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DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

A690263672

FACILITY: DARLING INGREDIENTS INC		SRN / ID: A6902
LOCATION: 3350 GREENFIELD RD, MELVINDALE		DISTRICT: Detroit
CITY: MELVINDALE		COUNTY: WAYNE
CONTACT: Nate Muchow , General Manager		ACTIVITY DATE: 06/30/2022
STAFF: Terseer Hemben	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: PM and Odor Emissions control		
RESOLVED COMPLAINTS:		

COMPLIANCE INSPECTION OF DARLING INGREDIENTS INC.

Inspector: Terseer Hemben (AQD)

Personnel Present: Mr. Nate Muchow (General Manager/Plant Manager),

Company: Darling Ingredients (DII)

3350 Greenfield, Melvindale, MI 48122

SRN: A6902

Date of Inspection: June 30, 2022

Facility Phone Number: 313-928-7400

BACKGROUND

The Darling Ingredients, Inc. (DII) is located at 3350 Greenfield, Melvindale, Michigan. The facility was formerly operated as Darling International Inc. The corporate name was changed in 2014 to Darling Ingredients. The facility is currently operated under Permits to Install #397-98A and #132-03.

The DII facility operates an edible oil recycling and animal by-products rendering in Melvindale. The source was permitted for control of odor and nuisance fallouts under Rule 901. DII odor emissions are controlled by three packed tower scrubbers rated at 100k cfm, 60k cfm and 15k cfm, and the chlorine dioxide systems. The animal by-products processing equipment emits rancid odors into the in-plant environment. Odor causing gases are treated using scrubbers. The scrubbers installed at the facility are required to be running all the time, except for the 60k cfm scrubber that needs to be shut down to prevent a freeze up when there is no stream passing through.

DII does not render animal products at the site anymore. The facility receives waste cooking oil from restaurants and cooking establishments from various sources for processing. Materials are brought in by trucks. Typically, raw materials are dumped into receiving hopper where unwanted impurities are removed. The hopper content is passed over drainage whereby solids are removed, and liquid is pumped to storage. Filtered raw grease is pumped to evaporation where moisture is removed by cooking. The cooked grease, referred to as yellow grease, is sent to centrifuge for particles cleaning. The yellow grease is pumped to storage for shipment.

Monitoring of the Darling animal grease and Tallow recycling process is achieved through use of continuous monitoring, process control, and control equipment. Permit #397-98A requires chlorine dioxide residual to be continuously monitored and recorded. Oxidation reduction potential and PH are separately monitored for each of the scrubbers. Flow rates of the scrubbers are maintained but not recorded; however, process weight rates, temperature of each of the scrubber solution and oxidizer temperature, and pressure drops across scrubbers are monitored and recorded.

The use of 60k cfm scrubber has been reduced since the associated emission unit, the Cooker, which served the rendering process was decommissioned when rendering process was ceased.

DII operates two Cleaver Brooks boilers. The boilers were tested in 2005 to verify respective NO_x emission rates while firing with alternate fuels, tallow, and yellow grease. Boiler #1 has a heat rate input of 51.1 MMBtu/hr and Boiler #2 has a heat input rating of 49.1 MMBtu/hr. The boilers are designed to run as a continuous process during normal operations and may operate for extended periods without interruption. Typically, the boilers are designed to operate without add-on control devices for emissions reduction. Exhaust gases from the boilers are released directly to the atmosphere through a thirty-seven inch-diameter vertical exhaust stack.

The Cleaver Brooks boilers are operated under the Permit to Install # 132-03A, and regulated under Boiler MACT, NESHAP JJJJJJ for Area Sources: Industrial, Commercial, and Institutional Boilers (40 CFR part 63, Subpart JJJJJJ) The initial Notification report for the boilers was submitted to AQD on June 25, 2012. The Boiler #1 was subject to tune-up using natural gas as fuel burned during tune-up and requires biannual tune-up. The tune-up on Boiler #2 was not performed. A targeted date for notification was March 21, 2014. Both boilers require a one-time energy assessment.

DII is a synthetic minor – opt out source. The facility submits MAERS report. The AQD rules applied to regulate the facility include R 336.1201, R 336.1301, R 336.1901, and R 336.1910.

