Notice of Construction (NOC) Worksheet

PUGET SOUND
Clean Air Agency

Applicant: Baker Commodities, Inc.	**NOC Number**: 12344
Project Location: 5795 South 130th Place, Tukwila WA 98178	**Registration Number**: 12196
Applicant Name and Phone: Mike Bulleri	**NAICS:** 311613
Engineer: Blaine Nesbit	**Inspector**: Catherine Eiref

A. DESCRIPTION

For the Order of Approval:
The installation of one Dupps 1200 Series cooker controlled by one existing cyclone, one existing vapor condenser, one cyclonic scrubber, one packed tower scrubber, and an existing SBECO thermal oxidizer.

Facility

Baker Commodities, Inc. is an animal rendering plant located at 5795 South 130th Place in Seattle, WA. The facility is on an 11.87 acre parcel with multiple structures to perform and support the rendering process. The facility has served as a rendering plant under multiple owners since 1936 or earlier. A major upgrade was performed in 1976, at which time a Dupps 1200 Series continuous cooker was installed for a continuous rendering operation under Puget Sound Clean Air Agency NOC OA 1655. The existing cooker is controlled by a thermal oxidizer, which is permitted under NOC 2988, as well as an existing cyclone and vapor condenser.

Proposed Equipment/Activities

The Dupps 1200 series cooker has not been replaced since installation in 1976. Baker Commodities, Inc. is now proposing to install a new Dupps 1200 series cooker. The control devices for the new cooker include the existing cyclone and vapor condenser, a new cyclonic scrubber, a new packed tower scrubber, and the existing thermal oxidizer.

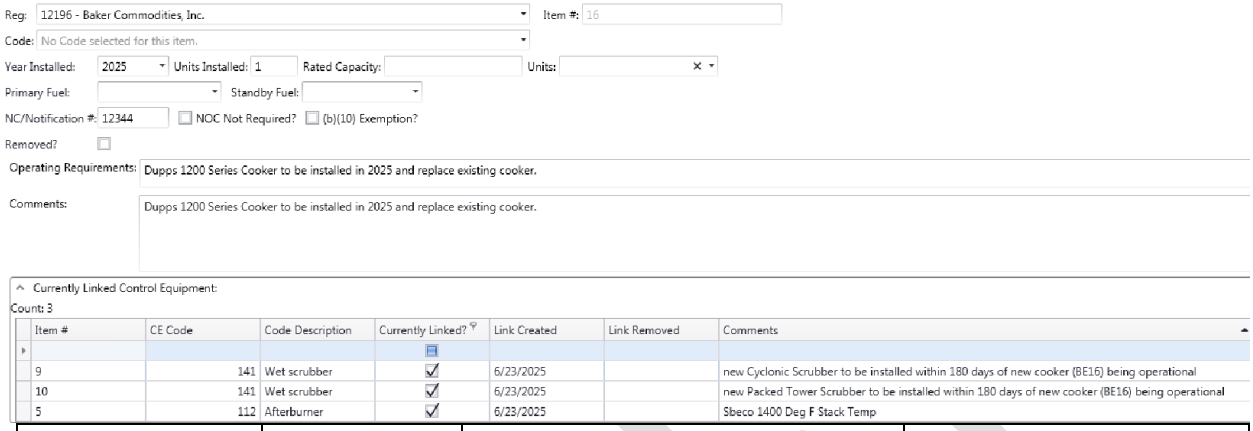
Permit History

Relevant to cooker
NOC OA 1655 was approved in 1976 for the installation of a rendering plant. However, NOC OA 1655 did not contain any specific conditions for the cooker. Later, NOC OA 2900 was approved in 1987 for the installation of an air scrubbing system within the facility. In addition, NOC OA 2988 was approved in 1987 for the installation of a thermal oxidizer to control emissions from the cooker, which is the same thermal oxidizer which will be used to control emissions from the new cooker.

Relevant to facility odor control
NOC OA 1652, issued on 11/5/1976, was for control of rendering emissions in the building using Scrubber #1. Later, NOC OA 2691, issued 9/24/1985, was for the control of waste water emissions from the "Skimming Room" using a venturi scrubber. After that came NOC OA 7156, issued 12/22/1997, which was for control of rendering emissions in the building using Scrubber #2. All three of these

NOCOAs were cancelled and superseded by the NOC OA 11667. NOC OA 11667 included the installation of a chlorine dioxide generation system and replacement spray tower reservoir.

B. DATABASE INFORMATION



New NSPS due to this NOCOA?	**No**	**Applicable NSPS:**	**Delegated? NA**
New NESHAP due to this NOCOA?	**No**	**Applicable NESHAP:**	**Delegated? NA**
New Synthetic Minor due to this NOCOA?	**No**		

C. NOC FEES AND ANNUAL REGISTRATION FEES

NOC Fees

Fees have been assessed in accordance with the fee schedule in Regulation I, Section 6.04. All fees must be paid prior to issuance of the final Order of Approval.

Fee Description	Cost	Amount Received (Date)
Filing Fee	$ 1,550	
Equipment (1 cooker, 1 cyclonic scrubber, 1 packed tower scrubber, $1,000ea)	$3,000	
SEPA (DNS)	$1,200	
Public Notice (WAC 173-400-171)	$750 (+publication costs)	
Filing received		$ 1,550 (3/24/2023)
Additional fee received		$4,950 (4/1/2024)
Total	**$6,500**	**$6,500**

Registration Fees

Registration fees are assessed to the facility on an annual basis. Fees are assessed in accordance with Regulation I, Section 5.07.

Registration fee requirement will not change due to this NOC; however, the Annual Registration Fee in Reg I 5.07(c) increased since the 2023 registration invoice, from $1,200 to $1,350. The updated annual registration fee is reflected in the table below.

Applicability		
Regulation I	Description	Note
5.03(a)(1)	- Facilities subject to federal emission standards (Title 40 CFR)	
Reg I 5.03(a)(4)(C)	Facilities with fuel burning equipment	
Reg I 5.03 (a)(5)	Facilities with gas or odor control equipment (>=200 cfm)	
Reg I 5.03(a)(8)(J)	Facilities with rendering operations	
Annual Registration Fee		
Regulation I	Description	Fee
Reg 1 5.07(c)	Registered source	$1,350
	Total =	$1,350

D. STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

State Environmental Policy Act (SEPA) review was conducted in accordance with Regulation I, Article 2. The SEPA review is undertaken to identify and help government decision-makers, applicants, and the public to understand how a project will affect the environment. A review under SEPA is required for projects that are not categorically exempt in WAC 197-11-800 through WAC 197-11-890. A new source review action, which requires a NOC application submittal to the Agency, is not categorically exempt.

PSCAA is the SEPA lead agency for this project. The applicant submitted a completed Environmental checklist that is included below.

Enviro Checklist.pdf

Baker Commodities, Inc. is an animal rendering plant located at 5795 South 130th Place in Tukwila, WA, though the address is commonly written as a Seattle address due to being on the Tukwila/Seattle border. The facility is on an 11.87 acre parcel with multiple structures to perform and support the rendering process. The facility has served as a rendering plant under multiple owners since 1936 or earlier. It is currently zoned as Light Industrial.

