MARYLAND DEPARTMENT OF THE ENVIRONMENT

AIR AND RADIATION ADMINISTRATION
APPLICATION FOR A PERMIT TO CONSTRUCT

DOCKET # 19-22

Applicant: Complete Recycling Group, LLC

Application: Installation of two (2) MAX4000SP secondary aluminum sweat furnaces, US Furnaces each rated at 5 MMBtu/hr and equipped with an afterburner.

Location: 1500 W. Pulaski Hwy Elkton MD 21921

ITEM	DESCRIPTION
1	Notice of Application and Opportunity to Request an Informational Meeting
2	Environmental Justice (EJ) Information - EJ Fact Sheet and MDE Score and Screening Report
3	Permit to Construct Application Forms: 5, 5T, 5EP, and 6
4	Furnace Brochures

DEPARTMENT OF THE ENVIRONMENT
AIR AND RADIATION ADMINISTRATION

NOTICE OF APPLICATION AND
OPPORTUNITY TO REQUEST AN INFORMATIONAL MEETING

The Maryland Department of the Environment, Air and Radiation Administration (ARA) received a permit-to-construct application from Complete Recycling Group, LLC on October 10, 2022, for Installation of two (2) MAX4000SP secondary aluminum sweat furnaces, US Furnaces each rated at 5 MMBtu/hr and equipped with an afterburner. The proposed installations will be located at 1500 W. Pulaski Hwy in Elkton, Cecil County MD 21921.

In accordance with HB 1200/Ch. 588 of 2022, the applicant provided an environmental justice (EJ) Score for the census tract in which the project is located using the Maryland EJ mapping tool. The EJ Score, expressed as a statewide percentile, was shown to be 45.43 which the Department has verified. This score considers three demographic indicators – minority population above 50%, poverty rate above 25% and limited English proficiency above 15%.

Copies of the application, the EJ mapping tool screening report (which includes the score), and other supporting documents are available for public inspection on the Department's website at https://mde.maryland.gov/programs/Permits/AirManagementPermits/Pages/index.aspx (click on Docket Number 19-22). Any applicant-provided information regarding a description of the environmental and socioeconomic indicators contributing to that EJ score can also be found at the listed website. Such information has not yet been reviewed by the Department. A review of the submitted information will be conducted when the Department undertakes its technical review of all documents included in the application.

Pursuant to the Environment Article, Section 1-603, Annotated Code of Maryland, the Department will hold an informational meeting to discuss the application and the permit review process if the Department receives a written request for a meeting within 10 working days from the date of the second publication of this notice. A requested informational meeting will be held virtually using teleconference or internet-based conferencing technology unless a specific request for an in-person informational meeting is received. All requests for an informational meeting should be directed to the attention of Ms. Shannon Heafey, Air Quality Permits Program, Air and Radiation Administration, 1800 Washington Boulevard, Baltimore, Maryland 21230.

Further information may be obtained by calling Ms. Shannon Heafey at 410-537-4433.

Christopher R. Hoagland, Director
Air and Radiation Administration

Maryland Department of the Environment

The Applicant's Guide to Environmental Justice and Permitting

What You Need to Know

This fact sheet is designed to provide guidance to applicants on incorporating environmental justice screening requirements pursuant to House Bill 1200, effective October 1, 2022.

What is Environmental Justice?

The concept behind the term environmental justice (EJ) is that regardless of race, color, national origin, or income, all Maryland residents and communities should have an equal opportunity to enjoy an enhanced quality of life. How to assess whether equal protection is being applied is the challenge.

Communities surrounded by a disproportionate number of polluting facilities puts residents at a higher risk for health problems from environmental exposures. It is important that residents who may be adversely affected by a proposed source be aware of the current environmental issues in their community in order to have meaningful involvement in the permitting process. Resources may be available from government and private entities to ensure that community health is not negatively impacted by a new source located in the community.

Extensive research has documented that health disparities exist between demographic groups in the United States, such as differences in mortality and morbidity associated with factors that include race/ethnicity, income, and educational attainment. House Bill 1200 adds to MDE's work incorporating diversity, equity and inclusion into our mission to help overburdened and underserved communities with environmental issues.

What is House Bill 1200 and what does it require?

Effective October 1, 2022, House Bill 1200 requires a person applying for a permit from the Department under §1-601 of the Environment Article of the Annotated Code of Maryland or any permit requiring public notice and participation to include in the application an EJ Score for the census tract where the applicant is seeking the permit; requiring the Department, on receiving a certain permit application to review the EJ Score; and requiring notices to include information related to EJ Scores and generally relating to environmental permits and environmental justice screenings.

What is a "Maryland EJ Tool"?

The term "Maryland EJ Tool" means a publicly available state mapping tool that allows users to: (1) explore layers of environmental justice concern; (2) determine an overall EJ score for census tracts in the state; and (3) view additional context layers relevant to an area.

Maryland Department of the Environment

The Applicant's Guide to Environmental Justice and Permitting

What You Need to Know

What is an "EJ Score"?

The term "EJ Score" means an overall evaluation of an area's environment and environmental justice indicators, as defined by MDE in regulation, including: (1) pollution burden exposure; (2) pollution burden environmental effects; (3) sensitive populations; and (4) socioeconomic factors.

The Maryland EJ Screening Tool uses three demographic indicators – minority population above 50%, poverty rate above 25% and percent of the population having limited English proficiency above 15% - to calculate a score that can be used as an indicator of susceptibility to environmental exposure. It is that score, linked to the census tract where the project is to be located, that needs to be reported to MDE as part of your permit application.

What does the application require?

The link for the Maryland EJ Tool is located on the Department's website, www.mde.maryland.gov, under Quick Links as EJ Screening Tool. At the top right, please click the first button for the MDE Screening Report. Input the address of the proposed installation in the address bar. Click on the Report button. Once the report has been generated select the print icon.

The applicant needs to include the MDE Screening Report with the EJ Score from the Maryland EJ Tool as part of the permit application upon submission. An application will not be considered complete without the report.

The applicant is encouraged to provide the Department with a discussion about the environmental exposures in the community. This will provide pertinent information about how the applicant should proceed with engaging with the community. Residents of a community with a high indicator score and a high degree of environmental exposure should be afforded broader opportunities to participate in the permit process and understand the impacts a project seeking permit approval may have on them.

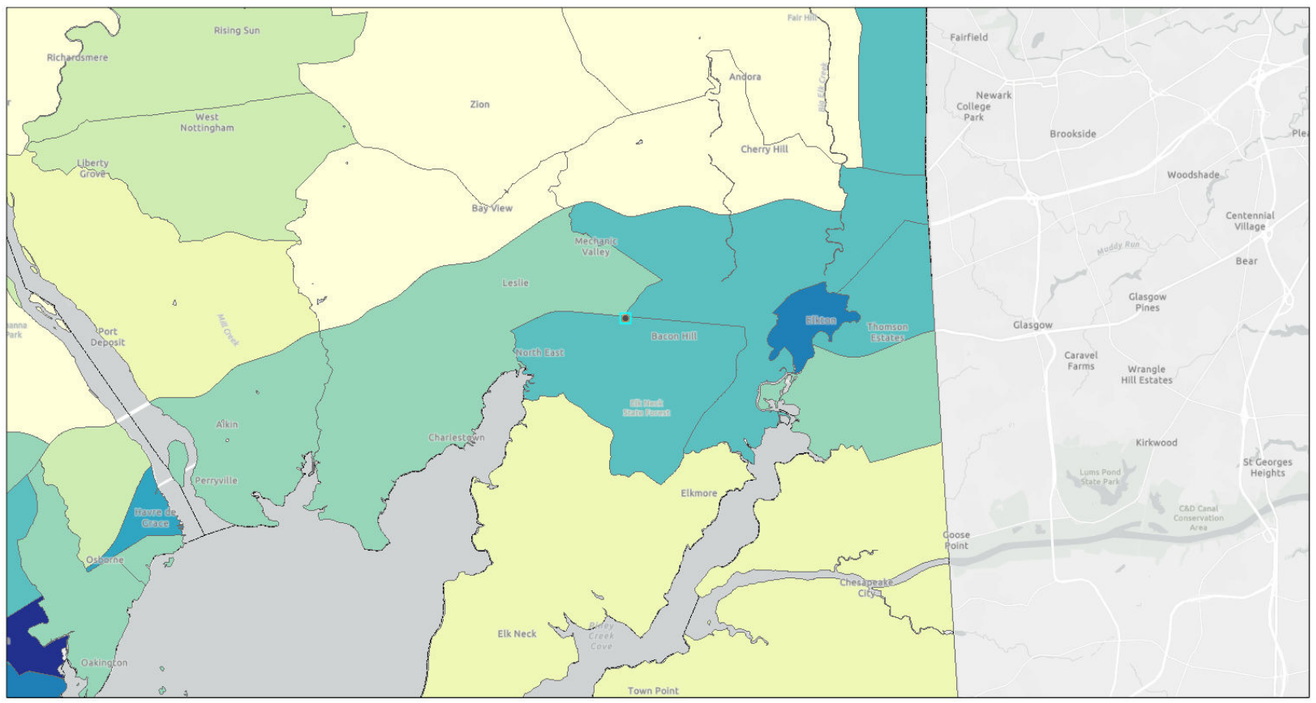
Questions

For air quality permits, please call 410-537-3230.
For water permits, please call 410-537-4145.
For land permits pertaining to Solid Waste, please call 410-537-3098.
For land permits pertaining to Oil Control, please call 410-537-3483.
For land permits pertaining to Animal Feeding Operations, please call 410-537-4423.
For land permits pertaining to Biosolids, please call 410-537-3403.

