Notice of Construction (NOC) Worksheet

PUGET SOUND Clean Air Agency

Source: Darling Ingredients Inc	**NOC Number:** 12348
Installation Address: 2041 Marc St | Tacoma, WA 98421	**Registration Number:** 10076
Contact Name: Jon Elrod	**Contact Email:** jelrod@darlingii.com
Applied Date: 05/03/2023	**Contact Phone:** (859) 344-2201
Engineer: Ralph Munoz	**Inspector:** Rick Woodfork

A. DESCRIPTION

For the Order of Approval:

Meat Rendering Operation consisting of a total enclosed building under negative pressure controlled by a 125,000 cfm air scrubber. One Dupps Supercookor Model 260U controlled by One Air-cooled condenser system, One 15,000 cfm scrubber and a final 18 MMbtu/hr Thermal Oxidizer. Raw material receiving pit which is located inside a building that is negative pressure controlled. Finished protein meal storage silo equipped with bin vent filters located outside the building.

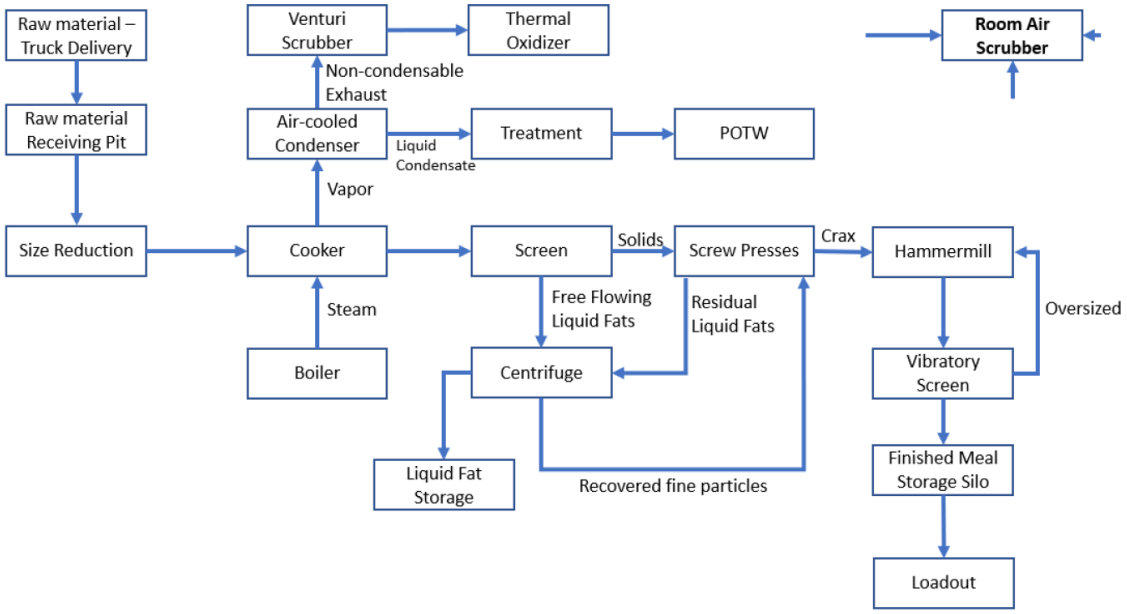
Additional Information (if needed):

Darling Ingredients Inc. (Darling) is proposing to construct and operate a new meat rendering facility in Tacoma, Washington, to replace the existing rendering plant that was destroyed by a fire in September 2022. This existing Meat Rendering facility was permitted by the Agency under existing Order of Approval. With the proposed construction, Darling will provide service for the regional food processers, grocers, butchers, restaurants, and slaughter operations by providing an avenue for their byproducts to be managed in a more environmentally friendly manner compared to disposing them to the landfills.

A process flow diagram of the facility was provided with the application:

Darling Ingredients Inc.

Figure 1-2: Rendering Operation Process Flow Diagram



Meat Rendering operation:

The proposed rendering operation will start with raw materials for the rendering process being delivered to the facility in trucks and unloaded to the raw material receiving pit. From the receiving pit, the raw materials are reduced in size to 1”-2” pieces and then pumped into the cooker (Supercookor 260U). The cooker uses steam heat from the existing permitted boiler (NOC 8629) to evaporate moisture and promote separation of the fat (liquid component) from the protein (solid component). The heated mixture from the cooker flows to the screen to separate free-flowing liquid fat from the solids.

The free-flowing liquid fats from the screen are routed to a centrifuge for recovery of fine particles from the liquids, and then pumped into liquid fat storage. The solids from the screen are conveyed and discharged into one of the two screw presses, where residual liquid fats are further removed from the solids. The residual liquid fats from the screw presses are routed to a centrifuge for recovery of fine particles. The recovered fine particles from the liquids are discharged into one of the two screw presses, along with the solids from the screen. The resulting pressed solids (crax) from the screw presses are then conveyed to the protein grinding system to be processed into finished protein meal.

The vapor from the cooking process is vented to an air-cooled condenser, where water is recovered as condensate. The liquid condensate is sent for treatment and discharged to the POTW. The non-condensable exhaust from the condensing system is ducted to the odor control system, which consists of a 15,000-cfm venturi scrubber and an 18 MMBtu thermal oxidizer (TO), which is equipped with heat recovery capability. This odor control system is designed for control of high intensity point sources from the rendering operation. In addition, the processing room and grinding room will be controlled by a 125,000-cfm room air scrubber, which is designed for control of fugitive emission odors in the room air.

Protein Grinding Operation:

The Protein Grinding, Screening and Storage Operation receives crax from the meat rendering operation. The crax is ground by a hammermill and conveyed to a vibratory screen to produce the finished protein meal. The emissions from the protein grinding, screening and material handling operation are controlled by the room air scrubber to minimize particulate matter emissions. The finished protein meal is conveyed to the finished protein meal storage silo via two screw conveyors and a bucket elevator. The finished protein meal storage silo is equipped with bin vent filters serving as PM emission control from the loading of the storage silo. During the finished protein meal storage silo loadout process, the finished protein meal is transferred from the storage silo and loaded into trucks, containers, or supersacks within the meal loadout bay. The loading point is equipped with a chute to minimize PM emissions.

