

August 19, 2019

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

Work Order No.: 19H1112

**Re: Spill Samples** 

Dear Teri Kirk:

Microbac Laboratories, Inc. - Chicagoland Division received 15 sample(s) on 8/18/2019 12:07:00PM for the analyses presented in the following report as Work Order 19H1112.

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.

Carup Macizala

Carey Gadzala Project Manager

Microbac Laboratories, Inc.



WORK ORDER SAMPLE SUMMARY

	or Mittal USA, Inc. Samples 112			
Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
19H1112-01	#13	-	08/18/2019 12:07	8/18/2019 12:07:00PM
19H1112-02	#11		08/18/2019 07:08	8/18/2019 12:07:00PM
19H1112-03	#10		08/18/2019 07:13	8/18/2019 12:07:00PM
19H1112-04	#9		08/18/2019 07:17	8/18/2019 12:07:00PM
19H1112-05	#8		08/18/2019 07:22	8/18/2019 12:07:00PM
19H1112-06	#7		08/18/2019 07:32	8/18/2019 12:07:00PM
19H1112-07	#6		08/18/2019 08:04	8/18/2019 12:07:00PM
19H1112-08	#5		08/18/2019 08:45	8/18/2019 12:07:00PM
19H1112-09	#4		08/18/2019 08:49	8/18/2019 12:07:00PM
19H1112-10	#3		08/18/2019 08:54	8/18/2019 12:07:00PM
19H1112-11	#2		08/18/2019 08:59	8/18/2019 12:07:00PM
19H1112-12	#1		08/18/2019 09:04	8/18/2019 12:07:00PM
19H1112-13	Outfall 001		08/18/2019 09:09	8/18/2019 12:07:00PM
19H1112-14	#12		08/18/2019 09:43	8/18/2019 12:07:00PM
19H1112-15	000		08/18/2019 10:28	8/18/2019 12:07:00PM

Monday, August 19, 2019



Field Results		Date: Mond	ay, August 19, 2019
Client:	Arcelor Mittal USA, Inc.	Work Order:	19H1112
Client Project:	Spill Samples		
Client Sample ID:	#13	Work Order/ID:	19H1112-01
Sample Description:		Sampled:	08/18/2019 12:07
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pН		7.68	pH Units
Temp		75.9	F
Client Sample ID:	#11	Work Order/ID:	19H1112-02
Sample Description:		Sampled:	08/18/2019 07:08
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pH		7.68	pH Units
Temp		77.7	F
Client Sample ID:	#10	Work Order/ID:	19H1112-03
Sample Description:	#10	Sampled:	08/18/2019 07:13
Matrix:	Aqueous	Received:	08/18/2019 12:07
	7400003		
Analyses pH		<b>Result</b> 7.67	Units pH Units
Temp		77.5	F
Client Sample ID: Sample Description: Matrix:	#9 Aqueous	Work Order/ID: Sampled: Received:	19H1112-04 08/18/2019 07:17 08/18/2019 12:07
Analyses		Result	Units
pH		7.69	pH Units
Temp		77.7	F
Client Sample ID: Sample Description: Matrix:	#8 Aqueous	Work Order/ID: Sampled: Received:	19H1112-05 08/18/2019 07:22 08/18/2019 12:07
Analyses		Result	Units
рН		7.69	pH Units
Temp		77.8	F
Client Sample ID:	#7	Work Order/ID:	19H1112-06
Sample Description:		Sampled:	08/18/2019 07:32
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
рН		7.74	pH Units
Temp		77.9	F

