MEMORANDUM

TO: Walt Francis, Brian Kennedy, and Brenda Whitney; U.S. EPA Region 5

FROM: ERG

DATE: July 18, 2018

SUBJECT: **RCRA Inspection Report – Mid-America Steel Drum St. Francis, Wisconsin**

This memorandum summarizes ERG's inspection activities during EPA's inspection of the Mid-America Steel Drum facility at 3950 South Pennsylvania Avenue in St. Francis, Wisconsin. The inspection occurred on May 1, 2018, and included the following inspectors:

- Walt Francis, EPA Region 5;
- Brian Kennedy, EPA Region 5;
- Brenda Whitney, EPA Region 5
- Chris Krejci, ERG; and
- Joe Watson, ERG.

The inspection also included the following participants from Mid-America:

- Don Gibbs, Plant Operations Manager;
- Kevin Meyer, Oak Creek General Manager; and
- Brenna Bellmer, Environmental Health and Safety
- Amanda Beggs, Outside Counsel (Foley and Lardner, LLP);
- Linda Benfield, Outside Counsel (Foley and Lardner, LLP); and
- Pete Tomasi, Outside Counsel (Foley and Lardner, LLP).

This memorandum also includes the following attachments:

- Photograph log (Attachment A);
- Map of sample transects and subsample locations (Attachment B)
- Discussion of laboratory quality assurance and quality control analysis (Attachment C); and
- Laboratory chain-of-custody form (Attachment D).

Table 1 identifies the sample locations and types of analyses.

Sampling was performed according to previously established multiple increment sampling methodology, which required samples to represent the storage yard decision unit. Increment

samples were taken from the first two inches of soil using a CMIST sampler from EnviroStat for the metals and semivolatile organic compounds (SVOCs) aliquots. Volatile organic compounds (VOCs) aliquots were taken using a Terra Core sampler from approximately two to three inches depth. All samples were collected by Joe Watson, repeating the same collection method for each increment and depositing the aliquots in containers to be composited by the laboratory. Attachment B contains a map of sampling transects and increments points.

ERG collected one native sample in triplicate (SP-1, SP-2, and SP-3), one equipment blank (SP-4) and one field blank (SP-5). ERG collected the native sample in triplicate to verify the reproducibility of the sampling methodology and the laboratory's results. The only analytes which exceeded the relative percent difference (RPD) specified for triplicate samples in the project QAPP (30 percent) were lead (36 percent), fluoranthene (90 percent), phenanthrene (100 percent), and pyrene (61 percent). Based on the general agreement between the triplicate samples for all other analytes, these few exceedances are likely due to limited heterogeneity in the sampled soil, and not reflective of any quality issues with the sampling or analysis procedures.

ERG collected a field blank to verify that environmental conditions did not contaminate the samples, and an equipment blank to verify that equipment did not contaminate samples. ERG used a trip blank to verify that VOC vials were not contaminated during transport. No analytes were detected in any of the blanks.

Attachment C contains additional discussion on the laboratory's quality assurance and quality control analyses. Information on the exchange of samples and laboratory analysis by TestAmerica is provided in the chain-of-custody form in Attachment D at the end of this memorandum.

Based on the results of ERG's quality control analysis, and the information in Attachment C, ERG determined that the sampling data described in this sample summary are acceptable for use.

1. TOTAL METALS RESULTS

Tables 2 and 3 summarize the total metals results for the native samples and blanks, respectively, and Table 2 provides soil screening levels (SSLs) and Wisconsin Department of Natural Resources' (WDNR) Industrial Direct-Contact Residual Contaminant Levels (RCLs).

All three native samples exceeded the SSL (6.3 mg/kg) and RCL (6.36 mg/kg) for chromium:

- SP-1, 8.7 mg/kg;
- SP-2, 9.2 mg/kg; and
- SP-3, 11 mg/kg.

2. TOTAL SEMIVOLATILE ORGANIC COMPOUNDS RESULTS

Tables 4 and 5 summarize the total SVOCs results for native samples and blanks, respectively, and Table 4 provides SSLs and WDNR RCLs. No SVOCs were detected above the reporting limit.

3. TOTAL VOLATILE ORGANIC COMPOUNDS RESULTS

Tables 6 and 7 summarize the total VOCs results for the native samples and blanks, respectively, and Table 6 provides SSLs and WDNR RCLs. No VOCs were detected above the reporting limit.

Table 1. Sample Identification

Sample Identification	Sampling Point Location	Sample Description	Date and Time	Media	Analysis
SP-1	Five transects of 15 subsamples each, see Attachment B for subsample locations.	Well-graded gray gravel.	5/1/2018; 10:20	Solid	• Metals • Volatiles • Semivolatiles
SP-2	Duplicate of SP-1	Well-graded gray gravel.	5/1/2018; 13:55	Solid	• Metals • Volatiles • Semivolatiles
SP-3	Triplicate of SP-1	Well-graded gray gravel.	5/1/2018; 14:30	Solid	• Metals • Volatiles • Semivolatiles
SP-4	Equipment Blank	Clear liquid	5/1/2018; 16:45	Water	• Metals • Volatiles • Semivolatiles
SP-5	Field Blank – poured next to van in middle of lot	Clear liquid	5/1/2018; 16:49	Water	• Metals • Volatiles • Semivolatiles

