



August 17, 2019

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

Work Order No.: 19H1106

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 19H1106.

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](mailto:ron.misiunas@microbac.com).

Sincerely,  
Microbac Laboratories, Inc.

A handwritten signature in black ink that reads "Carey Gadzala". The signature is written in a cursive, flowing style.

Carey Gadzala  
Project Manager

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

250 West 84<sup>th</sup> Drive | Merrillville, IN 46410 | 800.536.8379 p | 219.769.8378 p | 219.769.1664 f | [www.microbac.com](http://www.microbac.com)



**WORK ORDER SAMPLE SUMMARY**

**Date:** *Saturday, August 17, 2019*

**Client:** Arcelor Mittal USA, Inc.  
**Project:** Spill Samples  
**Lab Order:** 19H1106

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
19H1106-01	#13		08/16/2019 16:36	8/17/2019 11:20:00AM
19H1106-02	#12		08/16/2019 16:44	8/17/2019 11:20:00AM
19H1106-03	#11		08/16/2019 16:52	8/17/2019 11:20:00AM
19H1106-04	#10		08/16/2019 16:58	8/17/2019 11:20:00AM
19H1106-05	#9		08/16/2019 17:04	8/17/2019 11:20:00AM
19H1106-06	#8		08/16/2019 17:08	8/17/2019 11:20:00AM
19H1106-07	#7		08/16/2019 17:13	8/17/2019 11:20:00AM
19H1106-08	#6		08/16/2019 17:20	8/17/2019 11:20:00AM
19H1106-09	#5		08/16/2019 17:28	8/17/2019 11:20:00AM
19H1106-10	#4		08/16/2019 17:33	8/17/2019 11:20:00AM
19H1106-11	#3		08/16/2019 17:38	8/17/2019 11:20:00AM
19H1106-12	#2		08/16/2019 17:43	8/17/2019 11:20:00AM
19H1106-13	#1		08/16/2019 17:53	8/17/2019 11:20:00AM
19H1106-14	Outfall 001		08/16/2019 17:59	8/17/2019 11:20:00AM
19H1106-15	#000		08/16/2019 19:08	8/17/2019 11:20:00AM

## Field Results

Date: Saturday, August 17, 2019

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order:</b>	19H1106
<b>Client Project:</b>	Spill Samples		
<b>Client Sample ID:</b>	#13	<b>Work Order/ID:</b>	19H1106-01
<b>Sample Description:</b>		<b>Sampled:</b>	08/16/2019 16:36
<b>Matrix:</b>	Aqueous	<b>Received:</b>	08/17/2019 11:20

Analyses	Result	Units
pH	7.71	pH Units
Temp	76.2	F

<b>Client Sample ID:</b>	#12	<b>Work Order/ID:</b>	19H1106-02
<b>Sample Description:</b>		<b>Sampled:</b>	08/16/2019 16:44
<b>Matrix:</b>	Aqueous	<b>Received:</b>	08/17/2019 11:20

Analyses	Result	Units
pH	7.40	pH Units
Temp	79.2	F

<b>Client Sample ID:</b>	#11	<b>Work Order/ID:</b>	19H1106-03
<b>Sample Description:</b>		<b>Sampled:</b>	08/16/2019 16:52
<b>Matrix:</b>	Aqueous	<b>Received:</b>	08/17/2019 11:20

Analyses	Result	Units
pH	7.32	pH Units
Temp	78.7	F

<b>Client Sample ID:</b>	#10	<b>Work Order/ID:</b>	19H1106-04
<b>Sample Description:</b>		<b>Sampled:</b>	08/16/2019 16:58
<b>Matrix:</b>	Aqueous	<b>Received:</b>	08/17/2019 11:20

Analyses	Result	Units
pH	7.35	pH Units
Temp	78.4	F

<b>Client Sample ID:</b>	#9	<b>Work Order/ID:</b>	19H1106-05
<b>Sample Description:</b>		<b>Sampled:</b>	08/16/2019 17:04
<b>Matrix:</b>	Aqueous	<b>Received:</b>	08/17/2019 11:20

