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AI# 11018
IQ# 7631

August 8, 2024

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

AUG 08 2024

*RE: Crow Wing – Capped Permit Application
AQ Facility ID: 03500031*

To Whom it May Concern:

On behalf of Crow Wing Recycling Inc., dba Nordic Metals (Crow Wing), please find the enclosed capped permit application as Attachment 1 for its metal recycling facility in Ironton, MN. Crow Wing's Ironton facility currently operates under Registration Option D Permit No. 03500031.

Crow Wing continues to believe its current Registration Option D permit is the appropriate permit for its Ironton facility because actual emissions remain well below the threshold for applicability under that permitting program. However, Crow Wing recognizes the concerns MPCA has previously expressed regarding the permitting status of the facility, including questions MPCA has raised regarding whether the facility requires a limit on volatile organic compounds (VOCs). To address MPCA's concerns, Crow Wing is applying for a Capped Permit – Option 2 to further ensure the VOC and other emissions are limited below the relevant major source thresholds.

This permit application is subject to Minn. Stat. §116.03, subd. 2b(d) which requires the commissioner of the MPCA to determine whether the application is complete within 30 business days after application receipt. Crow Wing chooses to waive its statutory right to a completeness review within 30 days. This letter serves as notification to the MPCA of the waiver request.

Crow Wing also requests a call with the permit engineer in advance of finalizing the completeness review determination so that any questions about the application content may be discussed in a timely manner.

We appreciate your attention to this major amendment permit application. If you have any questions or comments about the information presented in this letter, please do not hesitate to call me at (651) 275-9900 x2405.

Sincerely,

TRINITY CONSULTANTS

Tony Colombari
Principal Consultant

cc: Crystal Palmer, Crow Wing
Grant VanWyngaeren, Crow Wing

HEADQUARTERS

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ATTACHMENT 1
Capped Permit Application

CROW WING IRONTON CAPPED PERMIT APPLICATION



Crow Wing Recycling / Ironton

Prepared By:

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August 2024

Project 224701.0059

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1. EXECUTIVE SUMMARY

This document constitutes a Capped Permit – Option 2 application for the metal recycling facility operated by Crow Wing Recycling Inc dba Nordic Metals (Crow Wing) in Ironton, Minnesota (Ironton facility). The Ironton facility (facility ID: 03500031) currently operates under Registration Option D Permit No. 03500031.

Crow Wing continues to believe its current Registration Option D permit is the appropriate permit for its Ironton facility because actual emissions remain well below the threshold for applicability under that permitting program. However, Crow Wing recognizes the concerns MPCA has previously expressed regarding the permitting status of the facility, including questions MPCA has raised regarding whether the facility requires a limit on volatile organic compounds (VOCs). To address MPCA's concerns, Crow Wing is applying for a Capped Permit – Option 2 to further ensure the VOC and other emissions are limited below the relevant major source thresholds.

This permit application is subject to Minn. Stat. §116.03, subd. 2b(d) which requires the commissioner of the MPCA to determine whether the application is complete within 30 business days after application receipt. Crow Wing chooses to waive its statutory right to a completeness review within 30 days. This letter serves as notification to the MPCA of the waiver request.

Crow Wing also requests a call with the permit engineer in advance of finalizing the completeness review determination, such that any questions about the application content may be discussed in a timely manner.

2. FACILITY DESCRIPTION

The Ironton facility is located at 19586 Co Rd 102, Ironton, MN 56455, and is a metal recycling facility. The facility includes various shredding, handling, and sorting equipment (e.g., conveyors, z-boxes, eddy currents). Emissions from the facility are primarily particulate matter (PM), particulate matter with an aerodynamic diameter less than 10 microns (PM₁₀), and hazardous air pollutants (HAPs). An aerial view of the facility can be seen in Figure 2-1, below.

Figure 2-1. Ironton, Minnesota Area Map



3. FACILITY SUMMARY

The Ironton facility includes various types of metal recycling operations. The key operations at the facility are summarized in the sections below. Emission calculations for these processes, including all IAs, is included in the application in Appendix A.

3.1 Shredder

The facility operates an automotive shredder with a capacity of 170 tph. The shredder system includes various material handling sources that are all insignificant activities (IAs) under Minn. R. 7011.1300.

3.2 Sorting Plant

The Ironton facility operates an automotive shredder residue (ASR) sorting plant. This plant includes various sizing operations (e.g., screens), material handling (conveyors), and Z-boxes operated with cyclones. The cyclones are used for product recovery and are operated as inherent process equipment. All operations in the sorting plant are considered insignificant activities.

3.3 Wire Chopping

The Ironton facility operates a wire chopping operation. This operation includes various grinding, sorting, and handling equipment such as hammermills, conveyors, fluidizers, granulators, screens, and z-boxes with cyclones. The granulators and fluidizers are controlled by baghouses which vent indoors. All other material handling operations (e.g., conveyors, screeners, z-boxes) are insignificant activities under Minn. R. 7011.1300.

3.4 Other Insignificant Activities

The Ironton facility includes other insignificant activities at the facility, including:

- A vertical shredder and associated material handling operations,
- A water table sorting system, and
- A redwave x-ray sorting system.

Emission calculations for these insignificant activities, including the insignificant activities discussed in the section above are included in the emission calculations.

4. REGULATORY APPLICABILITY ANALYSIS

The Ironton facility is subject to certain federal and state air quality regulations. This section summarizes the air permitting requirements and the key air quality regulations that apply to the facility covered by this Capped Permit application. Specifically, the applicability of the PSD program, Title V and Compliance Assurance Monitoring (CAM) permitting programs, New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAP), as well as other Minnesota air regulations are addressed.

4.1 Federal Regulatory Applicability

4.1.1 Prevention of Significant Deterioration of Air Quality

The Ironton facility is located in Crow Wing County, which is designated as attainment or unclassifiable for all criteria pollutants per the Code of Federal Regulations Title 40 (40 CFR) Section 81.324. The facility does not meet the definition of “major stationary source” under the PSD regulations because it has a PTE of less than 250 tons per year (tpy) of all “regulated NSR pollutants”. Additionally, the facility’s emissions are currently limited to less than 250 tpy of all regulated NSR pollutants by its Registration – Option D permit and will continue to be limited to less than 250 tpy for all regulated NSR pollutants under the Capped Permit – Option 2. Therefore, the facility is not subject to review under the PSD program.

4.1.2 Title V and Compliance Assurance Monitoring

Per 40 CFR Part 70, facilities are required to obtain Title V Operating Permits, or Part 70 permits, if they are considered a “major source.” Per 40 CFR Part 70.2, a “major source” is a facility that has the potential to emit 10 tpy of any single HAP or 25 tpy of total HAPs, or over 100 tpy of any regulated air pollutant, including CO, NO_x, PM₁₀, PM_{2.5}, SO₂, or VOC. As previously mentioned, the facility’s emissions are currently limited by its Registration Permit – Option D and will continue to be limited to below the major source thresholds under the proposed Capped Permit – Option 2.

Per 40 CFR Part 64.2(a), Compliance Assurance Monitoring (CAM) requirements apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit. As the facility is not a major source, CAM does not apply to the Ironton Facility.

4.1.3 New Source Performance Standards

New Source Performance Standards (NSPS) requirements are found in 40 CFR Part 60. Crow Wing is not subject to any NSPS.

4.1.4 National Emission Standards for Hazardous Air Pollutants

NESHAPs have been established in 40 CFR Part 61 and Part 63 to control the emissions of HAPs. NESHAP regulations codified in 40 CFR Part 63 establish Maximum Achievable Control Technology (MACT) standards for specific types of equipment at qualifying facilities. The Ironton facility is not subject to any Part 61 or Part 63 NESHAPs.

4.2 Minnesota Regulatory Applicability

The Ironton facility is subject to several regulations contained in the Minnesota Administrative Rules (Minn. R.). The Minnesota Administrative Rules include requirements 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, etc.) and, as such, are not discussed in further detail.

4.2.1 Minn. R. Chapter 7011.0700-0825 – Industrial Process Equipment

Minn. R. Chapter 7011.0700:0825 provide standards of performance for industrial process equipment not otherwise subject to a state or federal standard of performance. As the equipment at the Ironton facility is not subject to any other standards, this rule applies. The rule establishes PM emission limits based on the process weight rate and/or the airflow rate of the unit utilizing Tables 1 and 2 in Minn. R. 7011.0730 and 0735, respectively. Calculations for EU 001-007 are included in the facility-wide calculations and the units potential to emit is well below the limitations from this rule.

5. MODELING ANALYSIS

To obtain a capped permit, a facility must conduct an ambient air quality assessment per Minn. R. 7007.1148 for emissions of SO₂, PM₁₀, or NO_x, which can be done using either the CAPS electronic spreadsheet or SCREEN3. Crow Wing has completed an analysis to demonstrate that the facility will not cause or contribute to a violation of the 24-hour PM₁₀ standard using the CAPS electronic spreadsheet and the methodology described below. As the facility has no SO₂ or NO_x emissions, only PM₁₀ was included in the analysis.

5.1 CAPS Spreadsheet Setup

The modeling analysis includes EQUI 001-007 (Wire Chopping Granulators and Fluidizers) and FUGI 1 (Shredder). Potential emissions of PM₁₀ for each emission unit at the source are entered into the CAPS spreadsheet. However, because these emissions do not vent out of a stack, emissions were grouped by location. The shredder is considered one emission unit while the granulators and fluidizers are grouped together since they emit inside the office building.

5.2 Model Setup

The CAPS spreadsheet provides the option to use default dispersion factors or generate specific dispersion factors for each source. For this assessment, Crow Wing generated specific 24-hour dispersion factors using AERMOD modeling emissions from the shredder building and the office building. This was necessary as both sources are modeled as volume sources rather than through discrete stacks.

AERMOD version 23132 was used to determine dispersion factors. The AERMOD file was setup using 1/3 arc-second DEM data from the United States Geological Survey (USGS) to determine elevation data using AERMAP version 18081. The model used MPCA pre-processed meteorological data that was processed with AERMET version 22112 from Brainerd, MN, as this was the closest meteorological station to the facility and has similar surface characteristics as the facility.

To determine the modeling parameters for the volume sources, the initial lateral and vertical dimensions were based on building dimensions. These dimensions, along with the volume source parameters are outlined in Table 6-1. Location of the volume sources within the facility are indicated by the red squares in Figure 6-1.

Table 6-1. Volume Source Parameters

Source	Building Length (m)	Building Width (m)	Effective Building Length ^a (m)	Building Height (m)	Release Height ^{b, c} (m)	Initial Lateral Dimension ^d (m)	Initial Vertical Dimension ^e (m)
Office Building	160	105	129.6	13.716	6.858	30.1	6.38
Shredder Building	20	17.5	18.7	11.582	4.572	4.35	5.39

- a. Effective Building Length represents the side length of a square with the same area as the building.
- b. For the Shredder, since the equipment is located on the outside of the building, release height is based on the height of the unit, which is 30 ft (9.144 m). Initial vertical dimension for the shredder is still based on the building height.
- c. Release height is determined by dividing the building height or source height by 2.
- d. Initial lateral dimension is determined by dividing the building length by 4.3.
- e. Initial vertical dimension is determined by dividing the building height by 2.15.

5.3 Dispersion Factors

The CAPS spreadsheet provides the option to use default dispersion factors or generate specific dispersion factors for each source. For this assessment, Crow Wing generated specific 24-hour dispersion factors using AERMOD modeling emissions from the shredder building and the office building. This was necessary as both sources are modeled as volume sources rather than through discrete stacks.

These dispersion factors are the maximum concentration in $\mu\text{g}/\text{m}^3$ (micrograms per meters cubed) at or beyond the property line resulting from emissions of one gram per second from a source. Crow Wing modeled emissions on the Ironton facility's fenceline, as shown in Figure 6-1.

To determine the unit-specific emission factors, Crow Wing modeled the two volume sources and identified the receptor with the maximum modeled concentration. Next, Crow Wing analyzed the plotfiles for each emission source to determine the maximum modeled concentration for each individual volume source at that receptor. The modeled impact was then scaled to a unit emission rate for each source by dividing the modeled impact by the emission source emission rate. It is important to note these dispersion factors conservatively assume the worst cast impacts for this receptor from the two volume sources will occur at the same time. This is extremely unlikely given the receptor is approximately between them, thus the modeled ambient air impacts are conservative. The results of this analysis are shown in Table 6-2.

Table 6-2. Dispersion Factors

Source	Emission Rate (g/s)	Modeled Impact at Maximum Receptor ($\mu\text{g}/\text{m}^3$)	24-hr Source Specific Dispersion Factor
Office (EU 001-007)	0.22	96.5	446.1
Shredder (FUGI 1)	0.10	11.7	116.2

Figure 6-1. Model Setup for Dispersion Factors



5.4 CAPS Analysis

These dispersion factors and emission rates for the emission units were input in the CAPS spreadsheet and the resultant fraction of the 24-hour standard was 0.721. Any value less than 1.000 indicates that the facility meets the eligibility criteria for the capped permit. The "Emissions, Dispersion, and Results" tab printout is included in Appendix B and relevant modeling files are included in this submittal.

APPENDIX A. AIR PERMIT APPLICATION FORMS

APPENDIX B. CAPS MODELING ANALYSIS

Appendix B

CAPS Spreadsheet

Yellow cells = required inputs (for each stack/vent considered--inputs not required for unused stacks)

White cells = optional inputs

All other cells locked

Screening Date:	8/7/2024
AQ Facility ID No.:	03500031
Facility Name:	Crow Wing Recycling, Inc. d/b/a Nordic Metals
Facility Location:	Crow Wing County
Address:	19586 County Road 102
Address (cont'd)	Ironton, MN 56455

Criteria Pollutant Screening Results Table				
Chemical	Fraction of 1-hr std	Fraction of 3-hr std	Fraction of 24-hr std	Fraction of annual std
SO ₂				
NO ₂				
PM ₁₀			0.721	

Emissions	Optional stack description >>>	Stack(s)#1		Stack(s)#2		Stack(s)#3		Stack(s)#4		Stack(s)#5		Stack(s)#6		Stack(s)#7		Stack(s)#8	
		Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
		Office (EQUI 001-007)		Shredder (FUGI 1)													
Pollutant Name	Total annual emissions (tpy)																
SO ₂																	
NO ₂																	
PM ₁₀		1.716921		0.8007													

Default Dispersion Factors	notes	Stack(s)#1	Stack(s)#2	Stack(s)#3	Stack(s)#4	Stack(s)#5	Stack(s)#6	Stack(s)#7	Stack(s)#8
Stack height (1-99 m)	required for lookup								
Distance to property line (10-10,000 m)	required for lookup								
1-hr dispersion factor	automatic lookup								
3-hr dispersion factor	automatic lookup								
24-hr dispersion factor	automatic lookup								
Annual dispersion factor	automatic lookup								

Optional Specific Dispersion Factors*	notes	Stack(s)#1	Stack(s)#2	Stack(s)#3	Stack(s)#4	Stack(s)#5	Stack(s)#6	Stack(s)#7	Stack(s)#8
1-hr dispersion factor	enter dispersion factors manually								
3-hr dispersion factor	enter dispersion factors manually								
24-hr dispersion factor	enter dispersion factors manually	446.0559147	116.2432006						
Annual dispersion factor	enter dispersion factors manually								

*Optional specific dispersion factors refers to dispersion factors developed via an external method such as the DISPERSE batch process, the SCREEN3 model or other screening or refined air dispersion modeling. After developing the dispersion factors they are entered manually on this sheet. If the optional specific dispersion factors cells are filled in, they are used preferentially over the Default Dispersion Factors lookup table values above.



Note: You must submit this form as part of your capped permit application package.

AQ Facility ID No.: 03500031

AQ File No.: 11018

Facility Name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

The following list of questions will help you to determine if you qualify for the capped emission permit. The capped permit contains limitations to keep the potential-to-emit for criteria and hazardous air pollutants below federal permitting thresholds. You can choose between an option 1 and an option 2 capped permit. Option 1 has higher allowable facility-wide emission limits than option 2, but requires tracking of emissions from insignificant activities. Requirements associated with the capped permit can be found in Minn. R. 7007.1140 to 7007.1148. (See <https://www.revisor.mn.gov/rules/?id=7007>.) Other information relating to the capped permit can be found at <http://www.pca.state.mn.us/hqzq483>.

Capped Permit Emission Thresholds for Options 1 and 2

POLLUTANT	Option 1 Threshold (ton/year)	Option 2 Threshold (ton/year)
Hazardous Air Pollutants (HAP)	9.0 tons per year for a single HAP 20 tons per year total for all HAPs	8.0 tons per year for a single HAP 20 tons per year total for all HAPs
Particulate Matter (PM)	90 tons per year	75 tons per year
PM smaller than 10 microns (PM ₁₀)	90 tons per year	75 tons per year
Volatile Organic Compounds (VOC)	90 tons per year	85 tons per year
Sulfur Dioxide (SO ₂)	90 tons per year	90 tons per year
Nitrogen Oxides (NO _x)	90 tons per year	85 tons per year
Carbon Monoxide (CO)	90 tons per year	85 tons per year
Lead (Pb)	0.50 tons/year	0.50 tons/year
Carbon Dioxide Equivalent (CO _{2e})	90,000 tons/year	85,000 tons/year

Questionnaire

Complete the following questions to determine if your stationary source qualifies for the capped permit. If you do not qualify for the capped permit, you must submit a permit application for a registration, Part 70, General, or State permit before you make a modification to your facility or an installation and operation permit for the modification under Minn. R. 7007.0750, subp. 5. You may not begin actual construction on the modification until the appropriate permit is obtained.

- Which capped permit option are you applying for?
 - Capped permit Option 1; Go to question 2.
 - Capped permit Option 2; Go to question 3.
- Will you accept a permit condition to limit actual emissions to less than the Option 1 thresholds listed in the table above based on a 12-month monthly rolling sum?
 - Yes; go to question 4.
 - No; your stationary source does not qualify for the capped permit.
- Will you accept a permit condition to limit actual emissions to less than the Option 2 thresholds listed in the table above based on a 12-month monthly rolling sum?
 - Yes; go to question 5.
 - No; your stationary source does not qualify for the capped permit.
- Will you accept a permit condition to calculate emissions from those insignificant activities that are quantifiable on a monthly basis? See CAP-IA Insignificant Activities List for more information.
 - Yes; Go to question 5.
 - No; evaluate if you will qualify for Option 2; otherwise your stationary source does not qualify for the capped permit.

