

August 20, 2019

Arcelor Mittal USA, Inc.
250 W US Highway 12
Burns Harbor, IN 46304-9745

Work Order No.: 19H1221

Re: Spill Samples

Dear Teri Kirk:

Microbac Laboratories, Inc. - Chicagoland Division received 8 sample(s) on 8/20/2019 10:50:00AM for the analyses presented in the following report as Work Order 19H1221.

The enclosed results were obtained from and are applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report have been reviewed and meet the applicable project specific and certification specific requirements, unless otherwise noted. A qualifications page is included in this report and lists the programs under which Microbac maintains certification.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories.

We appreciate the opportunity to service your analytical needs. If you have any questions, please contact your project manager. For any feedback, please contact Ron Misiunas, Division Manager, at ron.misiunas@microbac.com.

Sincerely,
Microbac Laboratories, Inc.



Carey Gadzala
Project Manager



WORK ORDER SAMPLE SUMMARY

Date: *Tuesday, August 20, 2019*

Client: Arcelor Mittal USA, Inc.
Project: Spill Samples
Lab Order: 19H1221

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
19H1221-01	Shoreline 1		08/19/2019 17:09	8/20/2019 10:50:00AM
19H1221-02	Shoreline 2		08/19/2019 17:35	8/20/2019 10:50:00AM
19H1221-03	Shoreline 3		08/19/2019 17:50	8/20/2019 10:50:00AM
19H1221-04	Shoreline 4		08/19/2019 18:00	8/20/2019 10:50:00AM
19H1221-05	Shoreline 5		08/19/2019 18:08	8/20/2019 10:50:00AM
19H1221-06	Shoreline 6		08/19/2019 18:46	8/20/2019 10:50:00AM
19H1221-07	Shoreline 7		08/19/2019 18:56	8/20/2019 10:50:00AM
19H1221-08	Shoreline 8		08/19/2019 19:29	8/20/2019 10:50:00AM

Field Results

Date: *Tuesday, August 20, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order:	19H1221
Client Project:	Spill Samples		
Client Sample ID:	Shoreline 1	Work Order/ID:	19H1221-01
Sample Description:		Sampled:	08/19/2019 17:09
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.45	pH Units
Temperature	26.6	Deg C

Client Sample ID:	Shoreline 2	Work Order/ID:	19H1221-02
Sample Description:		Sampled:	08/19/2019 17:35
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.42	pH Units
Temperature	26.4	Deg C

Client Sample ID:	Shoreline 3	Work Order/ID:	19H1221-03
Sample Description:		Sampled:	08/19/2019 17:50
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.56	pH Units
Temperature	26.3	Deg C

Client Sample ID:	Shoreline 4	Work Order/ID:	19H1221-04
Sample Description:		Sampled:	08/19/2019 18:00
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.66	pH Units
Temperature	26.7	Deg C

Client Sample ID:	Shoreline 5	Work Order/ID:	19H1221-05
Sample Description:		Sampled:	08/19/2019 18:08
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.73	pH Units
Temperature	26.7	Deg C

Client Sample ID:	Shoreline 6	Work Order/ID:	19H1221-06
Sample Description:		Sampled:	08/19/2019 18:46
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.79	pH Units
Temperature	26.3	Deg C

Field Results

Date: *Tuesday, August 20, 2019*

Client Sample ID:	Shoreline 7	Work Order/ID:	19H1221-07
Sample Description:		Sampled:	08/19/2019 18:56
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.83	pH Units
Temperature	26.2	Deg C

Client Sample ID:	Shoreline 8	Work Order/ID:	19H1221-08
Sample Description:		Sampled:	08/19/2019 19:29
Matrix:	Aqueous	Received:	08/20/2019 10:50

Analyses	Result	Units
pH	7.38	pH Units
Temperature	25.6	Deg C

CASE NARRATIVE**Date:** *Tuesday, August 20, 2019*

Client: Arcelor Mittal USA, Inc.
Project: Spill Samples
Lab Order: 19H1221

The Matrix Spike Duplicate performed on the following sample failed the precision criteria for free cyanide. The accuracy criteria were met by the Matrix Spike. This data is indicative of a bias related to sample matrix.

