United States Environmental Protection Agency
Region 10, Air & Radiation Division
1200 Sixth Avenue, Suite 155, 15-H13
Seattle, Washington 98101

Technical Support Document

Tribal Minor New Source Review Permit

Permittee: Heggie's Colonial Funeral Home

Source: Human Cremation System

Location: 228 South Alder Street
Toppenish, WA 98948
Yakama Nation

Source Contact: Monte Heggie
monteheggie@colonialfuneralhome.net
509-314-0341

Source ID #: [none assigned]

Permit #: R10TNSR03100

Pursuant to the provisions of Clean Air Act (CAA) sections 110(a) and 301(d) and the Code of Federal Regulations (CFR) title 40, sections 49.151-161, the United States Environmental Protection Agency Region 10 (EPA) is issuing a minor New Source Review (NSR) permit in Indian Country to Heggie's Colonial Funeral Home ("Permittee") for the human cremation system ("Source"), located in Toppenish, Washington. This permit authorizes construction and operation of the Source at the permittee's existing business.

This Technical Support Document (TSD) provides the EPA's analysis of the application and describes the equipment that is authorized to be installed and/or operated, and the permit conditions that are included in the minor NSR permit.

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1. Authority

The CAA provides the EPA with broad authority to protect air resources throughout the nation, including air resources in Indian country. Unlike states, Indian tribes are not required to develop CAA NSR permitting programs.[1] In the absence of an EPA-approved NSR program on the tribal lands of the Yakama Nation, the EPA has the authority to implement a Federal Implementation Plan (FIP) in order to protect tribal air resources from impacts due to the construction of new or modified stationary sources of air pollutants. In 2011, the EPA established the Tribal Minor NSR Program as part of a FIP under the CAA for Indian country, through the Tribal Minor NSR Rule.[2] The EPA has followed the Tribal Minor NSR Program in this permit action.

2. Tribal Minor NSR Program Requirements

The Tribal Minor NSR Program (40 CFR 49.151-165) is potentially applicable to owners and operators of sources located, or planning to locate, in Indian reservations, and in other areas of Indian country where no EPA-approved tribal air permit program is in place and where an Indian tribe or the EPA has demonstrated that the tribe has jurisdiction.[3] Because the source is located on tribal land of the Yakama Nation, where no EPA-approved tribal air permit program is in place, the source is potentially subject to the requirements of the Tribal Minor NSR Program.

The Tribal Minor NSR Program requires owners and operators of certain new and modified sources of air pollution in Indian country to obtain a minor NSR permit prior to constructing or modifying a source. This preconstruction permitting program is triggered for new or modified sources based on potential increases in air pollutants according to the applicability criteria in 40 CFR 49.153. Generally, source owners and operators first determine whether their new or modified source is subject to the CAA major NSR permitting program (pursuant to 40 CFR 52.21 for areas designated as attainment/unclassifiable for the National Ambient Air Quality Standards (NAAQS)) and/or 40 CFR 49.166 through 49.175 for areas designated as nonattainment for the NAAQS). The applicable permitting program is determined individually for each NSR pollutant. When a pollutant is not subject to major NSR review, the owner and operator must evaluate whether the Tribal Minor NSR Program applies. Additionally, the Tribal Minor NSR Program allows existing major sources in Indian country to apply for a synthetic minor source permit to limit their PTE below title V and NSR major source permitting thresholds. *See* 40 CFR 49.158. Restrictions on the PTE of a synthetic minor source are required to be enforceable as a practicable matter, as defined in 40 CFR 49.152.

Under this permitting action, the new equipment will be subject to review under the Tribal Minor NSR program for PM_{10} and $PM_{2.5}$ as a minor NSR modification to an existing minor source for PSD (i.e., PTE less than 250 tpy for all regulated NSR pollutants).

[1] *See*, *e.g.*, Indian Tribes: Air Quality Planning and Management, 63 FR 7253 (Feb. 12, 1998) (also known as the Tribal Authority Rule)

[2] 76 FR 38748 (July 1, 2011) (codified at 40 CFR part 49).

[3] See 40 CFR 49.151(c)(1). "Indian country" is defined at 49.152(d).