5. You must perform an ambient air quality assessment as described in Minn. R. 7007.1148 to be eligible for a capped permit. Were the 1-hour, 3-hour, and 24-hour SO₂; the 24-hour PM₁₀; and annual Nitrogen Dioxide (NO₂) concentrations predicted in the assessment at and beyond the property line of your facility lower than the corresponding standard in Minn. R. 7009.0080? See <http://www.pca.state.mn.us/hqzq483> for more information about the assessment.
- Yes, go to question 6.
- No; your stationary source does not qualify for the capped permit.
6. In performing the ambient air quality assessment, did you assume any limits or conditions not contained in Minn. R. 7007.1140 to 7007.1148? Note that facilities with significant PM₁₀ emissions, such as those with material handling operations, may have difficulty successfully completing the assessment without taking production or hourly limits not contained in a capped permit.
- Yes, your stationary source does not qualify for the capped permit.
- No; go to question 7.
7. Are any of the emission units at your stationary source subject to any New Source Performance Standards other than 40 CFR pt. 60 Subparts Dc, I, K, Ka Kb, DD, EE, GG, SS, XX, JJJ, TTT, IIII, or JJJJ? If you have modified (as defined in 40 CFR § 60.14), reconstructed (as defined in 40 CFR § 60.15) or constructed the described emission source on or after the effective date listed in 40 CFR pt. 60, your stationary source may be subject to the requirements, see CAP-GI-09D Requirements Form.
- Yes, your stationary source does not qualify for the capped permit.
- No; go to question 8.
8. Are any of the emission units at your stationary source subject to a National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) standard other than one of the area source NESHAPS standards listed on Form CAP-GI-09A, question 1 (e.g., halogenated solvent cleaners, chromium plating, etc.)? See CAP-GI-09A Requirements Form for more information.
- Yes, your stationary source does not qualify for the capped permit.
- No; go to question 9.
9. Was (is) an environmental review required for your stationary source? (i.e., new stationary sources that have a potential to emit of 100 tons or more of any single air pollutant, and for stationary source modifications that will result in a single pollutant's potential increase in emissions of 100 tons per year or more).
- Yes; go to question 10.
- No; go to question 11.
10. Did you assume any specific conditions or limits not contained in Minn. R. 7007.1140 to 7007.1148 in obtaining a negative declaration in an environmental assessment worksheet or as a mitigation measure in an environmental impact statement?
- Yes; your stationary source does not qualify for the capped permit.
- No; go to question 11.
11. Is your facility required to obtain a permit under Minn. R. 7007.0200, subp. 3, acid rain affected sources; Minn. R. 7007.0200, subp. 4, solid waste incinerators and waste combustors; Minn. R. 7007.0200, subp. 5, other part 70 sources; Minn. R. 7007.0250, subp. 3, state implementation plan required state permit; or Minn. R. 7007.0250, subp. 6, waste combustors?
- Yes; your stationary source does not qualify for the capped permit.
- No; go to question 12.
12. Does your facility produce fuel grade ethanol or is a sector-based state general permit available for the source category your facility is in? (The only sector-based state general permit currently available is for sand and gravel operations.)
- Yes; your stationary source does not qualify for the capped permit.
- No; go to question 13.
13. Is your stationary source subject to any State Implementation Plan (SIP) limits or Best Available Control Technology (BACT) limits?
- Yes; your stationary source does not qualify for the capped permit.
- No; go to question 14.
14. In qualifying for the capped permit, will you assume the use any control equipment or control efficiencies not contained in the state Control Equipment rule (Minn. R. 7011.0060 to 7011.0080)?
- Yes; your stationary source does not qualify for the capped permit.
- No; go to question 15.
15. Have any production limits been imposed on your facility as a result of performance testing?
- No; your facility qualifies for the capped permit. Complete the remainder of the application forms.
- Yes; your stationary source does not qualify for the capped permit.

1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

2) Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

3) Submittal is (choose from the following options and then complete the remainder of item 3 as directed):

- The final certified (or recertified) version of a previously-submitted permit application. **Complete Section 3A.**
- Additional or supplemental information requested by permit staff during the permit-writing process. **Complete Section 3A.**
- A request that the Minnesota Pollution Control Agency (MPCA) make an applicability determination. **Complete Section 3A.**
- An application for a new Individual Part 70 or State Permit. **Complete Section 3B.**
- An application for reissuance of an Individual Part 70 or State Permit. **Complete Section 3B.**

Note: Applications for reissuance must be submitted using the MPCA's e-Services website at <https://www.pca.state.mn.us/data/e-services>. Applications outside of the e-services website will only be accepted if there is a request for confidentiality.

- An application for an amendment to an existing Individual Part 70 or State Permit. **Complete Section 3B.**
- An application for a Registration Permit, Capped Permit, or General Permit. **Complete Section 3C.**
- An application for an administrative change to an existing Registration, Capped, or General Permit. **Complete Section 3C.**

Note: Once the e-Service is available, registration, Capped, and General permit holders can electronically apply for an administrative change to their permit through MPCA's e-Services website at <https://www.pca.state.mn.us/data/e-services>. At some point, permit holders will be required to use e-Services for administrative permit changes. After that, paper change requests submitted will be denied. Check the MPCA website for the current status.

- A notification required under Minn. R. 7007.1150(C); Minn. R. 7007.1250, subp. 4; Minn. R. 7007.1350; Minn. R. 7007.0800, subp. 10, item B. **Complete Section 3D.**
- A notification from a hot mix asphalt plant holding a Registration Permit of the intent to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt. **Complete Section 3D.**

Section 3A – Request for applicability determination, recertification of a previously-submitted permit application, or supplement to a previously-submitted permit application

Use this section only if your submittal is one of the following:

- The final version of a previously submitted permit application, incorporating changes negotiated through the permitting process, or
- Submittal of additional or supplemental information requested by permit staff during the permit-writing process, or
- A request for the MPCA to make an applicability determination.

For final versions and supplemental information, enter the “tracking number” which can be obtained from the MPCA permit staff working on the permit.

Check one of the boxes below. Do not complete Sections 3B, 3C, or 3D. Continue with item 4 of the form.

Choose one of the following:

	Quantity	Points	Total points
<input type="checkbox"/> Recertification of a previously-submitted permit application – tracking number:	NA	NA	NA
<input type="checkbox"/> Supplement to a previously-submitted permit application – tracking number:	NA	NA	NA
<input type="checkbox"/> An Applicability Determination Request		x 10 =	

Section 3B – Application for an Individual Part 70 or State Permit, reissuance of an Individual Part 70 or State Permit, or amendment of an Individual Part 70 or State Permit

Choose one of the following:

- This is the original application or replacement for a denied or withdrawn application. Complete the table below.
- This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.
- This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:

				Quantity	Points	Total points
<input type="checkbox"/> Application for an Individual Part 70 Permit					x 75 =	
<input type="checkbox"/> Application for an Individual State Permit					x 50 =	
<input type="checkbox"/> Application for reissuance of an expiring Individual Part 70 or State Permit (does not include modifications to a permit that require an amendment)						
Note: Applications outside of the e-services website will only be accepted if there is a request for confidentiality.						
Expiration date:		Application due date (180 days prior to expiration):		NA	NA	NA
(mm/dd/yyyy)		(mm/dd/yyyy)				
<input type="checkbox"/> Application for a major amendment to an Individual State or Part 70 Permit						
<input type="checkbox"/> Includes reconstruction or modification of a New Source Performance Standards (NSPS) Affected Facility not subject to New Source Review					x 25 =	
<input type="checkbox"/> Application for a moderate amendment to an Individual State or Part 70 Permit					x 15 =	
<input type="checkbox"/> Application for a minor amendment to an Individual State or Part 70 Permit					x 4 =	
<input type="checkbox"/> Application for an administrative amendment to an Individual State or Part 70 Permit.						
For administrative amendments to individual permits, use the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services . Administrative amendment applications outside of the e-services website will only be accepted if there is a request for confidentiality.					x 1 =	

Additional information (check all that apply):

- Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review). The tracking number associated with the preapplication work is: _____

Date preapplication work was submitted: _____

- Permit will replace an existing permit of a different type (e.g., replacing a Capped Permit with an Individual State Permit, or replacing a Part 70 General Permit with an Individual Part 70 Permit).
- Permit is for construction of a new facility.
- Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.
- Project is subject to Prevention of Significant Deterioration (PSD) (40 CFR § 52.21). Send a complete copy of the application to U.S. Environmental Protection Agency (EPA) Region V (see instructions).
- Permit is required because of installation or modification of a Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) and/or a Part 60 NSPS Affected Facility at a Stationary Source with Potential-to-Emit below all permit thresholds (Minn. R. 7007.0500, subp. 2.C.(1)).

Section 3C – Application for a Registration, Capped, or General Permit

Choose one of the following:

- This is the original application or replacement for a denied or withdrawn application. Complete the table below.
- This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.
- This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	Quantity	Points	Total points
<input type="checkbox"/> Application for a Registration Permit <input type="checkbox"/> Option A <input type="checkbox"/> Option B <input type="checkbox"/> Option C <input type="checkbox"/> Option D		x 2 =	
<input checked="" type="checkbox"/> Application for a Capped Permit <input type="checkbox"/> Option 1 <input checked="" type="checkbox"/> Option 2	1	x 4 =	4
<input type="checkbox"/> Application for a Part 70 General Permit <input type="checkbox"/> Manufacturing General Permit <input type="checkbox"/> Low Emitting Facility General Permit		x 4 =	
<input type="checkbox"/> Application for a State General Permit <input type="checkbox"/> Nonmetallic Mineral Processing General Permit		x 3 =	
<input type="checkbox"/> Application for an administrative change to an existing Registration, Capped, or General Permit (e.g., change of facility ownership)		x 1 =	

Additional information (check all that apply):

- Permit will replace an existing permit of a different type (e.g., replacing a Registration Permit with a Capped Permit; replacing an Option B Registration Permit with an Option D Registration Permit; etc.)
- Permit is required for construction of a new facility.
- Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.
- Permit is required because of a modification or change making the facility ineligible for its existing Air Emission Permit.
- Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review or the facility was notified of a petition for Environmental Review). The tracking number associated with the preapplication work is:

Section 3D – Notifications

If your submittal also includes a permit application, then also complete Section 3A, 3B, or 3C as applicable. Check all applicable boxes below, then continue with item 4 of the form.

- A notification of accumulated insignificant activities (Minn. R. 7007.1250, subp. 4)
- A notification of installation of pollution control equipment (Minn. R. 7007.1150, item C)
- A notification of replacement of a unit (Minn. R. 7007.1150, item C)
- A notification of replacement of controls with listed controls (Minn. R. 7007.1150, item C)
- A notification of changes that contravene a permit term (Minn. R. 7007.1350)
- A notification from a hot mix asphalt plant including a request to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt (applies to Registration Permits) Minn. R. 7011.0913, subp. 3)

4) Total points (“total points” from Section 3A, 3B, or 3C) 4

5) Total application fee 4 x \$285 = \$ 1,140
(total points from item 4) (fee amount)

The application fee amount is \$285 per point, payable to the MPCA. Send your payment (“fee amount”) with your submittal. The fee is not refundable, per Minn. R. 7002.0016, subp. 1. There may be additional fees assessed during processing of your request, as required by Minn. R. ch. 7002.

Note: If an application is resubmitted for a different type of amendment or permit, the original fee is not refundable nor transferable. The resubmitted application fee must be paid in full.

6a) Confidentiality statement

- This application does not contain material claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Skip item 6b, go to item 7.
- This application contains material which is claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Complete Item 6b. Your submittal must include both Confidential and Public versions of your application.

Registration Permit applicants may not claim any portion of their application as confidential. If applying for a Registration Permit or an administrative change to a Registration Permit, you must check the first box above (“This application does not contain.....”).

- Confidential copy of application attached
- Public copy of application attached

6b) Confidentiality certification

To certify data for the confidential use of the MPCA, a responsible official must read the following, certify to its truth by filling in the signature block on the following page, and provide the stated attachments.

- I certify that the enclosed permit application(s) and all attachments have been reviewed by me and do contain confidential material. I understand that only specific data can be considered confidential and not the entire application or permit. I certify that I have enclosed the following to comply with the proper procedure for confidential material:
 - I have enclosed a statement identifying which data contained in my application I consider confidential, and I have explained why I believe the information qualifies for confidential (or non-public) treatment under Minnesota Statutes.
 - I have explained why the data for which I am seeking confidential treatment should not be considered "emissions data" which the MPCA is required to make available to the public under federal law.
 - I have enclosed an application containing all pertinent information to allow for completion and issuance of my permit. This document has been clearly marked "confidential".
 - I have enclosed a second copy of my application with the confidential data blacked out (not omitted or deleted entirely). It is evident from this copy that information was there, but that it is not for public review. This document has been clearly marked "public copy".

Owner responsible official:

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable):

Check applicable: Owner Operator. _____

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Check applicable: Owner Operator. _____

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

7) Submittal certification

I certify under penalty of law that the enclosed documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I also certify, in accordance with Minn. R. 7007.0500, subp. 2 (K)(2) and subp. 2 (K)(3), that I have reviewed the procedures implemented by my facility to maintain compliance and that those procedures are, to the best of my knowledge and belief, reasonable to maintain compliance with all applicable requirements, including those that will become applicable during the term of the permit.

I also certify, in accordance with Minn. R. 7007.1450, subp. 4(D), that if this application requests the use of the minor or moderate permit amendment procedures, the proposed change is not part of a larger project which, taken as a whole, would not qualify for treatment as a minor or moderate permit amendment.

Choose one of the following:

- I certify that no construction is associated with the permit action sought by this permit application.
- I certify that my project includes construction, but construction has not yet been started except as allowed under Minn. R. 7007.1110, subp. 10 or Minn. R. 7007.1250, subp. 4, and will not begin until the permit is issued except as allowed under Minn. R. 7007.1110, subp. 12; Minn. R. 7007.1142, subp. 2; Minn. R. 7007.1150, item C; or Minn. R. 7007.1450, subp. 7.
- My project includes construction, and construction other than what is allowed under Minnesota Rules has been started.

Choose one of the following:

I certify that my Facility is or will be located **outside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection).

I certify that my Facility is or will be located **inside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection). I understand that the CL&E process applies before a permit can be issued.



Owner responsible official

Operator responsible official (if applicable)

Print name: Grant VanWyngreeren

Print name: _____

Title: Chief Executive Officer

Title: _____

Signature:

Signature: _____

Date (mm/dd/yyyy): 8/7/24

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Additional owner/operator responsible official (if applicable)

Print name: _____

Print name: _____

Title: _____

Title: _____

Organization: _____

Organization: _____

Signature: _____

Signature: _____

Date (mm/dd/yyyy): _____

Date (mm/dd/yyyy): _____

8) Package submittal

Applications, notifications, and/or requests that are submitted without authorized signature(s) (under submittal certification for all applications and under confidentiality certification if you are seeking confidential treatment of any information in the application); without required forms, and/or without the required application fee, will be returned. You must submit at least one SCP-01 that bears the original signature(s) (i.e., is not a photocopy of the signed signature page). Please make your check out to the Minnesota Pollution Control Agency. Send the complete application package and check to:

**Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194**

Check From: Crow Wing Recycling
Check # 24675
Amt of Check 1140
Date of Check _____

You may choose to submit your application as a "pdf" file on an electronic media, such as a compact disc (CD) or USB drive. If you choose this option, you must still include a paper copy of any form that requires a signature.

Instructions for submittal cover page

- 1a) **AQ Facility ID number** -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.
- 1b) **Agency Interest ID number** -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you have never had an air quality permit or don't know this number, leave this line blank.
- 2) **Facility name** -- Enter your facility name.
- 3) **This submittal is for** -- Check the appropriate box describing what you are submitting. Then proceed to the section indicated (Section 3A, 3B, 3C, or 3D) and follow the applicable instructions.

Section 3A

Complete this section if your submittal is a supplement to a previously-submitted permit application, a recertification of a previously-submitted permit application, or a request for the MPCA to make an applicability determination.

Don't use this section if you are resubmitting a new application, either for the first time or as a replacement for an incomplete or denied permit application.

- Check the "Recertification of a previously-submitted permit application" box only if your submittal is a final version of a previously submitted permit application, incorporating changes negotiated through the permitting process. Enter the "tracking number" obtained from the MPCA permit staff working on the permit.

Instructions on page 2

1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

2) Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

3) Check and describe insignificant activities

Rule citation	Description of activities at the facility
<input type="checkbox"/> 7007.1300, subp. 3(A)	
<input type="checkbox"/> 7007.1300, subp. 3(B)(1)	
<input type="checkbox"/> 7007.1300, subp. 3(B)(2)	
<input type="checkbox"/> 7007.1300, subp. 3(C)(1)	
<input type="checkbox"/> 7007.1300, subp. 3(C)(2)	
<input type="checkbox"/> 7007.1300, subp. 3(D)	
<input type="checkbox"/> 7007.1300, subp. 3(E)	
<input checked="" type="checkbox"/> 7007.1300, subp. 3(F)	Water Table System; Redwave system, Shredder Material Handling; Vertical Shredder System (including shredder and material handling); ASR Sorting Process (including material handling, screening, and z-boxes/cyclones); Wire Chopping Material Handling, Grinding, Air Tables, Screening, and z-boxes/cyclones; Storage Piles
<input type="checkbox"/> 7007.1300, subp. 3(G)	
<input type="checkbox"/> 7007.1300, subp. 4	
<input type="checkbox"/> 7008.4100	
<input type="checkbox"/> 7008.4110	

4) If you are applying for an option 1 capped permit for your facility, have you included all quantifiable insignificant activities on the appropriate forms (e.g. CAP-GI-04, CAP-GI-05B, CAP-GI-05C, CAP-GI-07, etc)?

Yes No I am applying for an option 2 capped permit.

Form CAP-IA instructions

Three tables of insignificant activities are provided below.

- **Table IA-01.1, Insignificant activities not required to be listed**, specifies those activities that **do not** need to be included in your permit application.

Facility Information for Capped Permits

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 3.

1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

2) Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

3) Facility location

Street Address: 19586 County Road 102

City: Ironton County: Crow Wing Zip code: 56455

Note: If the facility is or will be located within the city limits of Minneapolis, attach a map showing the exact location.

Mailing Address: 714 Industrial Park Road SW

City: Brainerd State: MN Zip code: 56401

4) Corporate/Company Owner

Name: Crow Wing Recycling, Inc.

Mailing Address: 714 Industrial Park Road SW

City: Brainerd State: MN Zip code: 56401

Owner Classification: Private Local Govt. State Govt. Federal Govt. Utility

Legally responsible official

Name: Grant VanWyngereen Phone: 218-831-2650

Title: CEO Fax: _____

Mailing Address: 714 Industrial Park Rd SW

City: Brainerd State: MN Zip code: 56401-8291

Email address: grant@crowwingrecycling.com

Indicate ownership interest in percent: _____

5) Corporate/Company Operator (if different than owner)

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip code: _____

Legally responsible official:

Name: _____ Phone: _____

Title: _____ Fax: _____

Mailing Address: _____

City: _____ State: _____ Zip code: _____

Email address: _____

6) Additional Corporate/Company owner or operator (if applicable)

Check applicable: Owner Operator.

Name: Nordic Metals

Mailing Address: 714 Industrial Park Road SW

City: Brainerd State: MN Zip code: 56401

Legally responsible official (Continued from question 6 on previous page.)

Name: Grant VanWyngereen Phone: 218-831-2650
Title: CEO Fax: _____
Mailing Address: 714 Industrial Park Rd SW

City: Brainerd State: MN Zip code: 56401
Email address: grant@crowwingrecycling.com
If owner, indicate ownership interest in percent: 100%

7) **Do you have more Corporate/Company owners and/or operators?** Yes No

If yes, attach additional sheets with the information indicated in item 6 for each owner and/or operator not listed above.

8) **Facility contact person for this permit**

Name: Grant VanWyngereen Phone: 218-831-2650
Title: CEO Fax: _____
Organization: Crow Wing Recycling
Mailing Address: 714 Industrial Park Road SW

City: Brainerd State: MN Zip code: 56401
Email address: grant@crowwingrecycling.com

9) **All billings for annual fees should be addressed to:**

Name: Grant VanWyngereen Phone: 218-831-2650
Title: CEO Fax: _____
Organization: Crow Wing Recycling Inc.
Mailing Address: 714 Industrial Park Road SW

City: Brainerd State: MN Zip code: 56401
Email address: grant@crowwingrecycling.com

10) **Standard Industrial Classification (SIC) Code and description, and North American Industry Classification System (NAICS) code and description** for the facility:

Primary: 5093 / Scrap and Waste Metals
Secondary (if applicable): _____ / _____
Tertiary (if applicable): _____ / _____
Primary NAICS code: 423930 / Recyclable Material Merchant Wholesalers

11) **Primary product produced (or activity performed) at the facility is:**

Auto fluff sorting, wire chopping, and sorting

12) Facility is: Stationary Portable

13) **Check the one that applies best to your facility:**

- New facility planned or under construction (first permit application)
- Existing facility, currently operating under Air Emission Permit number: 03500031-101
- Existing facility, but have never had an Air Emission Permit issued by the MPCA

14) (Reserved for future use)

15) **Is environmental review required (either an Environmental Assessment Worksheet (EAW) or an Environmental Impact Statement (EIS)) for this facility?.**

Yes No

Note: If you answered "Yes" to this question, you may also be required to perform an Air Emissions Risk Assessment (AERA). Please call 800-657-3864 or 651-296-6300.

