



### **Recycling Permit Application, Plan of Operation**

### **Goodwill Recycling Center**

400 Centerpoint Blvd. New Castle, DE 19720

### **June 2024**

Prepared for Goodwill Recycling Center

400 Centerpoint Blvd. New Castle, DE 19720 Prepared by
Goodwill Delaware and
Delaware County

300 E. Lea Blvd. Wilmington, DE 19802



### 1.0 FACILITY OVERVIEW AND PURPOSE

Goodwill of Delaware and Delaware County is proposing the operation of a pulverizer machine at our existing Goodwill Recycling Center at 400 Centerpoint Blvd., New Castle, DE 19720. As part of our sustainability efforts to increase our diversion rate of unsaleable and unpurchased donated items, we have focused on creating a sustainable solution for glass and ceramic. The challenges of outsourcing glass and ceramic recycling include the heavy weight and fragility of the material. Our in-house pulverizer will allow us to vertically integrate our own supply chain of recycled glass and ceramic: collecting, transporting, processing, packaging, and selling. We aim to keep the use of this sand within local markets, to further progress our positive environmental and social impact.

### 1.1 Need

The proposed operation eliminates waste making its way to the landfill. Goodwill aims to maximize the use of donated items. In 2023, we calculated a 71% diversion rate. The remaining portion, year over year, is our focus for reducing through internal improvements, innovation, and strategic partnerships.

### 1.2 Sources

Goodwill of Delaware & Delaware County, Goodwill of Greater Washington, and Goodwill Industries of the Chesapeake are partnering together to maximize the yield of glass and ceramic input. In the Spring of 2023, each Goodwill territory conducted an audit to calculate the amount of unsaleable and unpurchased donated glass items collected in a year. We calculated over 500 tons.

### 1.3 Market

Our pulverizer produces both sand and cullet. The 10% of cullet, or larger smooth glass/ceramic pieces, that is produced can be used as is or put back through the machine to be refined further as sand. Currently, recycled glass sand is utilized in beach restoration, flood prevention, construction (i.e. concrete), agriculture, sand blasting, and more. Cullet, recycled in-house, is currently being sold at the retail stores of Goodwill Industries of West Michigan. Cullet is also used in crafts and do-it-yourself projects like interior design.



### 2.0 FACILITY SETTING AND DESCRIPTION

### 2.1 Site Location

The pulverizer is located at our existing Goodwill Recycling Center (GRC) at 400 Centerpoint Blvd., New Castle, DE 19720. The pulverizer occupies approximately 180 square feet of existing indoor space; Goodwill leases 90,000 square feet of a 120,000 square feet building sitting on approximately 6.99 acres. The tax parcel number is 2101300102. The facility is being leased through Luning Prak, LLC.

### 2.2 Surrounding Land Use

The GRC is zoned in the Centerpoint Business Complex. The GRC is bound to the south by the Norfolk Southern Railroad and Riverbend at Old New Castle Park; west by the Airport Industrial Park; north by Frenchtown Road; and east by a neighborhood bordered by Washington Street and the Robert J. Quillen Memorial Field. An ArcGIS community map (link found through the New Castle County Delaware parcel details web page) of the GRC and area surrounding the GRC is attached as **Figure 1**.



### 3.0 FACILITY DESCRIPTION

### 3.1 Infrastructure

The Goodwill Recycling Center (GRC) is served by New Castle County for sewer; Municipal Services Commission for electricity and water; and Delmarva Power for electricity and gas. The GRC is comprised of a Goodwill Outlet operation at the front of the building, with the processing, recycling, and storage operation comprising the rest of the building. A site plan depicting the GRC with the added glass pulverizer is provided as **Figure 2**.

### 3.2 Equipment

The Andela Pulverizer GP-MegaMini is located in the GRC. Electric forklifts will be used to relocate gaylords, containing gray plastic totes of glass and ceramic, from our trucks to the designated area of storage. Our trained employees will place the glass and ceramic into the tipper from the totes. The tipper places glass and ceramic onto a conveyor that feeds into the trommel that discharges sand, cullet, and contaminants (unusable material) into three different tilt-bins. A misting system is used for the pulverizer to inhibit dust. The misting system is sourced from a hose at a water connection with no wastewater produced. The pulverizer is electric powered. Specification sheets are included as **Attachments**.

### 3.3 Employees

The pulverizer will be operated by existing employees, with a potential for an additional 1-2 employees.

### 3.4 Process

#### 3.4.1 Glass Collection Process

Each of our retail stores will collect unsaleable and unpurchased donated glass and ceramic items and store them in gray plastic totes, organized into large gaylords (large open cardboard boxes). The gaylords will be transported to the GRC using our existing, contracted transportation service for evaluation.

### 3.4.2 Production

Our trained employees will evaluate the collected glass and ceramic items for market standards and place the glass and ceramic into the tipper. The screen mesh openings of the trommel discharges sand, cullet, and contaminants (unusable material) into three different buckets. The screen openings can vary in size depending on the required size of the grain.

Based on an audit performed in the Spring of 2023, Goodwill of Delaware and Delaware County estimates an annual production of 400,000 pounds of recycled sand produced. To start, we will operate the pulverizer two days a week for eight hours each day.



### 3.4.3 Storage Capacity

Depending on the use of the sand, we will utilize one of two methods:

- Covered open top container stored outside the GRC, measuring 7 feet wide x 14-16 feet long, with a weight capacity of 10,000-12,000 pounds (3 to 4 cubic yards), filled using the forklift from the tilt-bin that receives sand from glass pulverizer
- Bulk sandbags, measuring 36 inches x 36 inches x 40 inches per bag, with a weight capacity of 3,000 pounds (1 cubic yard each), filled using forklift and filling stand, then moved using a forklift to an outdoor or indoor storage area. These bags are water resistant and have top flaps to prevent leakage.
- 20- 40- feet open-top containers (covered), measuring 20 feet x 8 feet x 8.5 feet, to 40 feet x 8 feet x 8.5 feet, with a gross weight of 59,860-62,550 pounds, and 1,170-2,390 cubic feet.

#### 3.4.4 Feedstock

Our feedstock of glass and ceramics are the donations we receive from the community. Whatever glass and ceramic items are unsaleable or unpurchased at our retail stores will be diverted to the GRC for evaluation for recycling.

#### 3.4.5 Products

The product produced from the pulverizer is a sand that currently measures a maximum grain size of .17 inches (4.318 millimeters) using a 4-mesh screen. We can produce an even smaller maximum grain size of .053 inches (1.3462 millimeters) using a 10-mesh screen. Uses for this sand include construction (i.e. concrete), restoration, flood resistance, agriculture, landfill cover, and more.

### 3.5 Facility Access

### 3.5.1 Operating Hours

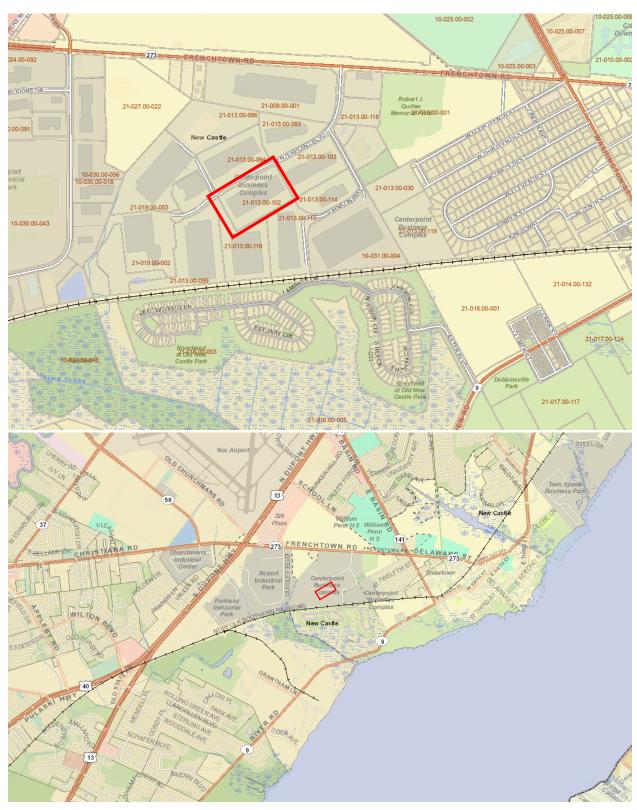
The GRC operates 8 am –7 pm Monday through Saturday and 8 am - 6pm on Sunday. The pulverizer machine will operate two days a week for eight hours each day.

#### 3.5.2 Traffic

We use seven trailers and two box trucks to deliver donated items to the GRC. The sand delivery from our retail stores to the GRC will be incorporated into our existing truck delivery system.

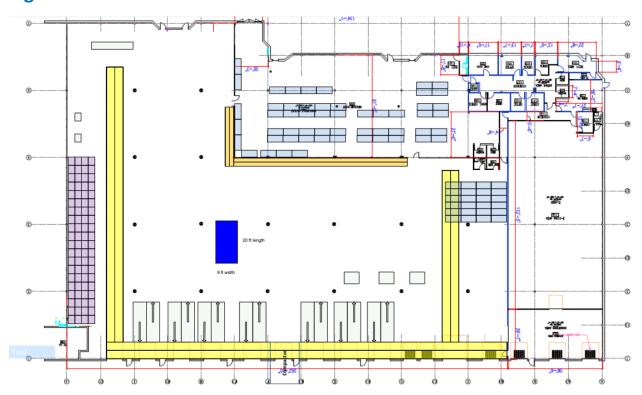


### Figure 1





### Figure 2



# Andela

## Conveyor

Model: 14" TR

## Parts List and Spec Sheet

Andela Products 493 State Route 28 Richfield Springs, NY 13439

> Tel: (315) 858-0055 Fax: (315) 858-2669

e-mail: info@andelaproducts.com

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## Conveyor

## Model: 14" Troughing Roller

Description: 14" x 14' Troughing Roller Conveyor

Serial Number: ACY1414-020624

Customer: Goodwill of Delaware

Location: 400 Center Point BLVD

New Castle, DE 19720

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## 1. Specifications

### **MODEL:**

Andela Conveyor 14" x 14'

### **DIMENSIONS:**

Overall Length: Approx. 14' (when installed)

Overall Width: Approx. 56"

Overall Height: Approx. 11'-5" (When installed)

Shipping Weight: Approx. 1,750 lbs.

### **MOTOR SPECIFICATIONS:**

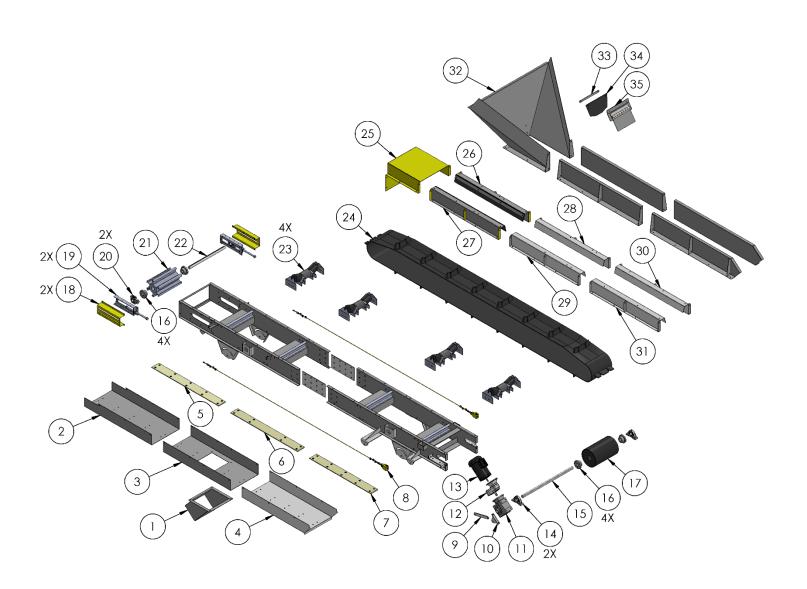
Motor Size: 1 HP

Shaft Diameter: 1 7/16"

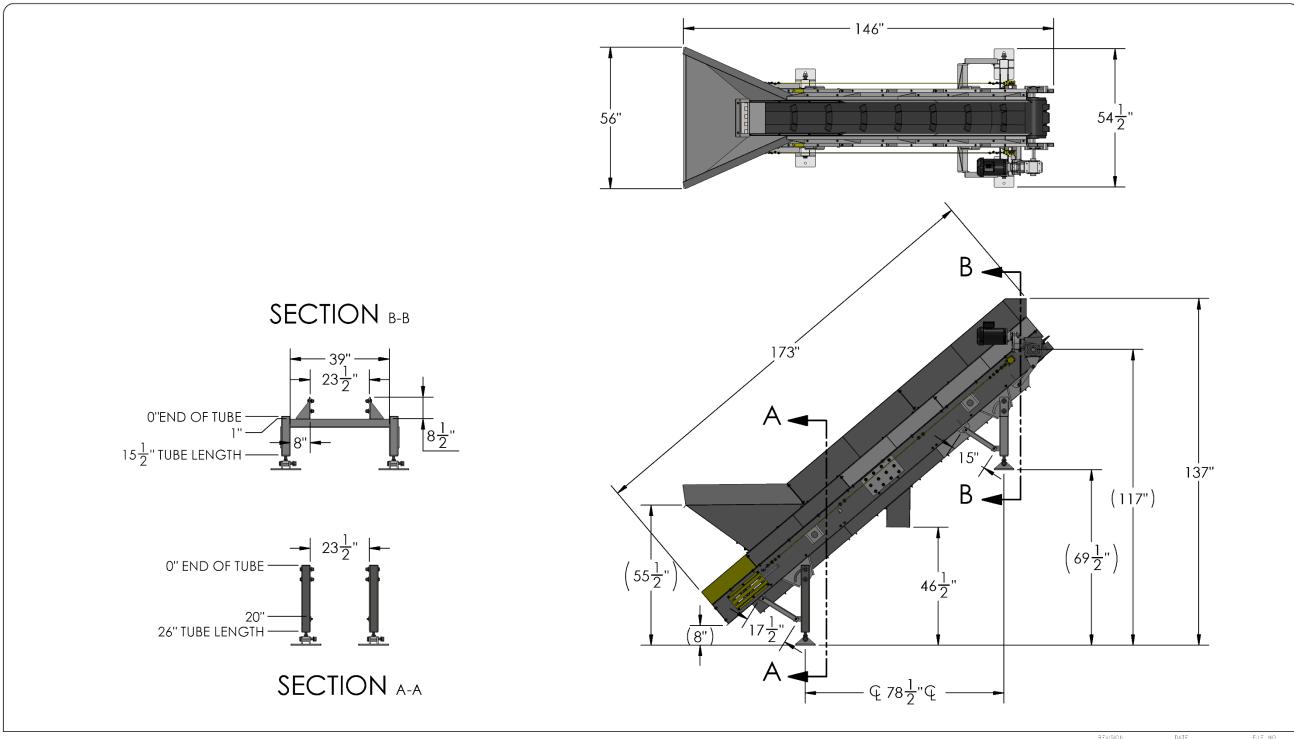
## 2. Parts List

Item NO.	Quantity	Part Number	Part Name
1	1	GPMM-CCC	Conveyor Cleanout Chute
2	1	14-CTBBP-STD-01	Belly Pan, 14" Tail Section
3	1	14-CBP-STD-47.5	47.5" Belly Pan, Center Section
4	1	CHBBP-14-STD-01	Belly Pan, Head Section
5	1	BPTB-5IN	Wear Strip: Tailbox belly Pan UHMW
6	1	BPWS-CCC-5IN	Wear Strip: 47-3/8" UHMW
7	1	BPHPWS-5IN	Wear Strip: HeadBox Belly Pan UHMW
8	2	GPMM-ESC	Emergency Stop Cord
9	1	CHB-STD-09	Link, Anti-rotation
10	1	GEN-004	Bracket, Anti-rotation
11	1	18019603	Gearbox: 23Q20H14 1-7/16" Bore
12	1	18019602	Gearbox 5X Helical Single Reducer
13	1	18001201	Motor, 1HP
14	2	18004132	Bearing, Pillow Block, 1-7/16"
15	1	17001407	Bar: 1-7/16" x 36" Fully Keyed Shaft
16	4	18006060	Bushing, PXT25 x 1-7/16"
17	1	18032226	Drum Pulley, 10" dia. X 16"
18	2	GEN-015	Cover, Take-up Bearing
19	2	18024001	Take-up Frame, for 1-7/16" Bearing
20	2	18004410	Bearing, Take-up, 1-7/16" Bore
21	1	18032227	Wing Pulley, 10" dia. X 16"
22	1	17001412	Bar: 1-7/16" x 24" fully keyed Shaft
23	4	18030323	Troughing Roll: 20 deg, 14"bw 4" dia.
24	1	18035411	Conveyor Belt: 14" W x 27'-4" L,3" Cleats
25	1	CTC-14-STD	Tail Pulley Cover
26	1	CTB-14-STD-L	Infeed Guard Rail Left Side
27	1	CTB-14-STD-R	Infeed Guard Rail Right Side
28	1	RG-48.25IN-L	48-1/4" Standard Rail Guard Left
29	1	RG-48.25IN-R	48-1/4" Standard Rail Guard Right
30	1	HB-RG-48.25IN-L	48-1/4" Headbox Rail Guard Left
31	1	HB-RG-48.25IN-R	48-1/4" Headbox Rail Guard Right
32	1	GPMM-INF	Infeed Hopper
33	1	GPMM-IFH-RFK	Infeed Hopper Rubber Flapper Keeper
34	1	GPMM-IFH-RF	Infeed Hopper Rubber Flapper
35	1	HFG	Hopper Flap Gate

## 3. Assembly Drawing



## 4. Layout





493 State Route 28 Richfield Springs, NY 13439

Tel: 315-858-0055 andelaproducts.com DATE 1/3/2024 CHECKED BY: GPMM-14IN-CONV GP MEGA MINI 14IN TROUGHING CONVEYOR (3IN CLEET)

ANDELA PRODUCTS



## 5. Spare Parts List

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This is a recommended list of parts the owner should consider stocking. By keeping these spare parts on hand, down time may be avoided due to shipping times. Use the space provided below for your own notes concerning maintenance.

