Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Title V, Operating
Permit: V-25-024

Darling Ingredients Inc.
1176 Bryan Griffin Road
Butler, Kentucky 41006-9668

September 5, 2025
Ossama Ateyeh, Reviewer

SOURCE ID:	21-191-00007
AGENCY INTEREST:	3408
ACTIVITY:	APE20250001

Table of Contents

SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 2077, Animal and Marine Fats and Oils

Single Source Det. ☐ Yes ☒ No If Yes, Affiliated Source AI:

Source-wide Limit ☒ Yes ☐ No If Yes, See Section 4, Table A

28 Source Category ☐ Yes ☒ No If Yes, Category:

County: Pendleton
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☒ CO ☒ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☐ Yes ☒ No

PTE* greater than 25 tpy for combined HAP ☐ Yes ☒ No

*PTE does not include self-imposed emission limitations.

Description of Facility:
Darling Ingredients Inc. operates an animal byproduct rendering and grease processing operation, a bakery recycling operation, and a biodiesel production facility in Butler, Pendleton County, Kentucky. The rendering operation processes animal by-product materials into processed fats, and high protein meat and bone meal as well as restaurant food grease into processed fats. The bakery operation dries residual breads and dough to form cookie meal.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: V-25-024 Activities: APE20250001

Received: May 6, 2025, Application Complete Date(s): October 15, 2025

Permit Action: ☐ Initial ☒ Renewal ☐ Significant Rev ☐ Minor Rev ☐ Administrative

Construction/Modification Requested? ☐Yes ☒No NSR Applicable? ☐Yes ☒No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☐Yes ☒No

Description of Action:

APE20250001 Application submitted for renewal only with the following modification:
In January 2021, Darling decommissioned boilers EU14 and EU15 and requested them be removed from the permit.

V-25-001 Emission Summary				
Pollutant	2024 Actual (tpy)	Previous PTE V-19-023 (tpy)	Change (tpy)	Revised PTE V-25-024 (tpy)
CO	19.5	120.52	0	120.52
NO_X	18.83	204.57	-0.38	202.19
PT	7.2	48.88	-0.37	48.51
PM_{10}	7.02	50.45	-15.28	46.15
$PM_{2.5}$	6.73	39.10	-3.93	35.17
SO_2	0.96	38.81	-2.02	36.79
VOC	75.70	225.04	-1.65	223.39
Lead	0.00006	0.007	0	0.007
Greenhouse Gases (GHGs)				
Carbon Dioxide		126,089	-2,490	123,599
Methane		3.35	0.02	3.37
Nitrous Oxide		2.55	0.03	2.52
CO_2 Equivalent (CO_2e)		126,931	-2,496	124,435
Hazardous Air Pollutants (HAPs)				
Acrolein		0.396	0	0.396
Benzene		0.429	0	0.429
Formaldehyde		0.711	0.008	0.703
Hexane; n-Hexane		1.69	-.5	1.19
Hydrochloric Acid		2.27	-0.4	1.87
Combined HAPs:		8.34	-0.34	8.00

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit #02 and #13 - Indirect Heat Exchanger (EP02 & EP14)				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	EU 02: 0.360 lbs/MMBtu EU 13: 0.308 lbs/MMBtu	401 KAR 59:015, Section 4(1)(c)	**Natural Gas**: 7.6 lbs/MMscf (AP-42 1.4-2) **Processed Fats**: 1.259 lbs/Mgal (2015 Stack Test) **Biodiesel**: 0.46 lbs/Mgal (2001 Stack Test) **LSD**: 2.0 lbs/Mgal (AP-42 1.3-1)	Compliance assumed.
	20% Opacity	401 KAR 59:015, Section 4(2)		
SO_2	EU 02: 1.37 lbs/MMBtu for all permitted fuels EU 13: 1.06 lbs/MMBtu while combusting NG and 1.04 lbs/MMBtu while combusting any secondary fuel	401 KAR 59:015, Section 5(1)(c)1.b. and 5(1)(c)2.b.	**Natural Gas**: 0.6 lbs/MMscf (AP-42 1.4-2) **Processed Fats**: 0.038 lbs/Mgal (2015 Stack Test) **Biodiesel**: 0.46 lbs/Mgal (2001 Stack Test) **LSD**: 7.1 lbs/Mgal (AP-42 1.3-1)	• Compliance assumed while combusting natural gas. • Monitor fuel sulfur content (in weight percent) of any secondary fuel.
VOC	225 tpy	Preclude 401 KAR 51:017	**Natural Gas**: 5.5 lbs/MMscf (AP-42 1.4-2) **Processed Fats**: 0.0 lb/MMscf (2015 Stack Test) **Biodiesel**: 0.0 lb/MMscf (2001 Stack Test) **LSD**: 0.2 lbs/Mgal (AP-42 1.3-1)	Use emission factors to maintain a monthly and 12-month rolling total

Process Description:
The boilers are permitted to combust natural gas, and during periods of curtailment, permitted secondary fuels include processed fats, biodiesel and low sulfur diesel (LSD). The boilers provide heat, in the form of steam, for the rendering process.