Analyses	Result	Units
pH	7.29	pH Units
Temp	78.1	F

<b>Client Sample ID:</b>	#8	<b>Work Order/ID:</b>	19H1106-06
<b>Sample Description:</b>		<b>Sampled:</b>	08/16/2019 17:08
<b>Matrix:</b>	Aqueous	<b>Received:</b>	08/17/2019 11:20

Analyses	Result	Units
pH	7.37	pH Units
Temp	78.1	F

## Field Results

Date: *Saturday, August 17, 2019*

<b>Client Sample ID:</b> #7	<b>Work Order/ID:</b> 19H1106-07
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:13
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.52	pH Units
Temp	79	F

<b>Client Sample ID:</b> #6	<b>Work Order/ID:</b> 19H1106-08
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:20
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.59	pH Units
Temp	79.2	F

<b>Client Sample ID:</b> #5	<b>Work Order/ID:</b> 19H1106-09
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:28
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.59	pH Units
Temp	80.4	F

<b>Client Sample ID:</b> #4	<b>Work Order/ID:</b> 19H1106-10
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:33
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.64	pH Units
Temp	80.8	F

<b>Client Sample ID:</b> #3	<b>Work Order/ID:</b> 19H1106-11
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:38
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.63	pH Units
Temp	81.2	F

<b>Client Sample ID:</b> #2	<b>Work Order/ID:</b> 19H1106-12
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:43
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.66	pH Units
Temp	81.2	F

<b>Client Sample ID:</b> #1	<b>Work Order/ID:</b> 19H1106-13
<b>Sample Description:</b>	<b>Sampled:</b> 08/16/2019 17:53
<b>Matrix:</b> Aqueous	<b>Received:</b> 08/17/2019 11:20

Analyses	Result	Units
pH	7.62	pH Units

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

## Field Results

Date: *Saturday, August 17, 2019*

Temp	82.5	F
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**Client Sample ID:** Outfall 001

**Sample Description:**

**Matrix:** Aqueous

**Work Order/ID:** 19H1106-14

**Sampled:** 08/16/2019 17:59

**Received:** 08/17/2019 11:20

Analyses	Result	Units
pH	7.63	pH Units
Temp	84.5	F

**Client Sample ID:** #000

**Sample Description:**

**Matrix:** Aqueous

**Work Order/ID:** 19H1106-15

**Sampled:** 08/16/2019 19:08

**Received:** 08/17/2019 11:20

Analyses	Result	Units
pH	7.64	pH Units
Temp	70.9	F

**CASE NARRATIVE****Date:** Saturday, August 17, 2019

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**Client:** Arcelor Mittal USA, Inc.  
**Project:** Spill Samples  
**Lab Order:** 19H1106

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

<u>Laboratory ID</u>	<u>Sample Name</u>
19H1106-01	#13
19H1106-02	#12
19H1106-03	#11
19H1106-04	#10
19H1106-05	#9
19H1106-06	#8
19H1106-07	#7
19H1106-08	#6
19H1106-09	#5
19H1106-10	#4
19H1106-11	#3
19H1106-12	#2
19H1106-13	#1
19H1106-14	Outfall 001
19H1106-15	#000

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

<u>Laboratory ID</u>	<u>Sample Name</u>
19H1106-01	#13
19H1106-02	#12

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-01
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 16:36
<b>Client Sample ID:</b>	#13	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	0.0079	0.0050		mg/L	1	08/17/2019 15:20
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	0.011	0.0050		mg/L	1	08/17/2019 14:30
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	8.5	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 12:39</b>			
Nitrogen, Ammonia (As N)	di	A	0.12	0.10		mg/L	1	08/17/2019 15:54

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-02
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 16:44
<b>Client Sample ID:</b>	#12	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	<b>0.042</b>	0.0050		mg/L	1	08/17/2019 15:25
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	<b>0.073</b>	0.0050		mg/L	1	08/17/2019 14:35
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	<b>6.8</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 12:39</b>			
Nitrogen, Ammonia (As N)	di	A	<b>0.45</b>	0.10		mg/L	1	08/17/2019 15:56

