

**ORDER OF APPROVAL**  
**NOTICE OF CONSTRUCTION 24NOC1628**  
**ISSUED to Mills Crematory on**  
**FEB 08 2024**

This Order of Approval ("Order") is issued in accordance with Olympic Region Clean Air Agency ("ORCAA") Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6.

Conditional approval to install a cremator located at 5725 Littlerock Rd SW, in Tumwater ("Approved Location"), for operation solely as described in the associated Notice of Construction ("NOC") application 24NOC1628, is hereby GRANTED to Mills Crematory ("Applicant"), subject to the Conditions of Approval listed below.

This Order and the Conditions of Approval herein remain in effect for the life of the Approved Equipment as used at the Approved Location and shall be binding on Applicant, current owners and operators of the equipment, and Applicant's heirs, successors and assigns unless amended or superseded by a subsequent Order issued by ORCAA or unless the equipment is permanently shut down. The Applicant must notify any subsequent owner, operator, heirs, successor or assigns of this Order and the Conditions of Approval herein.

Conditions of Approval established in this Order shall be enforceable in addition to any applicable state, local and federal regulations, or standards in existence now or in the future. Compliance with the conditions of this Order do not relieve the Applicant or any owner or operator from compliance with ORCAA Regulations, chapter 70A.15 of the Revised Code of Washington, or any other emissions control requirements, nor from any penalties for failure to comply with the same. Applicant may appeal this Order to the Pollution Control Hearings Board ("PCHB") by filing a written appeal with the PCHB and serving a copy upon ORCAA within thirty (30) days of receipt of this Order.

This Order is GRANTED, for the Approved Location, subject to the following Conditions of Approval:

1. **Approved Equipment.** The cremator as described in Notice of Construction application No. 24NOC1628 and the associated Final Determination is approved for construction and operation subject to conditions in this Order of Approval.  
[Regulatory Basis: ORCAA 6.1(a); ORCAA 6.1.2(I); 40 CFR part 52.2470(c), Table 6]
2. **Preapproval Required.** Prior approval by ORCAA may be required for the following as specified in ORCAA Rule 6.1:
  - a. Construction, installation, or establishment of any stationary source;
  - b. Modification to any existing stationary source;

- c. Replacement or substantial alteration of emission control technology installed on an existing stationary source; or,
- d. Deviations from the approved plans, drawings, data, and specifications of the stationary sources listed in Table 1.

**Table 1 Stationary sources located Mills Crematory**

| Emission Unit  | Specifications:   |
|----------------|---|
| EU1 – Cremator | American Crematory Equipment Co. Cremator<br>Model: A-350 Instant Access<br>S/N: 101923<br>Primary Chamber: 0.6 MMBtu/hr; 1600 °F<br>Secondary Chamber: 1.2 MMBtu/hr; 1650 °F<br>Fuel: Natural Gas<br>In stack opacity monitor; alarm set at 10%<br>Approved for cremation of human remains |

[Regulatory Basis: ORCAA 6.1(a); ORCAA 6.1.2(l); WAC 173-400-110(2); WAC 173-400-111(10)]

3. **Cremator Operation:** Operation of the cremator is subject to the following:
  - a. An operator must be available on site to service the equipment at all times during cremations.
  - b. The cremator must be used to cremate human remains only. For the purpose of this approval order, cremation of human remains means incineration of the following:
    - i. Human remains.
    - ii. Body bags required by OSHA or other regulations. Only chlorine-free body bags shall be provided by the owner/operator for cremations. Body bags provided by others are not subject to this restriction.
    - iii. Cremation containers and cremation caskets.
    - iv. Personal effects containing no more than five pounds of combustible material.
  - c. Provided a functional opacity alarm continuously monitors stack emissions as described in Condition #8b, the cremator may be operated during both daylight and non-daylight hours.
  - d. In the event the opacity alarm is inoperable, damaged, or down for repairs, the cremator may operate during daylight hours only and as described in Condition #8c. In this operating scenario, no new cases may begin within two (2) hours of dusk.
  - e. The Facility is limited to 1,000 cases cremated in any calendar year.
  - f. The Facility is limited to 6 cases cremated on any calendar day.

[Authority: ORCAA 8.4(b); 6.1.4(a)(2); WAC 173-400-050(a)]

4. **Opacity Limit:** Emissions from the cremator must not exceed an average opacity of 10% in any six-minute period as determined by EPA 40CFR Part 60 Appendix A Method 9.

[Authority: WAC 173-400-113; ORCAA 6.1.4(a)(2)]

5. **Afterburner Operation:**

- a) The owner or operator must install and operate a device to continuously measure the temperature in the afterburner during the cremation cycle.
  - b) The afterburner must be operated with a temperature set point at or above 1600 °F during cremation.
  - c) Prior to charging the primary combustion chamber, the afterburner must reach a minimum of 1600 °F.
  - d) The afterburner must be maintained above 1500 °F during the entire cremation process.
- [Authority: ORCAA 6.1.4(a)(2); WAC 173-400-113]

6. **Operations and Maintenance:** The owner or operator must devise and implement an Operations and Maintenance (O&M) plan to ensure good operating condition and repair of the crematory. The O&M plan must be updated when necessary to represent current O&M procedures. Emissions that result from failure to follow the O&M plan may be considered evidence that the equipment was not properly operated, maintained, or monitored. At a minimum the O&M plan must include the following provisions:

- a) Manufacturer's recommendations and specifications for operating and maintaining the cremator. If no manufacturer's recommendations are available, the owner or operator must develop O&M procedures and submit these to ORCAA for approval.
- b) Standard procedures for taking immediate and appropriate corrective action in the event of a malfunction of the equipment which may cause excess emissions.
- c) Standard procedures for responding to complaints. Complaint response procedures must include documentation of the time the complaint was received, conditions which were identified as contributing to the occurrence and any steps that were taken to investigate and respond to the complaint.

[Authority: ORCAA 4.3; 8.3(d) & (e); WAC 173-400-101(4)]

7. **Recordkeeping:** The following records must be maintained and kept on site for at least five years:

- a) A copy of the ORCAA Final Determination and ORCAA Approval Order containing the applicable requirements and conditions for approval.
- b) The O&M plan required by Condition #6.
- c) Daily records of operating hours and number of cremations.
- d) Cumulative number of cremations for the calendar year, updated at least monthly.
- e) For each cremation cycle:
  - i) Date and time of start-up and shut down of each cremation cycle;
  - ii) Record of whether the opacity monitor or opacity surveys were used for determining compliance per Condition #8(b and c); and
  - iii) Temperature of the secondary chamber during each use, measured at the beginning and end of each cycle.
- f) Records of actions taken to respond to malfunctions and complaints.
- g) Records of crematory maintenance and repair activity.
- h) Records of opacity monitor testing as required under Condition #8b(ii).





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# **NEW SOURCE**

## **FINAL DETERMINATION**

### **to APPROVE:**

## **Cremator Replacement**

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## **Mills Crematory**

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## **24NOC1628**

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## **February 6, 2024**

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## NOTICE OF CONSTRUCTION FINAL DETERMINATION TO APPROVE

Olympic Region Clean Air Agency

|                       |   |                |                      |
|-----------------------|---|----------------|----------------------|
| <b>Issued to:</b>     | <b>Mills Crematory</b>                    | <b>County:</b> | <b>Thurston - 67</b> |
| <b>Location:</b>      | <b>5725 Littlerock Rd SW<br/>Tumwater</b> | <b>Source:</b> | <b>922</b>           |
| <b>Application #:</b> | <b>24NOC1628</b>                          | <b>RC:</b>     | <b>5</b>             |
| <b>Prepared on:</b>   | <b>February 6, 2024</b>                   | <b>File:</b>   | <b>544</b>           |

### 1. Summary

Mills Crematory (Mills) seeks approval from Olympic Region Clean Air Agency (ORCAA) to install a replacement cremator at 5725 Littlerock Rd SW, Tumwater, Washington. Installing a replacement cremator at the facility triggers New Source Review (NSR) under ORCAA's regulations for administering the Washington Clean Air Act, which requires Mills to secure ORCAA's approval of a Notice of Construction (NOC) permit application prior to installing the replacement cremator. ORCAA staff reviewed Mills' proposal and concluded it may be conditionally approved. Recommended conditions of approval are detailed in Section 17 of this Final Determination report.

### 2. Regulatory Background

Pursuant to the Washington Clean Air Act under chapter 70A.15 of the Revised Code of Washington, ORCAA's Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c)<sup>1</sup> require New Source Review (NSR) for new stationary sources of air pollution (referred to as new sources) in ORCAA's jurisdiction. NSR is also required prior to installing, replacing, or substantially altering any air pollution control technology. NSR generally refers to the process of evaluating air quality impacts and the likelihood of compliance with applicable air regulations and standards. NSR and approval of an air permit by ORCAA is required prior to commencing construction or modification of any new source or prior to installing, replacing, or substantially altering air pollution control technology. The goal of NSR is to assure compliance with applicable air regulations and standards, including equipment performance standards and ambient air quality standards.

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<sup>1</sup> A State Implementation Plan (SIP) is a collection of regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce the National Ambient Air Quality Standards, or NAAQS, and to fulfill other requirements of the federal Clean Air Act. The Clean Air Act requires the EPA to review and approve all SIPs. ORCAA's SIP was last approved by EPA in 1995.



NSR is initiated by a project proponent submitting an air permit application referred to as Notice of Construction (NOC) application<sup>2</sup>, which provides ORCAA information on the proposed project of sufficient detail to characterize air impacts. NOC applications are posted on ORCAA's website and may undergo a public notice and comment period if requested by the public or if emissions increases trigger an automatic public notice. Approval of a NOC in an attainment or unclassifiable area<sup>3</sup> is contingent on verifying a proposed project meets the following criteria from ORCAA's Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6:

1. **Performance Standards** - The new stationary source will likely comply with applicable air-performance standards such as federal new source performance standards (NSPS), national emission standards for hazardous air pollutants (NESHAPs), or any performance standards adopted under chapter 70A.15 RCW;
2. **BACT** - The new stationary source will employ "Best Available Control Technology" (BACT) to control all air pollutants emitted;
3. **RACT** – Replaced or substantially altered air pollution control technology meets the standard of "Reasonably Available Control Technology" (RACT) as defined in ORCAA Rule 1.4;
4. **Ambient Air Quality** – Emissions from the new stationary source will not cause or contribute to a violation of any ambient air quality standard;
5. **Federal Air Permitting Requirements** - The new stationary source secures all applicable federal air permits that may apply; and,
6. **Air Toxics** - If there are increases in toxic air pollutant (TAP) emissions, the requirements of Washington's Controls for New Sources of Toxic Air Pollutants under Chapter 173-460 WAC are met.