MDE EJ Screening Report - Complete Recycling Group - 1500 W Pulaski Hwy, Elkton, MD 21921

Area of Interest (AOI) Information

Nov 15 2022 6:00:44 Eastern Standard Time



EJ Scores as a Percent Distribution (Quantile Representation)

- 0-10th %ile
- 10-20th %ile
- 20-30th %ile
- 30-40th %ile
- 40-50th %ile
- 50-60th %ile
- 60-70th %ile
- 70-80th %ile
- 80-90th %ile
- 90-100th %ile
- Maryland County Detailed Boundary

1:144,448

0 1.25 2.5 5 mi
0 2.25 4.5 9 km

MDE, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Summary

Name	Count	Area(ft²)	Length(ft)
EJ Scores as a Percent Distribution (Quantile Representation)	1	N/A	N/A
Active High Air Emission Facilities	1	N/A	N/A
LRP Facilities	0	N/A	N/A
Maryland Dam Locations	0	N/A	N/A
Maryland Pond Locations	0	N/A	N/A
Wastewater Discharge Facilities	0	N/A	N/A
Historic Mine Locations	0	N/A	N/A
Significant Wastewater Treatment Plants	0	N/A	N/A
Point Source Discharges	0	N/A	N/A
All Permitted Solid Waste Acceptance Facilities	0	N/A	N/A
Municipal Solid Waste Acceptance Facilities	0	N/A	N/A
EJ Scores as a Percent Distribution (Quantile Representation)	1	N/A	N/A
Active High Air Emission Facilities	1	N/A	N/A
LRP Facilities	0	N/A	N/A
Maryland Dam Locations	0	N/A	N/A
Maryland Pond Locations	0	N/A	N/A
Wastewater Discharge Facilities	0	N/A	N/A
Historic Mine Locations	0	N/A	N/A
Significant Wastewater Treatment Plants	0	N/A	N/A
Point Source Discharges	0	N/A	N/A
All Permitted Solid Waste Acceptance Facilities	0	N/A	N/A
Municipal Solid Waste Acceptance Facilities	0	N/A	N/A

EJ Scores as a Percent Distribution (Quantile Representation)

#	Geographic Area Name	Percent Minority	Percent Poverty	Percent_Limited_English_Proficiency	SocioScore Percent Tract Only	Socio Percentile (All MD)	Socio Percentile (All MD) %	Area(ft²)
1	Census Tract 309.03, Cecil County, Maryland	21.50	35.79	0.00	19.10	45.43	45.428%	N/A

Active High Air Emission Facilities

#	master_ai_id	master_ai_name	air_code	naic	naic_description	emission_year	latitude	longitude
1	7253	Complete Recycling Group/B&H New & Used Tires	SOP	331,314	Secondary Smelting and Alloying of Aluminum	2020	39.610116	-75.908373

#	physical_address_line_1	physical_address_municipality	physical_address_state_code	physical_address_zip	county	co	nitrogen	pm10
1	1500 W Pulaski Hwy	Elkton	MD	21,921	Cecil	1.01	1.17	0.70

#	pt	voc	sox	pm25	pmcondense	carbon_dioxide	mercury	methane
1	0.00	0.06	0.16	0.00	0.25	1,437.91	0.00	0.03

#	BCRI	BHAP	HAPS	Count
1	2.34	0.00	0.00	1

EJ Scores as a Percent Distribution (Quantile Representation)

#	Geographic Area Name	Percent Minority	Percent Poverty	Percent_Limited_English_Proficiency	SocioScore Percent Tract Only	Socio Percentile (All MD)	Socio Percentile (All MD) %	Area(ft²)
1	Census Tract 309.03, Cecil County, Maryland	21.50	35.79	0.00	19.10	45.43	45.428%	N/A

Active High Air Emission Facilities

#	master_ai_id	master_ai_name	air_code	naic	naic_description	emission_year	latitude	longitude
1	7253	Complete Recycling Group/B&H New & Used Tires	SOP	331,314	Secondary Smelting and Alloying of Aluminum	2020	39.610116	-75.908373

#	physical_address_line_1	physical_address_municipality	physical_address_state_code	physical_address_zip	county	co	nitrogen	pm10
1	1500 W Pulaski Hwy	Elkton	MD	21,921	Cecil	1.01	1.17	0.70

#	pt	voc	sox	pm25	pmcondense	carbon_dioxide	mercury	methane
1	0.00	0.06	0.16	0.00	0.25	1,437.91	0.00	0.03

#	BCRI	BHAP	HAPS	Count
1	2.34	0.00	0.00	1

© MDE

Environmental and Engineering Solutions, Inc.
14 Lanfair Road - Cheltenham, PA 19012 - (215) 881-9401 - Fax: (215) 881-9402 - e-mail: tom@eesolutions.net

October 10, 2022

Maryland Department of the Environment
Air and Radiation Administration (ARA)
1800 Washington Blvd.
Baltimore, MD 21230

Re: Air Quality Permit Application for Two (2) Aluminum Sweat Furnaces
Complete Recycling Group LLC, Elkton, Cecil County
Permit No. 015-0275

Dear Sir/Madam:

Please accept the enclosed application for the proposed installation of a 3rd and 4th aluminum sweat furnace to be located at 1500 W. Pulaski Highway in Elkton, Maryland. The metals recycling facility is currently permitted to operate two (2) aluminum sweat furnaces (Secondary Aluminum Process, SIC 3341, NAICS 331314). The proposed sweat furnaces are the same make/model as the existing units.

A Permit to Construct (PTC) checklist is included along with the appropriate forms and supporting materials. In addition, an Initial Notification under 40 CFR Part 63 Subpart RRR is also included.

Thank you for your attention in this matter. If you have any questions or require further information, please contact me at 919-632-3258 or mark@eesolutions.net, or Richard Polansky of Complete Recycling Group at 443-309-4474 or rpolansky@complete-recycle.com.

Very truly yours,

Environmental and Engineering Solutions, Inc.

Mark D. Huncik
Air Quality Consultant

Enclosures (Air Permit Application for Aluminum Sweat Furnace)

cc: Richard J. Polansky, Complete Recycling Group

Initial Notification Report

Applicable Rule: 40 CFR Part 63 Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. Initial notification is being made in accordance with §63.1515(a) [this serves as the identification of the relevant standard, as required by §63.9(b)(2)(iii)].

I. GENERAL INFORMATION

Print or type the following information for each plant that produces secondary aluminum (§63.9(b)(2)(i)-(ii)):

Owner/Operator___**Complete Recycling Group LLC**_____
Street Address_____**1500 W. Pulaski Hwy, Elkton, MD 21921**_____
Mailing Address____**same as above**_____

Plant Name____ **Complete Recycling Group LLC** _____
Plant Contact/Title___ **Richard J. Polansky, President** _____
Plant Contact Phone Number__ **443-309-4774**_____
Plant Street Address__**same as above**_____
Plant Mailing Address_ **same as above** _____
Plant Email Address ___ **rpolansky@complete-recycle.com**_____

Plant Permit Number ___**015-0275**_____

II. CERTIFICATION *(Note: You may edit the text in this section as deemed appropriate)*

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify that the information contained in this notification is accurate and true to the best of my knowledge.

Name of Responsible Official:____**Richard J. Polansky**_____
Title of Responsible Official:_____**President**_____

RICHARD J. POLANSKY 10.10.2022
_____
Signature Date

III. SOURCE DESCRIPTION

1. **Check** your existing/new source status (optional):

   Existing source [affected source(s) constructed on or before February 11, 1999; must comply with Secondary Aluminum NESHAP by March 24, 2003]

   ☒ New source [affected source(s) constructed or reconstructed after February 11, 1999; must comply with Secondary Aluminum NESHAP by March 23, 2000 or upon initial startup, whichever is later]

   ☐ New source at an aluminum die casting facility, aluminum foundry, or aluminum extrusion facility [must comply with Secondary Aluminum NESHAP by March 24, 2003 or upon initial startup, whichever is later][1]

2. **Indicate** your anticipated compliance date (§63.9(b)(2)(iii)):**___Upon Startup_____**

3. **Briefly describe** the nature, size, design, and method of operation of your plant, including the operating design capacity (§63.9(b)(2)(iv)):**__Secondary aluminum sweat furnace with afterburner integral to the furnace. Maximum of 1.5 tons/hr scrap charged to the furnace.**_____
   _____
   _____

4. **Check** your major/area source status (§63.9(b)(2)(v)):

   ☐ Major Source [potential plant-wide hazardous air pollutant (HAP) emissions exceed 10 tons/year for a single HAP or 25 tons/year for a combination of HAP's]

   ☒ Area Source [potential plant-wide HAP emissions total less than 10 tons/year for a single HAP or 25 tons/year for all HAP's]

   Check the emission estimation method used to determine major/area source status:

   ☐ Previous source test data

   ☒ Manufacturer's test data

   ☒ Industry emission factors

   ☐ Other method (specify)_____

[1] This requirement is based on direct final rule amendments published on June 14, 2002 (67 FR 41118)

5. **Indicate** the number of each type of affected source/emission unit that exists at your plant and the hazardous air pollutants (HAP) emitted[2] from each point (§63.9(b)(2)(iv); see definitions in §63.1503):[3]

Number	Affected Source	HAP Emitted
2	Sweat furnace	D/F
	Aluminum scrap shredder	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni
	Thermal chip dryer	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni
	Scrap dryer/delacquering kiln/decoating kiln	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni
	Dross-only furnace	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni
	Rotary dross cooler	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni
	Group 2 furnace ("clean furnace")	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni
	Secondary Aluminum Processing Unit (consisting one or more group 1 furnaces and in-line fluxers)	Sb As Cd Cr D/F HCl HF Pb Mn Hg Ni

[2] Possible HAP emitted from Secondary Aluminum production facilities include: antimony (Sb) & compounds, arsenic (As) & compounds (inorganic), cadmium (Cd) & compounds, chromium (Cr) & compounds, dioxin/furans (D/F), hydrochloric acid (HCl), hydrogen fluoride (HF), lead (Pb) & compounds, manganese (Mn) & compounds, mercury (Hg) & compounds, and nickel (Ni) & compounds. Area sources are **only** subject to emission standards for D/F, not the other HAP.

[3] See applicability flowcharts to determine whether or not your facility is subject to Subpart RRR.

AIR QUALITY PERMIT TO CONSTRUCT APPLICATION CHECKLIST

OWNER OF EQUIPMENT/PROCESS	
COMPANY NAME:	Complete Recycling Group
COMPANY ADDRESS:	1500 W. Pulaski Hwy, Elkton, MD 21921
LOCATION OF EQUIPMENT/PROCESS	
PREMISES NAME:	Complete Recycling Group
PREMISES ADDRESS:	same as above
CONTACT INFORMATION FOR THIS PERMIT APPLICATION	
CONTACT NAME:	Richard J. Polansky
JOB TITLE:	President
PHONE NUMBER:	(443) 309-4474
EMAIL ADDRESS:	rpolansky@complete-recycle.com
DESCRIPTION OF EQUIPMENT OR PROCESS	
Two (2) Aluminum Sweat Furnaces with Afterburners	

Application is hereby made to the Department of the Environment for a Permit to Construct for the following equipment or process as required by the State of Maryland Air Quality Regulation, COMAR 26.11.02.09.

Check each item that you have submitted as part of your application package.

☒ Application package cover letter describing the proposed project

☒ Complete application forms (Note the number of forms included or NA if not applicable.)

No. 1 Form 5
No. 1 Form 5T
No. 2 Form 5EP
No. 2 Form 6
No. _____ Form 10
No. _____ Form 11
No. _____ Form 41
No. _____ Form 42
No. _____ Form 44

☒ Vendor/manufacturer specifications/guarantees

☒ Evidence of Workman's Compensation Insurance

☒ Process flow diagrams with emission points

☒ Site plan including the location of the proposed source and property boundary

☒ Material balance data and all emissions calculations

☒ Material Safety Data Sheets (MSDS) or equivalent information for materials processed and manufactured.

☐ Certificate of Public Convenience and Necessity (CPCN) waiver documentation from the Public Service Commission (1)

☐ Documentation that the proposed installation complies with local zoning and land use requirements (2)

(1) Required for emergency and non-emergency generators installed on or after October 1, 2001 and rated at 2001 kW or more.

(2) Required for applications subject to Expanded Public Participation Requirements.

Google Maps

Complete Recycling Group
1500 W Pulaski Hwy

Imagery ©2022 CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO, Map data ©2022 100 ft

Sweat Furnaces (2)

Forms (5, 5T, 5EP, 6) and Attachments

MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Blvd ▪ Baltimore, Maryland 21230
(410) 537-3230 ▪1-800-633-6101 ▪ www.mde.state.md.us
Air and Radiation Management Administration ▪ Air Quality Permits Program

APPLICATION FOR PROCESSING/MANUFACTURING EQUIPMENT

Permit to Construct X | Registration Update ❑ | Initial Registration ❑

1A. Owner of Equipment/Company Name

Complete Recycling Group LLC

Mailing Address

1500 W Pulaski Hwy
Street Address

Elkton | MD | 21921
City | State | Zip

Telephone Number

(443) 309-4774

Signature

RICHARD J. POLANSKY 10.10.2022

Richard J. Polansky, President | 10.10.2022
Print Name and Title | Date

DO NOT WRITE IN THIS BLOCK
2. REGISTRATION NUMBER

County No. (1-2) | Premises No. (3-6)
Registration Class (7) | Equipment No. (8-11)
Data Year (12-13) | Application Date

1B. Equipment Location and Telephone Number (if different from above)

same as above
Street Number and Street Name

City/Town | State | Zip | ( ) Telephone Number

Premises Name (if different from above)

3. Status (A= New, B= Modification to Existing Equipment, C= Existing Equipment)

Status (15)	New Construction Begun (MM/YY) (16-19)	New Construction Completed (MM/YY) (20-23)	Existing Initial Operation (MM/YY) (20-23)
A	1222	0123	

4. Describe this Equipment: Make, Model, Features, Manufacturer (include Maximum Hourly Input Rate, etc.)

MAX4000SP secondary aluminum sweat furnace with afterburner, US Furnaces - 5 MMBtu/hr firing total firing rate

5. Workmen's Compensation Coverage AF WCP 100049109-01 (Binder/Policy Number) 8/3/2023 (Expiration Date)

Company ACCIDENT FUND INSURANCE CO.

NOTE: Before a Permit to Construct may be issued by the Department, the applicant must provide the Department with proof of worker's compensation coverage as required under Section 1-202 of the Worker's Compensation Act.

6A. Number of Pieces of Identical Equipment Units to be Registered/Permitted at this Time 2

6B. Number of Stack/Emission Points Associated with this Equipment 2

7. Person Installing this Equipment (if different from Number 1 on Page 1)

Name_____ Title_____

Company_____

Mailing Address/Street_____

City/Town_____ State_____ Telephone (_____) _____

8. Major Activity, Product or Service of Company at this Location

Complete Recycling Group (CRG) is a scrap and salvage yard.

9. Control Devices Associated with this Equipment

None [ ] 24-0

Simple/Multiple Cyclone	Spray/Adsorb Tower	Venturi Scrubber	Carbon Adsorber	Electrostatic Precipitator	Baghouse	Thermal/Catalytic Afterburner	Dry Scrubber
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[X]	[ ]
24-1	24-2	24-3	24-4	24-5	24-6	24-7	24-8

Other

[ ] Describe_____

24-9

10. Annual Fuel Consumption for this Equipment

OIL-1000 GALLONS	SULFUR %	GRADE	NATURAL GAS-1000 FT^3	LP GAS-100 GALLONS	GRADE
			8 7 6 0 0		
26-31	32-33	34	35-41	42-45	

COAL- TONS	SULFUR %	ASH%	WOOD-TONS	MOISTURE %
46-52	53-55	56-58	59-63	64-65

OTHER FUELS _____ (Specify Type) [ ] 66-1 ANNUAL AMOUNT CONSUMED _____ (Specify Units of Measure)

OTHER FUEL _____ (Specify Type) [ ] 66-2 ANNUAL AMOUNT CONSUMED _____ (Specify Units of Measure)

1= Coke 2= COG 3=BFG 4=Other

11. Operating Schedule (for this Equipment)

Continuous Operation	Batch Process	Hours per Batch	Batch per Week	Hours per Day	Days Per Week	Days per Year
[ ]	[ ]	[ ]	[ ]	2 4	7	3 6 5
67-1	67-2	68-69		70-71	72	73-75

Seasonal Variation in Operation:

No Variation	Winter Percent	Spring Percent	Summer Percent	Fall Percent	(Total Seasons= 100%)
[X]	[ ]	[ ]	[ ]	[ ]	
76	77-78	79-80	81-82	83-84	

12. Equivalent Stack Innformation- is Exhaust through Doors, Windows, etc. Only? (Y/N) N
85

If not, then

Height Avove Ground (FT)	Inside Diameter at Top	Exit Temperature (°F)	Exit Velocity (FT/SEC)
86-88	89-91	92-95	96-98

NOTE:
Attach a block diagram of process/process line, indicating new equipment as reported on this form and all existing equipment, including control devices and emission points.

13. Input Materials (for this equipment only)
Is any of this data to be considered confidential? N (Y or N)

	NAME	CAS NO. (IF APPLICABLE)	INPUT RATE PER HOUR	UNITS	PER YEAR	UNITS
1.	Natural Gas (2 furnaces)		5,000 each	cf/hr	43,800 each	1000 cf
2.	Aluminum Scrap (2 furnaces)		1.5 each	tons	13,140 each	tons
3.						
4.						
5.						
6.						
7.						
8.						
9.						
TOTAL						

14. Output Materials (for this equipment)
Process/Product Stream

	NAME	CAS NO. (IF APPLICABLE)	OUTPUT RATE PER HOUR	UNITS	PER YEAR	UNITS
1.	Aluminum Ingots (2 furnaces)		1,500 each	pounds	6,570 each	tons
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
TOTAL						

15. Waste Streams- Solid and Liquid

	NAME	CAS NO. (IF APPLICABLE)	OUTPUT RATE PER HOUR	UNITS	PER YEAR	UNITS
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
TOTAL						

16. Total Stack Emissions (for this equipment only) in Pounds Per Operating Day

Particulate Matter	Oxides of Sulfur	Oxides of Nitrogen
11.47	1.58	22.86
99-104	105-110	111-116

Carbon Monoxide	Volatile Organic Compounds	PM-10
19.20	1.26	11.47
177-122	123-128	129-134

17. Total Fugitive Emissions (for this equipment only) in Pounds Per Operating Day

Particulate Matter	Oxides of Sulfur	Oxides of Nitrogen
135-139	140-144	145-149

Carbon Monoxide	Volatile Organic Compounds	PM-10
150-154	155-159	160-164

Method Used to Determine Emissions (1= Estimate 2= Emission Factor 3= Stack Test 4= Other)

TSP	SOX	NOX	CO	VOC	PM10
2,3	2	2	2	2	2,3
165	166	167	168	169	170

AIR AND RADIATION MANAGEMENT ADMINISTRATION USE ONLY

18. Date Rec'd. Local _____ **Date Rec'd. State** _____ **Return to Local Jurisdiction** **Date**_____ **By**_____

Reviewed by Local Jurisdiction Date_____ By_____ **Reviewed by State** Date_____ By_____

19. Inventory Date **Month/Year** (171-174) **Equipment Code** (175-177) **SCC Code** (178-185)

20. Annual Operating Rate (186-192) **Maximum Design Hourly Rate** (193-199) **Permit to Operate Month** (200-201) **Transaction Date (MM/DD/YR)** (202-207)

Staff Code (208-210) **VOC Code** (211 212) **SIP Code** (213 214) **Regulation Code** (215-218) **Confidentiality** (219)

Point Description (220-238) **Action** (239) A: Add C: Change

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Air and Radiation Management Administration ● Air Quality Permits Program
1800 Washington Boulevard ● Baltimore, Maryland 21230
(410)537-3225 ● 1-800-633-6101● www.mde.maryland.gov

FORM 5T: Toxic Air Pollutant (TAP) Emissions Summary and Compliance Demonstration

Applicant Name: Complete Recycling Group

Step 1: Quantify premises-wide emissions of Toxic Air Pollutants (TAP) from new and existing installations in accordance with COMAR 26.11.15.04. Attach supporting documentation as necessary.

Toxic Air Pollutant (TAP)	CAS Number	Class I or Class II?	Screening Levels (µg/m^3)			Estimated Premises Wide Emissions of TAP			
						Actual Total Existing TAP Emissions	Projected TAP Emissions from Proposed Installation	Premises Wide Total TAP Emissions	
			1-hour	8-hour	Annual	(lb/hr)	(lb/hr)	(lb/hr)	(lb/yr)
ex. ethanol	*64175*	*II*	*18843*	*3769*	*N/A*	*0.60*	*0.15*	*0.75*	*1500*
ex. benzene	*71432*	*I*	*80*	*16*	*0.13*	*0.5*	*0.75*	*1.00*	*400*
See attached table									

(attach additional sheets as necessary.)

Note: Screening levels can be obtained from the Department's website (http://www.mde.maryland.gov) or by calling the Department.

Step 2: Determine which TAPs are exempt from further review. A TAP that meets either of the following Class I or Class II small quantity emitter exemptions is exempt from further TAP compliance demonstration requirements under Step 3 and Step 4.

Class II TAP Small Quantity Emitter Exemption Requirements (COMAR 26.11.15.03B(3)(a))
A Class II TAP is exempt from Step 3 and Step 4 if the Class II TAP meets the following requirements: Premises wide emissions of the TAP shall not exceed 0.5 pounds per hour, and any applicable 1-hour or 8-hour screening level for the TAP must be greater than 200 µg/m^3.

Class I TAP Small Quantity Emitter Exemption Requirements (COMAR 26.11.15.03B(3)(b))
A Class I TAP is exempt from Step 3 and Step 4 if the Class I TAP meets the following requirements: Premises wide emissions of the TAP shall not exceed 0.5 pounds per hour and 350 pounds per year, any applicable 1-hour or 8-hour screening level for the TAP must be greater than 200 µg/m^3, and any applicable annual screening level for the TAP must be greater than 1 µg/m^3.

If a TAP meets either the Class I or Class II TAP Small Quantity Emitter Exemption Requirements, no further review under Step 3 and Step 4 are required for that specific TAP.

FORM 5T: Toxic Air Pollutant (TAP) Emissions Summary and Compliance Demonstration

Step 3: Best Available Control Technology for Toxics Requirement (T-BACT, COMAR 26.11.15.05)
In the following table, list all TAP emission reduction options considered when determining T-BACT for the proposed installation. The options should be listed in order beginning with the most effective control strategy to the least effective strategy. Attach supporting documentation as necessary.

Target Pollutants	Emission Control Option	% Emission Reduction	Costs		T-BACT Option Selected? (yes/no)
			Capital	Annual Operating	
ex. ethanol and benzene	*Thermal Oxidizer*	*99*	*$50,000*	*$100,000*	*no*
ex. ethanol and benzene	*Low VOC materials*	*80*	*0*	*$100.000*	*yes*
VOC, D/F, and PM	Afterburner	99+%	To be determined	To be determined	Yes, MACT compliant

(attach additional sheets as necessary)

Step 4: Demonstrating Compliance with the Ambient Impact Requirement (COMAR 26.11.15.06)
Each TAP not exempt in Step 2 must be individually evaluated to determine that the emissions of the TAP will not adversely impact public health. The evaluation consists of a series of increasingly non-conservative (and increasingly rigorous) tests. Once a TAP passes a test in the evaluation, no further analysis is required for that TAP. "Demonstrating Compliance with the Ambient Impact Requirement under the Toxic Air Pollutant (TAP) Regulations (COMAR 26.11.15.06)" provides guidance on conducting the evaluation. Summarize your results in the following table. Attach supporting documentation as necessary.

Toxic Air Pollutant (TAP)	CAS Number	Screening Levels ($\mu g/m^3$)			Premises Wide Total TAP Emissions		Allowable Emissions Rate (AER) per COMAR 26.11.16.02A		Off-site Concentrations per Screening Analysis ($\mu g/m^3$)			Compliance Method Used?
		1-hour	8-hour	Annual	(lb/hr)	(lb/yr)	(lb/hr)	(lb/yr)	1-hour	8-hour	Annual	AER or Screen
ex. ethanol	*64175*	*18843*	*3769*	*N/A*	*0.75*	*1500*	*0.89*	*N/A*	*N/A*	*N/A*	*N/A*	*AER*
ex. benzene	*71432*	*80*	*16*	*0.13*	*1.00*	*400*	*0.04*	*36.52*	*1.5*	*1.05*	*0.12*	*Screen*
See attached table												

(attach additional sheets as necessary)

If compliance with the ambient impact requirement cannot be met using the allowable emissions rate method or the screening analysis method, refined dispersion modeling techniques may be required. Please consult with the Department's Air Quality Permit Program prior to conducting dispersion modeling methods to demonstrate compliance.

Toxic Air Pollutant (TAP) Screening Analysis for 4 Aluminum Sweat Furnaces at Complete Recycling Group, Elkton, MD

	Toxic Air Pollutant (TAP) (Class I or II)	CAS No.	TAP Class I or II?	Screening Levels			Estimated Premises Wide Emissions of TAP			No Further Review as Small Quantity Emitter?	Allowable Emission Rate (AER) per 26.11.16.02			TAP less than AER?	AERMOD Model Result (µg/m3) - 8-hr average
				1-hour (µg/m3)	8-hour (µg/m3)	Annual (µg/m3)	TAP Emissions per Furnace (lbs/hr)	Total TAP Emissions for 4 furnaces (lb/hr)	Total TAP Emissions (lb/yr) - (see Note 3)		1-hour (lbs/hr)	8-hour (lbs/hr)	Annual (lbs/yr)		
	Dioxin/Furans (see Note 1)	NA	I	NA	1.2E+01	3.0E-08	2.86E-09	1.14E-08	1.002E-04	NO	NA	NA	1.095E-05	YES (exempt under 26.11.15.02(B) - Control of NESHAP and MACT Sources)	
Metals	Aluminum (see Note 2)	1317255	II	NA	**10**	NA	0.05075	0.203	1778.28	NO	NA	0.0358	NA	NO	**5.41**
	Arsenic (see Note 4)	7440382	I	NA	0.1	0.0002	9.80E-07	3.92E-06	0.034	NO	NA	0.000358	0.073	YES	
	Barium	7440393	II	NA	5	NA	2.16E-05	8.64E-05	0.757	NO	NA	0.0179	NA	YES	
	Beryllium	7440417	I	NA	0.0005	0.0004	5.88E-08	2.35E-07	0.002	NO	NA	0.00000179	0.146	YES	
	Cadmium	7440439	I	NA	0.02	0.0006	5.39E-06	2.16E-05	0.189	NO	NA	0.0000716	0.219	YES	
	Chromium	7440473	I	NA	5	NA	6.86E-06	2.74E-05	0.240	NO	NA	0.0179	NA	YES	
	Cobalt	7440484	II	NA	0.2	NA	4.12E-07	1.65E-06	0.014	NO	NA	0.000716	NA	YES	
	Copper	7440508	II	NA	2	NA	4.17E-06	1.67E-05	0.146	NO	NA	0.00716	NA	YES	
	Manganese	7439965	II	NA	2	NA	1.86E-06	7.44E-06	0.065	NO	NA	0.00716	NA	YES	
	Mercury	7439976	II	0.3	0.1	NA	1.27E-06	5.08E-06	0.045	NO	0.001074	0.000358	NA	YES	
	Molybdenum	7439987	II	NA	5	NA	5.39E-06	2.16E-05	0.189	NO	NA	0.0179	NA	YES	
	Nickel	7440020	I	NA	1	NA	1.03E-05	4.12E-05	0.361	NO	NA	0.00358	NA	YES	
	Selenium	7782492	I	NA	2	NA	1.18E-07	4.72E-07	0.004	NO	NA	0.00716	NA	YES	
	Vanadium	7440622	II	NA	0.5	NA	1.13E-05	4.52E-05	0.396	NO	NA	0.00179	NA	YES	
	Zinc	7440666	II	1000	500	NA	1.42E-04	5.68E-04	4.976	YES	X	X	X	X	
Speciated Organic Chemicals	2-methylnapthalene	91576	II	NA	29.0798	NA	1.18E-07	4.72E-07	0.004	NO	NA	0.104105684	NA	YES	
	3-methylchloranthrene	56495	II	NA	20	NA	8.82E-09	3.53E-08	0.000	NO	NA	0.0716	NA	YES	
	Acenaphthene	83329	II	NA	20	NA	8.82E-09	3.53E-08	0.000	NO	NA	0.0716	NA	YES	
	Acenaphthylene	203968	II	NA	24.6	NA	8.82E-09	3.53E-08	0.000	NO	NA	0.088068	NA	YES	
	Anthracene	120127	II	NA	20	NA	1.18E-08	4.72E-08	0.000	NO	NA	0.0716	NA	YES	
	Benzene	71432	I	79.8671	15.9734	0.13	1.03E-05	4.12E-05	0.361	NO	0.285924218	0.057184772	47.45	YES	
	Benzo(g,h,i)perylene	191242	II	NA	20	NA	5.88E-09	2.35E-08	0.000	NO	NA	0.0716	NA	YES	
	Butane	106978	II	NA	23771	NA	1.03E-02	4.12E-02	360.912	YES	X	X	X	X	
	Ethane	74840	II	NA	12302	NA	1.52E-02	6.08E-02	532.608	YES	X	X	X	X	
	Fluoranthene	206440	II	NA	82	NA	1.47E-08	5.88E-08	0.001	NO	NA	0.29356	NA	YES	
	Fluorene	86737	II	NA	20	NA	1.37E-08	5.48E-08	0.000	NO	NA	0.0716	NA	YES	
	Formaldehyde	50000	I	NA	20.3	0.08	3.68E-04	1.47E-03	12.895	NO	NA	0.072674	29.2	YES	
	Hexane	110543	II	NA	1762.4	NA	8.82E-03	3.53E-02	309.053	YES	X	X	X	X	
	Naphthalene	91203	II	786.4	524.3	NA	2.99E-06	1.20E-05	0.105	YES	X	X	X	X	
	Pentane	109660	II	NA	17705.5	NA	1.27E-02	5.08E-02	445.008	YES	X	X	X	X	
	Phenanathrene	85018	II	NA	9.8	NA	8.33E-08	3.33E-07	0.003	NO	NA	0.035084	NA	YES	
	Propane	74986	II	NA	18032.7	NA	2.50E-08	1.00E-07	0.001	YES	X	X	X	X	
	Pyrene	129000	II	NA	20	NA	2.45E-08	9.80E-08	0.001	NO	NA	0.0716	NA	YES	
	Toluene	108883	II	NA	753.6	NA	1.67E-05	6.68E-05	0.585	YES	X	X	X	X	
								0.3935	**1.724**						

Note 1: For the dioxin/furan emission estimate, the NESHAP regulatory limit of 3.5×10^{-10} grains of dioxins and furans per dry standard cubic foot at 11 percent oxygen was used and the flow rate of 954 dscfm was used for each furnace.

Note 2: For aluminum, we have assumed that 25% of the particulate is aluminum. Our original assumption of 90% of the particulate being aluminum was too conservative since most of the particulate will be products of incomplete combustion of the oils on the scrap materials.

Note 3: Total yearly emissions based on 24 hours a day, 7 days a week, and 52 weeks a year

Note 4: For arsenic and all pollutants below arsenic in the table, the hourly emissions for each furnace were calculated using the WebFIRE emission factors for burning natural gas and the assumption that the furnace would burn 0.005 million cubic feet of natural gas per hour (5 MMBtu/hr total burners for each furnace).

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Air and Radiation Management Administration ● Air Quality Permits Program
1800 Washington Boulevard ● Baltimore, Maryland 21230
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FORM 5EP: Emission Point Data

Complete one (1) Form 5EP for EACH emission point (stack or fugitive emissions) related to the proposed installation.

Applicant Name: Complete Recycling Group

1. Emission Point Identification Name/Number

List the applicant assigned name/number for this emission point and use this value on the attached required plot plan:
AS3

2. Emission Point Description

Describe the emission point including all associated equipment and control devices:
Aluminum Sweat Furnace #3

3. Emissions Schedule for the Emission Point

Continuous or Intermittent (C/I)?	C	**Seasonal Variation** Check box if none: ☒ Otherwise estimate seasonal variation:	
Minutes per hour:		Winter Percent	
Hours per day:		Spring Percent	
Days per week:		Summer Percent	
Weeks per year:		Fall Percent	

4. Emission Point Information

Height above ground (ft):	46	Length and width dimensions at top of rectangular stack (ft):	Length:	Width:	
Height above structures (ft):	8				
Exit temperature (ºF):	680	Inside diameter at top of round stack (ft):		2	
Exit velocity (ft/min):	1,446	Distance from emission point to nearest property line (ft):		72	
Exhaust gas volumetric flow rate (acfm):	4,550	Building dimensions if emission point is located on building (ft)	Height: 38	Length: 150	Width: 80

5. Control Devices Associated with the Emission Point

Identify each control device associated with the emission point and indicate the number of devices. ***A Form 6 is also required for each control device***. If none check none:

- ☐ None
- ☐ Baghouse No. _____
- ☐ Cyclone No. _____
- ☐ Elec. Precipitator (ESP) No. _____
- ☐ Dust Suppression System No. _____
- ☐ Venturi Scrubber No. _____
- ☐ Spray Tower/Packed Bed No. _____
- ☐ Carbon Adsorber No. _____
  - ☐ Cartridge/Canister
  - ☐ Regenerative
- ☒ Thermal Oxidizer No. 1
  - ☐ Regenerative
- ☐ Catalytic Oxidizer No. _____
- ☐ Nitrogen Oxides Reduction No. _____
  - ☐ Selective ☐ Non-Selective
  - ☐ Catalytic ☐ Non-Catalytic
- ☐ Other No. _____
  Specify:

FORM 5EP: Emission Point Data

6. Estimated Emissions from the Emission Point

Criteria Pollutants	At Design Capacity (lb/hr)	At Projected Operations		
		(lb/hr)	(lb/day)	(ton/yr)
Particulate Matter (filterable as PM10)	0.239	0.239	5.74	1.05
Particulate Matter (filterable as PM2.5)	0.239	0.239	5.74	1.05
Particulate Matter (condensables)	0.057	0.057	1.37	0.25
Volatile Organic Compounds (VOC)	0.026	0.026	0.63	0.11
Oxides of Sulfur (SOx)	0.033	0.033	0.79	0.14
Oxides of Nitrogen (NOx)	0.476	0.476	11.43	2.09
Carbon Monoxide (CO)	0.400	0.400	9.60	1.75
Lead (Pb)				
Greenhouse Gases (GHG)	**At Design Capacity (lb/hr)**	**At Projected Operations**		
		(lb/hr)	**(lb/day)**	**(ton/yr)**
Carbon Dioxide (CO_2)	571.43	571.43	13,714.29	2,502.86
Methane (CH_4)	0.01	0.01	0.26	0.05
Nitrous Oxide (N_2O)	0.01	0.01	0.25	0.05
Hydrofluorocarbons (HFCs)				
Perfluorocarbons (PFCs)				
Sulfur Hexafluoride (SF6)				
Total GHG (as CO_2e)	574.51	574.51	13,788.27	2,516.36
List individual federal Hazardous Air Pollutants (HAP) below:	**At Design Capacity (lb/hr)**	**At Projected Operations**		
		(lb/hr)	**(lb/day)**	**(ton/yr)**
Total HAPs	0.009	0.009	0.22	0.039
See attached Emissions Tables				

(Attach additional sheets as necessary.)

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FORM 5EP: Emission Point Data

Complete one (1) Form 5EP for EACH emission point (stack or fugitive emissions) related to the proposed installation.

Applicant Name: Complete Recycling Group

1. Emission Point Identification Name/Number

List the applicant assigned name/number for this emission point and use this value on the attached required plot plan:
AS4

2. Emission Point Description

Describe the emission point including all associated equipment and control devices:
Aluminum Sweat Furnace #4

3. Emissions Schedule for the Emission Point

Continuous or Intermittent (C/I)?	C	**Seasonal Variation** Check box if none: ☒ Otherwise estimate seasonal variation:	
Minutes per hour:		Winter Percent	
Hours per day:		Spring Percent	
Days per week:		Summer Percent	
Weeks per year:		Fall Percent	

4. Emission Point Information

Height above ground (ft):	46	Length and width dimensions at top of rectangular stack (ft):	Length:	Width:	
Height above structures (ft):	8				
Exit temperature (ºF):	680	Inside diameter at top of round stack (ft):		2	
Exit velocity (ft/min):	1,446	Distance from emission point to nearest property line (ft):		72	
Exhaust gas volumetric flow rate (acfm):	4,550	Building dimensions if emission point is located on building (ft)	Height: 38	Length: 150	Width: 80

5. Control Devices Associated with the Emission Point

Identify each control device associated with the emission point and indicate the number of devices. ***A Form 6 is also required for each control device***. If none check none:

- ☐ None
- ☐ Baghouse No. _____
- ☐ Cyclone No. _____
- ☐ Elec. Precipitator (ESP) No. _____
- ☐ Dust Suppression System No. _____
- ☐ Venturi Scrubber No. _____
- ☐ Spray Tower/Packed Bed No. _____
- ☐ Carbon Adsorber No. _____
  - ☐ Cartridge/Canister
  - ☐ Regenerative
- ☒ Thermal Oxidizer No. 1
  - ☐ Regenerative
- ☐ Catalytic Oxidizer No. _____
- ☐ Nitrogen Oxides Reduction No. _____
  - ☐ Selective ☐ Non-Selective
  - ☐ Catalytic ☐ Non-Catalytic
- ☐ Other No. _____
  Specify:

FORM 5EP: Emission Point Data

6. Estimated Emissions from the Emission Point

Criteria Pollutants	At Design Capacity (lb/hr)	At Projected Operations		
		(lb/hr)	(lb/day)	(ton/yr)
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Particulate Matter (filterable as PM2.5)	0.239	0.239	5.74	1.05
Particulate Matter (condensables)	0.057	0.057	1.37	0.25
Volatile Organic Compounds (VOC)	0.026	0.026	0.63	0.11
Oxides of Sulfur (SOx)	0.033	0.033	0.79	0.14
Oxides of Nitrogen (NOx)	0.476	0.476	11.43	2.09
Carbon Monoxide (CO)	0.400	0.400	9.60	1.75
Lead (Pb)				
Greenhouse Gases (GHG)	**At Design Capacity (lb/hr)**	**At Projected Operations**		
		(lb/hr)	**(lb/day)**	**(ton/yr)**
Carbon Dioxide (CO_2)	571.43	571.43	13,714.29	2,502.86
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Nitrous Oxide (N_2O)	0.01	0.01	0.25	0.05
Hydrofluorocarbons (HFCs)				
Perfluorocarbons (PFCs)				
Sulfur Hexafluoride (SF6)				
Total GHG (as CO_2e)	574.51	574.51	13,788.27	2,516.36
List individual federal Hazardous Air Pollutants (HAP) below:	**At Design Capacity (lb/hr)**	**At Projected Operations**		
		(lb/hr)	**(lb/day)**	**(ton/yr)**
Total HAPs	0.009	0.009	0.22	0.039
See attached Emissions Tables				

(Attach additional sheets as necessary.)

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Air and Radiation Management Administration ▪ Air Quality Permits Program

APPLICATION FOR PERMIT TO CONSTRUCT
GAS CLEANING OR EMISSION CONTROL EQUIPMENT

1. Owner of Installation Complete Recycling Group	**Telephone No.** (443) 309-4774		**Date of Application** 10/2022
2. Mailing Address 1500 W. Pulaski Hwy	**City** Elkton	**Zip Code** 21921	**County** Cecil
3. Equipment Location 1500 W. Pulaski Hwy	**City/Town or P.O.** Elkton		**County** Cecil
4. Signature of Owner or Operator RICHARD J. POLANSKY 10.10.2022	**Title** President		**Print or Type Name** Richard J. Polansky

5. Application Type: **Alteration** [ ] **New Construction** [X]

6. Date Construction is to Start: December 2022 **Completion Date (Estimate):** January 2023

7. Type of Gas Cleaning or Emission Control Equipment:

Simple Cyclone [ ] **Multiple Cyclone** [ ] **Afterburner** [X] **Electrostatic Precipitator** [ ]

Scrubber [ ] _____ (type) **Other** [ ] _____ (type)

8. Gas Cleaning Equipment Manufacturer	**Model No.**	**Collection Efficiency (Design Criteria)**
US Furnaces		100% (integral to furnace)

9. Type of Equipment which Control Equipment is to Service:

Seconday Aluminum Sweat Furnace #3

10. Stack Test to be Conducted:

Yes [ ] **No** [X] _____ (Stack Test to be Conducted By) _____ (Date)

11. Cost of Equipment To be determined

Estimated Erection Cost _____

12. The Following Shall Be Design Criteria:

	INLET	OUTLET
Gas Flow Rate	_____ ACFM*	_____ ACFM*
Gas Temperature	_____ °F	_____ °F
Gas Pressure	_____ INCHES W.G.	_____ INCHES W.G.
	PRESSURE DROP _____	
Dust Loading	_____ GRAINS/ACFD**	_____ GRAINS/ACFD**
Moisture Content OR Wet Bulb Temperature	_____ % _____ °F	_____ % _____ °F

Liquid Flow Rate (Wet Scrubber) _____ GALLONS/MINUTE

(WHEN SCRUBBER LIQUID OTHER THAN WATER INDICATE COMPOSITION OF SCRUBBING MEDIUM IN WEIGHT %)

*= ACTUAL CUBIC FEET PER MINUTE **= ACTUAL CUBIC FEET DRY

WHEN APPLICATION INVOLVES THE REDUCTION OF GASEOUS POLLUTANTS, PROVIDE THE CONCENTRATION OF EACH POLLUTANT IN THE GAS STREAM IN VOLUME PERCENT. INCLUDE THE COMPOSITION OF THE GASES ENTERING THE CLEANING DEVICE AND THE COMPOSITION OF EXHAUSTED GASES BEING DISCHARGED INTO THE ATMOSPHERE. USE AVAILABLE SPACE IN ITEM 15 ON PAGE 3.

13. Particle Size Analysis

Size of Dust Particles Entering Cleaning Unit	% of Total Dust	% to be Collected
0 to 10 Microns	_____	_____
10 to 44 Microns	_____	_____
Larger than 44 Microns	_____	_____

14. For Afterburner Construction Only:

*See attached Residence Time Calculation

Volume of Contaminated Air _____ CFM (DO NOT INCLUDE COMBUSTION AIR)

Gas Inlet Temperature _____ °F

Capacity of Afterburner _____ BTU/HR

Diameter (or area) of Afterburner Throat _____

Combustion Chamber _____ (diameter) _____ (length) Operating Temperature at Afterburner 1600 °F

Retention Time of Gases minimum of 0.8 seconds

15. Show Location of Dust Cleaning Equipment in the System. Draw or Sketch Flow Diagram Showing Emission Path from Source to Exhaust Point to Atmosphere.

See attached diagram

Date Received: Local _____ _____ State _____

Acknowledgement Date: _____

By _____

Reviewed By:

Local _____

State _____

Returned to Local:

Date_____

By _____

Application Returned to Applicant:

Date_____

By _____

REGISTRATION NUMBER OF ASSOCIATED EQUIPMENT: | | | | | | |

PREMISES NUMBER: | | | | | | | |

Emission Calculations Revised By _____ Date _____

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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APPLICATION FOR PERMIT TO CONSTRUCT
GAS CLEANING OR EMISSION CONTROL EQUIPMENT

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2. Mailing Address 1500 W. Pulaski Hwy	**City** Elkton	**Zip Code** 21921	**County** Cecil
3. Equipment Location 1500 W. Pulaski Hwy	**City/Town or P.O.** Elkton		**County** Cecil
4. Signature of Owner or Operator RICHARD J. POLANSKY 10.10.2022	**Title** President		**Print or Type Name** Richard J. Polansky

5. Application Type: **Alteration** [ ] **New Construction** [X]

6. Date Construction is to Start: December 2022 **Completion Date (Estimate):** January 2023

7. Type of Gas Cleaning or Emission Control Equipment:

Simple Cyclone [ ] **Multiple Cyclone** [ ] **Afterburner** [X] **Electrostatic Precipitator** [ ]

Scrubber [ ] _____ (type) **Other** [ ] _____ (type)

8. Gas Cleaning Equipment Manufacturer	**Model No.**	**Collection Efficiency (Design Criteria)**
US Furnaces		100% (integral to furnace)

9. Type of Equipment which Control Equipment is to Service:

Seconday Aluminum Sweat Furnace #4

10. Stack Test to be Conducted:

Yes [ ] **No** [X] _____ (Stack Test to be Conducted By) _____ (Date)

11. Cost of Equipment To be determined

Estimated Erection Cost _____

12. The Following Shall Be Design Criteria:

	INLET	OUTLET
Gas Flow Rate	_____ ACFM*	_____ ACFM*
Gas Temperature	_____ °F	_____ °F
Gas Pressure	_____ INCHES W.G.	_____ INCHES W.G.
	PRESSURE DROP _____	
Dust Loading	_____ GRAINS/ACFD**	_____ GRAINS/ACFD**
Moisture Content OR Wet Bulb Temperature	_____ % _____ °F	_____ % _____ °F

Liquid Flow Rate (Wet Scrubber) _____ GALLONS/MINUTE

(WHEN SCRUBBER LIQUID OTHER THAN WATER INDICATE COMPOSITION OF SCRUBBING MEDIUM IN WEIGHT %)

*= ACTUAL CUBIC FEET PER MINUTE **= ACTUAL CUBIC FEET DRY

WHEN APPLICATION INVOLVES THE REDUCTION OF GASEOUS POLLUTANTS, PROVIDE THE CONCENTRATION OF EACH POLLUTANT IN THE GAS STREAM IN VOLUME PERCENT. INCLUDE THE COMPOSITION OF THE GASES ENTERING THE CLEANING DEVICE AND THE COMPOSITION OF EXHAUSTED GASES BEING DISCHARGED INTO THE ATMOSPHERE. USE AVAILABLE SPACE IN ITEM 15 ON PAGE 3.

13. Particle Size Analysis

Size of Dust Particles Entering Cleaning Unit	% of Total Dust	% to be Collected
0 to 10 Microns	_____	_____
10 to 44 Microns	_____	_____
Larger than 44 Microns	_____	_____

14. For Afterburner Construction Only:

*See attached Residence Time Calculation

Volume of Contaminated Air _____ CFM (DO NOT INCLUDE COMBUSTION AIR)

Gas Inlet Temperature _____ °F

Capacity of Afterburner _____ BTU/HR

Diameter (or area) of Afterburner Throat _____

Combustion Chamber _____ (diameter) _____ (length) Operating Temperature at Afterburner 1600 °F

Retention Time of Gases minimum of 0.8 seconds

15. Show Location of Dust Cleaning Equipment in the System. Draw or Sketch Flow Diagram Showing Emission Path from Source to Exhaust Point to Atmosphere.

See attached diagram

Date Received: Local _____ _____ State _____

Acknowledgement Date: _____

By _____

Reviewed By:

Local _____

State _____

Returned to Local:

Date_____

By _____

Application Returned to Applicant:

Date_____

By _____

REGISTRATION NUMBER OF ASSOCIATED EQUIPMENT: | | | | | | |

PREMISES NUMBER: | | | | | | | |

Emission Calculations Revised By _____ Date _____

Complete Recycling Group LLC
Residence Time Calculation
US Furnaces MAX4000 Aluminum Sweat Furnace

Burner ID	Burner Rating MM BTU/hr	Fuel	F factor dscf/MM BTU	Oxygen %	Stoichiometric Flow, dscfm	Moisture at Afterburner %	Temperature deg. F	Pressure at Afterburner	Afterburner Flow acfm	Afterburner Volume, ft3	Afterburner Residence Time, sec
Primary	3	gas	8,710	10	835	6	1,250	-0.06	2867		
Holding	1	gas	8,710	6	204	5	1,200	-0.06	679		
Afterburner	1	gas	8,710	6	204	5	1,650	-0.1	901		
Total	5	gas			1242				4,446	122.7	1.66

Sample Calculation

stoich, flow, dscfm	=	F factor dscf/million BTU	x	burner rated heat input million BTU/hr	x	flue gas oxygen correction (20.9/(20.9-oxygen%)	/	60 min/hr

