PERMIT TO CONSTRUCT APPLICATION

North Dakota Mill / Grand Forks, North Dakota

Prepared By:

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Project 242401.0039

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1. EXECUTIVE SUMMARY

North Dakota Mill & Elevator (NDME) owns and operates the North Dakota Mill & Elevator (NDME), located in Grand Forks, North Dakota. NDME operates under Permit to Operate AOP-27238, issued March 8th, 2023 by the North Dakota Department of Environmental Quality (NDDEQ). NDME is currently a Minor Source and will remain a Minor Source after the proposed project.

As part of this application, NDME proposes to construct two new 2,647 BHP generators for the purpose of peak shaving, as described in greater detail below.

A summary of facility-wide potential emissions are provided in Table 1-1.

Table 1-1. Summary of Facility-Wide Potential to Emit

Pollutant	Post-Project Potential Emissions [a] (tpy)
NO_X	73.44
CO	17.68
VOC	9.86
SO_2	3.98
PM	162.09
PM_{10}	71.77
$PM_{2.5}$	55.63
Total HAP	0.51
Hexane (Highest Single HAP)	0.31

[a] Summary of total facility emissions includes fugitive emissions.

This application includes a summary of the project description, a description of the emission calculation methodologies used, as well as a review of potential applicability rules. Additionally, the following supplemental information can be found in the appendices of this application:

- Appendix A: Emission Calculations; and,
- Appendix B: The required PTC application forms and $325 PTC application fee.

2. PROCESS DESCRIPTION

NDME owns and operates the plant located in Grand Forks, North Dakota. The discussion below gives background on the proposed revisions to the NDME Plant.

NDME proposes to add two 2,647 BHP generators to the Grand Forks facility. The two generators will be described as emission units (EUs) EU 73 and EU 74, with emission points (EPs) EP 88 and EP 89, respectively. Both EU 73 and EU 74 are equipped with oxidation catalysts, however, NDME is conservatively not claiming any CO reductions from the catalysts.

NDME is proposing a voluntary hour limit on both EU 73 and EU 74 (individually) of 1,250 hours of operation a year. This voluntary limit has been applied to the PTE calculations, as discussed below.

3. EMISSION CALCULATIONS

The following section details the calculation methodology used in determining the emissions that will result from the proposed equipment and changes at the NDME facility. Appendix A includes detailed emission calculations for the new emission units, as well as a summary of the facility-wide and project-wide emissions. New units have been identified in the calculations in yellow highlights. NDME calculated emissions from criteria pollutants, hazardous air pollutants (HAPs), and greenhouse gas (GHG) pollutants for the generator operations (EUs 73 and 74). Emissions were calculated using a combination of manufacturer specifications, emission factors from AP-42, Chapter 3.4, Tables 3.4-1, 3.4-3, 3.4-4, and emission factors from 40 CFR 98 Table C-2. Global warming potentials were also referenced from 40 CFR 98, Table A-1.

Both EU 73 and EU 74 are equipped with oxidation catalysts, however, NDME is conservatively not taking credit for any CO reductions from the catalysts. The oxidation catalyst was retrofitted onto the units and is not required to maintain compliance with NSPS IIII. Additionally, NDME is proposing a voluntary hour limit for each generator, such that neither can operate more than 1,250 hr/yr. This hour limit has been considered in the PTE calculations.

4. REGULATORY APPLICABILITY ANALYSIS

The components of the proposed project are subject to certain federal and state air quality regulations. This section of the permit application summarizes the air permitting requirements and the key air quality regulations that apply to the proposed activities covered by this permit application. Specifically, the applicability of the Prevention of Significant Deterioration (PSD) program, New Source Performance Standards (NSPS), and North Dakota air regulations are addressed. Only regulations applicable or potentially applicable to the proposed modification are discussed below; regulations applicable to unchanged units have been addressed in previous applications, and thus are not discussed in this application.

4.1 Federal Regulations

4.1.1 Prevention of Significant Deterioration

The NDME Facility is located in North Dakota, which is designated as attainment or unclassifiable for all criteria pollutants per 40 CFR 81.335. Grain milling operations are not included on the 28 listed source categories in 40 CFR 52.21(b)(1)(i)(a) with a 100 tpy "major" source PSD threshold (PSD MST); therefore, the PSD MST for NDME is 250 tpy. As shown in Table 4-2, the post-project facility-wide emissions will increase, but not exceed the PSD MST, thus the NDME Facility is not considered a major source under the PSD program.

Table 4-1. Summary of Project Emissions

	Facility-Wide Emissions* (tpy)								
	NO_x	CO	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	Pb	CO_2e
Post-Project PTE	73.44	17.68	162.09	71.77	55.63	3.98	9.86	8.73 E-05	43,134.91
PSD Major Source Thresholds	250	250	250	250	250	250	250	250	100,000

* Fugitive emissions are conservatively included in the PSD applicability analysis for criteria pollutants.