Emission Unit	EU 02	EU 13
Model Number	Cleaver Brooks N-193751	Cleaver Brooks 400-700/L-61633
Heat Input Capacity	33.5 MMBtu/hr	29.3 MMBtu/hr
Installation Date	*07/1973*	**Construction:** *1976/* ***Installation*** *2017*

Applicable Regulation:

Emission Unit #02 and #13 - Indirect Heat Exchanger (EP02 & EP14)

401 KAR 59:015, *New indirect heat exchangers*, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9,1972.

Non-applicable Regulation:
401 KAR 60:005, Section (2)(2)(d), 40 CFR 60.40c through 60.48c (**Subpart Dc**), *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, as published July 1, 2016*, applicable to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than 10 MMBtu/hr. Construction of both the boilers was before June 9, 1989. Therefore, this regulation is not applicable to these units.

Precluded Regulations:
401 KAR 63:002, Section 2(4)(jjjjj), 40 CFR 63.11193 through 63.11237, Tables 1 through 8 (**Subpart JJJJJJ**), *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers Area Sources, as published July 1, 2016.* Gas-fired boilers are not subject to this subpart. This includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups or for periodic testing, maintenance or operator training on liquid fuel. Periodic testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year. The primary fuel as of the permit renewal application will be switched to natural gas, thus 40 CFR 63, Subpart JJJJJJ is precluded.

State-Origin Requirement:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances (matter which may be harmful to the health and welfare of humans, animals, and plants, including, but no limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials), provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. Classification date is April 9, 1972.

Comments:
Potential emissions for natural gas and LSD were calculated using emission factors from AP 42. Potential emissions for processed fats were established from an engineering stack test performed at a Darling facility in Tennessee using a 1200 hp, 50.219 MMBtu/hr boiler. Emission factors were calculated using the stack test information in conjunction with the higher heating value of 125,900 Btu/gal, which was provided by Darling Ingredients Inc. and deemed acceptable by the Division. Emission factors for biodiesel were submitted by Darling Ingredients Inc. (previously Griffin Industries, Inc.) on September 29, 2010, and a 502(b)(10) change was approved by the Division on October 15, 2010.

When EU 02 was installed in 1973, the total heat input capacity for all affected facilities (indirect heat exchangers having a heat input capacity greater than 1 MMBtu/hr) at the source was 67 MMBtu/hr, establishing a PM emission limit of 0.36 lbs/MMBtu and an SO_2 emission limit of 1.37 lbs/MMBtu. When EU 13 was installed to replace EU 01 in 2017, Darling Ingredient Inc. had a facility-wide total heat input capacity of 130.748 MMBtu/hr, establishing a PM emission limit of 0.31 lbs/MMBtu and an SO_2 emission limit of 1.04 lbs/MMBtu while combusting liquid fuels. The total heat input capacity of units permitted to combust gaseous fuels was 125.8 MMBtu/hr, resulting in an SO_2 emission limit of 1.06 lbs/MMBtu. Compliance demonstration calculations of EU 02 showed PM emissions to be between 1.4% and 6.6% of

Emission Unit #02 and #13 - Indirect Heat Exchanger (EP02 & EP14)
the threshold while combusting processed fats; therefore, compliance with the applicable 401 KAR 59:015 PM and opacity emission limits are assumed while combusting any of the fuels permitted by V-19-023. EU 13 was relocated from Alaska in 2017 but has not been rebuilt, reconstructed or modified since its original installation before June 9, 1989. According to 40 CFR 60.14(e)(6), the relocation or change in ownership of an existing facility shall not, by itself, be considered a modification. Therefore, 40 CFR 60, Subpart Dc does not apply to EU 13. Darling Ingredients Inc. shall monitor and maintain records of the sulfur content (in weight percent) of any permitted secondary fuel that is combusted on a monthly basis, monitor and record natural gas (in scf) and secondary fuel usage (in gallons) on a monthly basis, and maintain records of the manufacturer's recommended procedures for startup and shutdown, any instance in which the recommended procedures were not followed, and any corrective actions taken.

Emission Unit #10 - Indirect Heat Exchanger (EP11)				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	**NG & Processed Fats:** 0.30 lbs/MMBtu	401 KAR 59:015, Section 4(1)(c)	**Natural Gas**: 7.6 lbs/MMscf (AP-42 1.4-2) **Processed Fats**: 1.259 lbs/Mgal (2015 Stack Test) **Biodiesel**: 0.46 lbs/Mgal (2001 Stack Test) **LSD**: 2.0 (AP-42 1.3-1)	• Compliance assumed for natural gas and processed fats. • Performance tests, as requested.
	Biodiesel & LSD: 0.030 lbs/MMBtu or fuel with ≤ 0.50 wt% sulfur	40 CFR 60.43c(e)(1) and 60.43c(e)(4)		
	20% Opacity	401 KAR 59:015, Section 4(2) and 40 CFR 60.43c(c)		
SO_2	**Natural Gas:** 1.05 lbs/MMBtu **Processed Fats:** 1.03 lbs/MMBtu **Biodiesel/LSD:** 0.50 lbs/MMBtu	401 KAR 59:015, Section 5(c)(2)(b) 40 CFR 60.42c(d) and 40 CFR 60.42c(i)	**Natural Gas**: 0.6 lbs/MMscf (AP-42 1.4-2) **Processed Fats**: 0.038 lbs/Mgal (2015 Stack Test) **Biodiesel**: 0.46 lbs/Mgal (2001 Stack Test) **LSD**: 7.1 lbs/Mgal (AP-42 1.3-1)	• Compliance assumed while combusting natural gas. • Monitor fuel sulfur content (in weight percent) of any secondary fuel or fuel supplier certification.

