DRAFT REPORT

BRANDENBURG INDUSTRIAL SERVICE COMPANY

ELMHURST, ILLINOIS

KLEEMAN MC 110I EVO2 JAW CRUSHER, ID #30000

RWDI #2305131

June 15, 2023

SUBMITTED TO

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EXECUTIVE SUMMARY

RWDI USA LLC (RWDI) was retained by Brandenburg Industrial Services Company (Brandenburg) to complete visible emission observations on their Kleeman MC110i EVO2 Jaw Crusher, Device ID #30000 located at the industrial demolition site in East Jordan, Michigan. Visible emissions readings were completed in order to comply with the State of Michigan Environmental Compliance Guidelines for Nonmetallic Mineral Crushing Facilities.

Testing consisted of observations on four (4) emissions points over three (3) 60-minute periods. The observations were recorded on May 4th, 2023.

Executive Summary Table i: Visible Emission Observations – Kleeman MC110i EVO2 Jaw Crusher - Crusher

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Executive Summary Table ii: Visible Emission Observations – Kleeman MC110i EVO2 Jaw Crusher - Hopper

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Executive Summary Table iii: Visible Emission Observations – Kleeman MC110i EVO2 Jaw Crusher - Conveyor Discharge

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Executive Summary Table iv: Visible Emission Observations – Screen Machine 6036T - Ladder Conveyor Discharge

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Testing was successfully completed on May 4th, 2023. Visible emissions were recorded in accordance with USEPA referenced methodology (US EPA Method 9).

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3 SAMPLE LOCATION

The visible emissions sources were recorded on the Kleeman MC 110i EVO2 Jaw Crusher. The jaw crusher was located on the ground.

Figure 3.1: Kleeman MC 110i EVO2 Jaw Crusher located in East Jordan, MI

4 SAMPLING METHODOLOGY

4.1 Testing Methodology

The following table summarizes the test methodology that was followed during this program.

Table 4.1.1: Summary of Test Methodology

Parameter	Proposed Method
Visible Emissions	USEPA[1] Method 9

Notes: [1] USEPA = United States Environmental Protection Agency

4.2 Description of Testing Methodology

The following section provides brief descriptions of the sampling methods.

4.2.1 USEPA Method 9 – Visible Emissions

Visible emissions were determined in accordance with U.S. EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources". Three (3), 60-minute visible emission observations were taken in total for each source. For the visible emission observations, readings were observed every 15 seconds over each 60-minute continuous minute period. The opacity of emissions from the stationary source was determined by a certified observer.

5 RESULTS

The average visible emission results for this study are presented in the tables below. Detailed information regarding the visible emissions can be found in **Appendix A**. Field testing was completed on May 4th, 2023. Field notes are provided in **Appendix B**. Method 9 Certification is provided in **Appendix C**. The weather conditions were fair, wind speeds were calm, and the temperature ranged from 32 to 38^{0}F. Weather data from measurement period recorded from Weather Underground is provided in **Appendix D**.

The observer was 30' from the emission source in the 140^0 sector with the sun at the observers back. The background was the forest which consisted of a brown-green mix of trees.

Table 5.1: Visible Emission Observations – Kleeman MC110i EVO2 Jaw Crusher - Crusher

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Table 5.2: Visible Emission Observations – Kleeman MC110i EVO2 Jaw Crusher - Hopper

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Table 5.3: Visible Emission Observations – Kleeman MC110i EVO2 Jaw Crusher - Conveyor Discharge

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

Table 5.4: Visible Emission Observations – Screen Machine 6036T - Ladder Conveyor Discharge