4.1.2 Title V and Compliance Assurance Monitoring (CAM) Applicability

As shown in Table 4-1 above, the NDME Facility does not exceed 100 tpy for Criteria Pollutants, except for PM. PM is not a Title V pollutant, and thus the facility does not exceed major source thresholds under the Title V program.

Compliance Assurance Monitoring (CAM) requirements can be found in 40 CFR Part 64. As described in §64.2(a), CAM applies to pollutant-specific emissions units at a major source under the Title V program that satisfy all of the following criteria:

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant;
- The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tpy of NO_x, CO, VOC, SO_2, PM_{10}, $PM_{2.5}$; 10 tpy of a single HAP; 25 tpy of total HAP).

As the facility is not a major source under the Title V program, CAM is not triggered for any of the new sources.

4.1.3 New Source Performance Standards (NSPS)

New Source Performance Standards (NSPS) are nationwide regulations that regulate air pollution from new, modified, and reconstructed stationary source categories that are determined to cause, or contribute significantly, to air pollution and that may reasonably be anticipated to endanger public health. The following NSPS were assessed for applicability to the new units associated with the modification at NDME:

- Subpart A – General Provisions;
- Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

4.1.3.1 40 CFR Part 60 Subpart A: General Provisions

Any source subject to a source-specific NSPS is also subject to the general provisions of NSPS Subpart A. NDME is subject to NSPS IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. NSPS IIII applicability and requirements are discussed in greater detail in the following section.

Unless specifically excluded by the source-specific NSPS, Subpart A generally requires initial construction notification, initial startup notification, performance tests, performance test date initial notification, general monitoring requirements, general recordkeeping requirements, and semiannual monitoring and/or excess emission reports.

Per §60.1, NDME will be required to obtain an operating permit issued to stationary sources by NDDEQ. In this case, NDME is applying for a Permit to Construct permit from the state of North Dakota. Following the issuance of the Permit to Construct, NDME will also need to apply for an Operation Permit Revision to incorporate the two generators into the Operating Permit.

Per §60.7, NDME will provide NDDEQ with written or electronic notification of the date of construction, postmarked no later than 30 days after such date. Notification will also be provided for the actual initial startup date, postmarked within 15 days after such date. Notification will also be provided for opacity observations, as required by §60.11(e)(1), no less than 30 days prior to such date. NDME will continue to maintain records of any startup, shutdown, or malfunction events at the facility.

4.1.3.2 40 CFR Part 60: Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

NSPS Subpart IIII applies to owners and operators of stationary compression ignition (CI) internal combustion engines (ICE). NDME is installing two 2,647 BHP generators equipped with compression ignition stationary internal combustion engines, EUs 73 and 74. Both EUs 73 and 74 will commence construction after July 11, 2005 and were manufactured after April 1, 2006. EUs 73 and 74 are nonemergency engines as they will be used for peak shaving, and are not fire pump engines.

Both engines are retrofitted with oxidation catalysts; the catalysts are not required for compliance with NSPS IIII. PTE calculations for the engines do not take credit for the oxidation catalysts.

EUs 73 and 74 will be subject to the following requirements under NSPS Subpart IIII:

- Use only ultra low sulfur diesel, per §60.4207(b),
- Operate, maintain and install engine per manufacturer specifications, per in §60.4211(a) and §60.4211(b),
- Records of engine emission specifications must be maintained per §60.4211(b) and §60.4214(a),
- Initial notification must be sent to NDDEQ within 30 days of construction. Notification content is described in §60.4214(a),
- Generators must meet the emission standards described in §60.4219, and as listed below:
  - HC: 1.3 g/KW-hr
  - NO_x: 9.2 g/KW-hr
  - CO: 11.4 g/KW-hr
  - PM: 0.54 g/KW-hr

4.1.4 National Emission Standards for Hazardous Air Pollutants (NESHAP)

National Emission Standards for Hazardous Air Pollutants (NESHAP) are nationwide regulations that regulate hazardous air pollutants that are known or suspected to cause serious health effects or adverse environmental effects. The following NESHAP were assessed for applicability to the new units associated with the modification at NDME:

- Subpart A: General Provisions
- Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

4.1.4.1 40 CFR Part 63 Subpart A: General Provisions

Any source subject to a source-specific NESHAP is also subject to the general provisions of NESHAP Subpart A. NDME is subject to NESHAP ZZZZ, Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. NESHAP ZZZZ applicability and requirements are discussed in greater detail in the following section.