The facility is along the Duwamish River. A railway alignment borders the facility to the east, and the Duwamish River borders the facility to the south, west, and north. Immediately across the Duwamish River is the Foster Golf Course. The Lower Duwamish Waterway is an EPA superfund site, but the portion of the river Baker Commodities, Inc. is adjacent to is outside of the LDW Superfund area. The submitted SEPA checklist did not identify the project site as being adjacent to the Duwamish River. However, given that the site is already developed, and this project is to replace existing equipment, this project is not expected to have an impact on the river.

Baker Commodities, Inc. is listed on the Ecology website as site with a No Further Action determination. The site was previously suspected to contain halogenated organics in soil. A Site Discovery/Release Report was received by Ecology in 1988, and the site status was changed to No Further Action in 1995. There are no institutional controls on the site. The Cleanup Site ID is 3705, Facility Site ID is 79832989, and UST ID 1983.

The cooker which was installed in 1976 under NOC 1655 received a DNS from the PSCAA, which is included below:

1976 DNS.pdf

The City of Seattle and the City of Tukwila were consulted for comments on June 1, 2023. The City of Seattle replied stating that the site is under City of Tukwila jurisdiction. The City of Tukwila replied that the project will not require any land use or development permits.

Based on the proposed action and the information in the checklist, the project will not: adversely affect environmentally sensitive or special areas, or endangered or threatened species; conflict with local, State, or federal laws or requirements for the protection of the environment; or establish a precedent for future actions with significant effects. This proposal is not likely to have a probable significant adverse environmental impact, and I recommend the issuance of a Determination of Non-Significance with an opportunity for public comment.

E. TRIBAL CONSULTATION

On November 21, 2019, the Agency's Interim Tribal Consultation Policy was adopted by the Board. Criteria requiring tribal consultation are listed in Section II.A of the policy and include establishment of a new air operating permit source, establishment of a new emission reporting source, modification of an existing emission reporting source to increase production capacity, or establishment or modification of certain equipment or activities. In addition, if the Agency receives an NOC application that does not meet the criteria in Section II.A, but may represent similar types and quantities of emissions, the Agency has the discretion to provide additional consultation opportunities.

The Agency identified that this NOC application meets one of the criteria in the Agency's Interim Tribal Consultation Policy, adopted by the Board on November 21, 2019. This NOC application meets Section 5 for the replacement of primary production equipment at a rendering plant.

In accordance with the policy, the Agency notified each Tribe within the Agency's jurisdiction on July 31, 2023, of the intent to hold a consultation.

No comments were received.

On April 1, 2024, the Agency notified each tribe that the Agency would be proceeding with the final steps to issue the conditional approval of this Notice of Construction application.

F. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

Best Available Control Technology (BACT)

New stationary 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 70.94 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."

An emissions standard or emissions limitation means "a requirement established under the Federal Clean Air Act or Chapter 70.94 RCW which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction and any design, equipment, work practice, or operational standard adopted under the Federal Clean Air Act or Chapter 70.94 RCW."

Best Available Control Technology for Toxics (tBACT)

New or modified sources are required to use tBACT for emissions control for TAP. Best available control technology for toxics (tBACT) is defined in WAC 173-460-020 as, "the term defined in WAC 173-400-030, as applied to TAP."

Similar Permits

Source	Control	BACT
Order of Approval No. 3372: Rendering plant with one Dupps 900 Cooker and other rendering equipment. (Approved 1989)	Cooker controlled by venturi scrubber and incineration. Room air scrubbers to control fugitive odor.	No specific conditions.
Order of Approval No. 3741: Dupps 1800 cooker to replace cooker under NOC 3372. (Approved 1991)	Cooker controlled by venturi scrubber and incineration. Room air scrubbers to control fugitive odor.	No specific conditions. Replacement of cooker approved by NOC 3372.
Order of Approval No 1655: Duke turnkey continuous rendering system consisting of one oxyflow system 300 with supporting chemical and electrical accessories. (Approved 1976)	Cooker controlled by condenser and packed bed scrubber.	No specific conditions.
Order of Approval No 2988. SBECO Incinerator with single pass heat recovery boiler.	Cooker controlled by condenser and incinerator.	Follow "Raw Materials Trucks and/or Trailers Handling Procedures" at all times.
Draft Order of Approval 12348. Dupps Supercooker for rendering.	Cooker controlled by condenser, scrubber, and thermal oxidizer.	Condenser, cooker, and thermal oxidizer with the following emission limits: 0.0052 lbs VOC/ton raw material 0.0137 lbs CO/ton raw material 0.0069 lb NO_x/ton raw material 0.0335 lbs SO_x/ton raw material 0.0033 lb PM_{10}/ton raw material

Other Regulatory Agencies BACT

Source	Control	BACT
SJVAPCD Rule 4104 – Reduction of Animal Matter (12/17/1992)	Incineration	A person shall not operate or use any article, machine, equipment or other contrivance for the reduction of animal matter unless all gases, vapors and gas-entrained effluent from such an article, machine, equipment or other contrivance are: 5.1.1 Incinerated at temperatures of not less than 1200°F for a period of not less than 0.3 seconds; or 5.1.2 Processed in such a manner determined by the APCO to be equally or more effective for the purpose of air pollution control than Section 5.1.1 above
Bay Area AQMD Reg 12 Rule 2 – Rendering Plants	Incineration	Processing of Gases: A person shall not reduce animal matter unless all gases, vapors and gas-entrained effluents are incinerated at a temperature of not less than 650oC (1202 oF) for a period of not less than 0.3 seconds; or processed in a manner which is equally or more effective for the purpose of air pollution odor control, as determined by the APCO.
Sacramento Metropolitan AQMD Rule 410 – Reduction of Animal Matter	Incineration	A person shall not operate or use any article, machine, equipment or other contrivance for the reduction of animal matter unless all gases, vapors and gas-entrained effluents from such an article, machine, equipment or other contrivance are: 301.1 Incinerated at temperatures of not less than 650o C (1202o F) for a period of not less than 0.3 seconds, or 301.2 Processed in such a manner determined by the Air Pollution Control Officer to be equally, or more, effective for the purpose of air pollution control than 301.1 above.
South Coast Air Quality Management District Rule 472 – Reduction of Animal Matter	Incineration	A person shall not operate or use any equipment for the reduction of animal matter unless all gases, vapors and gas-entrained effluents from such equipment are: (1) Incinerated at temperatures of not less than 650oC (1202oF) for a period of not less than 0.3 second, or (2) Processed in such a manner determined by the Air Pollution Control Officer to the equally, or more, effective for the purpose of air pollution control than (1) above.

