

August 18, 2019

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

Work Order No.: 19H1107

Re: Spill Samples

Dear Teri Kirk:

Microbac Laboratories, Inc. - Chicagoland Division received 30 sample(s) on 8/17/2019 11:20:00AM for the analyses presented in the following report as Work Order 19H1107.

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.

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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: *Sunday, August 18, 2019*

Client: Arcelor Mittal USA, Inc.
Project: Spill Samples
Lab Order: 19H1107

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
19H1107-01	#13		08/17/2019 06:38	8/17/2019 11:20:00AM
19H1107-02	#12		08/17/2019 06:44	8/17/2019 11:20:00AM
19H1107-03	#11		08/17/2019 06:51	8/17/2019 11:20:00AM
19H1107-04	#10		08/17/2019 06:56	8/17/2019 11:20:00AM
19H1107-05	#9		08/17/2019 07:01	8/17/2019 11:20:00AM
19H1107-06	#8		08/17/2019 07:06	8/17/2019 11:20:00AM
19H1107-07	#7		08/17/2019 07:13	8/17/2019 11:20:00AM
19H1107-08	#6		08/17/2019 07:25	8/17/2019 11:20:00AM
19H1107-09	#5		08/17/2019 07:31	8/17/2019 11:20:00AM
19H1107-10	#4		08/17/2019 07:37	8/17/2019 11:20:00AM
19H1107-11	#3		08/17/2019 07:45	8/17/2019 11:20:00AM
19H1107-12	#2		08/17/2019 07:51	8/17/2019 11:20:00AM
19H1107-13	#1		08/17/2019 07:58	8/17/2019 11:20:00AM
19H1107-14	Outfall 001		08/17/2019 08:04	8/17/2019 11:20:00AM
19H1107-15	#000		08/17/2019 09:11	8/17/2019 11:20:00AM

Field Results

Date: Sunday, August 18, 2019

Client:	Arcelor Mittal USA, Inc.	Work Order:	19H1107
Client Project:	Spill Samples		
Client Sample ID:	#13	Work Order/ID:	19H1107-01
Sample Description:		Sampled:	08/17/2019 06:38
Matrix:	Aqueous	Received:	08/17/2019 11:20

Analyses	Result	Units
pH	7.39	pH Units
Temp	76.9	F

Client Sample ID:	#12	Work Order/ID:	19H1107-02
Sample Description:		Sampled:	08/17/2019 06:44
Matrix:	Aqueous	Received:	08/17/2019 11:20

Analyses	Result	Units
pH	7.36	pH Units
Temp	77.8	F

Client Sample ID:	#11	Work Order/ID:	19H1107-03
Sample Description:		Sampled:	08/17/2019 06:51
Matrix:	Aqueous	Received:	08/17/2019 11:20

Analyses	Result	Units
pH	7.43	pH Units
Temp	77.6	F

Client Sample ID:	#10	Work Order/ID:	19H1107-04
Sample Description:		Sampled:	08/17/2019 06:56
Matrix:	Aqueous	Received:	08/17/2019 11:20

Analyses	Result	Units
pH	7.51	pH Units
Temp	77.6	F

Client Sample ID:	#9	Work Order/ID:	19H1107-05
Sample Description:		Sampled:	08/17/2019 07:01
Matrix:	Aqueous	Received:	08/17/2019 11:20

Analyses	Result	Units
pH	7.53	pH Units
Temp	77.7	F

Client Sample ID:	#8	Work Order/ID:	19H1107-06
Sample Description:		Sampled:	08/17/2019 07:06
Matrix:	Aqueous	Received:	08/17/2019 11:20

Analyses	Result	Units
pH	7.57	pH Units
Temp	78.2	F

Field Results

Date: Sunday, August 18, 2019

Client Sample ID: #7	Work Order/ID: 19H1107-07
Sample Description:	Sampled: 08/17/2019 07:13
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.56	pH Units
Temp	78.1	F

Client Sample ID: #6	Work Order/ID: 19H1107-08
Sample Description:	Sampled: 08/17/2019 07:25
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.71	pH Units
Temp	78.2	F

Client Sample ID: #5	Work Order/ID: 19H1107-09
Sample Description:	Sampled: 08/17/2019 07:31
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.77	pH Units
Temp	78.1	F

Client Sample ID: #4	Work Order/ID: 19H1107-10
Sample Description:	Sampled: 08/17/2019 07:37
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.83	pH Units
Temp	77.9	F

Client Sample ID: #3	Work Order/ID: 19H1107-11
Sample Description:	Sampled: 08/17/2019 07:45
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.80	pH Units
Temp	78	F

Client Sample ID: #2	Work Order/ID: 19H1107-12
Sample Description:	Sampled: 08/17/2019 07:51
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.85	pH Units
Temp	79.2	F

Client Sample ID: #1	Work Order/ID: 19H1107-13
Sample Description:	Sampled: 08/17/2019 07:58
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.76	pH Units

[Microbac Laboratories, Inc.](http://www.microbac.com)

Field Results
Date: Sunday, August 18, 2019

Temp	79.4	F
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Client Sample ID: Outfall 001	Work Order/ID: 19H1107-14
Sample Description:	Sampled: 08/17/2019 08:04
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.79	pH Units
Temp	82.5	F

Client Sample ID: #000	Work Order/ID: 19H1107-15
Sample Description:	Sampled: 08/17/2019 09:11
Matrix: Aqueous	Received: 08/17/2019 11:20

Analyses	Result	Units
pH	7.91	pH Units
Temp	69.7	F

CASE NARRATIVE**Date:** *Sunday, August 18, 2019*

Client: Arcelor Mittal USA, Inc.
Project: Spill Samples
Lab Order: 19H1107

H - sample received beyond the maximum allowable hold time for dissolved oxygen analysis.

<u>Laboratory ID</u>	<u>Sample Name</u>
19H1107-01	#13
19H1107-02	#12
19H1107-03	#11
19H1107-04	#10
19H1107-05	#9
19H1107-06	#8
19H1107-07	#7
19H1107-08	#6
19H1107-09	#5
19H1107-10	#4
19H1107-11	#3
19H1107-12	#2
19H1107-13	#1
19H1107-14	Outfall 001
19H1107-15	#000

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-01
Client Project:	Spill Samples	Sampled:	08/17/2019 6:38
Client Sample ID:	#13	Received:	08/17/2019 11:20
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: 08/17/2019 12:30			
Cyanide, Total	dij	A	0.020	0.0050		mg/L	1	08/17/2019 16:55
			Method: SW-846 9014		Analyst: EF			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/17/2019 13:28			
Free Cyanide		A	0.018	0.0062		mg/L	1	08/18/2019 15:10
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/17/2019 12:16			
Oxygen, Dissolved	di	A	6.6	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0		Analyst: ABG			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/17/2019 14:31			
Nitrogen, Ammonia (As N)	di	A	0.33	0.10		mg/L	1	08/17/2019 16:51

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-02
Client Project:	Spill Samples	Sampled:	08/17/2019 6:44
Client Sample ID:	#12	Received:	08/17/2019 11:20
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: 08/17/2019 12:30								
Total Cyanide								
Cyanide, Total	dij	A	0.018	0.0050		mg/L	1	08/17/2019 16:57
Method: SW-846 9014 Analyst: EF								
Prep Method: SW-846 9014 Prep Date/Time: 08/17/2019 13:28								
Free Cyanide								
Free Cyanide		A	0.018	0.0062		mg/L	1	08/18/2019 15:12
Method: SM 4500-O C-2001 Analyst: DAT								
Prep Method: SM 4500-O C-2001 Prep Date/Time: 08/17/2019 12:16								
Dissolved Oxygen								
Oxygen, Dissolved	di	A	6.4	0.20	H	mg/L	1	08/17/2019 12:16
Method: EPA 350.1 Rev 2.0 Analyst: ABG								
Prep Method: EPA 350.1 Rev 2.0 Prep Date/Time: 08/17/2019 14:31								
Nitrogen, Ammonia as N								
Nitrogen, Ammonia (As N)	di	A	0.31	0.10		mg/L	1	08/17/2019 16:54

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-03
Client Project:	Spill Samples	Sampled:	08/17/2019 6:51
Client Sample ID:	#11	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: EF			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/17/2019 14:45			
Cyanide, Total	dij	A	0.017	0.0050		mg/L	1	08/18/2019 12:55
			Method: SW-846 9014		Analyst: EF			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/17/2019 13:28			
Free Cyanide		A	0.016	0.0062		mg/L	1	08/18/2019 15:13
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/17/2019 12:16			
Oxygen, Dissolved	di	A	6.5	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0		Analyst: ABG			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/17/2019 14:31			
Nitrogen, Ammonia (As N)	di	A	0.31	0.10		mg/L	1	08/17/2019 16:56

Analytical Results

Date: *Sunday, August 18, 2019*

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: #10
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1107-04
Sampled: 08/17/2019 6:56
Received: 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: EF		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/17/2019 14:45		
Cyanide, Total	dij	A	0.016	0.0050		mg/L	1	08/18/2019 12:56
			Method: SW-846 9014			Analyst: EF		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide		A	0.015	0.0062		mg/L	1	08/18/2019 15:15
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/17/2019 12:16		
Oxygen, Dissolved	di	A	6.3	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0			Analyst: AJR		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/17/2019 14:35		
Nitrogen, Ammonia (As N)	di	A	0.38	0.10		mg/L	1	08/18/2019 11:02

Analytical Results

Date: *Sunday, August 18, 2019*

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: #9
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1107-05
Sampled: 08/17/2019 7:01
Received: 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: EF		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/17/2019 14:45		
Cyanide, Total	dij	A	0.012	0.0050		mg/L	1	08/18/2019 12:58
			Method: SW-846 9014			Analyst: EF		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide		A	0.012	0.0062		mg/L	1	08/18/2019 15:20
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/17/2019 12:16		
Oxygen, Dissolved	di	A	6.0	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0			Analyst: AJR		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/17/2019 14:35		
Nitrogen, Ammonia (As N)	di	A	0.36	0.10		mg/L	1	08/18/2019 11:09

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-06
Client Project:	Spill Samples	Sampled:	08/17/2019 7:06
Client Sample ID:	#8	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: EF			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/17/2019 14:45			
Cyanide, Total	dij	A	0.012	0.0050		mg/L	1	08/18/2019 13:12
			Method: SW-846 9014		Analyst: EF			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/17/2019 13:28			
Free Cyanide		A	0.010	0.0062		mg/L	1	08/18/2019 15:22
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/17/2019 12:16			
Oxygen, Dissolved	di	A	6.3	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0		Analyst: AJR			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/17/2019 14:35			
Nitrogen, Ammonia (As N)	di	A	0.37	0.10		mg/L	1	08/18/2019 11:11

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-07
Client Project:	Spill Samples	Sampled:	08/17/2019 7:13
Client Sample ID:	#7	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: EF			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/17/2019 14:45			
Cyanide, Total	dij	A	0.0094	0.0050		mg/L	1	08/18/2019 13:13
			Method: SW-846 9014		Analyst: EF			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/17/2019 13:28			
Free Cyanide		A	0.0082	0.0062		mg/L	1	08/18/2019 15:27
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/17/2019 12:16			
Oxygen, Dissolved	di	A	6.3	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0		Analyst: AJR			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/17/2019 15:34			
Nitrogen, Ammonia (As N)	di	A	0.42	0.10		mg/L	1	08/18/2019 11:14

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-08
Client Project:	Spill Samples	Sampled:	08/17/2019 7:25
Client Sample ID:	#6	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: EF			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/17/2019 14:45			
Cyanide, Total	dij	A	0.0073	0.0050		mg/L	1	08/18/2019 13:15
			Method: SW-846 9014		Analyst: EF			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/17/2019 13:28			
Free Cyanide		A	0.0075	0.0062		mg/L	1	08/18/2019 15:28
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/17/2019 12:16			
Oxygen, Dissolved	di	A	6.3	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0		Analyst: AJR			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/17/2019 15:34			
Nitrogen, Ammonia (As N)	di	A	0.37	0.10		mg/L	1	08/18/2019 11:16

Analytical Results

Date: *Sunday, August 18, 2019*

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

Work Order/ID: 19H1107-09
Sampled: 08/17/2019 7:31
Received: 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: EF		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/17/2019 14:45		
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/18/2019 13:17
			Method: SW-846 9014			Analyst: EF		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:30
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/17/2019 12:16		
Oxygen, Dissolved	di	A	6.4	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0			Analyst: AJR		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/17/2019 15:34		
Nitrogen, Ammonia (As N)	di	A	0.33	0.10		mg/L	1	08/18/2019 11:28

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-10
Client Project:	Spill Samples	Sampled:	08/17/2019 7:37
Client Sample ID:	#4	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999		Analyst: EF			
Total Cyanide			Prep Method: NA		Prep Date/Time: 08/17/2019 14:45			
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/18/2019 13:18
			Method: SW-846 9014		Analyst: EF			
Free Cyanide			Prep Method: SW-846 9014		Prep Date/Time: 08/17/2019 13:28			
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:32
			Method: SM 4500-O C-2001		Analyst: DAT			
Dissolved Oxygen			Prep Method: SM 4500-O C-2001		Prep Date/Time: 08/17/2019 12:16			
Oxygen, Dissolved	di	A	6.5	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0		Analyst: AJR			
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0		Prep Date/Time: 08/17/2019 15:34			
Nitrogen, Ammonia (As N)	di	A	0.39	0.10		mg/L	1	08/18/2019 11:30

Analytical Results

Date: *Sunday, August 18, 2019*

Client: Arcelor Mittal USA, Inc.
Client Project: Spill Samples
Client Sample ID: #3
Sample Description:
Matrix: Aqueous

Work Order/ID: 19H1107-11
Sampled: 08/17/2019 7:45
Received: 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: EF		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/17/2019 14:45		
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/18/2019 13:20
			Method: SW-846 9014			Analyst: EF		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:33
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/17/2019 12:16		
Oxygen, Dissolved	di	A	6.6	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0			Analyst: AJR		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/17/2019 15:34		
Nitrogen, Ammonia (As N)	di	A	0.30	0.10		mg/L	1	08/18/2019 11:33

Analytical Results

Date: *Sunday, August 18, 2019*

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

Work Order/ID: 19H1107-12
Sampled: 08/17/2019 7:51
Received: 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999			Analyst: EF		
Total Cyanide			Prep Method: NA			Prep Date/Time: 08/17/2019 14:45		
Cyanide, Total	dij	A	0.0056	0.0050		mg/L	1	08/18/2019 13:22
			Method: SW-846 9014			Analyst: EF		
Free Cyanide			Prep Method: SW-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:35
			Method: SM 4500-O C-2001			Analyst: DAT		
Dissolved Oxygen			Prep Method: SM 4500-O C-2001			Prep Date/Time: 08/17/2019 12:16		
Oxygen, Dissolved	di	A	6.6	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0			Analyst: AJR		
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0			Prep Date/Time: 08/17/2019 15:34		
Nitrogen, Ammonia (As N)	di	A	0.37	0.10		mg/L	1	08/18/2019 11:35

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-13
Client Project:	Spill Samples	Sampled:	08/17/2019 7:58
Client Sample ID:	#1	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: SM 4500-CN C/E-1999 Analyst: EF								
Prep Method: NA Prep Date/Time: 08/18/2019 13:42								
Total Cyanide								
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/18/2019 15:45
Method: SW-846 9014 Analyst: EF								
Prep Method: SW-846 9014 Prep Date/Time: 08/17/2019 13:28								
Free Cyanide								
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:40
Method: SM 4500-O C-2001 Analyst: DAT								
Prep Method: SM 4500-O C-2001 Prep Date/Time: 08/17/2019 12:16								
Dissolved Oxygen								
Oxygen, Dissolved	di	A	6.6	0.20	H	mg/L	1	08/17/2019 12:16
Method: EPA 350.1 Rev 2.0 Analyst: AJR								
Prep Method: EPA 350.1 Rev 2.0 Prep Date/Time: 08/17/2019 15:34								
Nitrogen, Ammonia as N								
Nitrogen, Ammonia (As N)	di	A	0.36	0.10		mg/L	1	08/18/2019 11:38

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-14
Client Project:	Spill Samples	Sampled:	08/17/2019 8:04
Client Sample ID:	Outfall 001	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999				Analyst: EF	
Total Cyanide			Prep Method: NA				Prep Date/Time: 08/18/2019 13:42	
Cyanide, Total	dij	A	0.0058	0.0050		mg/L	1	08/18/2019 15:47
			Method: SW-846 9014				Analyst: EF	
Free Cyanide			Prep Method: SW-846 9014				Prep Date/Time: 08/17/2019 13:28	
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:42
			Method: SM 4500-O C-2001				Analyst: DAT	
Dissolved Oxygen			Prep Method: SM 4500-O C-2001				Prep Date/Time: 08/17/2019 12:16	
Oxygen, Dissolved	di	A	6.6	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0				Analyst: AJR	
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0				Prep Date/Time: 08/17/2019 15:34	
Nitrogen, Ammonia (As N)	di	A	0.40	0.10		mg/L	1	08/18/2019 11:40

Analytical Results

Date: *Sunday, August 18, 2019*

Client:	Arcelor Mittal USA, Inc.	Work Order/ID:	19H1107-15
Client Project:	Spill Samples	Sampled:	08/17/2019 9:11
Client Sample ID:	#000	Received:	08/17/2019 11:20
Sample Description:			
Matrix:	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-CN C/E-1999				Analyst: EF	
Total Cyanide			Prep Method: NA				Prep Date/Time: 08/18/2019 13:42	
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/18/2019 15:49
			Method: SW-846 9014				Analyst: EF	
Free Cyanide			Prep Method: SW-846 9014				Prep Date/Time: 08/17/2019 13:28	
Free Cyanide		A	ND	0.0062		mg/L	1	08/18/2019 15:44
			Method: SM 4500-O C-2001				Analyst: DAT	
Dissolved Oxygen			Prep Method: SM 4500-O C-2001				Prep Date/Time: 08/17/2019 12:16	
Oxygen, Dissolved	di	A	7.7	0.20	H	mg/L	1	08/17/2019 12:16
			Method: EPA 350.1 Rev 2.0				Analyst: AJR	
Nitrogen, Ammonia as N			Prep Method: EPA 350.1 Rev 2.0				Prep Date/Time: 08/17/2019 15:34	
Nitrogen, Ammonia (As N)	di	A	ND	0.10		mg/L	1	08/18/2019 11:42

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: 0.9°C


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?)	Yes
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

CHAIN OF CUSTODY-REC

Number **152344**
 Instructions on back

TO BE COMPLETED BY MICROBAC

Temperature Upon Receipt (°C)
 Therm ID
 Holding Time
 Samples Received on Ice? Yes
 Custody Seals Intact? Yes No

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)

Compliance Monitoring? Yes No
 Agency/Program

Sampler Phone No.: **219-644-7585**

Invoice Address

Client Name:

Address:

City, State, Zip:

Contact:

Telephone No.:

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

Location:

PO No.:

Sampler Signature: *John M. Jan*

Sampler Phone No.:

* 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 Thiosulfate, (8) Sodium Bisulfate, (9) Hexane, (U) Unpreserved

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **	DO	NH4	CN	FreeCN	Additional Notes
	13	8/17/19	6:38	4	AW	U, 2, 4		X	X	X	X	Temp 76.9 F 7.39 -01 19H1107
	12		6:44					X	X	X	X	77.8 7.36 -02
	11		6:51					X	X	X	X	77.6 7.42 -03
	10		6:56					X	X	X	X	77.6 7.51 -04
	9		7:01					X	X	X	X	77.7 7.53 -05
	8		7:06					X	X	X	X	78.2 7.57 -06
	7		7:13					X	X	X	X	78.1 7.56 -07
	6		7:25					X	X	X	X	78.2 7.71 -08
	5		7:31					X	X	X	X	78.1 7.77 -09
	4		7:37					X	X	X	X	77.9 7.83 -10

RUSH

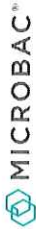
Possible Hazard Identification
 Hazardous Non-Hazardous Radioactive

Comments
 1.20C
 -0.3
 0.90

Relinquished By (signature) *John M. Jan* Date/Time 8-17-19 9:52a
 Relinquished By (signature) *John M. Jan* Date/Time 8-17-19 9:52a

Received By (signature) *Dawn Tawo* Date/Time 8/17/19 9:57a
 Received By (signature) *Dawn Tawo* Date/Time 8/17/19 9:57a

Relinquished By (signature) *Dawn Tawo* Date/Time 8/17/19 1:20
 Relinquished By (signature) *Dawn Tawo* Date/Time 8/17/19 1:20



CHAIN OF CUSTODY RECORD

Number 152347
Instructions on back

Lab Report Address: _____
 Invoice Address: _____
 Client Name: _____
 Address: _____
 City, State, Zip: _____
 Contact: _____
 Telephone No.: _____

Turnaround Time
 Routine (5 to 7 business days)
 RUSH* (notify lab)

Holding Time
 Samples Received on Ice? Yes No N/A
 Custody Seals Intact? Yes No N/A

Temperature Upon Receipt (°C)
 Therm ID
 Level 1 Level 2 Level 3 Level 4 EDD

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

Project: Receiving Water Monitoring
 Compliance Monitoring? Yes No
 Agency/Program

Sampler Signature: [Signature]
 Sampler Phone No.: 219-644-7585

* 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

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types**	OD	MHC	CN	Free CN	Additional Notes
	3	8-17-19	7:45	4	AQG	G	2,4	X	X	X	X	19H1107
	2		7:51	1				X	X	X	X	AWA5 Temp 78.0°F 7.80-11
	1		7:56	1				X	X	X	X	79.2°F 7.85-12
	OUTFALL 001		8:04	1				X	X	X	X	79.4°F 7.76-13
	000		9:11	1				X	X	X	X	82.5°F 7.79-14 69.7°F 7.91-15

Requested Analysis

Possible Hazard Identification: Hazardous Non-Hazardous Radioactive

Sample Disposition: Dispose as appropriate Return Archive

Comments

Relinquished By (signature): [Signature] Date/Time: 8-17-19 9:57a
 Received By (signature): [Signature] Date/Time: 8/17/19 957

Relinquished By (signature): [Signature] Date/Time: 8/17/19 1120
 Received By (signature): [Signature] Date/Time: 8-17-19 129