4.1.4.2 40 CFR Part 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

NESHAP ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE). It also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. NESHAP ZZZZ applies to owners and operators of a stationary RICE at a major or area source of HAP emissions, except if the RICE is being tested at a stationary RICE test cell/stand. According to §63.6675, stationary reciprocating internal combustion engine (RICE) is defined as:

> *Stationary reciprocating internal combustion engine (RICE)* means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE is not a non-road engine as defined at 40 CJR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

EUs 73 and 74 are considered affected sources under NESHAP ZZZZ. Affected source is defined as:

> An *affected source* is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested as at stationary RICE rest cell/stand.

EUs 73 and 74 are stationary RICE at an area source of HAP, and therefore meet the definition of an affected source under NESHAP ZZZZ. EUs 73 and 74 are considered new stationary RICE, per §63.6590(a)(2)(iii), as they commenced construction on or after June 12, 2006. As described in §63.6590(c)(1), the generators comply with NESHAP ZZZZ by meeting the requirements of NSPS IIII (which are summarized above).

4.2 North Dakota State Air Regulations

This project is being permitted under the regulations contained in the North Dakota Administrative Code (NDAC) Air Pollution Control Rules in Article 33-15. North Dakota air rules fall under two main categories: those regulations that are generally applicable (e.g., permitting requirements) and those that have specific applicability (e.g., PM standards for processes). The generally applicable requirements are straightforward (e.g., filing of emission statements, permit fees, stack heights, etc.) and, as such, are not discussed in further detail. Similar to Section 4.1, only regulations applicable or potentially applicable to the proposed modification are discussed below; regulations applicable to unchanged units have been addressed in previous applications, and thus are not discussed in this application.

4.2.1 Federal Regulations Incorporated by Reference

The project is not subject to any additional air-related federal requirements beyond those covered in the Federal Regulations in Section 4.1 for these State Air Regulations.

4.2.2 NDAC 33.1-15-03 - Restriction of Emission of Visible Contaminants

NDAC33.1-15-03 establishes standards for visible air contaminants from new and existing installations, fugitive emissions, and flares. The new generators will comply with the opacity requirements in NDAC 33-15-03-02.

In accordance with NDAC 33.1-15-03-02, no person may discharge into the ambient air from any new single source of emission whatsoever any air contaminant which exhibits an opacity greater than twenty percent except that a maximum of forty percent opacity is permissible for not more than one six-minute period per hour.

4.2.3 NDAC 33.1-15-05 – Emissions of Particulate Matter Restricted

NDAC 33.1-15-05 establishes particulate emission limits for process equipment and combustion equipment which use solid or liquid fuel. The generators EU 73 and EU 74 use liquid fuel, and therefore must comply with the emission limitations of NDAC 33.1-15-05-01. The limits are calculated by two equations shown below.

For process weight rates of up to 30 tons/hr:

$$E = 4.10 \times p^{0.67}$$

For process weight rates of more than 30 tons/hr:

$$E = 55.0 \times p^{0.11} - 40$$

Where E = the allowable emissions in lb/hr
P = process weight rate in tons/hr

The proposed generators will have a potential emission rate lower than the NDAC 33.1-15-05-01 calculated rate. Emission unit maximum throughputs and calculated PM emission limits related to the calculated potential to emit are given in Table 4.2.

Table 4.2. Calculated PM Emission Limits for NDAC 33.1-15-05

EU	Throughput Capacity (ton/hr)	Calculated PM Emission Limit (lb/hr)	Controlled PTE (lb/hr)
73	0.54	2.71	0.23
74	0.54	2.71	0.23

4.2.4 NDAC 33.1-15-06 – Emissions of Sulfur Compounds Restricted

NDAC 33.1-15-16-02 establishes a sulfur dioxide (SO_2) emission limit of 3.0 lb SO_2/MMBTU of heat input on a one-hour block average basis. The new generators each have a sulfur emission rate of 1.7E-03 lb SO2/MMBTU of heat input.

4.2.5 NDAC 33.1-15-07 – Control of Organic Compounds Emissions

NDAC 33.1-15-07 describes restrictions for organic compounds facilities and organic compounds gas disposal. While the new generators do emit VOCs, the requirements of NDAC 33-15-07 are not relevant to the installation and operation of generators.

4.2.6 NDAC 33.1-15-08 – Control of Air Pollution from Vehicles and Other Internal Combustion Engines

NDAC 33.1-15-08-01 prohibits the operation of internal combustion engines in a manner which would emit unreasonable smoke, obnoxious fumes, gases, or vapor. NDME will operate the new generators with best practices to limit air pollution.

4.2.7 NDAC 33.1-15-12 - Standards of Performance for New Stationary Sources

NDAC 33.1-15-12 incorporates by reference the NSPS subparts presented in 40 CFR 60. The applicability of this section is described in Section 4.1.3., above.

4.2.8 NDAC 33.1-15-13 – Emission Standards for Hazardous Air Pollutants

NDAC 33.1-15-13 incorporates by reference the NSPS subparts presented in 40 CFR 61. These subparts are not applicable to the new generators.

