

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
AIR QUALITY DIVISION**

May 28, 2020

PERMIT TO INSTALL
208-95C

ISSUED TO
Darling Ingredients, Inc.

LOCATED AT
5900 Old Allegan Road
Hamilton, Michigan 49419

IN THE COUNTY OF
Allegan

STATE REGISTRATION NUMBER
N0547

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: April 24, 2020	
DATE PERMIT TO INSTALL APPROVED: May 28, 2020	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO ₂ e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H ₂ S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO _x	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

EMISSION UNIT SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EURENDERING	Animal by-products (red meat and poultry feathers) rendering process consisting of two (2) animal by-product cookers and four (4) small batch feather dryers. Emissions and odors from the process are controlled by a venturi scrubber, a packed tower scrubber, and two room air scrubbers. Odors from the process are controlled using the following odor control chemistries: elevated pH control chemistry, ionic exchange chemistry, and oxidation chemistry.	1993/ TBD	NA

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

EURENDERING EMISSION UNIT CONDITIONS

DESCRIPTION

Animal by-products (red meat and poultry feathers) rendering process consisting of two (2) animal by-product cookers and four (4) small batch feather dryers. Emissions and odors from the process are controlled by a venturi scrubber, a packed tower scrubber, and two room air scrubbers. Odors from the process are controlled using the following odor control chemistries: elevated pH control chemistry, ionic exchange chemistry, and oxidation chemistry.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

One venturi scrubber (20,000 CFM), one packed tower scrubber (20,000 CFM), and two room air scrubbers (100,000 CFM in the red meat room and 40,000 CFM in the feather room).

I. EMISSION LIMIT(S)

1. There shall be no visible emissions from EURENDERING. **(R 336.1301(1))**

II. MATERIAL LIMIT(S)

1. The permittee shall not process more than 12,276,000 pounds per month of raw poultry feathers. **(R 336.1224, R 336.1225, R 336.1331, R 336.1901, 40 CFR 52.21(c) and (d))**
2. The permittee shall only use the following odor control chemistries in the packed tower and in the room air scrubbers:
 - a) Oxidation Control Chemistry.
 - b) Elevated pH Control Chemistry.
 - c) Ionic Exchange Control Chemistry.

(R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d))

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall not operate EURENDERING unless the nuisance minimization plan for odors for rendering operations has been implemented and is maintained. Amendments to the nuisance minimization plan shall be submitted to the AQD District Supervisor for review and approval. ¹ **(R 336.1901)**
2. The permittee shall load and bring feather cookers in EURENDERING online one at a time when operating more than one cooker. **(R 336.1224, R 336.1225, R 336.1331, R 336.1901, 40 CFR 52.21(c) and (d))**
3. The permittee shall relieve pressure from, and open the dome lid of, the feather cookers in EURENDERING, sequentially, one at a time. **(R 336.1224, R 336.1225, R 336.1331, R 336.1901, 40 CFR 52.21(c) and (d))**
4. The permittee shall maintain a negative pressure differential between the indoor and the outdoor atmosphere in the raw material loading area and process areas whenever the outside ambient temperature exceeds 50°F. **(R 336.1224, R 336.1225, R 336.1901)**
5. The permittee shall not store any raw material (except raw feathers) anywhere other than in the raw material receiving bay whenever the outdoor ambient temperature is above 40°F. **(R 336.1224, R 336.1225, R 336.1901)**