B. DATABASE INFORMATION

Source:
10076 - Darling Ingredients Inc

Basic Equipment
Count: 7

Reg	Name	Item #	NC/Notification #	BE Code	Year Installed	Units Installed	Rated Capacity	Rated Units	Primary
10076	Darling Ingredients...	1	12348	49 - rendering (cooker, screen, drainer, elevator, presser, centrif...	2024	1	98.00	Ton/Day	
10076	Darling Ingredients...	2	12348	49 - rendering (cooker, screen, drainer, elevator, presser, centrif...	2024	1	500.00	Ton/Day	
10076	Darling Ingredients...	3	12348	49 - rendering (cooker, screen, drainer, elevator, presser, centrif...	2024	1			
10076	Darling Ingredients...	8	8629	6 - boiler, water heater or oil heater		1	26.80	Mbtu	1 - Natu
10076	Darling Ingredients...	9	11901	6 - boiler, water heater or oil heater	2019	1	26.80	Million BTU/Hr	1 - Natu
10076	Darling Ingredients...	10	12348	61 - storage tank	2024	1			
10076	Darling Ingredients...	11	12348	60 - storage silo/bin	2024	1			

Comment: Custom built Wet Mill,screen,centrifuge (Rendering Equipment), all conducting inside enclosed building

Control Equipment
Count: 3

Reg	Name	Item #	NC/Notification #	CE Code	Year Installed	Units Installed	Rated Capacity	Rated Units	Rated Exhaust Flow...	NOC Not
10076	Darling Ingredients...	1	12348	112 - Afterburner	2023	1	10000.00	Acfm	10000.00	
10076	Darling Ingredients...	2	12348	141 - Wet scrubber	2024	1	100000.00	CFM	100000.00	
10076	Darling Ingredients...	3	12348	53 - Venturi scrubber	2024	1	15000.00	CFM	15000.00	

Comment: Process Combustion Corp (duel fuel but only permitted for Natural gas) FD68

New NSPS due to this NOCOA?	**No**
New NESHAP due to this NOCOA?	**No**
New Synthetic Minor due to this NOCOA?	**No**

Source already subject to NSPS Dc for existing boiler covered under another NOC. Not evaluated with this application.

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 -Cooker -Raw Material Handling (grinding, screening, silos, etc) -15,000 cfm scrubber -125,000 cfm scrubber -18 MMbtu/hr Thermal Oxidizer	6 x 1000$ **5000$**	
SEPA (DNS)	$1,200	
Modeling review	$1,500	
Public Notice (additional fees collected after public notice ends)	$750	
Filing received		$ 1,550 (paid)
Additional fee received		$8,450 (Due)
Total		

Registration Fees:
Registration fees are assessed to the facility on an annual basis. Fees are assessed in accordance with Regulation I, Section 5.07. The boiler from Subpart Dc outlined in the invoice below is covered under another NOC and not evaluated under this application.

Site Address: ***Darling Ingredients Inc***
2041 Marc St, Tacoma, WA 98421

The annual registration fee is required by Washington State law and Puget Sound Clean Air Agency's Regulation I.

Facility Fees and Applicable Regulations	Charges
Base Fee for Registered Sources. Reg I, 5.07(c)	$ 1,150.00
Reg I, 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	
Additional Fees:	
Reg I, 5.07(c)(1) - 40 CFR 60 Subpart Dc	$ 2,100.00
	$ 3,250.00
Fee Totals	
TOTAL REGISTRATION FEE	**$ 3,250.00**
The Total Registration Fee is due by January 03, 2022. If unpaid after January 03, 2022, the facility may be subject to enforcement action with civil penalties (Reg I, 5.07(b)).	

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.

The applicant originally submitted a completed Environmental checklist that is included below.

Pages 25-41

12348 app.pdf

The City of Tacoma was consulted for comments on 10/9/23 and replied that they are considering the new construction as "repair" and therefore below the SEPA thresholds. The City of Tacoma informed us that no permits would be required and that PSCAA could remain SEPA Lead as a result.

This project entails the replacement of old equipment with new equipment. The site is already developed and has been in use as a rendering facility for decades. The Agency issued Determinations of Nonsignificance for previous increases in cooking capacity at the facility, with NOCs 3372 and 3741. The cooker installed under NOC 3741 was rated at approximately 26,000 lb/hr, on a production (output) basis. The cooker to be installed under NOC 12348 does not have a higher cooking capacity than the previous cooker, though in this review, capacities are given on an input basis, which includes moisture. The permitted capacity in this Order of Approval of 500 tons per day on an input basis (equal to 41,666 lb/hr) is essentially equivalent to the previous rated capacity of 26,000 lb/hr on an output basis, the difference being attributable to the moisture that is cooked off in the rendering process. Additionally, the applicant is requesting no changes to the existing boiler that is the heat source for the cooker. It is clear that there is no increase in production beyond what was reviewed under NOC 3741, and there is no change in environmental impacts compared to what was reviewed under NOC 3741; therefore, the Determination of Nonsignificance that was issued with NOC 3741 covers this proposed cooker replacement.

An email was sent to the source asking about the size and throughput of the original cooker under 3741, Jon Elrod responded for the source with:

RE_ SEPA checklist for cooker replacement.m

The original DNS for 3741 is shown here:

3741-dns.pdf

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 facility is a rendering plant which is one of the listed categories of the policy in number 4.

In accordance with the policy, the Agency notified each tribe within the Agency's jurisdiction on August 1, 2023, of the intent to hold a consultation. No tribe requested consultation with the Agency.

On December 11, 2023, 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

The Agency has not issued any recent permits like this type of permit application. All existing similar permits the Agency has were either no conditions or no BACT/RACT analysis:

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. Now Darling Industries (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.
Order of Approval 7092. Rendering recycling plant with scrubber	Packed Bed Scrubber	Use of a scrubber system with monitoring for pH and pressure drop.