PARTS:

(2) Pillow Block Bearings 18004132(2) Take-up Bearings 18004410

**OWNER / OPERATOR NOTES:** 

p/n: 2300201 Date: 5/19/17 Rev: C



## **PULVERIZER**

**MODEL: GPMM** 

## Parts List and Spec Sheet

Andela Products
493 State Route 28
Richfield Springs, NY 13439

Tel: (315) 858-0055

E-mail: info@andelaproducts.com

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## **PULVERIZER**

### Model: GPMM

Description: Miniature Single Barrel Pulverizer with 2 Screen Trommel. Hand Fed.

Serial Number: GPMM26020624

Customer: Goodwill of Delaware & Delaware County

Location: 400 Center Point BLVD

New Castle, DE 19720

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## 1. Specifications

### **MODEL:**

Andela Pulverizer System GPMM

### **PROCESSING CAPACITY:**

1,500-2000 lbs/hr

### **DIMENSIONS:**

Overall Length: Approx. 8' 6"

Overall Width: Approx. 4' 2"

Overall Height: Approx. 10' 9"

Shipping Weight: Approx. 2,500 lbs.

Pulverizer:

Hopper Input Opening: 24" x 24"

Machine Input Opening: 12 1/2" x 12 1/2"

Pulverizer Barrel Diameter & Length: 16" x 34"

Barrel Type: Steel Pipe

Barrel Liner: Abrasion Resistant Steel

Trommel:

Screen Sizes: 2x2 Mesh - 7/16" Opening

4x4 Mesh - 3/8" Opening

Screen Flat Dimensions: 2x2 Mesh: 21" x 68"

4x4 Mesh: 24" x 68"

Screen Type: Stainless Steel Woven Wire

### **MOTOR SPECIFICATIONS:**

Motor Size: Pulverizer: 5 HP

Trommel: 1 HP

Pulverizer Shaft Diameter: 2"

Trommel Gear Reducer: 30Q60H14HD

### **DRIVE COMPONENTRY:**

Belt Size: BX52

Motor Sheave: 2 Groove for B Belt, 4.8" PD

Motor Bushing: P1 x 1-1/8"

Shaft Sheave: 2 Groove for B Belt, 7" PD

Shaft Bushing: Q1 - 2"

Shaft Bearings: 4 Bolt Flange Bearings, 2" Bore

Hammer/Link: Stanchion Link & Hammer Assembly-11001009

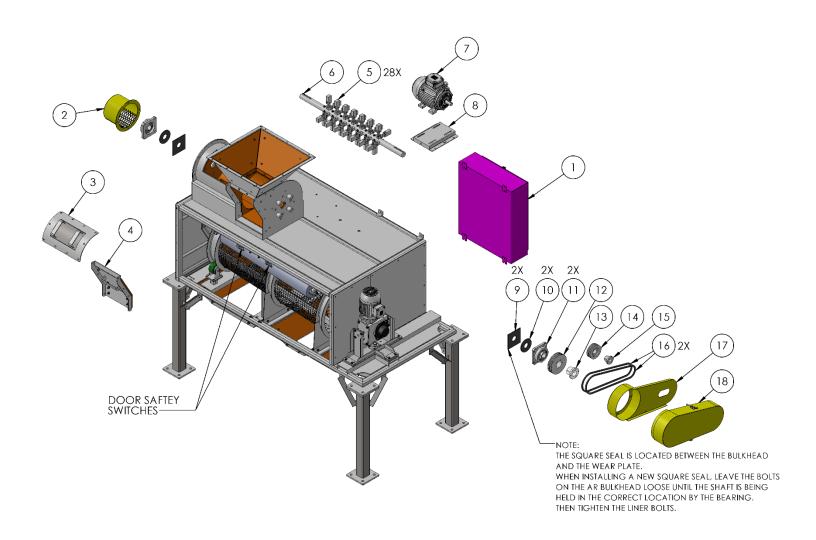
## 2. Parts List

Item No.	Qty.	Part Number	Part Name
1	1 diy.	18025010	Control Panel: 1447SN4E8
2	1	11010003	Bearing Guard
3	1	16008006	Access Door
4	1	16008011	Infeed Door
5	28	11001009	Hammer Assemblies
6	1	13005019	Hammer Shaft: 2" dia. x 49"
7	1	18001405	Motor: 5 HP, 184T, TEFC, 3 PH w/ Base
8	1	18002008	Motor Mount
9	2	13006006	Seal: 6" x 6" x 2" ID Sq. End Plate
10	2	13006005	Seal: 5" OD x 2" ID Sq. Ellu Flate  Seal: 5" OD x 2" ID Round Slinger
11	2	18004330	Bearing: 4 Bolt Flange 2" Bore
12	1	18005211	Sheave: 2 Groove 7" PD (2TB70) Q1
13	1	18006005	` ;
14	1	18005206	Bushing: Q1 - 2" Bore  Motor Sheave: 2 Groove 4.8"PD (2TB48)
15	1	18006026	Bushing: P1 1-1/8"
16	2	18003061	Belt: BX52
17	1		Belt Guard Back Plate
		11006017	
18	1	11006018	Belt Guard Cover
19	1	GPMM-DRL	Left Side Maintenance Door
20	1	GPMM-DRR	Right Side Maintenance Door
21	1	GPMM-SKN-4	Skin – Left End Panel
22	1	GPMM-SKN-5	Skin – Right End Panel
23	1	GPMM-SKN-3	Skin – Back Panel
24	1	GPMM-SKN-1	Skin – Control panel Left
25	1	GPMM-SKN-2	Skin – Control panel Right
26	4	18007102	Door Latches
27	1	18021058	Screen: 4x4 Mesh x 24" x 68" SS Wire
28	1	18021222	Screen: 2x2 Mesh x 21" x 68" SS Wire
29	2	18004110	Bearing: Pillow Block 3/4"
30	1	11013009	Brush Arm
31	1	18008003	Brush: 48" OAL Trommel Brush 7D
32	1	11013009-B	Brush Arm
33	1	11005012	Trommel Barrel
34	2	18010011	Casters: Hamilton Assembly
35	1	13005215	Trommel Drive Shaft
36	1	18001238	Motor :1 HP, 145TC, 3PH
37	1	18019604	Gearbox – Dodge 30Q60H14HD
38	2	16015201	Gearbox Support
39	3	18004310	Bearing: 4 Bolt Flange 1" Bore
40	3	12013001	Hold Down
41	1	20002002	Slide Plate
42	3	12013003	Hold Down Spacer
43	1	18019606	Gearbox Safety Cover
44	1	16019001	Gearbox Housing

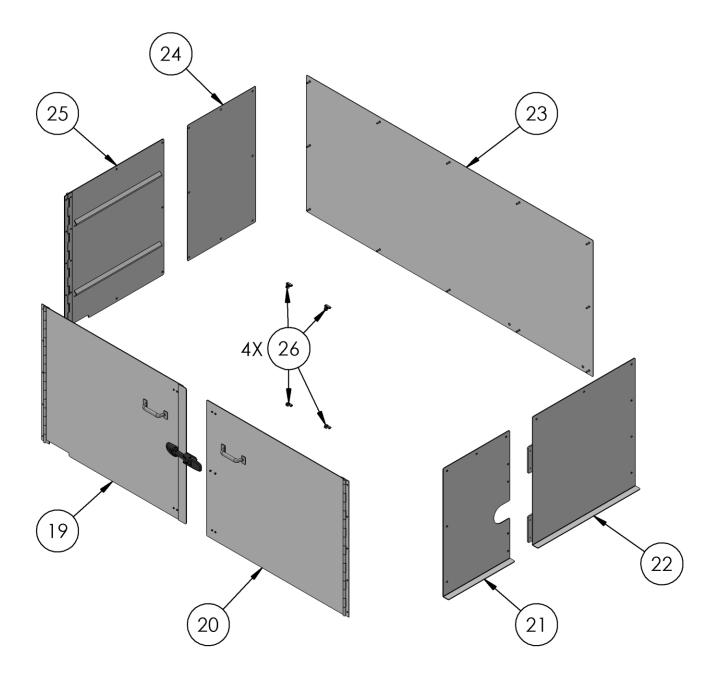
Item No.	Qty.	Part Number	Part Name
45	2	15001009	Wear Plate: Bulk Head
46	2	GPMM-DCC-AR01	Wear Plate: Discharge Sides
47	2	GPMM-DCC-AR02	Wear Plate: Discharge Ends
48	1	GPMM-HDC-AR	Wear Plate Assembly: Hinged Discharge Chute
49	1	GRD-15-B	Wear Plate: Infeed Hopper Left Side
50	1	GRD-15-D	Wear Plate: Infeed Hopper Front
51	1	GRD-15-C	Wear Plate: Infeed Hopper Back
52	1	GRD-15-A	Wear Plate: Infeed Hopper Right Side
53	1	16008007-4	Wear Plate: Infeed Door, Upper
54	1	16008007-5	Wear Plate: Infeed Door, Middle
55-L	1	15001119	Wear Plate: Infeed Pocket Left Side
55-R	1	15001120	Wear Plate: Infeed Pocket Right Side
56	1	GPM-17	Wear Plate: Infeed Base
57	2	18022118	Barrel Liner: CCO (2 Halves Required)
58	2	11005012-8	Wear Plate: Trommel Barrel Infeed
59	1	16006033-15	Curtain Retention Bar: Upper Center
60	2	16006033-13	Curtain Retention Bar: Sides
61	1	16006033-14	Curtain Retention Bar: Lower Center
62	2	16006033-08	Rubber Curtain: Left Side
63	1	16006033-12	Rubber Curtain: Upper Center
64	1	16006033-11	Rubber Curtain: Lower Center
65	1	16006033	Hood
66	1	16006033-05	Rubber Curtain: Shaft Seal
67	1	16006003-06	Retention Flange: Curtain Shaft Seal
68	1	16006033-04	Curtain Mounting Bracket
69	1	16009058	Fines Discharge Chute
70	2	15007027	Wear Plate: Fines Discharge Chute Sides
71	2	15007028	Wear Plate: Fines Chute Front/Back
72	1	16009059	Coarse Discharge Chute
73	2	15007029	Wear Plate: Coarse Chute Sides
74	2	15007030	Wear Plate: Coarse Chute Front/Back
75	1	16020011	Waste Chute
76	1	15010502	Wear Plate: Waste Chute Left Side
77	1	15010503	Wear Plate: Waste Chute Front
78	1	15010504	Wear Plate: Waste Chute Back
79	1	15010505	Wear Plate: Waste Chute Right Side

## 3. Assembly Drawings

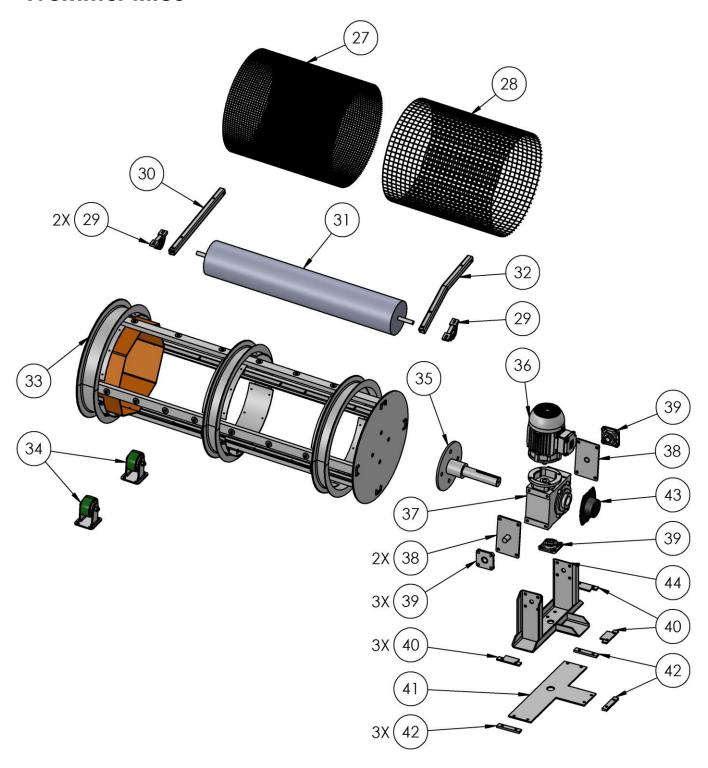
### **Pulverizer**



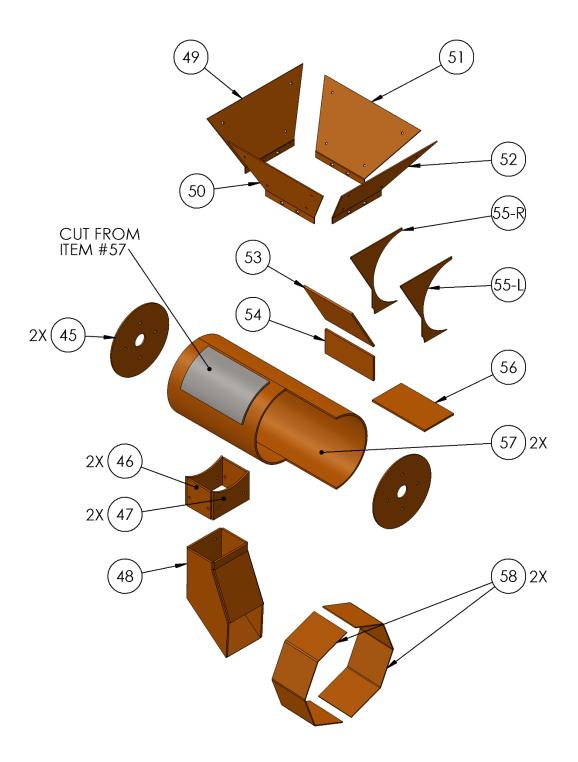
## Skins



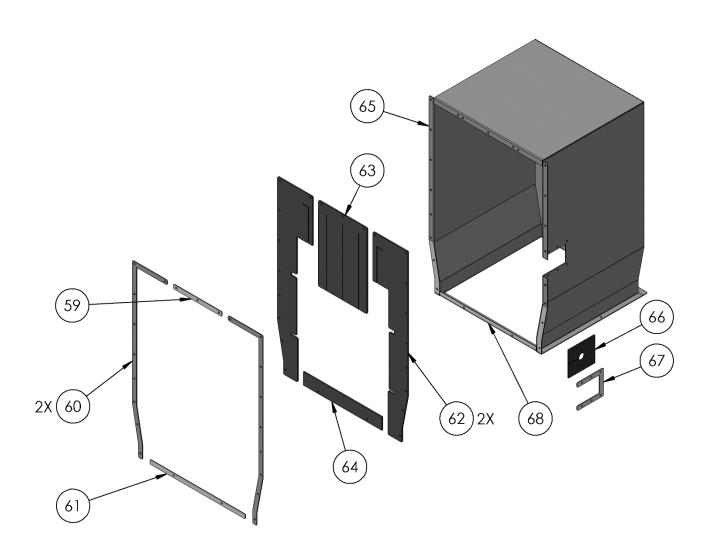
### Trommel-Misc



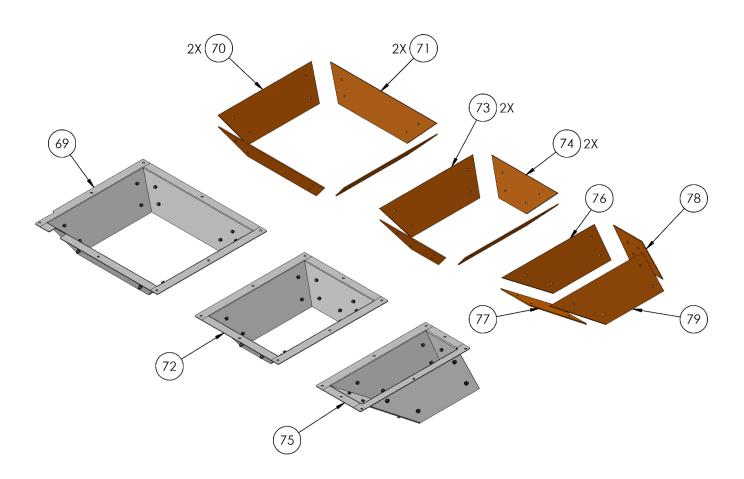
### Wear Plates



## Infeed Hood



## Discharge Chutes



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## 5. Spare Parts List

This is a recommended list of parts the owner should consider stocking. By keeping these spare parts on hand, down time may be avoided due to shipping times. Use the space provided below for your own notes concerning maintenance.