In this case, Mills is proposing to install a replacement cremator at their Crematory located in Tumwater, Washington. The new cremator is considered a new Emissions Unit (EU) and has a larger capacity than the cremator it is replacing. Installing a cremator is considered establishing a stationary source and requires ORCAA's approval through this Notice of Construction (NOC) permit.

### 3. Facility Background

Mills is an existing crematory located in Tumwater, WA. Mills has been offering funeral services at this location since 1901. This is Mills' second NOC for a cremator.

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<sup>2</sup> There are two categories of NOC applications: Notice of Construction (NOC) and Notice of Construction Revision (NOR). NOCs are required for new or modified sources, new control technology, replacing an existing stationary source or control technology, and substantially altering control technology. NORs are required when an owner or operator requests a revision to an existing air permit issued by ORCAA.

<sup>3</sup> Unclassified area or "attainment area" means an area that has not otherwise been designated by EPA as nonattainment with ambient air quality standards for a particular regulated pollutant. Attainment area means any geographic area in which levels of a given criteria air pollutant (e.g., ozone, carbon monoxide, PM10, PM2.5, and nitrogen dioxide) meet the health-based National Ambient Air Quality Standards (NAAQS) for that pollutant. An area may be an attainment area for one pollutant and a nonattainment area for others.

**Table 3.1. Permitting History with ORCAA**

| Permit # (date)    | Description  | Status  |
|--------------------|--|---|
| 97NOC009 (4/21/97) | Conditional approval for an American A-350 cremator. | Active, NOC will be retired when equipment is removed |

## 4. Facility Description

Mills is a cemetery offering cremation services. There are no other operations or equipment at the facility regulated by ORCAA.

**Figure 4.1: Facility Location**



\* Imagery ©2024 Airbus, CNES/Airbus, Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2024

\*\* Annotated by ORCAA

## 5. Project Description

Mills is installing a new American Crematory Equipment Co. A-350 Instant Access cremator to replace the existing cremator.

**Table 5.1: New Emission Unit**

| Emission Unit  | Description   |
|----------------|---|
| EU1 – Cremator | American Crematory Equipment Co. Cremator<br>Model: A-350 Instant Access<br>S/N: 101923 |

Primary Chamber: 0.6 MMBtu/hr; 1600 °F  
 Secondary Chamber: 1.2 MMBtu/hr; 1650 °F  
 Fuel: Natural Gas  
 In stack opacity monitor; alarm set at 10%  
 Approved for cremation of human remains

## 6. Emission Increases

ORCAA staff calculated PTE associated with an as-reviewed limit of 1,000 cases cremated in a year and 7 cases cremated in a single 24-hour period. Limits on the number of cases cremated will be made enforceable by condition. During the review process ORCAA staff asked Mills how many cases they historically cremated and the average is about 700 cases per year with the highest two-year average being 800 cases/year. Typically Mills cremates up to three cases on a given day. The limits imposed by the permit Order of Approval should not hinder Mills' operations. ORCAA staff used emissions factors associated with firing natural gas and the cremation of human remains.

**Table 6.1. Project Emissions**

| Pollutant  | Classification<br>(Criteria <sup>a</sup> /HAP <sup>b</sup> /TAP <sup>c</sup> ) | Emission<br>Rate<br>(lb/hr) | Emission<br>Rate<br>(lb/day) | Emission<br>Rate<br>(lb/yr) |
|--|--|-----------------------------|------------------------------|-----------------------------|
| PM (Total Particulate)                               | N/A  | 0.0517                      | 0.542                        | 90.4                        |
| PM <sub>10</sub> (Total Particulate) (<= 10 µm)      | Criteria   | 0.0517                      | 0.542                        | 90.4                        |
| PM <sub>2.5</sub> (Fine Particulate (<=2.5 µm)       | Criteria   | 0.0517                      | 0.54                         | 90.4                        |
| VOC <sup>d</sup> (Volatile Organic Compounds as VOC) | Criteria   | 0.118                       | 1.24                         | 207                         |
| SO <sub>2</sub> (Sulfur Dioxide)                     | Criteria   | 0.0851                      | 0.894                        | 149                         |
| NO <sub>x</sub> (Nitrogen Oxides)                    | Criteria   | 2.09                        | 21.9                         | 3651                        |
| CO (Carbon Monoxide)                                 | Criteria, TAP  | 1.75                        | 18.4                         | 3064                        |
| Lead   | Criteria, TAP  | 0.0000260                   | 0.000273                     | 0.0455                      |
| Toxic Air Pollutants, total                          | TAP  | 1.99                        | 3066                         | 3649                        |

<sup>a</sup> EPA has established national ambient air quality standards (NAAQS) for six of the most common air pollutants—carbon monoxide, lead, ground-level ozone, particulate matter, nitrogen dioxide, and sulfur dioxide—known as “criteria” air pollutants (or simply “criteria pollutants”).

<sup>b</sup> HAP means Hazardous Air Pollutant. Hazardous Air Pollutants are those known to cause cancer and other serious health impacts and are regulated under the federal Clean Air Act.

<sup>c</sup> TAP means any toxic air pollutant regulated in Washington and listed in WAC 173-460-150.

<sup>d</sup> VOC is regulated as a Criteria Air Pollutant because it is a precursor to Ground Level Ozone (O<sub>3</sub>)

## 7. Administrative Requirements for NOC Applications

NOC applications are subject to filing fees according to ORCAA Rule 3.3(b) and may incur additional NOC processing fees at an hourly rate according to ORCAA Rule 3.3(c). Applicable NOC filing fees for Mills' NOC application were paid prior to ORCAA commencing processing of the application. Additional NOC processing fees may apply and will be determined and assessed prior to issuing a Final Determination and the Approval Order (a.k.a.: Air Permit).

NOC applications are subject to a 15-day public notice and an opportunity to request a 30-day public comment period and opportunity for a public hearing. Public notice of Mills' NOC application was posted on ORCAA's website on January 12, 2024. The time period for filing comments on the application and requests for a public comment period expired on January 27, 2024. ORCAA did not receive any comments from the public.

## 8. SEPA Review

The State Environmental Policy Act (SEPA) under Chapter 197-11 WAC is intended to provide information to agencies, applicants, and the public to encourage the development of environmentally sound proposals. The goal of SEPA is to assure that significant impacts are mitigated.

In this case, the cremator replacement is categorically exempt from SEPA through WAC 197-11-800(3) because it involves no material expansions or changes in use beyond that previously existing (operation of a cremator).

## 9. Criteria for Approval

ORCAA's Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, establish the following general criteria for approving new stationary sources and modifications to existing stationary sources of air pollution in ORCAA's region:

1. **Performance Standards** - Any new stationary source or modification will likely comply with applicable air-performance standards such as the federal new source performance standards (NSPS), national emission standards for hazardous air pollutants (NESHAPs), and any performance standards adopted under chapter 70A.15 RCW;
2. **BACT** - The new or modified stationary source is controlled to a level that meets the standard of "Best Available Control Technology" (BACT);
3. **Ambient Air Quality** – Any increase in air emissions will not cause or contribute to violation of any ambient air quality standard;
4. **Federal Air Permitting Requirements** – All applicable federal air permits, if required, are secured;
5. **Washington Air Toxics Regulations** - If there are increases in toxic air pollutant (TAP) emissions, the requirements of Washington's Controls for New Sources of Toxic Air Pollutants under Chapter 173-460 WAC are met; and,
6. **Public Outreach** – Public notice and comment requirements in ORCAA's regulations and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6 are met.

The following sections provide more detail on each criterion.

## 10. Applicable Performance Standards (Summary)

ORCAA's Rule 6.1.4(a)(1) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, require a finding that any new or modified stationary source will likely comply with applicable state, federal and local performance standards for air emissions

including emission standards adopted under chapter 70A.15 RCW, emissions standard of ORCAA, and federal emission standards including New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT standards). The performance standards in Table 10.1 were determined applicable to the proposed cremator. The performance standards in Table 10.2 were determined relevant to the proposed cremator, but inapplicable. A comprehensive list of applicable performance standards that apply to all stationary sources of air pollution located at the facility, as well as general air regulations and standards that apply, are included in the Appendix.

**Table 10.1: Applicable Performance Standards specific to the proposed replacement cremator**

| <b>Regulation Title<br/>Citation</b>  | <b>Applicable Performance Standards or<br/>Requirements</b>  | <b>Applies:</b>                         |
|---|--|---|
| <i>ORCAA Requirements, Prohibitions, and Performance Standards.<br/>ORCAA Regulations 4, 7, and 8</i>         | These general regulations may apply to any source or emission unit causing air pollution.  | Generally, to all air pollution sources |
| <i>Annual Registration.<br/>WAC 173-400-101<br/>ORCAA 4.1</i>   | Requires facilities that are minor sources of emissions to register annually with ORCAA and pay annual registration fees.  | To cremator                             |
| <i>Annual Registration Fees.<br/>WAC 173-400-104<br/>ORCAA 3.1</i>  | Requires payment of annual registration fees to ORCAA based in part on air pollutants emitted during the previous year.  | To cremator                             |
| <i>Concealment and Masking.<br/>WAC 173-400-040(8) &amp;<br/>ORCAA 7.5</i>                                    | Prohibits the installation or use of any means that conceals or masks an emission of an air contaminant that would otherwise violate any provisions of this chapter.       | Generally, to all air pollution sources |
| <i>Particulate Standards for Combustion and Incineration units.<br/>WAC 173-400-050<br/>ORCAA Rule 8.3(a)</i> | Prohibits emissions from any combustion unit in excess of 0.1 grain/dscf. EPA test methods from 40 CFR Appendix A must be used if demonstration of compliance is required. | To cremator                             |
| <i>General Standards for Maximum Visual Emissions.<br/>WAC 173-400-040(2)<br/>ORCAA Rule 8.2(a)</i>           | Prohibits emissions with opacity of greater than 20% for more than three (3) minutes in any one hour.  | To cremator                             |
| <i>Control Equipment Maintenance and Repair.<br/>ORCAA Rule 8.8</i>   | ORCAA Rule 8.8 requires that all air contaminant sources keep any process and/or air pollution control equipment in good operating condition and repair.                   | To cremator                             |
| <i>Emission Inventory.<br/>WAC 173-400-105(1) &amp;<br/>ORCAA 4.3</i>   | Requires maintenance of records relating to air pollutant emissions and submittal of an annual emissions inventory if required.  | To cremator                             |
| <i>Emissions Detrimental to Persons or Property.<br/>WAC 173-400-040(6) &amp;<br/>ORCAA 7.6</i>               | Prohibits emissions of any air contaminant from any source that are detrimental to persons or property.  | Generally, to all air pollution sources |