4.2.9 NDAC 33.1-15-15 – Prevention of Significant Deterioration of Air Quality

NDAC 33.1-15-15 incorporates by reference the PSD requirements listed in 40 CFR Part 52. The applicability of this section is described in Section 4.1, above.

4.2.10 NDAC 33.1-15-16 - General Odor Restrictions

This subpart restricts the release of objectionable odors from facilities. NDME is subject to this rule and will take measures to minimize the release of objectionable odors from the facility.

4.2.11 NDAC 33.1-15-22 - Hazardous Air Pollutants for Source Categories

NDAC 33.1-15-22 incorporates by reference the NESHAP subparts presented in 40 CFR 63. The applicability of these subparts is described above in section 4.1.4.

5. AIR DISPERSION MODELING ANAYLSIS

In order to determine if air dispersion modeling is required for this project, NDME reviewed the air dispersion modeling guidance documents published by the NDDEQ. Per the memo "Criteria Pollutant Modeling Requirements for a Permit to Construct," published October 6, 2014, and "Air Toxics Policy", air dispersion modeling requirements are outlined for both criteria pollutants and air toxics. A summary of the findings for each of these groups of pollutants are outlined below.

5.1 Criteria Pollutant Modeling

As described in the aforementioned air dispersion modeling guidance documents, permittees must review the separate criteria pollutant guidance document in order to determine what, if any, pollutants must be modeled. NDME reviewed the memo "Criteria Pollutant Modeling Requirements for a Permit to Construct," published October 6, 2014. As noted in this memo, projects not subject to PSD must model if the change in potential emissions from an existing facility exceed the amounts outlined in Table 5-1.

Table 5-1. Emission Increase Modeling Thresholds for Non-PSD Projects

Pollutant	Some Emissions Vented Through Stacks Less Than 1.5x Nearby Building Heights
NO_x	40 tpy
SO_2	40 tpy
PM_{10}	15 tpy
$PM_{2.5}$	10 tpy

The emission increase from this project is outlined in Table 5-2, and can also be found in the emission calculations found in Appendix A.

Table 5-2. Facility-Wide Emissions Change

Pollutant	Facility-Wide Emissions Change (tpy)
NO_x	38.66
SO_2	0.80
PM	0.29
PM_{10}	0.29
$PM_{2.5}$	0.29

As seen in these tables, there is an emissions change associated with the project; however, no criteria pollutant modeling is required for this project as the increase is below the modeling thresholds for Non-PSD projects.

5.2 Air Toxics

The "Air Toxics Policy" memo has been rescinded per the memo titled "Recission of: 1) Policy for the Control of Hazardous Air Pollutant (HAP) Emissions in North Dakota, 2) Dispersion Modeling Requirements, Compressor Engines and Glycol Dehydration Units" dated December 18, 2023. Air toxics modeling was not considered for this project.

APPENDIX A. EMISSION CALCULATIONS (ELECTRONIC)

APPENDIX B. APPLICATION FORMS AND APPLICATION FEE

PERMIT APPLICATION FOR AIR CONTAMINANT SOURCES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8516 (9-2021)

SECTION A - FACILITY INFORMATION

Name of Firm or Organization North Dakota Mill and Elevator		
Applicant's Name Dillon Janousek		
Title VP of Production Operations	Telephone Number (701) 795-7208	E-mail Address djanousek@NDMILL.com
Contact Person for Air Pollution Matters Same as Above		
Title	Telephone Number	E-mail Address
Mailing Address (Street & No.) P.O. Box 13078		
City Grand Forks	State ND	ZIP Code 58208
Facility Name North Dakota Mill and Elevator		
Facility Address (Street & No.) 1823 Mill Road		
City Grand Forks	State ND	ZIP Code 58208

County Grand Forks	Coordinates NAD 83 in Decimal Degrees (to forth decimal degree)	
	Latitude 47 Degrees 56 Minutes 19 Seconds	Longitude 97 Degrees 3 Minutes 24 Seconds

Legal Description of Facility Site

Quarter	Quarter	Section	Township	Range
NE	SW	33	152N	50W

Land Area at Facility Site 33 Acres (or) _____ Sq. Ft.	MSL Elevation at Facility 843 ft

SECTION B – GENERAL NATURE OF BUSINESS

Describe Nature of Business	North American Industry Classification System Number	Standard Industrial Classification Number (SIC)
Grain Elevator and Wheat Milling Facility	311211	2041

SECTION C – GENERAL PERMIT INFORMATION

Type of Permit? ☒ Permit to Construct (PTC) ☐ Permit to Operate (PTO)

If application is for a Permit to Construct, please provide the following data:

Planned Start Construction Date	Planned End Construction Date
01/2025	03/2025

SECTION D – SOURCE IDENTIFICATION AND CATEGORY OF EACH SOURCE INCLUDED ON THIS PERMIT APPLICATION

		Permit to Construct				Minor Source Permit to Operate						
Your Source ID Number	Source or Unit (Equipment, Machines, Devices, Boilers, Processes, Incinerators, Etc.)	New Source	Existing Source Modification	Existing Source Expansion	Existing Source Change of Location	New Source	Existing Source Initial Application	Existing Source After Modification	Existing Source After Expansion	Existing Source After Change of Location	Existing Source After Change of Ownership	Other
73	Generator	✔										
74	Generator	✔										

Add additional pages if necessary

SECTION D2 – APPLICABLE REGULATIONS

Source ID No.	Applicable Regulations (NSPS/MACT/NESHAP/etc.)
Facility-wide	
EU 73	NESHAP A, NESHAP ZZZZ, NSPS A, NSPS IIII
EU 74	NESHAP A, NESHAP ZZZZ, NSPS A, NSPS IIII

SECTION E – TOTAL POTENTIAL EMISSIONS

Pollutant	Amount (Tons Per Year)
NO_x	73.44
CO	17.86
PM	162.09

Pollutant	Amount (Tons Per Year)
PM_{10} (filterable and condensable)	71.77
$PM_{2.5}$ (filterable and condensable)	55.63
SO_2	3.98
VOC	9.86
GHG (as CO_2e)	43134.91
Largest Single HAP	0.31
Total HAPS	0.51

*If performance test results are available for the unit, submit a copy of test with this application. If manufacturer guarantee is used provide spec sheet.

SECTION F1 – ADDITIONAL FORMS Note: Not taking credit for control equipment

Indicate which of the following forms are attached and made part of the application

☐ Air Pollution Control Equipment (SFN 8532)	☐ Fuel Burning Equipment Used for Indirect Heating (SFN 8518)
☐ Construct/Operate Incinerators (SFN 8522)	■ Hazardous Air Pollutant (HAP) Sources (SFN 8329)
☐ Natural Gas Processing Plants (SFN 11408)	☐ Manufacturing or Processing Equipment (SFN 8520)
☐ Glycol Dehydration Units (SFN 58923)	☐ Volatile Organic Compounds Storage Tank (SFN 8535)
☐ Flares (SFN 59652)	■ Internal Combustion Engines and Turbines (SFN 8891)
☐ Grain, Feed, and Fertilizer Operations (SFN 8524)	☐ Oil/Gas Production Facility Registration (SFN 14334)

SECTION F2 – OTHER ATTACHMENTS INCLUDED AS PART OF THIS APPLICATION

1.	Narrative	4.	NSPS A and IIII Highlighting
2.	PTE Calculations	5.	Manufacturer specifications
3.	NESHAP A and ZZZZ Highlighting	6.	

I, the undersigned applicant, am fully aware that statements made in this application and the attached exhibits and statements constitute the application for Permit(s) to Construct and/or Operate Air Contaminant sources from the North Dakota Department of Environmental Quality and certify that the information in this application is true, correct and complete to the best of my knowledge and belief. Further, I agree to comply with the provisions of Chapter 23.1-06 of the North Dakota Century Code and all rules and regulations of the Department, or revisions thereof. I also understand the permit is nontransferable and, if granted a permit, I will promptly notify the Department upon sale or legal transfer of this permitted establishment.

Signature	Date

PERMIT APPLICATION FOR HAZARDOUS AIR POLLUTANT (HAP) SOURCES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8329 (9-2021)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization North Dakota Mill and Elevator		
Applicant's Name Dillon Janousek		
Title VP of Production Operations	Telephone Number (701) 795-7208	E-mail Address djanousek@NDMILL.com
Mailing Address (Street & No.) P.O. Box 13078		
City Grand Forks	State ND	ZIP Code 58208

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Same as above		
Title	Telephone Number	E-mail Address
Facility Address (Street & No. or Lat/Long to Nearest Second) 1823 Mill Road		
City Grand Forks	State ND	ZIP Code 58208
County Grand Forks	Number of Employees at Location	
Land Area at Plant Site 33 Acres (or) Sq. Ft.	MSL Elevation at Plant 843 ft	

Describe Nature of Business/Process NDME is a grain elevator and wheat milling facility in Grand Forks, North Dakota

SECTION B – STACK DATA

Inside Diameter (ft) 2.83	Height Above Grade (ft) 18	
Gas Temperature at Exit (°F) 884	Gas Velocity at Exit (ft/sec) 14.4	Gas Volume (scfm) 5432
Basis of any Estimates (attach separate sheet if necessary) Manufacturer specifications		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 ☐ Yes ■ No		
Nearest Residences or Building	Distance (ft) 311	Direction E
Nearest Property Line	Distance (ft) 86	Direction NE