INSPECTION NARRATIVE

I arrived at the DII facility on June 30, 2022, at 1100 hours. The purpose of visit was to conduct an annual compliance inspection of the animal grease processing operation. Temperature at the hour was 82 F with wind speed 8 mph coming from the SSW. Humidity was 54%. I was admitted into the facility by Mr. Nate Muchow for a pre-inspection interview. We went over itemized agenda I presented for the inspection. We discussed the records that EGLE-AQD needed to see and requested copies of same from DII. The Company indicated most of the requested records were electronically filed. I gave time extension for the company to provide the operation records.

Nate Muchow offered to conduct me around the plant for inspection of emission units and control device gauges. The plant was not operating, hence there was no need inspecting the control dashboards. We held inspection interview in the office. The records requested by AQD were submitted as requested. I left the area at 1300 hours.

COMPLAINT/COMPLIANCE HISTORY:

Darling Ingredients Inc. has not been a concern of citizen complaint since 2016.

OUTSTANDING LOV'S:

None

PROCESS DESCRIPTION:

The DII operates the following animal grease recycling process at the Greenfield, Melvindale location. The facility's products include Tallow and yellow grease. The facility operates a chemical laboratory for conducting quality control analysis. There are three scrubbers and two boilers operated under federally and State Implementation Plan regulatory rules.

EQUIPMENT AND PROCESS CONTROLS:

The DII provided updated process control equipment in the Scrubber system in continuous monitoring as described in the background discussion. The Company's equipment and process control information is on AQD file.

OPERATING SCHEDULE/PRODUCTION RATE:

The DII was designed to operate full three shifts covering 24 hours, through 7 days per week, and 365 days of the year. However, the company operates one long day shift due to business demand.

APPLICABLE RULES/PERMIT TO INSTALL CONDITIONS:

The DII operations were evaluated consistent with each permit conditions.

Per PTI #397-98A

The 2021 MAERS submitted indicated no additions or removals to units were made. The manager verbally confirmed there were no changes made to the units.

Special Condition 1.1: In compliance - DII demonstrated the emissions from FGFACILITY did not exceed (50) odor units per standard cubic foot as determined utilizing methods acceptable to the District Supervisor. DII previously submitted records showing that odor testing was conducted by Derenzo and Associates, Inc in 2004. Records on AQD file indicate testing established the odor level from the 15,000-cfm scrubber was nineteen odor units, and odor level from the 100,000-cfm scrubber was six odor units.

Special Condition 1.2: Not Applicable - DII discontinued rendering processes and removed EUCOOKER from the facility. The SC. 1.2 is not applicable.

Special Condition 1.3: In compliance – DII demonstrated the permittee did not accept any material that could not be processed within 24 hours. All accepted materials were processed in a process unit with odor control equipment. A log (weight sheets) was kept indicating the time of deliveries and was made available for inspection upon request by District Supervisor. The permittee followed the table below for unloading the material based on Ambient Air Temperature.

<u>Material</u>	<u>Unloading Time in Hours</u>		
	<u>*AAT > 80o F</u>	<u>50o F< AAT< 80o F</u>	<u>AAT < 50oF</u>
Incoming offal rendering vehicles	8	12	24
Incoming fat/bone rendering vehicles and restaurant grease	12	16	24

vehicles.

* AAT = Ambient Air Temperature.

Special Condition 1.4: DII presented the facility operated in compliance. Darling utilizes meters to measure the recycle flow rates of each of these scrubbers. As discussed during the last inspection in 2016, the facility's permit has no monitoring or recordkeeping requirements for this condition. The facility was down at the time of this inspection.

Special Condition 1.5: In compliance –Records submitted under monthly Scrubber logs data. DII demonstrated the permittee maintained a pH level in the range of 3-10 in the recirculation scrubber solution for each of the three packed tower scrubbers.

Special Condition 1.6: In compliance – DII demonstrated the temperature of the recirculating scrubber solution in each of the three packed tower scrubbers did not exceed 110° F unless the permittee demonstrated to the satisfaction of the District Supervisor, that other levels insured acceptable odor control. Records are submitted under Monthly Scrubber logs.

Special Condition 1.7: Not applicable –DII removed the emission unit since 2014.

Special Condition 1.8: In compliance - DII stated no vehicles containing material to be processed was parked off site of the location unless all residual solid and liquid material had previously been removed by cleaning. Visual inspection confirmed there were no vehicles parked off site.