6. The permittee shall monitor the outdoor ambient temperature when the predicted daily high temperature for the day (taken from the previous day) is above 40°F. **(R 336.1224, R 336.1225, R 336.1901)**
7. The permittee shall direct emissions from the packed tower scrubber to the red meat plant room air scrubber whenever the outdoor ambient temperature is above 50°F or upon notification by the AQD District Supervisor. **(R 336.1224, R 336.1225, R 336.1901)**
8. The permittee shall direct the red meat and feather plant ventilation to the red meat plant and feather plant room air scrubbers, respectively, whenever the outdoor ambient temperature is above 50°F or upon notification by the AQD District Supervisor. **(R 336.1224, R 336.1225, R 336.1901)**
8. The permittee shall not operate EURENDERING unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the venturi scrubber, packed tower scrubber, and the room air scrubbers, which includes operating parameters for all of the permitted scrubber chemistries and the locations where operating parameters will be monitored for each odor control chemistry employed, has been submitted within 45 days of permit issuance, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1224, R 336.1225, R 336.1331, R 336.1901, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EURENDERING unless the venturi scrubber and the packed tower scrubber are installed, maintained, and operated in a satisfactory manner. Satisfactory operation shall include maintaining the pressure drop across the scrubber and maintaining the scrubber, as specified in the MAP. **(R 336.1224, R 336.1225, R 336.1901, R 336.1910, 40 CFR 52.21(c) and (d))**
2. The permittee shall operate and maintain the room air scrubbers in a satisfactory manner. Satisfactory operation shall include maintaining the pressure drop across the scrubber and maintaining the scrubber, as specified in the MAP. **(R 336.1224, R 336.1225, R 336.1901, R 336.1910, 40 CFR 52.21(c) and (d))**
3. The permittee shall equip and maintain each scrubber with a differential pressure monitoring device. **(R 336.1224, R 336.1225, R 336.1901, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall verify within 270 days after commencing trial operation of any permitted odor control chemistry other than chlorine dioxide in EURENDERING, and on an annual basis thereafter, the direction of air flow at each natural draft opening (NDO) between the indoor and the outdoor atmosphere in the raw material loading area and process areas. An NDO is defined as any opening that is not connected to a duct in which a fan or blower is installed. The verification of the direction of air flow at the NDOs shall be conducted

using the smoke tube test method, or an alternate method, approved the AQD District Supervisor. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 30 days following the last date of the test. All test methods, plans, and procedures shall be approved by the AQD prior to testing. **(R 336.1224, R 336.1225, R 336.1901)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
2. The permittee shall keep, in a satisfactory manner, records of pounds of poultry feathers processed per calendar month. The permittee shall keep all records, in a format acceptable to the AQD District Supervisor, on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1901)**
3. The permittee shall keep, in a satisfactory manner, the following records for the recycled scrubber solution on a daily basis in a manner and with instrumentation acceptable to the AQD District Supervisor. Additionally, the applicant shall monitor and record the temperature of the venturi water on a daily basis. The permittee shall keep all records, in a format acceptable to the AQD District Supervisor, on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1901, R 336.1910)**

	Parameter	Odor Control Chemistry
a)	Oxidation Reduction Potential	Chlorine Dioxide
b)	pH	Radox™
c)	pH	Ionic Exchange Control
d)	pH	Elevated pH Control

4. The permittee shall keep, in a satisfactory manner using Appendix A or an alternate format approved by the AQD District Supervisor, the following information for EURENDERING during operation:
 - a) The predicted daily high outdoor ambient temperature on a daily basis.
 - b) The ambient temperature on an hourly basis when the predicted outdoor ambient temperature (taken from the previous day) exceeds 40°F.
 - c) Daily records indicating the date and time when the room air scrubbers were turned on or off.

The permittee shall obtain all outdoor ambient temperature data from a local weather station approved by the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1901)**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of any permitted odor control chemistry other than chlorine dioxide in EURENDERING. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVPACKEDTOWER	42	50	R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d)
2. SVROOMAIRREDMEAT	70	54	R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d)
3. SVROOMAIRFEATHER	45	48	R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹ This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDIX A
Outside Ambient Temperature Recording Sheet

Date:
Weather Station:
Location:

Expected High Taken from Day Prior						
Temperature Recording (°C/°F)						
Time (AM/PM)						
Feather Room Air Scrubber On?						
Red Meat Room Air Scrubber On?						

Temperature Recording (°C/°F)						
Time (AM/PM)						
Feather Room Air Scrubber On?						
Red Meat Room Air Scrubber On?						

Temperature Recording (°C/°F)						
Time (AM/PM)						
Feather Room Air Scrubber On?						
Red Meat Room Air Scrubber On?						

Temperature Recording (°C/°F)						
Time (AM/PM)						
Feather Room Air Scrubber On?						
Red Meat Room Air Scrubber On?						