SECTION C – EMISSION STREAM DATA

Source ID Number SFN 8516 73	Mean Particle Diameter (um)
Flow Rate (scfm) 5432	Drift Velocity (ft/sec)
Stream Temperature (°F) 884	Particulate Concentration (gr/dscf)
Moisture Content (%)	Halogens or Metals Present?
Pressure (in. Hg) 0.37	Organic Content (ppmv)
Heat Content (Btu/scfm)	O_2 Content (%)

SECTION D – POLLUTANT SPECIFIC DATA
(Complete One Box for Each Pollutant in Emission Stream)

See attached calculations for pollutant specific data

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

(Add additional pages if necessary)

Signature of Applicant	Date

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188

PERMIT APPLICATION FOR HAZARDOUS AIR POLLUTANT (HAP) SOURCES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8329 (9-2021)

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Applicant's Name Dillon Janousek		
Title VP of Production Operations	Telephone Number (701) 795-7208	E-mail Address djanousek@NDMILL.com
Mailing Address (Street & No.) P.O. Box 13078		
City Grand Forks	State ND	ZIP Code 58208

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Contact Person for Air Pollution Matters Same as above		
Title	Telephone Number	E-mail Address
Facility Address (Street & No. or Lat/Long to Nearest Second) 1823 Mill Road		
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County Grand Forks	Number of Employees at Location	
Land Area at Plant Site 33 Acres (or) Sq. Ft.	MSL Elevation at Plant 843 ft	

Describe Nature of Business/Process NDME is a grain elevator and wheat milling facility in Grand Forks, North Dakota

SECTION B – STACK DATA

Inside Diameter (ft) 2.83	Height Above Grade (ft) 18	
Gas Temperature at Exit (°F) 884	Gas Velocity at Exit (ft/sec) 14.4	Gas Volume (scfm) 5432
Basis of any Estimates (attach separate sheet if necessary) Manufacturer specifications		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 ☐ Yes ■ No		
Nearest Residences or Building	Distance (ft) 539	Direction NE
Nearest Property Line	Distance (ft) 393	Direction NE

SECTION C – EMISSION STREAM DATA

Source ID Number SFN 8516 74	Mean Particle Diameter (um)
Flow Rate (scfm) 5432	Drift Velocity (ft/sec)
Stream Temperature (°F) 884	Particulate Concentration (gr/dscf)
Moisture Content (%)	Halogens or Metals Present?
Pressure (in. Hg) 0.37	Organic Content (ppmv)
Heat Content (Btu/scfm)	O_2 Content (%)

SECTION D – POLLUTANT SPECIFIC DATA
(Complete One Box for Each Pollutant in Emission Stream)

See attached calculations for pollutant specific data

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

(Add additional pages if necessary)

Signature of Applicant	Date

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188

PERMIT APPLICATION FOR INTERNAL COMBUSTION ENGINES AND TURBINES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8891 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must include SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
North Dakota Mill and Elevator	North Dakota Mill and Elevator

SECTION B – FACILITY AND UNIT INFORMATION

Source ID Number (From form SFN 8516)
EU 73

Type of Unit (check all that apply)

- ☐ Stationary Natural Gas-Fired Engine
- ■ Stationary Diesel and Dual Fuel Engine
- ☐ Stationary Gasoline Engine
- ☐ Stationary Natural Gas-Fired Turbine
- ☐ Emergency Use Only
- ■ Non-Emergency Use
- ☐ Peaking
- ☐ Demand Response
- ☐ Other – Specify:

SECTION C – MANUFACTURER DATA

Make	Model	Date of Manufacture
Cummins	QSK60-G6 NR2	6/10/2006

Reciprocating Internal Combustion Engine

☐ Spark Ignition ■ Compression Ignition ☐ Lean Burn
☐ 4 Stroke ☐ 2 Stroke ☐ Rich Burn

Maximum Rating (BHP @ rpm)	Operating Capacity (BHP @ rpm)
2919 BHP @ 1800 RPM	

Engine Subject to:

- ■ 40 CFR 60, Subpart IIII
- ☐ 40 CFR 60, Subpart JJJJ
- ■ 40 CFR 63, Subpart ZZZZ
- ☐ 40 CFR 60, Subpart OOOO (for compressors)
- ☐ 40 CFR 60, Subpart OOOOa (for compressors)

Turbine
Dry Low Emissions? ☐ Yes ☐ No

Heat Input (MMBtu/hr)	Maximum Rating (HP)	75% Rating (HP)	Efficiency

Turbine Subject to:
☐ 40 CFR 60, Subpart GG ☐ 40 CFR 60, Subpart KKKK

SECTION D – FUELS USED

Natural Gas (10^6 cu ft/year)	Percent Sulfur	Percent H_2S
Oil (gal/year) 176,625	Percent Sulfur 0.03-0.05%	Grade No.
LP Gas (gal/year)	Other – Specify:	

SECTION E – NORMAL OPERATING SCHEDULE

Hours Per Day	Days Per Week	Weeks Per Year	Hours Per Year	Peak Production Season (if any)
0.5	1	52	1250	

SECTION F – STACK PARAMETERS

Emission Point ID Number		Stack Height Above Ground Level (feet)	
90		18	
Stack Diameter (feet at top)	**Gas Discharged (SCFM)**	**Exit Temp (°F)**	**Gas Velocity (FPS)**
2.83	5432	884	14.4

SECTION G – EMISSION CONTROL EQUIPMENT

Note: Not taking credit for control equipment

Is any emission control equipment installed on this unit?

☒ No ☐ Yes – Complete and attach form SFN 8532

SECTION H – MAXIMUM AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Amount (Tons Per Year)	Basis of Estimate*
NO_x	30.93	19.33	Catalytic Combustion Corporation Cummins Q5K60-G6 NR2 Specification Sheet (pre-control)
CO	1.05	0.66	Catalytic Combustion Corporation Cummins Q5K60-G6 NR2 Specification Sheet (pre-control)
PM	0.23	0.15	AP-42 Ch 3.4, Table 3.4-1
PM_{10} (filterable and condensable)	0.23	0.15	AP-42 Ch 3.4, Table 3.4-1
$PM_{2.5}$ (filterable and condensable)	0.23	0.15	AP-42 Ch 3.4, Table 3.4-1
SO_2	0.64	0.40	AP-42 Ch 3.4, Table 3.4-1
VOC	0.64	0.40	Catalytic Combustion Corporation Cummins Q5K60-G6 NR2 Specification Sheet (pre-control)
GHG (as CO_2e)	3067.98	1917.49	40 CFR 98, Subp. A Table A-1
Largest Single HAP	0.01	.00899	AP-42 Ch 3.4 Tables 3.4-3 and 3.4-4
Total HAPS	0.03	0.02	AP-42 Ch 3.4 Tables 3.4-3 and 3.4-4

* If performance test results are available for the unit, submit a copy of test with this application, if manufacture data used, submit manufacturers specification sheets.

IS THIS UNIT IN COMPLIANCE WITH ALL APPLICABLE AIR POLLUTION RULES AND REGULATIONS?

☒ YES ☐ NO

If "NO" a Compliance Schedule (SFN 61008) must be completed and attached.

Attach and label separate sheet(s) if you need more space to explain any system or answers or to provide complete listings of Emissions, Contaminants, or other items.

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PERMIT APPLICATION FOR INTERNAL COMBUSTION ENGINES AND TURBINES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8891 (9-2021)

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North Dakota Mill and Elevator	North Dakota Mill and Elevator

SECTION B – FACILITY AND UNIT INFORMATION

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EU 74

Type of Unit (check all that apply)

- ☐ Stationary Natural Gas-Fired Engine
- ■ Stationary Diesel and Dual Fuel Engine
- ☐ Stationary Gasoline Engine
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Dry Low Emissions? ☐ Yes ☐ No

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Oil (gal/year)	Percent Sulfur	Grade No.
176,625	0.03-0.05%	
LP Gas (gal/year)	Other – Specify:	

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Hours Per Day	Days Per Week	Weeks Per Year	Hours Per Year	Peak Production Season (if any)
0.5	1	52	1250	

SECTION F – STACK PARAMETERS

Emission Point ID Number		Stack Height Above Ground Level (feet)	
91		18	
Stack Diameter (feet at top)	Gas Discharged (SCFM)	Exit Temp (°F)	Gas Velocity (FPS)
2.83	5432	884	14.4

SECTION G – EMISSION CONTROL EQUIPMENT

Note: Not taking credit for control equipment

Is any emission control equipment installed on this unit?

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* If performance test results are available for the unit, submit a copy of test with this application, if manufacture data used, submit manufacturers specification sheets.

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☒ YES ☐ NO

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(701) 328-5188

Catalytic Combustion Corporation
311 Riggs Street, Bloomer, WI 54724
Tel: (715) 568-2882 • Fax: (715) 568-2884
Email mthompson@catalyticcombustion.com

CATALYTIC COMBUSTION
EMISSION TECHNOLOGIES

To North Dakota State Mill
Attn Shane Johnson
Via E-mail

Our Ref. 00100-291259.01
Date: 23 August, 2024
Page: 1 of 1

QUOTATION

For : Cummins QSK60-G6 NR2 Project/Location :

Engine Parameters

				Raw Exhaust	
Engine Manufacturer	Cummins				
Engine Model	QSK60-G6 NR2		NOx	5.30	g/bhp-hr
Horsepower	2919	bhp	CO	0.18	g/bhp-hr
Speed	1800	rpm	NMHC	-	g/bhp-hr
Exhaust Flowrate	14920	acfm	NMNEHC (VOC)	0.11	g/bhp-hr
Exhaust Temperature	893	° F	HCHO	-	g/bhp-hr
Fuel	Diesel		Oxygen	10.00	%