Emission Unit #10 - Indirect Heat Exchanger (EP11)				
VOC	225 tpy	401 KAR 51:017	**Natural Gas**: 5.5 lbs/MMscf (AP-42 1.4-2) **Processed Fats**: 0.0 lb/MMscf (2015 Stack Test) **Biodiesel**: 0.0 lb/MMscf (2001 Stack Test) **LSD**: 0.2 lbs/Mgal (AP-42 1.3-1)	Use emission factors to maintain a monthly and 12-month rolling total

Initial Construction Date:*11/2015*

Process Description:
The boiler is permitted to combust natural gas and, during periods of curtailment, processed fats, biodiesel and low sulfur diesel (LSD). The boilers provide heat, in the form of steam, for the rendering process.

Emission Unit	EU10
Model Number	Victory Energy Boiler F3-1500-S250
Heat Input Capacity	63 MMBtu/hr
Install & Initial Construction	*11/2015*

Applicable Regulations:
401 KAR 59:015, *New indirect heat exchangers*, applicable to indirect heat exchangers having a heat input capacity greater than one (1) million BTU per hour (MMBtu/hr) commenced on or after April 9,1972.

401 KAR 60:005, Section (2)(2)(d), 40 CFR 60.40c through 60.48c (**Subpart Dc**), *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, as published July 1, 2016*, applicable to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than 10 MMBtu/hr.

Precluded Regulations:
401 KAR 63:002, Section 2(4)(jjjjj), 40 CFR 63.11193 through 63.11237, Tables 1 through 8 (**Subpart JJJJJJ**), *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers Area Sources, as published July 1, 2016.* Gas-fired boilers are not subject to this subpart. This includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups or for periodic testing, maintenance or operator training on liquid fuel. Periodic testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year. Darling Ingredients Inc. requested that the primary fuel on the permit renewal be switched to natural gas and that NESHAP Subpart JJJJJJ be precluded.

State-Origin Requirement:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances (matter which may be harmful to the health and welfare of humans, animals, and plants, including, but no limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials), provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. Classification date is April 9, 1972.

Emission Unit #10 - Indirect Heat Exchanger (EP11)

Comments:
Potential emissions for natural gas and LSD were calculated using emission factors from AP 42. Potential emissions for processed fats were established from an engineering stack test performed at a Darling facility in Tennessee using a 1200 hp, 50.219 MMBtu/hr boiler. Emission factors were calculated using the stack test information in conjunction with the higher heating value of 125,900 Btu/gal, which was provided by Darling Ingredients Inc. and deemed acceptable by the Division. Emission factors for biodiesel were submitted by Darling Ingredients Inc. (previously Griffin Industries, Inc.) on September 29, 2010 and a 502(b)(10) change was approved by the Division on October 15, 2010.

When EU 10 was installed in 2015, the total heat input capacity for all affected facilities at the source was 134.948 MMBtu/hr, establishing a PM emission limit of 0.30 lbs/MMBtu. Since all of these indirect heat exchangers are permitted to process liquid fuels, the SO_2 emission limit for processed fats is 1.03 lbs/MMBtu. The total heat input capacity of affected facilities permitted to combust NG is 130 MMBtu/hr, resulting in an SO_2 emission limit of 1.05 lbs/MMBtu.

While combusting biodiesel and LSD, this unit is subject to 40 CFR 60, Subpart Dc emission limits and is therefore not subject to the emission limits of 401 KAR 59:015 [401 KAR 59:015, Section 2(2)]. The emission limits while combusting biodiesel and LSD are 0.50 lbs/MMBtu for SO_2 and 0.030 lbs/MMBtu for PM. As an alternative to the PM and SO_2 emission standard, compliance may be demonstrated by using a fuel with a sulfur content of $\leq$ 0.5 weight %.

SO_2 emissions shall be considered in compliance as long as the sulfur content of the fuel is below 0.5 weight percent. Fuel supplier certification or fuel testing shall be conducted to demonstrate compliance, and records shall be maintained for a period of two years

Darling Ingredients Inc. shall monitor and maintain records of the sulfur content (in weight percent) of any permitted secondary fuel that is combusted on a monthly basis, monitor and record natural gas (in scf) and secondary fuel usage (in gallons) on a monthly basis, and maintain records of the manufacturer's recommended procedures for startup and shutdown, any instance in which the recommended procedures were not followed, and corrective actions taken.

