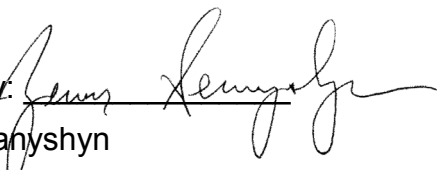
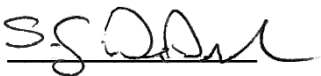



# Covanta Durham York Renewable Energy Limited Partnership


## Acceptance Test Report

### Metals Recovery Test

Approved by:   
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V.P. Operations Engineering

Submitted by:   
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## **1 OBJECTIVE**

### **1.1 Ferrous Recovery Test**

The objective of the Ferrous Recovery Test was to demonstrate that the Facility ferrous recovery system will recover from the Residue, 80% by weight of magnetic ferrous metal contained therein as stated in the Metals Recovery Guarantee in Exhibit 2 to Appendix 19 of the Project Agreement.

### **1.2 Non-Ferrous Recovery Test**

The objective of the Non-Ferrous Recovery Test was to demonstrate that the facility non-ferrous metal recovery system will recover from the Residue, 60% by weight of non-ferrous metal material greater than 3/8 inch contained therein as stated in the Metals Recovery Guarantee in Exhibit 2 to Appendix 19 of the Project Agreement.

## **2 TEST SUMMARY & CONCLUSIONS**

The Ferrous and Non Ferrous Recovery Tests were performed on three (3) consecutive days, October 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup>, 2015. Each test was greater than eight (8) continuous hours, during which the facility maintained steam flow at a level greater than 95% of maximum continuous rating (MCR).

The Facility demonstrated:

- a) An overall ferrous recovery rate of 87.7% by weight of all recoverable magnetic ferrous metal based on the average of the three tests. This exceeds the 80% guarantee requirement
- b) An overall non-ferrous recovery rate of 84.7% by weight of all recoverable non-ferrous metal based on the average of the three tests. This exceeds the 60% guarantee requirement.

Each individual test also exceeded the contract requirements. The results of the three (3) individual metals recovery runs as well as the overall average test results are illustrated in Table 1 at the end of the report.

## **3 TEST PROCEDURES & MODIFICATIONS**

The Ferrous and Non-Ferrous Metals Recovery Tests were performed according to the test procedures agreed to by Covanta Durham York Renewable Energy Limited Partnership (Covanta) and the Independent Consulting Engineers (HDR). The following clarifies sampling locations as well as modifications made to the test procedures and/or calculations. The Test Procedures are included in the test report appendix for reference.

### **3.1 Bottom Ash Sample Location for Unrecovered Metals**

Bottom Ash travels along a common vibrating pan to the grizzly. From there, it travels up a single belt conveyor to the residue building where it passes by a magnetic drum separator and then onto a vibrating screen and an eddy current separator (ECS). The recovered Non-Fe falls into Bay 4 and the Bottom Ash falls into Bay 3. During each sample collection (performed at 30-minute intervals), the ash loader operator placed the bucket underneath the eddy current separator in Bay 3 to obtain a sample weight of approximately 200 pounds. The samples were then processed and sorted to determine the amount of unrecovered ferrous and non-ferrous, as outlined in the Test Procedures.

### **3.2 Ferrous Sample Processing**

- HDR and Covanta agreed that due to the 1 inch vibrating conveyor screen being plated over, it was more appropriate to sample for all unrecovered ferrous instead of only ferrous greater than 1" inch.
- After collecting the residue to be sampled, the sample was screened through a nominal 2 inch screen. The +2" sample portion was tested with a hand magnet and any ferrous identified was removed for further processing. The -2" portion of the sample was spread on the floor and tested using the rolling shop magnets and any ferrous collected was removed for further processing. The +2" and -2" unrecovered ferrous was inspected and any excessive nonmetallic ash/clinker found attached was removed by crushing with a hammer. It was also mutually agreed that the recovered ferrous be adjusted for yield based on the yield determined by the ferrous buyer, Gerdau Metals. The actual recovered ferrous yield was determined by Gerdau Metals to be 80%. Documentation from Gerdau metals is included as an attachment.
- All sampling weights are attached at in Appendix A at the end of the report.

### **3.3 Non-Ferrous Sample Processing Modifications**

- After the sample was processed for unrecovered ferrous, approximately one-quarter (a 5-gallon bucket-full) of the remainder of the sample was set aside for re-processing on the plant ECS for unrecovered non-ferrous. The diverter plate for the ECS remained all the way forward to maximize the amount of recovered material as agreed to with HDR.
- When re-processing, a tarp was inserted into the ECS to catch the non-ferrous metals that would be propelled over the diverter plate. The unrecovered non-ferrous sample caught in the tarp was then collected in a small bucket & weighed.
- All sampling weights are attached in Appendix A at the end of the report.

## 4 CALCULATIONS AND DATA ANALYSIS

### 4.1 *Samples & Sample Weight*

The average sample weight satisfied the minimum requirement of 200 pounds. The total sample weight was 10,206 pounds as shown in Table 1. The average weight was 213 pounds for the 48 total samples, which equates to 2.1% of the residue that was weighed during the three (3) days of testing.

### 4.2 *Boiler Load*

During the test, the measured total steam flow was 153 klb/hr, or 102% MCR which is greater than the 95% MCR steam flow required in the test procedures.

### 4.3 *Totals and Averages*

The following demonstrates the calculations performed for determining the Ferrous and Non-Ferrous Removal Efficiency. Results of these calculations are included for each individual run as well as the summation of all three runs in Table 1.

#### **Ferrous:**

##### 4.3.1 **Total Unrecovered Ferrous Metal Ratio (UnFeR)**

$$(UnFeR) = \frac{X}{S} = \frac{X}{(X + Y + Z)}$$

Where:

- X= Unrecovered Ferrous (lbs)
- Y= Material (Ash, Ferrous & Non-Ferrous), (lbs)
- Z= Non-Magnetic Material (lbs)
- S= Total Sample Weight = X+Y+Z

$$(UnFeR) = \frac{221.2}{10,206} = 0.02167 = 2.167\%$$

##### 4.3.2 **Total Unrecovered Ferrous Metal Weight (UnFeW)**

$$UnFeW = (UnFeR \times D) + X$$

Where:

- D= ECS Rejects
- UnFeR= Unrecovered Ferrous Ratio
- X= Unrecovered Ferrous Weight

$$UnFeW = (ECS\ Rejects * Unrecovered\ Fe\ Ratio) + Unrecovered\ Fe\ Weight$$

$$(UnFeW) = (99,054 * 2.167\%) + 221.2 = 2,368\ lbs$$

#### 4.3.3 Total Run Recovered Process Ferrous Metal Weight

3 Run Recovered Process Ferrous Total

$$= Recovered\ Process\ Ferrous: Run\ 1 + Run\ 2 + Run\ 3$$

$$(Total\ Process\ Ferrous) = 6,296 + 5,309 + 5,362 = 16,967\ lbs$$

#### 4.3.4 Percentage of Ferrous Metal in Residue (Bottom Ash Only)

$$Percentage\ of\ Ferrous\ in\ Residue = \frac{\sum_{Run\ 1}^{Run\ 3} Run\ Total\ Ferrous}{\sum_{Run\ 1}^{Run\ 3} Run\ Total\ Residue\ Stream}$$

Where:

- Run Total Ferrous= Total Grizzly + Total Process Fe + Total Unrecovered Fe
- Run Total Residue Stream= Total Grizzly + Total Process Fe + Total Process Non-Fe + Total Bottom Ash

$$Percentage\ of\ Ferrous\ in\ Residue = \frac{(221.2+16,967)}{(129,577)} = 14.90\%$$

#### 4.3.5 Ferrous Removal Efficiency (FeRE)

*FeRE*

$$= \frac{Grizzly\ Scalper\ Ferrous + Recovered\ Process\ Ferrous}{Grizzly\ Scalper\ Ferrous + Recovered\ Process\ Ferrous + Unrecovered\ Ferrous}$$

$$FeRE = \frac{16,967}{16,967 + 2,368} \times 100 = 87.75\%$$

**Non-Ferrous:**

**4.3.6 Total Unrecovered Non-Ferrous Metal Ratio (UnNFeR)**

$$(UnNFeR) = \frac{W}{S} = \frac{W}{(Y + Z)}$$

Where:

- W= +3/8 inch Unrecovered Non-Ferrous Metal Weight (lbs)
- Y=+3/8 inch Material (Ash, Ferrous & Non-Ferrous), (lbs)
- Z= Non-Magnetic Material (lbs)
- S= Total Sample Weight = Y+Z (lbs)

$$(UnNFeR) = \frac{13.94}{2,328} = 0.00599 = 0.599\%$$

**4.3.7 Total Unrecovered Non-Ferrous Metal Weight (UnNFeW)**

$$UnNFeW = UnNFeR \times D + W$$

Where:

- D= ECS Rejects
- UnNFeR= Unrecovered Non-Ferrous Metal Ratio
- W= Unrecovered Non-Ferrous Metal Weight

$$= (0.00599 \times 99,054) + 13.94 = 607 \text{ lbs}$$

**4.3.8 Total Recovered Process Non-Ferrous Metal Weight**

3-Run Recovered Process Non-Ferrous Metal Total = Recovered Process Non-Ferrous: Run 1 +  
Run 2 + Run 3

$$= 1,257 + 970 + 1,124 = 3,351 \text{ lbs}$$



#### 4.3.9 Percentage of Non-Ferrous Metal in Residue

$$\text{Percentage of Non – Ferrous Metal in Residue} = \frac{\sum_{Run\ 1}^{Run\ 3} \text{Run Total Non Ferrous}}{\sum_{Run\ 1}^{Run\ 3} \text{Run Total Residue Stream}}$$

Where:

- Run Total Non-Ferrous = Total Process Non-Fe + Total Unrecovered Non-Fe
- Run Total Residue Stream = Total Grizzly + Total Process Fe + Total Process Non-Fe + Total Bottom Ash

$$\text{Percentage of Non – Ferrous in Residue} = \frac{(3,351 + 607)}{(129,577)} = 3.1\%$$

#### 4.3.10 Non-Ferrous Metal Removal Efficiency (NFeRE)

$$NFeRE = \frac{\text{Recovered Process NonFerrous Metal}}{\text{Recovered Process NonFerrous Metal} + \text{Unrecovered NonFerrous Metal}}$$

$$NFeRE = \frac{3,351}{3,351 + 607} \times 100 = 84.66\%$$

## **5 DISCUSSION**

Over the three (3), 8-hour test periods, 16,967 lbs of ferrous was collected by the ferrous metal recovery system out of a total estimated 19,335 lbs of ferrous in the ash stream. Simultaneously, 3,351 lbs of non-ferrous was collected by the nonferrous metal recovery system out of a total estimated non-ferrous quantity of 3,959 lbs in the ash stream.

As identified in section 3.2.2, as mutually agreed to with HDR, the recovered ferrous was adjusted downward using an 80% yield provided by the ferrous metal recycler (Gerdau Metals). This was to ensure that the quantity of the metal recovered used in the calculation did not include any ash.

The cleaning of the unrecovered samples was performed as followed:

During each eight (8) hour sampling period, 16 samples were taken to extract and weigh all unrecovered ferrous metal. This step was considered the “unsorted” weight of the unrecovered ferrous metal. All of the unrecovered ferrous metal was manually sorted into two piles, identified as pure and clinker. The clinker portion was crushed using hammers to separate any ferrous material that was encapsulated in the ash. A magnet was used to extract all ferrous from the crushed portion. The ferrous extracted was added to the pure pile and both piles were weighed. This step was considered the “sorted” weight of the unrecovered ferrous metal. This weight was summed over the eight (8) hour sampling period to determine the unrecovered ferrous metal ratio, which was applied to the +3/8” bottom ash stream for the test period.

The removal efficiency results presented are based off of the “sorted” unrecovered ferrous metal weights in Table 1 at the end of the report.

It is also noted that if the “unsorted” values are used with the recovered ferrous values without using a yield on the recovered ferrous, then the recovery is also above the 80% guarantee level.

---

## 6 ACKNOWLEDGEMENTS

The efforts and cooperation of HDR, the facility start-up team, operations and maintenance staffs are gratefully acknowledged. The test participants and plant staff are listed below.

### **HDR**

John Clark  
Greg Gesell  
Jeff Martirano  
Ryan Lichtman  
Kirk Dunbar

### **Covanta**

Ken Coatham  
Jigar Vyas  
Amanda Huxter  
Brandon Murphy  
Eric Naugle  
Derek Higdon  
Jennifer Arseneault  
Brock Murphy  
Stephen Deduck  
Lambert Xiao  
Wes McDonald  
Shelly Seow  
Andy Lang

### **Lakeland Multi-Trade, Inc.**

Mike Holmes  
Korey Glover  
Justin Whalen  
James Forestell  
Derek Anderson  
Nick Quinten

# 7 ATTACHMENTS

TABLE 1 DURHAM YORK ACCEPTANCE TESTING Metals Recovery Test Results													
Bulk Weights	Start Time	End Time	Duration (hrs)	Recovered Ferrous & Grizzly (kgs)		Recovered Ferrous & Grizzly Net of YIELD (lbs)		Recovered Non-Ferrous (kgs)		Bottom Ash, Including Sample (lbs)		Ferrous Yield	
				kgs	lbs	kgs	lbs	kgs	lbs	kgs	lbs	kgs	lbs
	Run 1 10/7/15 9:00	10/7/15 17:00	8.00	3,570	7,870	2,856	6,296	570	1,257	16,890	37,236		80.0%
	Run 2 10/8/15 8:00	10/8/15 16:00	8.00	3,010	6,636	2,408	5,309	440	970	12,020	26,500		80.0%
	Run 3 10/9/15 0:00	10/6/15 16:00	8.00	3,040	6,702	2,432	5,362	510	1,124	16,020	35,318		80.0%
	<b>3 Run Metals Recovery Sum</b>			<b>9,620</b>	<b>21,208</b>	<b>7,696</b>	<b>16,967</b>	<b>1,520</b>	<b>3,351</b>	<b>44,980</b>	<b>99,054</b>		
				Total Sample Weight (Lbs)		Unrecovered Ferrous Weight (Lbs)		Non-Fe Sample Weight (Lbs)		+3/8" Unrecovered Non-Ferrous Weight (Lbs)			
				<b>S</b>		<b>X</b>				<b>W</b>			
	Run 1 10/7/15 9:00	10/7/15 17:00	8.00	3469		73.0		808.0		5.25			
	Run 2 10/8/15 8:00	10/8/15 16:00	8.00	3278		65.6		732.0		4.34			
	Run 3 10/9/15 0:00	10/6/15 16:00	8.00	3459		82.6		788.0		4.35			
	<b>3 Run Metals Recovery Sum</b>			<b>10,206</b>		<b>221.2</b>		<b>2,328</b>		<b>13.9</b>			
				Unrecovered Ferrous Ratio (%)		Unrecovered Non-Ferrous Ratio (%)		Total Unrecovered Ferrous		Total Unrecovered Non-Ferrous		Ferrous Removal Efficiency (%)	
				<b>UnFeR</b>		<b>UnNFeR</b>		<b>UnFeW</b>		<b>UnNFeW</b>		<b>FeRE</b>	<b>NFeRE</b>
				<b>X/S</b>		<b>W/S</b>		<b>(UnFeR x D) x X</b>		<b>(UnNFeR x D) x W</b>		<b>(A+B)/(A+B+UnFeW)</b>	<b>C/(C+UnNFeW)</b>
	Run 1 10/7/15 9:00	10/7/15 17:00	8.00	2.10%		0.65%		389	857	112	247	88.0%	83.6%
	Run 2 10/8/15 8:00	10/8/15 16:00	8.00	2.00%		0.59%		270	596	73	161	89.9%	85.7%
	Run 3 10/9/15 0:00	10/6/15 16:00	8.00	2.39%		0.55%		420	926	90	199	85.3%	84.9%
	<b>3 Run Metals Recovery Results</b>			<b>2.1674%</b>		<b>0.60%</b>		<b>1,074</b>	<b>2,368</b>	<b>275</b>	<b>607</b>	<b>87.8%</b>	<b>84.7%</b>
				Total Ferrous Weight		Total Non-Ferrous		Percentage of Ferrous Metal in Residue (%)		Percentage of Non-Ferrous Metal in Residue (%)			
				<b>A+B+UnFeW</b>		<b>C+UnNFeW</b>							
	Run 1 21,890	48,258	YES	3,245	7,153	682	1,504	14.8%		3.1%			
	Run 2 16,355	36,056	YES	2,678	5,905	513	1,131	16.4%		3.1%			
	Run 3 20,531	45,263	YES	2,852	6,288	600	1,324	13.9%		2.9%			
	<b>58,775</b>	<b>129,577</b>		<b>8,770</b>	<b>19,335</b>	<b>1796</b>	<b>3,959</b>	<b>14.9%</b>		<b>3.1%</b>			
				Total Residue, Including Sample (Lbs)		Total Non-Ferrous		Percentage of Ferrous Metal in Residue (%)		Percentage of Non-Ferrous Metal in Residue (%)			
				<b>A+B+C+D+S</b>		<b>C+UnNFeW</b>							
	Run 1 21,890	48,258	YES	3,245	7,153	682	1,504	14.8%		3.1%			
	Run 2 16,355	36,056	YES	2,678	5,905	513	1,131	16.4%		3.1%			
	Run 3 20,531	45,263	YES	2,852	6,288	600	1,324	13.9%		2.9%			
	<b>58,775</b>	<b>129,577</b>		<b>8,770</b>	<b>19,335</b>	<b>1796</b>	<b>3,959</b>	<b>14.9%</b>		<b>3.1%</b>			



**GERDAU**

Nov 12 2015

Good day Jennifer

For the testing days, Sept 30<sup>th</sup>, Oct 1<sup>st</sup> and Oct 2<sup>nd</sup>, we sorted the material we purchased from Covanta removing all cylinders, concrete and as much dust and ash as possible. These three shipments had a total weight of 135,440 lbs. broken down as

Sept 30<sup>th</sup> 53,640lbs received and waste content weighing 9780lbs

Oct 1<sup>st</sup> 28,000lbs received and waste content weighing 5480lbs

Oct 2<sup>nd</sup> 53800lbs received and waste content weighing 11420lbs

Leaving the total test period average of 19.7% waste vs material received.

If you require any additional information let me know.

Regards,

Matt Mackay

Oshawa Metallics

8-Hour Metals Recovery Test

Covanta DYEC

Date	Sample #	Time	Ash Moisture Visual Observation	Subjects Sample Weight (lb)	Unrecovered Ferrous (lb)	Pure Ferrous (%)	Clicker Ferrous (%)	Selective Reduction Ferrous (%)	Clicker Reject (%)	Non Ferrous Test Weight	Comments
Oct 7	1	9:15	Dry	151 lbs	7 lbs	5 lbs	2 lbs	1.6	0.4	51 lbs	
	2	10:00	moist	218 lbs	9 lbs	5 lbs	4 lbs	1.2	2.8	49 lbs	
	3	10:30	moist	245 lbs	9 lbs	2	7	2.6	4.4	47 lbs	
	4	11:00	moist	180 lbs	7 lbs	3	4	1.3	2.7	51 lbs	
	5	11:30	moist	386 lbs	23 lbs	4	19	4.8	14.2	46 lbs	
	6	12:00	moist	182 lbs	9 lbs	2	7	1.1	5.9	46 lbs	
	7	12:30	moist	138 lbs	6 lbs	1 lbs	5	1.5	3.5	53 lbs	
	8	1:00	moist	265 lbs	8 lbs	4 lbs	4	1.6	2.4	61 lbs	
	9	1:30	moist	282 lbs	12 lbs	3 lbs	9 lbs	1.2	7.8	55 lbs	
	10	2:00	moist	246 lbs	8 lbs	4 lbs	4 lbs	0.9	3.1	48 lbs	
	11	2:30	moist	242 lbs	12 lbs	6 lbs	6	0.9	5.1	56 lbs	
	12	3:00	moist	121 lbs	4 lbs	2 lbs	2 lbs	0.7	1.3	51 lbs	
	13	3:30	moist	166 lbs	4 lbs	1 lbs	3 lbs	0.3	2.7	51 lbs	
	14	4:00	moist	152 lbs	7 lbs	2 lbs	5 lbs	0.7	4.3	51 lbs	
	15	4:30	moist	300 lbs	18 lbs	1 lb	17 lbs	5.9	13.1	52 lbs	
	16	5:00	moist	195 lbs	7 lbs	3 lbs	4 lbs	0.7	3.3	50 lbs	

Total Non Ferrous Test Weight: 5.245 lbs

Total Un-Recovered Non Ferrous Metal Weight: \_\_\_\_\_

5.620 - 0.375 = 5.245 lbs

Ferrous & Non-Ferrous Test

Test Date Oct 7, 2015

Grizzly ELS Reject								
Ferrous	32750							
Non-Ferrous	25410							
Bottom Ash	29010	28110	27020	27390	28000	26400		

Empty Loader 24840

Ferrous Tare 29180

8-Hour Metals Recovery Test  
Covanta DYEC

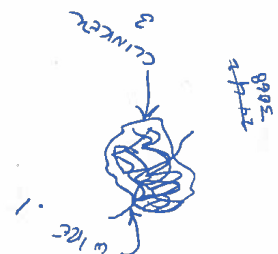
Date	Sample #	Time	Ash Moisture Visual Observation	Rejects Sample Weight (V)	Unrecovered Ferrous (N)	Pure Ferrous (K'a)	Clinker Ferrous (K'b)	Selective Reduction Ferrous (K'b)	Clinker Reject (K'b)	Non Ferrous Test Weight	Comments
Oct 8	1	8:15	Moist	225 lbs	11 lbs	2 lbs	9 lbs	1.5 lbs	7.5 lbs	44 lbs	ONE BIG CHUNK OF CLINKER - LITTLE FE
	2	8:45	moist	217 lbs	14 lbs	3 lbs	11 lbs	2.5 lbs	8.5 lbs	50 lbs	
	3	9:15	moist	207 lbs	10 lbs	3 lbs	7 lbs	0.9 lbs	6.1 lbs	50 lbs	
	4	9:45	moist	245 lbs	19 lbs	1 lbs	18 lbs	2.8 lbs	15.2 lbs	46 lbs	
	5	10:15	Moist	157 lbs	13 lbs	3 lbs	10 lbs	1.3 lbs	8.7 lbs	46 lbs	
	6	10:45	moist	192 lbs	6 lbs	2 lbs	4 lbs	0.8 lbs	3.2 lbs	45 lbs	
	7	11:15	moist	254 lbs	15 lbs	2 lbs	13 lbs	3.9 lbs	9.1 lbs	47 lbs	
	8	12:00	moist	210 lbs	10 lbs	4 lbs	6 lbs	1.7 lbs	4.3 lbs	45 lbs	late because of ash truck..
	9	12:30	moist	170 lbs	7 lbs	1 lbs	6 lbs	1.7 lbs	4.3 lbs	42 lbs	
	10	1:00	moist	303 lbs	13 lbs	4 lbs	9 lbs	2.5 lbs	6.5 lbs	43 lbs	
	11	1:30	moist	161 lbs	9 lbs	2 lbs	7 lbs	1.2 lbs	5.8 lbs	49 lbs	
	12	2:00	Damp	121 lbs	4 lbs	2 lbs	2 lbs	0.7 lbs	1.3 lbs	45 lbs	
	13	2:30	moist	147 lbs	6 lbs	3 lbs	3 lbs	0.8 lbs	2.2 lbs	46 lbs	
	14	3:00	moist	187 lbs	5 lbs	1 lbs	4 lbs	1.0 lbs	3 lbs	47 lbs	
	15	3:30	Moist	272 lbs	10 lbs	3 lbs	7 lbs	2.3 lbs	4.7 lbs	39 lbs	
	16	4:00	moist	210 lbs	8 lbs	2 lbs	6 lbs	2.0 lbs	4.0 lbs	48 lbs	

Total Non Ferrous Test Weight:

Total Un-Recovered Non Ferrous Metal Weight:

4.715 - 0.375 = 4.34 LBS

1.665 big chunk in missed Non-Fe  
115







8-Hour Metals Recovery Test  
Covanta DYEC

Date	Sample #	Time	Ash Moisture Visual Observation	Rejects Sample Weight (Y)	Unrecovered Ferrous (X)	Pure Ferrous (X'a)	Clinker Ferrous (X'a)	Selective Reduction Ferrous (X'b)	Clinker Reject (X'b)	Non Ferrous Test Weight	Comments
Oct 9	1	8:15	moist	230 lbs.	9 lbs.	4 lbs.	5	1.4	3.6	46	
	2	8:45	moist	362 lbs	17 lbs.	2 lbs.	15 lbs.	2.9	12.1	45	
	3	9:15	moist	288 lbs.	13 lbs.	5 lbs.	8 lbs.	3.4	4.6	42	
	4	9:45	moist	145 lbs.	6 lbs.	2 lbs.	4	0.9	3.1	48	
	5	10:15	wet	226 lbs.	9 lbs.	4 lbs.	5	0.9	4.1	55	
	6	10:45	moist	185 lbs.	6 lbs.	1 lbs.	5	0.9	4.1	46	
	7	11:15	moist	210 lbs.	10 lbs.	3 lbs.	7 lbs.	2.1	4.9	50	
	8	11:45	moist	162 lbs	15 lbs.	9 lbs.	6	1.0 lbs.	5	49	8lb Hammers in FE
	9	12:15	moist	280 lbs	13 lbs.	5 lbs.	8	1.1	6.9	50	
	10	12:45	Damp	128 lbs	6 lbs.	2 lbs.	4	1.3	2.7	48	
	11	1:15	moist	193 lbs	8 lbs.	3 lbs.	5	0.9	4.1	52	
	12	1:45	moist	141 lbs	9 lbs.	4 lbs.	5	1.0	4.0	52	
	13	2:15	moist	238 lbs	11 lbs.	4 lbs.	7 lbs.	1.5	5.5	57	
	14	2:45	moist	285 lbs	13 lbs.	5 lbs.	8	1.2	6.8	52	
	15	3:15	moist	191 lbs.	9 lbs.	4 lbs.	5 lbs.	1.1	3.9	46	
	16	3:45	moist.	235 lbs.	12 lbs.	2 lbs.	10	2.0	8.0	50	

Total Non Ferrous Test Weight: 708  
 Total Un-Recovered Non Ferrous Metal Weight: 16.48 - 2.13 TARE = 4.35

