Iowa Department of Natural Resources
Draft Title V Operating Permit Fact Sheet

This document has been prepared to fulfill the public participation requirements of 40 CFR Part 70 and 567 Iowa Administrative Code (IAC) 24.107(6). 40 CFR Part 70 contains operating permit regulations pursuant to Title V of the Clean Air Act.

The Iowa Department of Natural Resources (DNR) finds that:

1. Red Star Yeast Company, LLC, located at 950 60th Avenue SW, Cedar Rapids, IA 52404 and Lesaffre Blending Facility located at 1030 60th Avenue SW, Cedar Rapids, IA 52404 have applied to renew their Title V Operating Permit. The designated responsible official of the facilities is Mathieu Cagnard.
2. Red Star Yeast Company, LLC and Lesaffre Blending Facility is a yeast manufacturing facility. This facilities consists of 41 emission units with potential emissions of:

Pollutant	**Abbreviation**	**Potential Emissions** (Tons per Year)
Particulate Matter (≤ 2.5 μm)	$PM_{2.5}$	15.38
Particulate Matter (≤ 10 μm)	PM_{10}	15.38
Particulate Matter	PM	20.65
Sulfur Dioxide	SO_2	0.00
Nitrogen Oxides	NO_x	5.26
Volatile Organic Compounds	VOC	297.43
Carbon Monoxide	CO	24.18
Lead	Lead	0.00
Hazardous Air Pollutants [(1)]	HAP	55.27

[(1)] May include the following: acetaldehyde and insignificant HAP from natural gas combustion.

3. Red Star Yeast Company, LLC submitted a Title V Operating Permit renewal application on March 13, 2024 and any additional information describing the facility on April 21, 2025. Based on the information provided in these documents, DNR has made an initial determination that the facility meets all the applicable criteria for the issuance of an operating permit specified in 567 IAC 24.107.
4. DNR has complied with the procedures set forth in 567 IAC 24.107, including those regarding public notice, opportunity for public hearing, and notification of EPA and surrounding state and local air pollution programs.

DNR procedures for reaching a final decision on the draft permit:

1. The public comment period for the draft permit will run from August 28, 2025 through September 26, 2025. During the public comment period, anyone may submit written comments on the permit. Mail signed comments to Anthony Daugherty at the Linn County Public Health address shown below. The beginning date of this public comment period also serves as the beginning of the U.S. Environmental Protection Agency's (EPA) 45-day review period, provided the EPA does not seek a separate review period.
2. Written requests for a public hearing concerning the permit may also be submitted during the comment period. Any hearing request must state the person's interest in the subject matter, and the nature of the issues proposed to be raised at the hearing. DNR will hold a public hearing upon finding, on the basis of requests, a significant degree of relevant public interest in a draft permit. Mail hearing requests to Anthony Daugherty at the Linn County Public Health address shown below.
3. DNR will keep a record of the issues raised during the public participation process and will prepare written responses to all comments received. The comments and responses will be compiled into a responsiveness summary document. After the close of the public comment period, DNR will make a final decision on the renewal application. The responsiveness summary and the final permit will be available to the public upon request.

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   Air Quality Division
   1020 6th Street SE
   Cedar Rapids, Iowa 52401
   Phone: (319) 892-6013
   E-mail: Anthony.Daugherty@linncountyiowa.gov

DNR concludes that:

1. DNR has authority under 455B.133 Code of Iowa to promulgate rules contained in 567 IAC Chapters 21-33, including, but not limited to, rules containing emission limits, providing for compliance schedules, compliance determination methods and issuance of permits.
2. DNR has the authority to issue operating permits for air contaminant sources and to include conditions in such permits under 455B.134 Code of Iowa.
3. The emission limits included in this permit are authorized by 455B.133 Code of Iowa and 567 IAC Chapters 21-33.
4. DNR is required to comply with 567 IAC Chapter 24 in conjunction with issuing a Title V Operating Permit.
5. The issuance of this permit does not preclude the DNR from pursuing enforcement action for any violation.

Permit Reviewer Notes
For the issuance of Red Star Yeast Company, LLC Renewal 3 Title V Operating Permit

Permitting Authority

Iowa Department of Natural Resources
Air Quality Bureau
6200 Park Ave, Suite 200
Des Moines, IA 50321

Applicant

Red Star Yeast Company, LLC
950 60th Avenue SW
Cedar Rapids, IA 52404

Lesaffre Blending Facility
1030 60th Avenue SW,
Cedar Rapids, IA 52404

EIQ#: 92-6919
Facility File Number: 57-01-226-01

Permit Writer

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Linn County Public Health
Air Quality Division
1020 6th Street SE
Cedar Rapids, IA 52401

Process Description and SIC/NAICS Codes

NAICS Description: All Other Miscellaneous Food Manufacturing (Yeast Manufacturing)
Principal NAICS Code: 311999
SIC Description: Food Preparations, Not Elsewhere Classified (Yeast Manufacturing)
Principal SIC Code: 2099

Attainment Status

Red Star Yeast Company, LLC and Lesaffre Blending Facility operate in Cedar Rapids in Linn County, Iowa. The attainment status for these locations are provided below. Areas classified as attainment are those that meet all ambient air quality standards for a designated criteria pollutant. Visit EPAs SIP Status Tools website for the current status of any areas in Iowa designated as nonattainment.

Table 1 - Attainment Status

Pollutant	Averaging Period	Attainment Status
PM_{10} (150 µg/m^3)	24-hour	Attainment
$PM_{2.5}$ (12.0 µg/m^3)	Annual	Attainment
$PM_{2.5}$ (35 µg/m^3)	24-hour	Attainment
Ozone (0.070 ppm)	8-hour	Attainment
SO_2 (75 ppb)	1-hour	Attainment
SO_2 (1,300 µg/m^3) (0.5 ppm)	3-hour	Attainment
CO (10 mg/m^3) (9 ppm)	8-hour	Attainment
CO (40 mg/m^3) (35 ppm)	1-hour	Attainment
NO_2 (100 µg/m^3) (0.053 ppm)	Annual	Attainment
NO_2 (100 ppb)	1-hour	Attainment
Lead (0.15 µg/m^3)	Rolling 3-Month Average	Attainment

Facility Compliance Status

The facilities are currently in compliance with all applicable federal, state and local air pollution regulations.

Significant Changes since issuance of Renewal 2:

This renewal permit includes incorporating the construction permits for the following EP's:

1.1 – (Amendment)
1.2 – (Amendment)
1.3 – (Amendment)
1.4 – (Amendment)
1.5 – (Amendment)
1.6 – (Amendment)
1.7 – (Amendment)
1.8 – (Amendment)
1.9 – (New Source)
1.10 – (Amendment)
2.1 – (Amendment)
18.2 – (Amendment)
39.15 – (Amendment)
39.16 – (Amendment)
39.17 – (New Source)
60.2 – (New Source)
60.3 – (New Source)
BU8.1 – (Modified Source)

EP20.1 was removed from service

The information below is the background information and review materials from the issuance of the renewal permit. It has been updated as applicable to reflect the changes noted above.

Background

Red Star Yeast Company, LLC has applied for a Part 70 Title V Operating Permit. The facility is a yeast manufacturing facility. The facility consists of 13 insignificant emission units and 41 significant emission units. The Lesaffre Blending Facility has its own physical address, however, is situated on Red Star Yeast's property and its emission units are included in the totals listed above.

Table 2 - Facility Contacts

Red Star Yeast & Lesaffre Blending Facility Contact	Red Star Yeast & Lesaffre Blending Facility Responsible Official[1]
Scott Groth EH&S Manager	Mathieu Cagnard Plant Manager
950 60th Avenue SW Cedar Rapids, IA 52404 1030 60th Avenue SW Cedar Rapids, IA 52404	950 60th Avenue SW Cedar Rapids, IA 52404
(319) 896-2620 s.groth@lesaffre.com	(319) 8926-2640 m.cagnard@lesaffre.com

[1] Individual listed meets the requirements outlined in 567 IAC 22.100.

The company submitted its renewal application on March 13, 2025. Additional information was received on April 21, 2025.

Red Star Yeast Company, LLC (Facility No. 57-01-226-01), Lesaffre Blending Facility, Biospringer North America Corporation (Facility No. 57-01-226-02), ADM Corn Processing – Cedar Rapids (Facility No. 57-01-080), and Vantage Corn Processing (Facility No. 57-01-246) are considered a single stationary source.

Regulatory Status

The facilities are defined as a major source according to 567 IAC 22.100 and LCO Sec. 10-55 for the pollutants checked below. The table below identifies the pollutants major for Title V that are emitted from the Red Star Yeast, Lesaffre Blending Facility, Biospringer North America Corporation, ADM Corn Processing – Cedar Rapids and Vantage Corn Processing plants combined.

Table 3 - Regulatory Status

Pollutant	Major for Title V?
$PM_{2.5}$	☒
PM_{10}	☒
SO_2	☒
NO_x	☒
VOC	☒
CO	☒
Lead	☐
Individual HAP	☒
Total HAPs	☒

General Facility Requirements

NSPS (40 CFR Part 60)

Table 4 - NSPS (40 CFR Part 60)

NSPS Subpart	Affected Emission Unit(s)
A – General Provisions	All (listed below)
IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	60.2, FP7.1
JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	60.1, 60.3

NESHAP (40 CFR Part 61)

Table 5 - NESHAP (40 CFR Part 61)

NESHAP Subpart	Affected Emission Unit(s)
M – Asbestos	Entire Facility – Demolition and Renovation Projects

NESHAP (40 CFR Part 63)

The facility is classified as a 'major' source of hazardous air pollutants. This facility has the potential to emit greater than 10 tons per year of a single HAP and/or greater than 25 tons per year of total combined HAP.

Table 6 - NESHAP (40 CFR Part 63)

NESHAP Subpart	Affected Emission Unit(s)
A – General Provisions	All (listed below)
CCCC – National Emission Standards for Hazardous Air Pollutants: Manufacturing of Nutritional Yeast	1.1-1.8, 1.10, 2.1, and 3.1
ZZZZ – National Emission Standards for Hazardous Air	60.1, 60.2, 60.3, and FP7.1

Pollutants for Stationary Reciprocating Internal Combustion Engines	

The cooling towers are of the source category for Subpart Q (*National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers;* 40 CFR §63.400 – §63.407). However, these emission units are not subject because they do not meet the applicability criteria specified in 40 CFR 63.400. Specifically, chromium-based water treatment chemicals are not used.