Emission Unit #04 – Rendering Process (EP04 & EP05)				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	For processing rate, $P \leq 0.5$ tons/hr, then PM ≤ 2.34 lbs/hr Otherwise, PM $\leq [3.59P^{0.62}]$	401 KAR 59:010, Section 3(2)	0.075 lbs/ton (2015 Stack Test)	Assumed based upon natural gas combustion
	20% opacity	401 KAR 59:010, Section 3(1)(a)		
VOC	225 tpy	Preclude 401 KAR 51:017	0.177 lb/ton (2015 Stack Test)	Use emission factors to maintain a monthly and 12-month rolling total

Initial Construction Date: *07/1983*

Process Description:
Inedible animal by-products and spent restaurant greases are processed to produce products such as meat and bone meal, poultry meal, and processed fats, which may be sold as biofuels feedstock or as boiler fuel. The rendering process includes unloading of solid raw materials into a receiving pit, a screw conveyor from the pit to a grinder, a covered screw conveyor from the grinder to a cooker, and a drainer screw conveyor to either a storage hopper or a finishing mill. The product exits the mill onto a vibrating screen to separate out larger particles that need to go back through the mill before attaining the desired size for storage. Fats from the drainer screw are pressed and sent to a centrifuge, where the solids are separated from the liquids. The liquid clarified fats are sent to storage tanks. Water evaporated from the cooker is condensed in a shell and tube condenser and sent to the facility's wastewater treatment system. Non-Condensable vapors are treated in a Venturi/Packed Tower Scrubber/Regenerative Thermal Oxidizer (RTO) Scrubber system before being discharged into the atmosphere. Additional control equipment includes a room air scrubber for odor control. The operating capacity is 28 tons/hour, resulting in a maximum meal yield of 5.7 tons/hour.

Applicable Regulation:
401 KAR 59:010, *New process operations,* applicable to each affected facility (as related to process operations means the last operation preceding the emission of air contaminants which results in the separation of the air contaminant from the process materials) or source, associated with a process operation, which is not subject to another emission standard with respect to particulates in this chapter, commenced on or after July 2, 1975.

State-Origin Requirement:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances (matter which may be harmful to the health and welfare of humans, animals, and plants, including, but no limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials), provided such emissions are not elsewhere

Emission Unit #04 – Rendering Process (EP04 & EP05)

subject to the provisions of the administrative regulations of the Division for Air Quality. Classification date is April 9, 1972.

Comments:
The PM, VOC and SO_2 emission factors were acquired from the stack test performed on July 7-8, 2015 and provided by the facility in the application received on August 5, 2019. The measurement was taken from the stack exit, past the controls, so the emission potentials were calculated without a control efficiency.

There are no specific testing requirements for the renewal of this unit. Darling Ingredients Inc. switched from using a Venturi/Packed Tower Scrubber system to a Venturi/Regenerative Thermal Oxidizer (RTO) system. The previous permit, V-13-010, required that the facility test to determine PM emissions from the new control device system. This test was completed on July 7-8, 2015, and new emission factors were established for V-19-023. The Division received additional information from Jon Elrod, Manager of Environmental Affairs at Darling Ingredients Inc., on April 21, 2020, requesting the control device be updated to include the packed tower scrubber as a pre-treatment before the RTO.

The stacks shall be monitored by a weekly visual observation. If emissions are seen, opacity shall be determined by Reference Method 9 or corrective action. Hours of operation and the amount of rendering material (in tons) shall be monitored on a weekly basis.

Records of the observations, Method 9 readings, hours of operation, amount of rendering material processed (in tons), and scrubber maintenance shall be maintained.

The Venturi/Packed Tower Scrubber/RTO and room air scrubber shall maintain compliance with manufacturer's specifications and standard operating practices.

