potential to emit less than 100 tons per year with the control device.

In 2017, actual VOC emissions for the Insulfoam process were 101.5 tons. The Insulfoam process is required to have 67% capture efficiency and 97% destruction efficiency for captured emissions. Using the 2017 actual emissions, pre-control emissions were 290 tons. The Insulfoam process is considered a “large pollutant-specific emission unit” under 40 CFR 64.5, since the controlled potential to emit for this unit is greater than 100 tons per year.

The Hunter Panels process also includes a dust collector, which is used to control PM emissions from the foam cutting table. Based on the worksheet for Order of Approval No. 10404, potential controlled annual emissions from the dust collector are 0.59 tons, and the dust collector has a control efficiency of 99.9%. Based on these values, potential pre-control emissions are 590 tons per year. The foam cutting table is classified as an “other pollutant-specific emission unit”, since its potential emissions of PM are less than 100 tons per year with the control device.

Both the Hunter Panels and Insulfoam processes could emit greater than 100 tons per year of VOC pre-control, and both processes use a control device (RTO) to achieve compliance with the facility-wide VOC emission limit. The Hunter Panels process could also emit greater than 100 tons per year of PM pre-control, and a dust collector is used to comply with the general PM emission standards in PSCAA Regulation I, Article 9. CCM submitted a CAM plan with the initial AOP application. The CAM plan uses existing monitoring activities, which are listed in Section 2.A of the AOP. Additional features of the CAM rule, such as Response to an excursion, Quality Improvement Plan (QIP), and CAM reporting and recordkeeping have been incorporated into the AOP.

## **7.2 NESHAP Applicability**

The CCM facility is an area source of HAP. As part of the renewal process the Agency reviewed federal National Emissions Standards for Hazardous Air Pollutants (NESHAPs) for area sources that might apply to this facility to determine applicability. The Agency determined that the only NESHAP applicable to the facility is 40 CFR 63 Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines.

### **7.2.1 NESHAP: Stationary Reciprocating Internal Combustion Engines (40 CFR Part 63, Subpart ZZZZ)**

The facility currently operates one diesel-fueled fire pump. The fire pump engine is less than 500 horsepower and was constructed after June 12, 2006; therefore, it is considered a new stationary RICE. The engine is subject to the Reciprocating Internal Combustion Engines (RICE) NESHAP. As discussed below, the engine is also subject to the Standards of Performance for Stationary Compression Ignition Combustion Engines (NSPS Subpart IIII). Per 40 CFR 63.6590(c), new stationary RICE located at an area source are required to meet the requirements of the RICE NESHAP by meeting the requirements of NSPS Subpart IIII. No further requirements apply under the RICE NESHAP.

### **7.2.2 Inapplicable NESHAPs**

Other NESHAPs reviewed for potential applicability and determined to be inapplicable are listed below in Table 3 and included in Section 8 of the operating permit. This is not an exhaustive list of all NESHAPs but ones that might apply to this facility based on current operations.



**Table 3. Inapplicable NESHAPs**

Regulation	Description	Basis for Inapplicability
40 CFR Part 63 Subpart III	Flexible Polyurethane Foam Production NESHAP	The permittee does not operate a plant that produces flexible polyurethane foam or rebond foam.
40 CFR Part 63 Subpart DDDDD	Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP.	The permittee is a natural minor source of HAP. This NESHAP only applies to major sources of HAP.
40 CFR Part 63 Subpart JJJJJ	Industrial, Commercial, And Institutional Boilers Area Source NESHAP	This NESHAP applies to area source of HAP. However, the boiler used for the Insulfoam process fires natural gas exclusively, so it meets the definition "gas-fired boiler" of 40 CFR 63.11237, Therefore, it is exempt from all requirements in the NESHAP as specified in 40 CFR 63.11195.
40 CFR Part 63 Subpart OOOOO	Flexible Polyurethane Foam Production And Fabrication Area Source NESHAP	The permittee does not operate a plant that produces flexible polyurethane foam or rebond foam.