| <b>Regulation Title<br/>Citation</b>  | <b>Applicable Performance Standards or Requirements</b>  | <b>Applies:</b>                         |
|---|--|---|
| <i>Excess Emissions.</i><br>WAC 173-400-107;<br>ORCAA 8.7                             | Requires source operators to demonstrate that excess emissions were unavoidable in order to obtain relief in an enforcement action.  | To cremator                             |
| <i>Fallout Prohibition.</i><br>WAC 173-400-040(3) &<br>ORCAA 8.3(e)                   | Prohibits particulate emissions from any source to be deposited, beyond the property under direct control of the owner or operator of the source, in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material was deposited. | Generally, to all air pollution sources |
| <i>Odor Prohibitions and Control.</i><br>ORCAA 8.5                                    | ORCAA Rule 8.5 contains general requirements for controlling odors and a general prohibition of odors that unreasonably interfere with the use or enjoyment of a person's property.  | Generally, to all air pollution sources |
| <i>Record Keeping and Reporting.</i><br>ORCAA 8.11                                    | Requires the following:<br>1. Maintenance of records on the nature and amounts of emissions and other related information as deemed necessary by ORCAA;<br>2. Reporting of emissions to ORCAA upon request.  | To cremator                             |
| <i>Emission standards for combustion and incineration units</i><br>WAC 173-400-050(2) | Emission standards for combustion and incineration units:<br><br>-Emission limit for total carbonyls<br><br>-Operation limited to daylight hours unless written permission to operate at other times is granted by ORCAA.  | To cremator                             |

**Table 10.2: Relevant Performance Standards Determined Inapplicable**

| <b>Regulation Title<br/>Citation</b>   | <b>Relevant Performance Standard Determined Inapplicable</b>  | <b>Basis</b>  |
|--|---|---|
| <i>Process Unit Emission Standards.</i><br>WAC 173-400-060;<br>ORCAA 8.3(a)            | No person shall cause or allow the emission of particulate material from any general process operation in excess of 0.23 grams per dry cubic meter at standard conditions (0.1 grain/dscf) of exhaust gas.  | Cremator is a combustion source of emissions and, therefore, not a process unit.  |
| <i>Emission Guidelines and Compliance Times for HMIWI</i><br>40 CFR Part 60 Subpart Ce | Subpart Ce contains emission guidelines and compliance times for the control of certain designated pollutants from hospital/medical/infections waste incinerators (HMIWI) for which construction or modification commenced prior to April 6, 2010 in accordance with sections 111 and 129 of the Clean Air Act and Subpart B of 40 CFR Part 60. | Subpart Ce determined inapplicable under §60.32e(a) as crematoria are not defined as hospital/medical/infectious waste incinerators under §60.51c.  |
| <i>Standards of Performance for Incinerators</i><br>40 CFR Part 60 Subpart E           | Subpart E contains standards for particulate matter and monitoring operations for facilities incinerating solid waste.  | Subpart E determined inapplicable as §60.50 states the provisions only apply to incinerators capable of charging rates of more than 45 metric tons per day of solid waste. Human corpses are not defined as 'solid waste' under §60.51. |

|   |   |   |
|---|---|---|
| Standards of Performance for New Stationary Sources: Hospital/Medical/Infection Waste Incinerators<br>40 CFR Part 60 Subpart Ec | Subpart Ec sets standards for HMIWI's constructed or modified too late to be subject to Subpart Ce. | §60.51c states 'Hospital waste does not include human corpses, remains, and anatomical parts that are intended for interment or cremation.' |
|---|---|---|

### 11. Best Available Control Technology (BACT)

ORCAA Rule 6.1.4(a)(2) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, require the finding that a new source or modification to an existing source of air pollution in an attainment or unclassifiable area will employ best available control technology for all pollutants (BACT) not previously emitted or whose emissions would increase as a result of the new source or modification.

New sources of air pollution and modifications to existing sources of air pollution are required to use BACT to control all pollutants not previously emitted, or those for which emissions would increase as a result of the new source or modification. BACT is defined in WAC 173-400-030 as, *“an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under chapter 70A.15 RCW emitted from or which results from any new or modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant.”*

**Table 11.1: BACT Determination**

| Pollutant        | BACT Applicable? | Description: Describe BACT limits, and control technology or methods to meet BACT limits.                                     |
|------------------|------------------|---|
| NO <sub>x</sub>  | Yes              | BACT for NO <sub>x</sub> is good combustion practice and implementation of an approved Operation and Maintenance plan.        |
| CO               | Yes              | BACT for CO is good combustion practice and implementation of an approved Operation and Maintenance plan.                     |
| VOC              | Yes              | A full second residence time in the secondary chamber with a minimum temperature of 1600 °F meets BACT for VOC.               |
| SO <sub>2</sub>  | Yes              | Firing only natural gas meets BACT for SO <sub>2</sub> .  |
| PM <sub>10</sub> | Yes              | A full second residence time in the secondary chamber with a minimum temperature of 1600 °F meets BACT for PM <sub>10</sub> . |

### 12. Ambient Impact Analysis (Criteria Pollutants)

ORCAA’s Rule 6.1.4(a)(3) and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6, require emissions from any new stationary source or modification not delay the attainment date of an area not in attainment, nor cause or contribute to a violation of any Ambient Air Quality Standard (AAQS). ORCAA’s current Dispersion Modeling Guidance (2009) recommends this approval criteria be demonstrated using dispersion modeling techniques when Potential to Emit (PTE) of any pollutant with an ambient standard is above ORCAA’s adopted significant emission level for the pollutant. Any pollutant with a PTE below its significant emission level can be considered insignificant with respect to maintaining the AAQs.

Mills PTE is above ORCAA’s significant emission levels, therefore, modeling is required. ORCAA staff modeled the project at PTE to compare criteria pollutants to their associated threshold values described in WAC 173-400-113(4)(a). Modeled impacts below the threshold values are considered to not cause or contribute to a violation of an ambient air quality standard. Model results in Table 12.1 demonstrates all impacts were below the associated threshold value and therefore are not likely to cause or contribute to a violation of an ambient air quality standard.

**Table 12.1: WAC 173-400-113(4)(a) Threshold Value Comparison**

| Criteria Pollutants | Model Results (ug/m3) |       |      |      |      | WAC 173-400-113(4a) levels (ug/m3) |       |      |      |      | Pass/Fail |
|---------------------|-----------------------|-------|------|------|------|------------------------------------|-------|------|------|------|-----------|
|                     | annual                | 24-hr | 8-hr | 3-hr | 1-hr | annual                             | 24-hr | 8-hr | 3-hr | 1-hr |           |
| PM <sub>10</sub>    | 0.08                  | 0.47  | NA   | NA   | NA   | 1                                  | 5     | NA   | NA   | NA   | Pass      |
| PM <sub>2.5</sub>   | 0.08                  | 0.47  | NA   | NA   | NA   | 0.3                                | 1.2   | NA   | NA   | NA   | Pass      |
| SO <sub>2</sub>     | 0.13                  | 0.77  | NA   | 6.4  | 6.4  | 1                                  | 5     | NA   | 25   | 30   | Pass      |
| NO <sub>2</sub>     | 0.16                  | NA    | NA   | NA   | NA   | 1                                  | NA    | NA   | NA   | NA   | Pass      |
| CO                  | NA                    | NA    | 124  | NA   | 132  | NA                                 | NA    | 500  | NA   | 2000 | Pass      |

### 13. Ambient Impact Analysis (Toxic Air Pollutants)

Washington’s regulation titled Controls for New Sources of Toxic Air Pollutants (Air Toxics Rule) under Chapter 173-460 of the Washington Administrative Code applies to new stationary sources of Toxic Air Pollutants (TAP), including modifications to existing emissions units that increase TAP. The purpose of the Air Toxics Rule is to, “... maintain such levels of air quality as will protect human health and safety.” The TAPs covered under the Air Toxics Rule include carcinogens and non-carcinogens. TAP emissions increases for determining applicability are the increases attributable to the new or modified emissions unit - Decreases from existing emissions units are not allowed to be subtracted from project-attributable TAP increases when determining applicability. Also, the Air Toxics Rule provides that review of modifications are limited to the emission unit or units proposed to be modified and the TAPs whose emissions would increase as a result of the modification.

The Air Toxics Rule has two independent requirements for new sources and modifications that increase TAP emissions above de-minimis levels:

- 1) **tBACT:** The new or modified emission units must use Best Available Control Technology to control TAP emissions (WAC 173-460-040(3)(a)).



- 2) **Ambient Impact:** The NOC application must demonstrate that any increase in TAP from the new or modified emission units are sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects (WAC 173-460-070).

### tBACT

The tBACT requirement applies to any new or modified emission units that triggers the Air Toxics Rule (results in a TAP increase above de-minimis levels), regardless of facility-wide or “net” TAP emissions. The term tBACT means Best Available Control Technology, as that term is defined in WAC 173-400-030, but applied to control of TAP (see BACT definition in Section 11).

**Table 13.1: tBACT**

| Pollutant | tBACT Applicable? | Description: Describe tBACT limits, and control technology or methods to meet tBACT limits.                         |
|-----------|-------------------|---|
| Toxics    | Yes               | A full second residence time in the secondary chamber with a minimum temperature of 1600 °F meets tBACT for toxics. |

### Ambient Impact Review

The Air Toxics Rule provides a multi-tiered, screening approach under WAC 173-460-080 to assess health impacts and demonstrate compliance with the ambient impact requirement under WAC 173-460-070, which is that TAP increases must be sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects.

The “First Tier Review” (Tier 1 Review) is a two-step process. First, the emissions increase of each TAP is compared to its unique Small Quantity Emission Rate (SQER). SQERs are listed for each TAP under WAC 173-460-150. An SQER is the level of emissions of a TAP below which dispersion modeling is not required to demonstrate compliance with the ambient impact requirement. TAP emissions increases used in this first step must be based on the maximum potential to emit considering control or reduction in emissions achievable using the air pollution control technology or methods proposed to meet the tBACT requirement. Any TAP with an increase below its SQER can be presumed to be in compliance with the ambient impact requirement. If this is the outcome, further analysis is not required for that TAP. However, TAPs with emissions increases above their SQER must undergo the second step of the Tier 1 Review.