Ventura County APCD Rule 58 – Reduction of Animal Matter (Rev 1972)	Incineration	A person shall not operate or use any article, machine, equipment or other contrivance for the reduction of animal matter, except processing of food for human consumption, unless all gases, vapors and gas entrained effluents from such an article, machine, equipment or other contrivance are: A. Incinerated at temperatures of not less than 1300 degrees Fahrenheit for a period of not less than 0.4 seconds, or B. Processed in such a manner determined by the Air Pollution Control District to be equally, or more, effective for the purpose of air pollution control than "A" above.
TCEQ Rendering: High Intensity Odors from Cookers and Pressers (2/19/2019)	Scrubbers	Odor: Building under negative pressure and air streams routed to a condenser or venturi scrubber followed by two packed bed or two packed tower scrubbers. The scrubbers may use sodium hydroxide, chlorine dioxide, or sodium hypochlorite, maintain a pH of 11 and 10 ppm residual chlorine concentration, and maintain 30 room air changes per hour on the cooking room. Instead of the above, the air stream may be routed to a condenser/venturi scrubber followed by the boiler firebox for incineration when the boiler is on high fire only. The temperature of vapors entering a packed bed or packed tower scrubber cannot exceed 130 Degrees Fahrenheit; accepted chemicals are chlorine dioxide, sodium hypochlorite, sodium hydroxide and ActXone
SJVAPCD Authority to Construct C-2282 new rendering plant	Venturi/packed bed scrubber and RTO in series and room air scrubber.	Rendering Plant Processing Equipment: PM_{10}: Use of a particulate removal system that consists of a venturi scrubber, condenser(s), and a packed bed scrubber in series with a thermal oxidizer operating with a minimum chamber temperature of at least 1,400 °F and minimum retention time of 1.0 seconds VOC: Use of a scrubbing system in series with a natural gas-fired thermal oxidizer with a minimum chamber temperature of 1,400 °F and a minimum retention time of 1.0 seconds

SJVAPCD Animal Rendering Operations BACT Guideline 8.3.2	See snip below	See snip below

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 8.3.2*

Last Update: 12/7/2022

Animal Rendering Operations

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	95% control using one or more of the following control technologies: •Odor scrubbing system utilizing a scrubbing medium with appropriate chemical reagent(s), or •Thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400°F and minimum retention time of 1.0 second.	None	None
SOx	Use of an aqueous scrubber system (or equivalent controls) to reduce sulfur compounds (measured in terms of H2S) upstream of any other control devices	98% control using wet scrubber (or equivalent control)	None
PM10	95% control using one or more of the following control technologies: •Odor scrubber with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a Venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof, or •Thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1400°F and minimum retention time of 1.0 seconds with a particulate removal system that consists of a particulate scrubber, shell and tube condenser, a Venturi scrubber, a cyclone, an air cooled condenser, and a contact condenser or a combination thereof.	None	None

NOx	Use of an aqueous scrubber system (or equivalent controls) to reduce reduce nitrogen compounds (measured in terms of ammonia) upstream of the thermal oxidizer to the maximum practically feasible extent; and use PUC-quality natural gas as a supplemental fuel in the regenerative thermal oxidizer (RTO)	None	None

Analysis

The existing cooker emissions are controlled by a condenser and thermal oxidizer in series. The most recent permit reviewed is the SJVAPCD Authority to Construct C-2282, which utilizes a scrubber, condenser, and thermal oxidizer with a minimum chamber temperature of 1,400 degrees F and a minimum retention time of 1.0 seconds.

SJVAPCD identified the following as BACT for PM_{10} emissions, which will be considered BACT for this NOC application:

- Use of an odor scrubber with a particulate removal system that consists of a particulate scrubber/venturi scrubber and condensers with a minimum overall control of 95%; or
- Use of a particulate removal system that consists of a particulate scrubber/venturi scrubber and condenser(s) in series with a natural gas-fired thermal oxidizer with a minimum chamber temperature of 1,400 °F and a minimum retention time of 1.0 seconds with a minimum overall control of 95% (Achieved in Practice).

SJVAPCD identified the following as BACT for VOC emissions, which will be considered BACT for this application:

- Use of a scrubbing system in series with a natural gas-fired thermal oxidizer with a minimum chamber temperature of 1400 F and a minimum retention time of 1.0 seconds (>95% control).

Draft Order of Approval 12348 includes the following emissions limits for a similar equipment and control devices within Agency jurisdiction:

- 0.0052 lbs VOC/ton raw material
- 0.0137 lbs CO/ton raw material
- 0.0069 lb NO_x/ton raw material
- 0.0335 lbs SO_x/ton raw material
- 0.0033 lb PM_{10}/ton raw material

The Agency initially proposed using the same emission limits as used in NOC 12348. These emission limits were proposed by the applicant of NOC 12348. The process-based emission limits proposed in NOC 12348 have not yet been tested to verify compliance with the standards. Since the pound per ton emission limits proposed by NOC 12348 have not been demonstrated for any period of time,

alternatives were considered for BACT which did not utilize a pounds per ton limits and instead considered percent reductions and concentration limits.

Sulfur compounds – TRS testing to demonstrate 95% reduction of TRS across the scrubber system (cooker outlet to thermal oxidizer inlet) and testing to demonstrate 1.13 lb SO_2/hr at the outlet of the thermal oxidizer. 1.13 lb SO_2/hr was proposed by the facility and the value used in the emissions estimate.

NO_x – NO_x BACT is the use of an aqueous scrubber system and use PUC-quality natural gas as a supplemental fuel in the RTO. NO_x emission limits are not discussed in other rendering BACTs though are a significant component of the overall emissions, primarily from the combustion of natural gas in the thermal oxidizer. 30 ppmv @ 3% O_2 while firing natural gas fuel only is agreed upon as a emission limit. This limit is consistent with SCAQMD BACT guidelines Part D for non-major polluting facilities as copied below:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-1-2019 Rev. 0
2-5-2021 Rev. 1

Equipment or Process: Thermal Oxidizer (Afterburner, Regenerative Thermal Oxidizer, and Thermal Recuperative Oxidizer) and Catalytic Oxidizer – Natural Gas Fired**

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Regenerative Thermal Oxidizer (2-5-2021)		30 ppmvd @ 3% O_2 (Burner emissions only		400 ppmvd @ 3% O_2 (Burner emissions only)		
Other Types		30 ppmvd @ 3% O_2 (Burner emissions only)				

** Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

Carbon Monoxide – CO is not directly discussed in other rendering BACT though is a significant component of the emissions, primarily from the combustion of natural gas in the thermal oxidizer. SCAQMD BACT Guidelines Part D for non-major polluting facilities does not provide a CO emission limit for CO. The most similar is 400 ppmvd @ 3% O_2 while firing natural gas only for regenerative thermal oxidizers. That limit is being adopted for this permit.

<u>Recommendations</u>

BACT for VOCs, SO_x, NO_x and PM_{10} includes: Use of a particulate removal system that consists of a particulate scrubber/venturi scrubber and condenser(s) in series with a natural gas-fired thermal oxidizer with a minimum overall control of 95%. Use of a particulate removal system that consists of a particulate scrubber/venturi scrubber and condenser(s) in series with a natural gas-fired thermal oxidizer with a minimum overall control of 95%. Emissions limits, testing, and the use of natural gas in the thermal oxidizer is BACT for CO.