Test #	Average Visible Emission Observations
1	0
2	0
3	0
Average	**0**

6 PROCESS DATA

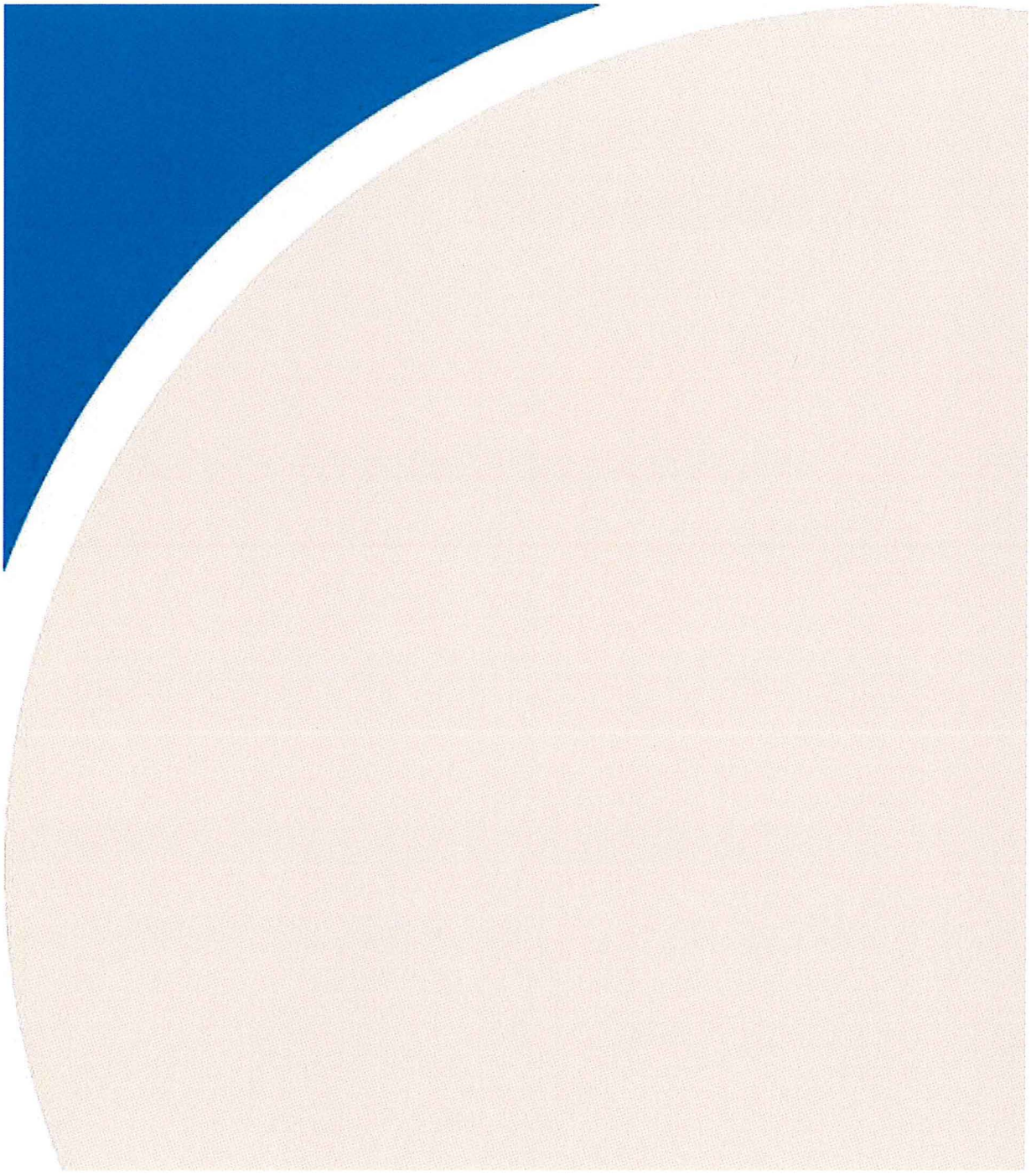
Materials were loaded at a consistent pace throughout the testing periods and the process was operating under normal conditions.

7 CONCLUSIONS

Testing was successfully completed on May 4th, 2023. Visible emissions were recorded in accordance with USEPA referenced methodology (US EPA Method 9).