<table>
<tr><th colspan="5">Emission Unit #06 – Biomass Burner and Dryer (EP07)</th></tr>
<tr><th>Pollutant</th><th>Emission Limit or Standard</th><th>Regulatory Basis for Emission Limit or Standard</th><th>Emission Factor Used and Basis</th><th>Compliance Method</th></tr>
<tr><td rowspan="2">PM</td><td>20% Opacity</td><td>401 KAR 59:010, Section 3(1)(a)</td><td rowspan="2">Product Dryer: 9.7556 lbs/ton (2015 Stack Test)
Sawdust: 4.8 lbs/ton (AP-42 1.6-1)
Packing Materials: 7.5 lbs/ton (AP-42 1.6-1)
Natural Gas: 7.6 lbs/MMscf (AP-42 1.4-2)
Peanut Skins/Hulls: 7.5 lbs/ton (AP-42 1.6-1)</td><td>Weekly visual observations</td></tr>
<tr><td>For processing rate, P ≤ 0.5 tons/hr, then PM ≤ 2.34 lbs/hr
Otherwise, PM ≤ [3.59P$^{0.62}$]</td><td>401 KAR 59:010, Section 3(2)</td><td>Compliance assumed based on most recent stack test.</td></tr>
<tr><td>VOC</td><td>≤ 225 tpy (facility-wide) based on a 12-month rolling total</td><td>401 KAR 51:017</td><td>Product Dryer: 1.92 lbs/ton (PSD)
Sawdust: 0.272 lbs/ton (AP-42 1.6-3)
Packing Materials: 0.425 lbs/ton (AP-42 1.6-3)
Natural Gas: 5.5 lbs/MMscf (AP-42 1.4-2)
Peanut Skins/Hulls: 0.425 lbs/ton (AP-42 1.6-3)</td><td>VOC Emissions (ton/month) = [VOC Emission Factor (lbs/ton)] x [Dough Containing Yeast (tons/month)] / 2000 lbs
VOC Emission Factor (lbs VOC/ton of dough containing yeast) = 0.95 Yi + 0.195 ti + 1.90
Yi = Initial Baker's Percent of Yeast
Ti = Total Yeast Action Time in Hours</td></tr>
</table>

Initial Construction Date: *08/1998*

Process Description:
The biomass burner has a maximum heat input capacity of 22.5 MMBtu/hr, combusting packaging materials as its primary fuel source, with sawdust, peanut shells/hulls, and natural gas as secondary fuels. The Division has agreed that the biomass burner is not considered an incinerator as defined by 401 KAR 59:020, as all of the fuels used are purchased for the purpose of providing heat to the dryer, which has a maximum feed rate of 25 tons/hr.

Applicable Regulation:
401 KAR 59:010, *New process operations,* applicable to each affected facility (as related to process operations means the last operation preceding the emission of air contaminants which results in the separation of the air contaminant from the process materials) or source, associated with a process operation, which is not subject to another emission standard with respect to particulates in this chapter, commenced on or after July 2, 1975.

State-Origin Requirement:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances (matter which may be harmful to

Emission Unit #06 – Biomass Burner and Dryer (EP07)

the health and welfare of humans, animals, and plants, including, but no limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials), provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. Classification date is April 9, 1972.

Comments:
The PM potential emissions of 7.3167 lbs/hr for the product dryer was acquired by a stack test performed on July 7-8, 2015, and used to back-calculate an emission factor using the following equation:

$$EF_{PM,Dryer} = \frac{7.3167\,\frac{lbs}{hr}}{25\,\frac{tons}{hr} * (1 - 0.97)} = 9.7556\,\frac{lbs}{ton}$$

For sawdust, packaging materials and peanut skins/hulls, AP-42 Table 1.6-1 emission factors were used for Dry Wood with a Mechanical Collector. After analyzing historical records of Darling Ingredients Inc., it was found that no documented control efficiency of the cyclone had been cited. Therefore, the previously established control efficiency of 97% was set to zero for the fuels, and the emission factors were converted using the following equation:

$$EF_{PM,Fuel(NotNG)} = \frac{\text{AP-42 1.6-1 EF } \left(\frac{lbs}{MMBtu}\right) * 22.5\,\frac{MMBtu}{hr}}{Hourly\ design\ rate\left(\frac{SCC\ Unit}{hr}\right)}$$

The VOC emission factor for the dryer was calculated by taking the facility total VOC before adding in the product dryer's VOC, subtracting it from 90% of the major stationary source PSD minimum of 250 tpy, and converting it into lbs/ton using the following equation:

$$EF_{VOC,Dryer} = \frac{(0.9 * 250 - 14)\,\frac{tons\ VOC}{yr} * 2000\,\frac{lbs\ VOC}{ton\ VOC}}{8760\,\frac{hrs}{yr} * 25\,\frac{tons\ fed}{hr}} = 1.92\,\frac{lbs\ VOC}{ton\ fed}$$

The stacks shall be monitored and recorded by a weekly visual observation. If emissions are seen, opacity shall be determined by Reference Method 9. The amount of packaging materials fuel (in tons), peanut shells/hulls (in tons), sawdust (in tons), and natural gas (in scf) combusted, the amount of bakery products processed in the dryer, and hours of operation shall be monitored and recorded on a weekly basis.

Emission Unit #07 – Product/Blending Stock mixing, Size Reduction, and Storage (EP08)				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	20% Opacity	401 KAR 59:010, Section 3(1)(a)	**PT:** 0.061 lbs/ton (AP-42 9.9-1) **PM_{10}:** 0.034 lbs/ton (AP-42 9.9-1) **$PM_{2.5}$:** 0.0058 lbs/ton (AP-42 9.9-1)	Weekly visual observations
	For processing rate, $P \leq 0.5$ tons/hr, then PM ≤ 2.34 lbs/hr Otherwise, PM $\leq [3.59P^{0.62}]$	401 KAR 59:010, Section 3(2)		Compliance assumed based on AP-42 Emission Factor.