The second step of the Tier 1 Review requires evaluating TAP impacts against Acceptable Source Impact Levels (ASIL) and is referred to as an ASIL Analysis. An ASIL is the adopted health-based concentration for a TAP below which can be presumed as meeting the ambient impact requirement of WAC 173-460-070. ASILs are provided for each TAP under WAC 173-460-150. An ASIL analysis typically involves using an ambient air dispersion model to estimate ambient concentrations resulting from TAP emissions increases and considering air dispersion and local meteorological characteristics of the source. If the modeled impact of the increase in emissions of a TAP does not exceed its corresponding ASIL, the ambient impact requirement of WAC 173-460-070 may be considered met and the First Tier Review is completed for that TAP.

Emissions rates used to support an ASIL Analysis must be based on the maximum potential to emit considering control or reduction in emissions achievable using the air pollution control technology or methods proposed to meet the tBACT requirement. In addition, the Air Toxics Rule allows TAP reductions from existing emission units not subject to review to be subtracted or “netted out” from TAP increases, provided the reductions are included in the approval order as enforceable voluntary emission limits and meet all the requirements of WAC 173-460-071.

These requirements include:

- (1) The voluntary emissions reductions must be enforceable through a regulatory order issued by the air permitting agency.
- (2) The approval order enforcing the voluntary emissions reductions must include monitoring, recordkeeping, and reporting requirements sufficient to ensure the reductions are maintained.
- (3) The agency’s preliminary determination to approve the voluntary emissions reductions are subject to a 30-day public notice and comment period and opportunity for a public hearing.

For pollutants with ambient concentrations found to be greater than their ASIL, a “Second Tier Review” (Tier 2 Review) by the Washington Department of Ecology (Ecology) is required. An application for a Tier 2 Review by Ecology is referred to a Tier 2 petition. Tier 2 petitions must include a Health Impacts Assessment (HRA) and estimated ambient TAP impacts based on refined air dispersion modeling. Ecology will not act on a Tier 2 petition unless a written preliminary determination on the NOC application for the new or modified TAP source and a draft approval order have been completed by the local agency with jurisdiction. Ecology’s review and approval of a Tier 2 petition is contingent on a finding that TAP impacts meet the ambient impact requirement of WAC 173-460-070 that increases in TAP emissions are sufficiently low to protect human health and safety from potential carcinogenic and/or other toxic effects. If Ecology recommends denial of a Tier 2 petition, the permitting authority may not approve the project. The applicant then has the option of submitting a petition for a “Third Tier Review” (Tier 3 Review) by Ecology and a request for a risk management decision.

As described above, ORCAA staff calculated PTE associated with an as-reviewed limit of 1,000 cases cremated in a year and 7 cases cremated in a single 24-hour period. Limits on the number of cases cremated will be made enforceable by condition. During the review process ORCAA staff asked Mills how many cases they historically cremated and the average is about 700 cases per year with the highest two-year average being 800 cases/year. Typically Mills cremates up to three cases on a given day.

For the purposes of demonstrating compliance with Chapter 173-460 WAC, ORCAA staff applied the emissions offsetting procedures outlined in WAC 173-460-080. Incremental increase calculations were based on the following assumptions:

**Table 13.2: Incremental Increase for Toxics Review**

|  | Cases<br>(annual) | Cases<br>(daily) | Annual Hours<br>of Operation<br>(Hours) | Daily Hours of<br>Operation<br>(Hours) |
|--|-------------------|------------------|---|--|
| Permitted under 24NOC1628  | 1,000             | 6                | 1750                                    | 10.5                                   |
| Historical Actuals   | 800               | 3                | 1400                                    | 5.25                                   |
| <b>Incremental Increase Used for<br/>Demonstrating Compliance<br/>(permitted – historical actuals)</b> | <b>200</b>        | <b>3</b>         | <b>350</b>                              | <b>5.25</b>                            |

Historical Actuals obtained from applicant during 24NOC1628 permitting process

ORCAA staff calculated emissions associated with the incremental increase in emissions shown in Table 13.2 above. The results of the incremental increase are documented in Table 13.3 below. Table 13.3 also shows the incremental increase for all TAP associated with the project were below their associated SQER, except for Mercury emissions. ORCAA staff modeled emissions and found Mercury concentrations were below their respective ASIL. ORCAA staff concluded the project meets the substantive requirements of Chapter 173-460.

**Table 13.3: Toxic Air Pollutants Impacts Assessment**

| Pollutant                      | PTE <sup>1</sup> |          |          | SQER <sup>2</sup> |          |         | ASIL <sup>3</sup><br>(ug/m <sup>3</sup> ) | Modeled Concentration <sup>4,5,6</sup><br>(ug/m <sup>3</sup> ) | Pass / Fail |
|--------------------------------|------------------|----------|----------|-------------------|----------|---------|---|--|-------------|
|                                | (lb/hr)          | (lb/day) | (lb/yr)  | (lb/hr)           | (lb/day) | (lb/yr) |   |  |             |
| 7,12-Dimethylbenz[a]anthracene | 2.8E-08          | 1.5E-07  | 9.9E-06  |                   |          | 0.0014  | 8.50E-06                                  | Passes SQER  | Pass        |
| 3-Methylcholanthrene           | 3.2E-09          | 1.7E-08  | 1.1E-06  |                   |          | 0.016   | 0.000096                                  | Passes SQER  | Pass        |
| Acetaldehyde                   | 8.67E-05         | 4.55E-04 | 1.73E-02 |                   |          | 60      | 0.37                                      | Passes SQER  | Pass        |
| Arsenic                        | 2.04E-05         | 1.07E-04 | 4.12E-03 |                   |          | 0.049   | 0.0003                                    | Passes SQER  | Pass        |
| Benz[a]anthracene              | 1.09E-08         | 5.70E-08 | 2.6E-06  |                   |          | 0.89    | 0.0055                                    | Passes SQER  | Pass        |
| Benzene                        | 3.7E-06          | 1.9E-05  | 1.3E-03  |                   |          | 21      | 0.13                                      | Passes SQER  | Pass        |
| Benzo[a]pyrene                 | 2.50E-08         | 1.3E-07  | 5.32E-06 |                   |          | 0.16    | 0.001                                     | Passes SQER  | Pass        |
| Benzo[b]fluoranthene           | 1.57E-08         | 8.24E-08 | 3.6E-06  |                   |          | 0.89    | 0.0055                                    | Passes SQER  | Pass        |
| Benzo[k]fluoranthene           | 1.44E-08         | 7.5E-08  | 3.3E-06  |                   |          | 0.89    | 0.0055                                    | Passes SQER  | Pass        |
| Beryllium                      | 9.55E-07         | 5.01E-06 | 1.94E-04 |                   |          | 0.068   | 0.00042                                   | Passes SQER  | Pass        |
| Cadmium                        | 9.27E-06         | 4.9E-05  | 2.15E-03 |                   |          | 0.039   | 0.00024                                   | Passes SQER  | Pass        |
| Chromium (hexavalent)          | 5.84E-07         | 3.06E-06 | 1.4E-04  |                   |          | 0.00065 | 4.00E-06                                  | Passes SQER  | Pass        |
| Chrysene                       | 4.57E-08         | 2.4E-07  | 9.62E-06 |                   |          | 8.9     | 0.055                                     | Passes SQER  | Pass        |
| CO                             | 1.83E+00         | 9.6E+00  | 6.13E+02 | 43                |          |         | 23000                                     | Passes SQER  | Pass        |
| Cobalt                         | 1.53E-06         | 8.01E-06 | 3.3E-04  |                   | 0.0074   |         | 0.1                                       | Passes SQER  | Pass        |
| Copper                         | 1.95E-05         | 1.02E-04 | 4.13E-03 | 0.19              |          |         | 100                                       | Passes SQER  | Pass        |
| Dibenz[a,h]anthracene          | 1.21E-08         | 6.4E-08  | 3.1E-06  |                   |          | 0.082   | 0.0005                                    | Passes SQER  | Pass        |
| Formaldehyde                   | 1.6E-04          | 8.14E-04 | 5.09E-02 |                   |          | 27      | 0.17                                      | Passes SQER  | Pass        |
| Hydrogen chloride              | 4.80E-02         | 2.52E-01 | 9.60E+00 |                   | 0.67     |         | 9   | Passes SQER  | Pass        |

|  |          |          |          |      |        |          |  |  |          |   |      |
|--|----------|----------|----------|------|--------|----------|--|--|----------|---|------|
| Hydrogen Fluoride  | 4.40E-04 | 2.31E-03 | 8.80E-02 |      | 1      |          |  |  | 14       | Passes SQER                                   | Pass |
| Indeno[1,2,3-cd]pyrene   | 1.53E-08 | 8.03E-08 | 3.54E-06 |      |        | 0.89     |  |  | 0.0055   | Passes SQER                                   | Pass |
| Lead   | 4.5E-05  | 2.4E-04  | 9.1E-03  |      |        | 14       |  |  | 0.083    | Passes SQER                                   | Pass |
| Manganese  | 6.7E-07  | 3.5E-06  | 2.3E-04  |      | 0.022  |          |  |  | 0.3      | Passes SQER                                   | Pass |
| Mercury  | 2.27E-03 | 1.2E-02  | 6.8E+01  |      | 0.0022 |          |  |  | 0.03     | 2.25E-02 Modeled Concentration less than ASIL | Pass |
| Nitrogen Dioxide <sup>7</sup>  | 1.09E-01 | 5.7E-01  | 3.8E+01  | 0.87 |        |          |  |  | 470      | Passes SQER                                   | Pass |
| n-Hexane   | 3.2E-03  | 1.7E-02  | 1.1E+00  |      | 52     |          |  |  | 700      | Passes SQER                                   | Pass |
| Naphthalene  | 1.1E-06  | 5.7E-06  | 3.8E-04  |      |        | 4.8      |  |  | 0.029    | Passes SQER                                   | Pass |
| Nickel   | 2.90E-05 | 1.5E-04  | 6.4E-03  |      |        | 0.62     |  |  | 0.0038   | Passes SQER                                   | Pass |
| Selenium   | 2.93E-05 | 1.54E-04 | 5.87E-03 |      | 1.5    |          |  |  | 20       | Passes SQER                                   | Pass |
| Toluene  | 6.0E-06  | 3.2E-05  | 2.1E-03  |      | 370    |          |  |  | 5000     | Passes SQER                                   | Pass |
| Vanadium   | 4.96E-05 | 2.6E-04  | 1.1E-02  |      | 0.0074 |          |  |  | 0.1      | Passes SQER                                   | Pass |
| Chlorinated dibenzodioxins and furans (expressed as 2,3,7,8 TCDD equivalents)    | 9.33E-10 | 4.90E-09 | 1.87E-07 |      |        | 4.30E-06 |  |  | 2.60E-08 | Passes SQER                                   | Pass |
| Polycyclic Aromatic Hydrocarbons (PAHs) [expressed as benzo(a)pyrene equivalent] | 3.27E-08 | 1.72E-07 | 6.53E-06 |      |        | 0.16     |  |  | 0.001    | Passes SQER                                   | Pass |