3. Source and Permit Information

3.1 Source and Area Description

Heggie Colonial Funeral Home is an existing mortuary and pet crematory located at 228 South Alder Street in Toppenish, Washington. Toppenish is located on the Yakama Reservation within the boundaries of Yakima County, which is in attainment or unclassifiable for all criteria pollutants. This is their first air permit.

3.2 Permit Action

This permit action allows the construction and operation of the proposed human cremation system at an existing mortuary and pet crematory.

4. Public Participation

4.1 Public Comment Period

In accordance with 40 CFR 49.157, the EPA must provide public notice and a 30-day public comment period to ensure that the affected community and the general public have reasonable access to the application and draft permit information. For the draft permit, the public comment period began on June 10 and ended on July 11, 2022. During that period, the draft permit, this TSD, and all other supporting materials for the draft permit were available for review online at: https://www.epa.gov/publicnotices/notices-search/location/Washington. At the opening of the public comment period, Region 10 provided notice of the draft permit through email to Heggie, Yakama Nation and interested persons on Region 10's mailing list.

Any person may submit written comments on the draft permit, or the EPA's finding under this action pursuant to section 106 of the National Historic Preservation Act, during the public comment period. These comments must raise any reasonably ascertainable issues with supporting arguments by the close of the public comment period. Anyone may request a public hearing pursuant to 40 CFR 49.157(c) prior to the end of the public comment period. A request for public hearing must include the nature of the issues to be raised at the hearing. The EPA will base its decision on whether a hearing will be held upon the showing of a significant degree of public interest. The EPA may also hold a public hearing at its discretion. Region 10 received no comments during the public comment period. In addition, Region 10 received no requests to hold a public hearing. No public hearing was held because a significant degree of public interest was not shown.

4.2 Final Minor NSR Permit Action

In accordance with 40 CFR 49.159, a final permit becomes effective 30 days after the service of notice of the decision, unless: (1) a later effective date is specified in the permit; (2) appeal of the final permit is made as detailed in the next section; or (3) the permitting authority makes the permit effective immediately upon issuance, which it can do only if no comments requested a change in the draft permit or a denial of the permit. Because no comments were received on the draft permit, the final permit is effective upon issuance. As required in 40 CFR 49.159, the EPA will notify the permittee and tribal government in writing through email of the final decision and will provide adequate public notice of the

final permit decision through https://www.epa.gov/publicnotices/notices-search/location/Washington to ensure that the affected community and general public have reasonable access to the decision and supporting materials. In addition, anyone may request a copy of the final permit from the contact for this action or through the list of minor NSR permit actions on our website. See the contact information provided below.

4.3 Appeals to the Environmental Appeals Board (EAB)

In accordance with 40 CFR 49.159, within 30 days after a final permit decision has been issued, any person who filed comments on the draft permit or participated in the public hearing may petition the EAB to review any condition of the permit decision. The 30-day period within which a person may request review under this section begins when the Region has fulfilled the notice requirements for the final permit decision. Notice will be provided July 15, 2022. Because no comments were received on the draft permit, and because the final permit reflects the draft permit with no substantive changes, EAB review of the final permit is not available. A petition to the EAB for review of the final permit decision is, under section 307(b) of the Act, a prerequisite to seeking judicial review of the final agency action. For purposes of judicial review, final agency action occurs when the EPA denies or issues a final permit and agency review procedures are exhausted.

4.4 Contact Information

The contact for this action is:

Dan Meyer
Email: meyer.dan@epa.gov
Phone: (206) 553-4150

The EPA Region 10 maintains a list of its Tribal Minor NSR permitting actions on our website at: https://www.epa.gov/caa-permitting/air-permits-issued-epa-region-10.

5. Existing Emission-Generating Units and Activities

In 2018, the Permittee installed a Therm Tec Model S-27-T small animal cremation system. The unit, EU 01, is fired on natural gas and includes both primary and secondary combustion chambers. Only animal remains, bags and containers used to transport the animal remains, and animal bedding are combusted in the small animal cremation system. There are no other emission generating activities at the facility other than perhaps activities listed in 40 CFR 49.153(c). Table 1 provides relevant information about the existing source.