Table 2. Summary of Total Metals Results – Native Samples

Analyte	Sample ID			Reporting Limit	Soil Screening Level[a]	WDNR RCL[d]	Units	Method
	SP-1	SP-2	SP-3					
Aluminum	1,100 F1	1,200	1,300	5.0	110,000	100,000	mg/kg	6010B
Antimony	ND	ND	ND	0.50	47	467	mg/kg	6010B
Arsenic	1.5	1.7	1.8	1.0	3.0	3.0	mg/kg	6010B
Barium	10	11	12	2.0	22,000	100,000	mg/kg	6010B
Beryllium	0.11	0.10	0.098 J	0.10	230	2,300	mg/kg	6010B
Cadmium	0.15	0.25	0.20	0.050	98	985	mg/kg	6010B
Calcium	160,000	170,000	180,000	1,200	n/a	n/a	mg/kg	6010B
Chromium	**8.7**	**9.2**	**11**	1.0	6.3[b]	6.36[b]	mg/kg	6010B
Cobalt	1.6	1.6	1.7	0.20	35	347	mg/kg	6010B
Copper	7.8	7.8	9.0	1.0	4,700	46,700	mg/kg	6010B
Iron	6,900	7,300	7,300	5.0	82,000	100,000	mg/kg	6010B
Lead	9.0	7.4	13	0.30	800	800	mg/kg	6010B
Magnesium	92,000	130,000	110,000	500	n/a	n/a	mg/kg	6010B
Manganese	300	300	300	0.50	2,600	25,900	mg/kg	6010B
Mercury	0.016 J	0.018 J	0.017 J	0.035	35[c]	350[c]	mg/kg	7471
Nickel	5.0	4.9	6.1	0.50	2,200	22,500	mg/kg	6010B
Potassium	420 F1	410	420	10	n/a	n/a	mg/kg	6010B
Selenium	0.32 J	ND	ND	0.50	580	5,840	mg/kg	6010B
Silver	ND	ND	ND	0.20	580	5,840	mg/kg	6010B
Sodium	250	240	250	20	n/a	n/a	mg/kg	6010B
Thallium	ND	ND	ND	0.50	1.2	11.7	mg/kg	6010B
Vanadium	5.4	5.4	5.8	1.0	580	5,840	mg/kg	6010B
Zinc	22	27	26	5.0	35,000	100,000	mg/kg	6010B

Underline indicates exceedance of soil screening level
Bold indicates exceedance of WDNR residual contaminant level
n/a – No applicable limit for analyte.
ND – Analyte not detected.
J - Result is less than the reporting limit, but greater than or equal to the MDL and the concentration is an approximate value.
F1 – MS and or MSD recovery was outside acceptable limits.
[a] May 2018 EPA Regional Screening Level Summary Table industrial soil screening levels with a Target Hazard Quotient of 0.1 (see https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
[b] Soil screening level/WDNR residual contaminant level is for hexavalent chromium.
[c] Soil screening level /WDNR residual contaminant level is for mercuric chloride and other mercury salts.
[d] Wisconsin Department of Natural Resources (WDNR) June 2018 Soil Residual Contaminant Levels (RCLs) spreadsheet, (see https://dnr.wi.gov/topic/brownfields/professionals.html).

Table 3. Summary of Total Metals Results – Blanks

Analyte	Sample ID		Reporting Limit	Units	Method
	SP-4	SP-5			
Aluminum	ND	ND	5.0	mg/L	6020A
Antimony	ND	ND	0.50	mg/L	6020A
Arsenic	ND	ND	1.0	mg/L	6020A
Barium	ND	ND	2.0	mg/L	6020A
Beryllium	ND	ND	0.10	mg/L	6020A
Cadmium	ND	ND	0.050	mg/L	6020A
Calcium	ND	ND	1,200	mg/L	6020A
Chromium	ND	ND	1.0	mg/L	6020A
Cobalt	ND	ND	0.20	mg/L	6020A
Copper	ND	ND	1.0	mg/L	6020A
Iron	ND	ND	5.0	mg/L	6020A
Lead	ND	ND	0.30	mg/L	6020A
Magnesium	ND	ND	500	mg/L	6020A
Manganese	ND	ND	0.50	mg/L	6020A
Mercury	ND	ND	0.035	mg/L	7470
Nickel	ND	ND	0.50	mg/L	6020A
Potassium	ND	ND	10	mg/L	6020A
Selenium	ND	ND	0.50	mg/L	6020A
Silver	ND	ND	0.20	mg/L	6020A
Sodium	ND	ND	20	mg/L	6020A
Thallium	ND	ND	0.50	mg/L	6020A
Vanadium	ND	ND	1.0	mg/L	6020A
Zinc	ND	ND	5.0	mg/L	6020A

ND – Analyte not detected.