PSD (40 CFR Part 52.21)

On February 10, 2003, DNR determined ADM and Red Star Yeast is a single major stationary source. In 2007 Red Star submitted an expansion project that included the construction of the Biospringer North America Corporation facility. Thus, Biospringer North America Corporation is also considered a single major stationary source along with ADM and Red Star. All three facilities currently operate under separate Title V permits. In 2016 Lesaffre submitted an application for the Blending Facility. The application requested the emission sources from this plant be incorporated in Red Star Yeast's Title V operating permit.

A major stationary source has the potential emissions of 100 tons/year or more of any PSD pollutant (PM,PM_{10}, NO_x, SO_2, VOC, CO, or Pb) if the source is one of the 28 listed in 40 CFR §52.21(b)(1)(i)(a) or its potential emissions are 250 tons/yr or greater for a PSD pollutant if the source is not one of the 28 listed.

Red Star's initial plant consisted of VOC emissions in excess of 40 tpy (225 tpy) which triggered PSD since this was considered a major modification at a major stationary source.

112(r) (40 CFR Part 68)

The facility is NOT subject to 112r requirements.
A plant, factory, or other facility is subject to the provisions of Section 313 if it meets all three of the following criteria:

1) It is included in Standard Industrial Classification (SIC) code of 20; and
2) It has 10 or more full-time employees; and
3) It manufactures, imports, processes, or otherwise uses any of the EPCRA section 313 chemicals listed greater than the "threshold" quantity.

A 112r risk management plan is not required since the plant does not hold any of the chemicals in a process exceeding the thresholds in Table C. The acetaldehyde emitted is a byproduct of the fermentation process. The facility is still required to submit a Toxic Release Inventory report annually.

NAAQS (40 CFR Part 50)

The facility is located in an attainment area. Modeling is not required as part of the Title V permit review process however has previously demonstrated compliance with the 24-hour PM_{10} NAAQS.

Title IV (40 CFR Part 72)

The facility is not subject to the Acid Rain Program.

Stratospheric Ozone (40 CFR Part 82)

The facility is not subject to the Stratospheric Ozone requirements (1990 Clean Air Act, as amended, Sections 601-618).

CAM (40 CFR Part 64)

There are no emission units that meet CAM applicability requirements.

Facility O&M Plans Summary

The following emission unit(s) are subject to Facility O&M requirements:

Table 7 - Facility O&M Plans

EP	EU ID	EU Description
C2.1	C2.1	Pneumatic Conveyor #1
PL5.1	PL5.1	Packaging Line #1

The emission units in Table 8 will no longer be subject to a Facility O&M plan as they meet the criteria established in 40 CFR 70.6(a)(3)(i)(b):

Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to paragraph (a)(3)(iii) of this section. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this paragraph (a)(3)(i)(B) of this section;

Table 8 - Sources No Longer Subject to O&M Plans

EP	EU ID	EU Description
7.1	07.1	Nutritional Yeast Dryer
7.2	07.2	Nutritional Yeast Dryer
7.3	07.4	Nutritional Yeast Dryer
	07.5	Nutritional Yeast Dryer

General Comments

A spreadsheet titled "6919R3calcs" has been developed which contains the majority of the information used to base decisions relevant to the issuance of this renewal Title V permit. These reviewer notes are intended to supplement the information contained in this spreadsheet. This spreadsheet includes the following tabs:

EU INFO - Identifies each emission point, emission unit, control equipment, continuous monitoring system (if applicable), rated capacity, and permit numbers.

PTE-RULE – Includes calculations of potential emissions based on the following local, state or federal regulations (as applicable): Linn County Code of Ordinances, Iowa Administrative Code, and Code of Federal Regulations. In addition, the emissions are based on construction/operating (ATI/PTO) permit allowables, or by calculating the emission rate based on the equipment's rated capacity and published emission factors where no emission limit for a pollutant subject to regulation is listed and there is not an applicable Federal, State or Local regulation limiting the potential emissions. Lastly, the potential emissions may be based on a consent agreement or administrative order.

PTE-EF – Includes calculations of potential emissions using published emission factors from webfire, AP-42, site-specific stack test data, or engineering estimates.

PTE-UNCONTROLLED – Includes calculations of uncontrolled potential emissions to determine which sources are major, significant or minor by estimating emissions pre-control for proposed monitoring requirements pursuant to DNR's periodic monitoring guidance.

2024 ACTUALS - Summarizes the amount of emissions emitted from the facility in calendar year 2024.

Source Tests - Summarizes all the sources and pollutants tested. This supports the emission factors used in the "PTE-EF" tab.

Monitoring - Identifies which sources are subject to Compliance Assurance Monitoring (CAM), an Agency or Facility O&M plan and which have opacity monitoring associated with them.

Form 1.3 - Summarizes the insignificant activities listed in Form 1.3 of the permittee's application.

PTE-GHG – Summarizes the facility's carbon footprint.

Haul ROAD PTE – Detailed calculations associated with EP50 and EUAS.1.
Milestones – Important dates related to the application, permit review and issuance.
Dispersion Modeling Info – Facility EP info for dispersion modeling analyses.

Opacity Monitoring

The "Monitoring" tab also identifies which sources require opacity monitoring. Weekly opacity monitoring is required on particulate-emitting sources at this facility because the opacity limit in Linn County is 20%, which is less than the state limit of 40%. The facility requested the no visible emissions action level instead of the Method 9 readings for all units in its initial and first renewal Title V permit. These requirements will continue to be carried forward in this renewal permit. Particulate matter-emitting sources which are having opacity monitoring waived entirely are the following sources: 18.1, 18.2, 19.1, 19.2, and 20.1. All sources are dry ingredient silos which operate less than 10% (876 hours) of the time. It is noted that the construction permits require opacity monitoring on a weekly basis. The sources with opacity monitoring are in the table below:

Table 9 - Opacity Monitoring Table 1

Emission Point												
1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	2.1	3.1	39.15
39.16	39.17	43.3	43.4	7.1	7.2	7.3	S1.1	C2.1	B3.1	BD4.1	PL5.1	BU8.1

If an opacity >10 % is observed from an emission point listed in Opacity Monitoring Table 2, this would be a violation and corrective action will be taken as soon as possible, but no later than eight hours from the observation of visible emissions. If weather conditions prevent the observer from conducting an opacity observation, the observer shall note such conditions on the data observation sheet. At least three attempts shall be made to retake opacity readings at approximately 2-hour intervals throughout the day. If all observation attempts for a week have been unsuccessful due to weather, an observation shall be made the next operating day where weather permits.

Table 10 - Opacity Monitoring Table 2

Emission Point				
39.10	39.11	39.12	39.13	39.14

Weekly opacity monitoring is required on particulate-emitting sources at this facility because the opacity limit in Linn County is 20%, which is less than the state limit of 40%.

Monitoring (Source Testing) Determination Basis:

For purposes of this renewal permit to determine which sources and the total number of sources to be tested the following criteria were considered:

1) Has the source already been tested?
2) How recently was the source tested?
3) Are the potential controlled emissions (based on the approved emission factor) from the source in excess of 1 ton/year?
4) Is the source subject to a CAM plan?
5) Is the source already subject to a Federal Regulation such as an NSPS or NESHAP?
6) What is the current permitted emission allowable and how close to that allowable are actual emissions?
7) What are DNR's Periodic Monitoring Guidance guidelines?

It should be noted that only because the afore-mentioned criteria was selected in determining which sources should potentially be tested for the purposes of this renewal, the Department maintains the authority to require source testing of other sources pursuant to DNR's periodic monitoring guidance, the

IAC and LCO at the Department's discretion for future renewals. Furthermore, the Department maintains the authority to require testing of existing equipment pursuant to LCO Sec. 10-70(e)(2)(b). Specifically, LCO Sec. 10-70(e)(2)(b) states:

"The Air Pollution Control Officer may require the owner or the operator's authorized agent to conduct an emission test on any equipment if the Air Pollution Control Officer has reason to believe that the equipment does not comply with the applicable requirements. Grounds for requiring such a demonstration for compliance include a modification of control or process equipment, age of equipment, or observation of opacities or other parameters outside the range of those indicative of properly maintained and operated equipment. Testing may be required as necessary to determine actual emissions from a source where that source is believed to have a significant impact on the public health or ambient air quality of an area. The Air Pollution Control Officer shall provide the owner or agent not less than 30 days to perform the compliance demonstration and shall provide written notice of the requirement."

PM/PM_{10}

Forty-one emission units have the potential to emit PM and PM_{10}. Most of the sources have well established EPA emission factors and the uncontrolled emissions are negligible. The largest emitting emission units are the nutritional yeast dryers (EU's 7.1, 7.2, 7.4, and 7.5). All have conducted initial PM and/or PM/PM_{10} testing. However, Dryers 1 and 2 were tested in 2007. Dryers 4 and 5 were last tested in 2017. PM and PM_{10} tests will be required for all three dryers because the facility has individual PM/PM_{10} emission limits established in their construction permits.

$PM_{2.5}$

Forty-one emission units have the potential to emit $PM_{2.5}$. Currently there are no $PM_{2.5}$ emission limits in any of the affected $PM_{2.5}$-emitting sources air permits at Red Star. $PM_{2.5}$ testing of any source will not be required in this renewal permit.

SO_2

Other than three emergency engines and a fire pump, there are no emission units present at the facility with the potential to emit SO_2.

NO_x

Other than three emergency engines and a fire pump, there are no emission units present at the facility with the potential to emit NO_x.

CO

Other than three emergency engines and a fire pump, there are no emission units present at the facility with the potential to emit CO.

VOC

Thirteen emission units have the potential to emit VOC. Ten of the emission units have VOC CEMS. The three remaining emission units have negligible VOC emissions. VOC testing of any source will not be required in this renewal permit.

HAP

Thirteen emission units have the potential to emit HAP. Red Star has well established emission factors for the HAP emitted from the sources. HAP testing of any emission unit will not be required as part of this renewal permit.

Pollutant Testing Summary

A total number of 6 one-time tests (per the duration of this renewal permit) will be required in the issuance of this renewal Title V operating permit.

Table 11 - Pollutant Testing Summary

EP	EU Description	Pollutant	Compliance Methodology	Completion Deadline	Test Method
7.1	Nutritional Yeast Dryer	PM	Stack Test	w/in 3 years of issuance	40 CFR 60, Appendix A, Method 5 40 CFR 51, Appendix M Method 202
		PM_{10}	Stack Test	w/in 3 years of issuance	40 CFR 51, Appendix M, 201A with 202
7.2	Nutritional Yeast Dryer	PM	Stack Test	w/in 3 years of issuance	40 CFR 60, Appendix A, Method 5 40 CFR 51, Appendix M Method 202
		PM_{10}	Stack Test	w/in 3 years of issuance	40 CFR 51, Appendix M, 201A with 202
7.3	Nutritional Yeast Dryer	PM	Stack Test	w/in 3 years of issuance	40 CFR 60, Appendix A, Method 5 40 CFR 51, Appendix M Method 202
		PM_{10}	Stack Test	w/in 3 years of issuance	40 CFR 51, Appendix M, 201A with 202

Actual Emissions

All emission factors for the 2024 EIQ were reviewed. The emission factors used are from source test data, webfire, AP-42, or engineering estimates. Specifically PM/PM_{10} emissions from the stock, first generation, and trade fermentation stages were calculated using emission rate data for the Lesaffre Milwaukee plant with adjustments to account for design differences in the Cedar Rapids plant that result in lower exhaust stack velocities. VOC emissions from the fermentation vessels are measured with CEMS. The pure culture fermenter VOC emissions are based on emission data from Lesaffre Yeast Corp's Baltimore plant. Chapter 9.13.4 of AP-42 lists approximately 20% of total VOC emissions from yeast propagation as acetaldehyde. Red Star assumes acetaldehyde emissions to be 21% of the total VOC emissions. Haul road PM/PM_{10} emissions are based on Chapter 13.2.1 AP-42 emission factors.

EU Info

Red Star Yeast Company, LLC & Lesaffre Blending Facility

EIQ# 92-6919 **Facility# 57-01-226-01**

EP ID	EU ID	Emission Unit Description	CMS ID	CMS Description	CE ID	CE Description	Temp (°F)	ACFM	SCFM	ATI	PTO	PSD	Raw Material	SCC	Rated Capacity	Capacity Units	Operating Limits	Operating Limits Units
															FACILITYWIDE TOTALS:			
1.1	1.1	Trade/First Generation Fermenter 1	1.1	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5927	5586-R1	03-A-1038-P4	Yeast Culture	30203407	5,990	lbs/hr	2,964	batches/12-mo
1.2	1.2	Trade/First Generation Fermenter 2	1.2	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5928	5587-R1	03-A-1039-P4	Yeast Culture	30203407	5,990	lbs/hr	390	batches/12-mo
1.3	1.3	Trade/First Generation Fermenter 3	1.3	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5929	5588-R1	03-A-1040-P4	Yeast Culture	30203407	5,990	lbs/hr		
1.4	1.4	Trade/First Generation Fermenter 4	1.4	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5930	5589-R1	03-A-1041-P4	Yeast Culture	30203407	5,990	lbs/hr		
1.5	1.5	Trade/First Generation Fermenter 5	1.5	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5931	5590-R1	03-A-1042-P4	Yeast Culture	30203407	5,990	lbs/hr		
1.6	1.6	Trade/First Generation Fermenter 6	1.6	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5932	5591-R1	03-A-1043-P4	Yeast Culture	30203407	5,990	lbs/hr		
1.7	1.7	Trade/First Generation Fermenter 7	1.7	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5933	5592-R1	03-A-1044-P4	Yeast Culture	30203407	5,990	lbs/hr		
1.8	1.8	Trade/First Generation Fermenter 8	1.8	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527-17,509	5470	6278-R1	08-A-281-P3	Yeast Culture	30203407	5,990	lbs/hr		
1.9	1.9	Trade/First Generation Fermenter 9	1.9	Total Hydrocarbon Analyzer	--	Process Controls	90-100	13,000-18,500	12,527-17,509	7591	7471	--	Yeast Culture	30203407	5,990	lbs/hr	420/60	batches/12-mo
1.10	1.10	Trade/First Generation Fermenter 10	1.10	Total Hydrocarbon Analyzer	--	Process Controls	90	13,000	12,527	6822	6755-R2	--	Yeast Culture	30203407	5,990	lbs/hr	420/60	batches/12-mo
2.1	2.1	Stock Fermenter	2.1	Total Hydrocarbon Analyzer	--	Process Controls	90	14,000	13,491	5934	5593-R1	03-A-1048-P4	Yeast Culture	30203405	2,000	lbs/hr	364	batches/12-mo
3.1	3.1	Pure Culture Yeast Fermenter	3.1	--	--	Process Controls	90	107-213	103-202	5935	5594	03-A-1050P-P3	Yeast Culture	30203404	22	lbs/hr		
39.10	39.10	Cooling Tower Cell #10	--	--	39.10	Drift Eliminator	92	293,780	282,071	5446	5600	08-A-174P1	Process Water	38500110	161,400	gph		
39.11	39.11	Cooling Tower Cell #11	--	--	39.11	Drift Eliminator	92	293,780	282,071	5447	5601	08-A-175P1	Process Water	38500110	161,400	gph		
39.12	39.12	CoolingTower Cell #12	--	--	39.12	Drift Eliminator	92	293,780	282,071	5448	5602	08-A-176P1	Process Water	38500110	161,400	gph		
39.13	39.13	Cooling Tower Cell #13	--	--	39.13	Drift Eliminator	92	293,780	282,071	5449	6280	08-A-177P1	Process Water	38500110	161,400	gph		
39.14	39.14	Cooling Tower Cell #14	--	--	39.14	Drift Eliminator	92	293,780	282,071	5450	6283	08-A-178P1	Process Water	38500110	161,400	gph		
39.15	39.15	Cooling Tower Cell #15	--	--	39.15	Drift Eliminator	92	304,400	292,268	6823	6910	--	Process Water	38500110	205,714	gph		
39.16	39.16	Cooling Tower Cell #16	--	--	39.16	Drift Eliminator	92	304,400	292,268	6824	6911	--	Process Water	38500110	205,714	gph		
39.17	39.17	Cooling Tower Cell #17	--	--	39.17	Drift Eliminator	92	304,400	292,268	7592	7472	--	Process Water	38500110	205,714	gph		
50	AS.1	Haul Road	--	--	--	--	-	-		5498	6238	08-A-180P1	Silt	30502011	--	VMT		
43.3	43.3	Vitamin Prep DC	--	--	43.3	Cartridge Filters	100	700	663	6928	6912	--	Dry Material	30299998	3,196	lbs/hr		
43.4	43.4	Packaging DC	--	--	43.4	Cartridge Filters	100	3,000	2,839	6929	6913	--	Dry Material	30203540	2,000	lbs/hr		
7.1	7.1	Nutritional Yeast Dryer 1	--	--	7.1	Wet Scrubber	140	9,330	8,242	6608	6445-R2	--	Yeast	30203420	675	lbs/hr	7,500	hours/12-mont
7.2	7.2	Nutritional Yeast Dryer 2	--	--	7.2	Wet Scrubber	140	9,330	8,242	6609	6446-R2	--	Yeast	30203420	675	lbs/hr	7,500	hours/12-mont
7.3	7.4	Nutritional Yeast Dryer 4	--	--	7.3	Wet Scrubber	140	29,500	26,058	7113	6849	--	Yeast	30203420	675	lbs/hr	7,500	hours/12-mont
7.3	7.5	Nutritional Yeast Dryer 5	--	--	7.3	Wet Scrubber	140	29,500	26,058	7113	6849	--	Yeast	30203420	675	lbs/hr	7,500	hours/12-mont
18.1	18.1	Dry Ingredient Silo	--	--	18.1	Baghouse	50	3,919	4,073	4586	5206-R2	--	Dry Ingredients	31613003	1,321	lbs/hr	11,575	tons/12-month
18.2	18.2	Dry Ingredient Silo	--	--	18.2	Cartridge Filters	70	850	850	6935	6931	--	Dry Ingredients	31613003	50,000	lbs/hr	11,575	tons/12-month
19.1	19.1	Dry Ingredient Silo	--	--	19.1	Baghouse	50	1,200	1,247	5521	5595-R1	--	Dry Ingredients	31613003	755	lbs/hr	36	days/year (bot
19.2	19.2	Dry Ingredient Silo	--	--	19.2	Baghouse	50	1,200	1,247	5522	5596-R1	--	Dry Ingredients	31613003	1,321	lbs/hr	36	days/year (bot
S1.1	S1.1	Ingredient Silo #1	--	--	S1.1	Bin Vent Filters	70	620-1,000	620-1,000	6954	6905	--	Dry Ingredients	31613003	15	tons/hr		
C2.1	C2.1	Pneumatic Conveyor #1	--	--	C2.1	Bin Vent Filters	70	1,400	1,400	6955	6906	--	Dry Ingredients	30299998	7.8	tons/hr		
B3.1	B3.1	Blender #1	--	--	B3.1	Bin Vent Filters	70	350	350	6956	6907	--	Dry Ingredients	30299998	1	tons/hr		
BD4.1	BD4.1	Bag Dumper #1	--	--	BD4.1	Cartridge Filters	70	400	400	6957	6908	--	Dry Ingredients	30299998	1	tons/hr		
PL5.1	PL5.1	Packaging Line #1	--	--	PL5.1	Cartridge Filters	70	3,000	3,000	6958	6909	--	Dry Ingredients	30299998	1	tons/hr		
FP7.1	FP7.1	Emergency Fire Pump	--	--	FP7.1	--				CI 142		--	Diesel fuel	20200107	9.7	gallons/hr	500	hours/12-mont
BU8.1	BU8.1	Bulk Bag Unloader #1	--	--	BU8.1	Cartridge Filters	70	400	400	7698	7425	--	Dry Ingredients	30299998	0.4	tons/hr		
60.1	60.1	Emergency Generator	--	--	--	--				SI 152			Natural Gas	20200252	100	bhp	500	hours/12-mont
60.2	60.2	Emergency Generator					550		9534	7531	7306	--	Diesel fuel		70	gallons/hr		
60.3	60.3	Emergency Generator - Server Room	--	--	-	--				SI 227		--	Natural Gas		0.000682	mmcf/hr		

PTE-RULE

Red Star Yeast Company, LLC & Lesaffre Blending Facility												Minor	Significant		Major									
EIQ# 92-6919		Facility# 57-01-226-01																						
						POTENTIAL TO EMIT (TPY)																		
EP ID	**EU ID**	**Emission Unit Description**	**Raw Material**	**Rated Capacity**	**Capacity Units**	**EF**	**EF Units**	**PM**	**EF**	**EF Units**	**PM_{10}**	**EF**	**EF Units**	**$PM_{2.5}$**	**EF**	**EF Units**	**SO_2**	**EF**	**EF Units**	**NOx**	**EF**	**EF Units**	**VOC**
					FACILITYWIDE TOTALS:			**20.65**			**15.38**			**15.38**			**0.00**			**5.26**			**297.43**
1.1	1.1	Trade/First Generation Fermenter 1	Yeast Culture	5990	lbs/hr			1.02			1.02			1.02							142	lb/batch	225.00
1.2	1.2	Trade/First Generation Fermenter 2	Yeast Culture	5990	lbs/hr			*			*			*							151	lb/batch	*
1.3	1.3	Trade/First Generation Fermenter 3	Yeast Culture	5990	lbs/hr			*			*			*									*
1.4	1.4	Trade/First Generation Fermenter 4	Yeast Culture	5990	lbs/hr			*			*			*									*
1.5	1.5	Trade/First Generation Fermenter 5	Yeast Culture	5990	lbs/hr			*			*			*									*
1.6	1.6	Trade/First Generation Fermenter 6	Yeast Culture	5990	lbs/hr			*			*			*									*
1.7	1.7	Trade/First Generation Fermenter 7	Yeast Culture	5990	lbs/hr			*			*			*									*
1.8	1.8	Trade/First Generation Fermenter 8	Yeast Culture	5990	lbs/hr			*			*			*									*
1.9	1.9	Trade/First Generation Fermenter 9	Yeast Culture	5990	lbs/hr			0.19			0.19			0.19							95 ppm / 190 ppm	lb/batch	34.35
1.10	1.10	Trade/First Generation Fermenter 10	Yeast Culture	5990	lbs/hr			0.19			0.19			0.19									34.8
2.1	2.1	Stock Fermenter	Yeast Culture	2000	lbs/hr			0.50			0.50			0.50							644	lb/batch	*
3.1	3.1	Pure Culture Yeast Fermenter	Yeast Culture	22	lbs/hr			0.03			0.03			0.03									*
39.1	39.10	Cooling Tower Cell #10	Process Water	161400	gph			0.30			0.30			0.30									
39.11	39.11	Cooling Tower Cell #11	Process Water	161400	gph			0.30			0.30			0.30									
39.12	39.12	CoolingTower Cell #12	Process Water	161400	gph			0.30			0.30			0.30									
39.13	39.13	Cooling Tower Cell #13	Process Water	161400	gph			0.30			0.30			0.30									
39.14	39.14	Cooling Tower Cell #14	Process Water	161400	gph			0.30			0.30			0.30									
39.15	39.15	Cooling Tower Cell #15	Process Water	205714	gph			0.39			0.39			0.39									
39.16	39.16	Cooling Tower Cell #16	Process Water	205714	gph			0.39			0.39			0.39									
39.17	39.17	Cooling Tower Cell #17	Process Water	205714	gph	0.09	lb/hr	0.39	0.09	lb/hr	0.39	0.09	lb/hr	0.39									
50	AS.1	Haul Road	Silt	--	VMT			0.10			0.10			0.10									
43.3	43.3	Vitamin Prep DC	Dry Material	3196.347032	lbs/hr			0.26			0.26			0.26									
43.4	43.4	Packaging DC	Dry Material	2000	lbs/hr			1.14			1.14			1.14									
7.1	7.1	Nutritional Yeast Dryer 1	Yeast	675	lbs/hr			2.63			1.31			1.31									*
7.2	7.2	Nutritional Yeast Dryer 2	Yeast	675	lbs/hr			2.63			1.31			1.31									*
7.3	7.4	Nutritional Yeast Dryer 4	Yeast	675	lbs/hr	1.4	lb/hr	5.25	0.7	lb/hr	2.63	0.7	lb/hr	2.63							0.77	lb/hr	2.89
7.3	7.5	Nutritional Yeast Dryer 5	Yeast	675	lbs/hr			*			*			*									
18.1	18.1	Dry Ingredient Silo	Dry Ingredients	1321	lbs/hr	0.005	gr/dscf	0.02	0.005	gr/dscf	0.02	0.005	gr/dscf	0.02									*
18.2	18.2	Dry Ingredient Silo	Dry Ingredients	50000	lbs/hr	0.01%	product loss	0.01	0.01%	product loss	0.01	0.01%	product loss	0.01									
19.1	19.1	Dry Ingredient Silo	Dry Ingredients	755	lbs/hr	0.005	gr/dscf	0.006	0.005	gr/dscf	0.006	0.005	gr/dscf	0.006									
19.2	19.2	Dry Ingredient Silo	Dry Ingredients	1321	lbs/hr	0.005	gr/dscf	0.006	0.005	gr/dscf	0.006	0.005	gr/dscf	0.006									
S1.1	S1.1	Ingredient Silo #1	Dry Ingredients	15	tons/hr	0.01	gr/dscf	0.380	0.01	gr/dscf	0.380	0.01	gr/dscf	0.380									
C2.1	C2.1	Pneumatic Conveyor #1	Dry Ingredients	7.8	tons/hr	0.01	gr/dscf	0.530	0.01	gr/dscf	0.530	0.01	gr/dscf	0.530									
B3.1	B3.1	Blender #1	Dry Ingredients	1	tons/hr	0.01	gr/dscf	0.130	0.01	gr/dscf	0.130	0.01	gr/dscf	0.130									
BD4.1	BD4.1	Bag Dumper #1	Dry Ingredients	1	tons/hr	0.01	gr/dscf	0.150	0.01	gr/dscf	0.150	0.01	gr/dscf	0.150									
PL5.1	PL5.1	Packaging Line #1	Dry Ingredients	1	tons/hr	0.01	gr/dscf	1.130	0.01	gr/dscf	1.130	0.01	gr/dscf	1.130									
FP7.1	FP7.1	Emergency Fire Pump	Diesel fuel	9.7	gallons/hr	0.4	gm/HP-hr	0.040	0.4	gm/HP-hr	0.040	0.4	gm/HP-hr	0.040	15	ppmv	0.00	6.9	gm/HP-hr	0.70	1	gm/HP-hr	0.10
BU8.1	BU8.1	Bulk Bag Unloader #1	Dry Ingredients	0.4	tons/hr	0.1	gr/dscf	1.50	0.10	gr/dscf	1.50	0.10	gr/dscf	1.50									
60.1	60.1	Emergency Generator	Natural Gas	100	bhp			0.01			0.01			0.01			0.00			0.551			0.03
60.2	60.2	Emergency Generator	Diesel fuel	70	gallons/hr	0.2	g/kw-hr	0.11	0.20	g/kw-hr	0.11	0.20	g/kw-hr	0.11	15.00	ppmv	0.00	6.40	g/kw-hr	3.53	0.00	lb/hp-hr	0.24
60.3	60.3	Emergency Generator - Server Room	Natural Gas	0.000682	mmcf/hr	20.1	lb/mmcf	0.00	20.100	lb/mmcf	0.00	20.100	lb/mmcf	0.00	0.600	lb/mmcf	0.00	2840	lb/mcf	0.484	116	lb/mmcf	0.01978

Red Star Yeast Company										
EIQ# 92-6919										
EP ID	**EU ID**	**EF**	**EF Units**	**CO**	**EF**	**NH_3**	**HAPs (total)**	**EF**	**EF Units**	**ACEHY**
				24.18			55.27			62.48
1.1	1.1						47.35	0.21	%total VOC	47.35
1.2	1.2						*			*
1.3	1.3						*			*
1.4	1.4						*			*
1.5	1.5						*			*
1.6	1.6						*			*
1.7	1.7						*			*
1.8	1.8						*			*
1.9	1.9							0.21	% total VOC	7.21
1.10	1.10						7.31	0.21	% total VOC	7.31
2.1	2.1						*			*
3.1	3.1						*			*
39.1	39.10									
39.11	39.11									
39.12	39.12									
39.13	39.13									
39.14	39.14									
39.15	39.15									
39.16	39.16									
39.17	39.17									
50	AS.1									
43.3	43.3									
43.4	43.4									
7.1	7.1						*			*
7.2	7.2						*			*
7.3	7.4						0.61			0.61
7.3	7.5									
18.1	18.1						*			*
18.2	18.2									
19.1	19.1									
19.2	19.2									
S1.1	S1.1									
C2.1	C2.1									
B3.1	B3.1									
BD4.1	BD4.1									
PL5.1	PL5.1									
FP7.1	FP7.1	8.5	gm/HP-hr	0.86						
BU8.1	BU8.1									
60.1	60.1			21.3297						0.00
60.2	60.2	3.50	g/kw-hr	1.93						
60.3	60.3	399	lb/mmcf	0.07						

PTE-EF

Red Star Yeast Company, LLC & Lesaffre Blending Facility											Minor	Significant		Major						
EIQ# 92-6919		Facility# 57-01-226-01																		
						POTENTIAL TO EMIT (TPY)														
EP ID	EU ID	Emission Unit Description	Raw Material	Rated Capacity	Capacity Units	EF	EF Units	PM	EF	EF Units	PM10	EF	EF Units	PM2.5	EF	EF Units	SO2	EF	EF Units	NOx
					FACILITYWIDE TOTALS:			13.15			14.61			12.71			0.00			0.07
1.1	1.1	Trade/First Generation Fermenter 1	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.2	1.2	Trade/First Generation Fermenter 2	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.3	1.3	Trade/First Generation Fermenter 3	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.4	1.4	Trade/First Generation Fermenter 4	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.5	1.5	Trade/First Generation Fermenter 5	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.6	1.6	Trade/First Generation Fermenter 6	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.7	1.7	Trade/First Generation Fermenter 7	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.8	1.8	Trade/First Generation Fermenter 8	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.9	1.9	Trade/First Generation Fermenter 9	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
1.10	1.10	Trade/First Generation Fermenter 10	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19						
2.1	2.1	Stock Fermenter	Yeast Culture	2000	lbs/hr	0.0046	gr/dscf	1.36	0.0046	gr/dscf	1.36	0.0046	gr/dscf	1.36						
3.1	3.1	Pure Culture Yeast Fermenter	Yeast Culture	22	lbs/hr	0.00689	gr/dscf	0.06	0.00689	gr/dscf	0.06	0.00689	gr/dscf	0.06						
39.10	39.10	Cooling Tower Cell #10	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30						
39.11	39.11	Cooling Tower Cell #11	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30						
39.12	39.12	CoolingTower Cell #12	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30						
39.13	39.13	Cooling Tower Cell #13	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30						
39.14	39.14	Cooling Tower Cell #14	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30						
39.15	39.15	Cooling Tower Cell #15	Process Water	205714	gph	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38						
39.16	39.16	Cooling Tower Cell #16	Process Water	205714	gph	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38						
39.17	39.17	Cooling Tower Cell #17	Process Water	205714	gph	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38						
50	AS.1	Haul Road	Silt	--	VMT	0.034	lbsVMT	0.10	0.0067	lbs/VMT	0.02	0.0016	lbs/VMT	0.00						
43.3	43.3	Vitamin Prep DC	Dry Material	3196.347032	lbs/hr	0.005	gr/dscf	0.13	0.005	gr/dscf	0.13	0.005	gr/dscf	0.13						
43.4	43.4	Packaging DC	Dry Material	2000	lbs/hr	0.005	gr/dscf	0.56	0.005	gr/dscf	0.56	0.005	gr/dscf	0.56						
7.1	7.1	Nutritional Yeast Dryer 1	Yeast	675	lbs/hr	0.39	lbs/hr	1.46	0.348	lbs/hr	1.31	0.348	lbs/hr	1.31						
7.2	7.2	Nutritional Yeast Dryer 2	Yeast	675	lbs/hr	0.18	lbs/hr	0.68	0.134	lbs/hr	0.50	0.134	lbs/hr	0.50						
7.3	7.4	Nutritional Yeast Dryer 4	Yeast	675	lbs/hr	0.83	lbs/hr	3.11	0.83	lbs/hr	3.11	0.83	lbs/hr	3.11						
7.3	7.5	Nutritional Yeast Dryer 5	Yeast	675	lbs/hr	*	*	*	*	*	*	*	*	*						
18.1	18.1	Dry Ingredient Silo	Dry Ingredients	1321	lbs/hr	0.005	gr/dscf	0.018	0.005	gr/dscf	0.02	0.004	gr/dscf	0.02						
18.2	18.2	Dry Ingredient Silo	Dry Ingredients	50000	lbs/hr	0.005	gr/dscf	0.008	0.005	gr/dscf	0.004	0.005	gr/dscf	0.004						
19.1	19.1	Dry Ingredient Silo	Dry Ingredients	755	lbs/hr	0.005	gr/dscf	0.006	0.005	gr/dscf	0.006	0.004	gr/dscf	0.004						
19.2	19.2	Dry Ingredient Silo	Dry Ingredients	1321	lbs/hr	0.005	gr/dscf	0.006	0.005	gr/dscf	0.006	0.004	gr/dscf	0.004						
S1.1	S1.1	Ingredient Silo #1	Dry Ingredients	15	tons/hr	0.005	gr/dscf	0.188	0.005	gr/dscf	0.188	0.005	gr/dscf	0.188						
C2.1	C2.1	Pneumatic Conveyor #1	Dry Ingredients	7.8	tons/hr	0.005	gr/dscf	0.263	0.005	gr/dscf	2.140	0.005	gr/dscf	0.263						
B3.1	B3.1	Blender #1	Dry Ingredients	1	tons/hr	0.005	gr/dscf	0.066	0.005	gr/dscf	0.066	0.005	gr/dscf	0.066						
BD4.1	BD4.1	Bag Dumper #1	Dry Ingredients	1	tons/hr	0.005	gr/dscf	0.075	0.005	gr/dscf	0.075	0.005	gr/dscf	0.075						
PL5.1	PL5.1	Packaging Line #1	Dry Ingredients	1	tons/hr	0.005	gr/dscf	0.563	0.005	gr/dscf	0.563	0.005	gr/dscf	0.563						
FP7.1	FP7.1	Emergency Fire Pump	Diesel fuel	9.7	gallons/hr	0.13	gm/HP-hr	0.003	0.13	gm/HP-hr	0.003	0.13	gm/HP-hr	0.003	15	ppmv	0.00103	3.62	gm/HP-hr	0.073
BU8.1	BU8.1	Bulk Bag Unloader #1	Dry Ingredients	0.4	tons/hr	0.005	gr/dscf	0.075	0.005	gr/dscf	0.075	0.005	gr/dscf	0.075						
60.1	60.1	Emergency Generator	Natural Gas	100	bhp	0.010310364	lb/mmbtu	0.013	0.03995136	lb/mmbtu	0.010	0.03995136	lb/mmbtu	0.010	0	lb/mmbtu	0.000	2.205	lb/hr	0.55
60.2	60.2	Emergency Generator	Diesel fuel	70	gallons/hr	0.2	g/kw-hr	0.110	0.2	g/kw-hr	0.110	0.2	g/kw-hr	0.110	15	ppmv	0.004	6.4	g/kw-hr	3.53
60.3	60.3	Emergency Generator - Server Room	Natural Gas	0.000682	mmcf/hr	20.1	lb/mmcf	0.003	20.1	lb/mmcf	0.003	20.1	lb/mmcf	0.003	1	lb/mmcf	0.000	2840	lb/mcf	0.48

Red Star Yeast Compa											
EIQ# 92-6919											
EP ID	EU ID	EF	EF Units	VOC	EF	EF Units	CO	HAPs (total)	EF	EF Units	ACEHY
				300.26			0.02	61.84			62.45
1.1	1.1	126.15	lb/batch	186.95				39.26	0.21	%total VOC	39.26
1.2	1.2	126.15	lb/batch	24.60				5.17	0.21	%total VOC	5.17
1.3	1.3			*							*
1.4	1.4			*							*
1.5	1.5			*							*
1.6	1.6			*							*
1.7	1.7			*							*
1.8	1.8			*							*
1.9	1.9	126.15	lb/batch	30.28				6.36	0.21	%total VOC	6.36
1.10	1.10	126.15	lb/batch	30.28				6.36	0.21	%total VOC	6.36
2.1	2.1	123	lb/batch	22.39				4.70	0.21	%total VOC	4.70
3.1	3.1										
39.10	39.10										
39.11	39.11										
39.12	39.12										
39.13	39.13										
39.14	39.14										
39.15	39.15										
39.16	39.16										
39.17	39.17										
50	AS.1										
43.3	43.3										
43.4	43.4										
7.1	7.1	0.3845	lb/hr	1.44							
7.2	7.2	0.3845	lb/hr	1.44							
7.3	7.4	0.769	lb/hr	2.88					0.21	% total VOC	0.61
7.3	7.5	*	*	*					*	*	*
18.1	18.1										
18.2	18.2										
19.1	19.1										
19.2	19.2										
S1.1	S1.1										
C2.1	C2.1										
B3.1	B3.1										
BD4.1	BD4.1										
PL5.1	PL5.1										
FP7.1	FP7.1	0.16	gm/HP-hr	0.003	1.2	gm/HP-hr	0.024				
BU8.1	BU8.1										
60.1	60.1	0.124848	lb/mmbtu	0.0312	85	lb/hr	21.33		0.0080735	lb/mmbtu	0.002018376
60.2	60.2	0.000705	lb/hp-hr	0.2397	3.5	g/kw-hr	1.929				
60.3	60.3	116	lb/mmcf	0.0198	399	lb/mmcf	0.068				

PTE-UNCONTROLLED

Red Star Yeast Company, LLC & Lesaffre Blending Facility											Minor	Significant		Major
EIQ# 92-6919		Facility# 57-01-226-01												
EP ID	**EU ID**	**Emission Unit Description**	**Raw Material**	**Rated Capacity**	**Capacity Units**	**EF**	**EF Units**	**PM**	**EF**	**EF Units**	**PM10**	**EF**	**EF Units**	**PM2.5**
					FACILITYWIDE TOTALS:			231.61			114.76			77.16
1.1	1.1	Trade/First Generation Fermenter 1	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.2	1.2	Trade/First Generation Fermenter 2	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.3	1.3	Trade/First Generation Fermenter 3	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.4	1.4	Trade/First Generation Fermenter 4	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.5	1.5	Trade/First Generation Fermenter 5	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.6	1.6	Trade/First Generation Fermenter 6	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.7	1.7	Trade/First Generation Fermenter 7	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.8	1.8	Trade/First Generation Fermenter 8	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.9	1.9	Trade/First Generation Fermenter 9	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
1.10	1.10	Trade/First Generation Fermenter 10	Yeast Culture	5990	lbs/hr	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19	0.00033	gr/dscf	0.19
2.1	2.1	Stock Fermenter	Yeast Culture	2000	lbs/hr	0.0046	gr/dscf	1.36	0.0046	gr/dscf	1.36	0.0046	gr/dscf	1.36
3.1	3.1	Pure Culture Yeast Fermenter	Yeast Culture	22	lbs/hr	0.00689	gr/dscf	0.06	0.00689	gr/dscf	0.06	0.00689	gr/dscf	0.06
39.10	39.10	Cooling Tower Cell #10	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30
39.11	39.11	Cooling Tower Cell #11	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30
39.12	39.12	CoolingTower Cell #12	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30
39.13	39.13	Cooling Tower Cell #13	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30
39.14	39.14	Cooling Tower Cell #14	Process Water	161400	gph	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30	0.0026	% drift loss	0.30
39.15	39.15	Cooling Tower Cell #15	Process Water	205714	gph	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38
39.16	39.16	Cooling Tower Cell #16	Process Water	205714	gph	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38
39.17	39.17	Cooling Tower Cell #17	Process Water	205714	gph	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38	0.0026	% drift loss	0.38
50	AS.1	Haul Road	Silt	--	VMT	0.034	lbsVMT	0.10	0.0067	lbs/VMT	0.02	0.0016	lbs/VMT	0.00
43.3	43.3	Vitamin Prep DC	Dry Material	3196.347032	lbs/hr	0.005	gr/dscf	13.14	0.005	gr/dscf	2.63	0.005	gr/dscf	2.63
43.4	43.4	Packaging DC	Dry Material	2000	lbs/hr	0.005	gr/dscf	56.31	0.005	gr/dscf	11.26	0.005	gr/dscf	11.26
7.1	7.1	Nutritional Yeast Dryer 1	Yeast	675	lbs/hr	0.39	lbs/hr	14.63	0.348	lbs/hr	13.05	0.348	lbs/hr	13.05
7.2	7.2	Nutritional Yeast Dryer 2	Yeast	675	lbs/hr	0.18	lbs/hr	6.75	0.134	lbs/hr	5.03	0.134	lbs/hr	5.03
7.3	7.4	Nutritional Yeast Dryer 4	Yeast	675	lbs/hr	0.83	lbs/hr	15.56	0.83	lbs/hr	15.56	0.83	lbs/hr	15.56
7.3	7.5	Nutritional Yeast Dryer 5	Yeast	675	lbs/hr	*	*	*	*	*	*	*	*	*
18.1	18.1	Dry Ingredient Silo	Dry Ingredients	1321	lbs/hr	0.005	gr/dscf	1.81	0.005	gr/dscf	0.36	0.004	gr/dscf	0.36
18.2	18.2	Dry Ingredient Silo	Dry Ingredients	50000	lbs/hr	0.005	gr/dscf	0.84	0.005	gr/dscf	0.09	0.005	gr/dscf	0.09
19.1	19.1	Dry Ingredient Silo	Dry Ingredients	755	lbs/hr	0.005	gr/dscf	0.56	0.005	gr/dscf	0.11	0.004	gr/dscf	0.09
19.2	19.2	Dry Ingredient Silo	Dry Ingredients	1321	lbs/hr	0.005	gr/dscf	0.56	0.005	gr/dscf	0.11	0.004	gr/dscf	0.09
S1.1	S1.1	Ingredient Silo #1	Dry Ingredients	15	tons/hr	0.005	gr/dscf	18.77	0.005	gr/dscf	3.75	0.005	gr/dscf	3.75
C2.1	C2.1	Pneumatic Conveyor #1	Dry Ingredients	7.8	tons/hr	0.005	gr/dscf	26.28	0.005	gr/dscf	42.80	0.005	gr/dscf	5.26
B3.1	B3.1	Blender #1	Dry Ingredients	1	tons/hr	0.005	gr/dscf	6.57	0.005	gr/dscf	1.31	0.005	gr/dscf	1.31
BD4.1	BD4.1	Bag Dumper #1	Dry Ingredients	1	tons/hr	0.005	gr/dscf	7.51	0.005	gr/dscf	1.50	0.005	gr/dscf	1.50
PL5.1	PL5.1	Packaging Line #1	Dry Ingredients	1	tons/hr	0.005	gr/dscf	56.31	0.005	gr/dscf	11.26	0.005	gr/dscf	11.26
FP7.1	FP7.1	Emergency Fire Pump	Diesel fuel	9.7	gallons/hr	0.13	gm/HP-hr	0.00	0.13	gm/HP-hr	0.00	0.13	gm/HP-hr	0.00
BU8.1	BU8.1	Bulk Bag Unloader #1	Dry Ingredients	0.4	tons/hr	0.005	gr/dscf	0.08	0.005	gr/dscf	0.08	0.005	gr/dscf	0.08

PTE-UNCONTROLLED

Red Star Yeast Company, LLC & Lesaffre Blending Facility											Minor	Significant		Major
EIQ# 92-6919		Facility# 57-01-226-01												
EP ID	**EU ID**	**Emission Unit Description**	**Raw Material**	**Rated Capacity**	**Capacity Units**	**EF**	**EF Units**	**PM**	**EF**	**EF Units**	**PM10**	**EF**	**EF Units**	**PM2.5**
					FACILITYWIDE TOTALS:			**231.61**			**114.76**			**77.16**
60.1	60.1	Emergency Generator	Natural Gas	100	bhp	0.01031	lb/mmbtu	0.01	0.039951	lb/mmbtu	0.01	0.03995136	lb/mmbtu	0.01
60.2	60.2	Emergency Generator	Diesel fuel	70	gallons/hr	0.2	g/kw-hr	0.11	0.2	g/kw-hr	0.11	0.2	g/kw-hr	0.11
60.3	60.3	Emergency Generator - Server Room	Natural Gas	0.000682	mmcf/hr	20.1	lb/mmcf	0.00	20.1	lb/mmcf	0.00	20.1	lb/mmcf	0.00

PTE-UNCONTROLLED

Red Star Yeast Com																		
EIQ# 92-6919																		
		POTENTIAL TO EMIT (TPY)																
EP ID	EU ID	EF	EF Units	SO2	EF	EF Units	NOx	EF	EF Units	VOC	EF	EF Units	CO	EF	NH3	HAPs (total)	EF	EF Units	ACEHY
				0.00			0.07			643.48			0.02			55.49			127.66
1.1	1.1							142	lb/batch	427.58						39.26	0.21	%total VOC	89.79
1.2	1.2							151	lb/batch	112.52						5.17	0.21	%total VOC	23.63
1.3	1.3									*									*
1.4	1.4									*									*
1.5	1.5									*									*
1.6	1.6									*									*
1.7	1.7									*									*
1.8	1.8									*									*
1.9	1.9																		
1.10	1.10							126.15	lb/batch	30.28						6.36	0.21	%total VOC	6.36
2.1	2.1							123	lb/batch	34.66						4.70	0.21	%total VOC	7.28
3.1	3.1																		
39.10	39.10																		
39.11	39.11																		
39.12	39.12																		
39.13	39.13																		
39.14	39.14																		
39.15	39.15																		
39.16	39.16																		
39.17	39.17																		
50	AS.1																		
43.3	43.3																		
43.4	43.4																		
7.1	7.1							0.3845	lb/hr	9.61									
7.2	7.2							0.3845	lb/hr	9.61									
7.3	7.4							0.769	lb/hr	19.23							0.21	% total VOC	0.61
7.3	7.5							*	*	*							*	*	*
18.1	18.1																		
18.2	18.2																		
19.1	19.1																		
19.2	19.2																		
S1.1	S1.1																		
C2.1	C2.1																		
B3.1	B3.1																		
BD4.1	BD4.1																		
PL5.1	PL5.1																		
FP7.1	FP7.1	15.00	ppmv	0.00	3.62	gm/HP-hr	0.07	0.16	gm/HP-hr	0.00	1.2	gm/HP-hr	0.024						
BU8.1	BU8.1																		

PTE-UNCONTROLLED

Red Star Yeast Com																		
EIQ# 92-6919																		
		POTENTIAL TO EMIT (TPY)																
EP ID	EU ID	EF	EF Units	SO2	EF	EF Units	NOx	EF	EF Units	VOC	EF	EF Units	CO	EF	NH3	HAPs (total)	EF	EF Units	ACEHY
				0.00			0.07			643.48			0.02			55.49			127.66
60.1	60.1	0.00	lb/mmbtu	0.00	2.20	lb/hr	0.55	0.12	lb/mmbtu	0.03	85	lb/hr	21.330				0.0080735	lb/mmbtu	0.00
60.2	60.2	15	ppmv	0.00	6.4	g/kw-hr	3.527337	0.000705	lb/hp-hr	0.2397	3.5	g/kw-hr	1.929012346						
60.3	60.3	0.6	lb/mmcf	0.00	2840	lb/mcf	0.48422	116	lb/mmcf	0.019778	399	lb/mmcf	0.0680295						

PTE-GHG

Red Star Yeast Company, LLC & Lesaffre Blending Facility
EIQ# 92-6919 Facility# 57-01-226-01

All GHG emitted is considered biogenic and generated during the fermentation process with the exception of the Fire Pump and Emergency Generator.

Data from Tables C-1 and C-2 to Subpart C of Part 98 as identified in IDNR's GHG Estimation of GHG Emissions

	HHV, MMBtu/gallon HHV, MMBtu/scf for Nat Gas	CO_2 Emission Factor lb CO_2/MMBtu	CH_4 Emission Factor lb CH_4/MMBtu	N_20 Emission Factor lb N_2O/MMBtu
Natural Gas	0.001026	116.98	0.0022	0.00022
Diesel, #2	0.138	163.05	0.0066	0.0013

Conversion Factors	
2.20462	lbs = 1 kg
0.90718	metric tons = 1 ton

EP	EU	Rated Capacity	Units	Metric Tons CO_2	Short Tons CO_2	Metric Tons CH_4	Short Tons CH_4	Metric Tons N_2O	Short Tons N_2O	Notes
60.1	Emergency Generator	1.04652	MMBtu/hr	27.76	30.61	0.00	0.00	0.00	0.00	500 hours
60.2	Emergency Generator	70	gallons/hr	357.22	393.77	0.01	0.02	0.00	0.00	500 hours
60.3	Emergency Generator	0.7	MMBtu/hr	18.57	20.47	0.00	0.00	0.00	0.00	500 hours
FP7.1	Emergency Fire Pump	9.7	gallons/hr	49.50	54.56	0.00	0.00	0.00	0.00	500 hours
			GHG Totals:	453.05	499.41	0.02	0.02	0.00	0.00	
			CO2 Equivalents:	453.05	499.41	0.43	0.48	0.99	1.09	
			GHG Mass Basis :	453.07	499.43					
			CO_2e Basis Totals:	454.48	500.98					

CO2e	GWP CO2 = 1 CH4 = 25 N2O = 298

Red Star Yeast Company, LLC & Lesaffre Blending Facility
EIQ# 92-6919 Facility# 57-01-226-01

					Tons/Year														
EP ID	**EU ID**	**Emission Unit Description**	**Throughput***	**Units**	**EF**	**EF Units**	**PM**	**EF**	**EF Units**	**PM10**	**EF**	**EF Units**	**PM2.5**	**EF**	**EF Units**	**VOC**	**HAPs (total)**	**EF**	**EF Units**	**ACEHY**
				Totals:			4.95			4.57			3.65			195.77	41.05			41.05
1.1	1.1	Trade/First Generation Fermenter 1	5810	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		21.77	4.57	21.00	% of VOC	4.57
1.2	1.2	Trade/First Generation Fermenter 2	5670	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		24.97	5.24	21.00	% of VOC	5.24
1.3	1.3	Trade/First Generation Fermenter 3	5698	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		21.44	4.50	21.00	% of VOC	4.50
1.4	1.4	Trade/First Generation Fermenter 4	5586	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		18.95	3.98	21.00	% of VOC	3.98
1.5	1.5	Trade/First Generation Fermenter 5	5418	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		20.86	4.38	21.00	% of VOC	4.38
1.6	1.6	Trade/First Generation Fermenter 6	5726	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		22.17	4.66	21.00	% of VOC	4.66
1.7	1.7	Trade/First Generation Fermenter 7	3276	hours	0.043	lbs/hr	0.07	0.043	lbs/hr	0.07	0.043	lbs/hr	0.07	CEMS		7.10	1.49	21.00	% of VOC	1.49
1.8	1.8	Trade/First Generation Fermenter 8	2534	hours	0.043	lbs/hr	0.05	0.043	lbs/hr	0.05	0.043	lbs/hr	0.05	CEMS		6.91	1.45	21.00	% of VOC	1.45
1.9	1.9	Trade/First Generation Fermenter 9	1708	hours	0.043	lbs/hr	0.04	0.043	lbs/hr	0.04	0.043	lbs/hr	0.04	CEMS		4.78	1.00	21.00	% of VOC	1.00
1.10	1.10	Trade/First Generation Fermenter 10	5614	hours	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	0.043	lbs/hr	0.12	CEMS		13.29	2.79	21.00	% of VOC	2.79
2.1	2.1	Stock Fermenter	3612	hours	0.013	lbs/hr	0.02	0.013	lbs/hr	0.02	0.013	lbs/hr	0.02	CEMS		28.72	6.03	21.00	% of VOC	6.03
3.1	3.1	Pure Culture Yeast Fermenter	2580	hours	0.01	lbs/hr	0.01	0.010	lbs/hr	0.01	0.010	lbs/hr	0.01	0.21	lbs/hr	0.27	0.06	21.00	% of VOC	0.06
39.10	39.10	Cooling Tower Cell #10	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.11	39.11	Cooling Tower Cell #11	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.12	39.12	CoolingTower Cell #12	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.13	39.13	Cooling Tower Cell #13	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.14	39.14	Cooling Tower Cell #14	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.15	39.15	Cooling Tower Cell #15	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.16	39.16	Cooling Tower Cell #16	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
39.17	39.17	Cooling Tower Cell #17	8760	hours	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14	0.03103	lbs/hr	0.14							
50	AS.1	Haul Road	4810	miles	0.034	lbs/mile	0.08	0.01	lbs/mile	0.02	0.0016	lbs/mile	0.00							
43.3	43.3	Vitamin Prep DC	540.7	hours	0.03	lbs/hr	0.01	0.03	lbs/hr	0.01	0.0300	lbs/hr	0.01							
43.4	43.4	Packaging DC	6423.6	hours	0.129	lbs/hr	0.41	0.13	lbs/hr	0.41	0.1290	lbs/hr	0.41							
7.1	7.1	Nutritional Yeast Dryer 1	6488.7	hours	0.1944	lbs/hr	0.63	0.135	lbs/hr	0.44	0.074	lbs/hr	0.24	0.33	lb/hr	1.07	0.22	0.0693	lb/hr	0.22
7.2	7.2	Nutritional Yeast Dryer 2	6488.7	hours	0.0989	lbs/hr	0.32	0.062	lbs/hr	0.20	0.034	lbs/hr	0.11	0.33	lb/hr	1.07	0.22	0.0693	lb/hr	0.22
7.3	7.4	Nutritional Yeast Dryer 4	6424	hours	0.42	lbs/hr	1.35	0.420	lbs/hr	1.35	0.229	lbs/hr	0.74	0.75	lb/hr	2.41	0.45	0.1386	lb/hr	0.45
7.3	7.5	Nutritional Yeast Dryer 5	6424	hours	--	--	--	--	--	--	--	--	--							
18.1	18.1	Dry Ingredient Silo	14200340	lbs	0.01	% of product	0.007	0.01	% of product	0.007	83.00	% of PM10	0.006							
18.2	18.2	Dry Ingredient Silo		lbs		not operating in 2019														
19.1	19.1	Dry Ingredient Silo		lbs	0.1	% of product		0.10	% of product		83.00	% of PM10								
19.2	19.2	Dry Ingredient Silo		lbs	0.1	% of product		0.10	% of product		83.00	% of PM10								
S1.1	S1.1	Ingredient Silo #1	8760	hours	0.005	lbs/hr	0.022	0.01	lbs/hr	0.02	0.01	lbs/hr	0.02							
C2.1	C2.1	Pneumatic Conveyor #1	909	hours	0.12	lbs/hr	0.055	0.12	lbs/hr	0.05	0.12	lbs/hr	0.05							
B3.1	B3.1	Blender #1	480	hours	0.03	lbs/hr	0.007	0.03	lbs/hr	0.01	0.03	lbs/hr	0.01							
BD4.1	BD4.1	Bag Dumper #1	308	hours	0.034	lbs/hr	0.005	0.034	lbs/hr	0.005	0.034	lbs/hr	0.005							
PL5.1	PL5.1	Packaging Line #1	3,618	hours	0.257	lbs/hr	0.465	0.257	lbs/hr	0.46	0.257	lbs/hr	0.46							
FP7.1	FP7.1	Emergency Fire Pump	25.6	hours																
BU8.1	BU8.1	Bulk Bag Unloader #1	134	hours	0.034	lbs/hr	0.002	0.034	lbs/hr	0.002	0.034	lbs/hr	0.002							
60.1	60.1	Emergency Generator	21.7	hours																
60.2	60.2	Emergency Generator	38.92	hours																
60.3	60.3	Emergency Generator - Server Room	25.6	hours																

Emission factors weren't listed for all sources in the EIQ. Back calculated hourly emission rate using the hours of operation and tons/year reported.

Stack Test Summary

EP	EU	Pollutant	Test Method	Test Date	Stack Test Summary				Average	n	t	95% CI	Linear if <90%	if <85% Avg * (P/A)^2	Permit Limit		Operating Data			Operating Rate	Units	Maximum Rate	Units	% Tested vs. Rated
					Run 1	Run 2	Run 3	units									Run 1	Run 2	Run 3					
PM																								
7.1	7.1	PM	5	1/09 - 10/07	0.1376	0.331	0.1145	lb/hr	0.19	3	2.92	0.39	0.223	0.194	0.75	lb/hr	583	613	570	589	lb/hr	675	lb/hr	87%
7.2	7.2	PM	5	1/09 - 10/07	0.1525	0.0514	0.0927	lb/hr	0.10	3	2.92	0.18	0.113	0.099	0.75	lb/hr	586	613	574	591	lb/hr	675	lb/hr	88%
7.3	7.4/7.5	PM	5 w/ 202	11/1/2017	0.7	0.25	0.31	lb/hr	0.42	3	2.92	0.83		0.420	1.4	lb/hr	1350	1350	1350	1350	lb/hr	1350	lb/hr	100%
				Group Statistics					0.24	9	1.86	0.36												
PM10																								
7.1	7.1	PM10	5 w/ 201A/202	1/09 - 10/07	0.0753	0.28	0.0495	lb/hr	0.13	3	2.92	0.348	0.155	0.135	0.375	lb/hr	583	613	570	589	lb/hr	675	lb/hr	87%
7.2	7.2	PM10	5 w/ 201A/202	1/09 - 10/07	0.11	0.028	0.0481	lb/hr	0.06	3	2.92	0.134	0.071	0.062	0.375	lb/hr	586	613	574	591	lb/hr	675	lb/hr	88%
				Group Statistics					0.10	6	2.015	0.18												
VOC																								
7.3	7.4/7.5	VOC	320	11/1/2017	0.72	0.75	0.75	lb/hr	0.74	3	2.92	0.769		0.740	0.77	lb/hr	1350	1350	1350	1350	lb/hr	1350	lb/hr	100%

Monitoring

EP	EU	EU	Opacity Monitoring	Controlled Minor	Controlled Significant	Controlled Major	Uncontrolled Minor	Uncontrolled Significant	Uncontrolled Major	O&M Type	Test (#/Pollutant)	Notes
1.1	1.1	Trade/First Generation Fermenter 1	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.2	1.2	Trade/First Generation Fermenter 2	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.3	1.3	Trade/First Generation Fermenter 3	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.4	1.4	Trade/First Generation Fermenter 4	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.5	1.5	Trade/First Generation Fermenter 5	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.6	1.6	Trade/First Generation Fermenter 6	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.7	1.7	Trade/First Generation Fermenter 7	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.8	1.8	Trade/First Generation Fermenter 8	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.9	1.9	Trade/First Generation Fermenter 9	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
1.10	1.10	Trade/First Generation Fermenter 10	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
2.1	2.1	Stock Fermenter	Yes	VOC			PM,PM10,PM2.5	VOC		None		VOC RATA per 40CFR63 CCCC
3.1	3.1	Pure Culture Yeast Fermenter	Yes				PM,PM10,PM2.5, VOC			None		
39.10	39.10	Cooling Tower Cell #10	Yes				PM,PM10,PM2.5			None		
39.11	39.11	Cooling Tower Cell #11	Yes				PM,PM10,PM2.5			None		
39.12	39.12	CoolingTower Cell #12	Yes				PM,PM10,PM2.5			None		
39.13	39.13	Cooling Tower Cell #13	Yes				PM,PM10,PM2.5			None		
39.14	39.14	Cooling Tower Cell #14	Yes				PM,PM10,PM2.5			None		
39.15	39.15	Cooling Tower Cell #15	Yes				PM,PM10,PM2.5			None		
39.16	39.16	Cooling Tower Cell #16	Yes				PM,PM10,PM2.5			None		
39.17	39.17	Cooling Tower Cell #17	Yes				PM,PM10,PM2.5			None		
50	AS.1	Haul Road	No							None		
43.3	43.3	Vitamin Prep DC	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
43.4	43.4	Packaging DC	Yes	PM,PM10,PM2.5			PM10	PM,PM2.5		Facility		PTO meets 40 CFR §70.6(a)(3)(i)(b) criteria; ne
7.1	7.1	Nutritional Yeast Dryer 1	Yes	PM,PM10,PM2.5,VOC			PM, VOC	PM2.5		Facility	1 - PM, 1-PM10	PTO meets 40 CFR §70.6(a)(3)(i)(b) criteria
7.2	7.2	Nutritional Yeast Dryer 2	Yes	PM,PM10,PM2.5,VOC			PM,PM10,PM2.5, VOC			Facility	1 - PM, 1-PM10	PTO meets 40 CFR §70.6(a)(3)(i)(b) criteria;
7.3	7.4	Nutritional Yeast Dryer 4	Yes	PM,PM10,PM2.5,VOC			VOC	PM,PM10,PM2.5		Facility	1 - PM, 1-PM10	PTO meets 40 CFR §70.6(a)(3)(i)(b) criteria
7.3	7.5	Nutritional Yeast Dryer 5		--	--	--	--	--	--			
18.1	18.1	Dry Ingredient Silo	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
18.2	18.2	Dry Ingredient Silo	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
19.1	19.1	Dry Ingredient Silo	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
19.2	19.2	Dry Ingredient Silo	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
S1.1	S1.1	Ingredient Silo #1	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
C2.1	C2.1	Pneumatic Conveyor #1	Yes	PM,PM10,PM2.5				PM,PM10,PM2.5		Facility		Facility O&M
B3.1	B3.1	Blender #1	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
BD4.1	BD4.1	Bag Dumper #1	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None		
PL5.1	PL5.1	Packaging Line #1	Yes	PM,PM10,PM2.5			PM10	PM,PM2.5		Facility		Facility O&M
FP7.1	FP7.1	Emergency Fire Pump	No				PM,PM10,PM2.5,VOC,SO2,NOx,CO			None		
BU8.1	BU8.1	Bulk Bag Unloader #1	Yes	PM,PM10,PM2.5			PM,PM10,PM2.5			None	1 - PM, 1-PM10	
60.1	60.1	Emergency Generator	No				PM,PM10,PM2.5,VOC,SO2,NOx,CO			None		
60.2	60.2	Emergency Generator	No				PM,PM10,PM2.5,VOC,SO2,NOx,CO			None		
60.3	60.3	Emergency Generator - Server Room	No				PM,PM10,PM2.5,VOC,SO2,NOx,CO			None		

Summary		PM	$PM_{2.5}$	PM_{10}	SO_2	NO_x	CO	VOC
Total Stack tests	6	3	0	3	0	0	0	0

Monitoring

EP	EU	EU	Opacity Monitoring	Controlled Minor	Controlled Significant	Controlled Major	Uncontrolled Minor	Uncontrolled Significant	Uncontrolled Major	O&M Type	Test (#/Pollutant)	Notes
		O&M Plans	Agency	0								
			Facility	6	Note: 4 of 6 sources that operate under PTOs that meet 70.6(a)(3()(i)(b) criteria will not be required to have a Facility O&M Plan.							
			CAM	0								
		Opacity Monitoring		35								

Form 1.3

EU#	EU Description	Pounds/Year														Insignificant Activities Exclusion Reference (567 IAC)
		CO	NO_x	SO_2	Total PM	PM_{10}	$PM_{2.5}$	VOC	Lead	High Risk Toxics	Toxics - not High Risk Group	Fluorides	Reduced Sulfur Cpds	Sulfur Acid Mists	Hydrogen Sulfide	
39.01-39.09	Cooling Towers 1-9				5400	5400										
--	Natural Gas Heaters < 10MMBtu/hr	1400	3300	21	270	270		193		0	0		0			
--	Dry Chemical Silo				0	0										
--	Process Chemical Storage Tanks										0		0	0	0	
--	Water Treatment Chemical generator vent										0					
--	Refrigeration System															22.103(1)"t"
--	Plumbing Vents							0			0		0			(22.103(1)"j"
--	Laboratory Equipment										0					22.103(1)"g"
--	Fork Truck Battery Charging															22.103(1)"n"
--	Propane Fork Truck	0	0	0							0					22.103(1)"a"
	Totals (Pounds/Year)	1400	3300	21	5670	5670		193		0	0		0	0	0	
	Total (Tons/Year)	0.70	1.65	0.01	2.84	2.84		0.10		0.00	0.00		0.00	0.00	0.00	

Pollutants listed as Negligible in R1 application have been replaced with zeros in R2 app.

13 insignificant units. The other units listed in Form 1.3 can be excluded from Form 1.3 per 567 IAC 22.103(1).

Calculation For Truck Traffic On Haul Roads
Red Star Yeast - Cedar Rapids, IA - Include BSNAC Haul Roads (EP50-EUAS.1)

Paved roads **{AP-42 Chapter 13.2.1 (1/11)}**

Equation (2): $E = k \times (sL)^{0.91} \times (W)^{1.02} \times \left(1 - \frac{P}{4 \times 365}\right)$ using the daily-basis precipitation correction over the course of a year

	k (lb/VMT)
PM	0.011
PM_{10}	0.0022
$PM_{2.5}$	0.00054

Per AP42 Table 13.2.1-1

Haul Road / Traffic Parameters

Activity / Road Description	Road Type / Silt Value		Roundtrip Length (feet)		Truck Weight (tons)			Ave. Speed (mph)	Vehicle Trips/Year	Annual VMT
			empty	full	empty	full	Ave.			
Incoming Raw Material	p	0.10	1,000	1,000	15	35	25.0	8	1,300	492
Outgoing Fresh Yeast	p	0.10	1,000	1,000	15	35	25.0	8	3,120	1,182
Outgoing Nutritional	p	0.10	1,000	1,000	15	30	22.5	8	208	79
Outgoing Cream	p	0.10	1,000	1,000	15	38	26.5	8	6,240	2,364
Extract Loads	p	0.10	800	800	15	35	25.0	8	1,040	315
Cell Wall Loads	p	0.10	800	800	15	35	25.0	8	1,144	347
Salt Shipments	p	0.10	800	800	15	35	25.0	8	104	32
										-
										-

Emission Calculations

Activity / Road Description	Emission Factors (lb/VMT)			Actual Emissions (tons/yr)			Potential Emissions (tons/yr)		
	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Incoming Raw Material	0.034	0.0067	0.0016	0.0083	0.00165	0.00041	0.0107	0.0021	0.0005
Outgoing Fresh Yeast	0.034	0.0067	0.0016	0.0198	0.00396	0.00097	0.0258	0.0052	0.0013
Outgoing Nutritional	0.030	0.0060	0.0015	0.0012	0.00024	0.00006	0.0015	0.0003	0.0001
Outgoing Cream	0.036	0.0071	0.0017	0.0421	0.00841	0.00206	0.0547	0.0109	0.0027
Extract Loads	0.03	0.01	0.00	0.0058	0.00116	0.00029	0.0076	0.0015	0.0004
Cell Wall Loads	0.03	0.01	0.00	0.0005	0.00011	0.00003	0.0007	0.0001	0.0000
Salt Shipments	0.03	0.01	0.00	0.0005	0.0000	0.0000	0.0007	0.0000	0.0000
Total Annual Emissions:				**0.078**	**0.016**	**0.004**	**0.102**	**0.020**	**0.005**

Description of Constants/Variables

E: haul road emissions (lb/VMT)
k: from AP-42, table 13.2.1-1
sL: silt loading (g/m^2) of paved road surface = 0.1 per assumes controls including sweeping
W: average vehicle weight (tons)
P: days/yr with at least 0.01" of precipitation
P = 103 Per national weather service
S: mean vehicle speed on road (mph)
CR speed limit 10 mph, use 8 mph
CE: unpaved road, dust control efficiency
CE = 0 % NA All roads paved
VMT: vehicle miles traveled

Potential PM/$PM_{2.5}$/PM_{10} Emissions Emission Calculations For Truck Traffic On Haul Roads, (EUHR6.1)
Red Star Yeast, LLC
Cedar Rapids, Iowa

Paved roads {AP-42 Chapter 13.2.1 (1/11)}

Equation (2): $E = k \times (sL)^{0.91} \times (W)^{1.02} \times \left(1 - \frac{P}{4 \times 365}\right)$ using the daily-basis precipitation correction over the course of a year

	k (lb/VMT)
PM	0.011
PM_{10}	0.0022
$PM_{2.5}$	0.00054

Per AP42 Table 13.2.1-1

Haul Road / Traffic Parameters

Activity / Road Description	Road Type / Silt Value		Roundtrip Length		Truck Weight (tons)			Ave. Speed (mph)	Vehicle Trips/Year	Annual VMT
			empty	full	empty	full	Ave.			
Incoming Raw Material	p	0.10	1,000	1,000	15	35	25.0	8	1,300	492
Outgoing Fresh Yeast	p	0.10	1,000	1,000	15	35	25.0	8	3,120	1,182
Outgoing Nutritional	p	0.10	1,000	1,000	15	30	22.5	8	208	79
Outgoing Cream	p	0.10	1,000	1,000	15	38	26.5	8	6,240	2,364
										-
										-
										-
										-
										-

Emission Calculations

Activity / Road Description	Emission Factors (lb/VMT)			Actual Emissions (tons/yr)			Potential Emissions (tons/yr)		
	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Incoming Raw Material	0.007	0.0018	0.0000	0.0018	0.00044	0.00000	0.0023	0.0006	0.0000
Outgoing Fresh Yeast	0.007	0.0018	0.0000	0.0043	0.00105	0.00000	0.0055	0.0014	0.0000
Outgoing Nutritional	0.006	0.0016	0.0000	0.0003	0.00006	0.00000	0.0003	0.0001	0.0000
Outgoing Cream	0.008	0.0019	0.0000	0.0091	0.00222	0.00000	0.0118	0.0029	0.0000
Total Annual Emissions:				**0.015**	**0.004**	**0.000**	**0.020**	**0.005**	**0.000**

Description of Constants/Variables

E: haul road emissions (lb/VMT)
k: from AP-42, table 13.2.1-1
sL: silt loading (g/m^2) of paved road surface = 0.1 per AP
assumes controls including sweeping
W: average vehicle weight (tons)
P: days/yr with at least 0.01" of precipitation
P = 103 Per national weather service
S: mean vehicle speed on road (mph)
CR speed limit 10 mph, use 8 mph
CE: unpaved road, dust control efficiency
CE = 0 % NA All roads paved
VMT: vehicle miles traveled