Table 1: Existing Emissions Generating Units and Activities

Emission Unit (EU) ID	Unit Description	Make/Model	Capacity	Control Technology	Fuel Type
EU 01	Small Animal Cremation	Therm Tec Model S-27-T	50 lb/hr cremation rate	0.80 MMBtu/hr secondary burner	Natural gas

	System (2018)		0.60 MMBtu/hr		

The animal cremation system is subject to limits on emissions of particulate matter and opacity in the General Rules for Application to Indian Reservations in EPA Region 10, 40 CFR 49.121-49.139.[4] We anticipate that operation of the secondary combustion chamber is necessary to meet the PM emission limit and opacity limit. In its initial application, the permittee provided test data from a similar HCS located in Vancouver, Washington. Based on combustion information in the test report (airflow, scaled down for the smaller animal cremation system, and oxygen content), the EPA calculated potential emissions considering the FARR PM limit (0.1 grains per dry standard cubic foot corrected to seven percent oxygen, see 40 CFR 49.125(d)(1)). We conservatively assumed that 100 percent of PM emissions are PM_{10} and $PM_{2.5}$. We used emission factors for natural gas combustion from AP 42, section 1.4 for other pollutants. The existing source's potential emissions, pollutant by pollutant, are less than the 250 tpy PSD major source threshold in 40 CFR 52.21(b)(1)(i)(b) as illustrated in Table 2.

Table 2: Potential Emissions of Existing Source

Pollutant	Potential to Emit of the Existing Source (tpy)
PM	2
PM10	2
PM2.5	2
NOx	0.3
CO	0.5
SO2	<0.1
VOC	<0.1

See Appendix A to this TSD for the PTE calculations for the existing source.

6. New and Modifications to Emission-Generating Units and Activities

The proposed equipment is a human cremation system (HCS) at an existing funeral home. The HCS is a model A-250-WH "hot hearth" cremation system manufactured by American Crematory Equipment Co. of Santa Fe Springs, California. According to materials provided by the applicant, the HCS can be charged with one case at a time, with a total weight of up to 600 lbs, at a maximum cremation rate of 187-250 lbs/hr.[5] The HCS includes a refractory-lined, natural gas-fired primary combustion chamber and a refractory-lined, natural gas-fired secondary chamber (afterburner). After exiting the afterburner, exhaust gases are emitted through a refractory-lined stack with an inner diameter of 27 inches that extends above the roofline. The stack does not include a rain cap.

Only human remains and containers can be charged to the primary combustion chamber, which is designed to operate at an average temperature of 1600 °F. The afterburner must reach a temperature of 1650 °F before combustion air is added to the primary chamber and the primary combustion burner is activated. The afterburner must remain at a temperature of at least 1600 °F throughout the cremation cycle.

After cremation of a case, ashes will be collected to be returned to the decedent's family.

[4] Also known as the Federal Air Rule for Reservations (FARR)

[5] "Case" is a term of art used in the cremation industry. It refers to the physical body of a decedent.

Table 3 provides relevant information about the new emission generating activities.

Table 3: New Emissions Generating Units and Activities

Emission Unit (EU) ID	Unit Description	Make/Model	Capacity	Control Technology	Fuel Type
EU 02	Human Cremation System	American Cremation Equipment, Co. A-250-WH	250 lb/hr cremation (i.e., burn) rate 0.75 MMBtu/hr chamber burner	1.5 MMBtu/hr secondary burner	Natural gas

7. Summary of Emissions

7.1 Emissions Increase by Emission Unit

This action triggers minor NSR review under the Tribal Minor NSR Program for PM_{10} and $PM_{2.5}$ pursuant to 40 CFR 49.153(a)(1)(ii)(B). According to 40 CFR 49.153(b)(1), for each new emissions unit that is to be added, the emissions increase would be the potential to emit of the emissions unit. In its initial application, the Permittee provided test data from a similar HCS located in Vancouver, Washington. Based on combustion information in the test report (airflow, oxygen content), the EPA calculated potential emissions considering the FARR PM limit (0.1 grains per dry standard cubic foot corrected to seven percent oxygen, see 40 CFR 49.125(d)(1)). We conservatively assumed that 100 percent of PM emissions are PM_{10} and $PM_{2.5}$. We used emission factors for natural gas combustion from AP 42, section 1.4 for other pollutants. We anticipate that an afterburner will be required to meet the FARR PM and opacity limits. Table 4 illustrates that PM_{10} and $PM_{2.5}$ allowable emissions are greater than the minor NSR thresholds in Table 1 to 40 CFR 49.153. See Appendix A to this TSD for the PTE calculations for the proposed HCS.