Table 4. Summary of Semivolatile Organic Compounds Results – Native Samples

Analyte	Sample ID			Reporting Limit	Soil Screening Level[a]	WDNR RCL[b]	Units	Method
	SP-1	SP-2	SP-3					
1,2,4-Trichlorobenzene	ND	ND	ND	3.3	26	113	mg/kg	8270D
1,2-Dichlorobenzene	ND	ND	ND	3.3	930	376	mg/kg	8270D
1,3-Dichlorobenzene	ND	ND	ND	3.3	n/a	297	mg/kg	8270D
1,4-Dichlorobenzene	ND	ND	ND	3.3	11	16.4	mg/kg	8270D
2,4,5-Trichlorophenol	ND	ND	ND	3.3	8,300	82,100	mg/kg	8270D
2,4,6-Trichlorophenol	ND	ND	ND	3.3	82	209	mg/kg	8270D
2,4-Dichlorophenol	ND	ND	ND	3.3	250,000	2.460	mg/kg	8270D
2,4-Dimethyl phenol	ND	ND	ND	3.3	1,600	16,400	mg/kg	8270D
2,4-Dinitrophenol	ND	ND	ND	16.0	160	1,640	mg/kg	8270D
2,4-Dinitrotoluene	ND	ND	ND	3.3	7.4	7.37	mg/kg	8270D
2,6-Dinitrotoluene	ND	ND	ND	3.3	1.5	1.54	mg/kg	8270D
2-Chloronaphthalene	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
2-Chlorophenol	ND	ND	ND	3.3	580	5,840	mg/kg	8270D
2-Methylnaphthalene	ND	0.54 J	ND	3.3	300	3,010	mg/kg	8270D
2-Methylphenol(o-Cresol)	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
2-Nitroaniline	ND	ND	ND	3.3	800	8,010	mg/kg	8270D
2-Nitrophenol	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
3&4-Methylphenol(m&p cresol)	ND	ND	ND	6.5	n/a	n/a	mg/kg	8270D
3,3'-Dichlorobenzidine	ND	ND	ND	16.0	5.1	5.11	mg/kg	8270D
3-Nitroaniline	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
4,6-Dinitro-2-methylphenol	ND	ND	ND	16.0	6.6	65.7	mg/kg	8270D
4-Bromophenylphenyl ether	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
4-Chloro-3-methylphenol	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
4-Chloroaniline	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
4-Chlorophenylphenyl ether	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
4-Nitroaniline	ND	ND	ND	16.0	110	115	mg/kg	8270D
4-Nitrophenol	ND	ND	ND	16.0	n/a	n/a	mg/kg	8270D
Acenaphthene	ND	1.1 J	ND	3.3	4,500	45,200	mg/kg	8270D
Acenaphthylene	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
Anthracene	ND	3.1 J	ND	3.3	23,000	100,000	mg/kg	8270D
Benzo(a)anthracene	0.87 J	3.6	1.2 J	3.3	21	20.8	mg/kg	8270D
Benzo(a)pyrene	0.99 J	2.5 J	1.2 J	3.3	21	2.11	mg/kg	8270D
Benzo(b)fluoranthene	1.3 J	3.4	1.6 J	3.3	1.8	21.1	mg/kg	8270D
Benzo(g,h,i)perylene	0.56 J	1.1 J	0.57 J	3.3	n/a	n/a	mg/kg	8270D
Benzo(k)fluoranthene	ND	1.2 J	ND	3.3	210	211	mg/kg	8270D
Benzoic acid	ND	ND	ND	16.0	330,000	100,000	mg/kg	8270D
Benzyl alcohol	ND	ND	ND	3.3	8,200	82,100	mg/kg	8270D
Butyl benzyl phthalate	ND	ND	ND	3.3	1,200	1,210	mg/kg	8270D
Carbazole	ND	1.3 J	ND	3.3	n/a	n/a	mg/kg	8270D
Chrysene	0.93 J	3.4	1.2 J	3.3	2,100	2,110	mg/kg	8270D
Di-n-butylphthalate	ND	ND	ND	3.3	8,200	82,100	mg/kg	8270D
Di-n-octylphthalate	ND	ND	ND	3.3	820	8,210	mg/kg	8270D
Dibenz(a,h)anthracene	ND	ND	ND	3.3	2.1	2.11	mg/kg	8270D
Dibenzofuran	ND	1.3 J	ND	3.3	10	1,040	mg/kg	8270D

Table 4. Summary of Semivolatile Organic Compounds Results – Native Samples

Analyte	Sample ID			Reporting Limit	Soil Screening Level[a]	WDNR RCL[b]	Units	Method
	SP-1	SP-2	SP-3					
Diethylphthalate	ND	ND	ND	3.3	66,000	100,000	mg/kg	8270D
Dimethylphthalate	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
Fluoranthene	1.8 J	8.7	2.6 J	3.3	3,000	30,100	mg/kg	8270D
Fluorene	ND	1.9 J	ND	3.3	3,000	30,100	mg/kg	8270D
Hexachloro-1,3-butadiene	ND	ND	ND	3.3	5.3	7.19	mg/kg	8270D
Hexachlorobenzene	ND	ND	ND	3.3	0.96	1.15	mg/kg	8270D
Hexachlorocyclopentadiene	ND	ND	ND	16.0	0.75	10.8	mg/kg	8270D
Hexachloroethane	ND	ND	ND	3.3	8.0	11.1	mg/kg	8270D
Indeno(1,2,3-cd)pyrene	ND	1.2 J	ND	3.3	21	21.1	mg/kg	8270D
Isophorone	ND	ND	ND	3.3	2,400	2,420	mg/kg	8270D
N-Nitroso-di-n-propylamine	ND	ND	ND	3.3	0.33	0.328	mg/kg	8270D
N-Nitrosodiphenylamine	ND	ND	ND	3.3	470	469	mg/kg	8270D
Naphthalene	ND	0.48 J	ND	3.3	17	24.1	mg/kg	8270D
Nitrobenzene	ND	ND	ND	3.3	22	32.4	mg/kg	8270D
Pentachlorophenol	ND	ND	ND	16.0	4.0	3.97	mg/kg	8270D
Phenanthrene	0.88 J	9.9	1.9 J	3.3	n/a	n/a	mg/kg	8270D
Phenol	ND	ND	ND	3.3	25,000	100,000	mg/kg	8270D
Pyrene	1.4 J	6.2	2.0 J	3.3	2,300	22,600	mg/kg	8270D
Pyridine	ND	ND	ND	3.3	120	1,170	mg/kg	8270D
bis(2-Chloroethoxy)methane	ND	ND	ND	3.3	250	2,460	mg/kg	8270D
bis(2-Chloroethyl) ether	ND	ND	ND	3.3	1.0	1.29	mg/kg	8270D
bis(2-Chloroisopropyl) ether	ND	ND	ND	3.3	n/a	n/a	mg/kg	8270D
bis(2-Ethylhexyl)phthalate	ND	ND	ND	3.3	160	164	mg/kg	8270D

n/a – No applicable limit for analyte.
ND – Analyte not detected.
J - Result is less than the reporting limit, but greater than or equal to the MDL and the concentration is an approximate value.
[a] May 2018 EPA Regional Screening Level Summary Table industrial soil screening levels with a Target Hazard Quotient of 0.1 (see https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
[b] Wisconsin Department of Natural Resources (WDNR) June 2018 Soil Residual Contaminant Levels (RCLs) spreadsheet, (see https://dnr.wi.gov/topic/brownfields/professionals.html)