Definitions

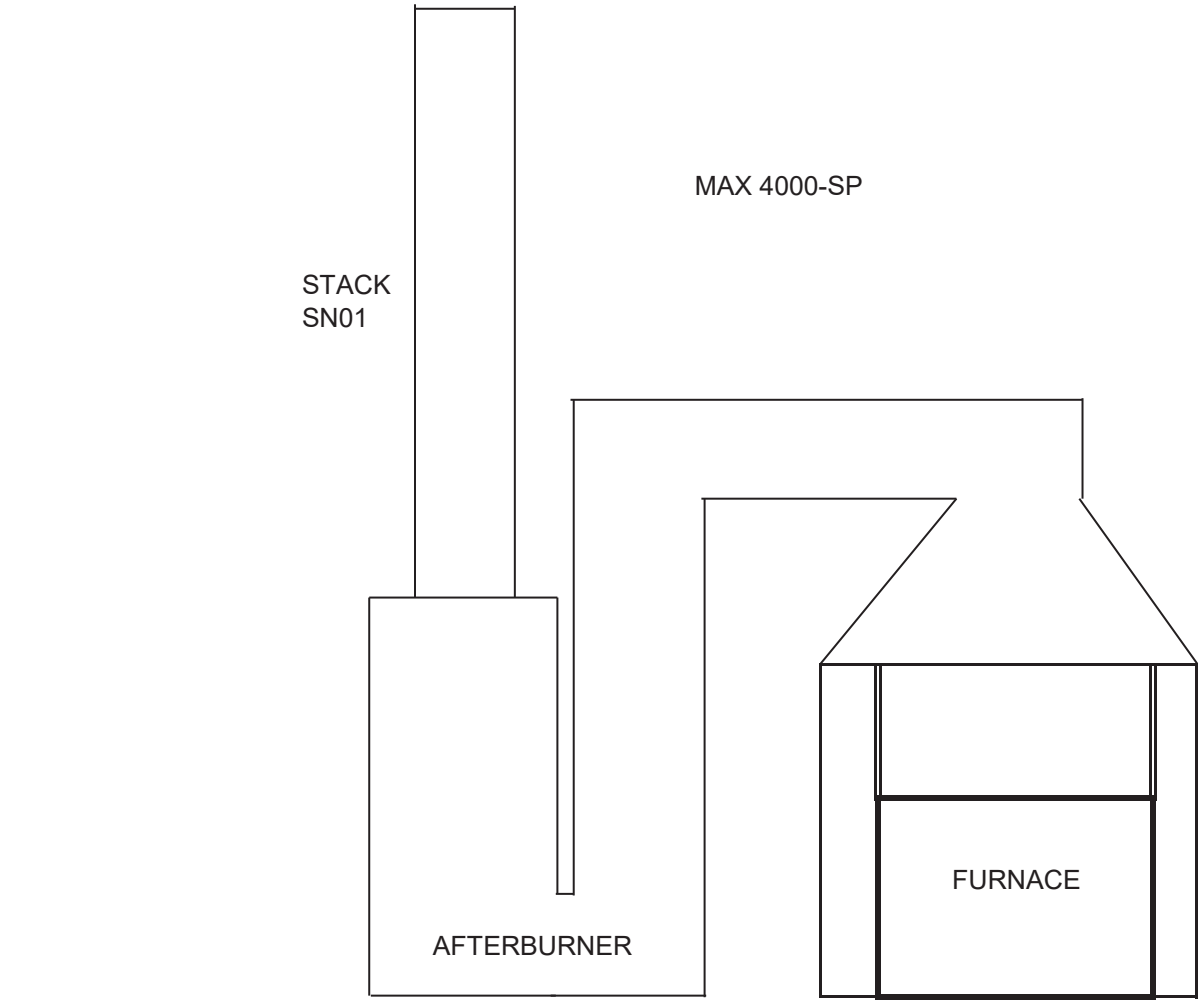
F-factor for natural gas is 8,710 dscf/million BTU fuel combusted, 40 CFR 75 Appendix F, Table 1.
20.9/(20.9-oxygen%), correction factor for unconsumed oxygen in flue gas (excess air)
% oxygen assumptions based upon typical burner set up and field conditions

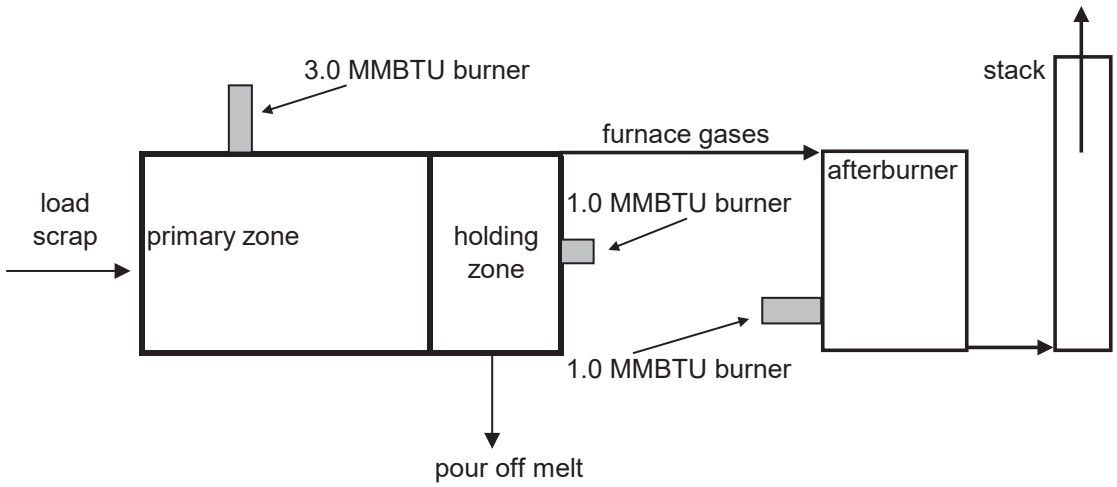
Conversion to actual conditions

dscfm x (1 + moisture %) x stack temp R. / Temp std. R. x stack pressure / std pressure
(-1.06)

Definitions

R = Rankine, or deg F + 460
stack pressure = static pressure compared to atmospheric, in. mercury (for this demonstration, baro assumed to be 29.92)
.= (-0.06/13.6) + 29.92
std pressure, 29.92 in. mercury
% moisture, water vapor volume in flue gases, assumption based upon gas combustion experienced at similar installations
=0.06


MAX 4000-SP
STACK
SN01
FURNACE
AFTERBURNER


3.0 MMBTU burner
stack
furnace gases
afterburner
load
scrap
primary zone
holding
zone
1.0 MMBTU burner
1.0 MMBTU burner
pour off melt

Emission Calculations
and
Emission Factors
including stack test data for PM

After Control Criteria Pollutant Emissions per Furnace and Facility Total at Complete Recycling Group, Elkton, MD.

Pollutant	MAX-4000 Sweat Furnace Burner Rating (MMBTU/hr)	Emission Factor for Combustion of Natural Gas (lb/MMCF)	Heating Value of Natural Gas (BTU/CF)	Hourly natural gas combustion emission rate per MAX-4000 (lbs/hr)	Hourly emission rate per stack testing results for particulate and from WEBFIRE for SOx per MAX-4000 (lbs/hr)	**Emission Rate per MAX-4000 furnace (lbs/hr)**	Emission Rate per furnace (lb/day)	Emission Rate per furnace (TPY)	**Total potential emissions for 4 sweat furnaces (TPY)**	TPY Threshold for Major Source Permitting
NOx	5	100	1050	0.476		**0.476**	11.43	2.09	**8.34**	**25**
SOx	5	0.6	1050	0.003	0.03	**0.033**	0.79	0.14	**0.58**	**100**
CO	5	84	1050	0.400		**0.400**	9.60	1.75	**7.01**	**100**
VOC	5	5.5	1050	0.026		**0.026**	0.63	0.11	**0.46**	**25**
PM/PM10/PM2.5	5	7.6	1050	0.036	0.203	**0.239**	5.74	1.05	**4.19**	**100**
Condensable PM	5	5.7	1050	0.027	0.030	**0.057**	1.37	0.25		
CO2	5	120000	1050	571.43		**571.43**	13,714.29	2,502.86	**10,011.43**	**NA**
Methane	5	2.3	1050	0.011		**0.01**	0.26	0.05	**0.19**	**NA**
N2O	5	2.2	1050	0.010		**0.01**	0.25	0.05	**0.18**	**NA**
CO2e	5	---	---	574.51		**574.51**	13,788.27	2,516.36	**10,065.44**	**NA**
HAPs (Total)	5	1.89	1050	0.009		**0.009**	0.22	0.039	**0.16**	**10**

DAQC-1650-20
Site ID 15740 (B4)

MEMORANDUM

To: **STACK TEST FILE – ALTECH RECOVERY, LLC**

Through: Rik Ombach, Minor Source Compliance Section Manager

From: Chad Gilgen, Environmental Scientist

Date: December 16, 2020

Source: Aluminum Sweat Furnace Exhaust (II.A.2)
Location: Magna, Salt Lake County, Utah
Contact: Steve Allen: 801-414-1737
Tester: TETCO
Permit #: DAQE-AN157400001-17, dated November 28, 2017
Action Code: Report Audit

The DAQ received a stack test report for the stack emissions testing of the above listed unit located at Altech Recovery, LLC in Salt Lake County, Utah on July 17, 2020. Testing was performed on May 27, 2020, to determine compliance with the PM_{10} and $PM_{2.5}$ emission limits found in condition II.B.2.a of DAQE-AN157400001-17

Source	Test Date	Pollutant	DAQ Results	Tester Results	Limits
Aluminum Sweat Furnace Exhaust	6-5-19	PM_{10} and $PM_{2.5}$	0.1354 lb/ton	0.135 lb/ton	4.40 lb/ton

DEVIATIONS: None.

CONCLUSION: The overall stack test report appears to be acceptable.

RECOMMENDATION: The emissions for the above listed units should be considered to have been in compliance with the PM_{10} emission limit found in condition II.B.2.a of DAQE-AN0109190017-19.

ATTACHMENTS: TETCO's stack test report dated June 18, 2020, DAQ generated stack test review Excel spreadsheets.

Division of Air Quality
Compliance Demonstration

Source Information

Company Name	**Altech - Afterburner Stack**
Company Contact:	**Steve Allen**
Contact Phone No.	**801-414-1737**
Source Designation:	**Afterburner Stack**

Test & Review Dates

Test Date:	5/27/2020
Review Date:	12/16/2020
Observer:	**Unobserved**
Reviewer:	**Chad G.**

Tabs Are Shown

Particulate Emission Limits

lbs/MMBtu	lbs/ton	gr/dscf		
	4.400			

Emission Rates - "Front and Back Half"

lbs/MMBtu	**lbs/ton**	**gr/dscf**		
	0.1354	**0.0092**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
24.00	3.14	1.0000	1.503	0.84	25.8	-0.075	0.505

Circular

Contractor Information

Contracting Company:	TETCO
Contact:	Dean Kitchen
Phone No.:	801-792-9106
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	○ 10100	○ 10540	○ 1970
Bituminous 2	○ 9780	○ 10640	○ 1800
Lignite	○ 9860	○ 11950	○ 1910
OIL	○ 9190	○ 320	○ 1420
GAS			
Natural	○ 8710	○ 10610	○ 1040
Propane	○ 8710	○ 10200	○ 1190
Butane	○ 8710	○ 10390	○ 1250

☐ F factor used

lbs/MMBtu

◉ O2

○ CO2

Summary

Division of Air Quality
Reference Methods 5 - TSP
Compliance Demonstration of

Altech - Afterburner Stack

Testing Results				
Test Date	5/27/2020	5/27/2020	5/27/2020	5/27/2020
Circular	Run 1	Run 2	Run 3	Run 4
As ft^2	3.14	3.14	3.14	
Pbar	25.80	25.80	25.80	
Pq (static)	-0.08	-0.08	-0.08	
Ps	25.79	25.79	25.79	
Avg. Ts F	885.10	854.15	847.80	
CO2 - F_{CO2}	5.00	4.80	4.80	
O2	12.20	13.20	13.40	
N2+C	82.80	82.00	81.80	
Md	29.29	29.30	29.30	
Ms	28.19	28.62	28.34	
Y	1.00	1.00	1.00	
Cp	0.84	0.84	0.84	
Vm cf	48.41	48.09	48.32	
Vlc	92.20	54.90	80.70	
$A_{VG.}$ Tm F	89.03	85.43	83.48	
Vm std	40.29	40.29	40.63	
Vw std	4.34	2.58	3.80	
Bws	0.10	0.06	0.09	
S Bws	1.00	1.00	1.00	
Avg. Sqrt Dlp	0.26	0.26	0.26	
Vs	25.26	24.84	24.97	
scfm wet	1611.23	1621.56	1638.10	
acfm	4761.15	4681.42	4706.31	
Qsd dscfh	87274.03	91429.75	89881.83	
# Sample Points	8.00	8.00	8.00	
Dn	0.505	0.505	0.505	
An	1.39E-03	1.39E-03	1.39E-03	
Start Time	9:41	11:39	13:29	
End Time	10:50	12:45	14:37	
Total Test time	60.00	60.00	60.00	
Time @ point	3.00	3.00	3.00	

	Lab Data - grams collected		
Lab Data	Probe	Filter	Back
Run 1	0.0048	0.0486	0.0034
Run 2	0.0086	-0.004	0.0046
Run 3	0.0031	0.0108	0.0043
Run 4			

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0205	0.0018	0.0053		0.0092
lbs/hr	0.2550	0.0230	0.0678		0.1153
lbs/MMBtu	#VALUE!	#VALUE!	#VALUE!		

Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0218	0.0035	0.0069		0.0107
lbs/hr	0.2713	0.0460	0.0888		0.1354
lbs/MMBtu	#VALUE!	#VALUE!	#VALUE!		

lbs/MMBtu
- (•) O2
- ( ) CO2

F factor used

PARTICULATE MATTER
COMPLIANCE TEST CONDUCTED AT
ALTECH RECOVERY, LLC
ALUMINUM SWEAT FURNACE EXHAUST

MAY 27, 2020

by:

TETCO
391 East 620 South
American Fork, Utah 84003
801-492-9106 (Phone) 801-4928-9107 (Fax)

REVIEWED
Initials: CG Date: 12-16-20
Compliance Status: In compliance
File # 15740

Prepared for:

AlTech Recovery
2050 South 7500 West
Magna, UT 84044

Date of report:

June 18, 2020

SUMMARY OF RESULTS

Emission Results

Table I presents the test results. More detailed results are found in Table I, in Appendix A.

TABLE I. Measured Emissions and Limits

Source	Test Method [1]	Pollutant	Emission Rate (lb/hr)	Production (tph) [2]	Emission Rate (lb/ton)	Emission Limit (lb/ton)
Aluminum Sweat Furnace	5	PM (filterable)	0.115	-	-	-
	202	PM (condensible)	0.020	-	-	-
	5 & 202	(PM_{10} and $PM_{2.5}$)	0.135	1.375	0.098	4.40

1 Methods 5 and 202 were used instead of Method 201A.
2 Tons per hour of scrap aluminum processed

Process Data

A copy of the source "Melt Report" is found in Appendix D. Two "charge"s of scrap material were loaded during each test run: one charge was added at the beginning of the test run and a second charge was added during the second half of the test run after switching test ports.

Discussion of Errors or Irregularities

There were none.

Description of Collected Samples

The test filter for run 1 was lightly discolored with gray colored particulate. The was not any visible particulate on the test filters for runs 2 and 3. The front washes were clear in appearance.

Percent Isokinetic Sampling

Each of the tests were isokinetic within the ±10% criterion specified in the *Federal Register*. Isokinetic values for each test run are presented in Table II.

AERMOD Model Output Summary

8-hr average ($\mu g/m^3$ / g/s)

*** MODELOPTs: NonDFAULT CONC FLAT and ELEV RURAL ADJ_U*

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF AL IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	845.30539	ON 19052016: AT (421939.94, 4384925.73, 43.50, 51.21, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

AERMOD
Dispersion Modeling Analysis
For
Air Toxics

Four Aluminum Sweat Furnaces (4)
Complete Recycling Group, LLC
Elkton, Cecil County, Maryland

October 2022

This summary report provides the results of the refined dispersion modeling analysis conducted in support of the new furnace installations at Complete Recycling Group LLC's Elkton, Maryland operations. The analyses were conducted to demonstrate compliance with the Maryland Department of Environment's (MDE's) air toxics Screening Level of 10 $\mu g/m^3$ for Aluminum. Only estimated Aluminum emissions are above the Allowable Emission Rate (AER) per COMAR Chapter 26.11.16.02.

This modeling is submitted as part of the air permit application for a permit-to-construct for installation and operation of two (2) new identical sweat furnaces.

Modeling Methodology

The methodologies used in the dispersion modeling analyses were based upon the guidance contained in the Guideline on Air Quality Models (Revised) (USEPA, 2017) and its prior supplements as well as User's Guide for the AMS/EPA Regulatory Model (AERMOD) (USEPA, 2022).

The most current version (Version No. 22112) of the USEPA-approved dispersion model AERMOD was used in the dispersion modeling analyses. . The model is capable of estimating ground-level concentrations from multiple sources and can incorporate the effects of building downwash on the predicted concentrations. The model also calculates concentrations expected in any cavity regions which include off-site receptors, thus eliminating the need to run a model for cavity concentrations.

In addition, the model includes complex terrain algorithms, thus allowing the model to select the appropriate algorithms for intermediate and complex terrain. The AERMOD model directly predicts applicable maximum short-term (i.e., 1-hour, 3-hour, 8-hour, 24-hour) and annual average concentrations.

The sweat furnace source parameters and emissions are based on site conditions and the hourly (lb/hr) rates contained in the air permit application (See Form 5EP).

A "Good Engineering Practice" (GEP) stack height analysis was performed to determine the wake effects and downwash conditions and account for them in the dispersion modeling.

Building wake effects generally cause higher predicted concentrations near a point source. A GEP/wake effect analysis was performed using the procedures outlined in the Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) Revised (USEPA, 1985) as utilized in the Building Profile and Input Program with PRIME algorithm (BPIPPRM, Version 04274).

The refined dispersion modeling analyses with AERMOD utilized a dense cartesian receptor grid that extends out to 1 km from the site. Receptors were placed at 10-meter spacing along facility property boundaries and out to 20 meters downwind, 25-meter spacity to 250 meters downwind, 50-meter spacing to 500 meters downwind, and 100-meter spacing to 1000 meters downwind. Additional receptors surrounding the maximum impact locations were not deemed necessary as the receptor spacing was sufficient to bracket the maximum predicted concentrations.

Terrain elevations were developed using USGS NED 1/3 data (~10 meter resolution) and the AERMAP program. The higher resolution data was used to better resolve the terrain features in the near-field areas around the site.

The refined modeling was conducted with a recent five-year (2017-2021) meteorological data set as processed through AERMET by the MDE. The data set consisted of hourly surface meteorological data from the National Weather Service at the Bellanca Airfield (New Castle) Airport, Delaware (Station No. 13781), with coincident upper-air data from Sterling, VA (Station No. 93734). The data is considered appropriate to represent the dispersion conditions at the plant site. The AERSURFACE program was used to determine the surface characteristics for the airport site. The program provides sector-averaged surface characteristics by sector using a "geo.dat" file created by the CALMET geo preprocessors from land use/land cover data files.

Modeling Results

The results of the dispersion modeling are provided in the attached table and output summary. The maximum ambient concentrations occurred at or near the northern property fenceline/ boundary along West Pulaski Highway. The concentration is below the Aluminum Screening Level of 10 $\mu g/m^3$ (54% of Screening Level).