Table 4: Allowable Emissions Increase from Proposed HCS

Pollutant	Potential to Emit based on the FARR limit (tpy)	Table 1 of 40 CFR 49.153 Minor NSR Thresholds for Attainment Areas (tpy)	Project Subject to Minor NSR Review for Pollutant?
PM	5	10	No
PM_{10}	**5**	**5**	**Yes**
$PM_{2.5}$	**5**	**3**	**Yes**
NO_x	0.5	10	No
CO	0.8	10	No
SO_2	<0.1	10	No
VOC	<0.1	5	No

7.2 Post-Modification Allowable Emissions

Table 5 summarizes post-modification allowable emissions through application of minor NSR control technology review (CTR) requirement in 40 CFR 49.154(c). Allowable emissions were calculated considering 0.04 grains per dry standard cubic foot corrected to seven percent oxygen CTR emission limit. The emission limit reflects emission reductions achieved by similar sources through application of an afterburner. See Appendix A to this TSD for PTE calculations for the application of the CTR requirement to the proposed HCS.

Table 5: Allowable Emissions from Proposed HCS after Application of Minor NSR Control Technology Review

Pollutant	Potential to Emit (tpy)
PM_{10}	2
$PM_{2.5}$	2

8. Control Technology Review

As required by 40 CFR 49.154(c), the EPA has conducted a case-by-case control technology review to determine the appropriate level of control considering the following factors:

- Local air quality conditions.
- Typical control technology or other emissions reduction measures used by similar sources in surrounding areas.
- Anticipated economic growth in the area.
- Cost-effective emission reduction alternatives.

We reviewed several permits issued by the Southwest Clean Air Agency (SWCAA), the Yakima Regional Clean Air Agency (YRCAA), and the Northwest Clean Air Agency (NWCAA) for similar crematory systems in surrounding areas that are also attaining the $PM_{2.5}$ NAAQS. We also reviewed a general permit for crematory systems issued by the Oregon Department of Environmental Quality (ODEQ). Each permit required the operation of a secondary combustion chamber that had reached a set operating temperature prior to initiating cremation. The secondary combustion chamber, also called an afterburner or vapor incinerator, combusts volatile materials partially oxidized in the primary combustion chamber and prevents the formation of PM_{10} and $PM_{2.5}$ downstream when the exhaust cools as it is emitted to atmosphere. For a general discussion of thermal incinerator technology, see EPA's Air Pollution Control Fact Sheet at https://www3.epa.gov/ttnchie1/mkb/documents/fthermal.pdf. See Appendix B to this TSD for a summary of our technical review.

We are not aware of any anticipated economic growth or alternative emission reduction strategies that could impact our review.

Given our technical analysis in Appendix B to this TSD, EPA is proposing the following CTR requirements:

- Installation of an HCS with a secondary combustion chamber.
- Requiring the secondary combustion chamber to reach 1650 °F prior to initiating combustion in the primary chamber.
- Maintaining a temperature of at least 1600 °F in the secondary combustion chamber throughout the cremation cycle.

9. Air Quality Impact Analysis

For projects that trigger minor NSR review, the reviewing authority may require an air quality impact analysis (AQIA) if there is reason to believe that construction or modification will cause or contribute to a NAAQS or PSD increment violation. See 40 CFR 49.154(d).

40 CFR 49.154(d) provides the EPA discretion in requiring an AQIA on a case-by-case basis. If the EPA has reason to be concerned that the construction of the source or modification would cause or contribute to a NAAQS or PSD-increment violation, a AQIA may be needed. After review, Region 10 has concluded concern is sufficiently low and an AQIA is not necessary. We based this conclusion on the following reasons:

a) Post-control emissions of the HCS are sufficiently low. The post control emissions of the HCS fall below the minor NSR applicability thresholds in Table 1 to 40 CFR 49.153. These thresholds are recognized as de minimis emissions, below which it would be considered unlikely the modification to the existing source could cause or contribute to a NAAQS or PSD increment violation.

b) Background design concentrations of the criteria air pollutants in Toppenish are sufficiently below the NAAQSs. Region 10 used the NW-AIRQUEST background air quality lookup tool (http://lar.wsu.edu/nw-airquest/lookup.html) to obtain representative background concentrations in the region of the source, provided in Table 4 below. (Nearest grid cell to project: 46.35° N, 120.35° W.)