Table 5. Summary of Semivolatile Organic Compounds Results – Blanks

Analyte	Sample ID		Reporting Limit	Units	Method
	SP-4	SP-5			
1,2,4-Trichlorobenzene	ND	ND	0.00095	mg/L	8270D
1,2-Dichlorobenzene	ND	ND	0.00095	mg/L	8270D
1,3-Dichlorobenzene	ND	ND	0.00095	mg/L	8270D
1,4-Dichlorobenzene	ND	ND	0.00095	mg/L	8270D
2,4,5-Trichlorophenol	ND	ND	0.0048	mg/L	8270D
2,4,6-Trichlorophenol	ND	ND	0.0048	mg/L	8270D
2,4-Dichlorophenol	ND	ND	0.0019	mg/L	8270D
2,4-Dimethyl phenol	ND	ND	0.0019	mg/L	8270D
2,4-Dinitrophenol	ND	ND	0.0048	mg/L	8270D
2,4-Dinitrotoluene	ND	ND	0.0048	mg/L	8270D
2,6-Dinitrotoluene	ND	ND	0.0048	mg/L	8270D
2-Chloronaphthalene	ND	ND	0.00095	mg/L	8270D
2-Chlorophenol	ND	ND	0.00095	mg/L	8270D
2-Methylnaphthalene	ND	ND	0.00095	mg/L	8270D
2-Methylphenol(o-Cresol)	ND	ND	0.00095	mg/L	8270D
2-Nitroaniline	ND	ND	0.0019	mg/L	8270D
2-Nitrophenol	ND	ND	0.0019	mg/L	8270D
3&4-Methylphenol(m&p cresol)	ND	ND	0.0019	mg/L	8270D
3,3'-Dichlorobenzidine	ND	ND	0.0048	mg/L	8270D
3-Nitroaniline	ND	ND	0.0019	mg/L	8270D
4,6-Dinitro-2-methylphenol	ND	ND	0.0048	mg/L	8270D
4-Bromophenylphenyl ether	ND	ND	0.0019	mg/L	8270D
4-Chloro-3-methylphenol	ND	ND	0.0019	mg/L	8270D
4-Chloroaniline	ND	ND	0.0019	mg/L	8270D
4-Chlorophenylphenyl ether	ND	ND	0.0019	mg/L	8270D
4-Nitroaniline	ND	ND	0.0019	mg/L	8270D
4-Nitrophenol	ND	ND	0.0048	mg/L	8270D
Acenaphthene	ND	ND	0.00019	mg/L	8270D
Acenaphthylene	ND	ND	0.00019	mg/L	8270D
Anthracene	ND	ND	0.00019	mg/L	8270D
Benzo(a)anthracene	ND	ND	0.00019	mg/L	8270D
Benzo(a)pyrene	ND	ND	0.00019	mg/L	8270D
Benzo(b)fluoranthene	ND	ND	0.00019	mg/L	8270D
Benzo(g,h,i)perylene	ND	ND	0.00019	mg/L	8270D
Benzo(k)fluoranthene	ND	ND	0.00019	mg/L	8270D
Benzoic acid	ND	ND	0.024	mg/L	8270D
Benzyl alcohol	ND	ND	0.0048	mg/L	8270D
Butylbenzylphtalate	ND	ND	0.0019	mg/L	8270D
Carbazole	ND	ND	0.00095	mg/L	8270D
Chrysene	ND	ND	0.00019	mg/L	8270D
Di-n-butylphthalate	ND	ND	0.0048	mg/L	8270D
Di-n-octylphthalate	ND	ND	0.0019	mg/L	8270D
Dibenz(a,h)anthracene	ND	ND	0.00019	mg/L	8270D
Dibenzofuran	ND	ND	0.00095	mg/L	8270D

Table 5. Summary of Semivolatile Organic Compounds Results – Blanks

Analyte	Sample ID		Reporting Limit	Units	Method
	SP-4	SP-5			
Diethylphthalate	ND	ND	0.0019	mg/L	8270D
Dimethylphthalate	ND	ND	0.0019	mg/L	8270D
Fluoranthene	ND	ND	0.00019	mg/L	8270D
Fluorene	ND	ND	0.00019	mg/L	8270D
Hexachloro-1,3-butadiene	ND	ND	0.00095	mg/L	8270D
Hexachlorobenzene	ND	ND	0.00019	mg/L	8270D
Hexachlorocyclopentadiene	ND	ND	0.0095	mg/L	8270D
Hexachloroethane	ND	ND	0.00095	mg/L	8270D
Indeno(1,2,3-cd)pyrene	ND	ND	0.00019	mg/L	8270D
Isophorone	ND	ND	0.00095	mg/L	8270D
N-Nitroso-di-n-propylamine	ND	ND	0.00095	mg/L	8270D
N-Nitrosodiphenylamine	ND	ND	0.00095	mg/L	8270D
Naphthalene	ND	ND	0.00019	mg/L	8270D
Nitrobenzene	ND	ND	0.00095	mg/L	8270D
Pentachlorophenol	ND	ND	0.0048	mg/L	8270D
Phenanthrene	ND	ND	0.00019	mg/L	8270D
Phenol	ND	ND	0.00095	mg/L	8270D
Pyrene	ND	ND	0.00019	mg/L	8270D
Pyridine	ND	ND	0.00095	mg/L	8270D
bis(2-Chloroethoxy)methane	ND	ND	0.00095	mg/L	8270D
bis(2-Chloroethyl) ether	ND	ND	0.00095	mg/L	8270D
bis(2-Chloroisopropyl) ether	ND	ND	0.00095	mg/L	8270D
bis(2-Ethylhexyl)phthalate	ND	ND	0.0048	mg/L	8270D

ND – Analyte not detected.