Special Condition 1.9: In compliance – DII demonstrated all offal vehicles were tarped while in transit. Response received from DII stated all offal vehicles were tarped while in transit. Staff did not see any offal vehicle on the facility during the inspection.

Special Condition 1.10: In compliance. Response from DII stated the facility was cleaned and maintained, as needed to minimize odors. The plant was shut down during the unannounced inspection visit and confirmed the facility's state of maintenance and cleanliness.

Special Condition 1.11: In compliance. Response from DII stated delivery vehicles and containers were cleaned in an area and manner which prevented any residue from collecting in a stagnant condition capable of decomposition and generation of odorous emissions.

Special Condition 1.12: In compliance. DII stated no process malfunction occurred.

Special Condition 1.13: In compliance. DII submitted records under the Monthly Scrubber logs.

Special Condition 1.14: In compliance. DII discontinued the process since 2014.

Special Condition 1.15: In compliance – The last complaint was received in 2015.

Special Condition 1.16. In compliance - Records received from DII stated the facility operated the air-cooled condenser, chlorine dioxide system, and two packed tower scrubbers when FGFACILITY was operating. The 60,000 cfm is allowed to not operate when FGRENDERING is not operating.

Special Condition 1.17: Not applicable. The emission unit had been removed from the facility since 2014.

Special Condition 1.18: In compliance. DII removed FGRENDERING. However, the facility operated the 100,000-cfm scrubber to control odors from FGOILS and operated the 15,000-cfm scrubber to control odors from the loading/unloading process.

Special Condition 1.19: Not applicable: DII removed the emission flexible group from the facility since 2014.

Special Condition 1.20: In compliance. DII stated all building openings, other than access doors and make up air supply louvers, were sealed to prevent exfiltration of odorous emissions.

Special Condition 1.21: In compliance - DII stated all man doors, except maintenance doors, were equipped with automatic closure devices and maintained in good repair.

Special Condition 1.22: In compliance. Response from DII stated all bay doors were kept closed except during loading and unloading.

Special Condition 1.23: In compliance - DII stated permittee maintained FGFACILITY in compliance with all sections of the MAP and work practices. The permittee maintained the required devices and operating parameters and implemented the MAP for each odor control equipment and chlorine dioxide oxidation system equipment. No significant modification to

operation of the odor control equipment or chlorine dioxide oxidation system occurred during the timeframe.

Special Condition 1.24: In compliance. Response from DII stated permittee contracted Derenzo and Associates, Inc. to conduct odor testing on the scrubber exhaust emission control systems (15,000 cfm scrubber and 100,000 cfm scrubber) at the facility in August 2004. The results showed both scrubbers emitted odor at less than 50 odor units per standard cubic foot. The same odor results were submitted to the MDEQ on September 1, 2004.

Special Condition 1.25: In compliance. Response from DII showed data listing how continuous monitoring of the parameters was accordingly recorded as attached in Monthly Scrubber logs.

Special Condition 1.26: Not applicable. DII removed the equipment from the facility since 2014.

Special Condition 1.27: Not applicable. The equipment has been idling since 2014 when DII discontinued the use of EU-COOKER.

Special Condition 1.28: In compliance. The records showing compliance with this condition are under Monthly Scrubber logs.

Special Condition 1.29: Not applicable. DII removed this equipment from the facility since 2014.

Special Condition 1.30: In compliance – DII did not change stack dimensions in FGFACILITY, FGOILS and FGRENDERING complied with the permitted designs: The exhaust gases were discharged unobstructed vertically upwards to the ambient air:

Stack ID	Max. ID (inches)	Minimum Height (feet)	Applicable Requirement
SV100KSCRUBBER	80	75	R336.1901[SC. 1.30a]
SV60KSCRUBBER	60	67	R336.1901[SC. 1.30b]
SV15KSCRUBBER	60	63	R336.1901[SC. 1.30c]
SVOXIDIZER	32	62	R336.1901[SC. 1.30d]

Per PTI# 132-03A: Emission Unit ID Emission Unit Description Stack Identification

EU-Boiler1: 51.1 MMBtu/hr. Cleaver-Brooks Boiler, Associated stack-SV-Boiler1

EU-Boiler2: 49.1 MMBtu/hr. Cleaver-Brooks Boiler, Associated stack- SV-Boiler2

EU-TO: 18 MMBtu/hr.

Thermal oxidizer with heat recovery boiler for controlling odors from facility, associated stack - N/A

DII stated no changes were made to stack dimensions since installation was completed even after the FGRENDRING units were removed.

