AIR QUALITY BUREAU
7900 Hickman Rd., Suite 1
Windsor Heights, IA 50324

IOWA DNR Emission Inventory Questionnaire

Form INV-1 Facility Identification

1) Application Type	Initial ☒	Supplemental Information	☐
2) Facility Number	00-00-000		
3) Company/Facility Name	GRAIN ELEVATOR INC		
4) Emission Year	20--		
5) Facility Street Address	1234 MAIN ST		
6) Facility City	ANYTOWN		IA
7) Zip Code	99999		
8) Facility Contact Person	JOHN DOE		
9) Facility Contact Phone Number / E-Mail Address	555-666-7777	JOHN.DOE@GRAINELEVATORINC	
10) Mailing Street/PO Box	PO BOX 10		
11) Mailing City	ANYTOWN		
12) State	IA		
13) Zip Code	99999		
14) Parent Company / Owner Name	Grain Elevator Inc		
15) Parent Company / Owner Mailing Address	PO BOX 10		
16) City	ANYTOWN		
17) State	IA		
18) Zip Code	99999		
19) Parent Company Contact/Agent	JERRY DOE		
20) Parent Company Contact Phone Number	555-666-7778		

CERTIFICATION STATEMENT

"I certify under penalty of law that, based on the information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete. I understand that making false statements, representations, or certifications of this submission may result in civil or criminal penalties."

21) Name of Responsible Official

22) Title of Responsible Official

23) Signature of Responsible Official

24) Date of Signature

25) Primary Standard Industrial Classification (SIC)	5153	Primary North American Industrial Classification System (NAICS)	424510
26) Activity Description	Grain and field beans		

27) SECONDARY ACTIVITIES

SIC		NAICS	
Activity Description		Activity Description	
SIC		NAICS	
Activity Description		Activity Description	

28) PLANT LOCATION

Latitude	42.194147
Longitude	-95.324071

TYPE ALL INFORMATION

(DNR Form 542-4017. January 4, 2010)

Form INV-2 EMISSION POINT DESCRIPTION

Duplicate this form for EACH Emission POINT

1) Company/Facility Name	Grain Elevator Inc	1a) Form INV-2 Page		of	
2) Emission Point Number	EP-1				
3) Emission Point Description	Grain Cleaner Emissions				
4) Is this stack/vent used as an Emergency Bypass Stack?	No ☒	Yes ☐			
If YES, for which stack(s)? List Emission Point Nos.:					

EMISSION POINT INFORMATION

5) Emission Point Type		
Stack/Vent	☐	
Fugitive (specify)	☐	
Other (specify)	☒	Vents Inside

6) Stack Shape and Dimensions: (interior dimensions at exit point)						
Circular Diameter:	☐		inches			
Rectangular Dimensions:	☐		inches	X		inches
Other Dimensions	☐		inches			
7) Stack Height Above Ground		feet				

8) Does the Emission Point have a rain cap (or anything else) which obstructs the flow of gases leaving the Emission Point, or a horizontal discharge?				
No	☐	YES (specify):	☐	

9) COMPOSTION OF EXHAUST STREAM

Exhaust Stream Characteristics	Emission Point Composition of Exhaust Stream	Units of Measure
a) Flow Rate		☐ ACFM ☐ SCFM
b) Temperature		Degree Fahrenheit

10) BYPASS STACKS

Bypass Stack – Emission Point No.		Bypass Stack Description	
Bypass Stack – Emission Point No.		Bypass Stack Description	

11) LIST OF EMISSION UNITS VENTING THROUGH THIS EMISSION POINT

Emission Unit No.	Emission Unit No	Emission Unit No.	Emission Unit No.
EU-1			

Duplicate this form as needed TYPE ALL INFORMATION (DNR Form 542-4004. November 1, 2006)

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	Grain Elevator Inc	1a) Form INV-3 Page		of	
2) Emission Point Number	EP-1				

EMISSION UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

3) Emission Unit Number	EU-1						
4) SCC Number	30200537						
5) Description of Process	Grain Cleaning						
6) Date of Construction	3-1-57	7) Date of Installation	3-1-57	8) Date of Modification			
9) Raw Material – OR Fuels Used List worst case for EACH pollutant	Corn						
10) Federally Enforceable Limit	50 tons PM_{10}/yr for the entire facility						
11) Permit or Rule Establishing Limit	08-A-000						
12) Maximum Hourly Design Rate	200	Tons	Per Hour				

13) AIR POLLUTION CONTROL EQUIPMENT (CE)

Control Equipment Number	**CE-1**
Control Equipment Description	**Cyclone**
Control Equipment Number	
Control Equipment Description	