Table 6. Summary of Volatile Organic Compounds Results – Native Samples

Analyte	Sample ID			Reporting Limit[1]	Soil Screening Level[a]	WDNR RCL[b]	Units	Method
	SP-1	SP-2	SP-3					
1,1,1,2-Tetrachloroethane	ND	ND	ND	0.310	8.8	12.3	mg/kg	8260B
1,1,1-Trichloroethane	ND	ND	ND	0.310	3,600	640	mg/kg	8260B
1,1,2,2-Tetrachloroethane	ND	ND	ND	0.310	2.7	3.6	mg/kg	8260B
1,1,2-Trichloroethane	ND	ND	ND	0.310	0.63	7.01	mg/kg	8260B
1,1-Dichloroethane	ND	ND	ND	0.310	16	22.2	mg/kg	8260B
1,1-Dichloroethene	ND	ND	ND	0.310	100	n/a	mg/kg	8260B
1,2,3-Trichlorobenzene	ND	ND	ND	0.310	93	934	mg/kg	8260B
1,2,3-Trichloropropane	ND	ND	ND	0.310	0.11	0.109	mg/kg	8260B
1,2,4-Trichlorobenzene	ND	ND	ND	0.310	26	113	mg/kg	8260B
1,2,4-Trimethylbenzene	ND	ND	ND	0.310	180	293	mg/kg	8260B
1,2-Dibromo-3-chloropropane	ND	ND	ND	0.610	0.064	0.092	mg/kg	8260B
1,3-Dichloropropane	ND	ND	ND	0.310	2,300	1,490	mg/kg	8260B
1,4-Dichlorobenzene	ND	ND	ND	0.310	11	16.4	mg/kg	8260B
2,2-Dichloropropane	ND	ND	ND	0.310	n/a	191	mg/kg	8260B
2-Chlorotoluene	ND	ND	ND	0.310	2,300	n/a	mg/kg	8260B
4-Chlorotoluene	ND	ND	ND	0.310	2,300	n/a	mg/kg	8260B
4-Isopropyltoluene	ND	ND	ND	0.310	n/a	n/a	mg/kg	8260B
Benzene	ND	ND	ND	0.310	5.1	n/a	mg/kg	8260B
Bromobenzene	ND	ND	ND	0.310	180	679	mg/kg	8260B
Bromomethane	ND	ND	ND	0.310	3	43	mg/kg	8260B
Carbon tetrachloride	ND	ND	ND	0.310	2.9	4.03	mg/kg	8260B
Chlorobenzene	ND	ND	ND	0.310	130	761	mg/kg	8260B
Chlorodibromomethane	ND	ND	ND	0.310	5,700	n/a	mg/kg	8260B
Chloroethane	ND	ND	ND	0.310	5,700	n/a	mg/kg	8260B
Chloroform	ND	ND	ND	0.310	1.4	1.98	mg/kg	8260B
Chloromethane	ND	ND	ND	0.310	46	669	mg/kg	8260B
Dibromomethane	ND	ND	ND	0.310	9.9	143	mg/kg	8260B
Dichlorodifluoromethane	ND	ND	ND	0.310	37	530	mg/kg	8260B
Ethylbenzene	ND	ND	ND	0.310	25	35.4	mg/kg	8260B
Hexachlorobutadiene	ND	ND	ND	0.310	5.3	7.19	mg/kg	8260B
Methylene Chloride	0.120 JB	0.110 J B	0.140 J B	0.310	320	1,150	mg/kg	8260B
Naphthalene	0.032 J B	0.049 J B	0.045 J B	0.310	17	24.1	mg/kg	8260B
Styrene	ND	ND	ND	0.310	3500	867	mg/kg	8260B
Tetrachloroethene	ND	ND	ND	0.310	39	145	mg/kg	8260B
Toluene	0.035 J	0.029 J	0.048 J	0.310	4,700	818	mg/kg	8260B

Table 6. Summary of Volatile Organic Compounds Results – Native Samples

Analyte	Sample ID			Reporting Limit[1]	Soil Screening Level[a]	WDNR RCL[b]	Units	Method
	SP-1	SP-2	SP-3					
Trichloroethene	ND	ND	ND	0.310	1.9	8.41	mg/kg	8260B
Trichlorofluoromethane	ND	ND	ND	0.310	35,000	1,230	mg/kg	8260B
Vinyl Chloride	ND	ND	ND	0.310	1.7	2.08	mg/kg	8260B
Xylene (Total)	ND	ND	ND	0.610	250	260	mg/kg	8260B
cis-1,2-Dichloroethene	ND	ND	ND	0.310	230	2,340	mg/kg	8260B
cis-1,3-Dichloropropene	ND	ND	ND	0.310	8.2	1,210	mg/kg	8260B
n-Propylbenzene	ND	ND	ND	0.310	n/a	264	mg/kg	8260B
n-Butylbenzene	ND	ND	ND	0.310	5,800	108	mg/kg	8260B
sec-Butylbenzene	ND	ND	ND	0.310	12,000	145	mg/kg	8260B
tert-Butylbenzene	ND	ND	ND	0.310	12,000	183	mg/kg	8260B
trans-1,2-Dichloroethene	ND	ND	ND	0.310	2,300	1,850	mg/kg	8260B
trans-1,3-Dichloropropene	ND	ND	ND	0.310	n/a	1,510	mg/kg	8260B

n/a – No applicable limit for analyte.
ND – Analyte not detected.
J – Result is less than the reporting limit, but greater than or equal to the MDL and the concentration is an approximate value.
B – Compound was found in the method blank and sample.
[a] May 2018 EPA Regional Screening Level Summary Table industrial soil screening levels with a Target Hazard Quotient of 0.1 (see https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables).
[b] Wisconsin Department of Natural Resources (WDNR) June 2018 Soil Residual Contaminant Levels (RCLs) spreadsheet, (see https://dnr.wi.gov/topic/brownfields/professionals.html)B – Compound was found in the method blank and sample.
[1] Maximum reporting limit listed. Some of the samples were analyzed at a lower reporting limit.