Special Condition 1.1: In compliance - DII demonstrated the maximum NO_x emissions from FG-Boilers did not exceed 89.4 tons per year. based on 12-month rolling time, as determined at the end of each calendar month. Note: Permittee shall calculate NO_x emissions from FG-Boilers based on the worst-case emission factors from GC 13 or the emission factors below: Natural Gas Emission Factors NO_x = 0.100 lb./MMBtu Fuel Oil Emission Factors NO_x = 0.140 lb./MMBtu Yellow Grease Emission Factors NO_x = 0.137 lb./MMBtu Tallow Emission Factors NO_x = 0.135 lb./MMBtu. Emission data for 2021 and 2022 submitted by DII showed emission compliance with the limits specified.

Special Condition 1.2: In compliance. Records submitted by DII showed fuel usage logs in reference to natural gas, No. 2 fuel oil, Yellow Grease and Tallow indicating the facility did not deviate for use of permitted fuels as provided in the spreadsheet.

Special Condition 1.3: In compliance. No fuel oil was used in 2021 or to date in 2022.

Special Condition 1.4: In compliance. DII showed records were kept in a satisfactory manner of monthly and previous 12-month rolling time or consecutive 12-month usage of natural gas, in cubic feet, fuel oil usage in gallon, yellow grease usage in gallons, and tallow usage, in gallons for the FGBOILERS in 2021 and 2022.

Special Condition 1.5: In compliance. DII confirmed permittee calculated NO_x emission rate from FG-BOILERS in tons per month and tons per 12-month rolling time on a monthly basis as presented in the spreadsheet.

Special Condition 1.6: In compliance. DII showed permittee kept, in a satisfactory manner, monthly and a previous 12-month NO_x emission record, as required by SC 1.1, for FG-Boilers [Spreadsheet].

Special Condition 1.7: Not applicable. DII showed no fuel oil was supplied to the facility.

Special Condition 1.38 In compliance -DII demonstrated the exhaust gases from FGBOILERS were discharged unobstructed vertically upwards to the ambient air through the following

stacks: [SC. 1.38]: DII stated there were no changes or modifications made to the two Boilers' stack dimensions since installation was completed-

Stack & Vent ID Max. DI (inches) Minimum Height (feet) Applicable Requirement

SV-Boiler1	36	50	R336.1901[SC. 1.8a]
SV-Boiler2	36	50	R336.1901 [SC. 1.8b]

Discussion: Regulatory Summary

40 CFR 63, Subpart JJJJJJ - and applies to the 2 Cleaver Brooks boilers located at the facility. The boilers are subject to initial notification report requirements under the NESHAP for Area Sources and tune-up work practice standards. Due reports and testing were fulfilled.

Rule 201: The DII operates the processes under two permits: The PTI #397-98A that cover the animal material recycling, and the PTI # 132-03A that cover the 2 Cleaver Brooks boilers installed at the facility. DII complied with the rule.

Rule 301: The facility reduced PM and associated odor emission issues following the removal of emission units and FGRENDERING equipment. The facility complied.

Rule 901: The facility removed or ceased to operate most of the units that posed to emit odors and nuisance to the environment. Current process operates scrubbers and chlorine dioxide for odor controls. No odor complaint was received at the facility since 2015.

Rule 912: The facility is required to furnish a malfunction abatement plan (MAP) for odor and associated nuisances that are likely to be emitted from the process. A MAP was developed and submitted to the DEQ-AQD. The document is on file. The facility complied with the rule.

Rule 910: DII observed the conditions set in the permits for installing and operating control devices in a satisfactory manner. Maintenance and operational records were kept in the manner stipulated. The conditions showed continuous emissions monitoring.

POLLUTANT EMISSIONS PER MAERS 2021 REPORT (TPY):

MAERS REPORT REVIEW:

The DII facility's 2021 MAERS was reviewed. The report indicated the overall emissions decreased from the previous year inventory. DII follows MAERS reporting requirements.

CONCLUSION

The inspection of Darling Ingredients Inc. facility was conducted. The facility was determined to have operated in compliance with permit recordkeeping requirements. In summary, the inspection determined the DII operated in compliance with the permit Nos. PTI-397-98A and PTI-132-03A conditions.

NAME jh

DATE 6/30/2022 SUPERVISOR JK