### 7.3 NSPS

As part of the renewal process, the Agency reviewed federal New Source Performance Standards (NSPS) that might apply to this facility to determine applicability. The Agency determined that the only NSPS that applies to the facility is 40 CFR 60 Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

#### 7.3.1 Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII)

The provisions of the NSPS apply to owners or operators of stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005 where the stationary CI ICE are manufactured after April 1, 2006 and are not fire pump engines or are manufactured after July 1, 2006 and are certified fire pump engines. The fire pump engine is a certified fire pump engine constructed in 2012. Therefore, the engine is subject to NSPS Subpart IIII. The engine is Emission Unit 4 in the operating permit and is subject to the requirements listed in Section 2 of the permit. Emission limits are based on the maximum engine power and model year in Table 4 of Subpart IIII. The engine must use diesel fuel that meets the requirement in 40 CFR 80.510(b). CCM only purchases diesel that meets these requirements and maintains records to demonstrate only ultra-low sulfur diesel is used. Since this is an emergency engine, there are also requirements to track hours of operation and limit hours of non-emergency operations. Recordkeeping requirements are included in Conditions 2.51 through 2.53 of the operating permit.

#### 7.3.2 Inapplicable NSPS

Other NSPS reviewed for potential applicability and determined to be inapplicable are listed below in Table 4 and included in Section 8 of the operating permit. This is not an exhaustive list of all NSPS but ones that might apply to this facility based on current operations.

**Table 4. Inapplicable NSPS**

Regulation	Description	Basis for Inapplicability
40 CFR Part 60 Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	The Insulfoam boiler is 8.2 MMBtu/hr, which is less than the 10 MMBtu/hr applicability threshold for Subpart Dc.
40 CFR Part 60 Subpart Kb:	Standards of Performance for VOC Storage Vessels	The permittee has storage vessels for polymeric diphenylmethane diisocyanate, aromatic polyester polyol, flame retardant, potassium octoate, and pentane, but does not have any storage vessels greater than 75 m <sup>3</sup> storing a material with a maximum true vapor pressure greater than 15.0 kPa, except the pressurized pentane storage tank. The pentane storage tank is not a source of emissions; therefore, it does not meet the definition of a stationary source in NSPS Subpart A.

## 8 Explanation of Applicable Requirements

Applicable requirements are listed in several sections of this operating permit as outlined below. The permit only lists the requirements that the Puget Sound Clean Air Agency has determined to be within the scope of the definition of “applicable requirements” under the operating permit program. CCM is legally responsible for complying with all applicable requirements of the operating permit as well as other requirements that do not fit the definition of “applicable requirements” found in Chapter 173-401 Washington Administrative Code (WAC). Some of the applicable requirements contain terms or monitoring, maintenance, and recordkeeping conditions that require detailed explanation in this statement of basis. The specific requirements are listed below, along with any necessary explanations in monitoring, maintenance, and recordkeeping conditions.

Applicable requirements that are not ongoing are not included in the permit because they are not in effect during the term of the permit (a.k.a. “obsolete”). However, these requirements are addressed here in the statement of basis.

### 8.1 Requirement Tables

Sections 1 and 2 of the permit have applicable requirements set up in tables. Section 1.A contains the requirements that apply facility-wide to all the emission units regulated by this permit. These requirements also apply to emission units identified in Section 2 of the permit. If the compliance method for any requirement in Section 1.A. is more extensive for a specific emission unit, that requirement is repeated in Section 2 of the permit with the additional monitoring, maintenance and recordkeeping requirements.

The tables list the citation for the “applicable requirement” and the effective date in the second column. In some cases, the effective dates of the “Federally Enforceable” requirement and the “STATE ONLY” requirement are different because either the state (or local authority) has not submitted the regulation to the Environmental Protection Agency (EPA) for approval into the State Implementation Plan (SIP), or the state (or local authority) has submitted it and the EPA has not yet approved it. “STATE ONLY” effective dates are in italicized font, and shall be understood to include the Washington Department of Ecology (Ecology) and the Puget Sound Clean Air Agency (PSCAA). When the EPA does approve the new requirement into the SIP, the old requirement will be automatically replaced and superseded by the new requirement. The



new requirement will be enforceable by the EPA as well as PSCAA from the date that it is adopted into the SIP, and the old requirement will no longer be an applicable requirement.

The requirement tables in Sections 1 and 2 also contain a brief description of the applicable requirement. This description is not an enforceable condition. In the event of conflict or omission between the information contained in the brief description and the actual statute or regulation cited, the requirements and language of the actual statute or regulation cited shall govern. For more information regarding any of the requirements cited in the second column, refer to the actual requirements cited.

The "Compliance Method" listed in the tables refers to permit conditions below the tables that include monitoring, recordkeeping and reporting obligations the permittee must conduct to comply with the permit. Following the monitoring method is an enforceable requirement of this permit.

The "Reference Test Method" listed in the requirements table is the test method to be used when a source test is required to determine compliance. In some cases where the applicable requirement does not cite a test method, one has been added. If a reference test method is not listed with the requirement, this means a test method is not applicable to the requirement. Reference Test Methods included in the permit are listed in Section 7 of the permit and include the applicable averaging period.

## **8.2 Compliance Methods**

As noted above, compliance methods listed in the applicable requirements table are permit conditions listed below the tables. The compliance methods include monitoring, recordkeeping, and reporting obligations specific to the requirement that will be used by the permittee in determining if they are in continuous or intermittent compliance. In some cases where the applicable requirement has little or no ongoing monitoring requirements, monitoring has been added. This is called "gapfilling" and is authorized under WAC 173-401-615(1)(b).

Whenever the Puget Sound Clean Air Agency uses a "gap-filling" monitoring method, we determine the monitoring frequency using criteria contained in EPA's April 30, 1999 Draft *Periodic Monitoring Technical Reference Document*. We consider "the five criteria" in determining how often the facility should perform a monitoring activity: hourly, once per shift, daily, weekly, monthly, quarterly, annually, or once per five-year permitting period. The five criteria are initial compliance, margin of compliance (monitoring method designed so source will identify potential problems early and take action before a violation occurs), variability of process and emissions, environmental impacts of problems, and other technical considerations.

## **8.3 Section 1.A. General Facility-Wide Emission Limits**

### **8.3.1 Condition 1.1 (General Standards)**

PSCAA Regulation I, Section 3.04 establishes reasonably available control technology (RACT) requirements. There is no monitoring required. Condition 6.16 of the permit specifies that in accordance with WAC 173-401-605(3), emission standards and other requirements contained in rules or regulatory orders in effect at the time of this operating permit renewal shall be considered RACT for purposes of permit renewal.

### **8.3.2 Condition 1.2 (Opacity)**

PSCAA Regulation I, Section 9.03, Emission of Air Contaminant: Visual Standard, prohibits more than 20 percent opacity for more than three minutes in an hour and applies to all

stationary sources. The compliance method is included in Condition 1.16 and requires quarterly visual inspections of all emission points at CCM, with the source taking corrective action or using the reference test method, Ecology Method 9A, to determine opacity if any visible emissions are noted. Corrective action could include shutting down the unit or activity until repaired. Although Ecology Method 9A is the reference test method for the standard, it is provided as an option to demonstrate compliance as part of the monitoring method and does not require test notification and reporting specified for compliance tests (Condition 5.30 and 5.31 of the permit). If visible emissions are observed and an Ecology Method 9A test is conducted which demonstrated emissions did not exceed the applicable standard, the record should be maintained on-site. An Ecology Method 9A test showing an exceedance of the standard must be reported as a deviation.

### **8.3.3 Condition 1.3 (Particulate Matter Standards, General Process Units)**

PSCAA Regulation I, Section 9.09, Particulate Matter Emission Standards, limits particulate emissions to 0.05 grain per dry standard cubic foot (gr/dscf) from equipment used in a manufacturing process. The monitoring method is based on the assumption that generally particulate emissions less than 0.05 gr/dscf usually would not result in visible emissions, and, therefore, the permit requires the same monitoring method at the same frequency as the opacity requirements in Condition 1.2. The emission units that are general process units are unlikely to generate particulate matter emissions above this grain loading standard if operating as permitted. There are PM emissions from the foam cutting operations. The crosscut, side trim, gang, and foot saws are connected to a dust collection system that is routed to a baghouse. Catastrophic failure of the dust collector might cause of a deviation of the particulate standard, but additional monitoring is required for the dust collector in Condition 2.19.

### **8.3.4 Condition 1.4 (Particulate Matter Standards, Combustion Sources)**

PSCAA Regulation I, Section 9.09, Particulate Matter Emission Standards, limits particulate emissions to 0.05 gr/dscf corrected to 7% oxygen from fuel burning equipment (i.e., equipment that produces hot air, hot water, steam, or other heated fluids by external combustion of fuel) combusting natural gas.

All of the non-emergency fuel burning equipment at the facility burns natural gas. Natural gas combustion devices have very low particulate matter emissions when maintained and operated in good working order and should not have visible emissions. Therefore, the Agency has determined that the same compliance method as is used for particulate matter standards for general process units is adequate – quarterly opacity monitoring.

### **8.3.5 Conditions 1.5 and 1.6 (Fugitive Emissions)**

PSCAA Regulation I, Section 9.15, Fugitive Dust Control Measures, and WAC 173-400-040(4)(a), General Standards for Maximum Emissions – Fugitive Emissions, both require reasonable precautions to minimize or prevent fugitive emissions. PSCAA's rule also describes specific examples of reasonable precautions. Quarterly facility-wide inspections and complaint response are sufficient to monitor for changes that would cause fugitive emissions or unexpected buildup of dust.

### **8.3.6 Conditions 1.7, 1.8 and 1.9 (Health, Welfare and Nuisance Standards)**

PSCAA Regulation I, Section 9.11, Emission of Air Contaminant: Detriment to Person or Property, and WAC 173-400-040(5), General Standards for Maximum Emissions – Odors, are similar requirements that address emissions that may be environmentally detrimental or cause a

nuisance. The monitoring method is based on responding to complaints and quarterly general inspections of the facility to identify any emissions that are likely to be injurious to human health, plant or animal life, or property, or that unreasonably interfere with enjoyment of life and property. Receiving complaints does not necessarily mean CCM is in violation of this requirement, but CCM has a responsibility to investigate complaints and take corrective action if necessary. There have been odor complaints filed with the Puget Sound Clean Air Agency naming the CCM facility as a potential source of the odor. The Agency was not able to verify whether or not CCM was the source of the odor.

The buildings at CCM are totally enclosed and all the roadways and parking lots are paved. The Puget Sound Clean Air Agency has never noted any fugitive dust emissions from the plant grounds. The Puget Sound Clean Air Agency has not received any complaints for the facility related to fugitive dust. Therefore, the Puget Sound Clean Air Agency has determined that the quarterly facility-wide inspections required in Condition 1.15 of the permit are sufficient to monitor for changes that would cause a fugitive emission or unexpected buildup of dust on the roadways and parking lots.

### **8.3.7 Condition 1.10 (SO<sub>2</sub> Standard)**

PSCAA Regulation I, Section 9.07, Sulfur Dioxide Emission Standard, limits sulfur dioxide emissions to 1,000 ppmvd (corrected to 7% oxygen for fuel burning equipment).

CCM combusts primarily pipeline-grade natural gas, and CCM only uses diesel in their emergency fire pump. Based on the amount of sulfur in natural gas fuel, it has been shown that combustion units that are fired on natural gas cannot exceed the 1,000 ppm SO<sub>2</sub> limit. Diesel fuel used in the emergency engine would also not have high enough sulfur content to exceed these limits. Therefore, no additional monitoring is required.

### **8.3.8 Condition 1.11 (Hydrochloric Acid Standard)**

Puget Sound Clean Air Agency Regulation I, Section 9.10 specifies that hydrochloric acid emissions shall not exceed 100 ppm (dry) corrected to 7% O<sub>2</sub> for combustion sources, including both internal and external combustion units. Since CCM only combusts pipeline-grade natural gas and diesel fuel (only in the emergency engine) and the products used at the facility contain no chlorine, the facility is incapable of violating the standard while complying with the other requirements in the permit. Therefore, the permit does not contain additional monitoring requirements.

### **8.3.9 Condition 1.12 (Maintain Equipment in Good Working Order)**

PSCAA Regulation I, Section 9.20(b) requires CCM to maintain equipment or control equipment not subject to Section 9.20(a) in good working order. (Section 9.20(a) applies to sources that received a Notice of Construction Order of Approval under PSCAA Regulation I, Article 6. Since it applies to specific emission units, Section 9.20(a) requirements are included in Section 2 of the permit.) Monitoring for this condition refers to facility-wide monitoring and the facility Operation & Maintenance Plan requirements. The facility-wide inspections provide monitoring of the general effectiveness of CCM's Operation and Maintenance (O&M Plan). This general monitoring and compliance with the O&M Plan provides sufficient monitoring criteria to certify that the equipment has been maintained in good working order. However, PSCAA reserves the right to evaluate the maintenance of each piece of equipment to determine if it has been maintained in good working order.

### **8.3.10 Condition 1.13 (O&M Plan)**

In accordance with Puget Sound Clean Air Agency Regulation I, Section 7.09(b), CCM is required to develop and implement an O&M Plan to assure continuous compliance with Puget Sound Clean Air Agency Regulations I, II, and III. The requirement specifies that the Plan shall reflect good industrial practice, but does not define how to determine good industrial practice. To clarify the requirement, the Puget Sound Clean Air Agency added that, in most instances, following the manufacturer's operations manual or equipment operational schedule, minimizing emissions until the repairs can be completed and taking measures to prevent recurrence of the problem may be considered good industrial practice. This language is consistent with a Washington Department of Ecology requirement in WAC 173-400-101(4). The Puget Sound Clean Air Agency also added language establishing criteria for determining if good industrial practice is being used. These include, but are not limited to, monitoring results, opacity observations, review of operations and maintenance procedures, and inspections of the emission unit or equipment. The Puget Sound Clean Air Agency added this wording in response to Washington State court decision, Longview Fibre Co. v. DOE, 89 Wn. App. 627 (1998), which held that similar wording was not vague and gave sufficient notice of the prohibited conduct.

Puget Sound Clean Air Agency Regulation I, Section 7.09(b) also requires CCM to promptly correct any defective equipment. However, the underlying requirement in most instances does not define "promptly"; hence for significant emission units and applicable requirements that CCM has a reasonable possibility of violating or that a violation would cause an air quality problem, the Puget Sound Clean Air Agency added clarification that "promptly" usually means within 24 hours. For many insignificant emission units, "promptly" cannot be defined because the emission sources and suitable pollution control techniques vary widely, depending on the contaminant sources and the pollution control technology employed. However, the permit identifies a means by which to identify if CCM is following good industrial practice.

As described in Condition 5.5, CCM must report to the Puget Sound Clean Air Agency any instances where it failed to promptly repair any defective equipment. In addition, CCM has the right to claim certain problems were a result of an emergency (Condition 5.13) or unavoidable (Conditions 5.14 – 5.18).

Following these requirements demonstrates that CCM has properly implemented the O&M Plan, but it does not prohibit the Puget Sound Clean Air Agency or EPA from taking any necessary enforcement action to address violations of the underlying applicable requirements after proper investigation.

## **8.4 Section 1.B. Facility-wide VOC and HAP Emission Limits**

### **8.4.1 Condition 1.22 (Plant-Wide VOC Emission Limit)**

Puget Sound Clean Air Agency Order of Approval No. 12019, Condition 3 imposes a VOC emission limit of 249.0 tons during any consecutive 12-month period. The compliance methods are listed in Conditions 1.21 through 1.23 and are consistent with Order of Approval No. 12019, Conditions 3, 4, and 5. These include tracking the quantity of final product produced, calculating VOC emissions, and notifying the Agency if emissions exceed 237.5 tons during the previous consecutive 12-month period. Condition 1.22 contains the requirement to notify the Agency if emissions exceed 237.5 tons during the previous consecutive 12-month period, which is established in Order of Approval No. 12019, Condition 4. The language of the condition has been updated slightly to clarify that the notification is required within 15 days of calculating emissions in accordance with Condition 1.21.

The calculation used for determining the VOC emissions is shown below. Using this calculation

adequately demonstrates the facility is below VOC limit. However, if CCM notifies the Agency that they have exceeded 237.5 tons during the previous consecutive 12-month period, the Agency may require additional refinement of this calculation to verify it adequately characterizes emissions.

#### **Hunter Panels VOC Emissions**

Pentane Process Emissions (lbs) = 0.009 x [lbs pentane used]

*\* This factor is calculated assuming an 86% capture efficiency, 97% destruction efficiency, and assuming that 94.75% of the pentane remains in the closed cell foam, as documented in the worksheet for Notice of Construction #10404,*

#### **Insulfoam VOC Emissions**

$$E_T = \sum[M_i \times P_i][E_{PL}][1 - CE_{COMB}] + [M_i \times P_i][E_{SL}]$$

Where:

$E_T$  = Total pentane loss from EPS processing and storage

$M_i$  = Total pounds of EPS bead type "i" processed per month

$P_i$  = Pentane content of EPS bead type "i"

$E_{PL}$  = Process loss emission factors (44%)

$CE_{COMB}$  = Combined control efficiency (capture efficiency x destruction efficiency)

$E_{SL}$  = Conservative storage loss emission factor (21%)

*\* The process loss and storage loss emission factors are based on information provided in Notice of Construction application #10404.*

#### **Total VOC Emissions**

Total VOC Emissions = [Hunter Panels VOC Emissions (tpy)] + [Insulfoam VOC Emissions (tpy)]

### **8.5 Section 2.A - Foam Production Processes**

#### **8.5.1 Emission Unit No. 1: Hunter Panels Process**

This emission unit consists of activities associated with the Hunter Panels process. This emission unit consists of a polyisocyanurate foam pour table, lamination line, and foam cutting table. The foam cutting table is controlled by a dust collector, and pentane emissions from the foam pour table, lamination line, and foam cutting table dust collector are controlled by a RTO.

Puget Sound Clean Air Agency Order of Approval No. 12019 establishes requirements for the Hunter Panels process. Condition 6 of Order of Approval No. 12019 requires that at least 86% of the pentane emissions from the foam head, laminating table, and foam cutting table dust collector must be captured and routed to the RTO, and the RTO must have at least 97% destruction efficiency. These efficiencies were determined based on testing at other Hunter Panels facilities, according to Notice of Construction #10404. These requirements are established as Conditions 2.2 and 2.3, respectively, in the AOP.

Condition 2.3 includes the requirement to comply with the 0.05 gr/dscf emission limit established by PSCAA Regulation I, Section 9.09.

Condition 2.4 includes the requirement to maintain the equipment associated with the Hunter Panels process in good working order, as required by PSCAA Regulation I, Section 9.20.



Compliance methods for these requirements are listed in Conditions 2.11, 2.14 through 17, 2.19, 1.15, and 1.18 through 1.19 and include VOC source testing, RTO monitoring, capture system monitoring, and dust collector monitoring including a quarterly inspection and O&M plan requirements. The basis of each of these requirements is described below.

Conditions 1.15, 1.18, and 1.19 are discussed above in Section 8.3 of this SOB. Condition 1.15 is a gap-filled requirement, and Conditions 1.18 and 1.19 are established by Agency Regulation I, Section 7.09(b).

Conditions 2.11, 2.14, 2.16, 2.17, and 2.19 are established by Order of Approval No. 12019.

As discussed in Section 7 of this SOB, CCM has multiple emission units subject to CAM. CCM submitted a CAM plan with its AOP application, which was reviewed by the Agency. CAM requirements are included in Conditions 2.20 through 2.32. Condition 2.15 (RTO pressure drop monitoring) incorporates additional monitoring to satisfy CAM (as described in 40 CFR 64.6) that was not otherwise required by an Order of Approval or regulation.

### **8.5.2 Emission Unit No. 2: Insulfoam Process**

This emission unit consists of activities associated with the Insulfoam process. This emission unit consists of the EPS foam block molder with a pre-expander and bead aging bag farm controlled by a RTO.

Puget Sound Clean Air Agency Order of Approval No. 12019 establishes requirements for the Hunter Panels process. Condition 7 of Order of Approval No. 12019 requires that the bead aging bag farm have a permanent total enclosure (PTE), which is established by Condition 2.7 of the AOP. Condition 8 of Order of Approval No. 12019 requires that at least 67% of the pentane emissions from the pre-expansion aging and block molding equipment be captured and routed to the RTO, and the RTO must have at least 97% destruction efficiency. These efficiencies were originally established in Order of Approval No. 10404 and were based on requirements for the previous Insulfoam facility in Kent, WA. These requirements are established as Conditions 2.8 and 2.9, respectively, in the AOP.

Condition 2.10 includes the requirement to maintain the equipment associated with the Insulfoam process in good working order, as required by PSCAA Regulation I, Section 9.20.

Compliance methods for these requirements are listed in Conditions 2.12 through 2.18, 1.15, and 1.18 through 1.19 and include VOC source testing, RTO monitoring, capture system monitoring, quarterly inspections, and O&M plan requirements.

Conditions 1.15, 1.18, and 1.19 are discussed above in Section 8.3 of this SOB. Condition 1.15 is a gap-filled requirement, and Conditions 1.18 and 1.19 are established by Agency Regulation I, Section 7.09(b).

Conditions 2.12 through 2.14, 2.16, and 2.17 are established by Order of Approval No. 12019.

CAM requirements are included in Conditions 2.20 through 2.32. Condition 2.15 (RTO pressure drop monitoring) and Condition 2.18 (bead aging bag farm pressure monitoring) incorporate additional monitoring to satisfy CAM (as described in 40 CFR 64.6) that was not otherwise required by an Order of Approval or regulation.



## **8.6 Section 2.B – Combustion Equipment**

### **8.6.1 Emission Unit No. 3: Insulfoam Boiler**

Emission Unit No. 3 consists of all natural gas-fired equipment larger than applicable size thresholds (5 MMBtu/hr). This emission unit includes the natural gas-fired boiler for the Insulfoam process, which is the only combustion unit at the facility larger than 5 MMBtu/hr.

The general facility-wide opacity monitoring requirement is listed in Condition 2.33. The monitoring method in Condition 2.36 requires that CCM monitor for opacity quarterly.

Condition 2.34 includes the requirement to comply with the 0.05 gr/dscf emission limit established by PSCAA Regulation I, Section 9.09.

Natural gas combustion devices have very low particulate matter emissions when maintained and operated in good working order and should not have visible emissions. Therefore, the Agency has determined that the same compliance method as is used for particulate matter standards for general process units is adequate – quarterly opacity monitoring.

Condition 2.35 includes the requirement to maintain the boiler in good working order, as required by PSCAA Regulation I, Section 9.20.

### **8.6.2 Emission Unit No. 4: Fire Pump Engine**

Emission Unit No. 4 includes equipment that is necessary for emergency situations and subject to applicable requirements in 40 CFR Part 63, Subpart ZZZZ and 40 CFR 60, Subpart IIII. This emission unit includes a 260 horsepower diesel fire pump, a compression ignition (CI) reciprocating internal combustion engine (RICE). For this unit, CCM must comply with the emission limits in Table 4 of 40 CFR Part 60, Subpart IIII, as contained in Condition 2.43. Recordkeeping requirements are included in Conditions 2.52 through 2.54.

## **9 Standard Terms and Conditions**

Some of the requirements that are more general in nature are included in Section 3, Standard Terms and Conditions. This section also contains the standard terms and conditions specifically listed in WAC 173-401-620.

## **10 General Permitting Requirements**

Permit actions pertaining to the operating permit and new source review are included in Section 4, General Permitting Requirements.

## **11 General Compliance Requirements**

General compliance requirements are included in Section 5 of the permit. These include certification and reporting requirements, requirements associated with inspections and investigations, and compliance testing requirements. Actions required for an affirmative defense for emergencies or excess emissions are also included in this section. Finally, this section provides a table summarizing the effective date of the regulations in the permit at the time of permit issuance. Regulations that are approved into the Washington State Implementation Plan (SIP) are federally enforceable. In some cases, there are two versions of the regulation because the newer version has not been adopted into the SIP. In this case, the older version of the regulation would be federally enforceable and the current rule would only be enforceable by the Agency (or State).

### **11.1 Excess Emissions (WAC 173-400-107 through -109)**

On August 16, 2018, Ecology amended WAC 173-400 to remove exceptions for emissions during startup, shutdown, and malfunction to comply with EPA's direction in the startup, shutdown, malfunction SIP call. WAC 173-400-107 (Excess Emissions) is currently in effect and was approved in the SIP on September 20, 1993. The requirements of WAC 173-400-107 are included in Conditions 5.14 through 5.18 of the AOP. WAC 173-400-107 and these permit conditions will remain in effect until the effective date of EPA's removal of the September 20, 1993 version of this section from the SIP.

Upon the effective date of EPA's removal of the September 20, 1993 version of WAC 173-400-107 from the SIP, WAC 173-400-108 (Excess Emissions Reporting) and WAC 173-400-109 (Unavoidable Excess Emissions) will take effect. These sections are included in the AOP in Conditions 5.19 through 5.21 and Conditions 5.22 through 5.26, respectively.

## **12 Generally Applicable Requirements**

Some of the requirements that are generally applicable are included in Section 6 of the permit. This includes record retention, asbestos requirements, open burning requirements, stratospheric ozone and climate protection requirements, chemical accident prevention provisions in 40 CFR Part 68, concealment and masking, tampering, RACT requirements, annual emission reporting requirements, greenhouse gas reporting requirements and non-road engine notification requirements.

### **12.1 Chemical Accident Prevention Program (40 CFR 68)**

40 CFR Part 68 applies to owners operators of stationary sources that have more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115. Pentane is listed as a regulated flammable substance in 40 CFR 68.130 with a threshold quantity of 10,000 lbs. The total quantity of pentane present at the CCM facility is greater than 10,000 lbs; therefore, the facility is subject to 40 CFR Part 68.

## **13 Inapplicable Requirements**

The requirements identified in Section 8 of the air operating permit do not apply to the facility, or to the specific emissions units identified in the permit. The permit shield applies to all requirements so identified.

## **14 Insignificant Emission Units and Activities**

Section 9 of the permit addresses insignificant emission units and activities. In accordance with WAC 173-401-530(1), determination of an emission unit or activity as insignificant does not exempt the unit or activity from any applicable requirement.

An emission unit or activity is insignificant based on one or more of the criteria identified in WAC 173-401-530. This includes categorical exemption, exemption based on emissions being below emission thresholds in WAC 173-401-530(4), or exemption based on size or production rate. Activities that generate only fugitive emissions which are subject to no applicable requirement other than generally applicable requirements can also be classified as insignificant. Categorically exempt insignificant emission units or activities do not need to be listed in the permit application, but all others do.

CCM identified several items of equipment that qualify as insignificant due to capacity below the specified levels in WAC 173-401-533. These items of equipment are listed as insignificant

emission units in Section 9 of the permit. Monitoring requirements for insignificant emission units are detailed in Condition 1.19 of the permit. In essence, CCM will be required to use good industrial practices to maintain insignificant emission units, and to promptly repair defective equipment or shut down the unit until defective equipment can be repaired. CCM will not have to keep records of maintenance of insignificant emission units except when such equipment is inspected and a problem requiring prompt repair is discovered during a quarterly plant-wide inspection.

### **15 Public Comments and Responses during renewal process**

All public comment procedures called for a draft permit in WAC 173-401-800 were addressed by the Agency, including publishing notice on the Agency website. <include comments and responses>

### **16 EPA Comment Period**

In accordance with WAC 173-401-700(f), EPA Region 10 was provided with a copy of the proposed permit for review. <complete>