16) **Are you required to submit a Toxics Release Inventory (Form R) under SARA Title 313 for this facility? Call the Minnesota Emergency Planning and Community Right-to-Know Act (EPCRA) Program for more information (651-201-7400).**

Yes No

- 17) Is this facility within 50 miles of another state or the Canadian border:
 Yes (specify which ones) _____ No
- 18) Brief description of the facility or proposed facility to be permitted (attach additional sheet if necessary):
 The Ironton facility includes various types of metal recycling operations. The key operations at the facility include: a shredder, an automotive shredder residue sorting plant, a wire chopping operations, and various insignificant activities such as a vertical shredder, water table sorting system, and a redwave x-ray sorting system.
-
- 19) (Reserved for future use)
- 20) Person preparing this permit application:
 Name: Tony Colombari
 Title: Principal Consultant Email address: tcolombari@trinityconsultants.com
 Organization: Trinity Consultants
 Mailing address 2155 Woodlane Drive

 City: Woodbury State: MN Zip code: 55125
 Phone: 651-275-9900 Fax: _____ Date (mm/dd/yyyy): 08/08/2024

Instructions for Form CAP-GI-01

- 1a) **AQ Facility ID number** -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all new permits issued under the current operating permit program. If your facility has never been issued a permit under this program, leave this line blank.
- 1b) **Agency Interest ID number** -- Fill in your agency interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.
- 2) **Facility name** -- Enter your facility name.
- 3) **Facility location** -- Fill in the facility's street address and the city and county where the facility is located. Also indicate the facility's mailing address. You may use a P.O. Box number for the mailing address, but not for the street address. If the facility is or will be located within the limits of the City of Minneapolis, include a map showing the exact location of the facility.
- To determine if your facility is in or within one mile of an area of environmental justice concern anywhere in the state, use the MPCA's environmental justice screening tool, available here <https://arcq.is/vqaGa>.
- To proactively consider actions for environmental improvement and community engagement, refer to this resource document <https://www.pca.state.mn.us/sites/default/files/aq1-69.pdf>.
- The MPCA's screening tool will be used to determine if the facility's location is within or near an area of environmental justice concern. For facilities within or near areas of environmental justice concern, MPCA may request a meeting to discuss environmental justice, if the facility is already incorporating actions to address environmental justice, and voluntary actions the facility could further take. The EPA's EJScreen tool is available here for additional information on environmental justice indices <https://www.epa.gov/ejscreen>.
- Note:** All owners and operators must be listed on the permit application and are included on the permit. An owner or operator is a corporation, partnership, sole proprietorship, municipality, state, federal or other public agency who owns, leases, operates, controls, or supervises, to any degree, an emissions unit, emission facility or stationary source. For example, if the facility is owned by a partnership, then the second owner's name and information are included at item 6 of this form. Another example is two facilities, owned separately, where one facility exists to support the other; both facilities are subject to one permit, the two owners are listed on the permit, and need to be included on this form, one at item 4 and one at item 6. A legally responsible official needs to be listed for each owner and operator. The legally responsible official must be a person meeting the criteria for signing the application (defined in Minn. R. 7007.0100, subp. 21), which is the person who performs policy or decision-making functions for the company. (A delegate may be allowed in some cases. Please refer to the rule section listed above.)
- 4) **Corporate/Company Owner** -- Fill in the owner name and mailing address. The owner receives the air emission permit from the MPCA. The owner is the "Permittee." All other owners and operators need to be listed in items 5-7 and are "Co-permittees." Check the one "owner classification box" that most closely describes your facility.
- 5) **Corporate/Company Operator (if different from owner)** -- The operator runs the facility on a day-to-day basis. If a separate management company operates the facility, its name goes here. The operator is also a "Permittee." Fill in if applicable; if not, fill in "N/A."
- 6) **Additional corporate/company owner or operator (if applicable)** -- If the emission facility has more than one owner, for example a partnership, then the second owner's name and address go here.

Process Flow Diagram

Air Quality Permit Program

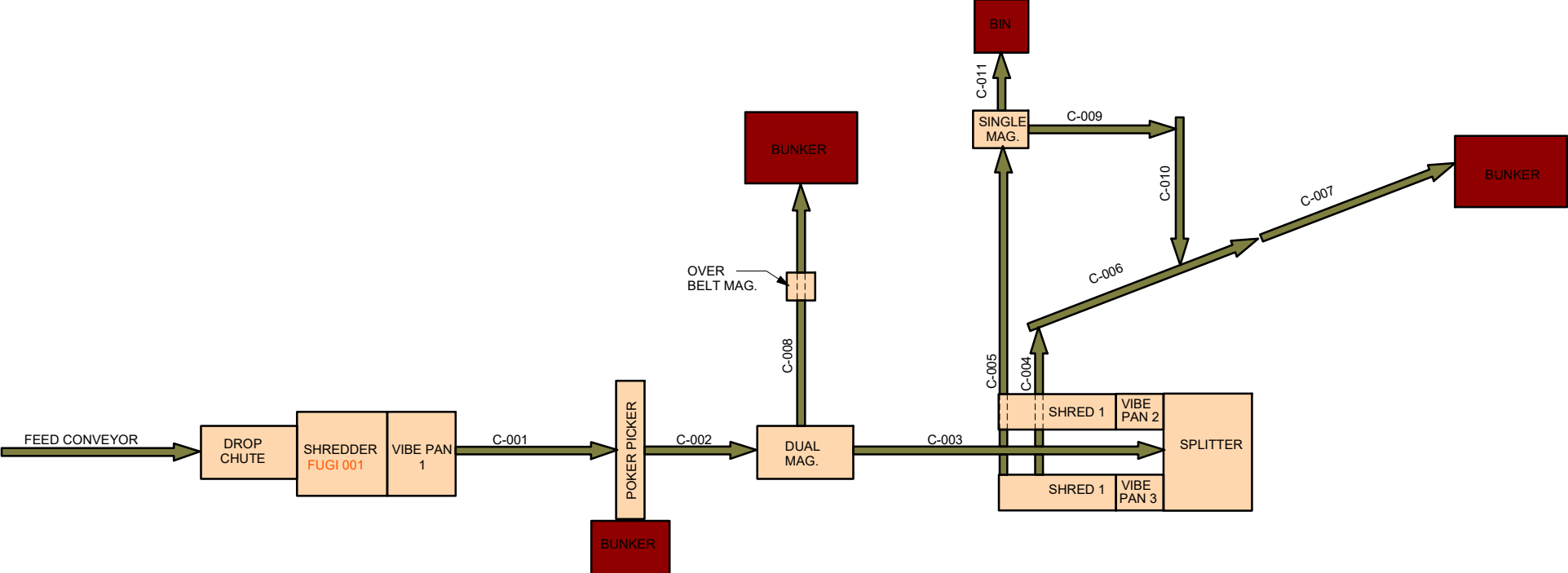
Doc Type: Permit Application

Instructions on Page 2.

- 1a) AQ Facility ID number: 03500031
- 1b) Agency Interest ID number: 11018
- 2) Facility name: Crow Wing Recycling Inc dba Nordic Metals
- 3) Flow diagram: (insert flow diagram below or attach a separate sheet)

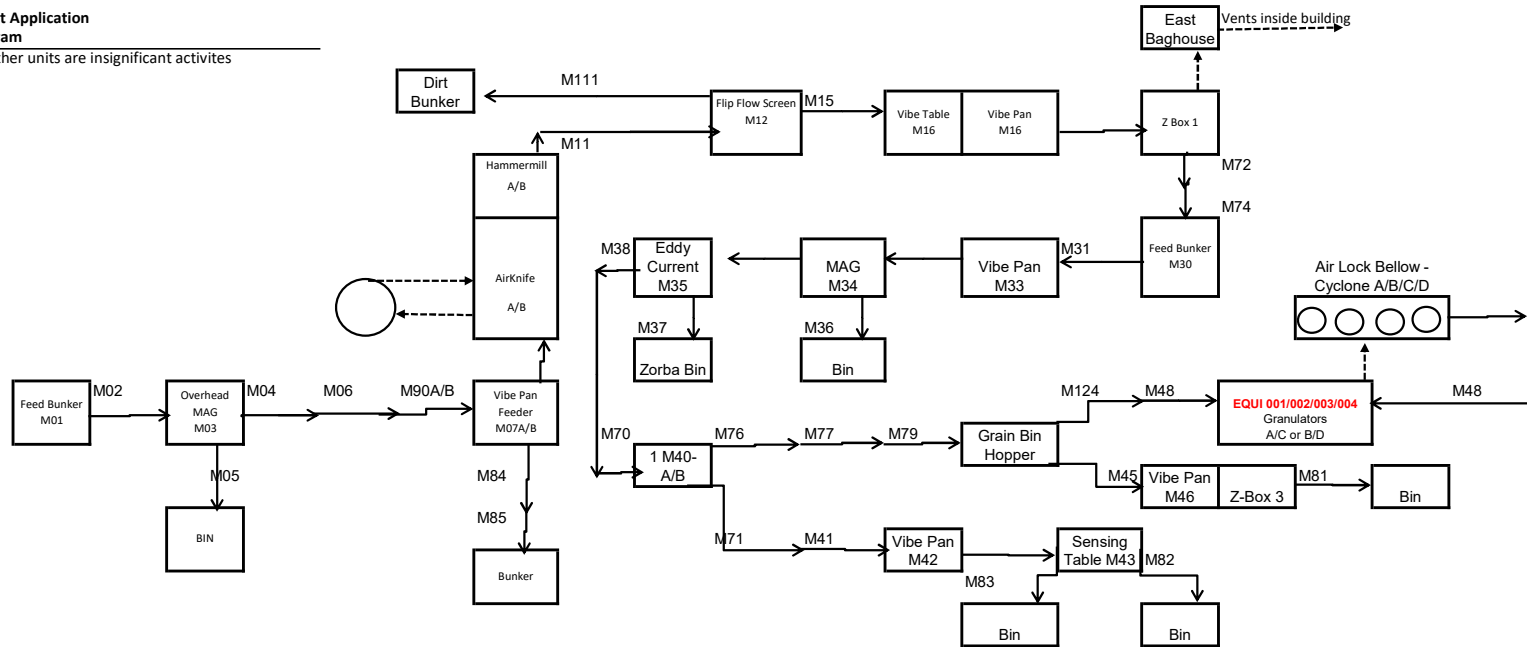
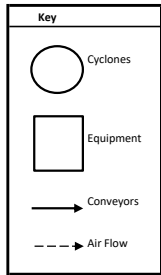
Crow Wing Recycling Inc. - Ironton Facility
Minnesota State Capped Permit Air Permit Application
Shredder Process Flow Diagram

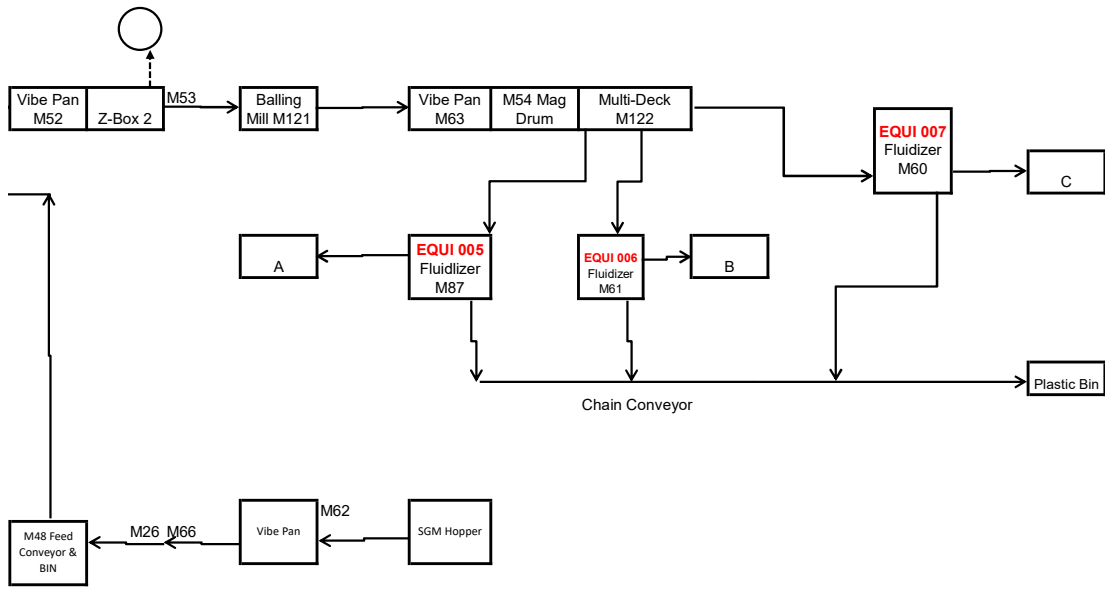
FUGI is identified in red lettering, all other units are insignificant activities



Crow Wing Recycling Inc. - Ironton Facility
Minnesota State Capped Permit Air Permit Application
Wire Chopping Facility Process Flow Diagram

EQUI are identified with red lettering, all other units are insignificant activities







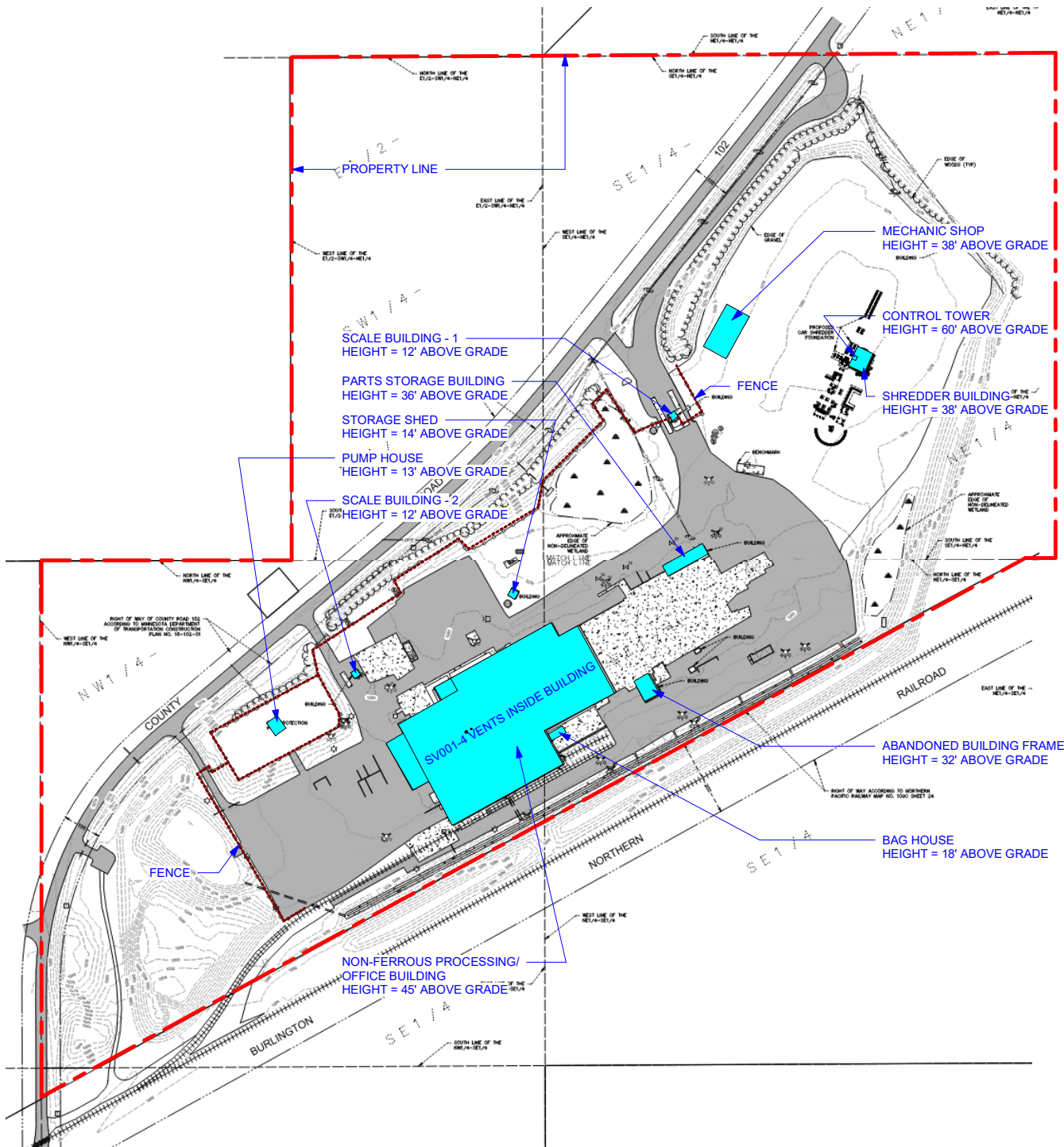
Minnesota Pollution Control Agency

AIR QUALITY
520 LAFAYETTE ROAD NO., ST. PAUL, MN 55155-4194

PERMIT APPLICATION FORM **CAP-GI-03**
**FACILITY AND STACK/VENT
DIAGRAM**

10/7/04

-
- 1) AQ Facility ID No.: 03500031
 - 2) Facility Name: Crow Wing Recycling Inc dba Nordic Metals
 - 3) Facility and Stack/Vent Diagram:





Minnesota Pollution Control Agency

AIR QUALITY
520 LAFAYETTE ROAD No., ST. PAUL, MN 55155-4194

PERMIT APPLICATION FORM **CAP-GI-04** **STACK/VENT INFORMATION**

3/7/06

1) AQ Facility ID No.: 03500031 2) Facility Name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

3a) SV ID No.	3b) Operator's Description	3c) Height of Opening From Ground (ft.)	3d) Inside Diameter in ft. (left column only) or Length x Width in ft. (both columns)		3e) Design Flow Rate at Exit (acfm)	3f) Exit Gas Temperature (° F)	3g) Rate/Temp Information Source	3h) Discharge Direction
001	Center Bag House	35	3	3	4061	95	E	H
002	Center Bag House	35	3	3	4061	95	E	H
003	West Bag House	35	3	3	5888	95	E	H
004	West Bag House	35	3	3	5888	95	E	H

- 1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018
- 2) Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

3a) Control equip. ID number	3b) CE type code	3c) Description	3d) Manufacturer	3e) Model number	3f) Pollutants controlled	3g) Control efficiency
001	018	Center Bag House	Kramer	AU110113	PM, PM10	PM-99% PM10 - 93%
002	018	West Bag House	Kramer	AU110113	PM, PM10	PM-99% PM10 - 93%

Form CAP-GI-05A instructions

If you have previously received an air emissions permit from the Minnesota Pollution Control Agency (MPCA) or have filed an annual emissions inventory, contact the MPCA at 651-296-6300 or 1-800-657-3864 prior to filling out this form. Ask for a printout of the MPCA's most recent information entered in the permitting and inventory database. Start with (and edit) this information when filling out the Capped Application form.

- 1a) **AQ Facility ID number** – Fill in your Air Quality (AQ) Facility Number as indicated on Form CAP-GI-01, item 1a.
- 1b) **Agency interest ID number** – Fill in your agency interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.
- 2) **Facility name** – Enter your facility name as indicated on Form CAP-GI-01, item 2.
- 3a) **Control equipment (CE) ID number** – Assign a Control Equipment ID number to each piece of pollution control equipment (e.g., fabric filter or afterburner) or pollution control practice (e.g., dust suppression by water spray). Number the pollution control equipment/practices at your facility sequentially (001, 002, 003, etc). The assigned number will be used in other forms to identify control equipment that is described in this form. This ID number is unique to this piece of equipment and must be used consistently throughout the application.
- 3b) **CE ID code** – Fill in the appropriate Control Equipment (CE) Type Code from Table CAP-GI-05A.1 at the end of these instructions. The type-code for the control equipment must be entered correctly, since this will be the primary means of recording and identifying the type of air pollution control equipment at this facility.
- 3c) **Description** – Fill in the appropriate control equipment or control practice description. This description must correspond with

1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

2) Facility name: Crow Wing Recycling Inc dba Nordic Metals

3) Fill in a column in the table below for each emission unit (EU/EQUI). Form GI-05F *Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 001	EQUI 002	EQUI 003	EQUI 004
3b) Emission unit type	Granulator	Granulator	Granulator	Granulator
3c) Emission unit operator's description	Wire Chopping Granulator A	Wire Chopping Granulator B	Wire Chopping Granulator C	Wire Chopping Granulator D
3d) Manufacturer	Genox	Genox	Genox	Genox
3e) Model number	Gxc80200r	Gxc80200r	Gxc80200r	Gxc80200r
3f) Max design capacity, material and units	0.785 units: Ton/ Hr material: Metal	0.785 units: Ton/ Hr material: Metal	0.785 units: Ton/ Hr material: Metal	0.785 units: Ton/ Hr material: Metal
3g) Commence construction date (mm/dd/yyyy)	4/1/2018 <input type="checkbox"/> to be determined	4/1/2018 <input type="checkbox"/> to be determined	4/1/2018 <input type="checkbox"/> to be determined	4/1/2018 <input type="checkbox"/> to be determined
3h) Initial startup date (mm/dd/yyyy)	3/1/2019 <input type="checkbox"/> to be determined	3/1/2019 <input type="checkbox"/> to be determined	3/1/2019 <input type="checkbox"/> to be determined	3/1/2019 <input type="checkbox"/> to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method				
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?				
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				

3r) Reasons for changes/modifications	No change - new permit type	No change - new permit type	No change - new permit type	No change - new permit type
--	-----------------------------	-----------------------------	-----------------------------	-----------------------------

1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

2) Facility name: Crow Wing Recycling Inc dba Nordic Metals

3) Fill in a column in the table below for each emission unit (EU/EQUI). Form GI-05F *Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 005	EQUI 006	EQUI 007	
3b) Emission unit type	Separation Equipment	Separation Equipment	Separation Equipment	
3c) Emission unit operator's description	Fluidizer M87	Fluidizer M61	Fluidizer M60	
3d) Manufacturer	Oliver	Oliver	Oliver	
3e) Model number	Maxicap 305	Maxicap 305	Maxicap 305	
3f) Max design capacity, material and units	0.47 units: Ton/ Hr material: Metal	0.47 units: Ton/ Hr material: Metal	0.47 units: Ton/ Hr material: Metal	units: / material:
3g) Commence construction date (mm/dd/yyyy)	4/1/2018 <input type="checkbox"/> to be determined	4/1/2018 <input type="checkbox"/> to be determined	4/1/2018 <input type="checkbox"/> to be determined	<input type="checkbox"/> to be determined
3h) Initial startup date (mm/dd/yyyy)	3/1/2019 <input type="checkbox"/> to be determined	3/1/2019 <input type="checkbox"/> to be determined	3/1/2019 <input type="checkbox"/> to be determined	<input type="checkbox"/> to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method				
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?				
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	
3q) Removal date (mm/dd/yyyy)				

3r) Reasons for changes/modifications	No change - new permit type	No change - new permit type	No change - new permit type	
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Fugitive emission source information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2

1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

2) Facility name: Crow Wing Recycling Inc dba Nordic Metals

3a) Fugitive source ID number	3b) Pollutant Emitted (particulate matter (PM) or VOC)	3c) Included in ambient assessment?	3d) Description of Fugitive Emission Source
001	PM, VOC	Yes	Shredder
002	PM	No	Truck Traffic

Instructions on page 3.

 1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

 2) Facility name: Crow Wing Recycling Inc dba Nordic Metals
 Check this box if using GI-05F for a *Reissuance application*. You will need the AQ SI details report labeled **SI-SI relationships**. See the instructions for fields that may be marked "null" in the *SI-SI relationships* report.

Note – If your most recent permit was issued after November 1, 2015 or you are applying for reissuance, use Tempo ID numbers for all equipment, stacks, controls, etc. Tempo IDs are in the form EQUlxxx, TREAxix, STRUxxx, FUGlxxx, etc.

3a) Source ID number	3b) % Flow	3c) Relationship	3d) CE ID number	3e) Start date (mm/dd/yyyy)	3f) End date (mm/dd/yyyy)	3g) % Flow	3h) Relationship	3i) S/V ID number	3j) Start date (mm/dd/yyyy)	3k) End date (mm/dd/yyyy)	3l) Comments
EQUI 001	100	is controlled by	001	3/1/2019		50	sends to	001	3/1/2019		
EQUI 001	100	is controlled by	001	3/1/2019		50	sends to	002	3/1/2019		
EQUI 002	100	is controlled by	001	3/1/2019		50	sends to	001	3/1/2019		
EQUI 002	100	is controlled by	001	3/1/2019		50	sends to	002	3/1/2019		
EQUI 003	100	is controlled by	001	3/1/2019		50	sends to	001	3/1/2019		
EQUI 003	100	is controlled by	001	3/1/2019		50	sends to	002	3/1/2019		
EQUI 004	100	is controlled by	001	3/1/2019		50	sends to	001	3/1/2019		
EQUI 004	100	is controlled by	001	3/1/2019		50	sends to	002	3/1/2019		
EQUI 005	100	is controlled by	002	3/1/2019		50	sends to	003	3/1/2019		
EQUI 005	100	is controlled by	002	3/1/2019		50	sends to	004	3/1/2019		

EQUI 006	100	is controlled by	002	3/1/2019		50	sends to	003	3/1/2019		
EQUI 006	100	is controlled by	002	3/1/2019		50	sends to	004	3/1/2019		
EQUI 007	100	is controlled by	002	3/1/2019		50	sends to	003	3/1/2019		
EQUI 007	100	is controlled by	002	3/1/2019		50	sends to	004	3/1/2019		
		is controlled by					sends to				

Instructions on page 3.

 1a) AQ Facility ID number: 03500031 1b) Agency Interest ID number: 11018

 2) Facility name: Crow Wing Recycling Inc dba Nordic Metals
 Check this box if using GI-05F for a *Reissuance application*. You will need the AQ SI details report labeled **SI-SI relationships**. See the instructions for fields that may be marked "null" in the *SI-SI relationships* report.

Note – If your most recent permit was issued after November 1, 2015 or you are applying for reissuance, use Tempo ID numbers for all equipment, stacks, controls, etc. Tempo IDs are in the form EQUxxxx, TREAxxx, STRUxxx, FUGIxxx, etc.

3a) Source ID number	3b) % Flow	3c) Relationship	3d) CE ID number	3e) Start date (mm/dd/yyyy)	3f) End date (mm/dd/yyyy)	3g) % Flow	3h) Relationship	3i) S/V ID number	3j) Start date (mm/dd/yyyy)	3k) End date (mm/dd/yyyy)	3l) Comments
FUGI 001		is controlled by	NA				sends to	NA			
FUGI 002		is controlled by	NA				sends to	NA			
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				

| | **is controlled by** | | | | | | | |

| | **sends to** | | | | | | | |

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 CAP-GI-07 - Capped Permit facility emission summary

		3c) CAS#:			
		3d) Pollutant name:		PM	
Emission Source Description	3a)	3b)	3e) Potential		3f) Actual tons per year
	Emission Source Type	Emission Source ID Number	lbs per hour	tpy unrestricted	
Shredder	FUGI	001	0.80	3.51	0.35
Wire Chopping Granulator A	EQUI	001	0.11	48.16	0.24
Wire Chopping Granulator B ²	EQUI	002	0.11	48.16	0.24
Wire Chopping Granulator C	EQUI	003	0.11	48.16	0.24
Wire Chopping Granulator D ²	EQUI	004	0.11	48.16	0.24
Fluidizer M87	EQUI	005	4.89E-03	2.14	5.35E-03
Fluidizer M61	EQUI	006	4.89E-03	2.14	5.35E-03
Fluidizer M60	EQUI	007	4.89E-03	2.14	5.35E-03
Truck Traffic	FUGI	002	3.35	14.69	14.69
Insignificant Activities ¹			0.81	3.75	0.65

1. Includes all transfer points and emissions units that do not exceed insignificant activity thresholds.

2. Only Wire Chopping Granulator A and C are included in the totals, only A/C or B/D granulators operate at a time

4)
Total Facility

Potential lbs/hr	Unrestricted potential tpy	Actual tpy
5.2	124.7	16.2

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 CAP-GI-07 - Capped Permit facility emission summary

Emission Source Description	3a) Emission Source Type	3b) Emission Source ID Number	CAS#: Pollutant name: PM ₁₀			CAS#: Pollutant name: VOC			CAS#: Pollutant name: 7439-92-1 Lead (PM speciation)		
			Potential			Potential			Potential		
			lbs per hour	tpy unrestricted	Actual tons per year	lbs per hour	tpy unrestricted	Actual tons per year	lbs per hour	tpy unrestricted	Actual tons per year
Shredder	FUGI	001	0.80	3.51	0.35	52.70	230.83	23.25	1.34E-03	5.87E-03	5.92E-04
Wire Chopping Granulator A	EQUI	001	0.77	48.16	1.69				8.68E-05	3.80E-04	1.36E-05
Wire Chopping Granulator B ²	EQUI	002	0.77	48.16	1.69				8.68E-05	3.80E-04	1.36E-05
Wire Chopping Granulator C	EQUI	003	0.77	48.16	1.69				8.68E-05	3.80E-04	1.36E-05
Wire Chopping Granulator D ²	EQUI	004	0.77	48.16	1.69				8.68E-05	3.80E-04	1.36E-05
Fluidizer M87	EQUI	005	0.06	3.70	0.06				3.86E-06	1.69E-05	4.07E-06
Fluidizer M61	EQUI	006	0.06	3.70	0.06				3.86E-06	1.69E-05	4.07E-06
Fluidizer M60	EQUI	007	0.06	3.70	0.06				3.86E-06	1.69E-05	4.07E-06
Truck Traffic	FUGI	002	0.67	2.94	2.94						
Insignificant Activities ¹			0.34	1.54	0.29				1.19E-03	5.22E-03	9.51E-04

1. Includes all transfer points and emissions units that do not exceed insignificant activity thresholds.

2. Only Wire Chopping Granulator A and C are included in the totals, only A/C or B/D granulators operate at a time

4)
Total Facility

Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy
3.5	115.4	7.1	52.7	230.8	23.3	2.7179E-03	0.0119	1.5822E-03

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 CAP-GI-07 - Capped Permit facility emission summary

Emission Source Description	CAS#: 7440-36-0 Pollutant name: Antimony					CAS#: 7440-38-2 Pollutant name: Arsenic			CAS#: 7440-41-7 Pollutant name: Beryllium		
	3a) Emission Source Type	3b) Emission Source ID Number	Potential			Potential			Potential		
			lbs per hour	tpy unrestricted	Actual tons per year	lbs per hour	tpy unrestricted	Actual tons per year	lbs per hour	tpy unrestricted	Actual tons per year
Shredder	FUGI	001	1.92E-04	8.41E-04	8.48E-05	1.67E-04	7.31E-04	7.37E-05	9.71E-06	4.25E-05	4.28E-06
Wire Chopping Granulator A	EQUI	001									
Wire Chopping Granulator B ²	EQUI	002									
Wire Chopping Granulator C	EQUI	003									
Wire Chopping Granulator D ²	EQUI	004									
Fluidizer M87	EQUI	005									
Fluidizer M61	EQUI	006									
Fluidizer M60	EQUI	007									
Truck Traffic	FUGI	002									
Insignificant Activities ¹											

1. Includes all transfer points and emissions units that do not exceed insignificant activity thresholds.

2. Only Wire Chopping Granulator A and C are included in the totals, only A/C or B/D granulators operate at a time

4)
Total Facility

Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy
1.9210E-04	8.4140E-04	8.4750E-05	1.6694E-04	7.3120E-04	7.3650E-05	9.7070E-06	4.2517E-05	4.2825E-06

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 CAP-GI-07 - Capped Permit facility emission summary

Emission Source Description	3a) Emission Source Type	3b) Emission Source ID Number	CAS#: 7440-43-9 Pollutant name: Cadmium			CAS#: 7440-47-3 Pollutant name: Chromium			CAS#: 7440-48-4 Pollutant name: Cobalt			CAS#:
			Potential		Actual tons per year	Potential		Actual tons per year	Potential		Actual tons per year	Pollutant name:
			lbs per hour	tpy unrestricted		lbs per hour	tpy unrestricted		lbs per hour	tpy unrestricted		Pote
Shredder	FUGI	001	1.14E-04	5.00E-04	5.04E-05	6.02E-04	2.64E-03	2.66E-04	8.31E-05	3.64E-04	3.67E-05	1.92E-03
Wire Chopping Granulator A	EQUI	001										
Wire Chopping Granulator B ²	EQUI	002										
Wire Chopping Granulator C	EQUI	003										
Wire Chopping Granulator D ²	EQUI	004										
Fluidizer M87	EQUI	005										
Fluidizer M61	EQUI	006										
Fluidizer M60	EQUI	007										
Truck Traffic	FUGI	002										
Insignificant Activities ¹			5.01E-05	2.19E-04	2.59E-05	2.62E-04	1.15E-03	1.27E-04				

1. Includes all transfer points and emissions units that do not exceed insignificant activity thresholds.

2. Only Wire Chopping Granulator A and C are included in the totals, only A/C or B/D granulators operate at a time

4)
Total Facility

Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr
1.6429E-04	7.1959E-04	7.6272E-05	8.6360E-04	3.7826E-03	3.9269E-04	8.3130E-05	3.6411E-04	3.6675E-05	1.9210E-03

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 CAP-GI-07 - Capped Permit facility emission summary

Emission Source Description	7439-96-5				7439-97-6				7440-02-0			
	Manganese				Mercury				Nickel			
	3a) Emission Source Type	3b) Emission Source ID Number	Potential tpy unrestricted	Actual tons per year	Potential lbs per hour	Unrestricted tpy	Actual tons per year	Potential lbs per hour	Unrestricted tpy	Actual tons per year	Potential lbs per hour	
Shredder	FUGI	001	8.41E-03	8.48E-04	7.84E-04	3.43E-03	3.46E-04	5.59E-04	2.45E-03	2.47E-04	1.03E-04	
Wire Chopping Granulator A	EQUI	001										
Wire Chopping Granulator B ²	EQUI	002										
Wire Chopping Granulator C	EQUI	003										
Wire Chopping Granulator D ²	EQUI	004										
Fluidizer M87	EQUI	005										
Fluidizer M61	EQUI	006										
Fluidizer M60	EQUI	007										
Truck Traffic	FUGI	002										
Insignificant Activities ¹												

1. Includes all transfer points and emissions units that do not exceed insignificant activity thresholds.

2. Only Wire Chopping Granulator A and C are included in the totals, only A/C or B/D granulators operate at a time

4)
Total Facility

Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy	Potential lbs/hr
8.4140E-03	8.4750E-04	7.8370E-04	3.4326E-03	3.4575E-04	5.5930E-04	2.4497E-03	2.4675E-04	1.0285E-04

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 CAP-GI-07 - Capped Permit facility emission summary

Emission Source Description	7782-49-2		CAS#:		Selenium		
	3a)		3b)		Pollutant name:		Total HAP
	Emission Source Type	Emission Source ID Number	Potential tpy unrestricted	Actual tons per year	Potential lbs per hour	tpy unrestricted	Actual tons per year
Shredder	FUGI	001	4.50E-04	4.54E-05	5.88E-03	0.03	2.59E-03
Wire Chopping Granulator A	EQUI	001			8.68E-05	3.80E-04	1.36E-05
Wire Chopping Granulator B ²	EQUI	002			8.68E-05	3.80E-04	1.36E-05
Wire Chopping Granulator C	EQUI	003			8.68E-05	3.80E-04	1.36E-05
Wire Chopping Granulator D ²	EQUI	004			8.68E-05	3.80E-04	1.36E-05
Fluidizer M87	EQUI	005			3.86E-06	1.69E-05	4.07E-06
Fluidizer M61	EQUI	006			3.86E-06	1.69E-05	4.07E-06
Fluidizer M60	EQUI	007			3.86E-06	1.69E-05	4.07E-06
Truck Traffic	FUGI	002			0.0	0.0	0.0
Insignificant Activities ¹					1.50E-03	6.58E-03	1.10E-03

1. Includes all transfer points and emissions units that do not exceed insignificant activity thresholds.

2. Only Wire Chopping Granulator A and C are included in the totals, only A/C or B/D granulators operate at a time

4)
Total Facility

Unrestricted potential tpy	Actual tpy	Potential lbs/hr	Unrestricted potential tpy	Actual tpy
4.5048E-04	4.5375E-05	7.5645E-03	0.0331	3.7359E-03

Crow Wing Recycling Inc. - Ironton Facility
Minnesota State Capped Permit Air Permit Application
Particulate Matter Dust Emissions from Paved Roads - FUGI 2

Paved Roads Assumptions and Equations

EQUATIONS:

Paved Haul Road Equation 3 of AP-42 Section 13.2.1 (1/11)

$$E = k * (sL)^{0.91} * (W)^{1.02} * (1-P/4N)$$

where:

E = Emission factor (lb/VMT, vehicle miles traveled)

k = Particle size multiplier (lb/VMT) from AP-42, Table 13.2.1-1.
 k(lb/VMT)

PM

0.011

PM₁₀

0.0022

sL = Road surface silt loading conservatively based on Municipal Solid Waste Landfills in Table 13.2.1-3 (g/m²):

7.4

W = Mean vehicle weight based on the "fleet" average weight of all vehicles traveling the road.

P = Number of days in a year with at least 0.01 in of precipitation from AP-42, Figure 13.2.1-2, P =

110

N = Number of days per year (365 days).

Information for Average Vehicle Weight

	Value	
Loader Unloaded Weight	40,000	pounds
Loader Loaded Weight	45,000	pounds
Loader Average Weight	42,500	pounds
Semi-Trucks Unloaded Weight	35,000	pounds
Semi-Trucks Loaded Weight	80,000	pounds
Semi-Trucks Average Weight	57,500	pounds

Average Vehicle Weight Calculation

Traffic Type	Round Trip Distance (mi.)	Number of Trips/Day	Miles Per Day	Avg. Veh. Weight (Tons)	Wt Avg. Veh. Weight (W) (Tons)
Loader	0.10	180	18	21.3	8.24
Semi-Trucks	0.71	40	28	28.8	17.60
All Vehicles	0.81	220	46.42	50	25.84

Emissions from Paved Roads

Pollutant	Uncontrolled Emissions			Dust Control Strategy		Maximum Controlled	
	Factor (lb/VMT)	Hourly (lb/hr)	Annual (ton/yr)	Control Method	Control Efficiency (%)	Hourly (lb/hr)	Annual (ton/yr)
PM	1.73	3.35	14.69	NA	0.0	3.35	14.69
PM ₁₀	0.35	0.67	2.94	NA	0.0	0.67	2.94

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Redwave Material Handling Transfer Points - Insignificant Activities

Capacity (tons/hour)	5.00
Projected Actual Annual Throughput (tons/year) ¹	8,400
% of feed throughput heavy fluff to C-002	99%

1. Projected Annual Throughput based on the throughput is 1.4 MM lb/month, operating for 12 months a year.

Transfer Points:	Throughput (tph):	% of Redwave Throughput:
Batch feeder to C-001	5.00	100%
C-001 to Cassette Feeder	5.00	100%
Cassette Feeder to Polisher ¹	5.00	100%
Polisher to Bin	0.05	1%
Polisher to C-002	4.95	99%
C-002 to Vibe Table	4.95	99%
Vibe Table to Redwave ¹	4.95	99%
Redwave to C-003	0.25	5%
C-003 to Bunker	0.25	5%
Redwave to C-004	4.70	94%
C-004 to Bunker	4.70	94%
Total Material throughput for all drop points (tph):	29.85	

1. Throughput is not included in total material throughput, assuming no drop point

Insignificant Activity evaluation for worst case transfer

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	State Insignificant Activity Threshold ² (tpy)	Unit Qualifies as Insignificant Activity?
PM	3.00E-03	0.02	0.07	1	Yes
PM ₁₀	1.10E-03	5.50E-03	0.02	1	

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

2. Insignificant activity threshold from MPCA 7007.1300 Subpart 3 (F) specifies if emission units are insignificant activities need to be listed in a permit application

Uncontrolled emission calculations for total throughput

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ² (tpy)
PM	3.00E-03	8.96E-02	3.92E-01	7.52E-02
PM ₁₀	1.10E-03	3.28E-02	1.44E-01	2.76E-02

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

2. Projected actual emissions are estimated by taking annual emissions and scaling by the amount of actual throughput/hour for every unit of capacity/hour.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Wire Chopping Material Handling Transfer Points - Insignificant Activities

ASSUMPTIONS:

Capacity (tons/hour ¹)	170
Projected Actual Annual Throughput (tons/year) ²	150,000
% Shredder throughput off Poker Picker	1%

1. 170 tph is max. throughput with current 4"x6" grates
2. Projected actual annual throughput based on historical operation.

Transfer Points:	Throughput (tph):	% of Shredder Throughput:
Drop Chute to Shredder ¹	170.00	100%
Shredder to Vibe Pan 1	170.00	100%
Vibe Pan to C-001	170.00	100%
C-001 to Poker Picker	170.00	100%
Poker Picker to Bunker	1.70	1%
Poker Picker to C-002	168.30	99%
C-002 to Dual Mag.	168.30	99%
Dual Mag. To C-008	42.08	25%
C-008 to Over Belt Mag	42.08	25%
Over Belt Mag to Bunker	42.08	25%
Dual Mag. To C-003	126.23	74%
C-003 to Splitter	126.23	74%
Splitter to Vibe Pan 2 or 3	126.23	74%
Vibe Pan 2 or 3 to Shred 1	126.23	74%
Shred 1 to C-005	31.56	19%
C-005 to Single Mag.	31.56	19%
Single Mag. to C-011	1.58	1%
C-011 to Bin	1.58	1%
Single Mag. to C-009	29.98	18%
C-009 to C-010	29.98	18%
C-010 to C-006	29.98	18%
Shred 1 to C-004	94.67	56%
C-004 to C-006	94.67	56%
C-006 to C-007	94.67	56%
C-007 to Bunker	94.67	56%
Total material throughput for all drop points (tph):	2,014.30	

1. Emissions for the transfer to the Shredder are captured in the emissions in the Shredder tab

Insignificant Activity Evaluation for worst case transfer

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	State Insignificant Activity Threshold ² (tpy)	Unit Qualifies as Insignificant Activity?
PM	1.40E-04	0.02	0.10	1	Yes
PM ₁₀	4.60E-05	7.82E-03	0.03	1	

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point (controlled) Emission factors are used as a conservative estimate. The controlled factor is utilized as the shredder feed is injected with 40 gal/min of water.

2. Insignificant activity threshold from MPCA 7007.1300 Subpart 3 (F) specifies if emission units are insignificant activities need to be listed in a permit application

Uncontrolled emission calculations for total throughput

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ² (tpy)
PM	1.40E-04	2.82E-01	1.24	0.12
PM ₁₀	4.60E-05	9.27E-02	0.41	0.04

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point (controlled) Emission factors are used as a conservative estimate.

2. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Emissions as Particulate from all Material Transfer Points

Pollutant	Uncontrolled Factor Adjusted for MH (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ¹ (tpy)
Lead (PM speciation)	2.35E-07	4.72E-04	2.07E-03	2.08E-04
Antimony	3.36E-08	6.77E-05	2.96E-04	2.98E-05
Arsenic	2.92E-08	5.88E-05	2.58E-04	2.59E-05
Beryllium	1.70E-09	3.42E-06	1.50E-05	1.51E-06
Cadmium	2.00E-08	4.02E-05	1.76E-04	1.78E-05
Chromium	1.05E-07	2.12E-04	9.28E-04	9.35E-05
Cobalt	1.45E-08	2.93E-05	1.28E-04	1.29E-05
Manganese	3.36E-07	6.77E-04	2.96E-03	2.98E-04
Mercury	1.37E-07	2.76E-04	1.21E-03	1.22E-04
Nickel	9.78E-08	1.97E-04	8.63E-04	8.69E-05
Selenium	1.80E-08	3.62E-05	1.59E-04	1.60E-05

1. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Lead (PM speciation)	4.71E-03	7.89E-06	0.17%
Antimony	4.71E-03	1.13E-06	0.02%
Arsenic	4.71E-03	9.82E-07	0.02%
Beryllium	4.71E-03	5.71E-08	0.00%
Cadmium	4.71E-03	6.72E-07	0.01%
Chromium	4.71E-03	3.54E-06	0.08%
Cobalt	4.71E-03	4.89E-07	0.01%
Manganese	4.71E-03	1.13E-05	0.24%
Mercury	4.71E-03	4.61E-06	0.10%
Nickel	4.71E-03	3.29E-06	0.07%
Selenium	4.71E-03	6.05E-07	0.01%

1. HAP speciation as a % of PM is calculated using the ratio of emission factors for PM and the HAP pollutant from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Ironton Shredder - FUGI 1

Assumptions

Capacity (tons/hour) ¹	170.00
Projected Actual Annual Throughput (tons/year) ²	150,000

1. 170 tph is max. throughput with current 4"x6" grates.
 2. Projected actual annual throughput based on historical operation.

Particulate Emissions Summary

Pollutant	Uncontrolled Emission Factor ^{1, 2} (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	State Insignificant Activity Threshold ³ (tpy)	Unit Qualifies as Insignificant Activity?	Projected Controlled Actual Emissions (tpy)
Shredder									
PM	4.71E-03	0.80	3.51	0%	0.80	3.51	1.00	No	0.35
PM ₁₀	4.71E-03	0.80	3.51	0%	0.80	3.51	1.00		0.35
Lead (PM speciation)	7.89E-06	1.34E-03	5.87E-03	0%	1.34E-03	5.87E-03	-	N/A	5.92E-04
VOC	0.31	52.70	230.83	0%	52.70	230.83	-		23.25
Antimony	1.13E-06	1.92E-04	8.41E-04	0%	1.92E-04	8.41E-04	-		8.48E-05
Arsenic	9.82E-07	1.67E-04	7.31E-04	0%	1.67E-04	7.31E-04	-		7.37E-05
Beryllium	5.71E-08	9.71E-06	4.25E-05	0%	9.71E-06	4.25E-05	-		4.28E-06
Cadmium	6.72E-07	1.14E-04	5.00E-04	0%	1.14E-04	5.00E-04	-		5.04E-05
Chromium	3.54E-06	6.02E-04	2.64E-03	0%	6.02E-04	2.64E-03	-		2.66E-04
Cobalt	4.89E-07	8.31E-05	3.64E-04	0%	8.31E-05	3.64E-04	-		3.67E-05
Manganese	1.13E-05	1.92E-03	8.41E-03	0%	1.92E-03	8.41E-03	-		8.48E-04
Mercury	4.61E-06	7.84E-04	3.43E-03	0%	7.84E-04	3.43E-03	-		3.46E-04
Nickel	3.29E-06	5.59E-04	2.45E-03	0%	5.59E-04	2.45E-03	-		2.47E-04
Selenium	6.05E-07	1.03E-04	4.50E-04	0%	1.03E-04	4.50E-04	-		4.54E-05

1. All EF except VOC: General Iron Industries 2018, MMM Inc. 2019, SA Recycling Anaheim 2021.
 2. VOC: ISRI VOC Emissions Guidance for Metal Shredders Dec. 2023 Table 3-2.
 3. Insignificant activity threshold from MPCA 7007.1300 Subpart 3 (F) specifies if emission units are insignificant activities need to be listed in a permit application.

Crow Wing Recycling Inc. - Ironton Facility
Minnesota State Capped Permit Air Permit Application
Emissions from Sorting Z-Box Cyclones - Insignificant Activities

ASSUMPTIONS:

Estimated material throughput of Z-box cyclone #1 (tph):	0.21
Estimated material throughput of Z-box cyclone #2 (tph):	8.10
% of Sorting Throughput to Z-box cyclone #1 ² :	1%
% of Sorting Throughput to Z-box cyclone #2 ² :	41%
Projected Actual Annual Throughput (tons/year) ¹ :	43,800.00

1. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours)

2. See Sorting - MH tab for assumed sorting throughputs.

PM Emissions from Z-Box Cyclones

Pollutant	Emission Factor ¹ (lb/ton)	Uncontrolled/Controlled Emission Rate (lb/hr)	Uncontrolled/Controlled Emission Rate (tpy)	Unit Qualifies as Insignificant Activity?	Projected Actual Controlled Emissions (tpy)
Z-Box Cyclone 1					
PM	5.71E-03	1.17E-03	5.13E-03	Yes	1.28E-03
PM ₁₀	5.71E-03	1.17E-03	5.13E-03		1.28E-03
Z-Box Cyclone 2					
PM	5.71E-03	0.05	0.20	Yes	0.05
PM ₁₀	5.71E-03	0.05	0.20		0.05

1. Controlled emission factor for Z-box with cyclone from Appendix D, Table D-11.A of "Title V Applicability Workbook" prepared by Versar, Inc. for Institute of Scrap Recycling Industries, 1996. PM₁₀ is assumed to be equal to PM. The cyclones are considered inherent process equipment, rather than add-on control devices.

HAP Emissions as Particulate Fraction

Pollutant	Emission Factor Adjusted for Z-Box (lb/ton)	Uncontrolled/Controlled Emissions (lb/hr)	Uncontrolled/Controlled Emissions (tons/yr)	Projected Actual Controlled Emissions (tpy)
Z-Box Cyclone 1				
Cadmium	8.15E-07	1.67E-07	7.31E-07	1.83E-07
Chromium	4.29E-06	8.80E-07	3.85E-06	9.63E-07
Lead	9.57E-06	1.96E-06	8.59E-06	2.15E-06
Z-Box Cyclone 2				
Cadmium	8.15E-07	6.60E-06	2.89E-05	7.23E-06
Chromium	4.29E-06	3.48E-05	1.52E-04	3.81E-05
Lead	9.57E-06	7.75E-05	3.39E-04	8.48E-05

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Cadmium	4.71E-03	6.72E-07	0.01%
Chromium	4.71E-03	3.54E-06	0.08%
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using the ratio of emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Sorting Material Handling Transfer Points - Insignificant Activities

ASSUMPTIONS:

Capacity (tons/hour):	20
Projected Actual Annual Throughput (tons/year) ¹ :	43,800
% of fluff 0" - 1" in size ²	41%
% of fluff 1 - 4" in size ²	45%
% of fluff 4+'' in size ²	14%

1. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours).
2. Fluff size splits are based on historical process information.

Transfer Points:	Throughput (tph):	% of Sorting Throughput:
Pre-Sorting		
Bucket Loader to Feed Hopper (C01)	20.00	100%
Feed Hopper (C01) to Trommel (T01) ²	20.00	100%
Main 1		
Trommel (T01) to Screen ²	8.20	41%
Screen to C3A (Conveyor)	6.15	31%
C3A (Conveyor) to C30 (Conveyor)	6.15	31%
C30 (Conveyor) to C31 (Conveyor)	6.15	31%
Main 1 Alternate Route 1 - Waste Metallic		
C31 (Conveyor) to C22 (Conveyor with Magnetic Removal)	4.61	23%
C22 to Waste	4.61	23%
Main 1 Alternate Route 2 - Waste Nonmetallic		
C31 (Conveyor) to C23 (Conveyor)	1.23	6%
C23 (Conveyor) to Waste Bunker	1.23	6%
Main 1 Alternate Route 3 - Product		
C31 (Conveyor) to Bin	0.31	2%
Bin to Supersack	0.31	2%
Main 2		
Screen to C2 (Conveyor)	2.05	10%
C2 (Conveyor) to Eddy 1	2.05	10%
Main 2 Alternate Route 1 - Aluminum		
Eddy 1 to C04	1.85	9%
C04 to Sm. Zorba Bunker	1.85	9%
Main 2 Alternate Route 2 - Waste		
Eddy 1 to CXX	0.21	1%
CXX to C18	0.21	1%
C18 to Z-Box Cyclone #1 ¹	0.21	1%
Z-Box Cyclone to C08	2.05E-03	0%
Z-Box to C21	0.20	1%
C21 to 1A	0.20	1%
1A (Sensor Sorting) to C08	0.20	1%
1A (Sensor Sorting) to C36	2.03E-03	0%
C36 to Bin	2.03E-03	0%
Main 3		
Trommel (T01) to C03	9.00	45%
C03 to Eddy 2	9.00	45%
Main 3 Alternate Route 1 -		
Eddy 2 to C05	0.90	5%
C05 to Lg. Zorba Bunker	0.90	5%
Main 3 Alternate Route 2 - Eddy 2 to Zurik Bunker		
Eddy 2 to C26	8.10	41%
C26 to Zbox Cyclone #2 ¹	8.10	41%
Zbox to C17	8.10	41%
C17 to 2A (Sensor Sorting)	8.10	41%
2A (Sensor Sorting) to 2B (Sensor Sorting)	8.10	41%
2B (Sensor Sorting) to C9	0.81	4%
C9 to C6	0.81	4%
C6 to Zurik Bunker	0.81	4%

Main 3 Alternate Route 3 - Sensor Sorter 2B Waste to Landfill Bunker		
28 to C08	7.29	36%
C08 to C10	7.29	36%
C10 to Landfill Bunker	7.29	36%
Main 4 - Trommel (T01) to Eddy Current #3		
Trommel (T01) to C12	2.80	14%
C12 to Eddy Current #3	2.80	14%
Main 4 Alternate Route 1 - Eddy 3 to C05		
Eddy 3 to C05	0.28	1%
Main 4 Alternate Route 2 - Eddy 3 to C08		
Eddy 3 to C13	2.52	13%
C13 to C08	2.52	13%
Total material throughput for all drop points (tph):	146.98	

1. Throughputs to Zbox Cyclone #1 and #2 are not part of total throughput calculation, the transfer point emissions are accounted for in Sorting - Cyclones tab.

2. Throughputs to Trommel Sizer and Shaker Screen are not part of the total throughput calculation, the transfer point emissions are accounted for in Sorting - Screening tab

Insignificant Activity evaluation for worst case transfer

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	State Insignificant Activity Threshold ² (tpy)	Unit Qualifies as Insignificant Activity?
PM	1.40E-04	2.80E-03	0.01	1	Yes
PM ₁₀	4.60E-05	9.20E-04	0.00	1	

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate. Controlled factors were utilized as the feed has a high moisture content.

2. Insignificant activity threshold from MPCA 7007.1300 Subpart 3 (F) specifies if emission units are insignificant activities need to be listed in a permit application.

Uncontrolled emission calculations for total throughput

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ² (tpy)
PM	1.40E-04	2.06E-02	0.09	2.25E-02
PM ₁₀	4.60E-05	6.76E-03	0.03	7.40E-03

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate. Controlled factors were utilized as the feed has a high moisture content.

2. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Emissions as Particulate from all Material Transfer Points

Pollutant	Uncontrolled Factor Adjusted for MH (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ¹ (tpy)
Cadmium	2.00E-08	2.94E-06	1.29E-05	3.21E-06
Chromium	1.05E-07	1.55E-05	6.77E-05	1.69E-05
Lead	2.35E-07	3.45E-05	1.51E-04	3.77E-05
Total HAPs			2.32E-04	5.79E-05

1. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Cadmium	4.71E-03	6.72E-07	0.01%
Chromium	4.71E-03	3.54E-06	0.08%
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using the ratio of emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Particulate Matter Dust Emissions from Sorting Sizers and Screens - Insignificant Activities

ASSUMPTIONS:

Material throughput capacity of Trommel Sizer (tph of fluff):	20.0
Material throughput capacity of Shaker Screen (tph of fluff):	8.2
% of Sorting Throughput to Shaker Screen ¹ :	41%
Projected Actual Annual Throughput (tons/year) ² :	43,800.0

1. See Sorting - MH tab for assumed sorting throughputs.

2. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours).

Particulate Emissions Summary

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Actual Emissions (tpy)
Trommel Sizer					
PM	2.20E-03	0.04	0.19	Yes	0.05
PM ₁₀	7.40E-04	0.01	0.06		0.02
Shaker Screen					
PM	2.20E-03	0.02	0.08	Yes	0.02
PM ₁₀	7.40E-04	6.07E-03	0.03		6.64E-03

1. Emission factors from Table 2 of AP-42 11.19.2 Crushed Stone Processing (8/04) for screening were used as a conservative estimate. Controlled factors from AP-42 were utilized as the feed has a high moisture content.

HAP Emissions as Particulate Fraction

Pollutant	Uncontrolled Factor Adjusted for Screening (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions (tpy)
Trommel Sizer				
Cadmium	3.14E-07	6.28E-06	2.75E-05	6.87E-06
Chromium	1.65E-06	3.31E-05	1.45E-04	3.62E-05
Lead	3.69E-06	7.37E-05	3.23E-04	8.07E-05
Shaker Screen				
Cadmium	3.14E-07	6.28E-06	2.75E-05	2.82E-06
Chromium	1.65E-06	3.31E-05	1.45E-04	1.48E-05
Lead	3.69E-06	7.37E-05	3.23E-04	3.31E-05

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Cadmium	4.71E-03	6.72E-07	0.01%
Chromium	4.71E-03	3.54E-06	0.08%
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using the ratio of emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
Minnesota State Capped Permit Air Permit Application
Particulate Matter Dust Emissions from Storage Piles

EQUATIONS:

$$E = 1.7 * (s/1.5) * [(365-p) / 235] * (f/15)$$

where:

E = TSP emission factor (lb/day/acre) from AP-42 4th Edition, Section 11.2.3-5, Equation 3, (5/83).

s = silt content of aggregate (%)

p = number of days with greater than or equal to 0.25 mm (0.01 in.) of precipitation per year

f = percentage of time that the unobstructed wind speed exceeds 5.4 m/s (12 mph)

ASSUMPTIONS:

- TSP emission factor converted to PM₁₀ based on particle size multipliers in AP-42, Section 13.2.5. (11/06)

PM₁₀ multiplier = 1.0

PM_{2.5} multiplier = 0.5

- Silt content conservatively based on values in AP-42, Section 13.2.4 for Stone Quarrying and Processing - Crushed Limestone

s (%) = 1.6

- An average number of days with precipitation greater than or equal to 0.25 mm based on precipitation data

from AP-42 Section 13.2.1 Paved Roads Figure 13.2.1-2 (11/06)

- The percent of time with wind speeds greater than 5.4 m/s based on wind data from the

2018-2022 Brainard Airport observation station. Retrieved from: <http://mrcr.law.illinois.edu/CLIMATE/>

- Total area is based on maximum storage pile capacity at the facility for both auto fluff and wire, which share the space. EFs for auto fluff are used as a worst case.

Meteorological Data Summary

Data Set	Hourly Observations (number)	Wind Speed Greater Than 5.4 m/s	
		(no. hours)	(%)
2018-2022	43,801	8,977	0.20

Storage Pile ¹	s (%)	p (no. days)	f (%)	TSP EF (lb/acre/day)	PM ₁₀ EF (lb/acre/day)	Pile Size		PM		PM ₁₀ (tpy)	Cadmium (lb/hr)	Chromium (lb/hr)	Lead (lb/hr)	Total HAPs					
						(ft ²)	(acres)	(lb/hr)	(tpy)					(lb/hr)	(tpy)	(lb/hr)	(tpy)		
Prepared Shred Iron	1.60	110	0.20	0.03	0.01	1,600.00	0.04	4.11E-05	1.80E-04	2.06E-05	9.01E-05	1.86E-08	8.13E-08	2.05E-08	8.98E-08	1.26E-07	5.51E-07	1.65E-07	7.24E-07
Unprepared Shred Iron	1.60			0.03	0.01	5,600.00	0.13	1,44E-04	6.31E-04	7.20E-05	3.15E-04	6.50E-08	2.85E-07	7.17E-08	3.14E-07	4.42E-07	1.94E-06	5.79E-07	2.54E-06
Clip Pile	1.60			0.03	0.01	4,000.00	0.09	1.03E-04	4.51E-04	5.14E-05	2.25E-04	4.64E-08	2.03E-07	5.12E-08	2.24E-07	3.16E-07	1.38E-06	4.13E-07	1.81E-06
Torching Iron	1.60			0.03	0.01	200.00	4.59E-03	5.14E-06	2.25E-05	2.57E-06	1.13E-05	2.32E-09	1.02E-08	2.56E-09	1.12E-08	1.58E-08	6.92E-08	2.07E-08	9.05E-08
Shearing Iron	1.60			0.03	0.01	1,200.00	0.03	3.09E-05	1.35E-04	1.54E-05	6.78E-05	1.39E-08	6.10E-08	1.54E-08	6.73E-08	9.47E-08	4.15E-07	1.24E-07	5.43E-07
Magnetic Fines	1.60			0.03	0.01	240.00	5.51E-03	6.17E-06	2.70E-05	3.09E-06	1.35E-05	2.79E-09	1.22E-08	3.07E-09	1.35E-08	1.89E-08	8.30E-08	2.48E-08	1.09E-07
Heavies	1.60			0.03	0.01	64.00	1.47E-03	1.65E-06	7.21E-06	8.23E-07	3.60E-06	7.43E-10	3.25E-09	8.20E-10	3.59E-09	5.05E-09	2.21E-08	6.62E-09	2.90E-08
Bin Fines	1.60			0.03	0.01	12,000.00	0.28	3.09E-04	1.35E-03	1.54E-04	6.78E-04	1.39E-07	6.10E-07	1.54E-07	6.73E-07	9.47E-07	4.15E-06	1.24E-06	5.03E-06
P and S Storage	1.60			0.03	0.01	576.00	0.01	1.48E-05	6.49E-05	7.41E-06	3.24E-05	6.69E-09	2.93E-08	7.38E-09	3.23E-08	4.55E-08	1.99E-07	5.95E-08	2.61E-07
Auto Cast Storage	1.60			0.03	0.01	256.00	5.88E-03	6.58E-06	2.88E-05	3.29E-06	1.44E-05	2.97E-09	1.30E-08	3.28E-09	1.44E-08	2.02E-08	8.85E-08	6.62E-08	1.16E-07
Mixed Heavies	1.60			0.03	0.01	64.00	1.47E-03	1.65E-06	7.21E-06	8.23E-07	3.60E-06	7.43E-10	3.25E-09	8.20E-10	3.59E-09	5.05E-09	2.21E-08	6.62E-09	2.90E-08
Heavy Melt Storage	1.60			0.03	0.01	576.00	0.01	1.48E-05	6.49E-05	7.41E-06	3.24E-05	6.69E-09	2.93E-08	7.38E-09	3.23E-08	4.55E-08	1.99E-07	5.95E-08	2.61E-07
Stainless Steel	1.60			0.03	0.01	384.00	8.82E-03	9.87E-06	4.33E-05	4.94E-06	2.16E-05	4.46E-09	1.95E-08	4.92E-09	2.15E-08	3.03E-08	1.33E-07	3.97E-08	1.74E-07
Small Zorba	1.60			0.03	0.01	384.00	8.82E-03	9.87E-06	4.33E-05	4.94E-06	2.16E-05	4.46E-09	1.95E-08	4.92E-09	2.15E-08	3.03E-08	1.33E-07	3.97E-08	1.74E-07
Large Zorba	1.60			0.03	0.01	576.00	0.01	1.48E-05	6.49E-05	7.41E-06	3.24E-05	6.69E-09	2.93E-08	7.38E-09	3.23E-08	4.55E-08	1.99E-07	5.95E-08	2.61E-07
Twitch	1.60			0.03	0.01	1,440.00	0.03	3.70E-05	1.62E-04	1.85E-05	8.11E-05	1.67E-08	7.32E-08	1.84E-08	8.08E-08	1.14E-07	4.98E-07	1.49E-07	6.52E-07
ASR 1	1.60			0.03	0.01	2,400.00	0.06	6.17E-05	2.70E-04	3.09E-05	1.35E-04	2.79E-08	1.22E-07	3.07E-08	1.35E-07	1.89E-07	8.30E-07	2.48E-07	1.09E-06
ASR 2	1.60			0.03	0.01	2,400.00	0.06	6.17E-05	2.70E-04	3.09E-05	1.35E-04	2.79E-08	1.22E-07	3.07E-08	1.35E-07	1.89E-07	8.30E-07	2.48E-07	1.09E-06
Total Emissions:																			
Unit Qualifies as Insignificant Activity?								8.73E-04	3.83E-03	4.37E-04	1.91E-03	3.94E-07	1.73E-06	4.35E-07	1.91E-06	2.68E-06	1.17E-05	3.51E-06	1.54E-05

HAP Pollutant ^{1,2}	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation %
Cadmium	2.57E-03	1.14E-06	0.05%
Chromium	2.57E-03	1.28E-06	0.05%
Lead	2.57E-03	7.89E-06	0.31%

1. Volatile HAPs are also assumed not to be emitted at the CWR Ironton Facility. More current recycling practices require the removal of more of these.
2. Additionally, it is expected that any volatile materials released during the shredding process would be evaporated prior to reaching the sorting facility.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Vertical Shredder Material Handling Transfer Points - Insignificant Activities

ASSUMPTIONS:

Capacity (tons/hour):	3.0
Projected Actual Annual Throughput (tons/year) ¹ :	4,500.0
% Steel in total material fed	80%
% Non-Ferrous metal in total material fed	20%
% Aluminum in non-ferrous metals	50%

1. Projected actual annual throughput based on historical operation.

Transfer Points:	Throughput (tph):	% of Vertical Shredder Throughput:
Feed²		
Pile to Bunker	3.0	100%
Small Wheel Loader to Hopper	3.0	100%
Hopper to Conveyor	3.0	100%
Conveyor to Vertical Mill ¹	3.0	100%
Vertical Mill to Conveyor 1	3.0	100%
Conveyor 1 to Mag Separator	3.0	100%
Ferrous Material		
Mag Separator to Conveyor 4	2.4	80%
Conveyor 4 to Bunker	2.4	80%
Non-Ferrous Material²		
Mag Separator to Conveyor 2	0.6	20%
Conveyor 2 to Eddy	0.6	20%
Eddy to Bunker	0.3	10%
Aluminum²		
Eddy to Conveyor 3	0.3	10%
Conveyor 3 to Bunker	0.3	10%
Total material throughput for all drop points (tph):	21.90	

1. Emissions for the transfer from the conveyor to the vertical shredder are captured in the emissions of the vertical shredder in the Vert. Shredder tab.

2. Feed, Non-Ferrous Material, and Aluminum transfer point emissions are routed to a baghouse; however, as the transfers are being claimed as an insignificant activity under Minn. R. 7007.1300, the calculations conservatively do not account for the control efficiency of the baghouse.

Insignificant Activity evaluation for worst case transfer

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	State Insignificant Activity Threshold ² (tpy)	Unit Qualifies as Insignificant Activity?
PM	3.00E-03	9.00E-03	0.04	1	Yes
PM ₁₀	1.10E-03	3.30E-03	0.01	1	

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate. While the material is wet (due to the addition of water at the vertical shredder), the uncontrolled (dry) factors were conservatively used.

2. Insignificant activity threshold from MPCA 7007.1300 Subpart 3 (F) specifies if emission units are insignificant activities need to be listed in a permit application.

Uncontrolled emission calculations for total throughput

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ² (tpy)
PM	3.00E-03	6.57E-02	0.29	0.05
PM ₁₀	1.10E-03	2.41E-02	0.11	0.02

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

2. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Emissions as Particulate for total throughput

Pollutant	Uncontrolled Factor Adjusted for MH (lb/ton)	Projected Actual Emissions (lb/hr)	Projected Actual Emissions (tons/yr)	Projected Actual Emissions ¹ (tpy)
Lead	5.03E-06	1.10E-04	4.82E-04	8.25E-05

1. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Pollutant	Uncontrolled PM Emission Factor for Shredders ¹ (lb/ton)	Uncontrolled HAP Emission Factor for Shredders ¹ (lb/ton)	HAP Speciation % ²
Lead	4.71E-03	7.89E-06	0.17%

1. See Shredder tab for emission factors

2. Lead speciation as a % of PM is calculated using the ratio of emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Vertical Shredder - Insignificant Activity

Capacity (tons/hour):	3
Projected Actual Annual Throughput (tons/year) ¹ :	4,500.0

1. Projected actual annual throughput based on historical operation.

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Controlled Actual Emissions (tpy)
PM	4.71E-03	0.01	0.06	0%	0.01	0.06	Yes	0.01
PM ₁₀	4.71E-03	0.01	0.06	0%	0.01	0.06		0.01
Lead (PM speciation)	7.89E-06	1.11E-07	4.88E-07	0%	1.11E-07	4.88E-07	N/A	1.78E-05

1. See Particulate Emissions Summary table in Shredder tab for emission factor sources.

2. The Vertical shredder has a baghouse; however, as the unit is being claimed as an insignificant activity under Minn. R. 7007.1300, the calculations conservatively do not account for the control efficiency of the baghouse.

HAP Pollutant	Uncontrolled PM Factor for shredders ¹ (lb/ton)	Uncontrolled HAP Factor for shredders ¹ (lb/ton)	HAP Speciation % ²
Lead	4.71E-03	7.89E-06	0.17%

1. See Shredder tab for emission factor sources.

2. Lead speciation as a % of PM is calculated using the ratio of emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Water Table Transfer Points - Insignificant Activities

Capacity (tons/hour):	0.75
Projected Actual Annual Throughput ¹ (tons/year):	3120

1. Projected Annual Throughput based on 20 hours a day; 4 days a week, 52 weeks a year.

Transfer Points:	Throughput (tph):	% of Water Table Throughput:	
Feed to Feed Hopper		0.75	100%
Feed Hopper to Feed Conveyor ¹		0.75	100%
Feed Conveyor to Water Table ¹		0.75	100%
Total Material throughput for all drop points (tph):		0.75	

1. Excluded from total material throughput calculations because transfer points are enclosed, assuming no emissions from drop point.

Insignificant Activity evaluation for worst case transfer

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	State Insignificant Activity Threshold ² (tpy)	Unit Qualifies as Insignificant Activity?
PM	3.00E-03	2.25E-03	9.86E-03	1	Yes
PM ₁₀	1.10E-03	8.25E-04	3.61E-03	1	

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

2. Insignificant activity threshold from MPCA 7007.1300 Subpart 3 (F) specifies if emission units are insignificant activities need to be listed in a permit application.

Uncontrolled emission calculations for total throughput

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ² (tpy)
PM	3.00E-03	2.25E-03	9.86E-03	4.68E-03
PM ₁₀	1.10E-03	8.25E-04	3.61E-03	1.72E-03

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

2. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Wire Chopping Air Tables (Air Fluidizers) - EU 005-007

Assumptions

Fluidizer M87 (tons/hour)	0.47
Fluidizer M61 (tons/hour)	0.47
Fluidizer M60 (tons/hour)	0.47
% of Wire Chopping Throughput to Fluidizer M87 ¹ :	17%
% of Wire Chopping Throughput to Fluidizer M61 ¹ :	17%
% of Wire Chopping Throughput to Fluidizer M60 ¹ :	17%
Projected Actual Annual Throughput (tons/year) ² :	5,913.00

1. See Wire Chopping - MH tab for assumed throughput splits.
2. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours).

Emission Calculations:

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)
Fluidizer M87 (tons/hour)						
PM	1.04	0.49	2.14	99%	4.89E-03	0.02
PM ₁₀	1.79	0.85	3.70	93%	0.06	0.26
Lead (PM speciation)	7.89E-06	3.86E-06	1.69E-05	0%	3.86E-06	1.69E-05
Fluidizer M61 (tons/hour)						
PM	1.04	0.49	2.14	99%	4.89E-03	0.02
PM ₁₀	1.79	0.85	3.70	93%	0.06	0.26
Lead (PM speciation)	7.89E-06	3.86E-06	1.69E-05	0%	3.86E-06	1.69E-05
Fluidizer M60 (tons/hour)						
PM	1.04	0.49	2.14	99%	4.89E-03	0.02
PM ₁₀	1.79	0.85	3.70	93%	0.06	0.26
Lead (PM speciation)	7.89E-06	3.86E-06	1.69E-05	0%	3.86E-06	1.69E-05

1. Uncontrolled emission factors for the Fluidizer processes are based on stack data from the OmniSource Corporation Wire Grinders, Indiana Air Permit No. 003-35001-00283, Appendix A. Uncontrolled emission factors are calculated using Un divided by the maximum process throughput for the unit (25,000 lb/hr), divided by 6 to calculate a lb/lb emission factor per each Grinder converted to lb/ton.
2. Control efficiency is from Minn. R. 7011.0070, Table A for fabric filter with total enclosure.

Appendix D, Table D-4 of "Title V Applicability Workbook" states Pb emissions are not documented, but could result depending on the source of wire. Therefore the following method was used as estimate of Pb emissions from PM:

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Lead	4.71E-03	7.89E-06	0.17%

1. Pb speciation as a % of PM is calculated using emission factors for PM and Pb from uncontrolled Shredders.

Unit Qualifies as Insignificant Activity?
No
N/A
No
N/A
No
N/A

controlled PTE emission rat

: a conservative

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Z-Box Classifiers with Cyclones - Insignificant Activities

Assumptions

Z-Box Classifiers with Cyclone 1 (tons/hour)	1.93
Z-Box Classifiers with Cyclone 2 (tons/hour)	1.57
Z-Box Classifiers with Cyclone 3 (tons/hour)	0.17
% of Wire Chopping Throughput to Z-Box with Cyclone 1 ¹ :	72%
% of Wire Chopping Throughput to Z-Box with Cyclone 2 ¹ :	58%
% of Wire Chopping Throughput to Z-Box with Cyclone 3 ¹ :	6%
Projected Actual Annual Throughput (tons/year) ² :	5,913.00

1. See Wire Chopping - MH tab for assumed throughput splits.

2. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours).

- Control efficiency of PM emissions by cyclones is not considered in facility actual emissions totals as uncontrolled emissions are added in order to be conservative

PM Emissions for AirSort Z-Box Cyclones

Pollutant	Emission Factor ¹ (lb/ton)	Uncontrolled/Controlled Emission Rate (lb/hr)	Uncontrolled/Controlled Emission Rate (tpy)	Unit Qualifies as Insignificant Activity?	Projected Actual Uncontrolled Emissions (tpy)
Z-Box Classifiers with Cyclones 1					
PM	5.71E-03	0.01	0.05	Yes	0.01
PM ₁₀	5.71E-03	0.01	0.05		0.01
Lead (PM speciation)	7.89E-06	1.53E-05	6.69E-05		1.67E-05
Z-Box Classifiers with Cyclones 2					
PM	5.71E-03	8.97E-03	0.04	Yes	9.82E-03
PM ₁₀	5.71E-03	8.97E-03	0.04		9.82E-03
Lead (PM speciation)	7.89E-06	1.24E-05	5.43E-05		1.36E-05
Z-Box Classifiers with Cyclones 3					
PM	5.71E-03	9.97E-04	4.36E-03	Yes	1.09E-03
PM ₁₀	5.71E-03	9.97E-04	4.36E-03		1.09E-03
Lead (PM speciation)	7.89E-06	1.38E-06	6.03E-06		N/A

1. Emission factor for Z-box with cyclone from Appendix D, Table D-11.A of "Title V Applicability Workbook" prepared by Versar, Inc. for Institute of Scrap Recycling Industries, 1996. Emission Factor for PM is assumed equal to PM₁₀.

2. Control efficiency from Minn. R. 7011.0070, Table A for high efficiency cyclones with total enclosure is used to back calculate uncontrolled emissions. Control isn't being claimed for this equipment, therefore Minn. R. 7011.0070 does not apply, but its control efficiencies were utilized because they can be justified to calculate uncontrolled emissions. Uncontrolled emissions are used for the projected actual totals. The cyclones will be operated as process equipment.

Appendix D, Table D-4 of "Title V Applicability Workbook" states Pb emissions are not documented, but could result depending on the source of wire. Therefore the following method was used as a conservative estimate of Pb emissions from PM:

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Wire Chopping Granulators - EU 001-004

Assumptions

Actual Processing Rate (tons/hour per 2 granulators):	0.785
% of Wire Chopping Throughput to Granulators ¹ :	58%
Projected Actual Annual Throughput (tons/year) ² :	5,913.00

1. See Wire Chopping - MH tab for assumed throughput splits

2. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours)

Emissions from Granulator A:

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Actual Controlled Emissions (tpy)
PM	14.00	11.00	48.16	99%	0.11	0.48	No	0.24
PM ₁₀	14.00	11.00	48.16	93%	0.77	3.37		1.69
Lead (PM speciation)	7.89E-06	8.68E-05	3.80E-04	0%	8.68E-05	3.80E-04		N/A

1. Emission factors for PM from uncontrolled wire chopper from from Appendix D, Table D-4 of "Title V Applicability Workbook". PM₁₀ is conservatively assumed equal to PM.

2. Control efficiency is from Minn. R. 7011.0070, Table A for fabric filter with total enclosure.

Emissions from Granulator B:

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Actual Controlled Emissions (tpy)
PM	14.00	11.00	48.16	99%	0.11	0.48	No	0.24
PM ₁₀	14.00	11.00	48.16	93%	0.77	3.37		1.69
Lead (PM speciation)	7.89E-06	8.68E-05	3.80E-04	0%	8.68E-05	3.80E-04		N/A

1. Emission factors for PM from uncontrolled wire chopper from from Appendix D, Table D-4 of "Title V Applicability Workbook". PM₁₀ is conservatively assumed equal to PM.

2. Control efficiency is from Minn. R. 7011.0070, Table A for fabric filter with total enclosure.

Emissions from Granulator C:

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Actual Controlled Emissions (tpy)
PM	14.00	11.00	48.16	99%	0.11	0.48	No	0.24
PM ₁₀	14.00	11.00	48.16	93%	0.77	3.37		1.69
Lead (PM speciation)	7.89E-06	8.68E-05	3.80E-04	0%	8.68E-05	3.80E-04		N/A

1. Emission factors for PM from uncontrolled wire chopper from from Appendix D, Table D-4 of "Title V Applicability Workbook". PM₁₀ is conservatively assumed equal to PM.

2. Control efficiency is from Minn. R. 7011.0070, Table A for fabric filter with total enclosure.

Emissions from Granulator D:

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emission Rate (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Actual Controlled Emissions (tpy)
PM	14.00	11.00	48.16	99%	0.11	0.48	No	0.24
PM ₁₀	14.00	11.00	48.16	93%	0.77	3.37		1.69
Lead (PM speciation)	7.89E-06	8.68E-05	3.80E-04	0%	8.68E-05	3.80E-04		N/A

1. Emission factors for PM from uncontrolled wire chopper from from Appendix D, Table D-4 of "Title V Applicability Workbook". PM₁₀ is conservatively assumed equal to PM.

2. Control efficiency is from Minn. R. 7011.0070, Table A for fabric filter with total enclosure.

Appendix D, Table D-4 of "Title V Applicability Workbook" states Pb emissions are not documented for wire choppers, but could result depending on the source of wire. Therefore the following method was used as a conservative estimate of Pb emissions from PM:

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using emission factors for PM and Pb from uncontrolled Shredders.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Emissions from Wire Chopping Material Handling Transfer Points - Insignificant Activities

ASSUMPTIONS:

Capacity (tons/hour) ¹ :	2.70
Projected Actual Annual Throughput (tons/year) ¹ :	5,913.00

1. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours).

Transfer Points:	Throughput (tph):	% of Wire Chopping Throughput:
Main 1		
Bucket Loader to Bunker M01	2.70	100%
M01 to M02	2.70	100%
M02 to Overhead MAG (M03)	2.70	100%
Overhead MAG (M03) to M04	2.62	97%
M04 to M06	2.62	97%
M06 to M90A/B	2.62	97%
M90A/B to Vibe Pan Feeder M07A/B	2.62	97%
Main 1 Alt 1 - Ferrous Material		
Over Head MAG (M03) to M05	0.08	3%
M05 to BIN	0.08	3%
Main 1 Alt 2 - Unshreddables		
Vibe Pan Feeder M07A/B to M84	0.26	10%
M84 to M85	0.26	10%
M85 to Bunker	0.26	10%
Main 1 Alt 3		
M07A/B to (AirKnife A/B & Hammermill A/B) ^{2,3}	2.28	84%
Hammermill A/B to M11	2.28	84%
M11 to M12	2.28	84%
M12 to M15	1.93	72%
Main 1 Alt 2		
M12 to M111	0.34	13%
M111 to Dirt Bunker	0.34	13%
Main 2		
M15 to M16 (Vibe Table/ Vibe Pan) ²	1.93	72%
M16 (Vibe Table/ Vibe Pan) ² to Z-box 1	1.93	72%
Z-box to M72	1.93	72%
M72 to M74	1.93	72%
M74 to M30	1.93	72%
M30 to M31	1.93	72%
M31 to (M33 Vibe Pan/Mag M34) ²	1.93	72%
(Mag M34/Eddy Current M35) ⁴	1.80	67%
Eddy Current M35 to M38	1.75	65%
M38 to M70	1.75	65%
M70 to Sort Table 1 M40-A/B	1.75	65%

Main 2 Alt 1		
(M33 Vibe Pan/Mag M34) ² to M36	0.14	5%
M36 to Bin	0.14	5%
Main 2 Alt 2		
Eddy Current M35 to M37	0.05	2%
M37 to Zorba Bin	0.05	2%
Main 3		
Sort Table 1 M40-A/B to M76	1.75	65%
M76 to M77	1.75	65%
M77 to M79	1.75	65%
M79 to Grain Bin Hopper	1.75	65%
Main 3 Alt 1		
Grain Bin Hopper to M45	1.75	65%
M45 to M46/Z-Box 3	0.17	6%
M46/Z-Box to M81	0.17	6%
M81 to Bin	0.17	6%
M46/Z-Box to M48	1.57	58%
M48 to (Granulator A/C or B/D) ^{2,7}	1.57	58%
(Granulator A/C or B/D) ² to (Vibe Pan M52/Z-Box 2) ²	1.57	58%
(Vibe Pan M52/Z-Box) ² to M53	1.41	52%
M53 to Balling Bill M121 ⁸	1.41	52%
Balling Bill M121 to M63 via cyclone	1.41	-
(M63/M64/M122) ² to M87 ^{5,9}	0.47	17%
M87 to Bin A	0.04	1%
M87 to Chain Conveyor	0.43	16%
Chain Conveyor to Plastics Bin	1.30	48%
Main 3 Alt 3		
(M63/M64/M122) ² to M61 ⁹	0.47	17%
M61 to Chain Conveyor	0.43	16%
M61 to Bin B	0.04	1%
Main 3 Alt 4		
M63/M64/M122 to M60 ⁹	0.47	17%
M60 to Chain Conveyor	0.43	16%
M60 to Bin C	0.04	1%
Main 3 Alt 5		
Grain Bin Hopper to M124	0.00	0%
M124 to M48	0.00	0%
Main 3 Alt 6⁵		
Sort Table 1 M40-A/B to M71	0.00	0%
M71 to M41	0.00	0%
M41 to Vibe Pan M42	0.00	0%
M42 to M43	0.00	0%
M43 to M82	0.00	0%
M82 to Bin	0.00	0%
M43 to M83	0.000	0.0%
M83 to Bin	0.000	0.0%

Alternate System to Feed Granulators ¹		
SGM Hopper to M62	0.00	-
M62 to Vibe Pan M48-S2/M48-S3	0.00	-
Vibe Pan M48-S2/M48-S3 to M66	0.00	-
M66 to M26	0.00	-
M26 to Bin	0.00	-
Total material throughput for all drop points (tph):	63	

1. This is an alternative route at a lower throughput capacity and significant fewer transfer points, therefore, throughput is conservatively set to 0.
2. Assuming no drop point between equipment grouped by parathesis Ex. (M16 (Vibe Table/ Vibe Pan) (M33 Vibe Pan/Mag M34), throughput not included in total material throughput calculations.
3. Throughput to Hammermills are not included in total material throughput calculations as there are no emissions from the system. The Hammermills are controlled by the AirKnives, for which the exhaust air is 100% recirculated throughout the cyclones and back to the hammermills (i.e. the cyclone does not emit to the atmosphere).
4. Not a transfer point but need to account for throughput due to losses to the BIN, not included in total throughput calculations.
5. Assuming stream is split evenly between three fluidizers (M87, M61, M60).
6. Area of process is not used, throughput is set to 0.
7. Throughput to Granulators is not included in total material throughput calculations as emissions are accounted for in Wire Chopping - Granulators tab.
8. Throughput to Balling Mill is not included in total material throughput calculations as there are no emissions from the system. The Balling Mill is controlled by Cyclone M121-3, for which the exhaust air is 100% recirculated through the balling mill (i.e., the cyclone does not emit to atmosphere).
9. Throughput to Fluidizers is not included in total material throughput calculations as emissions are accounted for in Wire Chopping-Air Tables tab.

Insignificant Activity evaluation for worst case transfer

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	State Insignificant Activity Threshold (tpy)	Unit Qualifies as Insignificant Activity?
PM	3.00E-03	8.10E-03	0.04	1	Yes
PM ₁₀	1.10E-03	2.97E-03	0.01	1	

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

Uncontrolled emission calculations for total throughput

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Projected Actual Emissions ² (tpy)
PM	3.00E-03	0.19	0.83	0.21
PM ₁₀	1.10E-03	0.07	0.31	0.08

1. Emission factors from AP-42, Section 11.19.2, Table 2 (8/04), Conveyor Transfer Point Emission factors are used as a conservative estimate.

2. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Emissions as Particulate from Material Transfer Points

Pollutant	Uncontrolled Factor Adjusted for MH (lb/ton)	Projected Actual Emissions (lb/hr)	Projected Actual Emissions (tons/yr)	Projected Actual Emissions ¹ (tpy)
Lead	5.03E-06	3.18E-04	1.39E-03	3.48E-04

1. Projected actual emissions are estimated by taking the annual emissions and adjusting them based on the ratio of actual throughput per hour to the system's maximum capacity per hour.

HAP Pollutant	Uncontrolled PM Factor for Shredders (lb/ton)	Uncontrolled HAP Factor for Shredders (lb/ton)	HAP Speciation ¹ %
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using the ratio of emission factors for PM and Pb from uncontrolled Shredders

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 Particulate Matter Dust Emissions from Wire Chopping Screens - Insignificant Activities

Assumptions

FlipFlow Screen (M12) (tons/hour)	1.93
Multi-Deck Screen (M122) (tons/hour)	0.47
% of Wire Chopping Throughput to FlipFlow Screen (M12) ¹ :	84%
% of Wire Chopping Throughput to Multi-Deck Screen (M122) ¹ :	17%
Projected Actual Annual Throughput (tons/year) ² :	5,913.00

1. See Wire Chopping - MH tab for assumed throughput splits.

2. Projected actual annual throughput based on expected maximum operation of one quarter of a year (2,190 hours)

Particulate Emissions Summary

Pollutant	Uncontrolled Emission Factor ¹ (lb/ton)	Uncontrolled Emissions (lb/hr)	Uncontrolled Emissions (tons/yr)	Pollution Control Efficiency ² (%)	Potential Controlled Emission Rate (lbs/hr)	Potential Controlled Emissions (tons/yr)	Unit Qualifies as Insignificant Activity?	Projected Actual Controlled Emissions (tpy)
FlipFlow Screen (M12)								
PM	0.03	0.05	0.21	99%	4.84E-04	2.12E-03		6.23E-04
PM ₁₀	8.70E-03	0.02	0.07	93%	1.18E-03	5.16E-03	Yes	1.52E-03
Lead (PM speciation)	7.89E-06	3.82E-07	1.67E-06	0%	3.82E-07	1.67E-06	N/A	1.97E-05
Multi-Deck Screen (M122)								
PM	0.03	0.01	0.05	0%	0.01	0.05		0.01
PM ₁₀	8.70E-03	4.10E-03	0.02	0%	4.10E-03	0.02	Yes	4.49E-03
Lead (PM speciation)	7.89E-06	9.29E-08	4.07E-07	0%	9.29E-08	4.07E-07	N/A	4.07E-06

1. Emission factors from Table 2 of AP-42 11.19.2 Crushed Stone Processing (8/04) for uncontrolled screening were used as a conservative estimate.

2. Control efficiency for the FlipFlow Screen is from Minn. R. 7011.0070, Table A for fabric filter with total enclosure.

Appendix D, Table D-4 of "Title V Applicability Workbook" states Pb emissions are not documented, but could result depending on the source of wire. Therefore the following method was used as a conservative estimate of Pb emissions from PM:

HAP Pollutant	Uncontrolled PM Factor for shredders (lb/ton)	Uncontrolled HAP Factor for shredders (lb/ton)	HAP Speciation ¹ %
Lead	4.71E-03	7.89E-06	0.17%

1. Lead speciation as a % of PM is calculated using emission factors for PM and Pb from uncontrolled Shredders.

Note: You must submit this form as part of your capped permit application package.

AQ Facility ID No.: 03500031 AQ File No.: _____

Facility Name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

Federal and State Requirements

This packet of forms, **CAP-GI-09 Requirements**, will help you to determine the federal and state requirements with which your facility must comply. Be advised that you must include any applicable requirement that may not be addressed in this part of the application.

The first section of this form asks questions to find out if your facility is subject to specific federal and state regulations. To assist you in filling out this form, there are five attachments, forms **CAP-GI-09 A, D, F, G and I**. This form will direct you to each of the attachments as necessary, which will help you determine if your facility is subject to these regulations. When you are directed to an attachment, complete it as required, but *always* return to this **CAP-GI-09 Requirements** form.

In this form and the others in the CAP-GI-09 series, attach additional pages if the space provided is not sufficient.

1) National Emission Standards for Hazardous Air Pollutants for Source Categories
(NESHAP for Source Categories, 40 CFR pt. 63)

1a) To determine if any requirements for the National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Source Categories (40 CFR pt. 63) apply to your facility, you must complete attached form **CAP-GI-09A Requirements: NESHAP for Source Categories** (40 CFR pt. 63).

1b) After completing form CAP-GI-09A, check one of the following boxes:

- Yes, my facility is currently** subject to an area source NESHAP for Source Categories requirements. Go to question 1c.
- No, my facility is not currently** subject to NESHAP for Source Categories requirements. Go to question 2.

1c) Check the box that best describes your source's compliance status with regards to applicable area source NESHAP requirements on the date of application and then go to question 2:

- Compliance
- Non-compliance. Describe: _____

2) Standards of Performance for New Stationary Sources
(NSPS, New Source Performance Standards, 40 CFR pt. 60)

2a) Have you constructed, modified (as defined in 40 CFR § 60.14), or reconstructed (as defined in 40 CFR § 60.15) your emission facility, or any portion thereof, after August 17, 1971?

- No.** Go to question 3.
- Yes,** you may be subject to this regulation. Complete the attached form **CAP-GI-09D Requirements: NSPS**.

2b) After completing the above question (and the attachment if necessary) check one of the following boxes:

- Yes,** my facility (or a portion of it) **is** subject to NSPS requirements. My facility is only subject to one or more of the 14 NSPS requirement listed in Minn. R. 7007.1140, subp. 2 (E). Go to question 2c.
- No,** my facility **is not** subject to NSPS requirements. Go to question 3.

2c) Check the box that best describes your source's compliance status with regards to applicable NSPS requirements on the date of application and then go to question 3:

- Compliance
- Non-compliance. Describe: _____

3) **Stratospheric Ozone Protection**

(1990 Clean Air Act, as amended, Sections 601-618)

3a) To determine if this federal regulation applies to your facility, you must complete the attached form **CAP-GI-09F Requirements: Stratospheric Ozone**.

3b) After completing form **CAP-GI-09F Requirements: Stratospheric Ozone**, check one of the following boxes:

Yes, my facility **is** subject to this requirement. Go to question 3c.

No, my facility **is not** subject to this requirement. Go to question 4.

3c) Check the box that best describes your source's compliance status with regards to applicable stratospheric ozone requirements on the date of application and then go to question 4:

Compliance

Non-compliance. Describe: _____

4) **Risk Management Programs for Chemical Accidental Release Prevention**

(40 CFR pt. 68, Section 112(r) of the Clean Air Act Amendments)

4a) Section 112(r) of the Clean Air Act requires facilities that produce, process, store or use any of the substances listed in form **GI-09G: Risk Management Programs for Chemical Accidental Release Prevention** (40 CFR pt. 68), in amounts greater than the listed thresholds, to develop and implement a risk management plan for accidental releases.

4b) Determine if you produce, process, store or use any of the substances listed in form **CAP-GI-09G: Risk Management Programs for Chemical Accidental Release Prevention**, and check one of the following boxes:

Yes, my facility **does** produce, process, store or use one or more of the substances listed in form **CAP-GI-09G**, in amounts exceeding the listed thresholds. Go to question 4c.

No, my facility **does not** produce, process, store or use any of the substances listed in form **CAP-GI-09G**, in amounts exceeding the listed thresholds. Go to question 5.

4c) Check the box that best describes your source's compliance status with regards to applicable 112(r) requirements on the date of application and then go to question 5:

Compliance

Non-compliance. Describe: _____

5) **Federal Ozone Measures for the Control of Emissions from Certain Sources**

(1990 Clean Air Act, as amended, Section 183(e))

5a) Rules have been promulgated under the above section of the Clean Air Act regulating Volatile Organic Compounds (VOCs) from consumer or commercial products that emit VOCs. Does your facility manufacture: (check all that apply)

Household consumer products containing VOCs.

Architectural coatings containing VOCs.

Autobody refinishing coatings containing VOCs.

My facility does not manufacture any of the above. Go to question 6.

5b) If you checked any boxes in question 5a) review the regulations at <http://www.epa.gov/ttn/atw/183e/gen/183epg.html> to determine whether your facility may be subject to any rules that are adopted under § 183(e) requiring emission reductions. After reviewing the regulations, check one of the following boxes.

Yes, my facility is subject to consumer and commercial products regulation under section 183(e). Go to question 5c.

No, my facility is not subject to consumer and commercial products regulation under section 183(e). Go to question 6.

5c) Check the box that best describes your source's compliance status with regards to applicable 183(e) requirements on the date of application and then go to question 6:

Compliance

Non-compliance. Describe: _____

6) Minnesota State Air Quality Rules

6a) To determine which Minnesota State rules you may be subject to, go to form **CAP-GI-09I Requirements: State Rules**.

6b) Whether permitted or not, **every business** and activity in Minnesota **is subject to the rules listed in the following table**. Check the box that best describes your source's compliance status with regards to the rules in the following table and other applicable state rules identified in form CAP-GI-09I on the date of application and then go to question 7:

- Compliance
 Non-compliance. Describe: _____

Title of the Rule	Minnesota Rules (Chapter or Part)	What the Content of the Rule is:
Air Quality Emission Fees	Part 7002.0025 - 7002.0095	Requires facilities to pay emission fees every year within 60 days of MPCA billing.
Air Emission Permits	Parts 7007.0050 - 7007.1850	Outlines when an air emission permit is required and procedures for obtaining one.
Trichloroethylene Ban	Part 7007.0100, subp. 7(X)	Bans facilities from using trichloroethylene after June 1, 2022, including in any manufacturing, processing, or cleaning processes, except as described in Minn. Stat. 116.385 subd. 2(B) and 4. Replacement chemicals must be demonstrated to be less toxic to human health and reviewed in a form approved by the commissioner of the MPCA.
Minnesota and National Ambient Air Quality Standards	Part 7009.0010 - 7009.0080	No one is allowed to emit any of the limited pollutants in such a manner that ambient levels of the pollutant are higher than the maximum level.
Applicability of Standards of Performance	Parts 7011.0010, and 7011.0050	Indicates that facilities must comply with all applicable state air pollution rules.
Circumvention	Part 7011.0020	States that no one may conceal or dilute emissions which would otherwise violate a federal or state air pollution control rule.
Emission Standards for Visible Air Contaminants	Part 7011.0100 - 7011.0120	Outlines restrictions against emitting opaque smoke from facilities.
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150	States that no person shall cause particulate matter to become airborne if it can be avoided with listed preventative measures.
Continuous Monitors	Part 7017.1000	Outlines requirements for continuous monitoring systems.
Performance Tests	Part 7017.2001 - 7017.2060	Outlines procedures and methods for emissions and performance testing if required.
Notifications	Part 7019.1000	Requires facilities to notify the MPCA of shutdowns and breakdowns.
Reports	Part 7019.2000	Requires specific records and reports from facilities with continuous monitoring systems.
Emission Inventory	Part 7019.3000 - 7019.3100	Requires facilities to submit an Emission Inventory Report by April 1 every year.
Motor Vehicles	Part 7023.0100 - 7023.0120	Outlines restrictions against emitting opaque smoke from motor vehicles, trains, boats, construction equipment and stationary internal combustion engines.
Noise Pollution Control	Part 7030.0010 - 7030.0080	Sets noise standards which cannot be exceeded.

7) You have completed this form.

**Capped Permit Requirements:
NESHAP for Source Categories (40 CFR pt. 63)**

Air Quality Permit Program

Doc Type: Permit Application

National Emission Standards for Hazardous Air Pollutants for source categories (NESHAP for Source Categories, 40 CFR pt. 63)

Tables A (Hazardous Air Pollutants) and B (Source Categories) are provided for your reference and to assist with completing CAP-00. They are not used to answer Question 1 on this form.

AQ Facility ID number: 03500031 Agency Interest ID number: 11018

Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

1) If your source has any equipment that belongs to the following area source categories, place a check in the box next to that category and read the specified NESHAP for Source Categories to determine all applicable requirements for area sources. The rules for these source categories may apply whether or not your facility is considered a major source for hazardous air pollutants. If you check one or more boxes below, you must answer "Yes" to question 1b when you return to Form CAP-GI-09. If any part of your facility is subject to a listed standard that requires a Part 70 operating permit, you may not get a Capped Permit but must instead apply for and obtain a Part 70 permit.

- Acrylic and Modacrylic Fibers Production, 40 CFR § 63 Subpart LLLLLL
- Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR § 63 Subpart AAAAAAA
- Carbon Black Production, 40 CFR § 63 Subpart MMMMMM (see note 1)
- Chemical Manufacturing Area Sources, 40 CFR § 63 Subpart VVVVVV (see note 2)
- Chemical Manufacturing: Chromium Compounds, 40 CFR § 63 Subpart NNNNNN (see note 1)
- Chemical Preparations Industry, 40 CFR § 63 Subpart BBBBBBB
- Chromic acid anodizing (**Chromium Electroplating**), 40 CFR § 63 Subpart N
- Clay Ceramics Manufacturing, 40 CFR § 63 Subpart RRRRRR
- Commercial dry cleaning (Perc) transfer machines, 40 CFR § 63 Subpart M
- Commercial sterilization facilities, 40 CFR § 63 Subpart O
- Decorative chromium electroplating (**Chromium Electroplating**), 40 CFR § 63 Subpart N
- Electric Arc Furnace Steelmaking Facilities, 40 CFR § 63 Subpart YYYYYY (see note 1)
- Ferroalloys Production Facilities, 40 CFR § 63 Subpart YYYYYY
- Flexible Polyurethane Foam Production and Fabrication, 40 CFR § 63 Subpart OOOOOO
- Gasoline Dispensing Facilities, 40 CFR § 63 Subpart CCCCCC
- Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, 40 CFR § 63 Subpart BBBBBB
- Glass Manufacturing, 40 CFR § 63 Subpart SSSSSS (see note 1)
- Gold Mine Ore Processing and Production, 40 CFR § 63 Subpart EEEEEEE
- Halogenated solvent cleaners (Degreasing Organic Cleaners), 40 CFR § 63 Subpart T
- Hard chromium electroplating (**Chromium Electroplating**), 40 CFR § 63 Subpart N
- Hospital Sterilizers Using Ethylene Oxide, 40 CFR § 63 Subpart WWWW
- Industrial, Commercial, and Institutional Boilers, 40 CFR § 63 Subpart JJJJJJ
- Iron and Steel Foundries Area Sources, 40 CFR § 63 Subpart ZZZZZ
- Lead Acid Battery Manufacturing, 40 CFR § 63 Subpart PPPPPP
- Metal Fabrication and Finishing Sources, 40 CFR § 63 Subpart XXXXXX
- Nonferrous Foundries: Aluminum, Copper, and Other, 40 CFR § 63 Subpart ZZZZZ
- Oil and natural gas production, 40 CFR § 63 Subpart HH
- Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 CFR § 63 Subpart HHHHHH
- Paints and Allied Products Manufacturing, 40 CFR § 63 Subpart CCCCCC
- Plating and Polishing Operations, 40 CFR § 63 Subpart WWWW
- Polyvinyl Chloride and Copolymers Production, 40 CFR § 63 Subpart DDDDDD
- Prepared Feeds Manufacturing, 40 CFR § 63 Subpart DDDDDDD
- Primary Copper Smelting, 40 CFR § 63 Subpart EEEEEEE (see note 1)
- Primary Nonferrous Metals: Zinc, Cadmium, and Beryllium, 40 CFR § 63 Subpart GGGGGG (see note 1)

- Reciprocating Internal Combustion Engines, 40 CFR § 63 Subpart ZZZZ
- Secondary aluminum processing, 40 CFR § 63 Subpart RRR
- Secondary Copper Smelting, 40 CFR § 63 Subpart FFFFFFF (see note 1)
- Secondary Nonferrous Metals Processing (Brass, Bronze, Magnesium, Zinc), 40 CFR § 63 Subpart TTTTTT
- Wood Preserving, 40 CFR § 63 Subpart QQQQQQ

Notes

1. If any part of your facility is subject Subpart(s) MMMMMM, NNNNNN, YYYYYY, SSSSSS, EEEEEEE, EEEEEEE, GGGGGG, and/or FFFFFFF, you must apply for and obtain a Part 70 operating permit; a facility subject to any of these subparts does not qualify for a Capped Permit.
2. If a source subject to this subpart was a major source of HAP and installed control equipment after November 15, 1990, to become an area source of HAP, the source must obtain a Part 70 operating permit, regardless of the facility emissions.

2) Return to Form CAP-GI-09 and answer question 1b.

Standards of Performance for New Stationary Sources (NSPS, New Source Performance Standards, 40 CFR pt. 60)

1a) AQ Facility ID No.: 03500031 1b) Agency Interest ID No.: 11018

2) Facility Name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

3) NSPS are federal rules that define limits, testing and monitoring for certain specific emission units. These standards are proposed and promulgated in the Federal Register and published in the Code of Federal Regulations, title 40 part 60 (40 CFR pt. 60). Table D lists the standards promulgated through December 2012. Table D may not be complete if a new NSPS has been promulgated since this form was last revised. The table contains:

- a brief emission source description;
- a corresponding 40 CFR pt. 60 subpart reference;
- an effective date for all performance standards promulgated as of December 2012; and
- NSPS allowed by capped emissions permit in boldface type.

[Please note: The best way to keep up-to-date on NSPS regulations is through the U.S. Environmental Protection Agency's (EPA) webpage (<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60?toc=1>) or the Federal Register since there can be a significant time lag between the date when a standard is proposed or promulgated and when it is finally published in the Code of Federal Regulations.]

4) Please read through the emission sources in Table D. If you have modified (as defined in 40 CFR § 60.14), reconstructed (as defined in 40 CFR § 60.15) or constructed the described emission source on or after the effective date listed in the table, your facility may be subject to the requirements of 40 CFR pt. 60. Generally, reconstruction means that the cost of a repair exceeds 50% of what it would cost to install a new emission unit. If you have had an extensive and expensive repair, it may count as a reconstruction.

If you know or suspect standards may apply to your facility you must refer to the corresponding 40 CFR pt. 60, subpart and read the requirements in detail to make a final determination. Note: the general provisions found in 40 CFR pt. 60, subp. A, apply to **all** facilities subject to any other NSPS requirements.

5) After you review the list of sources subject to NSPS and read any applicable 40 CFR pt. 60 subparts, check one of the following boxes:

- No, my facility is not subject to a NSPS. Return to Form CAP-GI-09, and answer "No" to question 2b.
- Yes, my facility is subject to a NSPS. (Note that your facility can only be subject to a NSPS listed in boldface to be eligible for the capped permit.)

6) The following page lists information needed to identify your facility's emission sources subject to NSPS. Complete the group of questions for all emission equipment subject to NSPS, attaching additional pages if necessary.

7) For each applicable subpart (including Subpart A), include a copy of the applicable subpart with the applicable parts highlighted. For some standards, the Minnesota Pollution Control Agency (MPCA) has prepared a checklist version of the standard – for those subparts you may complete the checklist/form rather than highlighting a copy of the standard. See [Air permit compliance forms | Minnesota Pollution Control Agency \(state.mn.us\)](#) for the subparts for which a checklist form has been prepared.

8) Return to Form CAP-GI-09D, and answer "Yes" to question 2b.

Describe Emission Equipment: _____
Emission Unit Number (EQUI xxx): _____
Stack/Vent Number (STRU xxx): _____
Date of Equipment Manufacture: _____ (mm/dd/yyyy)
Date of Equipment Installation: _____ (mm/dd/yyyy)
Date of Reconstruction (if applicable): _____ (mm/dd/yyyy)
Date of Modification (if applicable): _____ (mm/dd/yyyy)
Applicable 40 CFR pt. 60 subpart or Federal Register Reference: _____

This source is also subject to the general provisions of 40 CFR pt. 60, subp. A.

Has this Unit Been Permitted Previously?

- No
 Yes, list Air Emission Permit Number: _____

Have you attached a photocopied, highlighted version of the 40 CFR pt. 60 subpart?

- Yes
 No

Describe Emission Equipment: _____
Emission Unit Number: _____
Stack/Vent Number: _____
Date of Equipment Manufacture: _____ (mm/dd/yyyy)
Date of Equipment Installation: _____ (mm/dd/yyyy)
Date of Reconstruction (if applicable): _____ (mm/dd/yyyy)
Date of Modification (if applicable): _____ (mm/dd/yyyy)
Applicable 40 CFR pt. 60 subpart or Federal Register Reference: _____

This source is also subject to the general provisions of 40 CFR pt. 60, subp. A.

Has this Unit Been Permitted Previously?

- No
 Yes, list Air Emission Permit Number: _____

Have you attached a photocopied, highlighted version of the 40 CFR pt. 60 subpart?

- Yes
 No

Describe Emission Equipment: _____
Emission Unit Number: _____
Stack/Vent Number: _____
Date of Equipment Manufacture: _____ (mm/dd/yyyy)
Date of Equipment Installation: _____ (mm/dd/yyyy)
Date of Reconstruction (if applicable): _____ (mm/dd/yyyy)
Date of Modification (if applicable): _____ (mm/dd/yyyy)
Applicable 40 CFR pt. 60 subpart or Federal Register Reference: _____

This source is also subject to the general provisions of 40 CFR pt. 60, subp. A.

Has this Unit Been Permitted Previously?

- No
 Yes, list Air Emission Permit Number: _____

Have you attached a photocopied, highlighted version of the 40 CFR pt. 60 subpart?

- Yes
 No



Stratospheric Ozone Protection

(1990 Clean Air Act, as amended, Sections 601-618; 40 CFR pt. 82)

The 1990 Clean Air Act Amendments, Sections 601-618 and federal regulations located in 40 CFR pt. 82 regulate ozone depleting substances and requires a phase out of their use. Review the attached list of ozone depleting chemicals, Tables E and F. If you manufacture, sell, distribute or use any the chemicals in Tables E and F, then Sections 601-618 and 40 CFR pt. 82 apply to your facility. Please read Sections 601-618 and 40 CFR pt. 82 to determine all the requirements that apply to your facility.

- 1) After reviewing Table F check one of the following:
[X] NO, my facility does not manufacture, sell, distribute or use any chemicals from the list, and the 1990 Clean Air Act, as amended, Sections 601-618 do not apply to my facility. Return to Form CAP-GI-09 Requirements, question 3b.
[] YES, my facility does manufacture, sell, distribute or use one or more of the chemicals from the list. Go to question 2.
2) Indicate below which chemicals you manufacture, sell, distribute or use; whether the chemical is Class I or Class II; and what chemical your facility will be using to replace the phased out chemical. Include additional pages if necessary:

Table with 4 columns: 2a) Chemical Name:, 2b) Class Type:, 2c) CAS Number:, 2d) Replacement Chemical (after phase out):. The table contains 15 empty rows for data entry.

- 3) Return to form CAP-GI-09 Requirements, question 3b.

**Requirements: Risk management programs for
chemical accidental release prevention
(40 CFR pt. 68)**

Air Quality Permit Program

Doc Type: Permit Application
Facility information

 AQ Facility ID number: 03500031 Agency Interest ID number: 11018

 Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

If you produce, process, store or use any of the substances in excess of the threshold listed in the following table, you may be subject to the requirements under Section 112(r) of the Clean Air Act. After reviewing Table G, return to form CAP-GI-09 Requirements and answer question 4b.

Table G
List of regulated toxic substances and threshold quantities for accidental release prevention (40 CFR 68.130)

Chemical Name	CAS No.	Threshold Quantity (lbs)
Acrolein [2-Propenal]	107-02-8	5,000
Acrylonitrile [2-Propenenitrile]	107-13-1	20,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	5,000
Allyl alcohol [2-Propen-1-ol]	107-18-6	15,000
Allylamine [2-Propen-1-amine]	107-11-9	10,000
Ammonia (anhydrous)	7664-41-7	10,000
Ammonia (conc 20% or greater)	7664-41-7	20,000
Arsenous trichloride	7784-34-1	15,000
Arsine	7784-42-1	1,000
Boron trichloride [Borane, trichloro-]	10294-34-5	5,000
Boron trifluoride [Borane, trifluoro-]	7637-07-2	5,000
Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro[oxybis[metane]]-, T-4-]	353-42-4	15,000
Bromine	7726-95-6	10,000
Carbon disulfide	75-15-0	20,000
Chlorine	7782-50-5	2,500
Chlorine dioxide [Chlorine oxide (ClO ₂)]	10049-04-4	1,000
Chloroform [Methane, trichloro-]	67-66-3	20,000
Chloromethyl ether [Methane, oxybis[chloro-]	542-88-1	1,000
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	5,000
Crotonaldehyde [2-Butenal]	4170-30-3	20,000
Crotonaldehyde, (E)- [2-Butenal, (E)-]	123-73-9	20,000
Cyanogen chloride	506-77-4	10,000
Cyclohexylamine [Cyclohexanamine]	108-91-8	15,000
Diborane	19287-45-7	2,500
Dimethyldichlorosilane [Silane, dichlorodimethyl-]	75-78-5	5,000
1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	57-14-7	15,000
Epichlorohydrin [Oxirane, (chloromethyl)-]	106-89-8	20,000
Ethylenediamine [1,2-Ethanediamine]	107-15-3	20,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Ethylene oxide [Oxirane]	75-21-8	10,000
Fluorine	7782-41-4	1,000
Formaldehyde (solution)	50-00-0	15,000
Furan	110-00-9	5,000

Facility Information–Minnesota State Air Quality (AQ) Rules

AQ Facility ID number: 03500031 Agency Interest ID number: 11018

Facility name: Crow Wing Recycling, Inc. d/b/a Nordic Metals

Some businesses and activities in Minnesota are subject to the following rules. Read each question to determine if the rule applies to you.

1) Minnesota Standards of Performance for Stationary Sources (Minn. R. ch. 7011)

1a) Does your facility have any equipment that meets the following definition?

"A furnace, boiler or other combustion equipment in Minnesota which burns fossil fuel for the purpose of producing steam, hot water, hot air, or other hot liquid, gas, or solid, where the smoke doesn't have direct contact with the heated medium for which another standard of performance has not been promulgated."

- No, my facility **is not** subject to Minn. R. 7011.0500-7011.0551. Go to question 1b.
- Yes, my facility **is** subject to Minn. R. 7011.0500-7011.0551. Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment. (Read the rule to determine the specific requirements that apply to your facility.)

1b) Is your facility type or process equipment found in Table H on page 3? This table contains only state-specific requirements; it does not contain state rules that incorporate federal rules by reference.

- No, none of the Minnesota Rules listed in Table H apply to my facility. Go to question 2.
- Yes, my facility or process equipment may be subject to the rule associated with it in Table H. Read the associated rule to see if it applies.

1c) After reading through Table H and any rule that may apply to your facility or equipment, list the ones that do apply to your air emission source(s) below. Again, Table H contains only state-specific requirements; it does not contain state rules that incorporate federal rules by reference. You do not need to list the state rule that incorporates a federal rule by reference. You do not need to list the Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment again, if it applies (see 1a, above).

Minnesota Rule Part that Applies	What the Rule Part Applies to (Whole facility or Specific Piece of Equipment)	Emission Unit ID Number

3) Standards of Performance for Industrial Process Equipment (Minn. R. 7011.0700 - 7011.0735)

3a) Do you have any industrial process equipment on-site that is not regulated by another Standard of Performance (NSPS or MN Rules Standard of Performance)?

- No, my equipment is not subject to this rule. Go to question 4.
 Yes. Go to 3b.

3b) Opacity Standard

(Note: Opacity is a measure of visible emissions or how much of the view is obscured by stack emissions. The emissions causing opacity are often smoke or dust.)

For industrial process equipment which was *in operation before July 9, 1969*, the equipment shall not exhibit greater than 20 percent opacity, except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period.

For industrial process equipment which was *not in operation before July 9, 1969*, the equipment shall not exhibit greater than 20 percent opacity.

3c) Does the industrial process equipment have particulate control equipment with a collection efficiency of at least 99 percent if it was in operation before July 9, 1969, or 99.7 percent if it was not in operation before July 9, 1969?

- No. Go to question 3d.
 Yes. My equipment is not subject to the remaining requirements of this rule. Go to question 4.

3d) Is the industrial process equipment located outside of the seven county Minneapolis-St. Paul metropolitan region **and** outside of the city of Duluth **and** at least 1/4 mile from any residence or public roadway, **and** does the industrial process equipment have particulate control equipment with a collection efficiency of at least 85 percent **and** is the operation of the entire facility in compliance with all ambient air quality standards?

- No, my equipment is subject to the remaining requirements. You can determine applicable limits using Table I.
 Yes, my equipment is not subject to the remaining requirements of this rule. Go to question 4.

4) Return to Form CAP-GI-09, question 6b.

Table H: Minnesota Standards of Performance for Stationary Sources *

Facility or Equipment Type	Associated Minnesota Rule
Direct Heating Equipment	7011.0600 through 7011.0625
Concrete Manufacturing Plants	7011.0850 through 7011.0860
Stage One Vapor Recovery	7011.0865 through 7011.0870
Hot Mix Asphalt Plants	7011.0900 through 7011.0925
Bulk Agricultural Commodity Facilities (Grain Elevators)	7011.1000 through 7011.1015
Coal Handling Facilities	7011.1100 through 7011.1140
Incinerators (waste combustors)	7011.1201 through 7011.1285
Sewage Sludge Incinerators	7011.1300 through 7011.1325
Petroleum Refineries	7011.1400 through 7011.1430
Liquid Petroleum and Volatile Organic Compounds (VOCs) Storage Vessels	7011.1500 through 7011.1515
Sulfuric Acid Plants	7011.1600 through 7011.1630
Nitric Acid Plants	7011.1700 through 7011.1725
Brass and Bronze Plants	7011.1900 through 7011.1915
Iron and Steel Plants	7011.2000 through 7011.2015
Inorganic Fibrous Materials	7011.2100 through 7011.2105
Stationary Internal Combustion Engine (Generators)	7011.2300
Municipal Solid Waste Landfills	7011.3500 through 7011.3510
Asbestos	7011.9921 through 7011.9927

* This table does **not** include Minnesota Rules which incorporate federal New Source Performance Standards (NSPS) and/or National Emission standards for Hazardous Air Pollutant Sources (NESHAPS) by reference.

Crow Wing Recycling Inc. - Ironton Facility
 Minnesota State Capped Permit Air Permit Application
 IPE Calculations

Emission Source ID	Emission Sources Description	P - Process Weight Rate (lbs/hr)	E - Emissions Rate (lbs/hr)	Gas Volume (acfm)	F _{corrected} - Gas Volume ² (dscfm)	c - Concentration (gr/dscf)	c (gr/dscf) to E (lbs/hr)
EQUI 001	Wire Chopping Granulator A	1,570.75	3.09	8,122.00	7,726.64	0.10	6.31
EQUI 002	Wire Chopping Granulator B	1,570.75	3.09				
EQUI 003	Wire Chopping Granulator C	1,570.75	3.09				
EQUI 004	Wire Chopping Granulator D	1,570.75	3.09				
EQUI 005	Fluidizer M87	942.45	2.25	11,777.00	11,203.72	0.08	8.11
EQUI 006	Fluidizer M61	942.45	2.25				
EQUI 007	Fluidizer M60	942.45	2.25				
FUGJ 001	Shredder	340,000.00	39.37				
				-	-	-	-

1. Based on design flow specifications for Center (8,122 cfm) and West (11,777 cfm) Bag Houses.

2. Converted to standard cubic feet per minute by correcting temperature from exit gas temperature (95°F) to standard temperature (68°F). Gas pressure is assumed to be ambient, and humidity is not considered in this correction.

Appendix B

CAPS Spreadsheet

Yellow cells = required inputs (for each stack/vent considered--inputs not required for unused stacks)

White cells = optional inputs

All other cells locked

Screening Date:	8/7/2024
AQ Facility ID No.:	03500031
Facility Name:	Crow Wing Recycling, Inc. d/b/a Nordic Metals
Facility Location:	Crow Wing County
Address:	19586 County Road 102
Address (cont'd)	Ironton, MN 56455

Criteria Pollutant Screening Results Table				
Chemical	Fraction of 1-hr std	Fraction of 3-hr std	Fraction of 24-hr std	Fraction of annual std
SO ₂				
NO ₂				
PM ₁₀			0.721	

Emissions	Optional stack description >>>	Stack(s)#1		Stack(s)#2		Stack(s)#3		Stack(s)#4		Stack(s)#5		Stack(s)#6		Stack(s)#7		Stack(s)#8	
		Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
		Office (EQUI 001-007)		Shredder (FUGI 1)													
Pollutant Name	Total annual emissions (tpy)																
SO ₂																	
NO ₂																	
PM ₁₀		1.716921		0.8007													

Default Dispersion Factors	notes	Stack(s)#1	Stack(s)#2	Stack(s)#3	Stack(s)#4	Stack(s)#5	Stack(s)#6	Stack(s)#7	Stack(s)#8
Stack height (1-99 m)	required for lookup								
Distance to property line (10-10,000 m)	required for lookup								
1-hr dispersion factor	automatic lookup								
3-hr dispersion factor	automatic lookup								
24-hr dispersion factor	automatic lookup								
Annual dispersion factor	automatic lookup								

Optional Specific Dispersion Factors*	notes	Stack(s)#1	Stack(s)#2	Stack(s)#3	Stack(s)#4	Stack(s)#5	Stack(s)#6	Stack(s)#7	Stack(s)#8
1-hr dispersion factor	enter dispersion factors manually								
3-hr dispersion factor	enter dispersion factors manually								
24-hr dispersion factor	enter dispersion factors manually	446.0559147	116.2432006						
Annual dispersion factor	enter dispersion factors manually								

*Optional specific dispersion factors refers to dispersion factors developed via an external method such as the DISPERSE batch process, the SCREEN3 model or other screening or refined air dispersion modeling. After developing the dispersion factors they are entered manually on this sheet. If the optional specific dispersion factors cells are filled in, they are used preferentially over the Default Dispersion Factors lookup table values above.