#### Microbac Laboratories, Inc.

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Field Results	#O		40114440.07
Client Sample ID:	#6	Work Order/ID:	19H1112-07
Sample Description:	A	Sampled:	08/18/2019 08:04
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
рН		7.77	pH Units
Temp		77.6	F
Client Sample ID:	#5	Work Order/ID:	19H1112-08
Sample Description:		Sampled:	08/18/2019 08:45
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pН		7.78	pH Units
Temp		76.7	F
Client Sample ID:	#4	Work Order/ID:	19H1112-09
Sample Description:		Sampled:	08/18/2019 08:49
Aatrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pH		7.89	pH Units
Temp		76.8	F
Client Comple ID:	#3	Work Order/ID:	19H1112-10
Client Sample ID:	#5		
Sample Description:	A 5115 5115	Sampled:	08/18/2019 08:54
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pH		7.89	pH Units
Тетр		77.2	F
Client Sample ID:	#2	Work Order/ID:	19H1112-11
Sample Description:		Sampled:	08/18/2019 08:59
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pH		7.86	pH Units
Temp		77.7	F
Client Semple ID:	#1	Work Order/ID:	19H1112-12
Client Sample ID:	#1		08/18/2019 09:04
Sample Description: Matrix:	Aqueous	Sampled: Received:	08/18/2019 12:07
Analyses	1	Result	Units
pH		7.79	pH Units
Тетр		78.7	F
Client Sample ID:	Outfall 001	Work Order/ID:	19H1112-13
Sample Description:		Sampled:	08/18/2019 09:09
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses	· · · · · · · · · · · · · · · · · · ·	Result	Units
11019303		Neguit	Units

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Field Results		Date: Mond	ay, August 19, 2019
Тетр		82.6	F
Client Sample ID:	#12	Work Order/ID:	19H1112-14
Sample Description:		Sampled:	08/18/2019 09:43
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pH		7.77	pH Units
Тетр		77.1	F
Client Sample ID:	000	Work Order/ID:	19H1112-15
Sample Description:		Sampled:	08/18/2019 10:28
Matrix:	Aqueous	Received:	08/18/2019 12:07
Analyses		Result	Units
pH		7.89	pH Units
Temp		68.4	F

## 

#### CASE NARRATIVE

Monday, August 19, 2019

Client:	Arcelor Mittal USA, Inc.
Project:	Spill Samples
Lab Order:	19H1112
H - sample re	eceived beyond the maximum allowable hold time for dissolved oxygen analysis.
Laboratory ID	<u>Sample Name</u>
19H1112-01	#13
19H1112-02	#11
19H1112-03	#10
19H1112-04	#9
19H1112-05	#8
19H1112-06	#7
19H1112-07	#6
19H1112-08	#5
19H1112-09	#4
19H1112-10	#3
19H1112-11	#2
19H1112-12	#1
19H1112-13	Outfall 001
19H1112-14	#12
19H1112-15	000

## **Analytical Results**

Monday, August 19, 2019

Client:	Arcelor Mittal USA, Ir	IC.								
Client Project:	Spill Samples									
Client Sample ID:	#13						Work O	rder/ID:	19H1112-0 <sup>2</sup>	
Sample Description:							Sample	ed:	08/18/2019 12:07	
Matrix:	Aqueous						Receive	ed:	08/18/2019 12:07	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500-0	CN C/E-1999			An	alyst: EF	
Total Cyanide	otal Cyanide					Prep Date/Time:08/18/2019 13:42				
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/18/2019 15:50	
				Method: SW-846 90	014			An	alyst: ABG	
Free Cyanide			F	Prep Method: SW-846 9	014			Prep Date/Time: 08/18/2019 19:59		
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:24	
				Method: SM 4500-0	O C-2001			An	alyst: EF	
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001		Prep Date/Time:08/18/2019 15:21			
Oxygen, Dissolved		di	Α	7.3	0.20	Н	mg/L	1	08/18/2019 15:21	
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG	
Nitrogen, Ammonia a	s N		F	Prep Method: EPA 350.1	Rev 2.0			Prep Date/	Time:08/18/2019 13:52	
Nitrogen, Ammonia (A	As N)	di	Α	0.20	0.10		mg/L	1	08/19/2019 10:54	

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, I Spill Samples	nc.									
Client Sample ID:	#11							Work Or	der/ID:	19H1112-02	
Sample Description:								Sampleo	d:	08/18/2019 7:08	
Matrix:	Aqueous							Receive	d:	08/18/2019 12:07	
Analyses		Certs	AT	Result		RL	Qual	Units	DF	Analyzed	
				Method: SM 45	00-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	0.0058		0.0050		mg/L	1	08/18/2019 15:52	
				Method: SW-84	46 9014				An	alyst: ABG	
Free Cyanide			F	Prep Method: SW-84	46 9014			Prep Date/Time:08/18/2019 19:59			
Free Cyanide			Α		ND	0.0062		mg/L	1	08/19/2019 10:29	
				Method: SM 45	600-O C-2	2001			An	alyst:EF	
Dissolved Oxygen			F	Prep Method: SM 45	500-O C-2	2001		Prep Date/Time: 08/18/2019 15:21			
Oxygen, Dissolved		di	Α	6.1		0.20	Н	mg/L	1	08/18/2019 15:21	
				Method: EPA 3	50.1 Rev	2.0			An	alyst: ABG	
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 3	50.1 Rev	2.0		F	Prep Date/	Time:08/18/2019 13:52	
Nitrogen, Ammonia (A	s N)	di	Α	0.28		0.10		mg/L	1	08/19/2019 10:56	

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, I Spill Samples	nc.							
Client Sample ID:	#10						Work Or	der/ID:	19H1112-03
Sample Description:							Sampled	1:	08/18/2019 7:13
Matrix:	Aqueous						Receive		08/18/2019 12:07
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	А	0.0052	0.0052		mg/L	1	08/18/2019 15:54
				Method: SW-846 9	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	9014		F	Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:31
				Method: SM 4500-	O C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-	-O C-2001		F	Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.4	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.	1 Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia a	5 N		F	Prep Method: EPA 350.	1 Rev 2.0		P	Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.24	0.10		mg/L	1	08/19/2019 10:59

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, I Spill Samples	nc.									
Client Sample ID:	#9							Work Or	der/ID:	19H1112-04	
Sample Description:								Sampleo	1:	08/18/2019 7:17	
Matrix:	Aqueous							Receive	d:	08/18/2019 12:07	
Analyses		Certs	AT	Result	I	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500	-CN C/E	-1999			Ar	nalyst: EF	
Total Cyanide			F	Prep Method: NA				Prep Date/Time:08/18/2019 13:42			
Cyanide, Total		dij	Α	N	2	0.0050		mg/L	1	08/18/2019 15:55	
				Method: SW-846	9014				Ar	nalyst: ABG	
Free Cyanide			F	Prep Method: SW-846	9014			Prep Date/Time:08/18/2019 19:59			
Free Cyanide			Α	N	2	0.0062		mg/L	1	08/19/2019 10:32	
				Method: SM 4500	-O C-20	01			Ar	nalyst: EF	
Dissolved Oxygen			F	Prep Method: SM 4500	-O C-20	01		F	Prep Date	/Time:08/18/2019 15:21	
Oxygen, Dissolved		di	Α	6.2		0.20	Н	mg/L	1	08/18/2019 15:21	
				Method: EPA 350	1 Rev 2	0			Ar	nalyst: ABG	
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350	.1 Rev 2	2.0		F	Prep Date	/Time:08/18/2019 13:52	
Nitrogen, Ammonia (A	s N)	di	Α	0.22		0.10		mg/L	1	08/19/2019 11:01	

### **Analytical Results**

Monday, August 19, 2019

Client:	Arcelor Mittal USA, In	c.							
Client Project:	Spill Samples								
Client Sample ID:	#8						Work C	Order/ID:	19H1112-05
Sample Description:							Sample	ed:	08/18/2019 7:22
Matrix:	Aqueous						Receiv	ed:	08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 10:59
				Method: SW-846 9	014			An	alyst:ABG
Free Cyanide			F	Prep Method: SW-846 9	014		Prep Date/Time: 08/18/2019 19:59		
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:34
				Method: SM 4500-	O C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-				Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.0	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350.	1 Rev 2.0			Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.26	0.10		mg/L	1	08/19/2019 11:03

### **Analytical Results**

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Client: Client Project:	Arcelor Mittal USA, Ir Spill Samples	IC.								
Client Sample ID:	#7						Work O	der/ID:	19H1112-06	
Sample Description:							Sample	d:	08/18/2019 7:32	
Matrix:	Aqueous						Receive	d:	08/18/2019 12:07	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500-	CN C/E-1999			An	alyst: ABG	
Total Cyanide			F	Prep Method: NA			Prep Date/Time:08/18/2019 13:42			
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:04	
				Method: SW-846 9	014			An	alyst: ABG	
Free Cyanide			F	Prep Method: SW-846 9	014		F	Prep Date/Time:08/18/2019 19:59		
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:36	
				Method: SM 4500-	D C-2001			An	alyst: EF	
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001		F	Prep Date/	Time:08/18/2019 15:21	
Oxygen, Dissolved		di	Α	6.8	0.20	Н	mg/L	1	08/18/2019 15:21	
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG	
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350.	l Rev 2.0		F	Prep Date/	Time:08/18/2019 13:52	
Nitrogen, Ammonia (A	s N)	di	Α	0.19	0.10		mg/L	1	08/19/2019 11:06	

### **Analytical Results**

Monday, August 19, 2019

Client:	Arcelor Mittal USA, In	C.								
Client Project:	Spill Samples									
Client Sample ID:	#6						Work C	Order/ID:	19H1112-07	
Sample Description:							Sample	ed:	08/18/2019 8:04	
Matrix:	Aqueous						Receiv	ed:	08/18/2019 12:07	
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed	
				Method: SM 4500-	CN C/E-1999			An	alyst: ABG	
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/18/2019 13:42	
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:06	
				Method: SW-846 9	014			An	alyst: ABG	
Free Cyanide			F	Prep Method: SW-846 S	014		Prep Date/Time:08/18/2019 19:59			
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:38	
				Method: SM 4500-	O C-2001			An	alyst: EF	
Dissolved Oxygen			F	Prep Method: SM 4500	O C-2001			Prep Date/	Time:08/18/2019 15:21	
Oxygen, Dissolved		di	Α	6.4	0.20	Н	mg/L	1	08/18/2019 15:21	
				Method: EPA 350.	1 Rev 2.0			An	alyst: ABG	
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350.	1 Rev 2.0			Prep Date/	Time: 08/18/2019 13:52	
Nitrogen, Ammonia (A	s N)	di	Α	0.26	0.10		mg/L	1	08/19/2019 11:08	

## **Analytical Results**

Monday, August 19, 2019

Client:	Arcelor Mittal USA, Ir	IC.								
Client Project:	Spill Samples									
Client Sample ID:	#5							Work C	Order/ID:	19H1112-08
Sample Description:								Sample	ed:	08/18/2019 8:45
Matrix:	Aqueous							Receiv	ed:	08/18/2019 12:07
Analyses		Certs	AT	Result		RL	Qual	Units	DF	Analyzed
				Method: SM 4500	)-CN C	;/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA					Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	N	D	0.0050		mg/L	1	08/19/2019 11:08
				Method: SW-846	9014				An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846	9014				Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	N	D	0.0062		mg/L	1	08/19/2019 10:39
				Method: SM 4500	)-0 C-	2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 450	0-0 C-	2001			Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.5		0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350	.1 Rev	/ 2.0			An	alyst: ABG
Nitrogen, Ammonia a	s N		F	Prep Method: EPA 350	).1 Re	v 2.0			Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	As N)	di	Α	0.23		0.10		mg/L	1	08/19/2019 11:11

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, In Spill Samples	IC.							
Client Sample ID:	#4						Work C	Order/ID:	19H1112-09
Sample Description:							Sample	ed:	08/18/2019 8:49
Matrix:	Aqueous						Receiv	ed:	08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-0	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:10
				Method: SW-846 9	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	014			Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:44
				Method: SM 4500-0	D C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001			Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.6	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia a	s N		F	Prep Method: EPA 350.1	l Rev 2.0			Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	As N)	di	Α	0.28	0.10		mg/L	1	08/19/2019 11:13

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, I Spill Samples	nc.							
Client Sample ID:	#3						Work Or	der/ID:	19H1112-10
Sample Description:							Sampleo	d:	08/18/2019 8:54
Matrix:	Aqueous						Receive	d:	08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA			F	Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:11
				Method: SW-846 9	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	014		F	Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:46
				Method: SM 4500-	O C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001		F	Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.7	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.	1 Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as	s N		F	Prep Method: EPA 350.	1 Rev 2.0		F	Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.25	0.10		mg/L	1	08/19/2019 11:15

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, Ir Spill Samples	IC.							
Client Sample ID:	#2						Work C	Order/ID:	19H1112-11
Sample Description:							Sample	ed:	08/18/2019 8:59
Matrix:	Aqueous						Receiv	ed:	08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-0	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/18/2019 13:42
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:13
				Method: SW-846 90	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	014			Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:48
				Method: SM 4500-0	C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001			Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.8	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350.1	Rev 2.0			Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.28	0.10		mg/L	1	08/19/2019 11:22

### **Analytical Results**

Monday, August 19, 2019

Client:	Arcelor Mittal USA, In	с.							
Client Project:	Spill Samples								
Client Sample ID:	#1						Work C	Order/ID:	19H1112-12
Sample Description:							Sample	ed:	08/18/2019 9:04
Matrix:	Aqueous						Receiv	ed:	08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/19/2019 05:50
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 10:53
				Method: SW-846 9	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	014			Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:53
				Method: SM 4500-	O C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001			Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.5	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.1	l Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350.	1 Rev 2.0			Prep Date/	Time: 08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.34	0.10		mg/L	1	08/19/2019 11:25

### **Analytical Results**

**Client:** 

**Client Project:** 

**Client Sample ID:** 

Arcelor Mittal USA, Inc.

Spill Samples Outfall 001 
 Date:
 Monday, August 19, 2019

 Work Order/ID:
 19H1112-13

 Sampled:
 08/18/2019
 9:09

Sample Description:						Sample	d:	08/18/2019 9:09
Matrix: Aqueous						Receive	əd:	08/18/2019 12:07
Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: SM 4500-C	N C/E-1999			An	alyst: ABG
Total Cyanide		F	Prep Method: NA				Prep Date/	Time:08/19/2019 05:50
Cyanide, Total	dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:30
			Method: SW-846 90	14			An	alyst: ABG
Free Cyanide		F	Prep Method: SW-846 90	14			Prep Date/	Time:08/18/2019 19:59
Free Cyanide		Α	ND	0.0062		mg/L	1	08/19/2019 10:54
			Method: SM 4500-O	C-2001			An	alyst: EF
Dissolved Oxygen		F	Prep Method: SM 4500-O	C-2001			Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved	di	Α	6.3	0.20	Н	mg/L	1	08/18/2019 15:21
			Method: EPA 350.1 I	Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as N		F	Prep Method: EPA 350.1	Rev 2.0			Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (As N)	di	Α	0.46	0.10		mg/L	1	08/19/2019 11:27

### **Analytical Results**

Monday, August 19, 2019

Client:	Arcelor Mittal USA, In	C.							
Client Project:	Spill Samples								
Client Sample ID:	#12						Work C	Order/ID:	19H1112-14
Sample Description:							Sample	ed:	08/18/2019 9:43
Matrix:	Aqueous						Receiv	ed:	08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/19/2019 05:50
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:31
				Method: SW-846 9	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	014			Prep Date/	Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:56
				Method: SM 4500-	O C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-	O C-2001			Prep Date/	Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	6.2	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as	5 N		F	Prep Method: EPA 350.	1 Rev 2.0			Prep Date/	Time:08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.33	0.10		mg/L	1	08/19/2019 11:30

### **Analytical Results**

Monday, August 19, 2019

Client: Client Project:	Arcelor Mittal USA, Ind Spill Samples	C.							
Client Sample ID:	000						Work (	Order/ID:	19H1112-15
Sample Description:							Sample		08/18/2019 10:28
Matrix:	Aqueous						Receiv		08/18/2019 12:07
Analyses		Certs	AT	Result	RL	Qual	Units	DF	Analyzed
				Method: SM 4500-0	CN C/E-1999			An	alyst: ABG
Total Cyanide			F	Prep Method: NA				Prep Date/	Time:08/19/2019 05:50
Cyanide, Total		dij	Α	ND	0.0050		mg/L	1	08/19/2019 11:33
				Method: SW-846 9	014			An	alyst: ABG
Free Cyanide			F	Prep Method: SW-846 9	014				Time:08/18/2019 19:59
Free Cyanide			Α	ND	0.0062		mg/L	1	08/19/2019 10:58
				Method: SM 4500-0	O C-2001			An	alyst: EF
Dissolved Oxygen			F	Prep Method: SM 4500-					Time:08/18/2019 15:21
Oxygen, Dissolved		di	Α	7.1	0.20	Н	mg/L	1	08/18/2019 15:21
				Method: EPA 350.1	Rev 2.0			An	alyst: ABG
Nitrogen, Ammonia as	N		F	Prep Method: EPA 350.1	l Rev 2.0				Time: 08/18/2019 13:52
Nitrogen, Ammonia (A	s N)	di	Α	0.14	0.10		mg/L	1	08/19/2019 11:32

#### 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

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#### 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

#### Comments

No dates or times on sample containers

#### **Cooler Inspection Checklist**

Ice Present or not required?	No
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

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III [Fax [] e-mail (address)     Send Inocice vit: [] mail [] fax [] e-mail (address)       JUHU [MU/information continue:     DNo:     Compliance Montioning? [] Vits [] mail [] fax [] e-mail (address)       JUHU [MU/information continue:     DNo:     Compliance Montioning? [] Vits [] mail [] fax [] e-mail (address)       MULL Exactly [] fax	Mail       Fax       e-mail (address)       s         WULEU       MULI UNIDIA       Location:       sampler Signature:         Multer       Doundwater       Sampler Signature:       Multer         Multer       Doundwater       Sampler       Malting       Signature:         Mater       Time       Contrainers       Malting       Signature:         Mater       Date       Time       Malting       Signature:       Malting         Mater       Mater       Mater       Malting       Signature:       Malting         Mater       Mater       Mater       Mater       Malting       Signature:       Malting         Mater       Mater	□ Mail       □ Fax       □ -mail (address)         □ Compliance Monitoring?       □ Yes       □ N         □ Agency/Program       □ Agency/Program       □ Agency/Program         Sampler Phone No::       219-644-7535       58         Swny, waste Water (WW), Other (specify)       10       0         Infate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved       REQUESTED ANALYSIS         P       S       S       P         P       S       S       P         P       S       S       P	CITIAN
Multic Munitoring     Description     Double     Compliance Montacing?     Tree     No       etter Exploration     Sampler Signature:     Sampler Phone No:     2.79-Left/1-7535       etter Exploration     Date     Entreme     Social Bisufate, (5) Hearen (10) Uppresend       etter Exploration     Date     Time     of 0.001 Signature       etter Exploration     Date     UDAL     Exploration       etter Exploration     Date     UDAL     Exploration       etter Exploration     Date     Time     of 0.001 Signature       etter Exploration     Date     UDAL     Exploration       etter Exploration     Date     UDAL     Exploration       etter Exploration     Date	Wulfer     Multiply ive     Location:       Product     Multiply ive     Sampler Signature:       Product     Sampler Signature:     Multiply       Productor     Sampler Signature:       Productor     Sampler Sign	Ves DN	CITIAN
Birkk     Sampler Flynne, March     Sampler Flynne, Drinking Water (SW), Waste Waste Water (SW), Waste Waste Water (SW), Waste Waste Waste Waste Water (SW), Waste	Hulk     Dolland     Sampler Signature:       Types:     Soil/Solid (S), Sludge, OII, Wipe, Drinking Water (GW), Groundwater (GW)       Types:     (1) HN03, (2) H2S04, (3) HCI, (4) NaOH, (5) Zinc Acetate, (6) Methanol,       Types:     (1) HN03, (2) H2S04, (3) HCI, (4) NaOH, (5) Zinc Acetate, (6) Methanol,       Date     Time       Entry     Date       Type     Date       Time     Vol       Entry     Of Contrainers       Matrix     Matrix       Entry     B/10/119       Entry     Collected       V3     11/8/119	4-7575	CITIAN
es: Solt/Solid (S), Sudge, OI, Wire, Drinking Water (DW), Groundwater (GM), Surface Water (SW), Wate Water (WW), Other (specify) les: (1) HNO3, (2) H2O4, (3) HGJ, (4) Nobi, (5) Exclusing Examples (1) Beartae, (1) Bharae, (1) Uppreserved and the control of the	** Artrix Types: Soil/Solid (S), Sludge, Oli, Wipe, Drinking Water (DW), Groundwater (GW ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Mathfold, ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Mathfold, ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) H2, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) H2, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2SO4, (3) H2, (4) NaOH, (5) Zinc Acetate, (GW ** Preservative Types: (1) H103, (2) H2, (2) H2	(N) Unpreserved	CIIIA
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Ń.	3	Regeived By Signature) Date	122/1707

			CHAIN OF CUSTODY RECORD
MICROBAC*	×		Number 152343
Lab Report Address	Invoice Address	Turnaround Time	TO BE COMPLETED BY MICROBAC
Client Name:	Client Name:	Routine (5 to 7 business days)	Temperature Upon Receipt (°C) Therm ID
Address:	Address:	7	Holding Time
City, State, Zip:	City, State, Zip:	(needed by)	Samples Received on Ice? 🗆 Yes 📩 No 🗆 N/A
Contact:	Contact:	Report Type	Custody Seals Intact? Tes No KN/A
Telephone No.:	Telephone No.:	Results Only     Level 1     Level 2	2 Clevel 3 Clevel 4 CEDD
Send Report via:	Ser	Send Invoice via: 🗌 Mail 🗌 Fax 🔲 e-mail (address)	
Project: Releriving Water MUNIMING	Location:	PO No.: Compliance Monitoring?	toring?
Sampled by (PRINT): PATICAL Englander	Sampler Signa	Sampler Phone No.: 219-644	1 7585
* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water ** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCI, (4) NaOH, (5) Z	e, Drinking Water (DW), Groundwater (GW), Si 1, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7	* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify) ** Preservative Types: (1) HN03, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Memanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved	y) he, (U) Unpreserved
		REQUESTED ANALYSIS	-
	⊒ • of Containers trix b ∕ Comp	Hd dwg vn mg Vn hHr O(	H
Lab ID Client Sample ID Collected	Collected No Ma Gr		T Additional Notes S
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OUT FA1 00)	9:09	XXXXXX	B3.6 7.76
113 Z1	0:43	XXXX XXXX XXXX	2612 1122
		< ×   ×   ×   ×	1 h.2n
zard Identification	Non-Hazardous     Radioactive	Sample Disposition Dispose as anoronriate	Ret Irrn D Archiva
ected	shed at (signature)	Received By (signature)	Date/Time
TEMP	Relinquished By (signature) Dat		Date/Time
P H	Relinquished By (signature) Dat	Date/Time Received By (signature)	Later Time
rev.12/26/2017			Page 2 Page 15 of 25

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