POTENTIAL EMISSIONS

14 Air Pollutant	15 Emission Factor	16 Emission Factor Units	17 Source of E.F.	18 Ash or Sulfur %	19 Potential Hourly Uncontrolled Emissions (Lbs/Hr)	20 Combined Control Efficiency	21 Transfer Efficiency	22 Potential Hourly Controlled Emissions (Lbs/Hr)	23 Potential Annual Emissions (Tons/Yr)
PM-2.5	.0032	Lbs/ton	AP-42					.64	.80
PM-10	.019	Lbs/ton	AP-42					3.80	4.75
SO_2									
NOx									
VOC									
CO									
Lead									
Ammonia									
POTENTIAL EMISSIONS - HAPs and additional regulated air pollutants – list the pollutant name in Column 14									

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed TYPE ALL INFORMATION (DNR Form 542-4001. November 1, 2006)

Form INV-4 EMISSION UNIT DESCRIPTION – ACTUAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	Grain Elevator Inc	1a) Form INV-4 Page	of
2) Emission Year	20--	3) Emission Point Number	EP-1

EMISSION UNIT – ACTUAL OPERATIONS AND EMISSIONS

4) Emission Unit Number	EU-1	5) SCC Number	30200537
6) Description of Process	Grain Cleaning		

ACTUAL THROUGHPUT

7) Raw Material	Corn		
8) Actual Throughput – Yearly Total	450,000	9) Units Raw Material	Tons

Actual Operating Rate/Schedule

	10) Percent of Total Operating Time	11) Hours/Day	12) Days/Week	13) Weeks/Quarter
JAN – MAR	35	8	5	13
APR – JUN	10	8	5	4
JUL – SEP	10	8	5	4
OCT - DEC	45	12	6	13

14) AIR POLLUTION CONTROL EQUIPMENT (CE)

Control Equipment Number	CE-1
Control Equipment Description	Cyclone
Control Equipment Number	
Control Equipment Description	

ACTUAL EMISSIONS

15 Air Pollutant	16 Emission Factor	17 Emission Factor Units	18 Source of E.F.	19 Ash or Sulfur %	20 Combined Control Efficiency	21 Transfer Efficiency	22 Actual Emissions (Tons/Yr)
PM-2.5	.0032	Lbs/ton	AP-42				.72
PM-10	.019	Lbs/ton	AP-42				4.28
SO_2							
NOX							
VOC							
CO							
Lead							
Ammonia							
ACTUAL EMISSIONS - HAPs and additional regulated air pollutants – list the pollutant name in Column 15							

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed TYPE ALL INFORMATION (DNR Form 542-4002 November 1, 2006)

Form INV-5 CALCULATIONS

Duplicate this form for each Form it will accompany in the Questionnaire

1) Company/Facility Name	Grain Elevator Inc			1a) Form INV-5 Page	of
2) Emission Point No.	EP-1	3) Emission Unit No.	EU-1		
4) Calculations are provided in support of information reported on Form INV -	3 ☒	4 ☐	for the Emission Point and Emission Unit listed above.		
5) Emissions Calculations					

This methodology should be followed for cleaners, screens, and similar equipment at grain elevators:

Maximum hourly design rate of grain cleaner = 200 tons/hr
$PM_{2.5}$ emission factor for grain cleaning per AP-42, Table 9.9.1-1 = .0032 lbs/ton (controlled factor)
PM_{10} emission factor for grain cleaning per AP-42, Table 9.9.1-1 = .019 lbs/ton (controlled factor)

<u>Potential hourly controlled emissions:</u>
$PM_{2.5}$ = 200 tons/hr x .0032 lbs/ton = .64 lbs/hr
PM_{10} = 200 tons/hr x .019 lbs/ton = 3.80 lbs/hr

<u>Potential annual emissions:</u>
To calculate $PM_{2.5}$ and PM_{10} potential annual emissions multiply the highest actual grain throughput from the last five years by 1.2. Multiply the adjusted actual throughput by the emission factor and divide by 2,000.

Highest actual throughput in the last five years = 416,667 tons/yr
416,667 tons/yr x 1.2 = 500,000 tons/yr

$PM_{2.5}$ = 500,000 tons/yr x .0032 lbs/ton x 1 ton/2,000 lbs = .80 tons/yr
PM_{10} = 500,000 tons/yr x .019 lbs/ton x 1 ton/2,000 lbs = 4.75 tons/yr

Form INV-5 CALCULATIONS

Duplicate this form for each Form it will accompany in the Questionnaire

1) Company/Facility Name	Grain Elevator Inc			1a) Form INV-5 Page	of
2) Emission Point No.	EP-1	3) Emission Unit No.	EU-1		
4) Calculations are provided in support of information reported on Form INV -	3 ☐	4 ☒	for the Emission Point and Emission Unit listed above.		
5) Emissions Calculations					

This methodology should be followed for cleaners, screens, and similar equipment at grain elevators:

Actual emissions from all processes at Group 2 Grain Elevators should be calculated using *actual throughput* data from the applicable emission year.

Actual emissions:

To calculate actual emissions, multiply the actual grain throughput by the appropriate emission factor and divide by 2,000.

$PM_{2.5}$ = 450,000 tons x .0032 lbs/ton x 1 ton/2,000 lbs = .72 tons

PM_{10} = 450,000 tons x .019 lbs/ton x 1 ton/2,000 lbs = 4.28 tons