

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.

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.

Carup Macizala

Carey Gadzala Project Manager

Microbac Laboratories, Inc.



	RDER SAI	MPLE SUMMARY		Date:	Sunday, August 18, 201		
Client: Project: Lab Order:	Arcelor Mit Spill Samp 19H1107	ital USA, Inc. Ies					
Lab Sample	D C	lient 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	0	utfall 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: Sur	nday, 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	<b>1</b> ,	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	
Sample Description:		Sampled:	08/17/2019 06:51
Matrix:	Aqueous	Received:	08/17/2019 11:20
Analyses		Result	Units
рН		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

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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
Тетр		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
рН		7.71	pH Units
Тетр		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
pН		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
pН		7.80	pH Units
Тетр		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
рН		7.85	pH Units
Тетр		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

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Field Results		Date: Sund	ay, August 18, 2019
Тетр		79.4	F
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
Тетр		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

Sunday, August 18, 2019

Date:

Client:	Arcelor Mittal USA, Inc.
Project:	Spill Samples
Lab Order:	19H1107
H - sample re	eceived beyond the maximum allowable hold time for dissolved oxygen analysis.
Laboratory ID	
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 Re	sults		D			Date: Sund		day, August 18, 2019		
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.								
Client Sample ID:	#13						Work Or	der/ID:	19H1107-01	
Sample Description:							Sampled	1:	08/17/2019 6:38	
Matrix:	Aqueous						Receive	d:	08/17/2019 11:20	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500	-CN C/E-1999		Analyst: ABG			
Total Cyanide		Prep Method: NA					F	Prep Date/1	ime:08/17/2019 12:30	
Cyanide, Total		dij	Α	0.020	0.0050		mg/L	1	08/17/2019 16:55	
				Method: SW-846	9014			Ana	alyst: EF	
Free Cyanide			F	Prep Method: SW-846	SW-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide			Α	0.018	0.0062		mg/L	1	08/18/2019 15:10	
				Method: SM 4500	-O C-2001			Ana	alyst: DAT	
Dissolved Oxygen			F	Prep Method: SM 4500	)-O C-2001		F	Prep Date/1	ime:08/17/2019 12:16	
Oxygen, Dissolved		di	Α	6.6	0.20	Н	mg/L	1	08/17/2019 12:16	
				Method: EPA 350	.1 Rev 2.0			Ana	alyst: ABG	
Nitrogen, Ammonia a	s N		F	Prep Method: EPA 350	.1 Rev 2.0		F	Prep Date/1	ime:08/17/2019 14:31	
Nitrogen, Ammonia (A	As N)	di	Α	0.33	0.10		mg/L	1	08/17/2019 16:51	

Analytical Re	sults					0	Date: Sun		nday, August 18, 2019	
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.								
Client Sample ID:	#12						Work Or	der/ID:	19H1107-02	
Sample Description:							Sampled	I:	08/17/2019 6:44	
Matrix:	Aqueous						Receive	d:	08/17/2019 11:20	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500	-CN C/E-1999			Ana	alyst: ABG	
Total Cyanide			F	Prep Method: NA			F	rep Date/1	Time:08/17/2019 12:30	
Cyanide, Total		dij	Α	0.018	0.0050		mg/L	1	08/17/2019 16:57	
				Method: SW-846	9014			Ana	alyst: <b>EF</b>	
Free Cyanide			F	Prep Method: SW-846	W-846 9014			Prep Date/Time: 08/17/2019 13:28		
Free Cyanide			Α	0.018	0.0062		mg/L	1	08/18/2019 15:12	
				Method: SM 4500	-O C-2001			Ana	alyst: <b>DAT</b>	
Dissolved Oxygen			F	Prep Method: SM 4500	)-O C-2001		F	rep Date/1	Time: 08/17/2019 12:16	
Oxygen, Dissolved		di	Α	6.4	0.20	Н	mg/L	1	08/17/2019 12:16	
				Method: EPA 350	.1 Rev 2.0			Ana	alyst: ABG	
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 350	.1 Rev 2.0		F	Prep Date/1	Time: 08/17/2019 14:31	
Nitrogen, Ammonia (A	As N)	di	Α	0.31	0.10		mg/L	1	08/17/2019 16:54	

### **Analytical Results**

Nitrogen, Ammonia (As N)

Analytical Re	sults			D			Date: Sund		nday, August 18, 2019	
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.								
Client Sample ID:	#11						Work C	order/ID:	19H1107-03	
Sample Description:							Sample	ed:	08/17/2019 6:51	
Matrix:	Aqueous						Receiv	ed:	08/17/2019 11:20	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 450	0-CN C/E-1999			Ana	alyst: <b>EF</b>	
Total Cyanide			F	Prep Method: NA			_	Prep Date/1	Time:08/17/2019 14:45	
Cyanide, Total		dij	Α	0.017	0.0050		mg/L	1	08/18/2019 12:55	
				Method: SW-846	6 9014			Ana	alyst: EF	
Free Cyanide			F	Prep Method: SW-84	6 9014			Prep Date/1	lime:08/17/2019 13:28	
Free Cyanide			Α	0.016	0.0062		mg/L	1	08/18/2019 15:13	
				Method: SM 450	0-O C-2001			Ana	alyst: DAT	
Dissolved Oxygen			F	Prep Method: SM 450	00-O C-2001			Prep Date/1	lime:08/17/2019 12:16	
Oxygen, Dissolved		di	Α	6.5	0.20	Н	mg/L	1	08/17/2019 12:16	
				Method: EPA 35	0.1 Rev 2.0			Ana	alyst: ABG	
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 35	0.1 Rev 2.0			Prep Date/1	lime:08/17/2019 14:31	

0.10

mg/L

1

A 0.31

di

08/17/2019 16:56

Analytical Re	sults					0	Date: Su		unday, August 18, 2019	
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.								
Client Sample ID:	#10						Work Or	der/ID:	19H1107-04	
Sample Description:							Sampled	I:	08/17/2019 6:56	
Matrix:	Aqueous						Received	d:	08/17/2019 11:20	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500	-CN C/E-1999			Ana	alyst: EF	
Total Cyanide			F	Prep Method: NA			P	rep Date/1	Time:08/17/2019 14:45	
Cyanide, Total		dij	Α	0.016	0.0050		mg/L	1	08/18/2019 12:56	
				Method: SW-846	9014			Ana	alyst: <b>EF</b>	
Free Cyanide			F	Prep Method: SW-846	9014	Prep Date/Time:08/17/2019 13:28				
Free Cyanide			Α	0.015	0.0062		mg/L	1	08/18/2019 15:15	
				Method: SM 4500	-O C-2001			Ana	alyst: DAT	
Dissolved Oxygen			F	Prep Method: SM 4500	)-O C-2001	Prep Date/Time:08/17/2019 12:16				
Oxygen, Dissolved		di	Α	6.3	0.20	Н	mg/L	1	08/17/2019 12:16	
				Method: EPA 350	.1 Rev 2.0			Ana	alyst: AJR	
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 350	.1 Rev 2.0		P	rep Date/1	Time:08/17/2019 14:35	
Nitrogen, Ammonia (A	As N)	di	Α	0.38	0.10		mg/L	1	08/18/2019 11:02	

# Analytical Results

Nitrogen, Ammonia (As N)

Analytical Re	Analytical Results		C			Date: Sund		lay, August 18, 2019	
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.							
Client Sample ID:	#9						Work C	Order/ID:	19H1107-05
Sample Description:							Sample	ed:	08/17/2019 7:01
Matrix:	Aqueous						Receiv	ed:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 450	00-CN C/E-1999			Ana	alyst: EF
Total Cyanide			F	Prep Method: NA				Prep Date/T	ïme:08/17/2019 14:45
Cyanide, Total		dij	Α	0.012	0.0050		mg/L	1	08/18/2019 12:58
				Method: SW-84	6 9014			Ana	alyst: EF
Free Cyanide			F	Prep Method: SW-84	6 9014			Prep Date/T	ïme:08/17/2019 13:28
Free Cyanide			Α	0.012	0.0062		mg/L	1	08/18/2019 15:20
				Method: SM 450	00-O C-2001			Ana	alyst: DAT
Dissolved Oxygen			F	Prep Method: SM 45	00-O C-2001			Prep Date/T	ïme:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.0	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 35	0.1 Rev 2.0			Ana	alyst: AJR
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 3	50.1 Rev 2.0			Prep Date/T	ïme:08/17/2019 14:35

0.10

mg/L

1

di

A 0.36

08/18/2019 11:09

### **Analytical Results**

**Client:** 

Matrix:

Analyses

Date: Sunday, August 18, 2019 Arcelor Mittal USA, Inc. Spill Samples **Client Project:** #8 Work Order/ID: 19H1107-06 **Client Sample ID:** 08/17/2019 7:06 Sample Description: Sampled: Aqueous **Received:** 08/17/2019 11:20 RL Units Certs AT Result Qual DF Analyzed Method: SM 4500-CN C/E-1999 Analyst: EF Prep Method: NA Prep Date/Time: 08/17/2019 14:45 **Total Cyanide** A 0.012 Cyanide, Total dij 0.0050 mg/L 08/18/2019 13:12 1 Method: SW-846 9014 Analyst: EF Prep Method: SW-846 9014 Prep Date/Time: 08/17/2019 13:28 Free Cyanide

Free Cyanide		A	0.010	0.0062	mg/L	1	08/18/2019 15:22	
			Method: SM 4500-		Analyst: DAT			
Dissolved Oxygen		F	Prep Method: SM 4500-	Prep Date/Time:08/17/2019 12:16				
Oxygen, Dissolved	di	Α	6.3	0.20 H	mg/L	1	08/17/2019 12:16	
			Method: EPA 350.1		Analyst: AJR			
Nitrogen, Ammonia as N		F	Prep Method: EPA 350.	Prep Date/Time: 08/17/2019 14:35				
Nitrogen, Ammonia (As N)	di	Α	0.37	0.10	mg/L	1	08/18/2019 11:11	

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### **Analytical Results**

**Client:** 

Matrix:

Analyses

Date: Sunday, August 18, 2019 Arcelor Mittal USA, Inc. **Client Project:** Spill Samples #7 19H1107-07 **Client Sample ID:** Work Order/ID: 08/17/2019 7:13 Sample Description: Sampled: Aqueous **Received:** 08/17/2019 11:20 RL Units Certs AT Result Qual DF Analyzed Method: SM 4500-CN C/E-1999 Analyst: EF Prep Date/Time: 08/17/2019 14:45 Prep Method: NA **Total Cyanide** Cyanide, Total dij A 0.0094 0.0050 mg/L 1 08/18/2019 13:13 Method: SW-846 9014 Analyst: EF Prep Method: SW-846 9014 Prep Date/Time: 08/17/2019 13:28 Free Cyanide Free Cyanide A 0.0082 0.0062 mg/L 08/18/2019 15:27 1 Method: SM ---------1-

		Method: SM 4500-O C-2001						Analyst: DAT			
D	issolved Oxygen	Prep Method: SM 4500-O C-2001							Prep Date/Time:08/17/2019 12:16		
	Oxygen, Dissolved	di	Α	6.3		0.20	H mg/L	1	08/17/2019 12:16		
				Method: EPA 350	Analyst: <b>AJR</b>						
Ν	itrogen, Ammonia as N		F	Prep Method: EPA 350	Prep Date/	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

Nitrogen, Ammonia (As N)

Analytical Re	esults					D	ate:	Sund	lay, August 18, 2019
Client: Client Project:	Arcelor Mittal USA Spill Samples	, Inc.							
Client Sample ID:	#6						Work (	Order/ID:	19H1107-08
Sample Description:							Sampl	ed:	08/17/2019 7:25
Matrix:	Aqueous						Receiv	ed:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500	-CN C/E-1999			Ana	alyst: <b>EF</b>
Total Cyanide			ŀ	Prep Method: NA				Prep Date/T	īme:08/17/2019 14:45
Cyanide, Total		dij	Α	0.0073	0.0050		mg/L	1	08/18/2019 13:15
				Method: SW-846	9014			Ana	alyst: EF
Free Cyanide			F	Prep Method: SW-846	9014			Prep Date/T	ïme:08/17/2019 13:28
Free Cyanide			Α	0.0075	0.0062		mg/L	1	08/18/2019 15:28
				Method: SM 4500	)-O C-2001			Ana	alyst: DAT
Dissolved Oxygen			I	Prep Method: SM 4500	)-O C-2001			Prep Date/T	ïme:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.3	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350	.1 Rev 2.0			Ana	alyst: AJR
Nitrogen, Ammonia a	as N		F	Prep Method: EPA 350	).1 Rev 2.0			Prep Date/T	īme:08/17/2019 15:34
<b>N N N N N N N N N N</b>					0.10				00/40/00/40 44 40

0.10

mg/L

1

A 0.37

di

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08/18/2019 11:16

### **Analytical Results**

Date: Sunday, August 18, 2019

Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.							
Client Sample ID:	#5						Work Or	der/ID:	19H1107-09
Sample Description:							Sampleo	:t:	08/17/2019 7:31
Matrix:	Aqueous						Receive	d:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500	-CN C/E-1999			Ar	nalyst: EF
Total Cyanide			F	Prep Method: NA			F	Prep Date	/Time:08/17/2019 14:45
Cyanide, Total		dij	Α	NL	0.0050		mg/L	1	08/18/2019 13:17
				Method: SW-846 9	014			Ar	nalyst: EF
Free Cyanide			F	Prep Method: SW-846	9014		F	Prep Date	/Time:08/17/2019 13:28
Free Cyanide			Α	NL	0.0062		mg/L	1	08/18/2019 15:30
				Method: SM 4500	-O C-2001			Ar	nalyst: DAT
Dissolved Oxygen			F	Prep Method: SM 4500	-O C-2001		F	Prep Date	/Time:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.4	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350.	1 Rev 2.0			Ar	nalyst: AJR
Nitrogen, Ammonia a	as N		F	Prep Method: EPA 350	1 Rev 2.0		F	Prep Date	/Time:08/17/2019 15:34
Nitrogen, Ammonia (	As N)	di	Α	0.33	0.10		mg/L	1	08/18/2019 11:28

### **Analytical Results**

Sunday, August 18, 2019

Date:

Client: Client Project:	Arcelor Mittal USA, In Spill Samples	IC.							
Client Sample ID:	#4						Work O	rder/ID:	19H1107-10
Sample Description:							Sample	d:	08/17/2019 7:37
Matrix:	Aqueous						Receive	d:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-C	CN C/E-1999			An	alyst: EF
Total Cyanide			F	Prep Method: NA			I	Prep Date/	Time:08/17/2019 14:45
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/18/2019 13:18
				Method: SW-846 90	)14			An	alyst: EF
Free Cyanide			F	Prep Method: SW-846 90	014		I	Prep Date/	Time:08/17/2019 13:28
Free Cyanide			Α	ND	0.0062		mg/L	1	08/18/2019 15:32
				Method: SM 4500-C	D C-2001			An	alyst: DAT
Dissolved Oxygen			F	Prep Method: SM 4500-C	O C-2001		I	Prep Date/	Time:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.5	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350.1	Rev 2.0			An	alyst: AJR
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 350.1			I		Time: 08/17/2019 15:34
Nitrogen, Ammonia (A	s N)	di	Α	0.39	0.10		mg/L	1	08/18/2019 11:30

### **Analytical Results**

Date: Sunday, August 18, 2019

Client:	Arcelor Mittal USA, I	nc.							
Client Project:	Spill Samples								
Client Sample ID:	#3						Work Or	der/ID:	19H1107-11
Sample Description:							Sampled	:	08/17/2019 7:45
Matrix:	Aqueous						Receive	d:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-	CN C/E-1999			An	alyst: EF
Total Cyanide			F	Prep Method: NA			F	Prep Date/	Time:08/17/2019 14:45
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/18/2019 13:20
				Method: SW-846 9	014			An	alyst:EF
Free Cyanide			F	Prep Method: SW-846 9	014		F	Prep Date/	Time:08/17/2019 13:28
Free Cyanide			Α	ND	0.0062		mg/L	1	08/18/2019 15:33
				Method: SM 4500-	O C-2001			An	alyst: DAT
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001		F	Prep Date/	Time:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.6	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350.	1 Rev 2.0			An	alyst: AJR
Nitrogen, Ammonia a	s N		F	Prep Method: EPA 350.	1 Rev 2.0		F	Prep Date/	Time:08/17/2019 15:34
Nitrogen, Ammonia (A	As N)	di	Α	0.30	0.10		mg/L	1	08/18/2019 11:33

### **Analytical Results**

**Client:** 

Matrix:

Analyses

Date: Sunday, August 18, 2019 Arcelor Mittal USA, Inc. Spill Samples **Client Project:** #2 Work Order/ID: 19H1107-12 **Client Sample ID:** 08/17/2019 7:51 Sample Description: Sampled: Aqueous **Received:** 08/17/2019 11:20 Units RL Analyzed Certs AT Result Qual DF Method: SM 4500-CN C/E-1999 Analyst: EF Prep Method: NA Prep Date/Time: 08/17/2019 14:45 **Total Cyanide** A 0.0056 Cyanide, Total dij 0.0050 mg/L 08/18/2019 13:22 1 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 15:35
			Method: SM 4500-0	D C-2001		Ar	nalyst: DAT
Dissolved Oxygen		P	rep Method: SM 4500-	O C-2001		Prep Date/	Time:08/17/2019 12:16
Oxygen, Dissolved	di	Α	6.6	0.20	H mg/L	1	08/17/2019 12:16
			Method: EPA 350.1	Rev 2.0		Ar	nalyst: AJR
Nitrogen, Ammonia as N		P	rep Method: EPA 350.1	Rev 2.0		Prep Date/	Time:08/17/2019 15:34
Nitrogen, Ammonia (As N)	di	Α	0.37	0.10	mg/L	1	08/18/2019 11:35

### **Analytical Results**

Sunday, August 18, 2019

Date:

Client:	Arcelor Mittal USA, In	C.							
Client Project:	Spill Samples								
Client Sample ID:	#1						Work O	rder/ID:	19H1107-13
Sample Description:							Sample	d:	08/17/2019 7:58
Matrix:	Aqueous						Receive	ed:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-	CN C/E-1999			An	alyst: EF
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/18/2019 15:45
				Method: SW-846 9	014			An	alyst: EF
Free Cyanide			F	Prep Method: SW-846 9	014			Prep Date/	Time:08/17/2019 13:28
Free Cyanide			Α	ND	0.0062		mg/L	1	08/18/2019 15:40
				Method: SM 4500-	O C-2001			An	alyst:DAT
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001			Prep Date/	Time:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.6	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350.	1 Rev 2.0			An	alyst:AJR
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 350.	1 Rev 2.0			Prep Date/	Time:08/17/2019 15:34
Nitrogen, Ammonia (A	As N)	di	Α	0.36	0.10		mg/L	1	08/18/2019 11:38

Analytical Re	sults					0	Date:	Sund	day, August 18, 2019
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.							
Client Sample ID: Sample Description:	Outfall 001						Work Or Sample		19H1107-14 08/17/2019 8:04
Matrix:	Aqueous						Receive	d:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-0	CN C/E-1999				alyst: EF
Total Cyanide			F	Prep Method: NA			I	Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	0.0058	0.0050		mg/L	1	08/18/2019 15:47
				Method: SW-846 9	014			Ana	alyst: EF
Free Cyanide			F	Prep Method: SW-846 9	014		I	Prep Date/	Time: 08/17/2019 13:28
Free Cyanide			Α	ND	0.0062		mg/L	1	08/18/2019 15:42
				Method: SM 4500-0	C-2001			Ana	alyst: DAT
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001		I	Prep Date/1	Time:08/17/2019 12:16
Oxygen, Dissolved		di	Α	6.6	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350.1	Rev 2.0			Ana	alyst: AJR
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 350.1	Rev 2.0		I	Prep Date/	Time:08/17/2019 15:34
Nitrogen, Ammonia (A	s N)	di	Α	0.40	0.10		mg/L	1	08/18/2019 11:40

Analytical Re	sults					C	Date:	Sunc	lay, August 18, 2019
Client: Client Project:	Arcelor Mittal USA, Spill Samples	Inc.							
Client Sample ID:	#000						Work Or	der/ID:	19H1107-15
Sample Description:							Sampled	l:	08/17/2019 9:11
Matrix:	Aqueous						Received	d:	08/17/2019 11:20
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-CN	C/E-1999			Ana	alyst: EF
Total Cyanide			F	Prep Method: NA			Р	rep Date/1	ime:08/18/2019 13:42
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/18/2019 15:49
				Method: SW-846 9014	4			Ana	alyst: EF
Free Cyanide			F	Prep Method: SW-846 901	4		P	rep Date/1	ime:08/17/2019 13:28
Free Cyanide			Α	ND	0.0062		mg/L	1	08/18/2019 15:44
				Method: SM 4500-O C	C-2001			Ana	alyst: DAT
Dissolved Oxygen			F	Prep Method: SM 4500-O	C-2001		P	rep Date/T	ime:08/17/2019 12:16
Oxygen, Dissolved		di	Α	7.7	0.20	Н	mg/L	1	08/17/2019 12:16
				Method: EPA 350.1 R	ev 2.0			Ana	alyst: AJR
Nitrogen, Ammonia a	s N		F	Prep Method: EPA 350.1 R	ev 2.0		P	rep Date/1	ime:08/17/2019 15:34
Nitrogen, Ammonia (A	As N)	di	Α	ND	0.10		mg/L	1	08/18/2019 11:42

#### 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

🔊 MICROBAC®

#### 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)
- <sup>i</sup> 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



#### **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

,1107 celorMitt (eceiving V 08/17/2019	Carey Ga al - Burns Vater Mor	dzala Hart itorii	ı bor, l ng	N		(7	T.	Γ	(	39-01	20-25	100 100 100 100 100 100 100 100 100 100	102	100	101	000	3-10	C C	<u>of</u> 25
									19HIIOZ	00	7,	r r	12	21	21	1	713	CS6	1/20 Page 2
CHAIN OF CUSTODY REC Number 152344	TO BE COMPLETED BY MICROBAC Temperature Upon Receipt (°C) Therm ID	Holding Time	Samples Received on Ice? KYes	Custody Seals Intact?		oring? 🗌 Yes 🗌 No m	-644-7585	) e, (U) Unpreserved	R IGHIIOZ	76.9F	212	12.6	77.7	78.2	- 8.1	78.1	Return Archive	7 Tawo Bler Time	Pate/Time Page Po
	Turnaround Time C to 7 business days) C RUSH* (notify lab)		(needed by)	Report Type	Results Only     Level 1     Level 2	Mail Fax e-mail (address)     Compliance Monitoring?     Agency/Program	Reference Monter (SMN) Monter Monte (MMN) Onter (SMN)	owy, waste water (wwy, utner (specify) Ifate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved REQUESTED ANALYSIS	MH4 CN NH4	×××	XXX		XXX	X	× × × ×		X     X       □     Dispose as appropriate	9:57 Received By (signature) Received By (signature)	11 ZO Received By (signature)
						Send Invoice via:			Grab / Comp	2	*	××	×	× >		X	Sample Disposition	Date/Time	Faur B/17/
	Invoice Address Client Name:	Address:	City, State, Zip:	Contact:	Telephone No.:	Location:	Sampler Signature:	l, (4) NaOH, (5) Zinc Acetate,	on of Containers	6:38 4 m	~ .	6:56	7:01	7:06		1:31	Non-Hazardous Radioactive	Relinquished By (signature)	Relinquished By (signature)
MICROBAC*	Lab Report Address Client Name:	Address:	City, State, Zip:	Contact:	<ul> <li></li> </ul>	Send Report via:   Mail   Fax   e-mail (address) Project: Receiving Water Monitoring	Sampled by (PRINT): 1944 Lo Lo Landon Sampler Signature: 16 La UN * Matrix Types: Soil/Solid (S): Sludge: Oil. Wine. Drinking Water (DW) Gronnedwater (GW)	** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanel	Date Collected Collected	P1/F1/8 61		0)	6	2	9	1 1 3	Possible Hazard Identification	20.3 0.3 0.40	rev.12/26/2017
						~				Alta					N N	1925			

Answer     Control	🚯 MICROBAC*			CHAIN OF CUSTODY-RECORD Number 152347 Instructions on back	
Address:     Address:       0. Git:     City State, All:     (model b)	Lab Report Address Client Name:	Invoice Address Client Name:	Turnaround Time  Routine (5 to 7 business days)  Laboration (notify lab)	TO BE COMPLETED BY MICROBAC Temperature Upon Receipt (°C) Therm ID	
Optic:         Teach Type	Address: City, State, Zip:	Address: Citv. State. Zio:	(neerled hv)	Holding Time Samnles Received on Ice?	
	Contact:	Contact:	Report Type	Custody Seals Intact? TYES TNO DAVA	
And Calcing     Constrained     Seed Indexed     Seed Indexed       March Colored     March Colored     March Colored     March Colored       March Colored     March Colored     Sample Plane (March Colored)     March Colored       March Colored     Sample Plane (March Colored)     Sample Plane (March Colored)     March Colored)       March Colored     Sample Plane (March Colored)     Sample Plane (March Colored)     March Colored)       March Colored     Sample Colored     Sample Colored     March Colored)       March Colored     Sample Colored     Sample Colored     March Colored       March Colored     Displane     March Colored     March Colored       March Sample Colored     Displane     Displane     Displane       March Sample Colored <td>Telephone No.:</td> <td>Telephone No.:</td> <td>Results Only      Level 1     Level</td> <td></td> <td></td>	Telephone No.:	Telephone No.:	Results Only      Level 1     Level		
RECEIVING     Workington     Plots:     Compare there for:     Display from for:     Display	Send Report via:	Send Inv	🗌 Mail 🗍 Fax		
M.M. Kurm, Lin, Sander Signauruk, M.M. Sander Flore No.: 219-Luff, 75 PS     Sander Flore No.: 219-Luff, 75 PS       ex. sol/solid (3), Surger, ON, Web, Drinking Wear, (10N, Grink, Garch, Carler, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Garch, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Carler, Garch, Garch, Garch, Garch, Carler, Garch, G	Project: RECPINING WORTER MONI	N Pecation:		ng? 🗌 Yes	
ers suf Saudia (S), Stadie (D, Wing, Dinking Water (GM, Candrace Water (GM, Win, Other (geoth) ers (1) HMO3 (2) HZG (A INGH (S) Zine Areater, (6) Mjranol (7) Sodim Bullatter, (8) Sodim Bullatter, (9) Harana, (U) Upresenda ers (1) HMO3 (2) HZG (A INGH (S) Zine Areater, (6) Mjranol (7) Sodim Bullatter, (9) Harana, (U) Upresenda Erstenda D Data Tine Orienter (6) Mjranol (7) Sodim Bullatter, (9) Harana, (U) Upresenda erstenda D Data Tine Orienter (6) Mjranol (7) Sodim Bullatter, (9) Harana, (U) Upresenda erstenda D Data Tine Orienter (6) Mjranol (7) Sodim Bullatter, (9) Harana, (U) Upresenda erstenda D Data Tine Orienter (7) Mire Mark (	Sampled by (PRINT): PUMIUK KIONMICLIN	Sampler Signature		2	
Date     Time     One       Same     Date     Time     Container       Same     Container     Container     Container       Container     Container     Container     Container <td>* Matrix Types: Soil/Solid (S), Sludge, Oil, Wir ** Preservative Types: (1) HNO3, (2) H2SO4, (3) HC</td> <td>Det Drinking Water (DW), Groundwater (GW), Surfac 3, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) So</td> <td>Water (SW), Waste Water (WW), Other (specif Jium Bisulfate, (8) Sodium Thiosulfate, (9) Hexa</td> <td>y) ane, (U) Unpreserved</td> <td></td>	* Matrix Types: Soil/Solid (S), Sludge, Oil, Wir ** Preservative Types: (1) HNO3, (2) H2SO4, (3) HC	Det Drinking Water (DW), Groundwater (GW), Surfac 3, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) So	Water (SW), Waste Water (WW), Other (specif Jium Bisulfate, (8) Sodium Thiosulfate, (9) Hexa	y) ane, (U) Unpreserved	
Sample ID     Date     Time     O     O     O     O       3     3:17:19     O     0     0     0     0     0       13:15     1:15     N     N     N     N     N       11:17     1:15     N     N     N     N     N				CONHAI	
3 8-17-19 7:45 Ч № G ₩2.4 × × × × × × × × × × × × × × × × × × ×	Client Sample ID	Old Hatrix Matrix Grab / Contr Matrix	00) H <b>W</b> M) M) M) M) M)	4	
1     1 <th1< th="">     1     1<td></td><td>4 2:45 4 AO G A</td><td>XXXX</td><td>60°F</td><td>=</td></th1<>		4 2:45 4 AO G A	XXXX	60°F	=
COL     R: Main     R: Main     R: Main     R: Main       0.1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1       1     0.1     0.1     0.1     0.1     0.1	6-	2151		28.1 7 C. 17	201
O     C <td>CULTRIAL COL</td> <td>5.00</td> <td>XXXX</td> <td>82.5°F 7.79</td> <td>1.</td>	CULTRIAL COL	5.00	XXXX	82.5°F 7.79	1.
Image: Second	000		X X X X X X X X	162 2,2,29	-15
Hazardous     Non-Hazardous     Relinquished By (signature)     Sample Disposition     Dispose as appropriate     Return     Archive       Relinquished By (signature)     Date/Time     X=17-19     X:     X:     Date/Time     Date/Time       Relinquished By (signature)     Date/Time     Received By (signature)     Date/Time     Date/Time     Date/Time       Relinquished By (signature)     Date/Time     Received By (signature)     Date/Time     Date/Time					
Image:	>				
Relinguished By (signature)     Date/Time     Received By (signature)     Date/Time       Relinquished By (signature)     X-17-19     Y:ST     Received By (signature)     Date/Time       Relinquished By (signature)     Date/Time     Received By (signature)     Date/Time       Relinquished By (signature)     Date/Time     Received By (signature)     Date/Time		Radioactive		Return	
Date/Time     Received By (signature)     Date/Time       Date/Time     Received By (signature)     Date/Time		lre) Da	-19 9:572	Tauna 8/17/19	
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		(inc)	9/120	Date/Time	

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