Table 7. Summary of Volatile Organic Compounds Results – Blanks

Analyte	Sample ID			Reporting Limit	Units	Method
	SP-4	SP-5	TRIP BLANK			
1,1,1,2-Tetrachloroethane	ND	ND	ND	0.0010	mg/L	8260B
1,1,1-Trichloroethane	ND	ND	ND	0.0010	mg/L	8260B
1,1,2,2-Tetrachloroethane	ND	ND	ND	0.0010	mg/L	8260B
1,1,2-Trichloroethane	ND	ND	ND	0.0010	mg/L	8260B
1,1-Dichloroethane	ND	ND	ND	0.0010	mg/L	8260B
1,1-Dichloroethene	ND	ND	ND	0.0010	mg/L	8260B
1,2,3-Trichlorobenzene	ND	ND	ND	0.0010	mg/L	8260B
1,2,3-Trichloropropane	ND	ND	ND	0.0010	mg/L	8260B
1,2,4-Trichlorobenzene	ND	ND	ND	0.0010	mg/L	8260B
1,2,4-Trimethylbenzene	ND	ND	ND	0.0010	mg/L	8260B
1,2-Dibromo-3-chloropropane	ND	ND	ND	0.002	mg/L	8260B
1,3-Dichloropropane	ND	ND	ND	0.0010	mg/L	8260B
1,4-Dichlorobenzene	ND	ND	ND	0.0010	mg/L	8260B
2,2-Dichloropropane	ND	ND	ND	0.0010	mg/L	8260B
2-Chlorotoluene	ND	ND	ND	0.0010	mg/L	8260B
4-Chlorotoluene	ND	ND	ND	0.0010	mg/L	8260B
4-Isopropyltoluene	ND	ND	ND	0.0010	mg/L	8260B
Benzene	ND	ND	ND	0.0010	mg/L	8260B
Bromobenzene	ND	ND	ND	0.0010	mg/L	8260B
Bromomethane	ND	ND	ND	0.0010	mg/L	8260B
Carbon tetrachloride	ND	ND	ND	0.0010	mg/L	8260B
Chlorobenzene	ND	ND	ND	0.0010	mg/L	8260B
Chlorodibromomethane	ND	ND	ND	0.0010	mg/L	8260B
Chloroethane	ND	ND	ND	0.0010	mg/L	8260B
Chloroform	ND	ND	ND	0.0010	mg/L	8260B
Chloromethane	ND	ND	ND	0.0010	mg/L	8260B
Dibromomethane	ND	ND	ND	0.0010	mg/L	8260B
Dichlorodifluoromethane	ND	ND	ND	0.0010	mg/L	8260B
Ethylbenzene	ND	ND	ND	0.0010	mg/L	8260B
Hexachlorobutadiene	ND	ND	ND	0.0010	mg/L	8260B
Methylene Chloride	ND	ND	ND	0.0010	mg/L	8260B
Naphthalene	ND	ND	ND	0.0010	mg/L	8260B
Styrene	ND	ND	ND	0.0010	mg/L	8260B
Tetrachloroethene	ND	ND	ND	0.0010	mg/L	8260B

Table 7. Summary of Volatile Organic Compounds Results – Blanks

Analyte	Sample ID			Reporting Limit	Units	Method
	SP-4	SP-5	TRIP BLANK			
Toluene	ND	ND	ND	0.0010	mg/L	8260B
Trichloroethene	ND	ND	ND	0.0010	mg/L	8260B
Trichlorofluoromethane	ND	ND	ND	0.0010	mg/L	8260B
Vinyl Chloride	ND	ND	ND	0.0010	mg/L	8260B
Xylene (Total)	ND	ND	ND	0.0020	mg/L	8260B
cis-1,2-Dichloroethene	ND	ND	ND	0.0010	mg/L	8260B
cis-1,3-Dichloropropene	ND	ND	ND	0.0010	mg/L	8260B
n-Propylbenzene	ND	ND	ND	0.0010	mg/L	8260B
n-Butylbenzene	ND	ND	ND	0.0010	mg/L	8260B
sec-Butylbenzene	ND	ND	ND	0.0010	mg/L	8260B
tert-Butylbenzene	ND	ND	ND	0.0010	mg/L	8260B
trans-1,2-Dichloroethene	ND	ND	ND	0.0010	mg/L	8260B
trans-1,3-Dichloropropene	ND	ND	ND	0.0010	mg/L	8260B

ND – Analyte not detected.

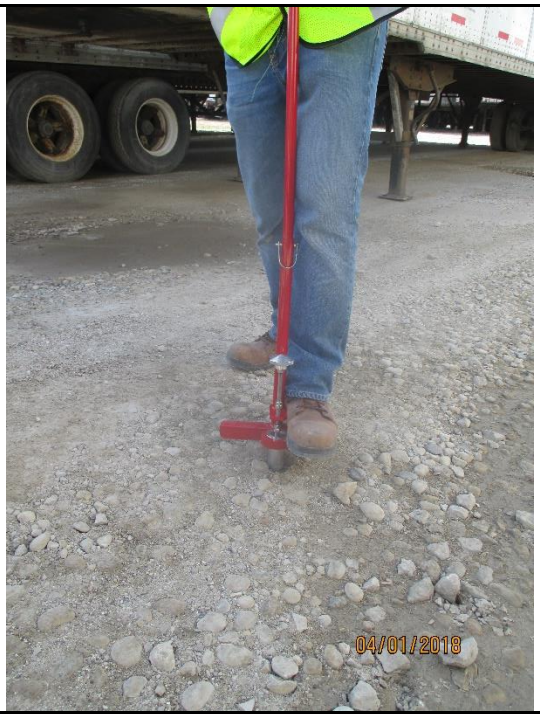
Attachment A

PHOTOGRAPH LOG

DATE TAKEN: 5/1/2018[a]	
TAKEN BY: Walt Francis	**SITE LOCATION:** Mid-America Steel Drum St. Francis
PHOTO #: 1 **COMMENTS:** CMIST sampling tool.	

a – Date stamp in these photos is inaccurate, due to an inaccurate camera setting.