Initial Construction Date: *08/1998*

Process Description:
Product is screened by size after it exits the rotary dryer. If the particles are too large, they are sent to a hammer mill. A covered screw conveyor moves the finished product to storage. The biomass burner fuel is similarly sized as a part of this emission unit and conveyed pneumatically to the burner. The operating rate is 25 tons/hr.

Applicable Regulation:
401 KAR 59:010, *New process operations,* applicable to each affected facility (as related to process operations means the last operation preceding the emission of air contaminants which results in the separation of the air contaminant from the process materials) or source, associated with a process operation, which is not subject to another emission standard with respect to particulates in this chapter, commenced on or after July 2, 1975.

Comments:
The operating rate permitted in V-13-010 had been 46.2 tons/hr. The applications received on August 5, 2019, and on January 31, 2013 specify a throughput of 25 tons/hr. The Division has revised the maximum operating rate of this unit accordingly.

PM calculations had previously used a control efficiency of 99%; however, the applications received on August 5, 2019, and on January 31, 2013 specified a control of 85%, resulting in a more conservative potential. The control efficiency of the unit was adjusted to better reflect the facility's estimates.

The emission points shall be monitored and recorded by a weekly visual observation. If emissions are seen, opacity shall be determined by Reference Method 9 or by corrective actions that result in no visible emissions. The mixing and storage rate (in tons) and hours of operation shall be monitored and recorded on a monthly basis.

Emission Unit #12 – Bakery Product Box Grinder (EP13)				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	20% Opacity	401 KAR 59:010, Section 3(1)(a)	**PT:** 0.061 lbs/ton (AP-42 9.9-1) **PM_{10}:** 0.034 lbs/ton (AP-42 9.9-1) **$PM_{2.5}$:** 0.0058 lbs/ton (AP-42 9.9-1)	Weekly visual observation
	For processing rate, $P \leq 0.5$ tons/hr, then PM ≤ 2.34 lbs/hr Otherwise, PM $\leq [3.59P^{0.62}]$	401 KAR 59:010, Section 3(2)		Monitor weekly average processing rate to calculate particulate emissions.

Initial Construction Date: 10/*2017*

Process Description:
The product "box" grinder was modified from an asphalt grinder and is powered by EU 11, the mobile diesel-fired engine, to shred and reduce the size of bulk pallet quantities of dry, boxed, finished bakery goods prior to processing through the existing rotary dryer.

Applicable Regulation:
401 KAR 59:010, *New process operations,* applicable to each affected facility (as related to process operations means the last operation preceding the emission of air contaminants which results in the separation of the air contaminant from the process materials) or source, associated with a process operation, which is not subject to another emission standard with respect to particulates in this chapter, commenced on or after July 2, 1975.

Comments:
The emission points shall be monitored and recorded by a weekly visual observation. If emissions are seen, opacity shall be determined by Reference Method 9. The amount of bakery products processed (in tons) and hours of operation shall be monitored and recorded on a monthly basis.

Emission Unit #09 – Diesel-Fired Emergency RICE (EP10)

Initial Construction Date: *2002 – Cold Springs Facility*
Installation Date: *2011*

Process Description:
The 277 hp Cummins Model 6CTA8.3-G2, 8.3L total displacement compression ignition diesel-fired emergency reciprocating internal combustion engine (RICE) is available to power the plant office and corporate laboratory during emergency situations.

Applicable Regulation:
401 KAR 63:002, Section 2(4) (eeee) 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (**Subpart ZZZZ**), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, applicable to an emergency stationary RICE, defined as any stationary reciprocating internal combustion engine that meets all of the criteria listed below, which includes operating according to the provisions specified in 40 CFR 63.6640(f).

1. The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power productions) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

2. The stationary RICE is operated under limited circumstances for situations not included in paragraph 1**.** as specified in 40 CFR 63.6640(f).

3. The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph **1.** only as allowed in 40 CFR 63.6640(f)(2)(ii) or (iii) and 40 CFR 63.6640(f)(4)(i) or (ii).

Comments:
A non-resettable hour meter shall be installed.

The permittee may use an oil analysis program to extend the oil change requirement. Records of the parameters analyzed shall be maintained.

Fuel usage (in gallons) and hours of operation shall be monitored and recorded on a monthly basis.

Emission Unit #11 – Diesel-Fired RICE (EP12)

Initial Construction Date: *07/2017*

Process Description:
The 3.26 MMBtu/hr, 465 HP Caterpillar 3406 series non-certified diesel-fired reciprocating internal combustion engine (RICE) is used to power EU 12, the bakery product "box" grinder.

Precluded Regulations:
401 KAR 60:005, Section 2(2)(dddd) 40 CFR 60.4200 through 60.4219, Tables 1 through 8 (**Subpart IIII**), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines,* not applicable to mobile, nonroad engines, defined as an internal combustion engine that shall by itself or in or on a piece of equipment, be portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer or platform. The RICE is not considered a nonroad engine if the engine remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. For any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced, include the time period of both engines in calculating the consecutive time period.

401 KAR 63:002, Section 2(4)(eeee) 40 CFR 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (**Subpart ZZZZ**), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, not applicable to mobile, nonroad engines.

State-Origin Requirement:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances (matter which may be harmful to the health and welfare of humans, animals, and plants, including, but no limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials), provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality. Classification date is April 9, 1972.

Comments:
The location of the engine shall be monitored and recorded, including the initial date, the date moved, and the engine's function at each location. The amount of fuel (in gallons) shall be monitored and recorded on a monthly basis.

A semi-annual report of the locations shall be submitted to the Division.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements\Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of Compliance Testing
06	Cyclone/ Centrifugal Collector	PM	401 KAR 50:045		Method 5B	25.15 lbs/hr	3.03 lbs/hr	23.10 tons/hr	CMN20 200001	5/26/2020
02	None	PM	401 KAR 50:055	Within 12 months of issuance of V-13-010 (No longer required)	Method 5B	0.36 lbs/MMBtu	0.008 lbs/MMBtu	151 gal/hr	CMN20 150001	7/7/2015
04	Venturi/RTO with Packed Tower Scrubber as back-up & a Room Air Scrubber for Odor Control		401 KAR 50:045	Within 120 days of issuance of V-13-010 if RTO is used instead of Packed Tower Scrubber (No longer required)		$3.59P^{.62}$ = 25.82 lbs/hr	0.023 lbs/hr	24.1 tons/hr		
06	Cyclone/ Centrifugal Collector		401 KAR 50:045	Within 12 months of issuance of V-13-010 and every 5 years.		$3.59P^{.62}$=25. 35 lbs/hr	7.32 lbs/hr	23.4 tons/hr		
03	Multicyclone Mechanical Collector	CO	40 CFR 63, Subpart JJJJJJ	Initial test to establish minimum O_2 level	Method 10	420 ppm by volume on a dry basis corrected to 3 percent O_2	81.8432 ppm @3% O_2	32,463 lb steam/hr	CMN20 140001	9/11/2014

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of Compliance Testing
03	Multicyclone Mechanical Collector	Hg	40 CFR 63, Subpart JJJJJJ	Initial compliance	Methods D6722, D5865, & D3173	2.2E-05 lb/MMBtu	2.223E-06 lb/MMBtu	N/A	CMN20140001	9/10/2014
		PM	401 KAR 59:015	Part of a Corrective Action Plan	Method 5B	0.320 lb/MMBtu	0.1690 lb/MMBtu	32,928 lb steam/hr	CMN20130002	8/14/2013
03	Multicyclone Mechanical Collector	Non-Sulfuric and Filterable PM	401 KAR 59:015	Corrective Action Plan to retest within 90 days of issuance of NOV (ENV20120001)	Method 5B	0.320 lb/MMBtu	0.9055 lb/MMBtu	29,829.22 lb steam/hr	CMN20120001	6/19/2012
02	None	PM	401 KAR 59:015	Within 18 months of the issuance of V-08-002	Methods 1-5	0.36 lb/MMBtu	0.04 lb/MMBtu	20 MMBtu/hr	CMN20090001	10/5-8/2009
03	Multicyclone Mechanical Collector	PM	401 KAR 59:015	Within 18 months of the issuance of V-08-002 and within 66 months of the previous performance test	Methods 1-5	0.32 lb/MMBtu	0.36 lb/MMBtu	36 MMBtu/hr		
		SO_2			Method 6	1.71 lb/MMBtu	1.218 lb/MMBtu	36 MMBtu/hr		

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of Compliance Testing
04	Venturi/ Packed Tower Scrubber & a Room Air Scrubber	PM	401 KAR 59:010	Within 18 months of the issuance of V-08-002 to establish EFs	Methods 1-5	29.57 lb/hr	0.079 lb/hr	24.143 tons/hr	CMN20 090001	10/5-8/2009
06	Cyclone/Centrifugal Collector	PM	401 KAR 59:010	Within 18 months of the issuance of V-08-002 to establish EFs	Methods 1-5	25.16 lb/hr	11.5 lb/hr	23.12 tons/hr		
04 (Later IDed as EU 03)	Multicyclone Mechanical Collector	PM	401 KAR 59:015	Compliance Re-Test	Methods 1-5	0.3160 lb/MMBtu	0.3033 lb/MMBtu	37,420 lb steam/hr	CMN20 050001	1/26/2005
				Corrective Action Plan			0.3076 lb/MMBtu for 2 runs; 0.3505 for 3 runs*	32,094 lb steam/hr	CMN20 040002	7/13-14/2004
				Within 180 days of the issuance of V-02-033			0.560 lb/MMBtu	Unknown	CMN20 040001	2/25-26/2004

Footnotes:
*Boiler operation was unexpectedly interrupted into the 1st run due to a boiler feed-water pump failure.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
225 tpy VOC based on a 12-month rolling total	To preclude the applicability of 401 KAR 51:017, *Prevention of Significant Deterioration*	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:015, *New indirect heat exchangers*	EU-02, EU-10, & EU-13
KAR 59:010, *New process operations*	EU-04, EU-06, EU-07 & EU-12
401 KAR 63:020, *Potentially hazardous matter or toxic substances*,	EU-02, EU-04, EU-06, EU-10, EU-11 & EU-13
401 KAR 60:005 Section 2(2)(d) 40 C.F.R. 60.40c through 60.48c (**Subpart Dc**) *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.*	EU-10
401 KAR 63:002 Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (**Subpart ZZZZ**) *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.*	EU-09

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 60:005, Section 2(2)(dddd) 40 CFR 60.4200 through 60.4219, Tables 1 through 8 (**Subpart IIII**), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*	EU-11
401 KAR 63:002, Section 2(4)(jjjjj), 40 CFR 63.11193 through 63.11237, Tables 1 through 8 (**Subpart JJJJJJ**), *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers Area Sources, as published July 1, 2016*	EU-02 & EU-13
401 KAR 63:002, Section 2(4)(eeee) 40 CFR 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (**Subpart ZZZZ**), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*	EU-11

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)

Table D - Summary of Non Applicable Regulations:

Non- Applicable Regulations	Emission Unit
401 KAR 60:005, Section 2(2)(d), 40 CFR 60.40c through 60.48c (**Subpart Dc**), *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, as published July 1, 2016*	EU-02 & EU-13

Air Toxic Analysis
N/A

Single Source Determination
N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity #	Complete Date	Issuance Date	Summary of Action	PSD/ Syn Minor
V-02-033	Initial	APE20020001	7/10/2002	6/30/2003	Initial Construction Permit	N/A
V-02-033 R1	Significant Revision	APE20060001	2/7/2007	6/30/2007	Added recycled cooking oil as fuel, removed EU 05, set emissions cap on HCl, ,changed VOC emission cap to 225 tpy	N/A
V-08-002	Renewal	APE20070001	1/4/2008	7/28/2008	Renewal	N/A
V-08-002 R1	Minor Revision	APE20110001	2/27/2011	7/8/2011	Add emergency generator	N/A
V-13-010	Renewal	APE20130001	5/23/2014	3/13/2015	Renewal	N/A
V-13-010 R1	Minor Revision	APE20150001	4/30/2015	11/16/2015	Added EU 10; Removed Coal-Fired Boiler	N/A
V-13-010 R2	Admin Amend	APE20160002	1/29/2016	2/25/2016	Name Change from Griffin Industries LLC to Darling Ingredients Inc.	N/A
V-19-023	Renewal	APE20190002	8/28/2019	11/8/2020	Permit Renewal	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

N/A

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS – Ambient Air Quality Standards
BACT – Best Available Control Technology
Btu – British thermal unit
CAM – Compliance Assurance Monitoring
CO – Carbon Monoxide
Division – Kentucky Division for Air Quality
ESP – Electrostatic Precipitator
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
HF – Hydrogen Fluoride (Gaseous)
MSDS – Material Safety Data Sheets
mmHg – Millimeter of mercury column height
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NO_x – Nitrogen Oxides
NSR – New Source Review
PM – Particulate Matter
PM_{10} – Particulate Matter equal to or smaller than 10 micrometers
$PM_{2.5}$ – Particulate Matter equal to or smaller than 2.5 micrometers
PSD – Prevention of Significant Deterioration
PTE – Potential to Emit
SO_2 – Sulfur Dioxide
TF – Total Fluoride (Particulate & Gaseous)
VOC – Volatile Organic Compounds

APPENDIX B – INDIRECT HEAT EXCHANGER HISTORY TO DETERMINE 401 KAR 59:015 EMISSION LIMITATIONS

EU	Fuel(s)	Capacity (MMBtu/hr)	Construction Date	Date Removed	Total Heat Input Capacity for PM (MMBtu/hr)	PM Limit (lb / MMBtu)	Total Heat Input Capacity for SO_2: Gaseous Fuels (MMBtu/hr)	SO_2 Limit Gaseous Fuels (lb / MMBtu)	Total Heat Input Capacity for SO_2: Liquid Fuels (MMBtu/hr)	SO_2 Limit: Liquid Fuels (lb / MMBtu)
01	NG, Processed Fats, Biodiesel, & LSD	33.5	1973	2017	N/A					
02	NG, Processed Fats, Biodiesel, & LSD	33.5	1973	N/A	67	0.36	67	1.37	67	1.37
03	Multiple	45.8	1983	2015	N/A					
10	NG and Processed Fats, Biodiesel, & LSD	63	2015	N/A	134.948	0.30	130	1.05	134.948	1.03
13	NG, Processed Fats	29.3	1976 (Installed in 2017)	N/A	130.748	0.31	125.8	1.06	130.748	1.04
14	Biodiesel & LSD	3.348	1984	N/A	116.148	0.31	N/A		116.148	1.10
15	Biodiesel & LSD	1.6	2002	N/A	117.748	0.31	N/A		117.748	1.09