<sup>1</sup>Potential to emit is included in attachments

<sup>2</sup>Small Quantity Emission Rate as specified in Chapter 173-460-150 WAC

<sup>3</sup>Acceptable Source Impact Level as defined in Chapter 173-460-150 WAC

<sup>4</sup>Modeled Concentration for hourly ASIL's (ug/m<sup>3</sup>)=(modeling results from AERSCREEN@1g/s(ug/m<sup>3</sup>)\*PTE(lb/hr)\*(hr/60min)\*(min/60sec)\*(453.5g/lb)/(1g/s modeled)

<sup>5</sup>Modeled Concentration for daily ASIL's(ug/m<sup>3</sup>)=(modeling results from AERSCREEN@1g/s(ug/m<sup>3</sup>)\*PTE(lb/day)\*(day/24hr)\*(hr/60min)\*(min/60sec)\*(453.5g/lb)/(1g/s modeled)

<sup>6</sup>Modeled Concentration for yearly ASIL's(ug/m<sup>3</sup>)=(modeling results from AERSCREEN@1g/s(ug/m<sup>3</sup>)\*PTE(lb/yr)\*(yr/8760hr)\*(hr/60min)\*(min/60sec)\*(453.5g/lb)/(1g/s modeled)

<sup>7</sup>Assumes 95% of NOx is NO<sub>2</sub>; balance NO.

## 14. Requirements for Major Stationary Sources and Major Modifications to Major Stationary Sources

Projects that are major stationary sources and major modifications to major stationary sources as defined in 40 CFR 52.21(b) may be subject to permitting requirements under WAC 173-400-700 through 173-400-860.

Mills Crematory is not a “Major Stationary Source” as defined in 40 CFR 52.21(b) and not subject to the permitting program required by WAC 173-400-700 through WAC 173-400-860. Therefore, these permitting requirements do not apply.

## 15. Title V Air Operating Permit (AOP) Implications

The State of Washington program pursuant to Title V of the federal Clean Air Act is governed under Chapter 173-401 WAC, the Washington Air Operating Permit Program. Chapter 173-401 WAC requires existing major stationary sources to operate in compliance with an approved Air Operating Permit (AOP). Major stationary sources are those stationary sources with a potential to emit which is greater than 100 tons per year of any criteria pollutant, greater than 10 tons per year of any hazardous air pollutants (HAP), or greater than 25 tons per year of any combination of HAP.

Mills Crematory is not a “Major Source” under the Title V program and is not subject to the requirement to operate under an AOP.

## 16. Environmental Justice Considerations

EPA defines Environmental Justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The purpose of an EJ review in conjunction with an air permitting action is to ensure no group of people bear a disproportionate share of the negative environmental consequences as the result of the permitting action. Further, ORCAA strives to engage the affected community effectively and meaningfully regarding the permitting action, and to ensure compliance with obligations pursuant to Title VI of the Civil Rights Act. With respect to factoring EJ into air permitting decisions, EPA Region 10 expects air agencies to:

- Identify overburdened communities;
- Engage with communities;
- Evaluate cumulative impacts; and,
- Use available authority to minimize emissions.

However, EPA Region 10 does not expect air agencies to use the Clean Air Act's authorities to address existing disproportional impacts to communities when implementing New Source Review in areas that are "attainment/unclassifiable" with respect to meeting the NAAQS.

The following subsections describe how these expectations from EPA Region 10 were met.

### ***16.1 Identify Overburdened Communities***

The initial step in an EJ review is to identify any affected populations or communities of concern and to identify whether they are disproportionately impacted. ORCAA used EPA's environmental justice screening and mapping tool, EJScreen, to answer this first part of this question. An EJScreen Community Report was generated for Thurston County. The Community Report estimates a minority population of 27%, with approximately 4% of the total population speaking Spanish and 8% speaking another Non-English language at home. All demographic indicators were below the 80th percentile for the nation. Likewise, the Community Report indicates that Thurston County is below the 80th percentile for all environmental indicators. Environmental indicators above the 80th percentile are an indication that a community is already disproportionately impacted. Therefore, ORCAA staff's conclusion is that the project impact area does not include any preexisting, overburdened communities. A copy of the Community Report with more detailed information will be filed as part of the supporting documentation for the project.

Preexisting air quality impacts were evaluated based on ambient air quality monitoring data and designation of the area with respect to maintaining compliance with the NAAQS. If air quality in a geographic area meets or is cleaner than a national standard based on ambient air monitoring data, it is called an attainment area and designated "attainment/unclassifiable." Areas may also be presumed "attainment/unclassifiable" based on population density and air pollutant emissions being below certain thresholds. For this case, the project impact area and Thurston County as a whole is designated "attainment/unclassifiable." Therefore, there are no preexisting nonattainment issues identified within the County. The project's criteria emissions will not cause or contribute to a violation of an AAQS. Therefore, ORCAA staff's conclusion is that there are no indications of any existing disproportional impacts to communities of concern within the project impact area.

### ***16.2 Engage with Communities***

Based on the size and scope of the project, and that there are no overburdened communities near the project, ORCAA staff determined the public noticing procedures outlined in Section 7 above are sufficient notifications.

### 16.3 Evaluate Cumulative Impacts

The air permitting action for this case did not trigger a cumulative impacts analysis under either the Clean Air Act or the Washington Clean Air Act. As demonstrated in Section 12 above, ORCAA staff modeled the project at PTE to compare criteria pollutants to their associated threshold values described in WAC 173-400-113(4a). Table 12.1 demonstrates all pollutants associated with the project will not likely cause or contribute to a violation of an ambient air quality standard.

### 16.4 Use Available Authority to Minimize Emissions

As described elsewhere in this report, ORCAA applied existing New Source Review authorities provided under the Clean Air Act and the Washington Clean Air Act to minimize emissions from the replacement cremator project. Principally among these authorities is the requirement to use BACT for controlling emissions. The BACT requirement was applied and corresponding BACT emissions limits are included in the air permit.

## 17. Conditions of Approval

The following conditions of approval were determined necessary for assuring compliance with applicable air regulations and standards and protecting air quality. Recommended conditions of approval will become effective once the Approval Order is issued:

1. **Approved Equipment.** The cremator as described in Notice of Construction application No. 24NOC1628 and the associated Final Determination is approved for construction and operation subject to conditions in this Order of Approval.  
[Regulatory Basis: ORCAA 6.1(a); ORCAA 6.1.2(l); 40 CFR part 52.2470(c), Table 6]
  
2. **Preapproval Required.** Prior approval by ORCAA may be required for the following as specified in ORCAA Rule 6.1:
  - a. Construction, installation, or establishment of any stationary source;
  - b. Modification to any existing stationary source;
  - c. Replacement or substantial alteration of emission control technology installed on an existing stationary source; or,
  - d. Deviations from the approved plans, drawings, data, and specifications of the stationary sources listed in Table 1.

**Table 1 Stationary sources located Mills Crematory**

| Emission Unit  | Specifications:   |
|----------------|---|
| EU1 – Cremator | American Crematory Equipment Co. Cremator<br>Model: A-350 Instant Access<br>S/N: 101923<br>Primary Chamber: 0.6 MMBtu/hr; 1600 °F |



|  |  |
|--|--|
|  | Secondary Chamber: 1.2 MMBtu/hr; 1650 °F<br>Fuel: Natural Gas<br>In stack opacity monitor; alarm set at 10%<br>Approved for cremation of human remains |
|--|--|

[Regulatory Basis: ORCAA 6.1(a); ORCAA 6.1.2(l); WAC 173-400-110(2); WAC 173-400-111(10)]

3. **Cremator Operation:** Operation of the cremator is subject to the following:
- a. An operator must be available on site to service the equipment at all times during cremations.
  - b. The cremator must be used to cremate human remains only. For the purpose of this approval order, cremation of human remains means incineration of the following:
    - i. Human remains.
    - ii. Body bags required by OSHA or other regulations. Only chlorine-free body bags shall be provided by the owner/operator for cremations. Body bags provided by others are not subject to this restriction.
    - iii. Cremation containers and cremation caskets.
    - iv. Personal effects containing no more than five pounds of combustible material.
  - c. Provided a functional opacity alarm continuously monitors stack emissions as described in Condition #8b, the cremator may be operated during both daylight and non-daylight hours.
  - d. In the event the opacity alarm is inoperable, damaged, or down for repairs, the cremator may operate during daylight hours only and as described in Condition #8c. In this operating scenario, no new cases may begin within two (2) hours of dusk.
  - e. The Facility is limited to 1,000 cases cremated in any calendar year.
  - f. The Facility is limited to 6 cases cremated on any calendar day.

[Authority: ORCAA 8.4(b); 6.1.4(a)(2); WAC 173-400-050(a)]

4. **Opacity Limit:** Emissions from the cremator must not exceed an average opacity of 10% in any six-minute period as determined by EPA 40CFR Part 60 Appendix A Method 9.

[Authority: WAC 173-400-113; ORCAA 6.1.4(a)(2)]

5. **Afterburner Operation:**

- a) The owner or operator must install and operate a device to continuously measure the temperature in the afterburner during the cremation cycle.
- b) The afterburner must be operated with a temperature set point at or above 1600 °F during cremation.
- c) Prior to charging the primary combustion chamber, the afterburner must reach a minimum of 1600 °F.
- d) The afterburner must be maintained above 1500 °F during the entire cremation process.

[Authority: ORCAA 6.1.4(a)(2); WAC 173-400-113]

6. **Operations and Maintenance:** The owner or operator must devise and implement an Operations and Maintenance (O&M) plan to ensure good operating condition and repair of the crematory. The O&M plan must be updated when necessary to represent current O&M procedures. Emissions that result from failure to follow the O&M plan may be considered

evidence that the equipment was not properly operated, maintained, or monitored. At a minimum the O&M plan must include the following provisions:

- a) Manufacturer's recommendations and specifications for operating and maintaining the cremator. If no manufacturer's recommendations are available, the owner or operator must develop O&M procedures and submit these to ORCAA for approval.
- b) Standard procedures for taking immediate and appropriate corrective action in the event of a malfunction of the equipment which may cause excess emissions.
- c) Standard procedures for responding to complaints. Complaint response procedures must include documentation of the time the complaint was received, conditions which were identified as contributing to the occurrence and any steps that were taken to investigate and respond to the complaint.