Catalyst Description and Performance Expectations

Catalyst Model	BRN (or BRH)-3350-C-10HF-DOC3	Overall Dimensions	33.5 x 0 x 3.5
Cell Pattern, Substrate	10HF	Catalyst Qty Required	1 per Unit
Formulation	DOC3	Pressure Drop	4.2 inches of H2O
Warranty Period [hrs]	24000		

	Performance	
NOx		
CO	70	% Conversion
NMHC		
NMNEHC (VOC)		
HCHO		

Product Description

Product Family	(FSC) Catalyst Housing	Catalyst Capacity	2
Nominal Diameter	48 inches	Attenuation	Critical (24-34 dBA)
Nominal Length	151 inches	Housing + Catalyst(s)	12 inches of H2O
Configuration	End In/End Out	Materials	Carbon Steel
Inlet Connection	18" 150# Flange	Finish	HT Black Paint
Outlet Connection	18" 150# Flange	Weight [lb]	2519

Pricing and Commercial Terms

Qty	Item	Unit Price	Extended Price
1	(FSC) Catalyst Housing, FSCC-4821C-3350C1-181181-0X	$13,821	$13,821
1	Catalyst Element, BRN (or BRH)-3350-C-10HF-DOC3	$3,810	$3,810
1	Cradle (EXF4), EXF4-48177C24-3350N-41200-00000-0X	$3,265	$3,265
1	Exhaust Stack (ES), ESM-1800C-6400-10-2200-0X	$1,977	$1,977
1	(RC) Rain Cap, RC-18PC	$773	$773
2	(NBG) Nut Bolt Gasket, NBG-1800-FB-J429X05	$384	$768
		Total per Engine	$24,414

Leadtime	6-8 Weeks After Receipt of Approvals
Packaging	CCC Standard
Payment Terms	Net 30 Days
Currency	USD
Shipment Terms	FOB Point of Shipping Prepaid and Add, or Collect by a carrier of your choice.
Installation	Not included unless explicitly stated in above Pricing and Commercial Terms
Validity	30 days from date of issue.

This quote is subject to Catalytic Combustion's Terms and Conditions of Sale which can be reviewed at www.catalyticcombustion.com

Application Notes and Exceptions:

- Engine operating conditions and raw emissions to be confirmed/verified by end user.

Thank you for the opportunity to quote these products for you. Please contact us if you have any questions regarding this quotation or to let us know how we can be of further help.

Best regards,

Mindy Thompson

Mindy Thompson
Senior Account Manager, Catalytic Combustion Corporation
Prepared By: TV

Exhaust Emission Data Sheet
2000DQKAB*
60 Hz Diesel Generator Set

Engine Information:

Model:	Cummins Inc QSK60-G6 NR2	Bore:	6.25 in. (158 mm)
Type:	4 Cycle, 60°V, 16 Cylinder Diesel	Stroke:	7.48 in. (189 mm)
Aspiration:	Turbocharged and Low Temperature Air Aftercooled	Displacement:	3673 cu. In. (60.1 liters)
Compression Ratio:	14.5:1		
Emission Control Device:	Turbocharged and Low Temperature Aftercooled		

	1/4	1/2	3/4	Full	Full
PERFORMANCE DATA	**Standby**	**Standby**	**Standby**	**Standby**	**Prime**
BHP @ 1800 RPM (60 Hz)	730	1460	2189	2919	2639
Fuel Consumption (gal/Hr)	46.5	82	107.3	141.3	124.1
Exhaust Gas Flow (CFM)	6510	10220	12000	14920	13780
Exhaust Gas Temperature (°F)	772	838	873	893	884
EXHAUST EMISSION DATA					
HC (Total Unburned Hydrocarbons)	0.22	0.13	0.10	0.11	0.09
NOx (Oxides of Nitrogen as NO2)	2.70	3.10	4.70	5.30	6.00
CO (carbon Monoxide)	0.57	0.36	0.13	0.18	0.16
PM (Particular Matter)	0.16	0.14	0.04	0.04	0.02
SO2 (Sulfur Dioxide)	0.14	0.13	0.11	0.11	0.11
Smoke (Bosch)	0.50	0.60	0.20	0.20	0.10

All values are Grams per HP-Hour, Smoke is Bosch#

TEST CONDITIONS

Data is representative of steady-state engine speed (± 25 RPM) at designated genset loads. Pressures, temperatures, and emission rates were stabilized.

Fuel Specification:	ASTM D975 No. 2-D diesel fuel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.
Fuel Temperature:	99 ± 9 °F (at fuel pump inlet)
Intake Air Temperature:	77 ± 9 °F
Barometric Pressure:	29.6 ± 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference Standard:	ISO 8178

The NOx, HC, CO and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may results in elevated emission levels.