<u>Laboratory ID</u>	<u>Sample Name</u>
19H1221-01	Shoreline 1

Analytical Results

Date: Tuesday, August 20, 2019

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1221-01
Client Project:	Spill Samples	Sampled:	08/19/2019 17:09
Client Sample ID:	Shoreline 1	Received:	08/20/2019 10:50
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SM 4500-CN C/E-1999 Analyst: ABG								
Prep Method: NA Prep Date/Time: 08/20/2019 14:45								
Total Cyanide								
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 16:46
Method: SW-846 9014 Analyst: ABG								
Prep Method: SW-846 9014 Prep Date/Time: 08/20/2019 12:55								
Free Cyanide								
Free Cyanide		A	ND	0.0062		mg/L	1	08/20/2019 13:14
Method: SM 4500-O C-2001 Analyst: DAT								
Prep Method: SM 4500-O C-2001 Prep Date/Time: 08/20/2019 14:47								
Dissolved Oxygen								
Oxygen, Dissolved	di	A	10	0.20	H	mg/L	1	08/20/2019 14:47
Method: EPA 350.1 Rev 2.0 Analyst: ABG								
Prep Method: EPA 350.1 Rev 2.0 Prep Date/Time: 08/20/2019 12:55								
Nitrogen, Ammonia as N								
Nitrogen, Ammonia (As N)	di	A	2.3	0.10		mg/L	1	08/20/2019 15:02

Analytical Results

Date: Tuesday, August 20, 2019

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: Shoreline 2
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1221-02
Sampled: 08/19/2019 17:35
Received: 08/20/2019 10:50

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: ABG		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/20/2019 14:45		
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 16:51
			Method: SW-846 9014			Analyst: ABG		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/20/2019 12:55		
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:19
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/20/2019 14:47		
Oxygen, Dissolved	di	A	8.5	0.20	H	mg/L	1	08/20/2019 14:47
			Method: EPA 350.1 Rev 2.0			Analyst: ABG		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/20/2019 12:55		
Nitrogen, Ammonia (As N)	di	A	0.71	0.10		mg/L	1	08/20/2019 15:04

Analytical Results

Date: *Tuesday, August 20, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1221-03
Client Project:	Spill Samples	Sampled:	08/19/2019 17:50
Client Sample ID:	Shoreline 3	Received:	08/20/2019 10:50
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: ABG			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/20/2019 14:45			
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 16:56
			Method: SW-846 9014		Analyst: ABG			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/20/2019 12:55			
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:21
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/20/2019 14:47			
Oxygen, Dissolved	di	A	8.7	0.20	H	mg/L	1	08/20/2019 14:47
			Method: EPA 350.1 Rev 2.0		Analyst: ABG			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/20/2019 12:55			
Nitrogen, Ammonia (As N)	di	A	0.50	0.10		mg/L	1	08/20/2019 15:07

Analytical Results

Date: *Tuesday, August 20, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1221-04
Client Project:	Spill Samples	Sampled:	08/19/2019 18:00
Client Sample ID:	Shoreline 4	Received:	08/20/2019 10:50
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SM 4500-CN C/E-1999 Analyst: ABG								
Prep Method: NA Prep Date/Time: 08/20/2019 14:45								
Total Cyanide								
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 16:58
Method: SW-846 9014 Analyst: ABG								
Prep Method: SW-846 9014 Prep Date/Time: 08/20/2019 12:55								
Free Cyanide								
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:23
Method: SM 4500-O C-2001 Analyst: DAT								
Prep Method: SM 4500-O C-2001 Prep Date/Time: 08/20/2019 14:47								
Dissolved Oxygen								
Oxygen, Dissolved	di	A	8.4	0.20	H	mg/L	1	08/20/2019 14:47
Method: EPA 350.1 Rev 2.0 Analyst: ABG								
Prep Method: EPA 350.1 Rev 2.0 Prep Date/Time: 08/20/2019 12:55								
Nitrogen, Ammonia as N								
Nitrogen, Ammonia (As N)	di	A	0.27	0.10		mg/L	1	08/20/2019 15:09