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-03
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 16:52
<b>Client Sample ID:</b>	#11	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	<b>0.044</b>	0.0050		mg/L	1	08/17/2019 15:30
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	<b>0.080</b>	0.0050		mg/L	1	08/17/2019 14:40
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	<b>6.6</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 12:39</b>			
Nitrogen, Ammonia (As N)	di	A	<b>0.58</b>	0.10		mg/L	1	08/17/2019 16:04

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-04
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 16:58
<b>Client Sample ID:</b>	#10	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	0.050	0.0050		mg/L	1	08/17/2019 15:32
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	0.080	0.0050		mg/L	1	08/17/2019 14:42
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	6.5	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 12:39</b>			
Nitrogen, Ammonia (As N)	di	A	0.59	0.10		mg/L	1	08/17/2019 16:06

## Analytical Results

Date: Saturday, August 17, 2019

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

**Work Order/ID:** 19H1106-05  
**Sampled:** 08/16/2019 17:04  
**Received:** 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>			Analyst: <b>ABG</b>		
<b>Total Cyanide</b>			Prep Method: <b>NA</b>			Prep Date/Time: <b>08/17/2019 12:30</b>		
Cyanide, Total	dij	A	0.038	0.0050		mg/L	1	08/17/2019 15:33
			Method: <b>SW-846 9014</b>			Analyst: <b>ABG</b>		
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>			Prep Date/Time: <b>08/17/2019 13:28</b>		
Free Cyanide		A	0.072	0.0050		mg/L	1	08/17/2019 14:44
			Method: <b>SM 4500-O C-2001</b>			Analyst: <b>DAT</b>		
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>			Prep Date/Time: <b>08/17/2019 12:16</b>		
Oxygen, Dissolved	di	A	6.4	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>			Analyst: <b>ABG</b>		
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>			Prep Date/Time: <b>08/17/2019 12:39</b>		
Nitrogen, Ammonia (As N)	di	A	0.65	0.10		mg/L	1	08/17/2019 16:08

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-06
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:08
<b>Client Sample ID:</b>	#8	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>			Analyst: <b>ABG</b>		
<b>Total Cyanide</b>			Prep Method: <b>NA</b>			Prep Date/Time: <b>08/17/2019 12:30</b>		
Cyanide, Total	dij	A	<b>0.035</b>	0.0050		mg/L	1	08/17/2019 15:35
			Method: <b>SW-846 9014</b>			Analyst: <b>ABG</b>		
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>			Prep Date/Time: <b>08/17/2019 13:28</b>		
Free Cyanide		A	<b>0.061</b>	0.0050		mg/L	1	08/17/2019 14:45
			Method: <b>SM 4500-O C-2001</b>			Analyst: <b>DAT</b>		
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>			Prep Date/Time: <b>08/17/2019 12:16</b>		
Oxygen, Dissolved	di	A	<b>6.4</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>			Analyst: <b>ABG</b>		
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>			Prep Date/Time: <b>08/17/2019 12:39</b>		
Nitrogen, Ammonia (As N)	di	A	<b>0.61</b>	0.10		mg/L	1	08/17/2019 16:11

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-07
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:13
<b>Client Sample ID:</b>	#7	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	<b>0.026</b>	0.0050		mg/L	1	08/17/2019 15:37
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	<b>0.047</b>	0.0050		mg/L	1	08/17/2019 14:50
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	<b>7.0</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 12:39</b>			
Nitrogen, Ammonia (As N)	di	A	<b>0.47</b>	0.10		mg/L	1	08/17/2019 16:13

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-08
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:20
<b>Client Sample ID:</b>	#6	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>			Analyst: <b>ABG</b>		
<b>Total Cyanide</b>			Prep Method: <b>NA</b>			Prep Date/Time: <b>08/17/2019 12:30</b>		
Cyanide, Total	dij	A	0.023	0.0050		mg/L	1	08/17/2019 15:39
			Method: <b>SW-846 9014</b>			Analyst: <b>ABG</b>		
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>			Prep Date/Time: <b>08/17/2019 13:28</b>		
Free Cyanide		A	0.041	0.0050		mg/L	1	08/17/2019 14:52
			Method: <b>SM 4500-O C-2001</b>			Analyst: <b>DAT</b>		
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>			Prep Date/Time: <b>08/17/2019 12:16</b>		
Oxygen, Dissolved	di	A	7.2	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>			Analyst: <b>ABG</b>		
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>			Prep Date/Time: <b>08/17/2019 12:39</b>		
Nitrogen, Ammonia (As N)	di	A	0.43	0.10		mg/L	1	08/17/2019 16:16

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-09
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:28
<b>Client Sample ID:</b>	#5	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	<b>0.018</b>	0.0050		mg/L	1	08/17/2019 15:40
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	<b>0.033</b>	0.0050		mg/L	1	08/17/2019 14:54
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	<b>7.2</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 12:39</b>			
Nitrogen, Ammonia (As N)	di	A	<b>0.41</b>	0.10		mg/L	1	08/17/2019 16:18

## Analytical Results

Date: Saturday, August 17, 2019

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-10
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:33
<b>Client Sample ID:</b>	#4	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: <b>SM 4500-CN C/E-1999</b> Analyst: <b>ABG</b>								
Prep Method: <b>NA</b> Prep Date/Time: <b>08/17/2019 12:30</b>								
<b>Total Cyanide</b>								
Cyanide, Total	dij	A	0.018	0.0050		mg/L	1	08/17/2019 15:42
Method: <b>SW-846 9014</b> Analyst: <b>ABG</b>								
Prep Method: <b>SW-846 9014</b> Prep Date/Time: <b>08/17/2019 13:28</b>								
<b>Free Cyanide</b>								
Free Cyanide		A	0.032	0.0050		mg/L	1	08/17/2019 14:56
Method: <b>SM 4500-O C-2001</b> Analyst: <b>DAT</b>								
Prep Method: <b>SM 4500-O C-2001</b> Prep Date/Time: <b>08/17/2019 12:16</b>								
<b>Dissolved Oxygen</b>								
Oxygen, Dissolved	di	A	7.4	0.20	H	mg/L	1	08/17/2019 12:16
Method: <b>EPA 350.1 Rev 2.0</b> Analyst: <b>ABG</b>								
Prep Method: <b>EPA 350.1 Rev 2.0</b> Prep Date/Time: <b>08/17/2019 12:39</b>								
<b>Nitrogen, Ammonia as N</b>								
Nitrogen, Ammonia (As N)	di	A	0.52	0.10		mg/L	1	08/17/2019 16:20

## Analytical Results

Date: Saturday, August 17, 2019

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

**Work Order/ID:** 19H1106-11  
**Sampled:** 08/16/2019 17:38  
**Received:** 08/17/2019 11:20

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>			Analyst: <b>ABG</b>		
<b>Total Cyanide</b>			Prep Method: <b>NA</b>			Prep Date/Time: <b>08/17/2019 12:30</b>		
Cyanide, Total	dij	A	0.018	0.0050		mg/L	1	08/17/2019 15:44
			Method: <b>SW-846 9014</b>			Analyst: <b>ABG</b>		
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>			Prep Date/Time: <b>08/17/2019 13:28</b>		
Free Cyanide		A	0.031	0.0050		mg/L	1	08/17/2019 14:57
			Method: <b>SM 4500-O C-2001</b>			Analyst: <b>DAT</b>		
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>			Prep Date/Time: <b>08/17/2019 12:16</b>		
Oxygen, Dissolved	di	A	7.1	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>			Analyst: <b>ABG</b>		
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>			Prep Date/Time: <b>08/17/2019 12:39</b>		
Nitrogen, Ammonia (As N)	di	A	0.47	0.10		mg/L	1	08/17/2019 16:23

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-12
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:43
<b>Client Sample ID:</b>	#2	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	<b>0.016</b>	0.0050		mg/L	1	08/17/2019 16:49
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	<b>0.028</b>	0.0050		mg/L	1	08/17/2019 14:59
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	<b>7.0</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 14:31</b>			
Nitrogen, Ammonia (As N)	di	A	<b>0.41</b>	0.10		mg/L	1	08/17/2019 16:25

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-13
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:53
<b>Client Sample ID:</b>	#1	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	<b>0.016</b>	0.0050		mg/L	1	08/17/2019 16:50
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	<b>0.030</b>	0.0050		mg/L	1	08/17/2019 15:01
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	<b>6.9</b>	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 14:31</b>			
Nitrogen, Ammonia (As N)	di	A	<b>0.43</b>	0.10		mg/L	1	08/17/2019 16:32

## Analytical Results

Date: Saturday, August 17, 2019

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-14
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 17:59
<b>Client Sample ID:</b>	Outfall 001	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
			Method: <b>SM 4500-CN C/E-1999</b>		Analyst: <b>ABG</b>			
<b>Total Cyanide</b>			Prep Method: <b>NA</b>		Prep Date/Time: <b>08/17/2019 12:30</b>			
Cyanide, Total	dij	A	0.019	0.0050		mg/L	1	08/17/2019 16:52
			Method: <b>SW-846 9014</b>		Analyst: <b>ABG</b>			
<b>Free Cyanide</b>			Prep Method: <b>SW-846 9014</b>		Prep Date/Time: <b>08/17/2019 13:28</b>			
Free Cyanide		A	0.036	0.0050		mg/L	1	08/17/2019 15:02
			Method: <b>SM 4500-O C-2001</b>		Analyst: <b>DAT</b>			
<b>Dissolved Oxygen</b>			Prep Method: <b>SM 4500-O C-2001</b>		Prep Date/Time: <b>08/17/2019 12:16</b>			
Oxygen, Dissolved	di	A	6.6	0.20	H	mg/L	1	08/17/2019 12:16
			Method: <b>EPA 350.1 Rev 2.0</b>		Analyst: <b>ABG</b>			
<b>Nitrogen, Ammonia as N</b>			Prep Method: <b>EPA 350.1 Rev 2.0</b>		Prep Date/Time: <b>08/17/2019 14:31</b>			
Nitrogen, Ammonia (As N)	di	A	0.56	0.10		mg/L	1	08/17/2019 16:35

## Analytical Results

Date: *Saturday, August 17, 2019*

<b>Client:</b>	Arcelor Mittal USA, Inc.	<b>Work Order/ID:</b>	19H1106-15
<b>Client Project:</b>	Spill Samples	<b>Sampled:</b>	08/16/2019 19:08
<b>Client Sample ID:</b>	#000	<b>Received:</b>	08/17/2019 11:20
<b>Sample Description:</b>			
<b>Matrix:</b>	Aqueous		

Analyses	Certs	AT	Result	RL	Qual	Units	DF	Analyzed
Method: <b>SM 4500-CN C/E-1999</b> Analyst: <b>ABG</b>								
Prep Method: <b>NA</b> Prep Date/Time: <b>08/17/2019 12:30</b>								
<b>Total Cyanide</b>								
Cyanide, Total	dij	A	ND	0.0050		mg/L	1	08/17/2019 16:54
Method: <b>SW-846 9014</b> Analyst: <b>ABG</b>								
Prep Method: <b>SW-846 9014</b> Prep Date/Time: <b>08/17/2019 13:28</b>								
<b>Free Cyanide</b>								
Free Cyanide		A	ND	0.0050		mg/L	1	08/17/2019 15:04
Method: <b>SM 4500-O C-2001</b> Analyst: <b>DAT</b>								
Prep Method: <b>SM 4500-O C-2001</b> Prep Date/Time: <b>08/17/2019 12:16</b>								
<b>Dissolved Oxygen</b>								
Oxygen, Dissolved	di	A	8.0	0.20	H	mg/L	1	08/17/2019 12:16
Method: <b>EPA 350.1 Rev 2.0</b> Analyst: <b>ABG</b>								
Prep Method: <b>EPA 350.1 Rev 2.0</b> Prep Date/Time: <b>08/17/2019 14:31</b>								
<b>Nitrogen, Ammonia as N</b>								
Nitrogen, Ammonia (As N)	di	A	ND	0.10		mg/L	1	08/17/2019 16:37

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**ANALYTE TYPES: (AT)**

A, B = Target Analyte

I = Internal Standard

M = Summation Analyte

S = Surrogate

T = Tentatively Identified Compound (TIC, concentration estimated)



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**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)

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

j Kentucky Wastewater Laboratory Certification Program (#108202)

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**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

Microbac Laboratories, Inc.

250 West 84<sup>th</sup> Drive | Merrillville, IN 46410 | 800.536.8379 p | 219.769.8378 p | 219.769.1664 f | [www.microbac.com](http://www.microbac.com)



CHAIN OF CUSTODY RECOF

Number **152346**  
 Instructions on back

TO BE COMPLETED BY MICROBAC

Temperature Upon Receipt (°C)  
 Therm ID  
 Holding Time  
 Samples Received on Ice?  Yes  No  
 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)  
 PO No.:  
 Compliance Monitoring?  Yes  No  
 Agency/Program

Sampler Phone No.:

Invoice Address

Client Name:  
 Address:  
 City, State, Zip:  
 Contact:  
 Telephone No.:

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

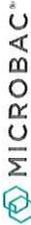
Project: **Receiving Water Monitoring** Location:

Sampled by (PRINT): **Patrick Gorman** Sampler Signature:

\* 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

REQUESTED ANALYSIS

Lab ID	Client Sample ID	Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types**	DO	NH4	CN	X Free CN	X Temp	X PH	Additional Notes
	#13	8/16/19	4:30PM	4	AQ	G	U, 2, 4	X	X	X	X	X	X	Temp 76.2°F 19H1106 Temp 76.2°F
<b>RUSH!</b>														
Possible Hazard Identification <input type="checkbox"/> Hazardous <input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Radioactive <input type="checkbox"/> Dispose as appropriate <input type="checkbox"/> Return <input type="checkbox"/> Archive														
Comments: When collected Temp pH														
Relinquished By (signature) <i>Patrick Gorman</i> Date/Time 8-16-19 8:33														
Relinquished By (signature) <i>Daren Fawcett</i> Date/Time 8/16/19 0900														
Relinquished By (signature) <i>Mark Berry</i> Date/Time 8-17-19 1120														



CHAIN OF CUSTODY RECORD

Number **152367**  
Instructions on back

TO BE COMPLETED BY MICROBAC  
Temperature Upon Receipt (°C)  
Therm ID  
Holding Time  
Samples Received on Ice?  Yes  No  N/A  
Custody Seals Intact?  Yes  No  N/A

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

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

Send Invoice via:  Mail  Fax  e-mail (address)  
Send Invoice via:  Mail  Fax  e-mail (address)  
Compliance Monitoring?  Yes  No  
 Agency/Program

Project: **Receiving Water Monitoring Location:**  
Sampler Signature: *[Signature]* Sampler Phone No.: **219-664-7885**  
PO No.:

Sampled by (PRINT): **PATRICK GARMAN**  
\* 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**	Sample Disposition	Temp	Additional Notes
#12		8/10/19	4:44 PM	4	AW	G	0, 2, 4	X	79.2°F	19H1106 Temp
#11			4:52 PM					X	78.7°F	
#10			4:58 PM					X	78.4°F	
#9			5:04 PM					X	78.1°F	
#8			5:08 PM					X	78.1°F	
#7			5:13 PM					X	79.0°F	
#6			5:20 PM					X	79.2°F	
#5			5:28 PM					X	80.4°F	
#4			5:33 PM					X	80.8°F	
#3			5:38 PM					X	81.2°F	

Requested Analysis

Relinquished By (signature) *[Signature]* Date/Time **8-16-19 8:33 AM**  
 Relinquished By (signature) *[Signature]* Date/Time **8/16/19 8:33 AM**  
 Relinquished By (signature) *[Signature]* Date/Time **8/17/19 11:20**  
 Relinquished By (signature) *[Signature]* Date/Time **8/17/19 11:20**

Received By (signature) *[Signature]* Date/Time **8/16/19 8:30 AM**  
 Received By (signature) *[Signature]* Date/Time

Received By (signature) *[Signature]* Date/Time **8-17-19 11:20**

Possible Hazard Identification  
 Hazardous  Non-Hazardous  Radioactive  Return  Archive

Comments  
 when collected 4.2  
 Temp -0.3  
 PH 3.9 AC