DATE TAKEN: 5/1/2018	
TAKEN BY: Walt Francis	**SITE LOCATION:** Mid-America Steel Drum St. Francis
PHOTO #: 2 **COMMENTS:** CMIST sampling tool in use.	

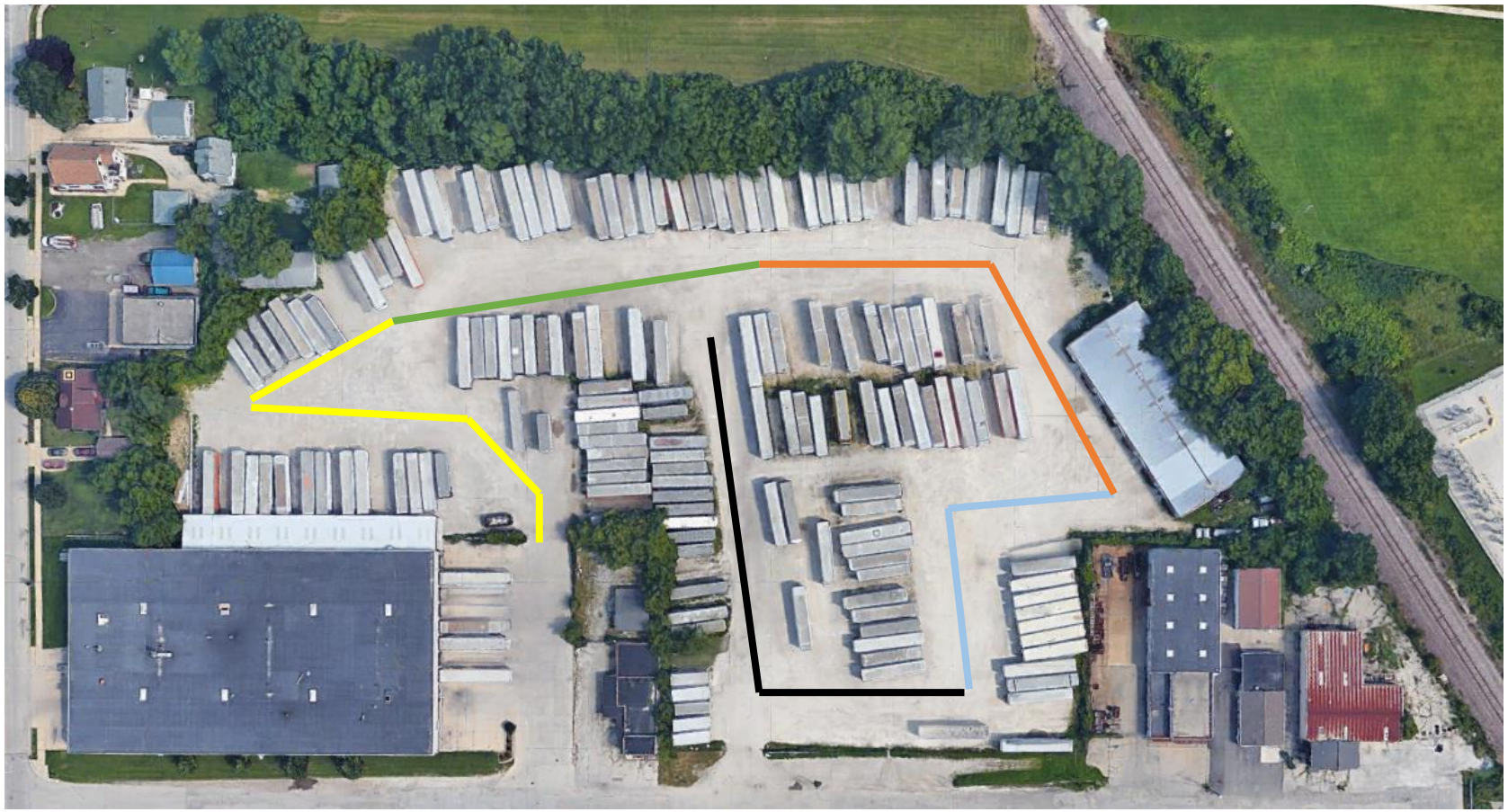
DATE TAKEN: 5/1/2018	
TAKEN BY: Walt Francis	**SITE LOCATION:** Mid-America Steel Drum St. Francis
PHOTO #: 3 **COMMENTS:** CMIST tool in use.	

DATE TAKEN: 5/1/2018	
TAKEN BY: Walt Francis	**SITE LOCATION:** Mid-America Steel Drum St. Francis
PHOTO #: 4 **COMMENTS:** Photo of storage yard looking east.	

DATE TAKEN: 5/1/2018	
TAKEN BY: Walt Francis	**SITE LOCATION:** Mid-America Steel Drum St. Francis
PHOTO #: 5 **COMMENTS:** Photo of storage yard looking south.	

Attachment B

SAMPLING TRANSECT MAP



Each transect is illustrated in a different color (Transect 1 is Black, 2 is Blue, 3 is Red, 4 is Green, and 5 is Yellow).
Source of Aerial Photography: Google Earth

Attachment C

QUALITY ASSURANCE/QUALITY CONTROL DISCUSSION

TestAmerica was selected as the laboratory for these analyses because it operates NELAC certified laboratories for the selected EPA-approved methods used in this sampling episode.