Analytical Results

Date: Tuesday, August 20, 2019

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: Shoreline 5
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1221-05
Sampled: 08/19/2019 18:08
Received: 08/20/2019 10:50

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SM 4500-CN C/E-1999 Analyst: ABG								
Prep Method: NA Prep Date/Time: 08/20/2019 14:45								
Total Cyanide								
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 17:03
Method: SW-846 9014 Analyst: ABG								
Prep Method: SW-846 9014 Prep Date/Time: 08/20/2019 12:55								
Free Cyanide								
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:25
Method: SM 4500-O C-2001 Analyst: DAT								
Prep Method: SM 4500-O C-2001 Prep Date/Time: 08/20/2019 14:47								
Dissolved Oxygen								
Oxygen, Dissolved	di	A	8.6	0.20	H	mg/L	1	08/20/2019 14:47
Method: EPA 350.1 Rev 2.0 Analyst: ABG								
Prep Method: EPA 350.1 Rev 2.0 Prep Date/Time: 08/20/2019 12:55								
Nitrogen, Ammonia as N								
Nitrogen, Ammonia (As N)	di	A	0.23	0.10		mg/L	1	08/20/2019 15:11

Analytical Results

Date: *Tuesday, August 20, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1221-06
Client Project:	Spill Samples	Sampled:	08/19/2019 18:46
Client Sample ID:	Shoreline 6	Received:	08/20/2019 10:50
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: ABG			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/20/2019 14:45			
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 17:05
			Method: SW-846 9014		Analyst: ABG			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/20/2019 12:55			
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:26
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/20/2019 14:47			
Oxygen, Dissolved	di	A	8.3	0.20	H	mg/L	1	08/20/2019 14:47
			Method: EPA 350.1 Rev 2.0		Analyst: EF			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/20/2019 15:30			
Nitrogen, Ammonia (As N)	di	A	0.19	0.10		mg/L	1	08/20/2019 17:58



Analytical Results

Date: Tuesday, August 20, 2019

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: Shoreline 7
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1221-07
Sampled: 08/19/2019 18:56
Received: 08/20/2019 10:50

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: ABG		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/20/2019 14:45		
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 17:06
			Method: SW-846 9014			Analyst: ABG		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/20/2019 12:55		
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:28
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/20/2019 14:47		
Oxygen, Dissolved	di	A	8.0	0.20	H	mg/L	1	08/20/2019 14:47
			Method: EPA 350.1 Rev 2.0			Analyst: EF		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/20/2019 15:30		
Nitrogen, Ammonia (As N)	di	A	0.13	0.10		mg/L	1	08/20/2019 18:00

Microbac Laboratories, Inc.

250 West 84th Drive | Merrillville, IN 46410 | 800.536.8379 p | 219.769.8378 p | 219.769.1664 f | www.microbac.com

Analytical Results

Date: Tuesday, August 20, 2019

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: Shoreline 8
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1221-08
Sampled: 08/19/2019 19:29
Received: 08/20/2019 10:50

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: ABG		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/20/2019 14:45		
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/20/2019 17:08
			Method: SW-846 9014			Analyst: ABG		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/20/2019 12:55		
Free Cyanide		A	ND	0.010		mg/L	1	08/20/2019 13:30
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/20/2019 14:47		
Oxygen, Dissolved	di	A	7.9	0.20	H	mg/L	1	08/20/2019 14:47
			Method: EPA 350.1 Rev 2.0			Analyst: EF		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/20/2019 15:30		
Nitrogen, Ammonia (As N)	di	A	0.12	0.10		mg/L	1	08/20/2019 18:03

ANALYTE TYPES: (AT)

A, B = Target Analyte

I = Internal Standard

M = Summation Analyte

S = Surrogate

T = Tentatively Identified Compound (TIC, concentration estimated)



QC SAMPLE IDENTIFICATIONS

BLK = Method Blank

DUP = Method Duplicate

BS = Method Blank Spike

MS = Matrix Spike

ICB = Initial Calibration Blank

CCB = Continuing Calibration Blank

CRL = Client Required Reporting Limit

PDS = Post Digestion Spike

QCS = Quality Control Standard

ICSA = Interference Check Standard "A"

ICSAB = Interference Check Standard "AB"

BSD = Method Blank Spike Duplicate

MSD = Matrix Spike Duplicate

ICV = Initial Calibration Verification

CCV = Continuing Calibration Verification

OPR = Ongoing Precision and Recovery Standard

SD = Serial Dilution

CERTIFICATIONS (Certs)

Below is a list of certifications maintained by the Microbac Merrillville Laboratory. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. Complete lists of individual analytes pursuant to each certification below are available upon request.

d Illinois EPA drinking water, wastewater and solid waste analysis (#200064)

i Kansas Dept Health & Env. NELAP (#E-10397)

j Kentucky Wastewater Laboratory Certification Program (#108202)

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)**H:** Sample was analyzed past holding time.**RL:** Reporting Limit**RPD:** Relative Percent Difference

Cooler Receipt Log

Cooler ID: Default Cooler

Temp: 3.0°C
 MICROBAC®

Comments

No times on sample containers

Cooler Inspection Checklist

Ice Present or not required?	Yes
Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes
Chain of Custody (COC) Present?	Yes
COC includes customer information?	No
Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes
Sample type identified on COC?	Yes
Correct type of Containers Received	Yes
Correct number of containers listed on COC?	Yes
Containers Intact?	Yes
COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes
Sample labels match COC (Name, Date & Time?)	No
Samples arrived within hold time?	Yes
Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes
Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes

Microbac Laboratories, Inc.

250 West 84th Drive | Merrillville, IN 46410 | 800.536.8379 p | 219.769.8378 p | 219.769.1664 f | www.microbac.com



Lab Report Address

Client Name:

Address:

City, State, Zip:

Contact:

Telephone No.:

Send Report via: Mail Fax e-mail (address)

Turnaround Time

Routine (5 to 7 business days)

RUSH* (notify lab)

(needed by)

Report Type

Results Only Level 1 Level 2 Level 3 Level 4 EDD

Send Invoice via: Mail Fax e-mail (address)

Project: Receiving Water Monitoring

PO No.:

Compliance Monitoring? Yes No

Agency/Program

Sampler Signature:

Sampler Phone No.: 219-644-7575

John K. Gurman
 Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)
 Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

19H1221

19H1221 Carey Gadzala
 ArcelorMittal - Burns Harbor, IN
 Spill Samples
 08/20/2019

REQUESTED ANALYSIS

Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	DO	NH4	Free Cn	Temp	Additional Notes
Shoreline 1	8/19/19	17:09	4	AQ	G	U, 2, 4	X	X	X	X	No dwel Temp
Shoreline 2		17:35					X	X	X	X	7.45-01
Shoreline 3		17:50					X	X	X	X	7.42-01
Shoreline 4		18:00					X	X	X	X	7.56-03
Shoreline 5		18:08					X	X	X	X	7.66-04
Shoreline 6		18:46					X	X	X	X	7.73-05
Shoreline 7		18:56					X	X	X	X	7.79-06
Shoreline 8		19:29					X	X	X	X	7.83-07
											7.38-08

Possible Hazard Identification

Hazardous Non-Hazardous Radioactive

Sample Disposition Dispose as appropriate Return Archive

Comments
Time collected

Temp

pH

Relinquished By (signature)
John K. Gurman

Date/Time
8-19-19 7:57

Received By (signature)
Nick Karmata

Date/Time
8/20/19 0800

Relinquished By (signature)
John K. Gurman

Date/Time
8/20/19 1050

Received By (signature)
Nick Karmata

Date/Time
8-20-19 1050