### **PARTS:**

(1)	Hammer Shaft	13005019
(28)	Set Hammer/Link Assembly	11001009
(2)	Barrel Liner CCO	18022118
(2)	Bearing:	
	4 Bolt Flange 2" Bore	18004330
(3)	Bearing:	
	4 Bolt Flange 1" bore	18004310
(2)	Belt: BX52	18003061
(2)	Caster Assembly	18010011
(1)	2x2 Mesh Screen	18021222
(1)	4x4 Mesh Screen	18021058

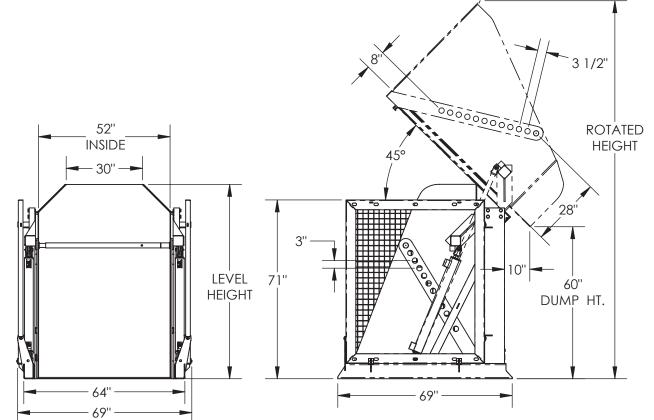
### **OWNER / OPERATOR NOTES:**

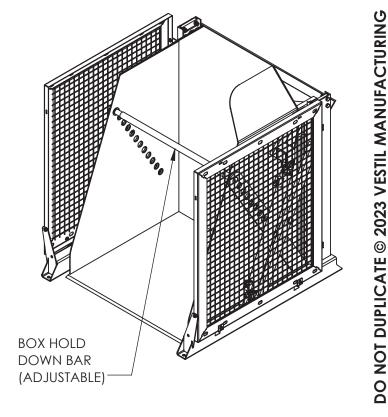
Date: 10/25/2021 GW-DEL GPMM Dimensional Specs and Parts List.docx

## HYDRAULIC BOX DUMPER - HBD-6-60-Q401205

APPROX WEIGHT: 2179.37 lbs. DOES NOT INCLUDE WEIGHT OF POWER OR I

\*\*\* ANY ADDITIONS, DELETIONS, OR OMISSIONS MUST BE CORRECTED ON THIS DRAWING AS THIS DRAWING WILL BE CONSIDERED ALL INCLUSIVE \*\*\*
ALL GRAPHICS PROVIDED ARE FOR REFERENCE ONLY. IF CERTAIN DIMENSIONS ARE CRITICAL PLEASE VERIFY THOSE DIMENSIONS WITH YOUR SALESPERSON





### STANDARD FEATURES

HYDRAULIC BOX DUMPER MODEL NUMBER HBD-6-60-Q401205 CHUTE IS 52" W X 50" L (USABLE)

DUMPER CAPACITY IS 6000 LBS.

DUMP HEIGHT IS 60"

FRAME WIDTH IS 69" FRAME LENGTH IS 69"

LEVEL HEIGHT IS 77"

ROTATED HEIGHT IS 149 1/2" DUMP ANGLE IS 45°

CHROME PLATED CYLINDER WITH EMERGENCY STOP VELOCITY FUSE

WARNING: CHECK STATE AND LOCAL CODES!!

FRAME AND CHUTE ARE DURABLE LIQUID PAINT BLUE FINISH

GUARDS AND HOLD DOWN BAR TOUGH BAKED IN POWDER COATED YELLOW FINISH

460V 3PH AC POWER WITH 2-BUTTON HAND CONTROL

### SPECIAL FEATURES

CHUTE TAPERED TO 30" WIDE OPEN HOLD DOWN WILL ACCEPT BOXES 18" TO 51" HIGH W/ HOLES EVERY 3" - FROM 8" TO 28" FROM BACK PLATE

### DIMENSION TOLERANCE ± 1/4"

I, THE UNDERSIGNED, AGREE THAT THE PRODUCT AS
REPRESENTED SATISFIES DESIGN AND DIMENSION
REQUIREMENTS. I ALSO ACKNOWLEDGE MY DUTY TO
CONFIRM PRODUCT AND INSTALLATION
COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE
AND LOCAL REGULATIONS AND STANDARDS.
UNITS REQUIRING APPROVAL DRAWINGS OR
MODIEIED ADE MON DETIIDMARI E

MODIFIED ARE NON-RETURNABLE

[ ] As drawn [ ] As marked

Signed: Date:

Drinted Name:

Printed Name:

DISTRIBUTOR'S NAME: P.O.# 5506	
ANDELA PRODUCTS  W.O.# S2422395	
DRAWN BY: TEN DATE: 9-6-23 SALES: LISA C.	

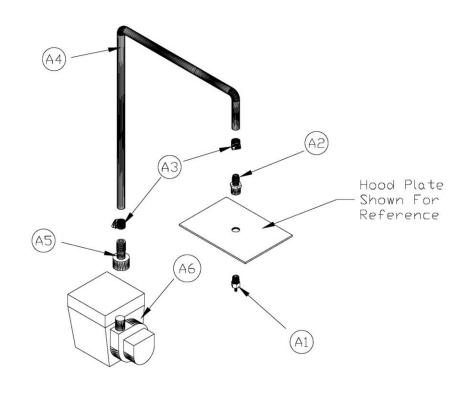
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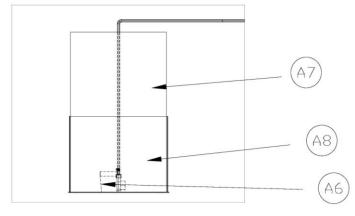
AD TIME: QUOTE # S2422395-AP-R1



### **Optional Misting System**

A1	1	18037012	Misting Nozzle, 16.8 gph @ 40 PSI
	1	18037013	Misting Nozzle, 31.8 gph @ 40 PSI
	1	18037014	Misting Nozzle, 45.0 gph @ 40 PSI
A2	1	18037203	Fitting, ½" barb x ¼" FPT
A3	2	18042001	Hose Clamp, ½"-7/8"
A4	1	18009240	½" ID PVC Tubing, (Specify Length)
A5	1	18037200	Fitting, ½" barb x ½" FPT
A6	1	18028102	Submersible Pump, 1/12 hp
A7	1	18041055	55 Gallon Drum
A8	1	16012003	55 Gallon Drum Support







## **CONVEYOR**

Model: CONV -12 -14 -18 -24 -30 -36

## Safety & Operation Manual

Andela Products 493 State Route 28 Richfield Springs, NY 13439

> Tel: (315) 858-0055 Fax: (315) 858-2669

e-mail: info@andelaproducts.com

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## 1. Introduction

Thank you for purchasing an Andela Conveyor!

The Andela Conveyor has been developed to be a tough but uncomplicated machine that you can rely on. This manual gives you assembly, operating and service information for operating the Andela Conveyor. The Table of Contents directs you to the specific information you need. Please read and understand all instructional materials included with the Andela Conveyor or its components before assembling and operating the equipment.

The Andela Conveyor is specifically designed to convey and lift the material(s) it was initially sold for. A variety of other related materials may also work well, but if you are in question of the conveyor's ability, please contact Andela Tool and Machine for further information.

## 2. Safety

An Andela Conveyor can present hazards to an operator who follows unsafe procedures in either the operation or the maintenance of the unit. Therefore, **SAFETY WARNINGS** are presented at certain locations in the text.

ALL COVERS AND GUARDS MUST BE IN AND PLACE FOR **PROPER** SAFE OPERATION OF THIS **EQUIPMENT.** WHEN THEY ARE SHOWN REMOVED IN THIS MANUAL. IT IS FOR PURPOSES OF **ILLUSTRATION** AND INSTRUCTION ONLY. DO NOT **OPERATE** THIS **EQUIPMENT UNLESS ALL GUARDS ARE** IN PLACE.

This symbol:

**SAFETY WARNING** 

**Meaning:** Failure to understand and obey this warning may result in injury to you or others.

Whenever this symbol is used, please pay very close attention to the information presented with it, and make sure you fully understand it. If you do not, contact your dealer or Andela Tool & Machine, Inc. for clarification.

Andela Tool & Machine, Inc. is continually striving to improve the design and performance of its products. We reserve the right to make changes in specification and design without thereby incurring any performance obligation relative to previously manufactured products.

Before attempting to operate the Andela Conveyor, read the Safety and Operation Manual thoroughly. It is essential that the equipment of our manufacture be used in accordance with the instructions supplied in this manual.

 Andela Conveyor owners must give operating and safety instructions to operators or employees before allowing them to operate the conveyor, and at least annually thereafter

- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them.
- A person who has not read or understands all operating and safety instructions is not qualified to operate the machine.



The Andela Conveyor is to be wired to a control panel which contains electrical control circuits and a fusible disconnect. When the disconnect switch is ON, the machine will begin running if activated at any time and without warning. NEVER attempt to perform ANY maintenance on the Andela Conveyor unless disconnect switch located on the control panel has been turned off and padlocked. NEVER reach into the infeed or outfeed area for any reason unless the disconnect switch in the control panel has been turned off and padlocked. NEVER run the Andela Conveyor without all the guards and covers securely in place.

#### **SAFETY GUIDELINES**

- DO NOT PLACE HANDS NEAR THE IN-FEED OR DISCHARGE AREAS OF THE CONVEYOR WHILE IN OPERATION.
- Eye, ear, and breathing protection should be worn by all operators near the machine when handling materials that require these precautions.
- Never allow hands, clothing or any part of the body near moving parts or the in-feed and discharge areas.
- Avoid wearing loose-fitting clothing when working around this machine.
- Do not let anyone stand, sit, or ride on the machine and make sure that everyone is clear of the machine before starting

- Before starting the machine, visually inspect all nuts, bolts and other fasteners to see that they are properly secured.
- Keep the motor area clean from debris and other accumulations.
- Stay away from the discharge area when machine is in operation.
- The machine should be operated on level surfaces only.
- Keep material from building up in the in-feed and discharge areas, as this may prohibit proper operation of the conveyor belt.
- Never attempt to move or transport the machine while it is operating.
- Use genuine factory parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or others.
- Replace locknuts and locking screws if you can tighten them without feeling considerable resistance for several turns before they are completely tight. Replace them with factoryauthorized parts or their equivalent.
- If hardware is not secure, or if some of the hardware is over tightened, equipment failure may result, posing possible safety hazards.



#### **SAFETY WARNING**

 If any blockage or obstruction should occur inside or around the Andela Conveyor, STOP the machine and disconnect the power before clearing the obstruction. DO NOT attempt to clear the obstruction with your hands or other tools unless the power is disconnected and any stored energy has been released. STORED ENERGY CAN BE FOUND IN A CONVEYOR BELT UNDER **TENSION** OR GEARBOX/MOTOR UNDER TORQUE. CLEARING ΑN **OBSTRUCTION WITH** STORED ENERGY CAN RESULT IN PARTS SUDDENLY JUMPING FORWARDS OR BACKWARDS CAUSING SERIOUS INJURY OR DEATH.

 To prevent possible eye injury, ALWAYS WEARSAFETY GLASSES while operating or servicing the equipment.

#### **GUARDS**

 Keep the equipment and attachments in good operating condition, and keep all safety devices in place. Replace all worn, damaged, unusable, missing or lost covers and guards before operating the equipment.

#### **SAFETY DECALS**

If safety related or instructional decals become illegible or are removed, replace them immediately. If you replace parts that have such decals attached to them, make sure the decals are replaced with current versions, and that the decals are on the replacement parts before the machine is operated again. New decals may be obtained from your local dealer.

#### **EQUIPMENT & CONTROLS**

- Do not modify the equipment in any way.
   Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Altering this equipment in any manner will void the warranty and may cause hazardous conditions.
- Know the location and function of all the controls.
- Know how to stop the equipment quickly in an emergency before you operate them.
- READ AND UNDERSTAND THE OPERATOR'S MANUAL.

## 3. Operation

Failure to observe the instructions in this Operators Manual will invalidate the warranty.



DO NOT OPERATE UNTIL ALL GUARDS ARE IN PLACE. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

Wear NIOSH approved eye, ear and respirator protection while operating this equipment as necessary.

Keep all body parts away from moving parts and moving material.

Make certain the infeed and discharge areas are clear before starting the machine. Check for foreign objects before operating.

Activate the power with the start button on the Control Panel. If the machine fails to operate properly at startup or at any time during operation:

- 1. Turn power OFF.
- 2. Disconnect from the power source and padlock switch.
- Check for any foreign objects in or around the conveyor that could be impeding on its proper operation.
- 4. If everything is clear and the machine still fails to operate properly, notify our maintenance department or call our service department for assistance.

A safe operator is one who practices safety and uses good common sense to protect himself from moving objects.

## 4. Maintenance

## SAFETY WARNING

PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

#### **BREAK-IN SERVICE**

After the first hour of use:

- Check conveyor belt for proper tension and tracking. Adjust as needed.
- 2. Check nuts, bolts and fasteners to see that they are secure.

#### On a regular basis:

 Lubricate the bearings at least once per week. See section 5 (Lubrication Schedule) for more information

#### **CLEANING**

 Wash down conveyor and inspect for signs of damage and overload fatigue prior to each regular maintenance service. Always regrease all lubrication points after wash down to displace any water or solvent that may have been forced into bearings by high pressure cleaning equipment.

#### **OWNER / OPERATOR NOTES:**

#### 8

## 5. Lubrication Schedule

PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

Use High Quality Lithium Grease Unless Otherwise Specified.

#### **MOTOR**

## REFER TO SPECIFIC MOTOR MANUFACTUER FOR LUBRICATION SCHEDULES AND INSTRUCTIONS

#### **BEARINGS**

Lubricate the bearings at least once per week.

**CAUTION:** Keep grease clean. Lubricate motor at standstill. Remove and replace drain plugs at standstill. Do not mix petroleum grease and silicon grease in motor bearings.

#### **GEAR REDUCER**

REFER TO SPECIFIC MOTOR
MANUFACTUER FOR LUBRICATION
SCHEDULES AND INSTRUCTIONS

#### **Owner/ Operator Notes:**

#### Page...

## 6. Adjustments



PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

#### **TRACKING**

If belt begins to track off to one side of Head Pulley or Tail Pulley:

- 1. Check all idler and return rolls for signs of misalignment.
  - Look for loose bolts attaching base to frame.
  - Look for damage due to over loading or having been hit by loaders, forklifts, etc.
- 2. Check Head Pulley and Tail Pulley bearings for possible failure or loose mounting bolts.
- Increase tension on the side that the belt is drifting towards or decrease tension on the side that belt is moving away from. This is done by means of belt take up adjusters on either side of Tail Pulley.

#### **Owner/ Operator Notes:**

## 7. Trouble Shooting Guide

#### START HERE FOR TROUBLE SHOOTING

#### 1. Belt will not move:

- · Overload or frozen load on belt
- Foreign object jamming belt
- Seized head or tail shaft bearings
- Belt is not tracked properly and is jammed against the frame.