Table 4: Representative Background Concentrations

Air Pollutant	Averaging Time	NAAQS ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)
PM_{10}	24-hr	150	78
$PM_{2.5}$	24-hr	35	32.6
	annual	12	7.5
CO	1-hr	40,000	1360
	8-hr	10,000	949
NO_2	1-hr	188	41
	annual	100	7
SO_2	1-hr	196	12
	3-hr	1300	17

10. Listed Species-Related Requirements

Pursuant to section 7 of the Endangered Species Act (ESA), 16 U.S.C. 1536, and its implementing regulations at 50 CFR part 402, the EPA is required to ensure that any action authorized, funded, or carried out by the EPA is not likely to jeopardize the continued existence of any federally endangered (FE) or federally threatened (FT) species listed under the ESA, or result in the destruction or adverse modification of such species' designated critical habitat.

Because the proposed HCS will be located in an existing commercial building and post-control allowable emissions are less than the thresholds in Table 1 of 40 CFR 49.153, we have determined that the project will have no effect on federal listed threatened or endangered species.

11. Historic Properties-Related Requirements

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies, including the EPA, to take into account the effects of an undertaking on historic properties. The implementing regulations of the NHPA can be found at 36 CFR part 800. An "undertaking," as defined at 36 CFR 800.16(y), includes projects requiring a federal permit. Therefore, the issuance of this permit constitutes an undertaking.

On July 1, 2021, the EPA, Region 10 contacted the Tribal Historic Preservation Office (THPO) of the Yakama Nation informing them about the proposed project. The THPO has not contacted the EPA with concerns about historic preservation. Pursuant to 36 CFR 800.3(c)(4), the EPA has no further obligations under NHPA section 106 or 36 CFR part 800.

12. Environmental Justice Analysis

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," calls on each federal agency to make environmental justice a part of its mission by "identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations."

The EPA defines "Environmental Justice" (EJ) to include 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 polices. The EPA's goal is to provide an opportunity for overburdened populations or communities to participate in the permitting process. "Overburdened" is used to describe the minority, low-income, tribal and indigenous populations or communities in the United States that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards.

The EPA has developed an EJ mapping and screening tool called EJSCREEN. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. According to EPA's EJSCREEN Version 2020 environmental justice screening and mapping tool, people of color comprise 91% of the community within a one-mile radius of the facility, and 57% of the 9,481-resident population within that area is characterized as low income. These numbers are significantly higher than the average for the state of Washington (31% people of color and 26% low income).

Because the post-control allowable emissions are less than the thresholds in Table 1 of 40 CFR 49.153, we anticipate that there will not be any disproportionately high and adverse human health or environmental effects that would occur to any overburdened populations as a result of this project.

13. Permit Content and Revisions

13.1 Permit Content – General

Required Content (per 40 CFR 49.155)	Discussion
(a)(1) General requirements	See below
(a)(1)(i) The effective date of the permit and the date by which you must commence construction in order for your permit to remain valid	The effective date is on the cover. The date by which construction must be commenced is in Condition 12
(a)(1)(ii) The emissions units subject to the permit and their associated emission limitations	See Table 1, Condition 2, and Condition 34
(a)(1)(iii) Monitoring, recordkeeping, reporting and testing requirements to assure compliance with the emission limitations	See Sections 2.1, 2.2, 2.3, 3.1.1 and 3.1.2
(a)(2) *Emission limitations.* The permit must include the emission limitations determined by the reviewing authority under § 49.154(c) for each affected emissions unit. In addition, the permit must include an annual allowable emissions limit for each affected emissions unit and for each regulated NSR pollutant emitted by the unit if the unit is issued an enforceable emission limitation lower than the potential to emit of that unit.	Condition 34 establishes emission limitations of PM_{10}, $PM_{2.5}$, and visible emissions. Condition 35 establishes operating limits for the HCS and secondary combustion chamber to assure compliance with the emission limitations, including the minimum temperatures the secondary combustion chamber must meet. Condition 36 is a work practice requirement to assure compliance with the emission limitations. No enforceable limit on PTE was requested by the permittee (e.g., restriction on hours of operation or throughput to demonstrate compliance with NAAQS), so no annual emissions limit appears in the permit.
(a)(3) *Monitoring requirements.* The permit must include monitoring requirements sufficient to assure compliance with the emission limitations and annual allowable emissions limits that apply to the affected emissions units at your source. The reviewing authority may require, as appropriate, any of the requirements in paragraphs (a)(3)(i) and (ii) of this section.	Condition 37 includes unit specific monitoring requirements for the HCS and secondary combustion chamber, including the requirement to continuously monitor the temperature of the secondary combustion chamber. Condition 40 includes regular opacity monitoring. Limiting visible emissions to 0% opacity assures compliance with the PM10/PM2.5 limit in Condition 34.a. General monitoring requirements are located in Section 2.1.
(a)(3)(i) Any emissions monitoring, including analysis procedures, test methods, periodic testing, instrumental monitoring and non-instrumental monitoring. Such monitoring requirements shall assure use of test methods, units, averaging periods and other statistical conventions consistent with the required emission limitations.	Condition 40 requires monthly opacity monitoring using EPA Method 22.

Required Content (per 40 CFR 49.155)	Discussion
(a)(3)(ii) As necessary, requirements concerning the use, maintenance and installation of monitoring equipment or methods.	Continuous secondary combustion chamber temperature monitoring required by Condition 38. Condition 37 requires equipment to continuously monitor secondary chamber temperature as well as several interlocks to assure proper operation. Condition 39 requires permittee to implement a plan to assure measurements generated by monitoring equipment are valid and representative.
(a)(4) *Recordkeeping requirements.* The permit must include recordkeeping requirements sufficient to assure compliance with the emission limitations and monitoring requirements and it must require the elements in paragraphs (a)(4)(i) and (ii) of this section	See below
(a)(4)(i) Records of required monitoring information that include the information in paragraphs (a)(4)(i)(A) through (F) of this section, as appropriate. (A) The location, date and time of sampling or measurements. (B) The date(s) analyses were performed. (C) The company or entity that performed the analyses. (D) The analytical techniques or methods used. (E) The results of such analyses. (F) The operating conditions existing at the time of sampling or measurement.	See Condition 23
(a)(4)(ii) Retention for 5 years of records of all required monitoring data and support information for the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records, all original strip-chart recordings or digital records for continuous monitoring instrumentation and copies of all reports required by the permit.	See Conditions 22 and 23
(a)(5) *Reporting requirements.* The permit must include the reporting requirements in paragraphs (a)(5)(i) and (ii) of this section.	See below
(a)(5)(i) Annual submittal of reports of monitoring required under paragraph (a)(3) of this section, including the type and frequency of monitoring and a summary of results obtained by monitoring.	See Condition 29

Required Content (per 40 CFR 49.155)	Discussion
(a)(5)(ii) Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations and any corrective actions or preventive measures taken. Within the permit, the reviewing authority must define "prompt" in relation to the degree and type of deviation likely to occur and the applicable emission limitations.	See Condition 30
(a)(6) *Severability clause.* The permit must include a severability clause to ensure the continued validity of the other portions of the permit in the event of a challenge to a portion of the permit.	See Condition 4
(a)(7) *Additional provisions.* The permit must also contain provisions stating the requirements in paragraphs (a)(7)(i) through (vii) of this section.	See below
(a)(7)(i) You, as the permittee, must comply with all conditions of your permit, including emission limitations that apply to the affected emissions units at your source. Noncompliance with any permit term or condition is a violation of the permit and may constitute a violation of the Act and is grounds for enforcement action and for a permit termination or revocation.	See Condition 5
(a)(7)(ii) Your permitted source must not cause or contribute to a NAAQS violation or in an attainment area, must not cause or contribute to a PSD increment violation.	See Condition 10
(a)(7)(iii) It is not a defense for you, as the permittee, in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.	See Condition 6
(a)(7)(iv) The permit may be revised, reopened, revoked and reissued or terminated for cause. The filing of a request by you, as the permittee, for a permit revision, revocation and re-issuance or termination or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.	See Condition 14
(a)(7)(v) The permit does not convey any property rights of any sort or any exclusive privilege.	See Condition 7

Required Content (per 40 CFR 49.155)	Discussion
(a)(7)(vi) You, as the permittee, shall furnish to the reviewing authority, within a reasonable time, any information that the reviewing authority may request in writing to determine whether cause exists for revising, revoking and reissuing or terminating the permit or to determine compliance with the permit. For any such information claimed to be confidential, you must also submit a claim of confidentiality in accordance with part 2, subpart B of this chapter.	See Condition 11
(a)(7)(vii) Upon presentation of proper credentials, you, as the permittee, must allow a representative of the reviewing authority to: (A) Enter upon your premises where a source is located or emissions-related activity is conducted or where records are required to be kept under the conditions of the permit; (B) Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit; (C) Inspect, during normal business hours or while the source is in operation, any facilities, equipment (including monitoring and air pollution control equipment), practices or operations regulated or required under the permit; (D) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements and (E) Record any inspection by use of written, electronic, magnetic and photographic media.	See Condition 3

13.2 Permit Content – Compliance with Emission Limits

The Tribal Minor NSR Program requires owners and operators of certain new and modified sources of air pollution in Indian country to obtain a minor NSR permit prior to constructing or modifying a source. This preconstruction permitting program requirement is triggered.

Condition 34 establishes emission limits for $PM_{10}/PM_{2.5}$ and opacity for EU 02. See Appendix B for more information on how these limits were determined.

Condition 35 establishes operating limits to ensure that the secondary combustion chamber (afterburner) reaches and remains at the operating temperature to ensure complete combustion of volatile compounds. It also limits what can be combusted in the primary combustion chamber to avoid EU 02 being categorized as an incinerator and limits added fuel to pipeline quality natural gas, which is the fuel reviewed with the application.

Condition 36 requires trained operators to be onsite during cremations.

Condition 37 requires EU 02 to be outfitted with interlocks and controls necessary to ensure complete combustion.

Condition 38 establishes regular monitoring for EU 02. All required monitoring is required to be recorded by Condition 23, summarized in annual reports by Condition 29, and included in timely deviation reports, should deviations occur, by Condition 30.

Condition 39 requires the Permittee to prepare an operation and maintenance plan to assure the validity and representativeness of the monitoring required by Condition 38.

Condition 40 requires monthly visible emissions surveys of EU 02 during every month the unit operates. Surveys are required at the beginning of cremation cycles (immediately after combustion begins in the primary chamber) because this is when we expect visible emissions to be most likely to occur. Condition 40 also establishes actions that must be performed if visible emissions are detected.

Condition 41 requires records of operator training to be maintained.

Appendix A

Emissions Calculations

Save file “tsd-app-a.xlsx” attached to adobe acrobat document. Then open that file using Microsoft Excel.

Appendix B

Control Technology Review

Table B-1: Control Technology Review

Source	Permit Authority	Permit No.	Permit Issue Date	Emission Unit	Capacity	PM Limit	Visible Emissions (VE) Limit	Secondary Chamber Temperature Limit
Affordable Basic Cremation	YRCAA	NSRP-17-ABC-2006	04/23/2007	Therm Tec Model SQC-300	450 lbs/charge	20 lbs/yr PM10	VE shall not exceed 0% opacity, six-minute average.	Minimum 1600 °F
Smith Valley Home	YRCAA	NSRP-01-SFH-2006	06/30/2006	American Crematory A-200 HT	450 lbs/charge	644.74 lbs/yr PM10	VE shall not exceed 0% opacity, six-minute average.	Minimum 1600 °F
Lower Columbia Crematory	SWCAA	ADP-05-2646	12/08/2005	Therm Tec Model SQC-300	100 lb/hr	0.04 gr/dscf(7% O_2) (demonstrate through EPA Reference Method 5 PM test or substitute another)	First 15 minutes of cremation cycle: VE shall not exceed 5% opacity for more than 3 minutes Remainder of cremation cycle: VE shall not exceed 0% opacity for more than 3 minutes in any one-hour period	Minimum 1650 °F prior to charging primary combustion chamber. Minimum 1500 °F during the cremation cycle.
Clark County Crematory	SWCAA	ADP 17-3241	08/17/2017	Therm Tec Model SQC-300	100 lb/hr	0.07 tpy PM10 0.05 tpy PM2.5	Same as SWCAA ADP 05-2646	Minimum 1600 °F for 30 minutes prior to charging primary combustion chamber. Minimum 1500 °F during the cremation cycle.
Clark County Crematory	SWCAA	ADP 18-3308	10/03/2018	Therm Tec Model SQC-300	100 lb/hr	0.07 tpy PM10 0.05 tpy PM2.5	Same as SWCAA ADP 05-2646	Same as SWCAA ADP 17-3241

Source	Permit Authority	Permit No.	Permit Issue Date	Emission Unit	Capacity	PM Limit	Visible Emissions (VE) Limit	Secondary Chamber Temperature Limit
Evans Funeral Chapel	NWCAA	OAC 1379	02/16/2022	Matthew Environmental Solutions Power Pak II Plus	175 lb/hr	Work practice standards	VE shall not exceed 5% opacity for any period aggregating more than three minutes in any 60-minute period (Ecology Method 9A)	Minimum 1600 °F throughout the cremation period
General Permit	Oregon DEQ	NA	11/29/2017	Not specified	Not specified	0.080 gr/dscf, corrected to 7% O_2 at standard conditions (permit does not specify test method associated with the emission limit, assume EPA Reference Method 5 PM)	VE shall not exceed 20%, six-minute average, per EPA Method 9	Minimum 1600 °F throughout the cremation period (units installed prior to March 13, 1993) Minimum 1800 °F throughout the cremation period (units installed after March 13, 1993)

The information in Table B-1 was provided by YRCAA, SWCAA, NWCAA, and ODEQ.

Each of the permits issued by YRCAA and the most recent permit issued by NWCAA require the secondary combustion chamber to reach a temperature of 1600 °F before combustion in the primary chamber may begin. The temperature of the secondary combustion chamber must be maintained at 1600 °F thereafter. The two most recent permits issued by SWCAA require the secondary combustion chamber to reach a

temperature of 1600 °F and remain at this temperature for at least 30 minutes before combustion in the primary chamber may begin. The temperature of the secondary combustion chamber must be maintained at 1500 °F thereafter. The General Permit issued by ODEQ requires the secondary chamber to maintain a temperature of at least 1800 °F throughout the cremation period.

The permit for the Lower Columbia Crematory is the only site-specific permit issued in Washington that we reviewed that includes a short term, concentration-based limit for particulate matter. Included in the Permittee's first application was a summary of test data showing that the HCS at this source can meet the permit limits by a comfortable margin (average test value 0.014 gr/dscf at 7% O_2).

The general permit issued by ODEQ has a higher emission limit. However, Oregon's minor NSR program does not have a Best Available Control Technology (BACT) requirement as Washington does.

The permits issued in the state of Washington set visible emission limits as low as 0% opacity (YRCAA) and as high as 5% opacity (NWCAA). SWCAA allows 5% opacity during the first 15 minutes of the cremation cycle and 0% thereafter. ODEQ's general permit limits visible emissions to 20% opacity. However, Oregon's minor NSR program does not have a BACT requirement. None of the permits we reviewed required a continuous opacity monitoring system, although such systems are available for HCS. Instead, the permits relied on human observation.

ODEQ's general permit included an operator training requirement. American Crematory's brochure, which was included with the application, also identifies operator training as a provided service. Thus, we are proposing to require operator training. In addition, all the permits we reviewed required the HCS to be operated and maintained according to the manufacturer's recommendations and the preparation of an operation and maintenance plan.

ODEQ's general permit requires the owner or operator to either conduct a performance test to assure compliance with the emissions limits or provide test results for a "compatible" unit. Neither NWCAA nor YRCAA requires performance testing. In its more recent permits, SWCAA requires initial and ongoing testing (every five years) using a portable analyzer for CO and NO_x. The older permit issued by SWCAA, the only one with a short term concentration-based PM limit, requires initial testing or test results from another crematory unit of the same model. SWCAA reported to EPA that crematory units operated according to manufacturer's recommendations and properly maintained had no trouble meeting emission limits. To be consistent with other regulatory agencies in the region, we find that there is no reason to require routine performance testing.

Because operation of a secondary combustion chamber is the only control technology used in the permits we reviewed in the surrounding areas, we propose operation of a secondary combustion chamber as the required control technology provided the secondary combustion chamber:

- Reaches a temperature of at least 1650 °F before combustion in the primary chamber may begin.
- Is maintained at a temperature of at least 1600 °F throughout the cremation cycle at all times (without an averaging period).

We further propose the PM limit in the Lower Columbia Crematory permit issued by SWCAA, which is the most stringent PM limit we reviewed, as the PM limit for the proposed HCS. In addition, we propose 0% opacity as the visible emissions limit.