[Authority: ORCAA 4.3; 8.3(d) & (e); WAC 173-400-101(4)]

7. **Recordkeeping:** The following records must be maintained and kept on site for at least five years:

- a) A copy of the ORCAA Final Determination and ORCAA Approval Order containing the applicable requirements and conditions for approval.
- b) The O&M plan required by Condition #6.
- c) Daily records of operating hours and number of cremations.
- d) Cumulative number of cremations for the calendar year, updated at least monthly.
- e) For each cremation cycle:
  - i) Date and time of start-up and shut down of each cremation cycle;
  - ii) Record of whether the opacity monitor or opacity surveys were used for determining compliance per Condition #8(b and c); and
  - iii) Temperature of the secondary chamber during each use, measured at the beginning and end of each cycle.
- f) Records of actions taken to respond to malfunctions and complaints.
- g) Records of crematory maintenance and repair activity.
- h) Records of opacity monitor testing as required under Condition #8b(ii).
- i) Records of opacity surveys as required under Condition #8a and Condition #8c.

[Authority: ORCAA Rule 8.11; WAC 173-400-105]

8. **Opacity Monitoring:** The facility must operate an opacity monitor as described by Condition #8b or must conduct opacity surveys during each cremation case as described by Condition #8c.

- a) **Monthly Opacity Surveys:** The facility must conduct an opacity survey as described by Condition #8c at least once each calendar month.
- b) **Opacity Monitor:**
  - i) During cremation, stack opacity must be continuously monitored by an opacity monitor that activates an alarm perceptible to the operator when stack opacity exceeds 10 percent.
  - ii) At least monthly, the opacity monitor must be tested to assure it is properly operating.
- c) **Opacity Surveys:** At a minimum, stack opacity must be visually surveyed and recorded as follows:
  - i) If the opacity monitor is inoperable, damaged, or down for repairs, surveys must be conducted once during each cremation case;

- ii) For the first cremation case of each day, surveys must take place within 30 minutes of igniting the main burner. For subsequent cremation cases, surveys must take place within the first 30 minutes of each cremation cycle;
- iii) Surveys must be conducted from locations with a clear view of the stack where the sun is behind the observer. Survey locations must be at least 15 feet but not more than 0.25 miles from the stack;
- iv) The stack must be observed for a minimum cumulative duration of 15 seconds during the survey; and,
- v) Any visible emissions other than uncombined water must be recorded as a positive reading associated with the stack.
- vi) During opacity surveys, if opacity is observed, the operator must take the appropriate steps to eliminate excess visible opacity. Notify ORCAA within 24 hours if opacity issue cannot be resolved.

[Authority: WAC 173-400-113; ORCAA 6.1.4(a)(2)]

### 18. Final Determination to Approve

This Final Determination documents ORCAA staff's determinations with respect to the applicable criteria of approval in ORCAA Rule 6.1 and the Washington State Implementation Plan under 40 CFR part 52.2470(c), Table 6. ORCAA staff recommends approval of Mills' proposed cremator, provided the conditions identified in Section 17 of this Final Determination are implemented through an enforceable Order of Approval (AKA: Air Permit). Emissions calculations, modeling summary and other data supporting this Final Determination are provided as attachments.

~ end of section ~

   


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 PREPARED BY: Aaron Manley, PE Date

   


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 REVIEWED BY: Jennifer DeMay, PE Date

## Attachments

### Applicable Performance Standards that apply to Mills

| Title<br>Citation  | Brief Description<br>(Consult rule/regulation for specific requirements)   | Applies to  |
|--|--|---|
| Registration<br>ORCAA Regulation 4                                 | Requires facilities that are minor sources of emissions to register annually with ORCAA and pay annual registration fees.  | Mills will continue to be a minor source requiring registration.                          |
| Annual Registration Fees<br>ORCAA Rule 3.1                         | Requires payment of annual registration fees to ORCAA based in part on air pollutants emitted during the previous year.  | Mills is required to register and pay annual registration fees.                           |
| Initial Notification<br>ORCAA Rule 4.3(a)&(b);<br>4.3(f)           | Requires facilities subject to registration to register by submitting an initial notification with the information in ORCAA Rule 4.3(b) within 30 days from:<br>1) Commencement of operation of any new or recommissioned stationary source;<br>2) Change in ownership of existing registered stationary source.<br>The notification must be signed by the owner or operator or by the agent appointed by the owner. |   |
| Administrative Change Notification<br>ORCAA Rule 4.3(e); 4.3(f)    | Requires facilities to notify ORCAA of any changes to administrative information within 30 days from the change taking place including, but not limited to, contact names, address, phone numbers, and permanent shut down or decommissioning of a stationary source. The notification must be signed by the owner or operator or by the agent appointed by the owner.   |   |
| Annual and/or Periodic Reports<br>ORCAA Rule 4.3(c)&(d);<br>4.3(f) | Requires stationary sources to submit reports with information directly related to the registration program when requested by the Agency within 30 days of receipt of the request. The submittal must be signed by the owner or operator or by the agent appointed by the owner.   |   |
| Interference or Obstruction<br>ORCAA Rule 7.1                      | Prohibits willfully interfering with or obstructing the Executive Director or any Agency employee in performing any lawful duty.   | Applies generally to all air pollution sources  |
| False or Misleading Statements<br>ORCAA Rule 7.2                   | Prohibits any person from willfully making a false or misleading statement to the Board or its representative as to any matter within the jurisdiction of the Board.   | Applies generally to all air pollution sources  |
| Unlawful Reproduction or Alteration of Documents<br>ORCAA Rule 7.3 | Prohibits reproducing or altering, or causing to be reproduced or altered, any order, registration certificate or other paper issued by the Agency if the purpose of such reproduction or alteration is to evade or violate any provision of these Regulations or any other law.   | Applies generally to all air pollution sources  |
| Display of Orders and Certificates<br>ORCAA Rule 7.4               | Any order or registration certificate required to be obtained by these Regulations shall be available on the premises designated on the order or certificate. In the event that the Agency requires order or registration certificate to be displayed, it  | The Approval Order issued in conjunction with this NOC approval must be retained on site. |

## Attachments

| Title Citation   | Brief Description<br>(Consult rule/regulation for specific requirements)   | Applies to  |
|--|--|---|
|  | shall be posted. No person shall mutilate, obstruct, or remove any order or registration certificate unless authorized to do so by the Board or the Executive Director.  |   |
| General Requirements<br>WAC 173-400-040(1)(c)<br>ORCAA Rule 8.3                          | All emissions units are required to use reasonably available control technology (RACT).  | Applies generally to all air pollution sources.                       |
| Visible Emissions<br>WAC 173-400-040(2)<br>ORCAA Rule 8.2(a)                             | Prohibits emissions with opacity of greater than 20% for more than three (3) minutes in any one hour.  | Applies generally to all air pollution sources                        |
| Sulfur Dioxide<br>WAC 173-400-040(7)   | No person shall cause or allow the emission from any emissions unit in excess of one thousand ppm of sulfur dioxide on a dry basis, corrected to seven percent oxygen for combustion sources, and based on the average of any period of sixty consecutive minutes.                   | Applies generally to facilities that emit Sulfur Dioxide.             |
| Control Equipment Maintenance and Repair<br><br>ORCAA Rule 8.8                           | ORCAA Rule 8.8 requires that all air contaminant sources keep any process and/or air pollution control equipment in good operating condition and repair.   | Applies generally to all air pollution control devices.               |
| Fallout<br><br>WAC 173-400-040(3)<br>ORCAA Rule 8.3(e)                                   | Prohibits particulate emissions from any source to be deposited, beyond the property under direct control of the owner or operator of the source, in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material was deposited. | Applies generally to all air pollution sources.                       |
| Fugitive Emissions<br><br>WAC 173-400-040(4)(a)<br>ORCAA Rule 8.3(c)                     | The owner or operator of any emissions unit engaging in materials handling, construction, demolition, or other operation which is a source of fugitive emission shall take reasonable precautions to prevent the release of air contaminants from the operation.                     | Applies generally to any activity that results in fugitive emissions. |
| Odor<br><br>WAC 173-400-040(5)<br>ORCAA Rule 8.5   | ORCAA Rule 8.5 contains general requirements for controlling odors and a general prohibition of odors that unreasonably interfere with the use or enjoyment of a person's property.  | Applies generally to all air pollution sources.                       |
| Emissions Detrimental to Persons or Property<br><br>WAC 173-400-040(6)<br>ORCAA Rule 7.6 | Prohibits causing or allowing the emission of any air contaminant from any source if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business.  | Applies generally to all air pollution sources                        |
| Concealment and Masking<br><br>WAC 173-400-040(8)<br>ORCAA Rule 7.5                      | Prohibits installation or use of any device or means to conceal or mask emissions of an air contaminant, which causes detriment to health, safety, or welfare of any person, or causes damage to property or business.   | Applies generally to all air pollution sources                        |
| Fugitive Dust<br><br>WAC 173-400-040(9)  | The owner or operator of a source or activity that generates fugitive dust must take reasonable precautions to prevent that fugitive dust from   | Applies to any activity that results in fugitive dust.                |

## Attachments

| Title Citation   | Brief Description<br>(Consult rule/regulation for specific requirements)  | Applies to  |
|--|---|---|
|  | becoming airborne and must maintain and operate the source to minimize emissions.   |   |
| Excess Emissions Provisions<br>WAC 173-400-107; WAC 173-400-108<br>ORCAA 8.7                           | Requires excess emissions be reported to the Agency as soon as possible and within 24 hours and establishes criteria qualifying excess emissions as unavoidable.  | Applies generally to all air pollution sources    |
| Record Keeping and Reporting.<br>ORCAA Rule 8.11   | Requires the following:<br>1. Maintenance of records on the nature and amounts of emissions and other related information as deemed necessary by ORCAA;<br>2. Reporting of emissions to ORCAA upon request.               | Required of all facilities registered with ORCAA. |
| Particulate Standards for Combustion and Incineration Units<br>ORCAA Rule 8.3(a)<br>WAC 173-400-050(1) | Prohibits emissions from any combustion unit in excess of 0.1 grain/dscf. EPA test methods from 40 CFR Part 60 Appendix A shall be used should demonstration of compliance be required.                                   | Cremator  |
| <i>Emission standards for combustion and incineration units</i><br>WAC 173-400-050(2)                  | Emission standards for combustion and incineration units:<br><br>-Emission limit for total carbonyls<br><br>-Operation limited to daylight hours unless written permission to operate at other times is granted by ORCAA. | To cremator                                       |