Other Regulatory Agencies BACT

Source	Control	BACT
Outdated SJVAPCD BACT Guideline 8.3.2 - Animal Matter Rendering Plant (2/21/1998)	Scrubber and Incineration	Use of an 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 with a minimum overall control of 95%, or Thermal oxidizer utilizing natural gas with a minimum chamber temperature of 1,400°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 with a minimum overall control of 95%.
SJVAPCD Rule 4104 – Reduction of Animal Matter (12/17/1992)	Incineration	All gases, vapors, and gas-entrained effluent from any article, machine, equipment or other contrivance used for the reduction of animal matter must be incinerated at temperatures of not less than 1,200 °F for a period of not less than 0.3 seconds, or processed in such a manner determined by the APCO to be equally or more effective for the purpose of air pollution control
Bay Area AQMD Reg 12 Rule 2 – Rendering Plants	Incineration	All gases, vapors, and gas-entrained effluent from the reduction of animal matter must be incinerated at a temperature of not less than 650 °C (1,202 °F) 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 (amended 8/3/77)	Incineration	All gases, vapors, and gas-entrained effluent from any article, machine, equipment or other contrivance used for the reduction of animal matter must be incinerated at temperatures of not less than 650 °C (1,202 °F) for a period of not less than 0.3 seconds, or processed in such a manner determined by the APCO to be equally or more effective for the purpose of air pollution control

SCAQMD BACT Guidelines Part B – Rendering Processing Equipment (1988)	Incineration	Vent to Afterburner or Boiler Fire Box (≥ 0.3 sec. Retention Time at ≥ 1,200 °F) (1988) Rendering processing equipment includes crax pressing, filtering, centrifuging, evaporators, cookers, dryers, and grease and blood processing.
SCAQMD Rule 472 – Reduction of Animal Matter	Incineration	All gases, vapors, and gas-entrained effluent from any equipment used for the reduction of animal matter must be incinerated at temperatures of not less than 650 °C (1,202 °F) for a period of not less than 0.3 seconds, or processed in such a manner determined by the APCO to be equally or more effective for the purpose of air pollution control
SCAQMD Rule 472 – Odors from rendering operations		-Implement odor BMP (Best management practices) -Permanent total enclosure of operation in Closed system , odor control devices used on total enclosures not be less than: 70% for Nitrogen 70% for Sulfur Compounds -Waste water treatment shall be operated in the permanent closed system
Ventura County APCD Rule 58 – Reduction of Animal Matter (Rev 1972)	Incineration	All gases, vapors, and gas-entrained effluent from any article, machine, equipment or other contrivance used for the reduction of animal matter must be incinerated at temperatures of not less than 1,300 °F) for a period of not less than 0.4 seconds, or processed in such a manner determined by the APCO to be equally or more effective for the purpose of air pollution control

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: PM10: 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

A list of recently issued permits for SJVAPCD was located in an existing worksheet posted online:

Control for Emissions Captured from Rendering Operation Processing Equipment		
Facility Name (Facility ID)	**Location**	**Rendering Operation Processing Equipment Control Device**
Baker Commodities, Inc (C-72)	Fresno, CA	Thermal Oxidizer with minimum temperature of 1,200 °F and minimum retention time of 0.57 seconds
Darling International Inc (C-406)	Fresno, CA	Thermal Oxidizer with minimum temperature of 1,200 °F and minimum retention time of 0.5 seconds
Darling International Inc (N-2107)	Turlock, CA	Thermal Oxidizer with minimum temperature of 1,400 °F and minimum retention time of 1 second
Foster Foods (N-1252)	Livingston, CA	Thermal Oxidizer with minimum temperature of 1,400 °F and minimum retention time of 1 second
Yosemite Foods Inc (N-164)	Stockton, CA	Wet Scrubbers

Analysis

There are three emissions sources that will be evaluated here for the Rendering Plant BACT determination; The Rendering Plant Processing Equipment, the Rendering Plant Room Air, and the Animal Matter Staging area located outside the building.

The Rendering Plant processing equipment is proposed to control emissions of PM (PM10 and PM2.5), VOCs, HAPs/TAPS and odors using a particulate removal system that consist of an air cooled condenser (where water is recovered as condensate), a 15,000-cfm venturi scrubber and an 18 MMBtu thermal oxidizer (TO). The liquid condensate will be sent for onsite pretreatment and discharged to the local POTW. The onsite pretreatment process consists of a rotary drum screen, followed by a dissolved air floatation (DAF) unit, and then followed by an aeration tank. The final pretreatment water will be sent to an additional DAF Unit prior to being discharged to the local POTW. All processing equipment, except for the aeration tank, will be inside the negative pressure building that is routed to the room air scrubber. The aeration tank will be located outside the building but will be a closed tank that does not vent outside. The Agency has evaluated the wastewater treatment process located inside the building and has determined that as long as it remains inside the building it will be considered exempt from permitting; with the exception of the aeration tank located outside the building. This tank will need to be closed and not vented to the atmosphere at any time and will get a permit condition to address this tank specifically.

The Rendering Plant Room air proposed to be controlled by a 125,000 cfm room air scrubber, which is designed to control PM (PM10 and PM2.5), VOC, HAPs/TAPs and odors.

Rendering Plant Processing Area

As can be seen in the tables linked above, emissions from rendering plants are typically controlled well by Incineration using a thermal oxidizer or a regenerative thermal oxidizer. The most recent

permit reviewed for the purposes of BACT 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 – with minimum overall control efficiency of 95%. This will also be considered BACT For this project.

SJVAPCD identified BACT for PM emissions as the following:

- 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)

The applicant has proposed controls equal to the second option shown above, which should satisfy PM BACT for this project.

SJVAPCD identified the following as BACT for VOC Emissions

- 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).

It is expected based on previous testing knowledge and other permit review that the control efficiency of a Thermal Oxidizer alone would have a control efficiency of 95% control; therefore, the use of a scrubber in series with the thermal oxidizer is considered to be GREATER than 95%. The applicant has proposed control technology that will meet this VOC BACT determination from SJVAPCD.

Rendering Plant Air Room Emissions:
Emissions generated by the Rendering Plant Processing area that are not captured and sent to the primary control devices (venturi scrubber and Thermal Oxidizer) need to be controlled as well. Emissions from this process include PM (PM10 and PM2.5), VOCs, HAPs/TAPs and Odors.

The most recent permit issued for SJVPCD identified the following as BACT:

a) Use of a closed system as defined in SCAQMD Rule 415 or b) rendering operations in a building kept under negative pressure and vented to a wet scrubber or alternative technology that reduces H2S emissions by at least 70%

SCAQMD Rule 415 - Odors from Rendering Facilities specifies requirements to reduce odors from rendering facilities, including odors from nitrogen and sulfur compounds emitted from rendering facilities, but does not specifically address VOC emissions from rendering operation room air. However, the requirements of this rule that could potentially reduce VOC emissions from rendering operation room air will be considered for purposes of this analysis. To control odors from rendering

operations, SCAQMD Rule 415 requires the use of a closed system or a permanent total enclosure. SCAQMD Rule 415 defines a closed system as "a system handling any combination of solids, liquids, vapors, and air at a rendering facility, in which odors are contained within the system" and requires each component of a closed system to be maintained in a manner to minimize leaks, requires material conveyers, troughs, bins, and hoppers to be completely enclosed except for doors and panels required for maintenance and personnel access, and requires mating surfaces on doors, access panels, and ductwork and air gaps in the system to be sealed with gasket material or caulk. Any alternative to a closed system must be approved by the SCAQMD executive officer. SCAQMD Rule 415 defines a permanent total enclosure as "an enclosure having a permanently installed roof and exterior walls which are constructed of solid material, and completely surround one or more odor-generating sources such that all odors from processes conducted within the enclosure are contained therein." SCAQMD Rule 415 requires use of use of an odor control system in conjunction with a permanent total enclosure. The odor control system must be designed and operated to control fugitive odors from a permanent total enclosure and raw material receiving and must have minimum control efficiency of 70% for nitrogen compounds and 70% for sulfur compounds, but no control efficiency is required for VOC emissions.

Although Rule 415 does not specifically address control efficiency when using a permanent total enclosure for VOC or other TAPs/HAPs, it can be assumed based on historical permitting that the scrubber technologies control on nitrogen and sulfur compounds is comparable to its control on VOC and HAPs/TAPs. The other option would be for the source to keep their rendering operations building under constant negative pressure when operating and vent the emissions to a wet scrubber.

Rendering staging of raw material:

There were no recent permits issued from the Agency for the staging area or from trucks entering and leaving the facility. The staging area is only used when the amount of feedstock that comes to Darling is more than they can process on a given day. This animal matter then starts to degrade and can lead to odors.

Similar source types that produce odors in the Agency jurisdiction are sources like Marijuana production facilities, asphalt plants, landfills, and wastewater treatment facilities. Each of these source categories must monitor for odor complaints at the facility and part of their BACT analysis includes maintaining odors at their property boundary. Marijuana facilities must totally enclose their plants and vent them to an odor control device. BACT for this operation from the SJVAPCD permit mentioned above (Authority to Construct C-2282) is outlined below:

- No outside storage of raw material is allowed, except as otherwise specified in this permit. Trucks waiting their turn to unload within the 4-hour unload time limitation are not considered outside storage. [District Rule 4102]
- All material received shall be processed within 24 hours of receipt. Each delivery of material shall be monitored, and records shall be maintained to ensure that processing is performed within this time limit. [District Rules 2201 and 4102]

- If raw material cannot be processed within 24 hours of receipt, raw material shall be diverted to other facilities. No further deliveries shall be received until a 24 hour turnaround for raw material is achievable. [District Rule 4102]

These conditions will be placed in the permit as BACT for raw material receiving storage, except the facility will be allowed to unload within 8 hours instead of 4 hours as outlined above as this is a different in weather from the facility listed above and the Seattle area (Seattle does not reach temperatures of 110 F or more). No storage of raw material outside the negative pressure building will be allowed.

TAPs/HAPs

VOCs and PM 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 the result of reduced sulfur compounds in the form of H2S. The rest of the TAPs identified in this worksheet are from combustion of the emissions in the TO. These pollutants are identified below:

TAP
Acetaldehyde
Acrolein
Benzene
Ethyl Benzene
Formaldehyde
Hexane
Naphthalene
PAHs (excluding Naphthalene)
Propylene
Toluene
Xylenes (mixed)
H_2S

Recommendations

BACT for VOCs, PM (PM10 and PM2.5), and tBACT for organic volatiles generated from the rendering plant operations is outlined below:

- 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)

Summary BACT/tBACT determination for the Rendering Process equipment

Pollutant	Available Method That Meets BACT/tBACT
Total VOCs/Odors	▪ 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%
PM	

Summary BACT/tBACT determination for Rendering Plant Room Air Emissions:

Pollutant	Available Method That Meets BACT/tBACT
Total VOCs /Odors	▪ Use of a closed system as defined in SCAQMD Rule 415 or ▪ Conduct rendering operations in a building kept under negative pressure and vented to a wet scrubber
PM	

Summary BACT/tBACT determination for Rendering Staging area Raw material:

Pollutant	Available Method That Meets BACT/tBACT
Total VOCs /Odors	• No outside storage of raw material is allowed, except as otherwise specified in this permit. • All material received shall be processed within 24 hours of receipt. Each delivery of material shall be monitored, and records shall be maintained to ensure that processing is performed within this time limit.
PM	

Pollutant	Available Method That Meets BACT/tBACT
	• If raw material cannot be processed within 24 hours of receipt, raw material shall be diverted to other facilities. No further deliveries shall be received until a 24 hour turnaround for raw material is achievable.

G. EMISSION ESTIMATES

Rendering Operation Emission calculations:
As discussed in detail above, the meat rendering operation involves the cooking of the raw material, which separates it into liquids and solids. The cooking process utilizes the steam from the boiler to render the raw material. The cooking process is expected to emit volatile organic compounds (VOCs), PM10, and reduced sulfur compounds. The exhaust from the cooking process is vented to a venturi scrubber, followed by a TO. The reduced sulfur compounds are expected to completely oxidize to sulfur oxides (SOX) by the TO.

The source was asked to provide a more detailed list of emissions that could occur from cooking animal matter; however, the cooker utilizes non-contact steam to evaporate moisture from the raw material stream. The cooked material is then sent for further processing for the separation of the fat and protein. Both fat and protein components are further processed to produce the finished fats and finished meal, respectively. The evaporated moisture/vapor from the cooking process is vented to an air-cooled condenser, where water and other condensable liquids are recovered as liquid condensate. The liquid condensate is then sent for on-site pretreatment and discharged to the POTW. The non-condensable exhaust stream from the condensing system is then sent to the odor control system (venturi scrubber and TO) for odor control. The proposed rendering operation will not incinerate any animal matter, and no animal matter will be sent to the incinerator for processing which means it is not expected to generate emissions of hydrochloric acid or other TAP/HAPs that may occur as part of incineration.

The venturi scrubber and thermal oxidizer (TO) system are designed for a combined reduction of VOC emissions by 99%. PM10 emissions are expected from the droplets of fat released in the cooking process. In addition to rendering process emissions, the TO combusts natural gas fuel as supplemental fuel, which results in the emissions of nitrogen oxides (NOX), SOX, PM10, carbon monoxide (CO), and VOC. Emissions were calculated for the rendering operation using the emission factors from a rendering operation permitted recently by San Joaquin Valley Air Pollution Control District (SJVAPCD) for a similar operation (Project #1172884, Facility C-9251). (Packet.pdf (valleyair.org)

Table 3-1: Criteria Pollutant Emission Factors – Rendering Operation – TO

Criteria Pollutant	Emission Factor	Reference
NO_x	0.0069 lb/ton of raw material	Proposed based on SJVAPCD Project #1172884, Facility C-9251
SO_X	0.0335 lb/ton of raw material	
PM_{10}	0.0033 lb/ton of raw material	
CO	0.0137 lb/ton of raw material	
VOC	0.0052 lb/ton of raw material	

As discussed in the BACT Section, the meat rendering operation is expected to result in reduced sulfur compound emissions in the form of hydrogen sulfide (H2S), which is a Toxic Air Pollutant (TAP). However, the TO will effectively convert the H2S to SOX. There are TAP emissions associated with the TO, which come from the combustion of natural gas. The TAP emission factors for the TO natural gas combustion are obtained from "Natural Gas Fired External Combustion Equipment" in the May 2001 update of the Ventura County Air Pollution Control District (VCAPCD) AB 2588 Combustion Emission Factors for units between 10 and 100 MMBtu/hr:

Table 3-4: Toxic Air Pollutant Emission Factors – TO

TAP	Emission Factor	Reference
Acetaldehyde	3.10E-03 lb/MMSCF	"Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors
Acrolein	2.70E-03 lb/MMSCF	
Benzene	5.80E-03 lb/MMSCF	
Ethyl Benzene	6.90E-03 lb/MMSCF	
Formaldehyde	1.23E-02 lb/MMSCF	
Hexane	4.60E-03 lb/MMSCF	
Naphthalene	3.00E-04 lb/MMSCF	
PAHs (excluding Naphthalene)	1.00E-04 lb/MMSCF	
Propylene	5.30E-01 lb/MMSCF	
Toluene	2.65E-02 lb/MMSCF	
Xylenes (mixed)	1.97E-02 lb/MMSCF	

In addition to the venturi scrubber and TO, the fugitive emissions from the cooker room (along with the emissions from the protein grinding, screening and material handling calculated in the section below this) are vented to a room air scrubber.

Darling provided emissions estimates for this process using the emission factors for a rendering operation that are obtained from the recent San Joaquin Valley Air Pollution Control District (SJVAPCD) for a similar operation (Project #1172884, Facility C-9251).

Table 3-2: Criteria Pollutant Emission Factors – Rendering Operation – Room Air Scrubber

Criteria Pollutant	Emission Factor	Reference
PM_{10}	0.001 gr/dscf	SJVAPCD Project #1172884, Facility C-9251
VOC	3.2 ppmv as CH4	
H_2S	0.75 ppmv	

$$PM_{10}\ PTE = \frac{0.001\ gr}{1\ ft^3} \times \frac{1\ lb}{7{,}000\ gr} \times \frac{125{,}000\ ft^3}{min} \times \frac{60\ min}{1\ hr} \times \frac{24\ hr}{day} = 25.7\ \frac{lb}{day}$$

$$VOC\ PTE = \frac{3.2\ ft^3\ VOC}{10^6\ ft^3} \times \frac{16\ lb - VOC}{lb - mol\ VOC} \times \frac{lb - mol}{379.5\ ft^3} \times \frac{125{,}000\ ft^3}{min} \times \frac{60\ min}{1\ hr} \times \frac{24\ hr}{day} = 24.3\frac{lb}{day}$$

$$H_2S\ PTE = \frac{0.75\ ft^3\ H_2S}{10^6\ ft^3} \times \frac{34\ lb - H_2S}{lb - mol\ H_2S} \times \frac{lb - mol}{379.5\ ft^3} \times \frac{125{,}000\ ft^3}{min} \times \frac{60\ min}{1\ hr} = 0.5\frac{lb}{hr}$$

Basis:

- PM_{10} EF of 0.01 gr/dscf
- VOC as methane EF of 3.2 ppmv
- H2S EF of 0.75 ppm
- molar volume = 379.5 ft^3/lb-mol
- VOC as methane with molecular weight of 16 lb/lb-mol
- H_2S molecular weight of 34 lb/lb-mol

Protein Grinding, Screening, and Storage Operation emissions:

The solids or crax processing is expected to result in PM10 emissions. The protein grinding, screening and material handling are vented to a room air scrubber with assumed 90% control efficiency (CE). Standard Environmental Protection Agency (EPA) AP-42 emission factors were used to estimate the PM emissions from the solids processing. Pursuant to EPA Air Pollution Control Technology Fact Sheet for

cyclones, the PM10 CE range for a conventional single cyclone is 30-90%. The proposed criteria pollutant emission factors from the protein grinding, screening and material handling are summarized in Table 3-3

Table 3-3: PM_{10} Emission Factors – Protein Grinding, Screening and Storage Operation

Activity[1]	PM_{10} Emission Factor	Reference
Conveyor to Grinding Process	0.00008 lb/ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed Mills – Uncontrolled Shipping adjusted by room air scrubber (90% control)
Grinding	0.0335 lb/ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed mills – Hammermill – controlled by Cyclone, assuming 50% of PM is PM_{10} and adjusted by room air scrubber (90% control)
Screening	0.0335 lb/ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed mills – Hammermill – controlled by Cyclone, assuming 50% of PM is PM_{10} and adjusted by room air scrubber (90% control)
Rerun Conveyors	0.00008 lb/ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed mills – Shipping – uncontrolled, adjusted by room air scrubber (90% control)
Storage Silo Conveyors	0.00008 lb/ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed mills – Shipping – uncontrolled, adjusted by room air scrubber (90% control)
Silo Loading	0.000008 lb /ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed Mills – Uncontrolled Shipping adjusted by bin vent (99% control)
Finished Meal Loadout	0.0008 lb /ton of solid	EPA AP-42, Table 9.9.1-2, Animal Feed Mills – Uncontrolled Shipping

TAP Emissions from the protein grinding, screening and material handling were not expected due to the guidance on food grade products and pre-cleaned material found in AP-42 Chapter 9.9. Pre cleaned grain materials and products are considered non-hazardous. Material that is pre-cleaned is considered to have had all PM10 (dust/soil) removed, which would in turn would have eliminated the exposure to

heavy metals. Since the raw material is not expected to be covered by soil/dust, the PM10 emissions from this process are considered non-hazardous and TAP emissions are not expected.

Using the above emission factors and the operating schedule – the facility provided Potential to Emit emissions below which were reviewed by the Agency for accuracy and completeness:

-Maximum daily throughput: 500 tons of raw material per day
-Maximum Room Air Scrubber exhaust flowrate; 125,000 cfm
-Maximum operating schedule: 24 hours per day and 365 days per year.

Table 4-1: Criteria Pollutant PE - Rendering Operation - TO

Criteria Pollutant	Daily PE	Annual PE
NO_X	3.5 lbs/day	1,259 lbs/year
SO_X	16.8 lbs/day	6,114 lbs/year
PM_{10}	1.7 lbs/day	602 lbs/year
CO	6.9 lbs/day	2,500 lbs/year
VOC	2.6 lbs/day	949 lbs/year

Room Air Scrubber - 125,000 cfm		
Criteria Pollutant	**Daily PE**	**Annual PE**
PM_{10}	25.7 lbs/day	9,386 lbs/year
VOC	24.3 lbs/day	8,864 lbs/year

Table 4-3: Criteria Pollutant PE - Protein Grinding, Screening and Storage Op.[2]

Criteria Pollutant	Daily PE (lb/day)	Annual PE (lb/year)
PM_{10}	0.1 lbs/day	29 lbs/year

Table 4-4: TAP PE - Rendering Operation – TO

TAP	Hourly PE	Annual PE
Acetaldehyde	5.58E-05 lbs/hour	4.89E-01 lbs/year
Acrolein	4.86E-05 lbs/hour	4.26E-01 lbs/year
Benzene	1.04E-04 lbs/hour	9.15E-01 lbs/year
Ethylbenzene	1.24E-04 lbs/hour	1.09E+00 lbs/year
Formaldehyde	2.21E-04 lbs/hour	1.94E+00 lbs/year
Hexane	8.28E-05 lbs/hour	7.25E-01 lbs/year
Naphthalene	5.40E-06 lbs/hour	4.73E-02 lbs/year
PAH's (excl. naphthalene)	1.80E-06 lbs/hour	1.58E-02 lbs/year
Propylene	9.54E-03 lbs/hour	8.36E+01 lbs/year
Toluene	4.77E-04 lbs/hour	4.18E+00 lbs/year
Xylenes (mixed)	3.55E-04 lbs/hour	3.11E+00 lbs/year

Room Air Scrubber - 125,000 cfm		
TAP	**Hourly PE**	**Annual PE**
H_2S	0.5 lbs/hour	4,415 lbs/year

[2] *The emissions from transfer of materials from the conveyor to the grinding process, grinding, screening, transfer of materials at the rerun conveyors and transfer of materials from the conveyor to the storage silo are controlled by the room air scrubbers and are accounted for in the room air scrubber emissions. The emissions in Table 4.3 above only account for the remaining emissions from the operation.*

A copy of the emission calculation sheet is attached:

Darling Tacoma Emissions Calcs NOC

Updated emission calculations for 125,000 cfm scrubber:

Darling Tacoma NOC 12348 RAS 125

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 and criteria. The source is considered a "**natural minor**".

I. AMBIENT TOXICS IMPACT ANALYSIS

The estimated potential toxic air pollutant (TAP) emissions were calculated as outlined above in the emission calculation section. The results are presented again here:

Table 4-4: TAP PE - Rendering Operation – TO

TAP	Hourly PE	Annual PE
Acetaldehyde	5.58E-05 lbs/hour	4.89E-01 lbs/year
Acrolein	4.86E-05 lbs/hour	4.26E-01 lbs/year
Benzene	1.04E-04 lbs/hour	9.15E-01 lbs/year
Ethylbenzene	1.24E-04 lbs/hour	1.09E+00 lbs/year
Formaldehyde	2.21E-04 lbs/hour	1.94E+00 lbs/year
Hexane	8.28E-05 lbs/hour	7.25E-01 lbs/year
Naphthalene	5.40E-06 lbs/hour	4.73E-02 lbs/year
PAH's (excl. naphthalene)	1.80E-06 lbs/hour	1.58E-02 lbs/year
Propylene	9.54E-03 lbs/hour	8.36E+01 lbs/year
Toluene	4.77E-04 lbs/hour	4.18E+00 lbs/year
Xylenes (mixed)	3.55E-04 lbs/hour	3.11E+00 lbs/year

Room Air Scrubber - 125,000 cfm		
TAP	**Hourly PE**	**Annual PE**
H_2S	0.5 lbs/hour	4,415 lbs/year

One pollutant left off the above table was for Ammonia emissions emitted through the room air scrubber as off gassing from the rendering operations; however, the ammonia emissions in the room air are expected to be negligible. The ammonia generated by the cooker is routed to the Thermal Oxidizer and is converted to NOx which has been accounted for in the emission factor for NOx. The ammonia potential to emit (PTE) was calculated based on the ammonia emission factors from USEPA's AP-42 Document Table 9.5.3-2 (Meat Rendering Plants). The estimated ammonia PTE based on the proposed 98 tons/day of finished meal, not accounting the reduction from the TO, is calculated as follows:

Ammonia Emissions = 0.6 lb/tons x 98 tons/day = 58.8 lbs/day

The SQER for ammonia is 500 lb/24-hour, which is higher than the ammonia PTE. Therefore, the ammonia emissions are not subject to modeling.

All other TAP emissions in the above table from the proposed project are below the SQER threshold limits found in WAC 173-460-150, except for Hydrogen Sulfide (H2S) which is emitted at 0.5 lbs per hour, while the SQER is listed as 0.15 lbs per any 24 hour period. Therefore, H2S is subject to Modeling to verify if emissions would exceed the ASIL for H2S (2.0 ug/m3).

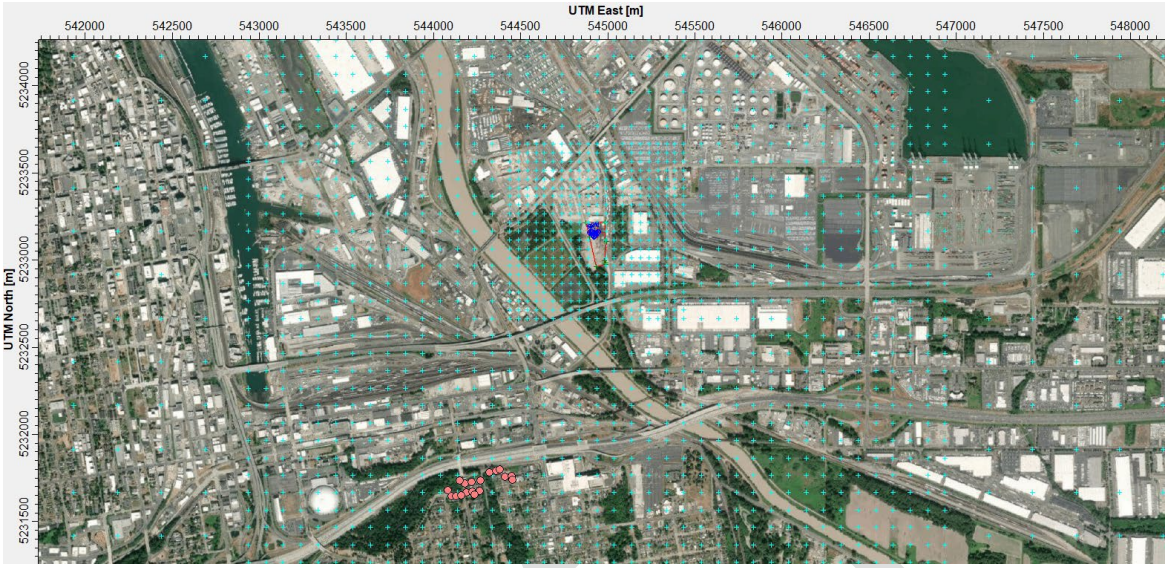
Air dispersion modeling was conducted by the source using US EPA's AERMOD modeling computer software. AERMOD Version 22112 was used for this analysis. A newer version has since been released but the Agency has not asked the source to update modeling with the newest version since 22112 is adequate to model the above scenarios.

Meteorological data
AERMOD-specific meteorological (MET) data for the Tacoma Tideflats station was used for the dispersion modeling. A 5-year data set from 2012 through 2016 was obtained from PSCAA in a preprocessed format suitable for use in AERMOD.

Modeling options
Regulatory defaults were used with the "Rural" modeling option and "Elevated" terrain options. The facility is located in Tacoma near Commencement Bay. Due to the location of the facility near a waterway, the rural option was used in the analysis. Elevated terrain is assumed when the terrain height exceeds the source's stack elevation. Because there are receptors within the modeling grid area with slightly higher base elevations than the sources, the elevated terrain option was selected.

Building downwash
All significant buildings were included in the model, a figure was supplied with the application showing local buildings.

Receptor grip and modeling domain
Satellite maps within the AERMOD View™ program were used for visualizing the results of the health risk assessment (HRA) and developing the receptor grid. This program used the World Geodetic System 1984 (WGS84) zone 10 for displaying Universal Transverse Mercator (UTM) coordinates and was used throughout the project. The Grid and discrete receptors are shown below:



Source characteristics used

Parameter	Processing Area (Room Air)
Existing Release	Room Air Scrubber
Source Type	Point
Release Height (ft)	45
Stack Diameter (ft)	6.0
Stack Temperature (F)	80
Flow Rate (acfm)	125,000

The results of the modeling are shown below and indicate that the facility will comply with the WAC ASIL threshold for H_2S which is 2.0 ug/m3. The results indicate that the concentrations at all receptors are below the ASIL threshold. The point of maximum impact (PMI) will occur to the west of the facility along the fenceline of a neighboring business. The peak residential concentration will occur to the southwest of the facility.

Table 3: H_2S Modeling Results

Substance	Emission rate (lb/hr)	Concentration (µg/m^3)	
		PMI	Resident
H_2S	0.40	0.89	0.31

J. APPLICABLE RULES & REGULATIONS

Puget Sound Clean Air Agency 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 NOx, 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; however, Agency staff have determined significant public interest merits an opportunity for public notice and comment. A copy of the website posting is below:

New Construction Projects

Company	Address	Project Description	Date Posted	Contact Engineer
Darling Ingredients Inc	2041 Marc St, Tacoma, WA 98421	Permit application submitted for a new rendering facility which is used for the reduction of animal matter.	10/10/23	Ralph Munoz

The Agency conducted a public comment period from February 29, 2024, to April 19, 2024, including a public hearing by Zoom on April 17, 2024. The public notice was published in the Tacoma News-Tribune, the Daily Journal of Commerce, the Suburban Times, and Tacoma Weekly and on the Agency website on February 29, 2024. 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 500 tons of raw material per day. Monthly records shall be kept on site to verify compliance with this requirement.

4. The Rendering building shall be kept under negative pressure at all times when receiving or storing raw material or in the process of rendering raw material, except during limited periods when the receiving area doors are open to allow for entry/exit of raw materials as needed.

a. The owner and/or operator shall take monthly readings with a portable anemometer to verify that the main processing building is under negative pressure during periods of normal plant operation. The anemometer shall be calibrated per the manufacturer's recommendations.
    i. As an alternative to taking monthly readings with a portable anemometer to verify that the main processing building is under negative pressure, the owner and/or operator may choose to design and operate the ventilation system serving the main processing building such that a minimum of not less than 15 air changes per hour is maintained through the building. To demonstrate compliance with the air changes requirements, the owner or operator shall notify the agency of the intent to meet the alternative standard under this paragraph and shall submit:
        1. Calculations to demonstrate that the ventilation system of the building is designed to meet the alternative ventilation system standard; and
        2. A plan for monitoring appropriate parameters (for example, pressure at the fan inlet, or fan revolutions per minute) to demonstrate that the alternative ventilation system standard is continuously achieved.

b. The owner and/or operator shall monthly inspect the integrity of the building and the associated vapor collection ductwork for the rendering process. This includes looking for any corrosion of piping, leaks, ducting and openings to the building. 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 equipment 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.

5. All material received for the purposes of rendering shall be processed within 24 hours of receipt. Each delivery of material shall be monitored, and records shall be maintained to ensure that processing is performed within this time limit.

6. Raw material delivery trucks shall not be accepted and/or unloaded without first being weighed/scaled. The delivery trucks containing raw materials must be unloaded into the raw material receiving pit of the process building when the 125,000 cfm air room scrubber is operating.

7. Raw material delivery trucks shall be unloaded within 8 hours of being scaled/weighed. If a delivery truck cannot be unloaded within 8 hours of being scaled, the owner and/or operator shall ensure that odors are not released from the trucks by either temporarily enclosing (Such as tarping) them

until they can be unloaded or removed from the facility until they are able to unload the material within the 8 hour window.

8. The raw material trucks shall be cleaned prior to exiting the facility to prevent any odor-causing material from being tracked out of the facility.

9. No outdoor storage of raw materials is allowed. Material delivery trucks waiting their turn to unload does not count as outdoor storage of raw materials as long as it remains inside the truck.

10. The owner and/or operator shall wash/clean the raw materials if it is determined that the raw materials would have dirt or soil on them prior to entering the facility to ensure no residual heavy metals or impurities enter the cooking process. A visual inspection for dust and soil is acceptable for this permit condition.

11. All emissions from the Dupps Supercookor 260U (or equivalent), shall be captured and vented to the air-cooled condenser, followed by the 15,000 cfm venturi scrubber and then the 18 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 4.b.

12. All fugitive emissions from the post cooker drains, screens, screw presses, hammermill, protein grinding, crax material storage, centrifuges and discharge conveyors shall be conducted inside the negative pressure building and vented to the 125,000 cfm room air scrubber. The presence of a compromise in the integrity of the building envelope shall constitute a violation of this condition, unless that compromise has been documented as needing repair in the log required under Condition 4.b.

13. The finished protein meal storage silo shall be equipped with bin vent filters to reduce particulate matter and odor emissions during storage. The finished protein meal loading into trucks, supersacks, or containers should be performed in a covered area to minimize material loss.

14. The owner and/or operator shall ensure any wastewater treatment equipment is located inside the building that is under negative pressure and routed to the air room scrubber. Any outdoor tanks used for wastewater treatment shall be completely closed at all times, except during periods of maintenance, repairs, or other types of malfunctions/issues that would require the source to ensure that the equipment is operating properly.

15. The owner and/or operator shall only use natural gas as supplemental gas in the 18 MMbtu/hr Thermal Oxidizer.

16. In the event that the Thermal Oxidizer malfunctions and cannot process the Rendering operation air emissions, the owner and/or operator shall route the emissions through the air-cooled condenser, followed by the 15,000 cfm venturi scrubber followed by the 125,000 cfm room air scrubber for no more than 7 days or until the TO is back up and running properly.

a. Until the TO is operating properly, 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 correction action to minimize impacts, which may include ceasing operations. A logbook shall be kept for documentation of all daily odor inspections. For each inspection, the logbook shall include the date and time of the inspection and the name of the person conducting the inspection. Once the TO is operating properly, the logbook shall also document the time and date of the repair.

b. As soon as the owner and/or operator is aware that repairs cannot be made within 7 days, the owner and/or operator shall cease all raw material processing until the TO Is back up and running properly.

17. The 18 MMbtu/hr thermal oxidizer shall be operated with a minimum combustion temperature 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.

18. Within 120 days of commencing initial startup of the Dupps Supercookor 260U cooker (or equivalent) and then repeatedly once every 48 to 52 months from the previous test for only VOC, NOx, and PM10, the owner and/or operator shall conduct a performance test to verify compliance with the following emissions standards on the thermal oxidizer:

a. 0.0052 lbs of VOC/ton of raw material processed - 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. 0.0137 lbs of CO/ton of raw material processed- CO testing shall be conducted in accordance with EPA Test Method 10 or an alternative method approved by the Agency.
c. 0.0069 lbs of NO_x/ton of raw material processed - NOX testing shall be conducted in accordance with EPA Test Method 7E or an alternative method approved by the Agency.
d. 0.0335 lbs of SOx/ton of raw material processed - SOx testing shall be conducted in accordance with EPA Test Method 6C or an alternative method approved by the Agency.
e. 0.0033 lbs of PM10/ton (filterable and condensable) of raw material processed – PM10 Testing shall be conducted in accordance with) shall be conducted using EPA Method 201 and 202, EPA Method 201a and 202 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.

The owner and/or operator may wait until the unit is needed to commence initial startup. 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.

19. At least once per quarter during operation of the Dupps Supercookor 260U cooker (or equivalent) 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.

20. Within 120 days of commencing initial startup of the 125,000 cfm air room scrubber and then repeatedly once every 48 to 52 months of the previous test for H2S and VOC, the owner and/or operator shall conduct a performance test to verify compliance with the following emissions standards

    a. PM10 - 0.001 gr/dscf outlet grain loading standard - PM10 Testing (filterable and condensable) shall be conducted in accordance with) shall be conducted using EPA Method 201 and 202, EPA Method 201a and 202or an alternative method approved by the Agency.
    b. VOC – 3.2 ppmv outlet standard measured as Methane - VOC testing shall be conducted in accordance with EPA Test Method 18, 25, 25A or an alternative method approved by the Agency.
    c. H2S – 0.75 ppmv outlet standard– H2S testing shall be conducted using EPA Test Method 11, ARB Method 15 or 16A or other approved method 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.

The owner and/or operator may wait until the unit is needed to commence initial startup. 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.

21. 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.

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

23. The owner or operator shall develop and maintain an Operation and Maintenance (O&M) plan for the air-cooled condenser, the 15,000 cfm venturi scrubber, the 125,000 cfm air room scrubber, and the 18 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 Darling Ingredients is the source of emissions related to the complaint, and a format for communicating results of investigation and advising complainants of Darling Ingredients' 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.

24. 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.

25. 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.

26. 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. Any certified opacity readings that were required to be conducted with an 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. A written log showing any instances when the Thermal Oxidizer malfunctioned and raw material gases from the cooker were routed to the 125,000 cfm air room scrubber as a backup.
g. The Operation and Maintenance (O&M) plan
h. Records of anemometer measurements and calibrations shall be kept, maintained, and made readily available for District inspection upon request, unless the alternative ventilation system standard is utilized. If the alternative ventilation system standard is utilized, records of the calculations demonstrating that the ventilation system of the building is designed to meet the alternative ventilation system standard.
i. Records of Natural Gas combusted in the thermal oxidizer per month.

27. 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:	Ralph Munoz	12/13/23
Inspector:		
Second Review:	John Dawson	12/13/2023
Applicant Name:		