APPENDIX A: Visible Emissions Results

APPENDIX A1: Visible Emissions – Kleeman MC110i - Crusher



Brandenburg Industrial Service Company

Source: Kleeman MC110i EV02 Jaw Crusher - Crusher

Opacity
0

Test ID	Date	Time			Average Daily Opacity	Maximum 6 min. average
Source: Kleeman MC110i EV02 Crusher						
Test 1	May 4, 2023	8:05	to	9:05	0	0
Test 2	May 4, 2023	9:06	to	10:06	0	0
Test 3	May 4, 2023	10:07	to	11:07	0	0
				Total	**0**	**0**

Brandenburg Industrial Services Company

RWDI Project #2305131

Facility:	East Jordan	Operator:	DT	Observation Date:	May 4, 2023
City:	East Jordan	Entered by:	DT	Start Time:	8:05
Source:	Kleeman MC110i EV02 Crusher	Checked by:	BCB	Stop Time:	9:05
Test ID:	Test 1				

Number of Six Minute Average Readings above **20%** were **0**

Range of Opacity Readings **0** to **0**

Observations

min \ sec	0	15	30	45
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0
60	0	0	0	0

Summary of running 6 min Averages					
Start #	6-min Average Opacity				Event
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
31	0	0	0	0	
32	0	0	0	0	
33	0	0	0	0	
34	0	0	0	0	
35	0	0	0	0	
36	0	0	0	0	
37	0	0	0	0	
38	0	0	0	0	
39	0	0	0	0	
40	0	0	0	0	
41	0	0	0	0	
42	0	0	0	0	
43	0	0	0	0	
44	0	0	0	0	
45	0	0	0	0	
46	0	0	0	0	
47	0	0	0	0	
48	0	0	0	0	
49	0	0	0	0	
50	0	0	0	0	
51	0	0	0	0	
52	0	0	0	0	
53	0	0	0	0	
54	0	0	0	0	
55	0	0	0	0	

Maximum 6 min Average = 0

Brandenburg Industrial Services Company

RWDI Project #2305131

Facility:	East Jordan	Operator:	DT	Observation Date:	May 4, 2023
City:	East Jordan	Entered by:	DT	Start Time:	9:06
Source:	Kleeman MC110i EV02 Crusher	Checked by:	MDS	Stop Time:	10:06
Test ID:	Test 2				

Number of Six Minute Average Readings above **20%** were **0**

Range of Opacity Readings **0** to **0**

Observations

min \ sec	0	15	30	45
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0
60	0	0	0	0

Summary of running 6 min Averages					
Start #	6-min Average Opacity				Event
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
31	0	0	0	0	
32	0	0	0	0	
33	0	0	0	0	
34	0	0	0	0	
35	0	0	0	0	
36	0	0	0	0	
37	0	0	0	0	
38	0	0	0	0	
39	0	0	0	0	
40	0	0	0	0	
41	0	0	0	0	
42	0	0	0	0	
43	0	0	0	0	
44	0	0	0	0	
45	0	0	0	0	
46	0	0	0	0	
47	0	0	0	0	
48	0	0	0	0	
49	0	0	0	0	
50	0	0	0	0	
51	0	0	0	0	
52	0	0	0	0	
53	0	0	0	0	
54	0	0	0	0	
55	0	0	0	0	

Maximum 6 min Average = 0

Brandenburg Industrial Services Company

RWDI Project #2305131

Facility:	East Jordan	Operator:	DT	Observation Date:	May 4, 2023
City:	East Jordan	Entered by:	DT	Start Time:	10:07
Source:	Kleeman MC110i EV02 Crusher	Checked by:	MDS	Stop Time:	11:07
Test ID:	Test 3				

Number of Six Minute Average Readings above **20%** were **0**

Range of Opacity Readings **0** to **0**

Observations

min \ sec	0	15	30	45
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0
60	0	0	0	0

Summary of running 6 min Averages					
Start #	6-min Average Opacity				Event
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
31	0	0	0	0	
32	0	0	0	0	
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35	0	0	0	0	
36	0	0	0	0	
37	0	0	0	0	
38	0	0	0	0	
39	0	0	0	0	
40	0	0	0	0	
41	0	0	0	0	
42	0	0	0	0	
43	0	0	0	0	
44	0	0	0	0	
45	0	0	0	0	
46	0	0	0	0	
47	0	0	0	0	
48	0	0	0	0	
49	0	0	0	0	
50	0	0	0	0	
51	0	0	0	0	
52	0	0	0	0	
53	0	0	0	0	
54	0	0	0	0	
55	0	0	0	0	

Maximum 6 min Average = 0