## PTE Calculations

### Equipment Summary

|                                      |             |           |
|--------------------------------------|-------------|-----------|
| <b>Burner heat input rating</b>      | 0.6         | MMBtu/hr  |
| <b>Afterburner heat input rating</b> | 1.2         | MMBtu/hr  |
| <b>Total heat input rating</b>       | 1.8         | MMBtu/hr  |
| <b>Fuel</b>                          | Natural Gas |           |
| <b>Worst-case Operating schedule</b> | 10.5        | hours/day |
|                                      | 365         | days/year |
| <b>Design Cremation Rate</b>         | 100         | lbs/hr    |
| <b>Stack Release Height</b>          | 28          | feet      |
| <b>Stack Diameter</b>                | 29          | inches    |

### Emissions Attributable to Natural Gas

| Criteria Pollutants            | Emission Factor              |                              | PTE <sup>3</sup>   |                      |                       |
|--------------------------------|------------------------------|------------------------------|--------------------|----------------------|-----------------------|
|                                | lbs/MMscf <sup>1</sup>       | lbs/MMBtu <sup>2</sup>       | lb/hr <sup>4</sup> | lbs/day <sup>5</sup> | lbs/year <sup>5</sup> |
| PM                             | 7.6                          | 0.00745                      | 0.0134             | 0.14                 | 23                    |
| PM10                           | 7.6                          | 0.00745                      | 0.0134             | 0.14                 | 23                    |
| PM2.5                          | 7.6                          | 0.00745                      | 0.0134             | 0.14                 | 23                    |
| SOx                            | 0.6                          | 0.00059                      | 0.0118             | 0.12                 | 21                    |
| NOx                            | 100                          | 0.09804                      | 1.97               | 21                   | 3441                  |
| CO                             | 84                           | 0.08235                      | 1.65               | 17                   | 2890                  |
| VOC (NonMethane TOC)           | 5.5                          | 0.00539                      | 0.108              | 1.1                  | 189                   |
| <b>Toxic Air Pollutants</b>    | <b>lbs/MMscf<sup>1</sup></b> | <b>lbs/MMBtu<sup>2</sup></b> | <b>lb/hr</b>       | <b>lb/day</b>        | <b>lb/year</b>        |
| 3-Methylchloranthrene          | 1.76E-09                     | 3.18E-09                     | 3.34E-08           | 5.56E-06             | 2.78E-09              |
| 7,12-Dimethylbenz(a)anthracene | 1.57E-08                     | 2.82E-08                     | 2.96E-07           | 4.94E-05             | 2.47E-08              |
| Arsenic                        | 1.96E-07                     | 3.53E-07                     | 3.71E-06           | 6.18E-04             | 3.09E-07              |
| Benz[a]anthracene              | 1.76E-09                     | 3.18E-09                     | 3.34E-08           | 5.56E-06             | 2.78E-09              |
| Benzene                        | 2.06E-06                     | 3.71E-06                     | 3.89E-05           | 6.49E-03             | 3.24E-06              |
| Benzo[a]pyrene                 | 1.18E-09                     | 2.12E-09                     | 2.22E-08           | 3.71E-06             | 1.85E-09              |
| Benzo[b]fluoranthene           | 1.76E-09                     | 3.18E-09                     | 3.34E-08           | 5.56E-06             | 2.78E-09              |
| Benzo[k]fluoranthene           | 1.76E-09                     | 3.18E-09                     | 3.34E-08           | 5.56E-06             | 2.78E-09              |
| Beryllium                      | 1.18E-08                     | 2.12E-08                     | 2.22E-07           | 3.71E-05             | 1.85E-08              |
| Cadmium                        | 1.08E-06                     | 1.94E-06                     | 2.04E-05           | 3.40E-03             | 1.70E-06              |
| Chromium (hexavalent)          | 6.86E-08                     | 1.24E-07                     | 1.30E-06           | 2.16E-04             | 1.08E-07              |
| Chrysene                       | 1.76E-09                     | 3.18E-09                     | 3.34E-08           | 5.56E-06             | 2.78E-09              |
| Cobalt                         | 8.24E-08                     | 1.48E-07                     | 1.56E-06           | 2.59E-04             | 1.30E-07              |
| Copper                         | 8.33E-07                     | 1.50E-06                     | 1.58E-05           | 2.63E-03             | 1.31E-06              |
| Dibenz(a,h)anthracene          | 1.18E-09                     | 2.12E-09                     | 2.22E-08           | 3.71E-06             | 1.85E-09              |
| Formaldehyde                   | 7.35E-05                     | 1.32E-04                     | 1.39E-03           | 2.32E-01             | 1.16E-04              |
| Indeno(1,2,3-cd)pyrene         | 1.76E-09                     | 3.18E-09                     | 3.34E-08           | 5.56E-06             | 2.78E-09              |
| Lead                           | 4.90E-07                     | 8.82E-07                     | 9.26E-06           | 1.54E-03             | 7.72E-07              |
| Manganese                      | 3.73E-07                     | 6.71E-07                     | 7.04E-06           | 1.17E-03             | 5.87E-07              |
| Mercury                        | 2.55E-07                     | 4.59E-07                     | 4.82E-06           | 8.03E-04             | 4.01E-07              |

|             |          |          |          |          |          |
|-------------|----------|----------|----------|----------|----------|
| n-Hexane    | 1.76E-03 | 3.18E-03 | 3.34E-02 | 5.56E+00 | 2.78E-03 |
| Naphthalene | 5.98E-07 | 1.08E-06 | 1.13E-05 | 1.88E-03 | 9.42E-07 |
| Nickel      | 2.06E-06 | 3.71E-06 | 3.89E-05 | 6.49E-03 | 3.24E-06 |
| Toluene     | 3.33E-06 | 6.00E-06 | 6.30E-05 | 1.05E-02 | 5.25E-06 |
| Vanadium    | 2.25E-06 | 4.06E-06 | 4.26E-05 | 7.10E-03 | 3.55E-06 |

1 Emission factors from EPA's AP-42 for uncontrolled natural gas combustion in boilers <100 MMBtu/hr 1.4 Natural Gas Combustion, July,1998

2 Emission factor, lbs/MMBtu = (emission factors, lbs/MMBtu)/(1020 Btu/scf)

3 PTE stands for potential to emit and reflects the maximum emissions that may occur considering physical and regulatory constraints.

4 PTE(lb/hr) = Emission Factor(lb/MMBtu)\*Heat Input Rate(MMBtu/hr)

5 PTE(lbs/day) = PTE (lb/hr)\*schedule (10.5hrs/day)

6 PTE(lbs/year) = PTE (lb/hr)\*schedule (1750hrs/year)

#### Emissions Attributable to Cremation of Remains

| Pollutant                          | Emission Factor<br>(lbs/case) <sup>1</sup> | PTE                  |                     |                      |
|------------------------------------|--|----------------------|---------------------|----------------------|
|                                    |  | (lb/hr) <sup>3</sup> | lb/day <sup>4</sup> | (lb/yr) <sup>5</sup> |
| Acetaldehyde <sup>2</sup>          | 1.30E-04                                   | 8.67E-05             | 9.10E-04            | 8.67E-02             |
| Arsenic <sup>2</sup>               | 3.00E-05                                   | 2.00E-05             | 2.10E-04            | 2.00E-02             |
| Benz[a]anthracene                  | 9.76E-09                                   | 7.69E-09             | 8.07E-08            | 7.69E-06             |
| Benzo[a]pyrene                     | 2.91E-08                                   | 2.29E-08             | 2.41E-07            | 2.29E-05             |
| Benzo[b]fluoranthene               | 1.59E-08                                   | 1.25E-08             | 1.31E-07            | 1.25E-05             |
| Benzo[k]fluoranthene               | 1.42E-08                                   | 1.12E-08             | 1.17E-07            | 1.12E-05             |
| Beryllium <sup>2</sup>             | 1.40E-06                                   | 9.33E-07             | 9.80E-06            | 9.33E-04             |
| Cadmium <sup>2</sup>               | 1.10E-05                                   | 7.33E-06             | 7.70E-05            | 7.33E-03             |
| Chromium (hexavalent) <sup>7</sup> | 4.60E-09                                   | 4.60E-07             | 4.83E-06            | 4.60E-04             |
| Chrysene                           | 5.40E-08                                   | 4.25E-08             | 4.46E-07            | 4.25E-05             |
| CO                                 | 2.21E-01                                   | 1.74E-01             | 1.83E+00            | 1.74E+02             |
| Cobalt                             | 1.75E-06                                   | 1.38E-06             | 1.45E-05            | 1.38E-03             |
| Copper <sup>2</sup>                | 2.70E-05                                   | 1.80E-05             | 1.89E-04            | 1.80E-02             |
| Dibenz[a,h]anthracene              | 1.27E-08                                   | 1.00E-08             | 1.05E-07            | 1.00E-05             |
| Formaldehyde <sup>2</sup>          | 3.40E-05                                   | 2.27E-05             | 2.38E-04            | 2.27E-02             |
| Hydrogen chloride <sup>2</sup>     | 7.20E-02                                   | 4.80E-02             | 5.04E-01            | 4.80E+01             |
| Hydrogen Fluoride <sup>2</sup>     | 6.60E-04                                   | 4.40E-04             | 4.62E-03            | 4.40E-01             |
| Indeno[1,2,3-cd]pyrene             | 1.54E-08                                   | 1.21E-08             | 1.27E-07            | 1.21E-05             |
| Lead <sup>2</sup>                  | 6.60E-05                                   | 4.40E-05             | 4.62E-04            | 4.40E-02             |
| Mercury <sup>7</sup>               | 3.40E-03                                   | 2.27E-03             | 2.38E-02            | 3.40E+02             |
| Nickel <sup>2</sup>                | 3.80E-05                                   | 2.53E-05             | 2.66E-04            | 2.53E-02             |
| NOx                                | 2.67E-01                                   | 2.10E-01             | 2.21E+00            | 2.10E+02             |
| Nitrogen Dioxide <sup>8</sup>      | *  | 1.05E-02             | 1.10E-01            | 1.05E+01             |
| PM-Filterable                      | 8.50E-02                                   | 6.69E-02             | 7.03E-01            | 6.69E+01             |
| Selenium <sup>2</sup>              | 4.40E-05                                   | 2.93E-05             | 3.08E-04            | 2.93E-02             |



|  |          |          |          |          |
|--|----------|----------|----------|----------|
| SO2  | 1.63E-01 | 1.28E-01 | 1.35E+00 | 1.28E+02 |
| Vanadium   | 5.79E-05 | 4.56E-05 | 4.79E-04 | 4.56E-02 |
| VOC  | 2.24E-02 | 1.76E-02 | 1.85E-01 | 1.76E+01 |
| Chlorinated dibenzodioxins and furans<br>(expressed as 2,3,7,8 TCDD equivalents) <sup>2</sup>    | 1.40E-09 | 9.33E-10 | 9.80E-09 | 9.33E-07 |
| Polycyclic Aromatic Hydrocarbons (PAHs) <sup>2</sup><br>[expressed as benzo(a)pyrene equivalent] | 4.90E-08 | 3.27E-08 | 3.43E-07 | 3.27E-05 |

1 Unless otherwise specified, emission factors are from EPA's Fire (Factor Information Retrieval) Data System dated February 20, 2018. Assumes 127 lbs/case.