For this sampling episode, ERG followed all Quality Assurance Project Plan sampling requirements.

Sample Receipt Condition

Samples were received in good condition, properly preserved, and, where required, on ice, unless otherwise noted below:

One container for the following sample was received broken: SP-5. One of five 60 mL vials.

Holding Times

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise noted below.

Laboratory Control Samples

SP-4: 8260 Analyses

- The laboratory control sample (LCS) for 326585 recovered outside control limits for the following analytes: Vinyl Chloride and/or Bromomethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

SP-5: 8260 Analyses

- The laboratory control sample (LCS) for 326585 recovered outside control limits for the following analytes: Vinyl Chloride and/or Bromomethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

TRIP BLANK: 8260 Analyses

- The laboratory control sample (LCS) for 326585 recovered outside control limits for the following analytes: Vinyl Chloride and/or Bromomethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

SP-1: 8270 Analyses

- Sample was diluted due to nature of physical characteristics, such as color, odor, appearance, and viscosity. Elevated reporting limits (RL) are provided.

SP-2: 8270 Analyses

- Sample was diluted due to nature of physical characteristics, such as color, odor, appearance, and viscosity. Elevated reporting limits (RL) are provided.

SP-3: 8270 Analyses

- Sample was diluted due to nature of physical characteristics, such as color, odor, appearance, and viscosity. Elevated reporting limits (RL) are provided.

SP-1: 6020 Analyses

- The following samples were diluted to bring the concentration of target analytes within the calibration range: SP-1, SP-2, and SP-3. Elevated reporting limits (RLs) are provided.

SP-2: 6020 Analyses

- Sample was diluted to bring the concentration of target analytes within the calibration range. Elevated reporting limits (RLs) are provided.

SP-3: 6020 Analyses

- Sample was diluted to bring the concentration of target analytes within the calibration range. Elevated reporting limits (RLs) are provided.

7471 Analyses:

- A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The following samples were logged in for a 3g prep method not covered in the SOP: SP-1 (240-95122-1), SP-2 (240-95122-2), SP-3 (240-95122-3), (240-95122-L-1-A MS) and (240-95122-L-1-A MSD). For these samples we weighed up every sample and QC 5 times and mixed the final volumes together. A spreadsheet was used to record all of the individual and final sums of the weights for each sample. The final sum of the weights was then entered in TALS and the digestion then followed standard operating procedures.

Matrix Spike/Matrix Duplicate

SP-1: 6020 Analyses

- Due to the high concentration of iron, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 160-364898 and 160-366412 and analytical batch 160-367200 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria. (240-95122-K-1-F MS) and (240-95122-K-1-G MSD).
- The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-364898 and 160-366412 and analytical batch 160-367200 were outside control limits for aluminum and potassium. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (240-95122-K-1-F MS) and (240-95122-K-1-G MSD).
- Due to the high concentration of calcium and magnesium, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 160-364898 and 160-366412 and analytical batch 160-367373 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria. (240-95122-K-1-F MS) and (240-95122-K-1-G MSD)
- Calcium and Magnesium failed the recovery criteria low for the MS of sample SP-1MS (240-95122-1) in batch 160-367373.
- Aluminum and Potassium failed the recovery criteria high.
- Calcium and Magnesium failed the recovery criteria low for the MSD of sample SP-1MSD (240-95122-1) in batch 160-367373.
- Aluminum, Iron and Potassium failed the recovery criteria high.

Conclusion

Despite the issues listed above, the analytical data provided by the laboratory are acceptable for use in this report based on ERG's review, or flagged accordingly.

Attachment D

CHAIN-OF-CUSTODY FORM

TestAmerica Canton

4101 Shuffel Street, N. W.
North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.0772

4.4/C4.5

Chain of Custody Record

151261

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other:

Client Contact	
Company Name:	Eastern Research Group, Inc
Address:	14555 Avion Pkwy, Ste. 200
City/State/Zip:	Chantilly, VA 20151
Phone:	(703) 633-1600
Fax:	
Project Name:	Milwaukee
Site:	Milwaukee
PO #	0352.02.006/1
Project Manager:	Joe Watson
Tel/Fax:	(215) 891-6615
Site Contact:	
Lab Contact:	Deborah Dunn
Date:	May 2, 2018
Carrier:	
COC No:	
	1 of 1 COCs
Sampler:	Joe Watson

Analysis Turnaround Time
☐ CALENDAR DAYS ☑ WORKING DAYS
TAT if different from Below: 15
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Processing via Modified 8330B	EPA 6010C/7470	EPA 8260	EPA 8270	Sample Specific Notes:
SP-1	5/1/18	13:44	C	Soil	12	N	Y	✓	✓	✓	✓	
SP-2	"	15:25	C	Soil	12	N	N	✓	✓	✓	✓	
SP-3	"	16:40	C	Soil	12	N	N	✓	✓	✓	✓	
SP-4	"	16:48	G	Water	5	N	N		✓	✓	✓	
SP-5	"	16:52	G	Water	5	N	N		✓	✓	✓	
Trip Blank	NA	NA	G	"	2	N	N			✓		

240-95122 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☑ Archive for 1 Months

Special Instructions/QC Requirements & Comments:
Project-Specific MS/MSD not required; SP-1 preferred if our samples are used to meet method QA.

Custody Seals Intact: ☐ Yes ☐ No None
Custody Seal No.:
Cooler Temp. (°C): Obs'd: Corr'd: Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Joseph Watson	ERG, Inc.	5/2/18 2:42	[signature]	TA	5-2-18 2:42
[signature]	TA	5-2-18 1700	Denny Burne	TA Can	5/3/18 1015
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: