

Lane Regional Air Protection Agency
Simple Air Contaminant Discharge Permit (Simple-ACDP)

REVIEW REPORT

Grain Millers, Inc.
Meadowview Road
Junction City, Oregon 97448
Township 16S, Range 4W, Section 29
Latitude 44.1532, Longitude -129.1969

Permit No. 203155

1. **General Background Information**

Lane Regional Air Protection Agency (LRAPA) has reviewed the permit application received on January 16, 2015 and supplemental information to the application received on January 30, 2015 and February 2, 2015. The contents of the application and supplemental information were the basis for the contents within the review report.

Grain Millers is building a new cereal processing facility located on Meadowview Road, Junction City. The facility will be a direct extension of its existing Eugene Oregon's business model under Air Contamination Discharge Permit (ACDP) 203136. The facility will receive raw grain (oats) and convert the raw grain into cereal based food and food ingredients for use by bakeries and food processors in the Pacific Northwest.

All portions of grain receiving, processing and bulk shipments will have filtered dust suppression baghouse filters, which will exhaust to the building exterior and interior, depending on the system and time of year. The only emission point other than a baghouse filters will be for a kiln dryer which utilizes a "wet" aspiration system" equal to the unit which tested at 99.5% efficiency by Horizon Engineering on April 30, 2014 at the Eugene facility.

The fuels to be utilized at the facility will include natural gas for boilers and air makeup and propane for forklift use in the warehouses.

Through the permit application review, this facility will receive a Simple "high" ACDP from LRAPA. The Junction City facility ACDP is independent of the existing Eugene facility's ACDP. The permit emission calculations will be based on Phase #1 and future Phase #2 build out for grain processing.

The facility will install one (1) cyclone and 32 filters to control emissions from the operation. Other emissions are from two (2) natural gas-fired boilers. The operating schedule for the facility is 8,760 hours per year (24 hours per day, 7 days per week, and 52 weeks per year).

2. **Emission Units Description**

Emission Unit	Pollutants Emitted
F1: Filter #1	PM, PM ₁₀ , PM _{2.5}
F1A: Filter #1A	PM, PM ₁₀ , PM _{2.5}
F1B: Filter #1B	PM, PM ₁₀ , PM _{2.5}
F1C: Filter #1C	PM, PM ₁₀ , PM _{2.5}

Emission Unit	Pollutants Emitted
F2: Filter #2	PM, PM ₁₀ , PM _{2.5}
F3: Filter #3	PM, PM ₁₀ , PM _{2.5}
F4: Filter #4**	PM, PM ₁₀ , PM _{2.5}
F5: Filter #5	PM, PM ₁₀ , PM _{2.5}
F6: Filter #6	PM, PM ₁₀ , PM _{2.5}
F7: Filter #7	PM, PM ₁₀ , PM _{2.5}
F8: Filter #8**	PM, PM ₁₀ , PM _{2.5}
F9: Filter #9**	PM, PM ₁₀ , PM _{2.5}
F10: Filter #10**	PM, PM ₁₀ , PM _{2.5}
F11: Filter #11**	PM, PM ₁₀ , PM _{2.5}
F12: Filter #12	PM, PM ₁₀ , PM _{2.5}
F13: Filter #13**	PM, PM ₁₀ , PM _{2.5}
F14: Filter #14	PM, PM ₁₀ , PM _{2.5}
F15: Filter #15	PM, PM ₁₀ , PM _{2.5}
F16: Filter #16	PM, PM ₁₀ , PM _{2.5}
F17: Filter #17	PM, PM ₁₀ , PM _{2.5}
F18: Filter #18**	PM, PM ₁₀ , PM _{2.5}
F19: Filter #19**	PM, PM ₁₀ , PM _{2.5}
F20: Filter #20**	PM, PM ₁₀ , PM _{2.5}
F21: Filter #21**	PM, PM ₁₀ , PM _{2.5}
F22: Filter #22**	PM, PM ₁₀ , PM _{2.5}
F23: Filter #23**	PM, PM ₁₀ , PM _{2.5}
F24: Filter #24**	PM, PM ₁₀ , PM _{2.5}
F25: Filter #25**	PM, PM ₁₀ , PM _{2.5}
F26: Filter #26**	PM, PM ₁₀ , PM _{2.5}
F27: Filter #27**	PM, PM ₁₀ , PM _{2.5}
F28: Filter #28**	PM, PM ₁₀ , PM _{2.5}
F29: Filter #29**	PM, PM ₁₀ , PM _{2.5}
C1: Cyclone #1	PM, PM ₁₀ , PM _{2.5}
B1: Boiler #1: Natural Gas-Fired Boiler (7.9 MMBtu/hr)	PM, PM ₁₀ , PM _{2.5} , NO _x , CO, VOC
B2: Boiler #2: Natural Gas-Fired Boiler (7.9 MMBtu/hr)	PM, PM ₁₀ , PM _{2.5} , NO _x , CO, VOC

**Future Construction

3. **Reasons for Permit Issuance and Fee Basis**

The facility operates a process listed in LRAPA Title 37, Table 1, Part B (B17. Cereal Preparations and Associated Grain Elevators) and is, therefore, required to obtain a permit. The facility is subject to the Simple “high” fee because actual or expected emissions of PM is greater than 10 tons/year.

4. **Enforcement Actions**

There has been no enforcement action against the facility by LRAPA.

5. **Plant Site Emission Limits (PSELs) Information**

The PSELs are set at the Generic PSEL levels in accordance with LRAPA Title 42-0040.

Upon completion of construction and commencement of operation, the facility is required to perform monthly recordkeeping and PSEL calculations to determine compliance with the PM, PM₁₀, and PM_{2.5} PSELs. The facility is required to record natural gas combusted in the boilers and report information about PSELs and fuel combustion in an annual report. The emissions associated with the maximum design rate for the boilers is well below the Generic PSEL level, so the facility is only required to track and report fuel combustion – PSEL calculations for the boilers is not necessary.

Annual PSELs
(tons)

Source	PM	PM ₁₀	PM _{2.5}	CO	NO _x	SO ₂	VOC	GHG
Totals	24	14	9	99	39	0	0	74,000

6. **The Baseline Emission Rate (BER) and Significant Emission Rate (SER) Comparison**

The BER has been set at zero (0) tons per year for all pollutants except greenhouse gas (GHG) since this is a new source and was not in operation during the 1978 baseline year. The BER for GHG is not established because the facility did not exist during the GHG baseline period (2000-2010).

The PSEL increase over the baseline emission is less than the SER, as defined in LRAPA Title 12, for PM, PM₁₀, PM_{2.5}, CO, NO_x, SO₂, VOC, and GHG as shown below. No further air quality analysis is required for these pollutants.

Pollutant	Baseline Emissions (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	Change in PSEL (tons/yr)	Increase from Baseline (tons/yr)	SER (tons/yr)
PM	0	NA	24	24	24	25
PM ₁₀	0	NA	14	14	14	15
PM _{2.5}	0	NA	9	9	9	10

Pollutant	Baseline Emissions (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	Change in PSEL (tons/yr)	Increase from Baseline (tons/yr)	SER (tons/yr)
CO	0	NA	99	99	99	100
NO _x	0	NA	39	39	39	40
SO ₂	0	NA	NA	NA	NA	40
VOC	0	NA	NA	NA	NA	40
GHG	0	NA	74,000	74,000	74,000	75,000

7. **Performance Standards and Emission Limits**

The emissions from the facility are required to not exceed 20% opacity as a six (6) minute block average. The permit contains the applicable particulate matter in terms of the grain loading standards.

8. **Hazardous Air Pollutants (HAPs)**

There are no NESHAP/MACT standards that are applicable to this source at this time. The facility has not quantified their HAPs due to the source type, but the HAPs are expected to be negligible.

9. **New Source Performance Standards (NSPSs)**

The facility is not applicable to NSPS Subpart DD – Standards of Performance for Grain Elevators because Grain Millers is not defined as a grain elevator. The facility is defined as a cereal processor with grain storage.

10. **Typically Achievable Control Technology (TACT)**

LRAPA Title 32-008 requires a new emission unit at a facility to meet TACT if the emission unit has emissions of criteria pollutants greater than ten (10) tons per year of any gaseous pollutants or five (5) tons per year of particulate, the emission unit is not subject to the standards under LRAPA Title 32, Title 33, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. The emission units at this facility are subject to the grain loading and visible emissions emission standards in Title 32 and are, therefore, not required to meet TACT. However, the type of controls used by the facility are considered TACT by LRAPA.

11. **New Source Review (NSR) and Prevention of Significant Deterioration (PSD)**

This source is not subject to PSD for the affected criteria pollutants. The PSELs for the criteria pollutants are below the Significant Emission Rates (SERs) established in LRAPA Title 12. The facility is not subject to LRAPA's Prevention of Significant Deterioration (PSD) requirements for PM₁₀, PM_{2.5}, SO_x, NO_x, CO, and VOC.

12. **Continuous Compliance**

Upon completion of construction and commencement of operations, a record of the following data is required to be maintained for a period of at least five (5) years at the plant site. [LRAPA 35-0160 and 42-0080].

	<u>Parameter</u>	<u>Minimum Recording Frequency</u>
a.	Monthly throughput (tons) for each grain-handling and receiving unit listed in permit Condition 2.	Monthly
b.	Emissions calculations as specified in permit Condition 5.	Monthly
c.	Monitor pressure readings of each filter and baghouse* and record in a log.	Weekly
d.	Record in a log maintenance of baghouses.	As Performed
e.	Boiler fuel throughput (MMBtu or SCF)	Annually

* excludes bin-type baghouses

13. **Reporting**

- a. An annual summary to document compliance with the Plant Site Emission Limits is required to be submitted by **February 15th** each year. The summary will contain the PM/PM₁₀/PM_{2.5} emission data as required per permit Condition 5 and the recordkeeping information in Condition 12.
- b. The facility is also required to submit an annual GHG report, as applicable, in accordance with OAR 340 division 215.
- c. The annual summary will also report any information as required per General Condition G15.

14. **Public Notice**

The draft permit was on public notice from April 9, 2015 to May 13, 2015. No written comments were submitted during the 30-day comment period.

The draft permit was placed on public notice for a second time because new requirements on opacity, grain loading, and fugitive emissions have been adopted by Oregon Department of Environmental Quality as of April 16, 2015. The draft permit was on public notice from May 22, 2015 to June 22, 2015. No written comments were submitted during the 30-day comment period.

BD/cmw
6/22/2015

Emissions Factors and Calculations:

Emission Point EP#	Filter #	Grain Process Emissions		Maximum System Annual throughput (tons)	Emission Factor	control efficiency	fraction PM-10 of PM	PM emissions (tons/year)	PM-10 emissions (tons/year)	PM2.5 = PM10 emissions (tons/year)
		Equipment ID#	Equipment							
1	F1	J11-21-01	Filter #1	445	15,713	0.01	0.25	0.1320	0.0330	0.0330
2	F1A	J11-21-02	Filter 1A	62	2,189	0.01	0.25	0.1072	0.0268	0.0268
3	F1B	J11-21-03	Filter #1B	62	2,189	0.01	0.25	0.1072	0.0268	0.0268
4	F1C	J11-21-04	Filter #1C	10	353	0.01	0.25	0.0700	0.0175	0.0175
5	F2	J13-21-01	Filter #2	445	15,713	0.02	0.25	2.0586	0.5146	0.5146
6	F3	J14-21-01	Filter #3	445	15,713	0.02	0.25	0.9636	0.2409	0.2409
7	F4	J14-21-02	Filter #4	300	10,593	0.02	0.25	0.9636	0.2409	0.2409
8	C1	J16-34-02	Cyclone #1	150	5,297	0.00001	0.25	0.0012	0.0003	0.0003
9	F5	J18-21-01	Filter #5	445	15,713	0.01	0.25	0.6132	0.1533	0.1533
10	F6	J18-21-02	Filter #6	445	15,713	0.01	0.25	0.7326	0.1832	0.1832
11	F7	J17-21-01	Filter #7	445	15,713	0.01	0.25	0.3066	0.0766	0.0766
12	F8	J38-21-01	Filter #8	445	15,713	0.01	0.25	0.3066	0.0766	0.0766
13	F9	J24-21-01	Filter 9	140	4,943	0.05	0.25	0.1200	0.0300	0.0300
14	F10	J24-21-02	Filter 10	75	2,648	0.06	0.25	0.0720	0.0180	0.0180
15	F11	J22-21-01	Filter 11	75	2,648	0.06	0.25	0.0720	0.0180	0.0180
16	F12	J19-21-01	Filter #12	100	3,531	0.06	0.25	0.2628	0.0657	0.0657
17	F13	J19-21-02	Filter 13	100	3,531	0.06	0.25	0.2628	0.0657	0.0657
18	F14	J19-21-03	Filter #14	250	8,828	0.02	0.25	0.2102	0.0526	0.0526
19	F15	J32-21-01	Filter #15	25	883	0.01	0.25	0.1577	0.0394	0.0394
20	F16	J19-21-04	Filter #16	15.00	530	0.01	0.25	0.1051	0.0263	0.0263
21	F17	J49-21-01	Filter #17	23.00	812	0.06	0.25	0.1125	0.0281	0.0281
22	F18	J29-21-01	Filter #18	285.00	10,000	0.02	0.25	0.0515	0.0129	0.0129
23	F19	J29-21-02	Filter #19	170.00	6,000	0.25	0.25	0.3252	0.0813	0.0813
24	F20	J29-21-03	Filter #20	170.00	6,000	0.25	0.25	0.3252	0.0813	0.0813
25	F21	J29-21-04	Filter #21	170.00	6,000	0.25	0.25	0.3252	0.0813	0.0813
26	F22	J29-21-05	Filter #22	170.00	6,000	0.25	0.25	0.3252	0.0813	0.0813
27	F23	J29-21-06	Filter #23	170.00	6,000	0.25	0.25	0.3252	0.0813	0.0813
28	F24	J29-21-07	Filter #24	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
29	F25	J29-21-08	Filter #25	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
30	F26	J29-21-09	Filter #26	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
31	F27	J29-21-10	Filter #27	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
32	F28	J29-21-11	Filter #28	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
33	F29	J29-21-12	Filter #29	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
34	B1	J03-01-01	Boiler #1	170.00	6,000	0.25	0.25	0.3285	0.0821	0.0821
35	B2	J03-01-02	Boiler #2							
Total for Initial Phase I										
Total for Phase I & Future Phase II										
								PM	PM-10	PM2.5 = PM10
								5.9	1.5	1.5
								11.4	2.8	2.8

EP	Filter #	Equipment & Process	Est Loss %	Maximum Annual		Product Rates & Operational Data			Pollutant
				Input Tons (Annually)	Output tons (Annually)	System Capacity Tons Per hour	Operation Hrs/day	Operation Days/yr	
1	F1	J11-21-01 Filter #1	0.0250	220000	214500	5500	200.0	12	250 Grain Dust
5	F2	J13-21-01 Filter #2	0.0500	205860	195567	10293	23.5	24	365 Grain Dust
6	F3	J14-21-01 Filter #3	0.3000	96360	67452	28908	11.0	24	365 Grain Dust
7	F4	J14-21-02 Filter #4	0.3000	96360	67452	28908	11.0	24	365 Grain Dust
8	C1	J16-34-02 Cyclone #1	0.0010	122640	122517	123	14.0	24	365 Steam & Dust
9	F5	J18-21-01 Filter #5	0.0075	122640	121720	920	14.0	24	365 Grain Dust
10	F6	J18-21-02 Filter #6	0.0050	61320	61013	307	7.0	24	365 Grain Dust
" "	" "	" "	0.0050	85204	84778	426	12.0	24	365 Grain Dust
11	F7	J17-21-01 Filter #7	0.0050	61320	61013	307	7.0	24	365 Grain Dust
12	F8	J38-21-01 Filter #8	0.0050	61320	61013	307	7.0	24	365 Grain Dust
13	F9	J24-21-01 Filter #9	0.0050	24000	23880	120	4.0	24	250 Grain Dust
14	F10	J24-21-02 Filter #10	0.0050	12000	11940	60	2.0	24	250 Grain Dust
15	F11	J22-21-01 Filter #11	0.0050	12000	11940	60	2.0	24	250 Grain Dust
16	F12	J19-21-01 Filter #12	0.0050	43800	43581	219	5.0	24	365 Grain Dust
17	F13	J19-21-02 Filter #13	0.0050	43800	43581	219	5.0	24	365 Grain Dust
18	F14	J19-21-03 Filter #14	0.0050	105120	104594	526	12.0	24	365 Grain Dust
19	F15	J32-21-01 Filter #15	0.0050	157680	156892	788	18.0	24	365 Grain Dust
20	F16	J19-21-04 Filter #16	0.0000	105120	105120	0	12.0	24	365 Grain Dust
21	F17	J49-21-01 Filter #17	0.0000	18750	18750	0	25.0	3	250 Grain Dust
22	F18	J29-21-01 Filter #18	0.0200	26280	25754	526	3.0	24	365 Grain Dust
23	F19	J29-21-02 Filter #19	0.0100	13140	13009	131	1.5	24	365 Grain Dust
24	F20	J29-21-03 Filter #20	0.0100	13140	13009	131	1.5	24	365 Grain Dust
25	F21	J29-21-04 Filter #21	0.0100	13140	13009	131	1.5	24	365 Grain Dust
26	F22	J29-21-05 Filter #22	0.0100	13140	13009	131	1.5	24	365 Grain Dust
27	F23	J29-21-06 Filter #23	0.0100	13140	13009	131	1.5	24	365 Grain Dust
28	F24	J29-21-07 Filter #24	0.0000	13140	13140	0	1.5	24	365 Grain Dust
29	F25	J29-21-08 Filter #25	0.0000	13140	13140	0	1.5	24	365 Grain Dust
30	F26	J29-21-09 Filter #26	0.0000	13140	13140	0	1.5	24	365 Grain Dust
31	F27	J29-21-10 Filter #27	0.0000	13140	13140	0	1.5	24	365 Grain Dust
32	F28	J29-21-11 Filter #28	0.0000	13140	13140	0	1.5	24	365 Grain Dust
33	F29	J29-21-12 Filter #29	0.0000	13140	13140	0	1.5	24	365 Grain Dust
34	B1	J03-01-01 Boiler #1						24	365 Nox, CO, CO ₂
35	B2	J03-01-02 Boiler #2						24	365 CO ₂ , SO ₂ , PM

Emissions for Natural Gas Miura Boiler Model LX(L)-200 SG

Miura certifies that the LX(L)-200 SG boiler model will achieve the emission levels as shown below for NO_x, CO, CO₂, VOC, SO₂ and PM. The emissions levels shown are based upon the boiler being installed correctly, properly maintained, and operated under normal loading conditions within the designed parameters.

Special low NO_x burner and controls are engineered and manufactured by Miura

NO_x:

Measured	20 ppm (natural gas)
Dry flue gas volume	80,100 scfh
Molecular mass	46.1
Constant	2.595E-09
Calculation	$(80,100 \text{ scfh}) \times (20 \text{ ppm}) \times (46.1) \times (2.595\text{E-}09) = 0.192 \text{ lb/hr}$ $(0.192 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton}/2,000 \text{ lb}) = \mathbf{0.84 \text{ ton/yr}}$

CO:

Measured	100 ppm (natural gas)
Dry flue gas volume	80,100 scfh
Molecular Mass	28
Constant	2.595E-09
Calculation	$(80,100 \text{ scfh}) \times (100 \text{ ppm}) \times (28) \times (2.595\text{E-}09) = 0.582 \text{ lb/hr}$ $(0.582 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton}/2,000 \text{ lb}) = \mathbf{2.55 \text{ ton/yr}}$

VOC:

Fuel Input	7.876 MMBtu/hr
High Heating Value	1020 Btu/scf
EPA Emission Factor	5.5 lb/MMscf (natural gas)
Calculations	$(7.876 \text{ MMBtu/hr}) / (1020 \text{ Btu/scf}) \times (5.5 \text{ lb/MMscf}) = 0.042 \text{ lb/hr}$ $(0.042 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton}/2,000 \text{ lb}) = \mathbf{0.19 \text{ ton/yr}}$

SO₂:

Fuel Input	7.876 MMBtu/hr
High Heat Value	1020 Btu/scf
EPA Emission Factor	0.06 lb/MMscf (natural gas)
Calculation	$(7.876 \text{ MMBtu/hr}) / (1020 \text{ Btu/scf}) \times (0.6 \text{ lb/MMscf}) = 0.0046 \text{ lb/hr}$ $(0.0046 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton}/2,000 \text{ lb}) = \mathbf{0.02 \text{ ton/yr}}$

PM:

Fuel Input	7.876 MMBtu/hr
High Heating Value	1020 Btu/scf
EPA Emission Factor	7.6 lb/MMscf (natural gas)
Calculation	$(7.876 \text{ MMBtu/hr}) / (1020 \text{ Btu/scf}) \times (7.6 \text{ lb/MMscf}) = 0.059 \text{ lb/hr}$ $(0.059 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton}/2,000 \text{ lbs}) = \mathbf{0.26 \text{ ton/yr}}$

CO₂:

Fuel Input	7.876 MMBtu/hr
High Heat Value	1020 Btu/scf

EPA Emission Factor 120,000 lbs/MMscf (natural gas)
Calculation $(7.876 \text{ MMBtu/hr}) / (1020 \text{ Btu/scf}) \times (120,000 \text{ lb/MMscf}) = 927 \text{ lb/hr}$
 $(927 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton}/2,000 \text{ lb}) = \mathbf{4,060 \text{ ton/yr}}$

The NO_x and CO are corrected to 3% O₂ based on natural gas combustion.
The dry flue gas volume was corrected to 3% O₂ at 68 degrees Fahrenheit.

Reference: AP-42, Table 1.4-2 Emissions Factors, U.S. Environmental Protection Agency