2 Emission factors from the "Bay Area Air Quality Management District (BAAQMD) Permit Handbook" section 11.6 dated August 9, 2021. The dioxin/furan emission factor was calculated by BAAQMD based on the equivalency factors in the 2003 OEHHA risk assessment guidelines, as was the Polycyclic Aromatic Hydrocarbons factor. BAAQMD emission factors assume 150 lbs/case.

3 (lb/hr) = (emission factor(lbs/body))\*(1 body/[emission factor reference mass, lbs])\*(100lbs cremated/hr)

4 (lb/day) = hourly PTE(lb/hr)\*(10.5hrs/day)

5 (lb/yr) = (100000 lbs cremated/year)\*(1 case/[emission factor reference mass, lbs])\*[Emission factor, lbs pollutant/case]

6 Assumes 0.46 Chrome VI / total Chrome ratio during cremation per correspondence with Ecology 2/7/2022 (original email dated 5/25/2018); assumes 150lb case

7 Assumes 3.40E-03 lb Hg / case and 150 lbs/case per correspondence with Ecology 2/7/2022 (original email dated 5/25/2018)

8 Assumes 95% of NOx is NO; balance NO2.

| PTE for Registration Class Determination (TPY) |            |
|--|------------|
| PM/ TSP  | 0.0        |
| SOx  | 0.1        |
| NOx  | 1.8        |
| CO   | 1.5        |
| VOC (NonMethane TOC)                           | 0.1        |
| TAP (accounted for under PM and VOC)           |            |
| <b>Total</b>                                   | <b>3.6</b> |

**\*RC determination per ORCAA Rule 3.1 (ORCAA Table 3.1)**

## Facility-wide TAP PTE

| Pollutant   | PTE <sup>1</sup> |          |          |
|---|------------------|----------|----------|
|   | (lb/hr)          | (lb/day) | (lb/yr)  |
| 7,12-Dimethylbenz(a)anthracene  | 2.8E-08          | 3.0E-07  | 4.9E-05  |
| 3-Methylcholranthrene   | 3.2E-09          | 3.3E-08  | 5.6E-06  |
| Acetaldehyde  | 8.67E-05         | 9.10E-04 | 8.67E-02 |
| Arsenic   | 2.04E-05         | 2.14E-04 | 2.06E-02 |
| Benz[a]anthracene   | 1.09E-08         | 1.14E-07 | 1.3E-05  |
| Benzene   | 3.7E-06          | 3.9E-05  | 6.5E-03  |
| Benzo[a]pyrene  | 2.50E-08         | 2.6E-07  | 2.66E-05 |
| Benzo[b]fluoranthene  | 1.57E-08         | 1.65E-07 | 1.8E-05  |
| Benzo[k]fluoranthene  | 1.44E-08         | 1.5E-07  | 1.7E-05  |
| Beryllium   | 9.55E-07         | 1.00E-05 | 9.70E-04 |
| Cadmium   | 9.27E-06         | 9.7E-05  | 1.07E-02 |
| Chromium (hexavalent)   | 5.84E-07         | 6.13E-06 | 6.8E-04  |
| Chrysene  | 4.57E-08         | 4.8E-07  | 4.81E-05 |
| CO  | 1.83E+00         | 1.9E+01  | 3.06E+03 |
| Cobalt  | 1.53E-06         | 1.60E-05 | 1.6E-03  |
| Copper  | 1.95E-05         | 2.05E-04 | 2.06E-02 |
| Dibenz[a,h]anthracene   | 1.21E-08         | 1.3E-07  | 1.6E-05  |
| Formaldehyde  | 1.6E-04          | 1.63E-03 | 2.54E-01 |
| Hydrogen chloride   | 4.80E-02         | 5.04E-01 | 4.80E+01 |
| Hydrogen Fluoride   | 4.40E-04         | 4.62E-03 | 4.40E-01 |
| Indeno[1,2,3-cd]pyrene  | 1.53E-08         | 1.61E-07 | 1.77E-05 |
| Lead  | 4.5E-05          | 4.7E-04  | 4.6E-02  |
| Manganese   | 6.7E-07          | 7.0E-06  | 1.2E-03  |
| Mercury   | 2.27E-03         | 2.4E-02  | 3.4E+02  |
| Nitrogen Dioxide <sup>7</sup>   | 1.09E-01         | 1.1E+00  | 1.9E+02  |
| n-Hexane  | 3.2E-03          | 3.3E-02  | 5.6E+00  |
| Naphthalene   | 1.1E-06          | 1.1E-05  | 1.9E-03  |
| Nickel  | 2.90E-05         | 3.0E-04  | 3.2E-02  |
| Selenium  | 2.93E-05         | 3.08E-04 | 2.93E-02 |
| Toluene   | 6.0E-06          | 6.3E-05  | 1.1E-02  |
| Vanadium  | 4.96E-05         | 5.2E-04  | 5.3E-02  |
| Chlorinated dibenzodioxins and furans<br>(expressed as 2,3,7,8 TCDD equivalents)    | 9.33E-10         | 9.80E-09 | 9.33E-07 |
| Polycyclic Aromatic Hydrocarbons (PAHs)<br>[expressed as benzo(a)pyrene equivalent] | 3.27E-08         | 3.43E-07 | 3.27E-05 |

# OLYMPIC REGION CLEAN AIR AGENCY

2940 Limited Lane NW - Olympia, Washington 98502 - 360-539-7610 – Fax 360-491-6308

## FORM 1- NOTICE OF CONSTRUCTION

TO CONSTRUCT - INSTALL - ESTABLISH OR MODIFY AN AIR CONTAMINANT SOURCE

**Form 1 Instructions:**

1. Please complete all the fields below. **This NOC application is considered incomplete until signed.**
2. If the application contains any confidential business information, please complete a Request of Confidentiality of Records ([www.orcaa.org/forms](http://www.orcaa.org/forms)).
3. Duty to Correction Application: An applicant has the duty to supplement or correct an application. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application must, upon becoming aware of such failure or incorrect submittal, promptly submit supplementary factors or corrected information.

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|--|---|
| Business Name:<br><div style="font-size: 1.2em; font-family: cursive;">Mills Crematory</div>   | <b>For ORCAA use only</b>   |
| Mailing Address:<br><div style="font-size: 1.2em; font-family: cursive;">5725 Littlerock Rd SW Tumwater WA 98512</div>   | File No: <span style="color: blue;">544</span><br>County No: <span style="color: blue;">67</span><br>Source No: <span style="color: blue;">922</span><br>Application No: <span style="color: blue;">24NOC1628</span>  |
| Physical Address of Project or New Source:<br><div style="font-size: 1.2em; font-family: cursive;">5725 Littlerock Rd SW Tumwater WA 98512</div>   | Date Received:<br><div style="color: red; font-weight: bold; font-size: 1.1em;">Received</div><br><div style="color: red; font-weight: bold; font-size: 1.1em;">JAN 12 2024</div>   |
| Billing Address:<br><div style="font-size: 1.2em; font-family: cursive;">5725 Littlerock Rd SW Tumwater WA 98512</div>   | ORCAA   |
| Project or Equipment to be installed/established:<br><div style="font-size: 1.2em; font-family: cursive; margin-top: 10px;">5725 Littlerock Rd SW Tumwater WA 98512</div>  |   |
| Anticipated startup date: <u>1/30/2024</u> Is facility currently registered with ORCAA? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>  |   |
| This project must meet the requirements of the State Environmental Policy Act (SEPA) before ORCAA can issue final approval. Indicate the SEPA compliance option:<br><input type="checkbox"/> SEPA was satisfied by _____ (government agency) on ___/___/___ (date) - Include a copy of the SEPA determination<br><input type="checkbox"/> SEPA threshold determination by _____ (government agency) is pending - Include a copy of the environmental checklist<br><input type="checkbox"/> ORCAA is the only government agency requiring a permit - Include ORCAA Environmental Checklist<br><input type="checkbox"/> This project is exempt from SEPA per _____ (WAC citation). |   |
| <b>Name of Owner of Business:</b><br><div style="font-size: 1.2em; font-family: cursive;">Service Corporation International</div>  | <b>Agency Use Only</b>  |
| Title:<br>Email:<br>Phone: <span style="font-size: 1.1em;">713-522-5141</span>   | <div style="font-weight: bold; font-size: 0.9em;">                     CONDITIONALLY APPROVED<br/>                     FOR CONSTRUCTION ONLY<br/>                     IN ACCORDANCE WITH<br/>                     RCW 70A.15, WAC 173-400<br/>                     ORCAA REGULATIONS<br/>                     (SEE ATTACHED ADDENDUM FOR<br/>                     CONDITIONS OF APPROVAL)                 </div> <div style="font-size: 1.2em; color: blue; font-family: cursive; margin-top: 10px;">                     2/8/2024<br/>                     DATE<br/> </div> <div style="text-align: right; margin-top: 10px;">                      ORCAA                 </div> |
| <b>Authorized Representative for Application</b> (if different than owner):<br><div style="font-size: 1.2em; font-family: cursive;">Robert Champion</div>  |   |
| Title:<br><div style="font-size: 1.2em; font-family: cursive;">Crematory Operator</div>  |   |
| Email: <span style="font-size: 1.1em;">Robert.Champion@sci-us.com</span> Phone: <span style="font-size: 1.1em;">360-704-9029</span>  |   |
| I hereby certify that the information contained in this application is, to the best of my knowledge, complete and correct.   |   |
| <b>Signature of Owner or Authorized Representative: (sign in Blue Ink)</b>   |   |
|  | Date:<br><div style="font-size: 1.1em;">1/11/2024</div>   |
| <div style="background-color: yellow; padding: 2px;"> <b>IMPORTANT: Do not send via email or other electronic means.</b><br/>                     ORCAA must receive Original, hardcopy, signed application and payment prior to processing application.                 </div>  |   |