#### 2. Motor will not run (Electric):

- Correct incoming voltage, frequency, and phase
- Control circuit malfunction
- Seized gear reducer
- · Jammed drive or belt
- Motor failure

## 3. Belt moves but does not come up to speed:

Refer to #1 and #2 of Trouble Shooting.
 Debris build up - Refer to cleaning

#### 4. Belt runs off to one side:

Refer to adjustments - Tracking

#### 5. Material does not go up belt:

- Conveyor inclined to greater angle than designed for.
- Material is more fluid than conveyor was originally designed to handle

#### 6. Head pulley and belt slips:

- · Deteriorated head pulley lagging
- Seized tail pulley bearings
- Excess material on back side of belt (sludge)
- · Starting under excessive load
- Incorrect belt tension

#### **OWNER / OPERATOR NOTES**

## 8. Installation

#### **GENERAL INFORMATION**

Qualified trained personnel certified by Andela Tool & Machine, Ltd. should install the Conveyor.

Proper safety procedures and adequate installation equipment should be used. A hoist may be required to position because of weight.

When properly located, anchor equipment to the floor and/or platforms with appropriate anchoring devices. Be sure all bolts and connections are secure and tight.

Equipment should be installed in accordance with the National Electric Code, local codes, and with NEMA, MG2, Safety Standards for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators.

When eyebolts are provided, they are intended only for lifting the motor and/or gearbox only. Do not attempt to lift the conveyor or head pulley assemblies with these eye bolts. Eyebolts must be fully tightened.

#### **WIRING**

Connect the machine in accordance with furnished connection diagrams. The wiring, fusing and grounding must be in accordance with the National Electrical code and any local codes.

When the machine is connected to the load for proper direction of rotation and started, it should start quickly and run smoothly. If this is not the case, immediately shut motor off and investigate the cause.

The cause could be: low voltage, the motor is improperly connected, or the load is too great, etc.

It is recommended that the motor current be checked after it has been operating a short time and compared against nameplate current.

The Conveyor must be grounded in accordance with the National Electrical Code and any local code.

The machine should match the line voltage, line frequency, and the equipment load.

Do not bypass or render inoperative safeguard or protective devices.

## 9. Suggested Scheduling

#### **Inspection Schedule**

1st hour of use:

Inspect and retension belt. Check & secure all fasteners.

Every 200 hours: Inspect Belt

#### **Lubrication Schedule**

#### **Every 40 hours:**

Grease all bearings.

#### Motor:

Always refer to and follow manufacturer's specifications

#### **Gear reducer:**

Always refer to and follow manufacturer's specifications

## 10. Warranty

#### ANDELA CONVEYOR

The Seller warrants each product of its own manufacture to be free from defects in material and workmanship under normal use and service for which it was intended if, but only if, it has been properly installed, operated and maintained. The Seller warrants this to the original Purchaser only, for a period of one (1) year from the date of shipment subject to the conditions out-lined below.

This Warranty does not extend to the normal replacement of wear parts such as the belt, bearings, paint, and other parts which may have a wear/service life inherently shorter than the warranty period.

The Sellers obligation under this warranty is limited to replacing or repairing, free of charge, F.O.B. point of manufacture, any defective part or parts of the machine that were manufactured by the Seller which are returned to Seller at Richfield Springs, New York, provided that such part, or parts are returned to the Seller's factory not later than sixty (60) days after discovery of the defect. Transportation charges, duties and the cost of removal or installation of equipment or parts shall be borne by Purchaser. This shall be the limit of Seller's liability for any breach of warranty. Purchaser must notify Seller by registered mail or certified mail, return receipt requested, of a breach of warranty within thirty (30) days after discovery thereof, but not later than one (1) year after shipment; otherwise, such claims shall be deemed waived. No allowance will be granted for any repairs or alterations made by Purchaser without seller's prior written consent.

Seller does not warrant this machine to meet the requirements of any safety code of any state, municipality or other jurisdiction, and the Purchaser assumes all risk and liability whatsoever resulting from the use thereof, whether used singly or in combination with other machines or apparatus.

This warranty shall not apply to any Seller's machine, or parts thereof, which has been repaired or altered, without Seller's written consent, outside Seller's factory or altered in any way so as, in the judgment of Seller, to affect adversely the stability or reliability of the Seller's machine, or has been subject to misuse, negligence, or accident, or has not been operated in accordance with Seller's printed instructions or has been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for such machine.

Seller shall not be liable for any loss or damage resulting, directly or indirectly, from the use or loss of use of the machine. Without limiting the generality of the foregoing, this exclusion from liability embraces the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons, damages to property, and injury to or death of any persons who do not follow instructions in the Operators Manual. Seller shall not be held liable for any environmental damages resulting from any material processed by the machine since the machine does not add, delete or change in any way, the chemical properties of the material processed. Seller neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of the seller's machine, and there are no oral agreements or warranties collateral to or affecting this agreement.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND EXPRESSES OUR ENTIRE OBLIGATION AND LIABILITY WITH RESPECT TO SAID EQUIPMENT. WE EXPRESSLY DISCLAIM ALL LIABILITY FOR DAMAGES OF EVERY NATURE AND DESCRIPTION, IF ANY, SUSTAINED BY THE PURCHASER FROM DELAYS IN THE SHIPMENT AND DELIVERY OF EQUIPMENT, REPLACEMENT EQUIPMENT OR ANY REPLACEMENT PART, OR EQUIPMENT OR ANY PART THEREOF.

p/n: 23001011 Date: 01/18/09 Revision: B



# PULVERIZER MODEL: GPMM

## Safety & Operation Manual

Andela Products, Ltd. 493 State Route 28 Richfield Springs, NY 13439

Tel: (315) 858-0055 Fax: (315) 858-2669

e-mail: info@andelaproducts.com

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### 1. Introduction

Thank you for purchasing an Andela Pulverizer!

The Andela Pulverizer has been developed to be a tough but uncomplicated machine that you can rely on. This manual gives you basic safety, operation and maintenance for the Andela Pulverizer. Please read and understand all instructional material included with the Andela Pulverizer or its components before assembling and operating the equipment.

The patented flexible impactors inside the Andela Glass Pulverizer produce a flailing action that gives it the unique ability to process all kinds of glass. The glass is pulverized into an aggregate the consistency of sand and fine gravel without any sharp edges. Ceramics and other hard or brittle materials can be pulverized and significantly reduced in size. Small non-frangible materials like steel can covers, plastic bottle caps, and even nails or soft plastics can pass through the Andela Pulverizer without causing any damage to the machine. These materials pass through the Pulverizer and are deposited in a battered but recognizable form for ease of separation from the glass being processed. Hard metal objects should be avoided to minimize any damage to the impactors. Also, large plastic items like milk jugs can reduce the flow of glass through the discharge chute and cause the Pulverizer to plug.

In conjunction with the built in Andela Trommel Separator, the debris is removed by size classification and clean glass aggregate remains. The Andela Trommel Separator is a rotating barrel screen. The barrel screen is driven by a direct drive unit consisting of a motor and right angle gear reducer attached directly to a plate on the end of the barrel screen. The barrel screen section rests on two caster assemblies that allow it to turn freely. The barrel screen slopes downward such that the material passes slowly along the length of the screen.

## 2. Safety

An Andela Glass Pulverizer can present hazards to an operator who follows unsafe procedures in either the operation or the maintenance of the unit. Therefore, SAFETY **WARNINGS** are presented at certain locations in the text.

ALL COVERS AND GUARDS MUST BE IN PLACE FOR **PROPER** AND SAFE **OPERATION OF THIS EQUIPMENT. WHEN** THEY ARE SHOWN REMOVED IN THIS MANUAL. IT IS FOR PURPOSES OF ILLUSTRATION AND INSTRUCTION ONLY. DO NOT OPERATE THIS EQUIPMENT UNLESS ALL GUARDS ARE IN PLACE.

This symbol:



**Meaning:** Failure to understand and obey this warning may result in injury to you or others.

Whenever this symbol is used, please pay very close attention to the information presented with it, and make sure you fully understand it. If you do not, contact your dealer or Andela Tool & Machine, Inc. for clarification.

Andela Tool & Machine, Inc. is continually design striving to improve the performance of its products. We reserve the right to make changes in specification and without thereby incurring performance obligation relative to previously manufactured products.

Before attempting to operate the Andela Glass Pulverizer, read the Safety and Operation Manual thoroughly. essential that the equipment of our manufacture be used in accordance with the instructions supplied in this manual.

 Andela Glass Pulverizer owners must give operating and safety instructions to operators or employees before allowing them to

- operate the pulverizer, and at least annually thereafter.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them.
- A person who has not read or understands. all operating and safety instructions is not qualified to operate the machine.



The Andela Glass Pulverizer contains electrical control circuits and a fusible disconnect. When the disconnect switch is ON, the machine will begin running if activated at any time and without warning. **NEVER** attempt perform **ANY** to maintenance on this equipment unless the disconnect switch located on the control panel has been turned off and padlocked. NEVER reach into the infeed or outfeed area for any reason unless the disconnect switch in the control panel has been turned off and padlocked. NEVER run any part of this machine without all the guards and covers securely in place.

#### **SAFETY GUIDELINES**

- The pulverizer is to be loaded with the attached infeed Conveyor. DO NOT PLACE HANDS NEAR THE INFEED AREA OF THE PULVERIZER WHILE IN OPERATION.
- Eye, ear, and breathing protection should be worn by all operators near the machine. We recommend full face shield, heavy gloves, and long sleeves.
- Never allow hands, clothing or any part of the body to enter the infeed area, discharge area or near moving parts.
- Avoid wearing loose-fitting clothing.
- Do not let anyone stand or sit on the machine and make sure that everyone is clear of the machine before starting.

- Before starting the machine, visually inspect all nuts, bolts and other fasteners to see that they are properly secured.
- Keep the motor area clean from debris and other accumulations.
- Stay away from the discharge area when machine is in operation.
- The machine should be operated on level surfaces only.
- Keep material from building up in the discharge area, as this may prohibit proper discharge of material.
- Never attempt to move or transport the machine while it is operating.
- Use genuine factory parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or others.
- Replace locknuts and locking screws if you can tighten them without feeling considerable resistance for several turns before they are completely tight. Replace them with factoryauthorized parts or their equivalent.
- If hardware is not secure, or if some of the hardware is over tightened, equipment failure may result, posing possible safety hazards.
- If any blockage or obstruction should occur inside the Andela Glass Pulverizer, at the infeed or the output of the Glass Pulverizer, STOP the machine and disconnect the power before clearing the obstruction. NEVER insert anything inside the infeed area or discharge area to attempt to clear the obstruction while the machine is running. DO NOT attempt to clear the obstruction with your hands or other tools unless the power is disconnected.
- Be certain to wear NIOSH approved nuisance dust respirator at all times.
- Always wear safety glasses and gloves while

servicing the equipment.

#### **GUARDS**

- Keep the equipment and attachments in good operating condition, and keep all safety devices in place. Replace all worn, damaged, unusable, missing or lost covers and guards before operating the equipment.
- Do not run machine with the access or maintenance doors open.

#### **SAFETY DECALS**

 If safety related or instructional decals become illegible or are removed, replace them immediately. If you replace parts that have such decals attached to them, make sure the decals are replaced with current versions, and that the decals are on the replacement parts before the machine is operated again. New decals may be obtained from your local dealer.

#### **EQUIPMENT & CONTROLS**

- Do not modify the equipment in any way.
   Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Altering this equipment in any manner will void the warranty and may cause hazardous conditions.
- Know the location and function of all the controls.
- Know how to stop the equipment quickly in an emergency before you operate them.
- READ AND UNDERSTAND THE OPERATOR'S MANUAL.

## 3. Operation

Failure to observe the instructions in this Operators Manual will invalidate the warranty.



DO NOT OPERATE UNTIL ALL GUARDS ARE IN PLACE. FAILURE TO HEED MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

Wear NIOSH approved eye, ear and respirator protection while operating the Andela Glass Pulverizer.

Keep all body parts away from the rotating hammers and all other rotating parts.

Activate the power with the start button. If the machine makes any loud rattling sounds or excessive vibrations:

- 1. Turn power OFF.
- 2. Disconnect from the power source and padlock switch.
- Check for proper attachment of hammers on the shaft.
- 4. Check to see if the hammers are swinging freely and not striking any object inside of the Pulverizer.
- 5. Inspect output chutes for clear passage of material.
- 6. Replace guards.

Turn ON the Pulverizer and feed the material into the infeed hopper with the infeed conveyor. Remove processed material from the bottom of the trommel section per system layout design.

If the Pulverizer develops excessive vibration, turn off and disconnect from power. Follow maintenance procedure to inspect hammer assemblies for missing or broken hammers. If excessive vibrations

continue, contact your distributor or Andela Tool & Machine, Inc.

Glass bottles are deposited into the conveyor hopper. The conveyor transfers the bottles to the pulverizer where they are reduced into an aggregate the consistency of sand and gravel without any sharp edges. This material is then transferred into the Trommel Separator where it is tumbled and turned inside of the rotating drum screen.

The material falls on the screen which allows a customer specified size to fall through into the receptacle below. The remaining material, or trash, larger than the last screen, will exit at the end of the trommel into a trash receptacle.

In such a manner, the Trommel Separator supplies a specific size commodity per the customer's request.

## 4. Maintenance



PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

### **Pulverizer**

#### **BREAK-IN SERVICE**

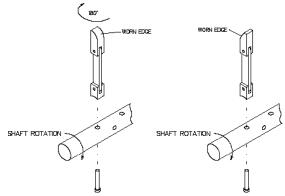
After the first hour of use:

- 1. Check belts. Re-tension if needed.
- 2. Check nuts, bolts and fasteners to see that they are secure.

On a regular basis:

1. Lubricate the bearings at least once per week. See section 5 (Lubrication Schedule) for more information.

#### **HAMMER ASSEMBLY**



The hammer/link assemblies should be inspected after every 100 hours of operation.

The hammers will also wear more on one side. They can be removed, rotated and reattached to ensure even wear on both sides. If one or more of the hammer assemblies fail, a certain amount of imbalance will be indicated by excessive vibration. When this becomes discernible, the standard maintenance procedure should be followed to diagnose problems. See procedure for maintenance.



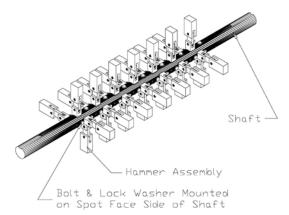
The hammer assemblies rotate at high speed. It is essential that they be mounted securely to prevent accidents from flying metal parts. Mount the hammer assembly only with the 3/8"-16 x 2 1/2" long True Torque hex head bolt and 3/8" lock washers. Tighten to 41 ft-lbs.

## PROCEDURE FOR REPLACING HAMMER ASSEMBLIES



## MACHINE MUST BE TURNED OFF AND PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

- If replacing the entire hammer shaft assembly with a pre assembled set, refer to the section "PROCEDURE FOR DISASSEMBLING MACHINE FOR LINER OR SHAFT REPLACEMENT". The shaft removed from the pulverizer can be disassembled and the hammer/link assemblies rotated or replaced at another location as convenient.
- Remove the bolts holding the access doors in place and lift out the door using the handles. CAUTION: Doors are heavy.
- 3. The hammers are now accessible.



4. The hammer assemblies are attached with a True Torque hex head bolt with lock washer that is inserted through the shaft and screwed into the hammer mount or stanchion of the hammer assembly. The hammers MUST be attached so that the head of the attachment bolt is fastened securely down on the flat circular area or "spot face" on the shaft. The machine will NOT operate properly if the head of the hex bolt is not lying and securely fastened against the spot face on the shaft.

IT IS ABSOLUTELY ESSENTIAL that the hammer assemblies be removed and replaced with the bolt against the spot face on the shaft so the correct spiral around the shaft is maintained.

This patented aspect of the machine acts as an auger and is a fundamental element in the correct and effective operation of the machine.

Unless the hammer assemblies are placed on the shafts in the proper spiral sequence, the Andela Pulverizer will not work.

The proper fastener to use for attaching the hammer assemblies is a 3/8"- $16 \times 2 1/2$ " True Torque hex head bolt.

5. When finished replacing the hammer assemblies replace the access doors.

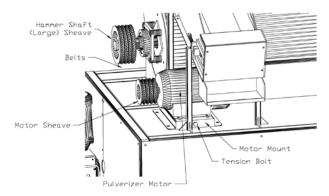
## PROCEDURE FOR DISASSEMBLING MACHINE FOR LINER OR SHAFT REPLACEMENT



### **SAFETY WARNING**

PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

- After the fusible disconnect has been locked out, the belt guard can be removed from the Andela Pulverizer. The pulley assembly and the shaft bearings are exposed.
- 2. De-tension belts by loosening the tension bolts on the motor mount. See figure below.



- 3. Turn the large Shaft sheave by hand and remove the belt.
- 4. Loosen the sheave assembly screws and remove the sheaves by loosening the bushings using one or two of the hex bolts for jack screws. Remove the sheave assemblies from the shafts, typical two places.
- Loosen the 4 bolt flange blocks on the shafts by loosening the setscrews.

- 6. The four bolts should be removed from the flange block and the units removed.
- 7. Remove the outer slinger seals, typical two places.
- 8. Remove the bulkhead by removing the bolts that hold it on around the periphery. The shaft will now be exposed and may be removed.
- 9. If the liner needs replacing, refer to liner section at right.
- 10. For replacing worn or missing hammer refer to paragraph 3 under "PROCEDURE FOR REPLACING HAMMER ASSEMBLIES"
- 11. Re-attach the wear plate, bulkhead, slinger seals, and bearings.
- 12. When attaching and tightening the sheaves assembly on the shaft, tighten cap screws progressively with torque wrench until each has been tightened as follows: for P bushing tighten to 192 in-lbs; for Q bushing tighten to 348 in-lbs. DO NOT OVERTIGHTEN OR SHEAVES MAY CRACK.
- 13. Fit the belt on sheave and adjust the motor mount to tension the belt. Check to see that there is no more than 1/4" play in the belt.
- 14. Make certain all bolts and fasteners are tight and secure before replacing guards.

#### **LINER**

The liner should be inspected for wear when performing maintenance on the hammer/link assembly, especially in the area under the infeed hopper. If the metal frame is exposed, that part of the liner should be replaced immediately.

Call Andela Products for information regarding the replacement of the barrel wear plate line.

### **Trommel**



#### **SAFETY WARNING**

PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

#### **BREAK-IN SERVICE**

After the first hour of use:

- 3. Check drive mechanism.
- 4. Check nuts, bolts and fasteners to see that they are secure.

#### On a regular basis:

1. Lubricate the bearings at least once per week.

#### **MOTOR / GEAR REDUCER**

REFER TO SPECIFIC
MANUFACTURER FOR
LUBRICATION SCHEDULES
AND INSTRUCTIONS

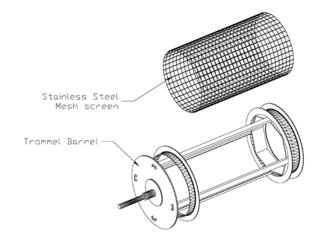
#### WIRE CLOTH AND BRUSH ASSEMBLIES

The wire cloth should be inspected after every 200 hours of use.

Check for any excessive debris adhering to the wire cloth and remove as necessary. Replace wire cloth sections as necessary if wire cloth becomes worn through. Check grease lines and replace any worn or broken lines. If replacing grease lines or pillow blocks, pump fresh grease into the lines.

#### REPLACE WIRE CLOTH

- 1. Open maintenance doors to expose the barrel assembly and screen.
- Remove screws that attach the wire cloth to the welded barrel assembly. See figure below.
- Remove worn wire cloth and replace with new wire cloth from Andela Tool & Machine Inc.



- 4. Replace new wire cloth by attaching one end of the screen to the starter strip. Wrap the screen around the barrel and hold in place with strapping.
- Reattach washers and screws to secure the wire cloth to the barrel assembly.
- 6. Close & secure maintenance doors.

#### **REPLACE CASTERS**



Turn OFF the fusible disconnect and place a lock in it. The key for the lock should be put in the possession of the person involved in doing the maintenance or his direct supervisor.

- 1. Open maintenance doors and remove side panel next to control panel.
- 2. Use appropriate lifting mechanism or jack placed on a firm base to raise the barrel assembly approximately 2" above the casters.
- Steady barrel assembly at this height with a fixed support placed under the barrels assembly and set on a firm base.
- 4. The casters are now free to rotate and be removed. Remove casters and replace with new caster assemblies and pillow block as required.
- 5. Inspect casters bolts and replace with new bolts as necessary.
- 6. Make sure grease lines are re-attached securely.
- 7. Use appropriate lifting mechanism, or jack placed on a firm base to support barrel assembly.
- 8. Remove fixed support and carefully lower barrel assembly until it rests on new casters.
- 9. Pump fresh grease into the pillow blocks.
- 10. Replace panel and close and secure maintenance doors.

#### **CONVEYOR DRIVE BELTS**

 Keep all belts tensioned properly by using the provided take up adjusters. Inspect drive belts every 150 hours for glazing or cracking. Always replace guards after inspection.

#### **CLEAN-OUT**

 Periodically during shift, check catch pan at bottom of conveyor. Empty this pan as needed.

#### **CONVEYOR CLEANING**

- Remove clean-out belly pan.
- Wash down conveyor and inspect for signs of damage and overload fatigue prior to each regular maintenance service.
   Always re-grease all lubrication points after wash down to displace any water or solvent that may have been forced into bearings by high pressure cleaning equipment.

## 5. Lubrication Schedule

PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

Use High Quality Lithium Grease Unless Otherwise Specified.

#### **MOTOR**

# REFER TO SPECIFIC MANUFACTURER FOR LUBRICATION SCHEDULES AND INSTRUCTIONS

#### **BEARINGS**

Lubricate the bearings at least once per week.

**CAUTION:** Keep grease clean. Lubricate motor at standstill. Remove and replace drain plugs at standstill. Do not mix petroleum grease and silicon grease in motor bearings.

#### **GEAR REDUCER**

# REFER TO SPECIFIC MANUFACTURER FOR LUBRICATION SCHEDULES AND INSTRUCTIONS

#### **Owner/ Operator Notes:**

## 6. Adjustments



PRIOR TO PERFORMING ANY OF THE FOLLOWING ADJUSTMENTS, THE MACHINE MUST BE TURNED OFF AND THE PROPER LOCK OUT AND TAG OUT PROCEDURE FOLLOWED.

#### **BELT TENSION ADJUSTMENT**

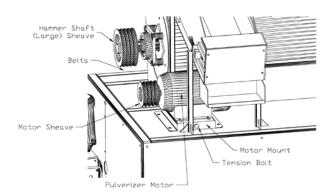
Check the condition of drive belts after every 300 hours of operation.

Use only industrial drive belts. Do not use automotive belts.

Do not over-tighten belts. Excessive tension can cause premature bearing and belt failure.

To remove or adjust the belt you must:

- 1. Remove belt guard cover.
- 2. De-tension belts by loosening the nuts on the motor mount.
- 3. Remove the drive belt by turning the large shaft sheave by hand and slipping the belts off. Inspect and replace the belts as needed.
- 4. Adjust the tension bolts to tighten the drive belts. Check to see that there is no more than 1/4" play in the drive belts.
- 5. Replace belt guard Cover.



#### **Owner/ Operator Notes:**

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## 7. Trouble Shooting Guide

#### START HERE FOR TROUBLE SHOOTING

#### 1. Excessive Vibration:

If the Pulverizer develops excessive vibration, turn off and disconnect from power. Follow maintenance procedure to inspect hammer assemblies for missing or broken hammers. If excessive vibrations continue, contact your distributor or Andela Tool & Machine, Inc.

#### 2. Material not flowing through the Pulverizer:

- Check to insure that the motors are rotating in the correct direction as indicated in the rotation drawing.
- Excessive amounts of plastic were processed with the glass and restricted the flow.

## 8. Installation

#### **GENERAL INFORMATION**

Qualified trained personnel certified by Andela Tool & Machine, Inc. should install the Andela Glass Pulverizer.

Proper safety procedures and adequate installation equipment should be used. A pallet jack, fork lift, or other lifting apparatus is required to position the machine because of weight.

When properly located, anchor equipment in place. Be sure all bolts and connection are secure and tight.

- Have a qualified electrician wire the control panel according to local & national codes.
- Position the glass and waste bins under trommel barrel.
- Make sure the conveyor catch tray is placed on the self at the bottom of the conveyor.

Equipment should be installed in accordance with the National Electric Code, local codes, and with NEMA, MG2, Safety Standards for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators.

#### WIRING

Connect the machine in accordance with furnished wiring diagrams. The wiring, fusing and grounding must be in accordance with the National Electrical code and any local codes.

When the machine is connected to the load for proper direction of rotation and started, it should start quickly and run smoothly. If this is not the case, immediately shut motor off and investigate the cause. The cause could be: low voltage, the motor

is improperly connected, or the load is too great, etc.

It is recommended that the motor current be checked after it has been operating a short time and compared against nameplate current.



When eyebolts are provided, they are intended only for lifting the motor and its motor accessories. Eyebolts must be fully tightened.

The Andela Pulverizer must be grounded in accordance with the National Electrical Code and any local code.

The machine should match the line voltage, line frequency, and the equipment load.

Do not bypass or render inoperative safeguard or protective devices.

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## 9. Suggested Scheduling

#### Inspection Schedule

Periodically during every shift

Empty catch pan located at end of conveyor.

#### 1st hour of use:

Inspect and re-tension belts. Check & secure all fasteners. Check trommel drive mechanism.

#### Every 100 hours:

Inspect & rotate hammers.
Inspect All wear plates & liners.

#### Every 200 hours:

Inspect wire cloth.
Inspect Casters
Inspect Belts and sheaves

#### Lubrication Schedule

#### Once a week:

Grease all bearings.

## 10. Warranty

#### **ANDELA GLASS PULVERIZER**

The Seller warrants each product of its own manufacture to be free from defects in material and workmanship under normal use and service for which it was intended if, but only if, it has been properly installed and operated. The Seller warrants this to the original Purchaser only, for a period of one (1) year from the date of shipment subject to the conditions outlined below.

This Warranty does not extend to the normal replacement of wear parts such as the hammer and link assemblies or connecting hardware or service parts such as belts, bearings, seals, paint, fuses and other parts which may have a wear/service life inherently shorter than the warranty period.

The Sellers obligation under this warranty is limited to replacing or repairing, free of charge, F.O.B. point of manufacture, any defective part or parts of the machine that were manufactured by the Seller which are returned to Seller at Richfield Springs, New York, provided that such part, or parts are returned to the Seller's factory not later than sixty (60) days after discovery of the defect. Transportation charges, duties and the cost of removal or installation of equipment or parts shall be borne by Purchaser. This shall be the limit of Seller's liability for any breach of warranty. Purchaser must notify Seller by registered mail or certified mail, return receipt requested, of a breach of warranty within thirty (30) days after discovery thereof, but not later than one (1) year after shipment; otherwise, such claims shall be deemed waived. No allowance will be granted for any repairs or alterations made by Purchaser without seller's prior written consent.

Seller does not warrant this machine to meet the requirements of any safety code of any state, municipality or other jurisdiction, and the Purchaser assumes all risk and liability whatsoever resulting from the use thereof, whether used singly or in combination with other machines or apparatus.

This warranty shall not apply to any Seller's machine, or parts thereof, which has been repaired or altered, without Seller's written consent, outside Seller's factory or altered in any way so as, in the judgment of Seller, to affect adversely the stability or reliability of the Seller's machine, or has been subject to misuse, negligence, or accident, or has not been operated in accordance with Seller's printed instructions or has been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for such machine.

Seller shall not be liable for any loss or damage resulting, directly or indirectly, from the use or loss of use of the machine. Without limiting the generality of the foregoing, this exclusion from liability embraces the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons, damages to property, and injury to or death of any persons who do not follow instructions in the Operators Manual. Seller shall not be held liable for any environmental damages resulting from any material processed by the machine since the machine does not add, delete or change in any way, the chemical properties of the material processed. Seller neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of the seller's machine, and there are no oral agreements or warranties collateral to or affecting this agreement.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND EXPRESSES OUR ENTIRE OBLIGATION AND LIABILITY WITH RESPECT TO SAID EQUIPMENT. WE EXPRESSLY DISCLAIM ALL LIABILITY FOR DAMAGES OF EVERY NATURE AND DESCRIPTION, IF ANY, SUSTAINED BY THE PURCHASER FROM DELAYS IN THE SHIPMENT AND DELIVERY OF EQUIPMENT, REPLACEMENT EQUIPMENT OR ANY REPLACEMENT PART, OR EQUIPMENT OR ANY PART THEREOF.

p/n: 23001012 Date: 08/21/08 Revision: A

## (Shall be required by the Department to submit a statement containing the following information on an annual basis)

(1) A complete list of all current members of the board of directors, all current corporate officers, all persons owning more than 20 percent of the applicant's stock or other resources, all subsidiary companies, parent companies and companies with which the applicant's company shares 2 or more directors; provided that, for initial permit applicants that have not been declared chronic violators only, the Department shall have discretion to determine how much of this information to require, based on the likely utility of the information balanced against the burden imposed by requiring it;

#### **BOARD OF DIRECTORS**

#### Officers of the Board

Colleen Morrone, President/CEO, Goodwill of Delaware and Delaware County

Chaney Hall, Board Chair, Fox Rothschild, LLP

Robin McKinney-Newman, Vice Chair

Kalimah White, Vice Chair, Key Private Bank

Tish Anshen, Board Treasurer, Retired

Theresa Jones, Secretary, Santora CPA Group

#### **Board of Directors**

Steve Blewitt, IFS Benefits, LLC

Alisha Bryson, Wayman Fire Protection, Inc.

**Douglas Clark, The Mallet Group** 

Amy Flynn

Markevis Gideon, NERDIT NOW

Logan Herring, REACH Riverside

Christopher R. Howland, U.S. Attorney's Office for the District of Columbia

Jeffrey T. Kaczmarczyk II, Blue Rock Financial Group

Kyle McLaughlin, J.C. Bar Properties, Inc.

Bonnie R. Rambo, Retired

**Dwayne M. Redd, State Farm Insurance Company** 

Lauren Russell, Potter Anderson & Corroon LLC

Karl Stukis, Diamond Technologies

#### **CORPORATE OFFICERS**

Colleen Morrone, President/CEO

(2) The names of the persons serving as the applicant's local chief operating officer with respect to each facility covered by the permit in question.

#### **Alex Vazquez, Chief Operating Officer**

(3) A description of all notices of violation, criminal citations, arrests, convictions, or civil or administrative penalties assessed against the applicant or any other person identified under paragraph (a)(1) or (2) of this section for the violation of any environmental statute, regulation, permit, license, approval or order, regardless of the state in which it occurred, for the 5 years prior to the date of the statement;

#### None

(4) A description of the disposition of any of the items identified pursuant to paragraph (a)(3) of this section and any actions that have been taken to correct the violations that led to such enforcement of actions.

#### None

(5) A description of any felony or other criminal conviction for a crime involving harm to the environment or violation of environmental standards of any person identified in paragraph (a)(1) or (2) of this section that resulted in a fine greater than \$1,000 or a sentence longer than 7 days, regardless of whether such fine or sentence was suspended;

#### None

(6) Copies of any and all settlements of environmental claims involving the applicant, whether or not such settlements were based on agreements where the applicant did not admit liability;

#### None

- (7) If the applicant has been designated as a chronic violator under § 7904 of this title, or has been found guilty, pled guilty, or pled no contest to any crime involving violation of environmental standards which resulted in serious physical injury or serious harm to the environment, a statement made under oath by the applicant's local chief operating officer with respect to the facilities covered by the permit, stating that:
- a. Disclosures made by the applicant under federal and state environmental statutes and regulations during the preceding calendar year have been, to the chief operating officer's knowledge, complete and accurate; and
- b. That the facility has implemented policies, programs, procedures, standards or systems reasonably designed, in light of the size, scope and nature of facility operations, to detect, deter and promptly correct any noncompliance with state environmental statutes and regulations.

The statement filed pursuant to this paragraph shall include an acknowledgement by the affiant that intentionally false statements submitted in compliance with this paragraph constitute criminal perjury as defined in §§ 1221 and 1222 of Title 11.

#### None

(8) If the applicant has been designated as a chronic violator under § 7904 of this title, a detailed written report from an independent inspector who has inspected the applicant's premises for the purpose of detecting potential safety and environmental hazards to employees and the surrounding community. The Secretary may waive the duty to submit a detailed written report upon a showing of good cause by the applicant. A showing by the applicant that the acts which caused it to be designated as a chronic violator did not jeopardize public health shall constitute "good cause" under this paragraph.

#### None



January 10, 2025

Ms. Colleen Morrone Goodwill of Delaware and Delaware County 300 E. Lea Boulevard Wilmington, DE 19802

Re: Environmental Impact Statement Coastal Zone Act Application

Dear Ms. Morrone,

Brownfield Science and Technology, Inc. (BSTI) is pleased to present the Environmental Impact Statement (EIS) associated with Goodwill of Delaware and Delaware County's (Goodwill DE) DNREC Coastal Zone Act application (CZA) regarding their glass recycling program (pulverizing) permitting. BSTI was retained by Goodwill of Delaware and Delaware County to assist with the completion of an EIS associated with the DNREC CZA Application. This document presents results of the EIS of Goodwill DE's operations conducted in accordance section 8.2 of the Title 7 Natural Resources & Environmental Control Delaware Administrative Code.

#### Title 7 Natural Resources & Environmental Control Delaware Administrative Code

#### **Section 8.2 Analysis**

8.2.1 Generation of Pollution: Total particulate matter (dust) emissions from glass pulverizing are estimated to be 0.0624 lbs/day based on 8 hours of operations. The dust emissions calculations were determined using EPA's AP-42 factor for stone crushing, as advised by Lindsay Rennie, DNREC DAQ. While these emissions values are minimal, it is anticipated that the dust emissions associated with the glass recycling operations will be below these values as we believe this process will be cleaner than rock-crushing activities, even with emission controls. The actual operating time of the glass pulverizer is expected to be 4 hours, one day per week, which totals

1.56 lbs. of annual emissions. These potential emissions would be generated within the interior of the facility. It is understood that Goodwill DE may operate the glass pulverizer for longer periods of time as the recycling program gets established. If the glass recycling operations were to increase by a magnitude of 4 (16 hours per week), the estimated dust emissions value would come to 6.24 lbs. annually. To substantially decrease emissions a misting system has been installed on the pulverizer machine. If the misting system malfunctions, all operations would cease until properly repaired. The pulverizer machine is powered by electricity (no petroleum utilized); therefore, no other air emissions are directly released from the operation.

The volume of dust emissions associated with the glass pulverizer is minimal. Furthermore, as the glass pulverizing machine will be operating inside a building, the environmental impact of the dust emissions on the Coastal Zone will be negligible.

8.2.2 Impact on Environmental Goals and Indicators: Environmental goals and indicators for Delaware's Coastal Zone were identified in the Recommendations of the Environmental Indicators Technical Advisory Committee (EITAC) report, March 1999. Given the scale of the recycling operation and extremely low levels of dust emissions inside the enclosed facility, it is highly unlikely this project will have a negative impact on the Coastal Zone environmental goals and indicators recommended by the EITAC.

<u>8.2.3 Destruction of Wetlands and Habitat</u>: Recycling operations will take place entirely within an existing facility in a developed area which has no direct impact on wetlands or habitats. Dust emissions inside the operating facility are highly unlikely to reach and adversely impact wetland flora and fauna.

8.2.4 Impact of Site Preparation on Watershed: The glass recycling operations will be operated inside an existing facility that is connected to a sanitary sewer and will not have any impact on the watershed in which the proposed project is located.

8.2.5 Effect on Water Resources: Effect of the facility operation on the quality and quantity of surface and groundwater resources is limited to normal use of a low volume of public water that



will be used for the operation of the dust suppression misting system. Wastewater discharges are not anticipated in association with the glass recycling activities.

8.2.6 Use of Water: To substantially prohibit dust, a misting system has been installed on the glass pulverizing machine. The misting will involve only the small volume of water required to suppress dust emissions, approximately 45 gallons over 8 hours of operation, and will not generate a wastewater stream that would require processing as the water will be absorbed into the glass.

8.2.7 Likelihood and Extent of Noise, Vibration, and Odor: Noise and vibration associated with the operation of the glass pulverizing machine will be contained within the interior of the facility and will not produce radiation, electromagnetic interference, or obnoxious odors. The noise level is below 85 decibels during regular operations.

<u>8.2.8 Effect on Threatened and Endangered Species</u>: The glass recycling operations inside the facility will have no effect on threatened or endangered species as defined by the regulations promulgated by the State or pursuant to the Federal Endangered Species Act.

8.2.9 Characteristics of Materials and Products: Glass will be pulverized into sand which contains modest concentrations of some metals, notably cadmium and lead. Documentation of the characteristics of this material, and the absence of any significant risk to human health, is attached (**Attachment 1, 2, and Table 1**). This recycled material poses no risk to the creation of smog, nor does it possess carcinogenic or mutagenic properties that would adversely impact the Coastal Zone.

#### **Findings and Conclusions**

Based on this information, the operation of the glass recycling facility, including generation of low levels of dust emissions which will be confined to the facility interior, will not have a negative environmental effect on the Coastal Zones, air, soil, or groundwater.



Please feel free to contact me directly with any questions or comments at (610) 593-5500, or via electronic mail at <a href="mailto:nsantella@bstiweb.com">nsantella@bstiweb.com</a>.

Thank you for your attention.

Sincerely,

Brownfield Science & Technology, Inc.

Nicholas Santella, Ph.D., P.G.

Principal Geochemist

NICHOLAS SANTELLA Reg. No. S4-0001297 CONTRACTOR OF DELAS SANTELLA Reg. No. S4-0001297 CONTRACTOR OF SESSIONAL GEO.

Attachments:

Attachment 1 – Eurofins Analytical Report – 410-189268-1

Attachment 2 – Composite Worker Soil Inputs

Table 1 – HSCA Screening Level Comparison Summary



## ATTACHMENT 1

Eurofins Analytical Report – 410-189268-1



#### PREPARED FOR

Attn: Fabiana Otero Goodwill 300 E. Lea Blvd Wilmington, Delaware 19802

#### **JOB DESCRIPTION**

Generated 10/16/2024 10:53:35 AM

Sand Testing for Metals

#### **JOB NUMBER**

410-189268-1

Eurofins Lancaster Laboratories Environment Testing, LLC 2425 New Holland Pike Lancaster PA 17601

# **Job Notes**

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

# **Authorization**

Generated 10/16/2024 10:53:35 AM

Authorized for release by Megan Moeller, Client Services Manager Megan.Moeller@et.eurofinsus.com (717)556-7261

# **Eurofins Lancaster Laboratories Environment Testing, LLC**

# **Compliance Statement**

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- · Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Mgw Worll

10/16/2024

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# **Definitions/Glossary**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

#### **Qualifiers**

M	leta	Is

NEG

POS

PQL

**PRES** 

QC

RER

RL RPD

TEF

TEQ

TNTC

Negative / Absent

Positive / Present

Presumptive

**Quality Control** 

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not
	applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is <
	the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
<b>\$</b>	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)

Eurofins Lancaster Laboratories Environment Testing, LLC

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# **Case Narrative**

Client: Goodwill Job ID: 410-189268-1

Project: Sand Testing for Metals

Job ID: 410-189268-1

# **Eurofins Lancaster Laboratories Environment**

Job Narrative 410-189268-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these
  situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise
  specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The sample was received on 9/23/2024 3:40 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.4°C.

#### **Receipt Exceptions**

The Chain-of-Custody (COC) was incomplete as received. The COC is missing the sample state, the sample collector name, the number of containers per sample, and the sample matrix. This does not meet regulatory requirements.

#### Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### **General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# **Detection Summary**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

# Client Sample ID: Recycled & Pulverized Glass

# Lab Sample ID: 410-189268-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	480		15	7.4	mg/Kg	2	₩	6020B	Total/NA
Antimony	1.7		0.15	0.060	mg/Kg	2	₩	6020B	Total/NA
Arsenic	1.7		0.30	0.10	mg/Kg	2	₽	6020B	Total/NA
Barium	30		0.30	0.14	mg/Kg	2	₩	6020B	Total/NA
Beryllium	0.034	J	0.075	0.018	mg/Kg	2	₩	6020B	Total/NA
Cadmium	2.4	F2 F1	0.075	0.030	mg/Kg	2	₩	6020B	Total/NA
Calcium	2600		30	15	mg/Kg	2	₩	6020B	Total/NA
Chromium	12		0.30	0.14	mg/Kg	2	₩	6020B	Total/NA
Cobalt	0.68		0.15	0.060	mg/Kg	2	₩	6020B	Total/NA
Copper	14		0.30	0.13	mg/Kg	2	₽	6020B	Total/NA
Iron	480	F1	15	6.9	mg/Kg	2	₩	6020B	Total/NA
Lead	120		0.75	0.28	mg/Kg	10	₩	6020B	Total/NA
Magnesium	310		7.5	3.7	mg/Kg	2	₽	6020B	Total/NA
Manganese	5.4		0.30	0.15	mg/Kg	2	₩	6020B	Total/NA
Nickel	0.87		0.30	0.14	mg/Kg	2	₽	6020B	Total/NA
Potassium	200		30	12	mg/Kg	2	₩	6020B	Total/NA
Selenium	0.34		0.30	0.075	mg/Kg	2	₩	6020B	Total/NA
Silver	0.64		0.075	0.030	mg/Kg	2	₩	6020B	Total/NA
Sodium	2000		37	18	mg/Kg	2	₩	6020B	Total/NA
Zinc	67	F2 F1	22	3.0	mg/Kg	2	₩	6020B	Total/NA
Vanadium	0.74		0.60	0.15	mg/Kg	2	₽	6020B	Total/NA
Mercury	0.035	J	0.058	0.019	mg/Kg	1	₽	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

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# **Client Sample Results**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

Client Sample ID: Recycled & Pulverized Glass

Lab Sample ID: 410-189268-1 Date Collected: 09/23/24 10:17 Matrix: Solid Date Received: 09/23/24 15:40 Percent Solids: 99.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	480		15	7.4	mg/Kg	<del>-</del>	09/24/24 21:00	10/12/24 13:27	2
Antimony	1.7		0.15	0.060	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Arsenic	1.7		0.30	0.10	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Barium	30		0.30	0.14	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Beryllium	0.034	J	0.075	0.018	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Cadmium	2.4	F2 F1	0.075	0.030	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Calcium	2600		30	15	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Chromium	12		0.30	0.14	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Cobalt	0.68		0.15	0.060	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Copper	14		0.30	0.13	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Iron	480	F1	15	6.9	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Lead	120		0.75	0.28	mg/Kg	₽	09/24/24 21:00	10/12/24 13:29	10
Magnesium	310		7.5	3.7	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Manganese	5.4		0.30	0.15	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Nickel	0.87		0.30	0.14	mg/Kg	₽	09/24/24 21:00	10/15/24 17:28	2
Potassium	200		30	12	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Selenium	0.34		0.30	0.075	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Silver	0.64		0.075	0.030	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Sodium	2000		37	18	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Γhallium	ND		0.075	0.029	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Zinc	67	F2 F1	22	3.0	mg/Kg	₽	09/24/24 21:00	10/12/24 13:27	2
Vanadium	0.74		0.60	0.15	mg/Kg	₩	09/24/24 21:00	10/12/24 13:27	2
Method: SW846 7471B - Mercury (	CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.035	J	0.058	0.019	mg/Kg	<u></u>	09/30/24 23:45	10/05/24 06:18	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	ND		0.46	0.16	mg/Kg	<u></u>	10/03/24 14:45	10/04/24 15:08	1
Percent Moisture (EPA Moisture)	0.4		1.0	1.0	%			09/24/24 07:10	1

# **QC Sample Results**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

# Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-555190/1-A ^2

**Matrix: Solid** Analysis Batch: 562524 Client Sample ID: Method Blank **Prep Type: Total/NA** 

Prep Batch: 555190

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Aluminum	ND		20	9.9	mg/Kg		09/24/24 21:00	10/12/24 13:23	
Antimony	ND		0.20	0.080	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Arsenic	ND		0.40	0.13	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Barium	ND		0.40	0.18	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Beryllium	ND		0.10	0.024	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Cadmium	ND		0.10	0.040	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Calcium	ND		40	20	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Chromium	ND		0.40	0.19	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Cobalt	ND		0.20	0.080	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Copper	ND		0.40	0.18	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Iron	ND		20	9.2	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Lead	ND		0.20	0.076	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Magnesium	ND		10	4.9	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Manganese	ND		0.40	0.20	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Nickel	ND		0.40	0.19	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Potassium	ND		40	16	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Selenium	ND		0.40	0.10	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Silver	ND		0.10	0.041	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Sodium	ND		50	24	mg/Kg		09/24/24 21:00	10/12/24 13:23	
Thallium	ND		0.10	0.039	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Zinc	ND		30	4.0	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
Vanadium	ND		0.80	0.20	mg/Kg		09/24/24 21:00	10/12/24 13:23	:
_									

Lab Sample ID: LCS 410-555190/2-A ^2

**Matrix: Solid** 

Analysis Batch: 562524

**Client Sample ID: Lab Control Sample** Prep Type: Total/NA **Prep Batch: 555190** 

Analysis Daton. 302324							i iep bat	Jaten. 333130
	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Aluminum	500	551		mg/Kg		110	83 - 119	
Antimony	10.0	10.8		mg/Kg		108	87 - 116	
Arsenic	50.0	54.8		mg/Kg		110	87 - 114	
Barium	50.0	56.5		mg/Kg		113	87 - 117	
Beryllium	5.00	5.50		mg/Kg		110	80 - 120	
Cadmium	5.00	5.59		mg/Kg		112	88 - 117	
Calcium	500	549		mg/Kg		110	84 - 119	
Chromium	50.0	55.3		mg/Kg		111	86 - 116	
Cobalt	50.0	55.3		mg/Kg		111	85 - 115	
Copper	50.0	54.9		mg/Kg		110	84 - 115	
Iron	500	560		mg/Kg		112	87 - 117	
Lead	5.00	5.71		mg/Kg		114	88 - 117	
Magnesium	500	555		mg/Kg		111	83 - 119	
Manganese	50.0	55.5		mg/Kg		111	87 - 116	
Nickel	50.0	55.8		mg/Kg		112	87 - 115	
Potassium	500	567		mg/Kg		113	83 - 118	
Selenium	10.0	11.4		mg/Kg		114	87 - 115	
Silver	5.00	5.75		mg/Kg		115	88 - 117	
Sodium	500	552		mg/Kg		110	81 - 120	
Thallium	10.0	11.1		mg/Kg		111	87 - 116	
Zinc	50.0	56.4		mg/Kg		113	86 - 116	

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Project/Site: Sand Testing for Metals

# Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 410-555190/2-A ^2

**Matrix: Solid** 

Client: Goodwill

Analysis Batch: 562524

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 555190

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits D Vanadium 50.0 55.4 86 - 115 mg/Kg 111

Lab Sample ID: 410-189268-1 MS

Matrix: Solid

Analysis Batch: 562524

Client Sample ID: Recycled & Pulverized Glass

Prep Type: Total/NA

Prep Batch: 555190

Analysis Batch: 562524									Prep Batch: 5551	J
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Aluminum	480		399	860		mg/Kg	₩	95	75 - 125	
Antimony	1.7		7.97	10.0		mg/Kg	₽	104	75 - 125	
Arsenic	1.7		39.9	45.7		mg/Kg	₽	110	75 - 125	
Barium	30		39.9	74.7		mg/Kg	₽	111	75 - 125	
Beryllium	0.034	J	3.99	4.35		mg/Kg	₽	108	75 - 125	
Cadmium	2.4	F2 F1	3.99	7.44	F1	mg/Kg	₩	127	75 - 125	
Calcium	2600		399	2210	4	mg/Kg	₽	-94	75 - 125	
Chromium	12		39.9	50.6		mg/Kg	₩	98	75 - 125	
Cobalt	0.68		39.9	44.5		mg/Kg	₩	110	75 - 125	
Copper	14		39.9	53.7		mg/Kg	₩	101	75 - 125	
Iron	480	F1	399	735	F1	mg/Kg	₽	65	75 - 125	
Magnesium	310		399	670		mg/Kg	₽	91	75 - 125	
Manganese	5.4		39.9	47.9		mg/Kg	₩	107	75 - 125	
Potassium	200		399	606		mg/Kg	₩	102	75 - 125	
Selenium	0.34		7.97	9.19		mg/Kg	₽	111	75 - 125	
Silver	0.64		3.99	5.00		mg/Kg	₩	109	75 - 125	
Sodium	2000		399	1750	4	mg/Kg	₩	-70	75 _ 125	
Thallium	ND		7.97	8.84		mg/Kg	₩	111	75 - 125	
Zinc	67	F2 F1	39.9	147	E F1	mg/Kg		201	75 - 125	
Vanadium	0.74		39.9	44.0		mg/Kg	₩	109	75 <sub>-</sub> 125	

Lab Sample ID: 410-189268-1 MS

**Matrix: Solid** 

Analysis Batch: 562524

Client Sample ID: Recycled & Pulverized Glass Prep Type: Total/NA

**Prep Batch: 555190** 

Sample Sample Spike MS MS Qualifier Added Result Qualifier Analyte Result Limits Unit %Rec Lead 120 3.99 76.5 4 -1165 75 - 125 mg/Kg

Lab Sample ID: 410-189268-1 MS

**Matrix: Solid** 

Analysis Batch: 563684

Client Sample ID: Recycled & Pulverized Glass

Prep Type: Total/NA

**Prep Batch: 555190** 

Sample Sample Spike MS MS %Rec Result Qualifier Added Result Qualifier %Rec Limits Analyte Unit D Nickel 0.87 39.9 41.8 103 75 - 125 mg/Kg

Lab Sample ID: 410-189268-1 MSD

**Matrix: Solid** 

Analysis Batch: 562524

Client Sample ID: Recycled & Pulverized Glass

Prep Type: Total/NA

**Prep Batch: 555190** 

MSD MSD RPD Sample Sample Spike %Rec Result Qualifier Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Aluminum 480 335 884 ₩ 120 75 - 125 mg/Kg Antimony 1.7 6.69 8.62 75 - 125 mg/Kg ₩ 103 15 20 Arsenic 1.7 33.5 39.6 mg/Kg 75 - 125 20

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Project/Site: Sand Testing for Metals

Client: Goodwill

Silver

Sodium

Thallium

Vanadium

Lab Sample ID: 410-189268-1 MSD

Zinc

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 410-189268-1 MSD Client Sample ID: Recycled & Pulverized Glass **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 562524 **Prep Batch: 555190** Sample Sample Spike MSD MSD %Rec **RPD** Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits **RPD** Limit 30 70.0 118 75 - 125 20 Barium 33.5 mg/Kg Ö Beryllium 0.034 3.35 3.76 mg/Kg ₽ 111 75 - 125 14 20 Cadmium F2 F1 3.35 75 - 125 2.4 6.01 F2 mg/Kg ď 109 21 20 Calcium 2600 335 1870 4 -213 75 - 125 17 20 mg/Kg ₽ Chromium 33.5 46.0 103 75 - 125 20 12 mg/Kg Ö 10 Cobalt 0.68 33.5 38.3 mg/Kg ₽ 112 75 - 125 15 20 14 33.5 49.0 106 75 - 125 9 Copper mg/Kg ₩ 20 Iron 480 335 708 F1 mg/Kg ₽ 69 75 - 125 4 20 Magnesium 310 335 584 mg/Kg ₽ 83 75 - 125 14 20 Manganese 5.4 33.5 41.7 mg/Kg ₩ 108 75 - 125 14 20 335 Potassium 200 569 mg/Kg ₽ 110 75 - 125 6 20 6.69 75 - 125 Selenium 0.34 7.86 mg/Kg ₩ 112 16 20

Lab Sample ID: 410-189268-1 MSD Client Sample ID: Recycled & Pulverized Glass **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 562524 **Prep Batch: 555190** MSD MSD RPD Sample Sample Spike %Rec

4.30

7.51

38.0

1760 4

101 F2

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

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109

-81

112

101

111

Client Sample ID: Recycled & Pulverized Glass

75 - 125

75 - 125

75 - 125

75 - 125

75 - 125

15

0

16

37

15

10/16/2024

20

20

20

20

3.35

335

6.69

33.5

33.5

0.64

2000

ND

0.74

F2 F1 67

Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit 120 3.35 88.0 -1043 Lead 4 mg/Kg 75 - 125

**Matrix: Solid** Prep Type: Total/NA Analysis Batch: 563684 **Prep Batch: 555190** Sample Sample Spike MSD MSD %Rec RPD Result Qualifier Added Qualifier Limit Analyte Result Unit D %Rec Limits Nickel 0.87 33.5 35.3 103 75 - 125 20

Lab Sample ID: 410-189268-1 DU Client Sample ID: Recycled & Pulverized Glass **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 562524 **Prep Batch: 555190** 

RPD 26 39 49	20 20
26 39	20 20
39	20
49	
	20
33	20
23	20
23	20
42	20
45	20
77	20
48	20
41	20
37	20
	23 23 42 45 77 48

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Project/Site: Sand Testing for Metals

Client: Goodwill

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 410-189268-1 DU Client Sample ID: Recycled & Pulverized Glass **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 562524 Prep Batch: 555190

	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Manganese	5.4		3.86	F3	mg/Kg	<u></u>	34	20
Potassium	200		138	F3	mg/Kg		37	20
Selenium	0.34		0.179	JF5	mg/Kg	₽	61	20
Silver	0.64		0.313	F3	mg/Kg		69	20
Sodium	2000		1350	F3	mg/Kg	₽	41	20
Thallium	ND		ND		mg/Kg	₽	NC	20
Zinc	67	F2 F1	46.3	F5	mg/Kg		37	20
Vanadium	0.74		0.486	J F5	mg/Kg	<b>‡</b>	41	20

Lab Sample ID: 410-189268-1 DU Client Sample ID: Recycled & Pulverized Glass Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 562524

**Prep Batch: 555190** Sample Sample DU DU Limit Result Qualifier Result Qualifier Analyte Unit Lead 120 82.5 F3 20 mg/Kg

Lab Sample ID: 410-189268-1 DU Client Sample ID: Recycled & Pulverized Glass Prep Type: Total/NA

**Matrix: Solid** 

Analysis Batch: 563684							Prep Batch: 5	55190
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Nickel	0.87		 0.616	F5	mg/Kg	₩	34	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 410-554707/1-A

**Matrix: Solid** 

Analysis Batch: 559823

MB MB

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.060	0.020	mg/Kg		09/30/24 23:45	10/05/24 06:14	1
_									

Lab Sample ID: LCS 410-554707/2-A **Client Sample ID: Lab Control Sample Matrix: Solid** Prep Type: Total/NA Analysis Batch: 559823 Prep Batch: 554707

LCS LCS Spike %Rec Analyte Added Result Qualifier %Rec Unit Mercury 0.167 0.198 118 80 - 120 mg/Kg

Lab Sample ID: 410-189268-1 MS Client Sample ID: Recycled & Pulverized Glass

**Matrix: Solid** 

Analysis Batch: 559823									Prep	Batch: 554707
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Mercury	0.035	J	0.162	0.192		mg/Kg	<u></u>	97	80 - 120	

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Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 554707

Prep Type: Total/NA

80 - 120

Client Sample ID: Recycled & Pulverized Glass

Project/Site: Sand Testing for Metals

Lab Sample ID: 410-189268-1 MS

Client: Goodwill

Mercury

Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: 410-189268-1 MSD						Client	Sample	ID: Re	cycled & F	ulverized	Glass
Matrix: Solid									•	p Type: To	
Analysis Batch: 559823									Pre	p Batch: 5	54707
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit

0.191

mg/Kg

Lab Sample ID: 410-189268-1 DU Matrix: Solid Analysis Batch: 559823	Sample	Sample	DI.I	DU	Client Sa	imple ID: F	Recycled & Pulverized Prep Type: To Prep Batch: 5	tal/NA
	•	•						
Analyte I	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Mercury	0.035	J	0.0218	J F5	mg/Kg	<b>#</b>	46	20

0.165

Method: 9012B - Cyanide, Total andor Amenable

0.035 J

Lab Sample ID: MB 410-559048/2-A							Client Sa	mple ID: Metho	d Blank
Matrix: Solid								Prep Type:	Total/NA
Analysis Batch: 560062								Prep Batch	: 559048
	МВ	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide Total	ND		0.50	0.18	ma/Ka		10/03/24 14:45	10/04/24 14:53	

Lab Sample ID: LCS 410-559048/1-A						Client Sample ID: Lab Control Sample				
Matrix: Solid							Prep	Type: Total/NA		
Analysis Batch: 560062							Prep	Batch: 559048		
	Spike	LCS	LCS				%Rec			
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits			
Cyanide, Total	5.00	5.55		mg/Kg		111	85 - 115			

Matrix. Soliu									riepi	iype. iotai/iv	^
Analysis Batch: 560062									Prep I	Batch: 55904	8
	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Cyanide, Total	ND		4.83	4.80		mg/Kg	<u></u>	99	45 - 145		_

Lab Sample ID: 410-189268-1 MSD						Client Sa	mple	ID: Recy	cled & Pul	lverized	Glass
Matrix: Solid									Prep 1	Type: To	tal/NA
Analysis Batch: 560062									Prep l	Batch: 5	<b>59048</b>
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Cyanide, Total	ND		4.85	5.89		mg/Kg	— <u>—</u>	121	45 - 145	20	20

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Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

#### **Metals**

Prep	Batc	h: 55	4707
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Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	7471B	
MB 410-554707/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 410-554707/2-A	Lab Control Sample	Total/NA	Solid	7471B	
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	7471B	
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	7471B	
410-189268-1 DU	Recycled & Pulverized Glass	Total/NA	Solid	7471B	

# Prep Batch: 555190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	3050B	
MB 410-555190/1-A ^2	Method Blank	Total/NA	Solid	3050B	
LCS 410-555190/2-A ^2	Lab Control Sample	Total/NA	Solid	3050B	
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	3050B	
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	3050B	
410-189268-1 DU	Recycled & Pulverized Glass	Total/NA	Solid	3050B	

## Analysis Batch: 559823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	7471B	554707
MB 410-554707/1-A	Method Blank	Total/NA	Solid	7471B	554707
LCS 410-554707/2-A	Lab Control Sample	Total/NA	Solid	7471B	554707
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	7471B	554707
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	7471B	554707
410-189268-1 DU	Recycled & Pulverized Glass	Total/NA	Solid	7471B	554707

## Analysis Batch: 562524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
MB 410-555190/1-A ^2	Method Blank	Total/NA	Solid	6020B	555190
LCS 410-555190/2-A ^2	Lab Control Sample	Total/NA	Solid	6020B	555190
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 DU	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 DU	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190

## Analysis Batch: 563684

Lab Sample ID 410-189268-1	Client Sample ID  Recycled & Pulverized Glass	Prep Type Total/NA	Matrix Solid	Method 6020B	Prep Batch 555190
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190
410-189268-1 DU	Recycled & Pulverized Glass	Total/NA	Solid	6020B	555190

# **General Chemistry**

## Analysis Batch: 554752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	Moisture	

# **QC Association Summary**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

# **General Chemistry**

# Prep Batch: 559048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	9012B	
MB 410-559048/2-A	Method Blank	Total/NA	Solid	9012B	
LCS 410-559048/1-A	Lab Control Sample	Total/NA	Solid	9012B	
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	9012B	
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	9012B	

## Analysis Batch: 560062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-189268-1	Recycled & Pulverized Glass	Total/NA	Solid	9012B	559048
MB 410-559048/2-A	Method Blank	Total/NA	Solid	9012B	559048
LCS 410-559048/1-A	Lab Control Sample	Total/NA	Solid	9012B	559048
410-189268-1 MS	Recycled & Pulverized Glass	Total/NA	Solid	9012B	559048
410-189268-1 MSD	Recycled & Pulverized Glass	Total/NA	Solid	9012B	559048

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#### Lab Chronicle

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

Client Sample ID: Recycled & Pulverized Glass

Lab Sample ID: 410-189268-1 Date Collected: 09/23/24 10:17 Matrix: Solid

Date Received: 09/23/24 15:40

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	Moisture		1	554752	E5GC	ELLE	09/24/24 07:10

Client Sample ID: Recycled & Pulverized Glass

Lab Sample ID: 410-189268-1 Date Collected: 09/23/24 10:17 Matrix: Solid Percent Solids: 99.6

Date Received: 09/23/24 15:40

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Prep	3050B			555190	UAMX	ELLE	09/24/24 21:00
Total/NA	Analysis	6020B		2	562524	F7JF	ELLE	10/12/24 13:27
Total/NA	Prep	3050B			555190	UAMX	ELLE	09/24/24 21:00
Total/NA	Analysis	6020B		10	562524	F7JF	ELLE	10/12/24 13:29
Total/NA	Prep	3050B			555190	UAMX	ELLE	09/24/24 21:00
Total/NA	Analysis	6020B		2	563684	F7JF	ELLE	10/15/24 17:28
Total/NA	Prep	7471B			554707	UAMX	ELLE	09/30/24 23:45
Total/NA	Analysis	7471B		1	559823	X3ZX	ELLE	10/05/24 06:18
Total/NA	Prep	9012B			559048	NLE3	ELLE	10/03/24 14:45 - 10/03/24 16:30
Total/NA	Analysis	9012B		1	560062	UJE2	ELLE	10/04/24 15:08

This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Project/Site: Sand Testing for Metals

Client: Goodwill

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-25
California	State	2792	11-30-24
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-25
lowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-24
Kentucky (DW)	State	KY90088	12-31-24
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-24
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-24
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-25
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-25
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24 *
Oregon	NELAP	9804 PA200001	09-11-25
Pennsylvania	NELAP	36-00037	01-31-25
Quebec Ministry of Environment and Fight	PALA	507	09-16-29
against Climate Change	IALA	301	03-10 <b>-</b> 23
Rhode Island	State	LAO00338	12-30-24
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-25
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-24
Virginia	NELAP	460182	06-14-25
Virginia Washington			

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins Lancaster Laboratories Environment Testing, LLC

10/16/2024

# **Accreditation/Certification Summary**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

# **Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)**

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-31-25
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-24

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# **Method Summary**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	ELLE
7471B	Mercury (CVAA)	SW846	ELLE
9012B	Cyanide, Total andor Amenable	SW846	ELLE
Moisture	Percent Moisture	EPA	ELLE
3050B	Preparation, Metals	SW846	ELLE
7471B	Preparation, Mercury	SW846	ELLE
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	ELLE

#### **Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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# **Sample Summary**

Client: Goodwill Job ID: 410-189268-1

Project/Site: Sand Testing for Metals

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-189268-1	Recycled & Pulverized Glass	Solid	09/23/24 10:17	09/23/24 15:40

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# ironme

# **Chain of Custody Record**

eurofins		
	<b>Environment Testi</b>	ne

410-189268 Chain of Custody	Sampler				ь РМ						Сап	er Trackir	ng No(s)		_	COC No	
					oeller,	Meg	an									410-131942-37423.1	
Alent Contact Fabiana Otero	Phone:				Mail egan N	Vioel	er@et.	eurofins	us.com		State	of Origin	1.			Page 1 of 1	
Company: Goodwill			PWSID						Analy	sis R	eques	sted				# doL	
uddress:	Due Date Request	ed:														Preservation Codes:	
300 E. Lea Bivd					-11			1							-	N - None	
aty: Milmington	TAT Requested (d	nys):															
State, Zip: DE, 19802	Compliance Project	t: A Yes	A No.		-	70										A .	
Phone:	PO#				-11											1	
302-252-3210(Tel)	Advance Payme	ent Required	1		9						-						
mail:	WO #:				es or No	8									100	1	
otero@goodwillde.org	Project #					2									10	4	
Sand Testing for Metals	41021662				٤	0	So				1		1 1		=	A .	
Site:	SSOW#:				[8]	13	2								containers	Other:	
51(4).	330***				Sam	OSI	9012B, Moisture								ofc	Other.	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)		Field Filtered	Perform MS/I	6020B, 7471B,								Total Number	Special instructions/No	ote:
			Preserva	tion Code		$\Delta$	N								X		
Recycled & Pulvenzed Glass	9/23	10:179					X										
					$\perp \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$		4		_		_						
					$\dashv$		_				+			_			
					$\dashv$	-	_	++	-	$\vdash$	+	-	+	_	-		
					+			++	-		+	-	-				
					+	$\vdash$	-	+			+		+				
					+	$\vdash$	+		-	$\vdash$	+		+				
					+	$\vdash$	-	+			+		+	_			
					$\dashv$	$\vdash$	-	+-+			+						
Possible Hazard Identification						Sam	ple Dis	sposal	( A fee	may be	e asse	ssed if	sample	s are r	etain	led longer than 1 month)	
Non-Hazard Flammable Skin Irritant Pois	on B	, CWD	Radiological				Retur	m To C	liont		Diana	sal By	lah		Acet		
Deliverable Requested: I, II, III, IV, Other (specify)	on a Unkn	OWII I	Radiological							- in	UISPO	sai by i	LdD		Arch	nive For Months	
Deliverable Requested: I, II, III, IV, Other (specify)						spe	uai inst	uction	s/QC Re	equiren	ients.						
Empty Kit Relinquished by:		Date:			Tin							Method	of Shipme	ent;			
Relinquished by:	Date/Time: 9 /	23 10	:174	Company	vill D	)E	Received	2	[	2			Date/	Z3	1	4 1017 Company	子
Relinquished by	Date/1723	24 19	1179	Company	LE		Received		_				Date/	Time: C	′	Company	-
Relinquished by:	Date/Time:			Company		_	Recaived	MA	()	40	)		Page/	23/	21	+ 1540 complete	H
Custody Seals Intact: Custody Seal No.:						0	Coole Te	pperalu	re(s)	nd Other	Remark	(5:	7 -		11		

/06/2024

# **Login Sample Receipt Checklist**

Client: Cash in Advance (Lancaster)

Job Number: 410-189268-1

Login Number: 189268

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1 Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable, where thermal pres is required( =6C, not frozen).</td <td>True</td> <td></td>	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable, where thermal pres is required ( =6C, not frozen).</td <td>N/A</td> <td></td>	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	N/A	Not present.
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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# **ATTACHMENT 2**

Composite Worker Soil Inputs



# Site-specific Risk Composite Worker Soil Inputs

Variable	Composite Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
$F(x)$ (function dependent on $U_{m}/U_{m}$ ) unitless	0.194	0.194
n (total soil porosity) L/L/L	0.43396	0.43396
p, (dry soil bulk density) g/cm <sup>3</sup>	1.5	1.5
p, (dry soil bulk density - mass limit) g/cm <sup>3</sup>	1.5	1.5
PEF (particulate emission factor) m ³/kg	1359344438	1359344438
p <sub>e</sub> (soil particle density) g/cm <sup>3</sup>	2.65	2.65
Q/C <sub>wind</sub> (g/m <sup>2</sup> -s per kg/m <sup>3</sup> )	93.77	93.77
Q/C <sub>uni</sub> (g/m²-s per kg/m³)	68.18	68.18
Q/C <sub>uni</sub> (g/m <sup>2</sup> -s per kg/m <sup>3</sup> - mass limit)	68.18	68.18
A (PEF acres)	0.5	0.5
A <sub>c</sub> (VF acres)	0.5	0.5
A <sub>c</sub> (VF mass-limit acres)	0.5	0.5
AF (skin adherence factor - composite worker) mg/cm	<sup>2</sup> 0.12	0.12
AT (averaging time - composite worker)	365	365
BW (body weight - composite worker)	80	80
ED <sub>com</sub> (exposure duration - composite worker) yr	25	25

Output generated 31OCT2024:18:08:34

# Site-specific Risk Composite Worker Soil Inputs

Variable	Composite Worker Soil Default Value	Site-Specific Value
EF (exposure frequency - composite worker) day/yr	250	250
ET <sub>com</sub> (exposure time - composite worker) hr	8	8
IRS (soil ingestion rate - composite worker) mg/day	100	100
LT (lifetime) yr	70	70
SA <sub>com</sub> (surface area - composite worker) cm <sup>2</sup> /day	3527	3527
T <sub></sub> (groundwater temperature) Celsius	25	25
Theta (air-filled soil porosity) L / /L coil	0.28396	0.28396
Theta (water-filled soil porosity) L (water-filled soil porosity) L	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U <sub>m</sub> (mean annual wind speed) m/s	4.69	4.69
U, (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

# Site-specific Risk

Composite Worker for Soil

Key: IC = IRIS Current; IA = IRIS Archive; PC = PPRTV Current; PA = PPRTV Archive; O = OPP; AF = ATSDR Final; AD = ATSDR Draft; C = Cal EPA; XC = PPRTV Screening Level Current; XA = PPRTV Screening Level Archive; HC = HEAST Current; HA = HEAST Archive; D = OW; W = TEF applied; E = RPF applied; SU = Surrogate;

Chemical	CAS Number	Category	Mutagen?	VOC?	RfD (mg/kg-dav)		SF <sub>°</sub> (mg/kg-day) <sup>-1</sup>	SF Ref	_	IUR Ref	ABS	ABS	Volatilization Factor Unlimited Reservoir (m³/kg)
Cadmium (Diet)			No	No	1.00E-04	1.00E-05	-				0.025	0.001	-
*Total Risk/HI					-	-	-		_		-	-	-

Volatilization Factor	Volatilization Factor		Particulate Emission	Soil Saturation		Henry's Law	H` and	Henry's Law Constant Used in	Normal Boiling Point		Critical Temperature	
<b>Mass Limit</b>	Selected		Factor	Concentration	HLC	Constant	HLC	Calcs	BP	BP	T_\	T <sub>C</sub> \
(m³/kg)	(m³/kg)	DA	(m³/kg)	(mg/kg)	(atm-m <sup>3</sup> /mole)	(unitless)	Ref	(unitless)	(K)	Ref	(K)	Ref
-	-	-	1.36E+09	-	-	-		-	1.04E+03	PHYSPROP	2.29E+03	YAWS
_	_	_	_	_	_	_		_	_		_	

D <sub>ia</sub> \ (cm²/s)	D <sub>iw</sub> \ (cm²/s)	Soil Concentration (mg/kg)	Ingestion Noncarcinogenic CDI (mg/kg-day)	Dermal Noncarcinogenic CDI (mg/kg-day)	Inhalation Noncarcinogenic CDI (mg/m³)	Ingestion Carcinogenic CDI (mg/kg-day)	Dermal Carcinogenic CDI (mg/kg-day)	Inhalation Carcinogenic CDI (ug/m³)	Ingestion HQ
1.59E-01	3.27E-05	2.4	2.05E-06	8.70E-09	4.03E-10	7.34E-07	3.11E-09	1.44E-07	2.05E-02
-	-	-	-	-	-	-	-	-	2.05E-02

Dermal HQ	Inhalation HQ	Total HI	Ingestion Risk	Dermal Risk	Inhalation Risk	Total Risk
3.48E-03	4.03E-05	2.41E-02	-	-	2.59E-10	2.59E-10
3.48E-03	4.03E-05	2.41E-02	-	-	2.59E-10	2.59E-10

# Site-specific Risk

# Composite Worker for Soil - Percent Contribution to Total Risk by:

Chemical	Ingestion HQ		Inhalation HQ	Total HI		Dermal Risk		Total Risk
Cadmium (Diet)	85.38%	14.45%	0.17%	100.0%	-	-	100.0%	100.0%
*Total Risk/HI Percent	85.38%	14.45%	0.17%	100.0%	-	-	100.0%	100.0%

# TABLE 1 HSCA Screening Level Comparison Summary



Table 1
HSCA Screening Level Comparison Summary

	DE HSCA	DE HSCA	DE HSCA	DE HSCA	Recycled & 1	Pulveri	zed Glass
	Soil	ESL	ESL	ESL	410-1	89268	-1
	Screening	Sediment	Sediment	Surface	09/23/20	24 10:	17:00
	Levels	Fresh Water	Marine	Soil	S	Solid	
Analyte	Oct 2024	Oct 2024	Oct 2024	Oct 2024	Result	Q	MDL
Metals by Method 602	20B/3050B						
Aluminum	51200	NS	NS	NS	480		7.4
Antimony	3.1	2	NS	5	1.7		0.060
Arsenic	11	9.8	7.24	10	1.7		0.10
Barium	1500	NS	NS	283	30		0.14
Beryllium	16	NS	NS	10	0.034	J	0.018
Cadmium	0.71	0.99	0.68	3	2.4	F2 F1	0.030
Calcium	NS	NS	NS	NS	2600		15
Chromium	214	43.4	52.3	0.4	12		0.14
Cobalt	34	50	NS	20	0.68		0.060
Copper	310	31.6	18.7	50	14		0.13
Iron	74767	20000	NS	NS	480	F1	6.9
Lead	200	35.8	30.2	41	120		0.28
Magnesium	NS	NS	NS	NS	310		3.7
Manganese	2100	460	NS	NS	5.4		0.15
Nickel	140	22.7	15.9	30	0.87		0.14
Potassium	NS	NS	NS	NS	200		12
Selenium	39	2	NS	0.2	0.34		0.075
Silver	39	1	0.73	2	0.64		0.030
Sodium	NS	NS	NS	NS	2000		18
Thallium	0.078	NS	NS	1	ND	U	0.029
Vanadium	134	NS	NS	2	0.74		0.15
Zinc	2300	121	124	8.5	67	F2 F1	3.0
Mercury by Method 7	471B/7471B						
Mercury	1.1	0.18	0.13	0.0005	0.035	J	0.019
Cyanide by Method 9	012B/9012B						
Cyanide, Total	2.3	0.1	NS	NS	ND	U	0.16

#### Notes:

- 1) **Bold Font** indicates the compound was detected in the sample.
- 2) All sample results and screening levels are reported in units of milligrams per kilogram (mg/kg).
- 3) Exceeds October 2024 Delaware (DE) Hazardous Substance Cleanup Act (HSCA) Soil Screening Level.
- 4) Exceeds October 2024 DE HSCA Ecological Screening Level (ESL) for Sediment Fresh Water.
- 5) Exceeds October 2024 DE HSCA ESL for Sediment Marine.
- 6) Exceeds October 2024 DE HSCA ESL for Surface Soil.
- 7) F1 Indicates the matrix spike and/or matrix spike duplicate (MS and/or MSD) recovery exceeds control limits.
- 8) F2 Indicates the MS/MSD relative percent difference (RPD) exceeds control limits.
- 9) J Indicates the result is greater than or equal to the method detection limit (MDL), but less than the reporting limit (RL). The concentration is an approximate value.
- 10) U Indicates the compound was analyzed for, but was not detected in the given sample.
- 11) The compound was not detected in the given sample. However, the MDL was reported at a value greater than one or more applicable screening levels.



**Eurofins Lancaster Laboratories Environment Testing, LLC** 

Lab Job ID: 410-189268-1

**Job Description: Sand Testing for Metals** 

For: Goodwill 300 E. Lea Blvd

Wilmington, Delaware 19802

Client ID	DE HSCA	Recycled &	Pulv	erized Glass	
Lab Sample ID	Screening Levels		41	0-189268-1	
Sampling Date	Soils	09/2	09/23/2024 10:17		
Matrix	Nov 2023			Solid	
Unit					
		Result	Q	MDL	
SOLID BY 6020B/3050B(MG/KG)					
Aluminum	51200	480		7.4	
Antimony	3.1	1.7		0.060	
Arsenic	11	1.7		0.10	
Barium	1500	30		0.14	
Beryllium	16	0.034	J	0.018	
Cadmium	0.71	2.4	2 F1	0.030	
Calcium	NA	2600		15	
Chromium	214	12		0.14	
Cobalt	34	0.68		0.060	
Copper	310	14		0.13	
Iron	74767	480	F1	6.9	
Lead	400	120		0.28	
Magnesium	NA	310		3.7	
Manganese	2100	5.4		0.15	
Nickel	150	0.87		0.14	
Potassium	NA	200		12	
Selenium	39	0.34		0.075	
Silver	39	0.64		0.030	
Sodium	NA	2000		18	
Thallium	0.078	ND	U	0.029	
Vanadium	134	0.74		0.15	
Zinc	2300	67	2 F1	3.0	
SOLID BY 7471B/7471B_PREP(MG/KG)					

Highlighted Concentrations shown in bold type face exceed limits

F1: MS and/or MSD recovery exceeds control limits.

F2: MS/MSD RPD exceeds control limits

J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

1.1

0.035

0.019

 $\ensuremath{\mathsf{U}}$  : Indicates the analyte was analyzed for but not detected.

Lab Contact: Megan Moeller Client Services Manager (717)556-7261

Mercury

**Eurofins Lancaster Laboratories Environment Testing, LLC** 

Lab Job ID: 410-189268-1

**Job Description: Sand Testing for Metals** 

For: Goodwill 300 E. Lea Blvd

Wilmington, Delaware 19802

Client ID	DE HSCA	Recycled & Pulverized Glass
Lab Sample ID	Screening Levels	410-189268-1
Sampling Date	Soils	09/23/2024 10:17:00
Matrix	Nov 2023	Solid
Unit		
		Result Q MDL

**Eurofins Lancaster Laboratories Environment Testing, LLC** 

Lab Job ID: 410-189268-1

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For: Goodwill 300 E. Lea Blvd

Wilmington, Delaware 19802

Client ID	DE HSCA	Recycled & Pulverized Glas		
Lab Sample ID	Screening Levels	410-189268		.0-189268-1
Sampling Date	Soils	09/23/2024 10:17:		24 10:17:00
Matrix	Nov 2023	Soli		Solid
		Result	Q	MDL
SOLID BY 9012B/9012B_PREP				
Cyanide, Total (mg/kg)	2.3	ND	U	0.16

U : Indicates the analyte was analyzed for but not detected.

Lab Contact: Megan Moeller Client Services Manager (717)556-7261

# **4.9** Project Timeline

Date	Stage	Description
10/2024	Permit Process	Goodwill submitted the application for Air Quality Registration to the Division of Air Quality
11/2024	Permit Process	Goodwill submitted the application for the Coastal Zone Act Permit to the Division of Climate, Coastal, & Energy
Ongoing	Permit Process	Goodwill in progress of completing the Recycling Permit application to the Division of Waste and Hazardous Substances
Q1, 2025	Approval	Anticipated approval of the above permits and registration.
Q1-Q2, 2025	Secure Buyer	Goodwill to secure a buyer by mid-year of 2025
Q2-Q3, 2025	Production	Goodwill to begin production of pulverizing glass/ceramic per requirements of the buyer, within the regulations of the State

# Recycling Permit, DNREC Division of Waste

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# Coastal Zone Act Permit, DNREC Delaware Coastal Programs

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# Air Quality Registration, DNREC Division of Air Quality

Amy Mann, Program Administrator, Amy. Mann@delaware.gov

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# Recycling Permit, DNREC Regulatory Advisory Service

Leslie Reese, DNREC Chief of Staff, leslie.reese@delaware.gov

Michelle Jacobs, Small Business Ombudsman, michelle.jacobs@delaware.gov

PM Crushing x / teny = .0012 lb/hr .0012 lb/x 1 ton/hr = .0022 lb/hr Sweening /ton x 1 ton/hr = .0022 lb/hr

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE

PM-25 rushing PROCESSING OPERATIONS (16/Ton)2
16/10007 16/100 = 100007 16/10

11-20 ,00007 b/	ton x	tn/no.	- ,0	0007 (	6/Ar	
Source b	Total	EMISSION	Total	EMISSION	Total	EMISSION
	Particulate	FACTOR	PM-10	FACTOR	PM-2.5	FACTOR
	Matter r,s	RATING		RATING		RATING
Primary Crushing	ND		$ND^n$		$ND^n$	
(SCC 3-05-020-01)			B			
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND <sup>n</sup>	£	ND <sup>n</sup>	
Secondary Crushing (SCC 3-05-020-02)	ND		$ND^n$		$ND^n$	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND <sup>n</sup>		ND <sup>n</sup>	
Tertiary Crushing (SCC 3-050030-03)	0.0054 <sup>d</sup>	E	0.0024°	С	$ND^n$	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012 <sup>d</sup>	E	0.00054 <sup>p</sup>	С	0.00010 <sup>q</sup>	Е
Fines Crushing (SCC 3-05-020-05)	0.0390 <sup>e</sup>	E	0.0150 <sup>e</sup>	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030 <sup>f</sup>	Е	0.0012 <sup>f</sup>	Е	0.000070 <sup>q</sup>	E
Screening (SCC 3-05-020-02, 03)	0.025°	Е	0.0087 <sup>1</sup>	С	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022 <sup>d</sup>	E	0.00074 <sup>m</sup>	С	0.000050 <sup>q</sup>	Е
Fines Screening (SCC 3-05-020-21)	0.30 <sup>g</sup>	E	0.072 <sup>g</sup>	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036 <sup>g</sup>	E	0.0022 <sup>g</sup>	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030 <sup>h</sup>	E	0.00110 <sup>h</sup>	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014	Е	4.6 x 10 <sup>-5i</sup>	D	1.3 x 10 <sup>-5q</sup>	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0 x 10 <sup>-5j</sup>	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6 x 10 <sup>-5j</sup>	Е	ND	
Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010 <sup>k</sup>	Е	ND	

- a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.
- b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.
- c. References 1, 3, 7, and 8
- d. References 3, 7, and 8

Andela Estimated Sand Production for GP-MM		lbs/hr ton/hr
Delaware Estimated Sand Production	400000 200	lbs/yr tons/yr
(Glass Audit)		operating weeks
		tons/wk lbs/wk
	0000	LDS/ WIC
Andela + Delaware Capacity Estimate	4	hrs/wk

	TOTAL EMISSIONS			
	Total PM (lb/Ton)	Total PM-10 (lb/Ton)	Total PM-2.5 (lb/Ton)	
Tertiary crushing, controlled	0.0012	0.00054	0.0001	
Fines crushing, controlled	0.003	0.0012	0.00007	
Fines screening, controlled	0.0036	0.0022	ND	
Total Factor (lb/Ton)	0.0078	0.00394	0.00017	
	•			
Rate (Ton/hr)	1	1	1	
Total Emissions (lb/hr)	0.0078	0.00394	0.00017	
Total Emissions (lb/day) @ 8hr/day	0.0624	0.03152	0.00136	
lb/wk	0.0312	0.01576	0.00068	
lb/yr (4hrs operating/wk)	1.56	0.788	0.034	
lb/yr (8hrs operating/wk)	3.12	1.576	0.068	
lb/yr (16hrs operating/wk)	6.24	3.152	0.136	
tons/yr	0.00078	0.000394	0.000017	