Summary tBACT determination

VOCs are the primary air pollutants emitted from rendering. EPA AP-42 Chapter 9.5.3 Meat Rendering Plants identifies the major constituents which have been qualitatively identified to be "organic sulfides, disulfides, C-4 to C-7 aldehydes, trimethylamine, C-4 amines, quinoline, dimethyl pyrazine, other pyrazines, and C-3 to C-6 organic acids. In addition, lesser amounts of C-4 to C-7 alcohols, ketones, aliphatic hydrocarbons, and aromatic compounds." Quantitative emission data is not presented. Of the specific constituents listed, only quinoline is classified as a HAP. Quinoline is not listed in WAC 173-460-150 and does not have an associated ASIL or SQER.

Due to the lack of quantitative data available, as well as the varied product stream entering the facility and cooker, determining a reliable list of individual toxic air pollutants presents a challenge. The majority of TAPs identified and emitted as part of this application come from combustion of the cooker emissions in the TO. These pollutants emissions have been calculated in Section I and are identified below:

benzene
formaldehyde
PAHs (incl naphthalene)
naphthalene
acetaldehyde
acrolein
propylene
toluene
xylenes
ethylbenzene
hexane

Summary BACT/tBACT determination

Pollutant	Available Method That Meets BACT/tBACT
VOC, NO_x, SO_2, TRS (odor), PM, CO	Use of a particulate/odor removal system that consists of a particulate scrubber/venturi scrubber and condenser(s) in series with a natural gas-fired thermal oxidizer with a minimum overall control of: ▪ 95% destruction of VOCs across the thermal oxidizer. ▪ 30 ppmv NO_x at 3% O_2 at outlet of thermal oxidizer. ▪ 1.13 lbs SO_2/hr at outlet of thermal oxidizer. ▪ 95% reduction of TRS across scrubber system. ▪ 95% reduction of PM.

Pollutant	Available Method That Meets BACT/tBACT
	▪ Firing thermal oxidizer with natural gas.

As a part of this permitting effort, the Agency is requiring the facility to install a new scrubber system to control emissions from the cooker. Because of this request and the business needs of the facility, the Agency is allowing 6 months between installing the new cooker and installing the new scrubber system.

G. EMISSION ESTIMATES

Proposed Project Emissions

Actual Emissions

This permit has been determined based on potential emissions (operating at 100% rated capacity for 8,760 hours per year), and actual emissions have not been estimated.

Potential Emissions

The permitted potential to emit calculations are based on operating at 100% rated capacity and 8,760 hour per year. The cooker is expected to be the primary source of VOC and particulate emissions. The associated thermal oxidizer is the primary source of criteria pollutants including CO, NO_x, and SO_x. The emissions estimate provided by the source is based on an engineering tune up test performed by the source on October 13, 2023. These estimates are based on an afterburner heat input of 7 MMBtu/hr operating 8,760 hours per year.

Baker Commodities Emission Calculations

Parameter	Value	Units
Exhaust Airflow [a]	10,464	CFM
Maximum Operating Hours	8,760	Hrs/yr

Pollutant	Toxic Air Pollutant?	Exhaust Concentration [b,c] (ppmvd)	Emission Factor [d] (lb/dscf)	Control Efficiency [e,j] (%)	Emission Rate (lb/hr)	Emission Rate (tpy)	Averaging Period [f]	Small Quantity Emission Rate (SQER) [f] (lbs/Averaging Period)	Exceeds SQER?
$PM10^{h}$	No	--	--	0%	1.12E+00	4.91E+00	--	--	--
SO_2[j,k]	Yes	200.00	3.57E-05	95%	1.13E+00	4.93E+00	1-hr	1.20	No
NO_x	Yes	30.00	3.85E-06	0	2.42E+00	1.06E+01	1-hr	0.87	Yes
CO	Yes	400.00	3.12E-05	0	1.96E+01	8.59E+01	1-hr	43.00	No
VOC[g]	No	2,362	2.90E-04	95.0%	9.11E+00	3.99E+01	--	--	--

a. Exhaust airflow rate obtained from October 13, 2023 engineering tune-up test.

b. Exhaust gas concentration for NOx and CO based on BACT requirement

c. VOC exhaust gas concentration obtained from October 13, 2023 engineering tune-up test.

d. Exhaust emission factor calculated by converting the ppm exhaust factor from the Antec Environmental Service source test to a lb/dscf factor.

SO_2 MW	64.07	g/mol
SOx EF for Natural Gas Combustion (AP 42 Table 1.4-2)	0.60	lb/MMscf
PM10	0.05	grain/dscf
CO MW	28.01	g/mol
VOC MW (as propane)	44.10	g/mol
Conversion Factor	22.40	L/g mol
	7000.00	pound/grain
Nox MW as (NO2)	46.01	g/mol

e. Assumes a control efficiency conservatively lower than the design specification of 95% control: 95%
Engineering test results indicate actual emissions control is greater than 95%, but for conservatism, calculations assume that actual emissions control efficiencies are lower.

f. Averaging period and SQER obtained from WAC 173-460-150.

The afterburner at the Seattle facility has a heat input capacity of 7 MMBtu/hr.

g. VOC exhaust concentration is the concentration leaving the cooker, all other parameters are measured as leaving the thermal oxidizer

h. PM_{10} emissions are estimated using an emission factor of 0.16 lb/MMBtu based on experience with a similar unit at another Baker facility. Note this is measured after the 95% control has already been applied

i. SOx BACT control efficiency 90% https://www.epa.gov/sites/default/files/2020-08/documents/ffdg.pdf

j. As a worst case scenario, SOx concentration of 10 ppm is assumed from the cooker, which is the lower detection limit of Method 6c. The source test on July 19, 2023 indicated 0 ppm SOx.

k. Total SOx emissions are the cooker and natural gas combustion

A copy of the emissions estimate is included below:

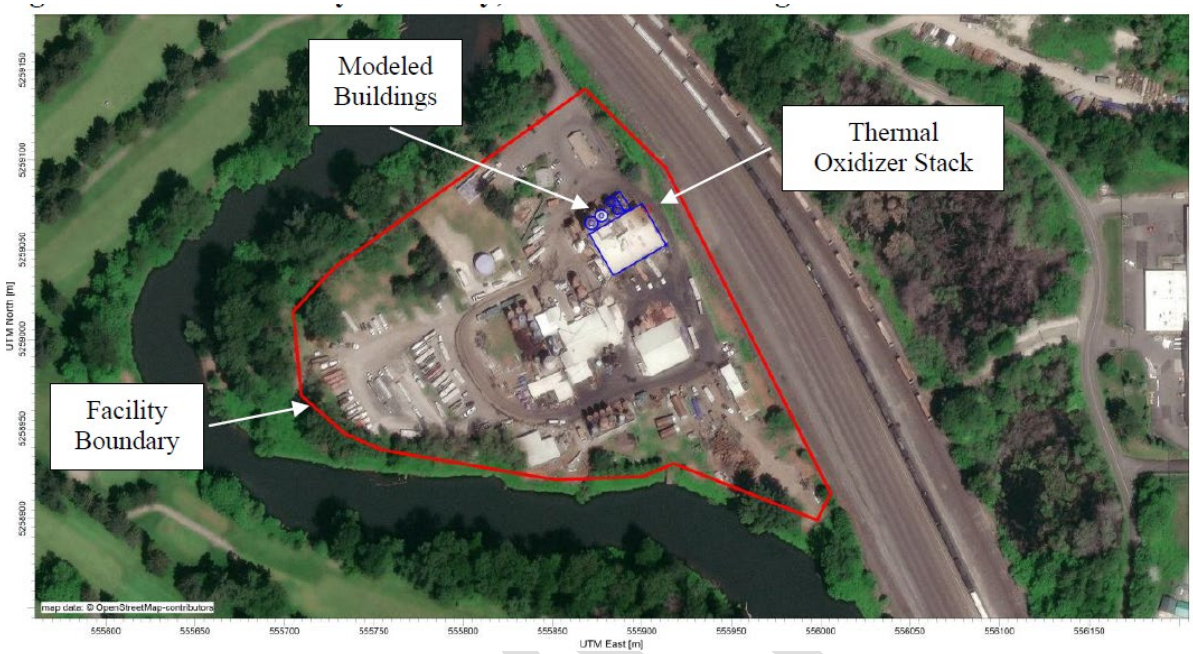
Attachment 7 NOC
PSCAA Calculation Wc

Potential emissions exceeded the SQER for NO_x using the maximum emission limit of 30 ppm at 8,760 hours per year. Modeling was provided by the applicant and is included below, and excerpts from the modeling report are copied into this worksheet:

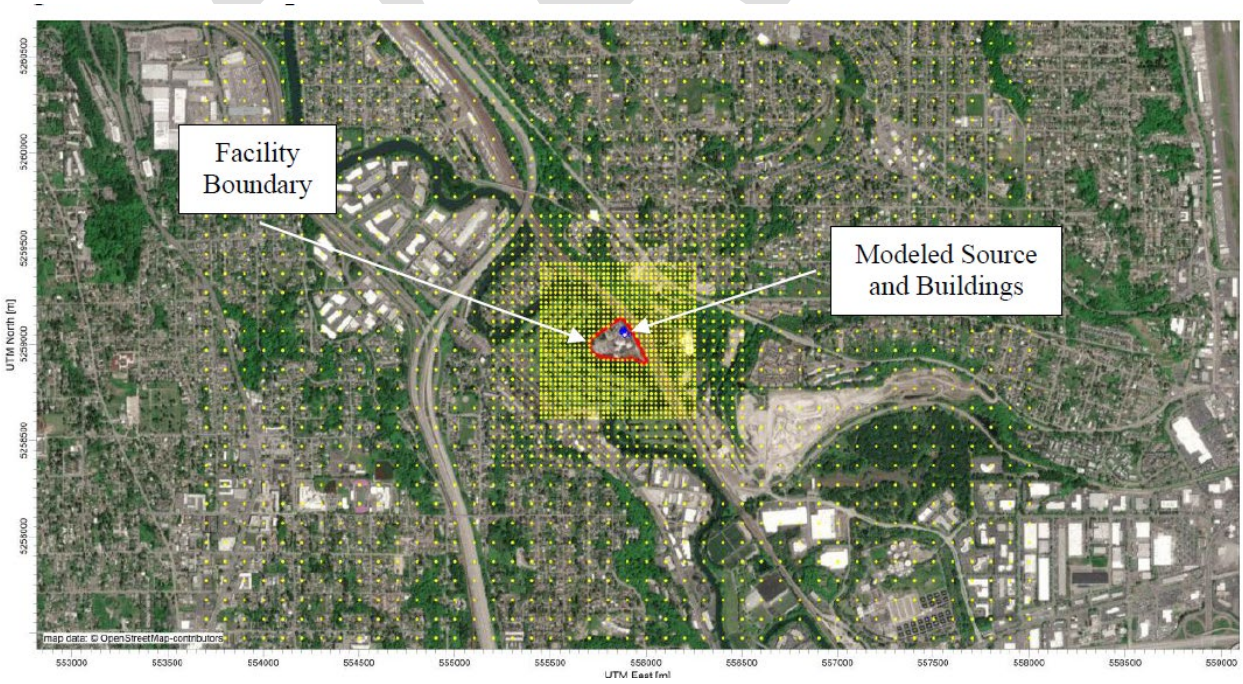
Baker_Seattle_Cooker
_Modeling Report_5-(

Air dispersion modeling was performed using the U.S. EPA AERMOD modeling system (computer software). AERMOD is a steady-state plume dispersion model that incorporates air dispersion calculations based on planetary boundary layer turbulence structure and scaling concepts. AERMOD includes the treatment of both surface and elevated sources, as well as both simple and complex terrain. AERMOD uses algorithms to characterize the atmospheric processes that disperse pollutants emitted by a source. Based on emission rates, exhaust parameters, terrain characteristics, and meteorological inputs, AERMOD calculates pollutant concentrations at selected downwind receptor locations. AERMOD is recommended by both the U.S. EPA and the PSCAA for air dispersion modeling projects. AERMOD version 24142 was used for this project implemented through the Lakes Environmental Software implementation/user interface, AERMOD View™ 13.0.0.
The following image shows the modeled building, facility fence line, and thermal oxidizer stack. The facility is at the end of a dead-end road with a gate able to block vehicle traffic. The Duwamish River is to the west, and the railroad tracks to the east. Because of these site features, the general public is not

able to reasonably access the facility, and the actual property boundary was used for modeling instead of the building perimeter, as is done on some Agency modeling projects.



A receptor grid to a distance of two kilometers from the emission point was created and is pictured below:

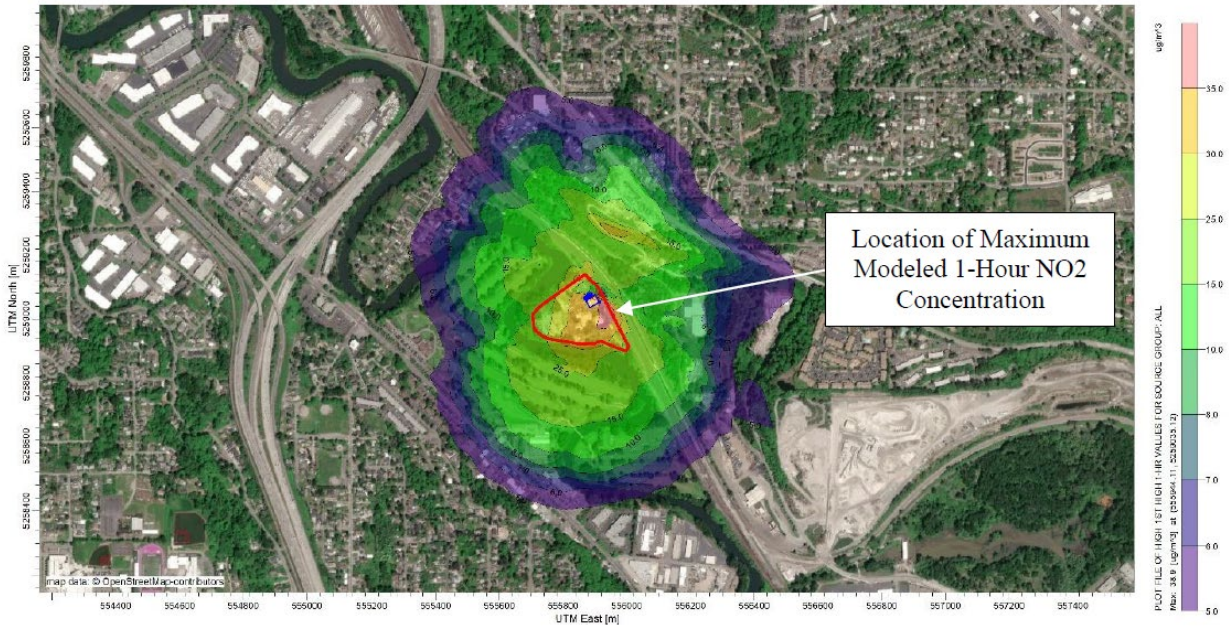


The following table and image show the modeling results, which is below the ASIL.

Table 3: Modeling Results

Pollutant	Emission Rate (lb/hr)	Averaging Period	Maximum Offsite Concentration (µg/m³)		ASIL Threshold (µg/m³)	Exceed ASIL?
			Model Type	Value		
NO_2	2.42	1-hour	Refined	38.9	470	No

Figure 3: Annual Modeled 1-Hour Nitrogen Dioxide Concentration Contour Plot



Facility-wide Emissions

Facility has never reported emissions and review of previous NOCs have not estimated facility-wide emissions.

However, based on the review of the provided emission estimate and the presence of multiple boilers at the facility, the facility has potential of exceeding the 25 ton/year limit of carbon monoxide, as listed in Regulation I Section 5.05(b). The Agency would expect to see a facility wide emissions report in accordance with Reg I Section 5.05(b) if these thresholds are exceeded.

H. OPERATING PERMIT OR PSD

The Title V Air Operating Permit (AOP) program applicability for the entire source has been reviewed.

The facility is not a Title V air operating permit source because post project PTE remains below Title V applicability thresholds. The facility does not appear to meet the 100 TPY or, for hazardous air pollutants the 10 TPY single HAP and 25 TPY combined HAPs thresholds and should be considered a "natural minor".

However, the PTE for carbon monoxide for this project is 85.9 tons/year, and the recently permitted 36.5 MMBtu/hr boiler under NOC 12462 has the potential to emit 6 tons/year of carbon monoxide. These two units bring the CO PTE to 91.9 tons/year, which is near the Title V threshold.

I. AMBIENT TOXICS IMPACT ANALYSIS

The estimated potential toxic air pollutant (TAP) emissions at operating at 100% rated capacity and 8760 hour per year for each new or modified emission unit (*or based on limit in permit*). The table below includes estimated potential emissions of all TAP and compares those to the Small Quantity Emission Rates (SQER) in WAC 173-460-150.

TAP Emissions from afterburner combustion of natural gas

	Emission Rate (lb/MMcf)	Emission Rate (Lb/hr)	Emission Rate (Lb/day)	Emission Rate (Lb/yr)	Emission Rate (Ton/yr)	SQER	Avg. Period	Below?
benzene	0.008	5.4E-05	1.3E-03	4.7E-01	2.4E-04	21.0	lb/year	Yes
formaldehyde	0.017	1.1E-04	2.7E-03	1.0E+00	5.0E-04	27.0	lb/year	Yes
PAHs (incl naphthalene)	0.0004	2.7E-06	6.5E-05	2.4E-02	1.2E-05	--	--	--
naphthalene	0.0003	2.0E-06	4.8E-05	1.8E-02	8.8E-06	4.8	lb/year	Yes
acetaldehyde	0.0043	2.9E-05	6.9E-04	2.5E-01	1.3E-04	60.0	lb/year	Yes
acrolein	0.0027	1.8E-05	4.4E-04	1.6E-01	7.9E-05	0.026	lb/day	Yes
propylene	0.731	4.9E-03	1.2E-01	4.3E+01	2.2E-02	220.0	lb/day	Yes
toluene	0.0366	2.5E-04	5.9E-03	2.2E+00	1.1E-03	370.0	lb/day	Yes
xylenes	0.0272	1.8E-04	4.4E-03	1.6E+00	8.0E-04	16.0	lb/day	Yes
ethylbenzene	0.0095	6.4E-05	1.5E-03	5.6E-01	2.8E-04	65.0	lb/year	Yes
hexane	0.0063	4.2E-05	1.0E-03	3.7E-01	1.9E-04	52.0	lb/day	Yes

Based upon Ventura County APCD AB 2588 COMBUSTION EMISSION FACTORS <10MMBTUh

J. APPLICABLE RULES & REGULATIONS

SECTION 5.05 (c): The owner or operator of a registered source shall develop and implement an operation and maintenance plan to ensure continuous compliance with Regulations I, II, and III. A copy of the plan shall be filed with the Control Officer upon request. The plan shall reflect good industrial practice and shall include, but not be limited to, the following:
(1) Periodic inspection of all equipment and control equipment;
(2) Monitoring and recording of equipment and control equipment performance;
(3) Prompt repair of any defective equipment or control equipment;
(4) Procedures for startup, shut down, and normal operation;
(5) The control measures to be employed to ensure compliance with Section 9.15 of this regulation; and
(6) A record of all actions required by the plan.
The plan shall be reviewed by the source owner or operator at least annually and updated to reflect any changes in good industrial practice.

SECTION 6.09: Within 30 days of completion of the installation or modification of a stationary source subject to the provisions of Article 6 of this regulation, the owner or operator or applicant shall file a Notice of Completion with the Agency. Each Notice of Completion shall be submitted on a form provided by the Agency, and shall specify the date upon which operation of the stationary source has commenced or will commence.

SECTION 9.03: (a) It shall be unlawful for any person to cause or allow the emission of any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour, which is:
(1) Darker in shade than that designated as No. 1 (20% density) on the Ringelmann Chart, as published by the United States Bureau of Mines; or
(2) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Section 9.03(a)(1).
(b) The density or opacity of an air contaminant shall be measured at the point of its emission, except when the point of emission cannot be readily observed, it may be measured at an observable point of the plume nearest the point of emission.
(c) This section shall not apply when the presence of uncombined water is the only reason for the failure of the emission to meet the requirements of this section.

SECTION 9.09: General Particulate Matter (PM) Standard. It shall be unlawful for any person to cause or allow the emission of particulate matter in excess of the following concentrations:
Equipment Used in a Manufacturing Process: 0.05 gr/dscf

SECTION 9.11: It shall be unlawful for any person to cause or allow the emission of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property.

SECTION 9.13: It shall be unlawful for any person to cause or allow the installation or use of any device or use of any means designed to mask the emission of an air contaminant which causes detriment to health, safety or welfare of any person.

SECTION 9.15: It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize the emissions. Reasonable precautions include, but are not limited to, the following:
(1) The use of control equipment, enclosures, and wet (or chemical) suppression techniques, as practical, and curtailment during high winds;
(2) Surfacing roadways and parking areas with asphalt, concrete, or gravel;
(3) Treating temporary, low-traffic areas (e.g., construction sites) with water or chemical stabilizers, reducing vehicle speeds, constructing pavement or rip rap exit aprons, and cleaning vehicle undercarriages before they exit to prevent the track-out of mud or dirt onto paved public roadways; or
(4) Covering or wetting truck loads or allowing adequate freeboard to prevent the escape of dust-bearing materials.

REGULATION I, SECTION 9.20(a): It shall be unlawful for any person to cause or allow the operation of any features, machines or devices constituting parts of or called for by plans, specifications, or other information submitted pursuant to Article 6 of Regulation I unless such features, machines or devices are maintained in good working order.

Washington State Administrative Code

WAC 173-400-040(3): Fallout. No person shall cause or allow the emission of particulate matter 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 is deposited.

WAC 173-400-040(4): Fugitive emissions. The owner or operator of any emissions unit engaging in materials handling, construction, demolition or other operation which is a source of fugitive emission:

(a) If located in an attainment area and not impacting any nonattainment area, shall take reasonable precautions to prevent the release of air contaminants from the operation.

WAC173-400-111(7): Construction limitations.

(a) Approval to construct or modify a stationary source becomes invalid if construction is not commenced within eighteen months after receipt of the approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The permitting authority may extend the eighteen-month period upon a satisfactory showing by the permittee that an extension is justified.

Federal

There are no federal rules under 40 CFR part 60, Part 61, or Part 63 that are applicable to Rendering facilities.

K. PUBLIC NOTICE

This project does not meet the criteria for mandatory public notice under WAC 173-400-171(3). Criteria requiring public notice includes, but is not limited to, a project that exceeds emission threshold rates as defined in WAC 173-400-030 (e.g. 40 tpy NO_x, VOC, or SO_2, 100 tpy CO, 15 tpy PM_{10}, 10 tpy $PM_{2.5}$, 0.6 tpy lead), includes a WAC 173-400-091 synthetic minor limit, has a toxic air pollutant emission increase above the acceptable source impact level in WAC 173-460-150, or has significant public interest. A notice of application was posted on the Agency's website for 15 days. No requests or responses were received. A copy of the website posting is below:

New Construction Projects

Company	Address	Project Description	Date Posted	Contact Engineer
Baker Commodities, Inc.	5795 S 130th Pl, Tukwila, WA 98178	Remove old 1200 series cooker and replace with new 1200 series cooker.	6/1/23	Blaine Nesbit

The Agency conducted a public comment period from July 9, 2025 to MONTH DAY YEAR. The public notice was published in the Seattle Times and the Daily Journal of Commerce, and on the Agency website on July 9, 2025. Notice was also emailed to the Agency's Permit Actions email list.

SUMMARY OF COMMENTS, TO BE COMPLETED AFTER COMMENT PERIOD

L. RECOMMENDED APPROVAL CONDITIONS

Standard Conditions

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the installation address in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.

2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.

Specific Conditions:

3. The owner and/or operator shall not process more than 228 tons of raw material per day through the cooker. Monthly records shall be kept on site to verify compliance with this requirement.
4. The cyclonic scrubber and packed tower scrubber must be installed and operational within 180 days of commencing operation of the cooker. The specific maximum cfm ratings of these units will be submitted to the Agency upon installation and startup.
5. The owner and/or operator shall monthly inspect the integrity of the vapor collection ductwork for the rendering process. This includes looking for any corrosion, gaps, or leaks in piping and ducting associated with the cooker and cooker control devices. Any instances where the integrity is found to be compromised must be repaired as soon as practicable, and within 15 days of discovery. Until the repair is made, the owner and/or operator shall daily inspect for odors migrating beyond the property line to help prevent excess odors from escaping the building until the repair can be made. Daily inspections shall include walking around the facility property and using sight, sound, and smell to detect any potential odor migration. If odor migration is found during daily inspections, the facility shall take immediate corrective action to minimize impacts, which may include ceasing operations. A logbook shall be kept for documentation of all monthly integrity inspections and all daily odor inspections. For each inspection, the logbook shall include the date and time of the inspection, the name of the person conducting the inspection, and a list of all areas of compromised integrity that will require repair. Once the repair is made, the logbook shall also document the time and date of the repair.
6. All emissions from the cooker shall be captured and vented to the cyclone and vapor condenser, followed by the cyclonic scrubber and packed tower scrubber (once installed in accordance with Condition 4), and then the 7 MMBtu/hr Thermal Oxidizer. The presence of a compromise in the integrity of cooking equipment, air pollution control equipment, or associated ducting shall constitute a violation of this condition, unless that compromise has been documented as needing repair in the log required under Condition 5.

7. The 7 MMBtu/hr thermal oxidizer shall be operated with a minimum combustion temperature set point of no less than 1,400 degrees F and the retention time shall be no less than 1.0 second. The thermal oxidizer temperature shall be continuously monitored and recorded. At a minimum, the operation and maintenance plan for the Thermal Oxidizer shall also include how the temperature measurement device is maintained in good working order.
8. Within 60 days of commencing initial startup of the cyclonic scrubber and packed tower scrubber, and then repeatedly once every 60 months at the latest from the previous test for VOC, NO_x, TRS, SO_2, and PM_{10}, the owner and/or operator shall conduct a performance test to verify compliance with the following emissions standards:

    a. VOC testing to demonstrate a 95% destruction efficiency across the thermal oxidizer – VOC testing shall be conducted in accordance with EPA Test Method 25 or 25A or an alternative method approved by the Agency. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18 or an alternative method approved by the Agency.
    b. 400 ppmv CO @ 3% oxygen at the outlet of the thermal oxidizer while fired on natural gas only - CO testing shall be conducted in accordance with EPA Test Method 10 or an alternative method approved by the Agency.
    c. 30 ppmv NO_x @ 3% oxygen at the outlet of the thermal oxidizer while fired on natural gas only - NO_x testing shall be conducted in accordance with EPA Test Method 7E or an alternative method approved by the Agency.
    d. 1.13 lbs of SO_2/hr at the outlet of the thermal oxidizer - SO_2 testing shall be conducted in accordance with EPA Test Method 6C or an alternative method approved by the Agency.
    e. TRS testing to demonstrate 95% reduction of TRS as measured across the cooker outlet and the thermal oxidizer inlet – TRS testing shall be conducted in accordance with EPA Test Method 16C or an alternate method approved by the Agency.
    f. PM testing to demonstrate 95% reduction of PM as measured across the cooker outlet and the thermal oxidizer outlet – PM Testing shall be conducted using EPA Method 5 as modified by Puget Sound Clean Air Agency Board Resolution 540 dated August 11, 1983 or an alternative method approved by the Agency.

The owner and/or operator shall conduct testing in accordance with Section 3.07 of Puget Sound Clean Air Agency (PSCAA) Regulation I using the following test Methods:

Sampling sites and velocity traverse points shall be selected in accordance with EPA Test Method 1 or 1A. The gas volumetric flow rate shall be measured in accordance with EPA Test Method 2, 2A, 2C, 2D, 2F, 2G or 19. The dry molecular weight shall be determined in accordance with EPA Test Method 3, 3A or 3B. The stack gas moisture shall be determined in accordance with EPA Test Method 4.

Testing shall be performed while operating at or near maximum capacity of the rendering operation or under at another capacity that is approved by the Agency prior to conducting the performance test. During the performance test, the raw material process rate shall be monitored and recorded in tons per hour.

9. At least once per quarter during operation of the cooker, the owner and/or operator shall conduct visual observations of the Thermal Oxidizer exhaust. If any emissions are visible from the exhaust, the owner and/or operator shall conduct a visible emissions observation by a person certified in accordance with EPA Reference Method 9 (40 CFR 60, Appendix A). Such a test shall consist of a minimum of 30 minutes of opacity observations for the cooker. The owner and/or operator shall ensure 0% opacity from the cooker as measured with the Method 9 observation.

10. A testing notification must be submitted to the Agency in accordance with Section 3.07 of Regulation I, 21 days before any compliance test required by this Order of Approval is conducted. The facility must submit a test plan with the notification that includes all process equipment operating data that will be collected during the test as well as the methods that will be used to collect the data. The test plan shall also include an explanation on the proposed testing capacity if the maximum plant operating capacity is not planned on being used during the test.

11. The results of each source test shall be submitted to the Agency within 60 days after completion of the source tests.

12. The owner or operator shall develop and maintain an Operation and Maintenance (O&M) plan for the cooker, vapor condenser, the cyclonic scrubber and packed tower scrubber, and the 7 MMBtu/hr Thermal Oxidizer. The O&M plan shall be developed and implemented per Agency's Regulation I. Additionally, the owner or operator shall establish a complaint response program as part of the O&M Plan. The program shall include a complaint phone line, criteria, and methods for establishing whether Baker Commodities, Inc. is the source of emissions related to the complaint, and a format for communicating results of investigation and advising complainants of corrective actions.

    a. The owner or operator shall record and investigate complaints received regarding air quality as soon as possible, but no later than one working day after receipt.

    b. The owner or operator shall correct any problems identified by these complaint investigations within 24 hours of identification or cease operation of the equipment until the problem is resolved;

    c. Records of all complaints received regarding air quality issues shall include information regarding date and time of complaint(if known); name and address of complainant (if known); nature of the complaint(if known); investigation efforts completed and basis for conclusion reached; and date, time, and nature of any corrective action taken.

13. Odor Compliance

    a. If the Control Officer or authorized representative of the Agency communicates to the owner or operator that they have detected an odor at level 2 or greater as defined in Agency's Regulation I, Section 9.11(b), beyond the property line that the Agency has documented to be attributable to or partially attributable to emissions from rendering facility, the owner and/or operator must follow the odor response plan developed under

part b. of this condition.

b. The owner and/or operator shall develop an odor response plan and odor complaint log when complying with part a. of this condition, with the following elements:

    i. Initiate an investigation as soon as possible, but no later than 12 hours after receipt of notice from the Control Officer or authorized representative of the Agency.
    ii. Take corrective action to eliminate odors beyond the property line as soon as possible, but within 24 hours after receipt of the complaint from the Control Officer or authorized representative of the Agency.
    iii. Develop a report for every odor complaint and investigation. The odor complaint and investigation report must include the following:
        1. The date and time of when the complaint was received.
        2. The date and time of when the investigation was initiated.
        3. Location of communicated odor and area investigated (including information provided by the Control Officer and any other areas the investigation identifies).
        4. Weather conditions during the complaint.
        5. Description of complaint and investigation and if an odor was detected.
        6. Actions taken in response to the complaint.
        7. The date and time odors are no longer detected beyond the property line.

c. The owner or operator shall monitor at an accessible downwind location at or near the property line for detectable odors that are attributable or partially attributable to emissions from the cooker or cooker emission control devices once each calendar week. For at least one hour immediately prior to monitoring, the person performing the monitoring must remain in an atmosphere free of facility-related odors. Records of the monitoring shall be kept of the date, the time, the monitoring location, the wind direction at the time of the observation, and whether or not any odors were detected. If any odors from the cooker or cooker emission control devices are detected at the monitoring site during the monitoring or at any other time, the owner or operator shall immediately initiate corrective action to reduce the odor to Level 1 or less (as defined in Agency Regulation I, Section 9.11(b)) and record the nature of any corrective actions taken.

14. Each day of operation the owner or operator shall monitor and record:
    a. The times of each start-up and shutdown of the cooker contributing emissions to the cyclonic scrubber and packed tower scrubber.
    b. The times of each start-up and shutdown of cyclonic scrubber and packed tower scrubber.

15. The cyclonic scrubber and packed tower scrubber shall be fitted with instrumentation that shall include:

a. liquid flow meters;
b. calibrated pH measuring systems;
c. calibrated ORP measuring systems;
d. a gauge to measure the static pressure drop across the air side of each scrubbing stage;
e. a water temperature gauge;
f. a sampling port to allow testing of the quality of the exhaust air.

16. Within 30 days of startup, each monitoring instrument listed in Conditions 15 shall have a placard near it describing the acceptable range for each parameter monitored or the instrument itself shall be so marked.

17. Each parameter monitored in Condition 15 shall be recorded continuously, no less than once per hour during any hour in which the units monitored are operated.

18. The pH of reagent enter the cyclonic scrubber and packed tower scrubber shall not exceed 10.0 and not fall below 4.0, or a pH range provided by the manufacturer.

19. ORP of reagent entering the cyclonic scrubber and packed tower scrubber shall be 575 mV or greater or as specified by the manufacturer.

20. All records required by this Order of Approval must be maintained onsite and available for inspection by agency personnel for at least two years from the date of generation.

21. The following records shall be kept onsite and up-to-date, and be made readily available to Agency personnel upon request at all times:

    a. Compliance test reports.
    b. Records of quarterly visible emissions observations and any certified opacity readings that were required to be conducted by EPA Method 9.
    c. Amount of raw materials processed per month.
    d. A copy of the odor complaint log and odor response plan.
    e. A written log showing corrective actions taken to maintain compliance with this Order of Approval. Each log entry must include date, time and description of any and all corrective action taken.
    f. The Operation and Maintenance (O&M) plan.
    g. Records of Natural Gas combusted in the thermal oxidizer per month.

22. The Agency shall be notified, in writing, within 30 days of the end of the month in which an exceedance of any emissions limitation and standard identified in these permit conditions is discovered.

M. CORRESPONDENCE AND SUPPORTING DOCUMENTS

N. REVIEWS

Reviews	Name	Date
Engineer:	Blaine Nesbit	6/23/2025
Inspector:	Catherine Eiref	6/24/2025
Second Review:	John Dawson	6/24/2025
Applicant Name:	Thom Maslowski	5/29/2025