

# ***Visible Emission Test Report***

*Completed for:*

***Gainesville Renewable Energy Center  
Woody Biomass Power Plant  
Biomass Fuel Handling System (EU-001)  
Alkaline Sorbent Storage Silo (EU-002)  
Ash Handling System (EU-003)***

**Test Report Number: 20-6132-010203-001**

**Testing Completed:  
November 22 – 25, 2013 & December 20, 2013**



# **Visible Emission Test Report**

**Gainesville Renewable Energy Center  
Woody Biomass Power Plant  
*Biomass Fuel Handling System (EU-001)*  
*Alkaline Sorbent Storage Silo (EU-002)*  
*Ash Handling System (EU-003)*  
Gainesville, Florida**

C.E.M. Solutions Project No. 6132

Testing Conducted:  
November 22 – 25, 2013 and December 20, 2013

C.E.M. Solutions, Inc Report Number: 20-6132-010203-001

C.E.M. Solutions, Inc.  
1183 E. Overdrive Circle  
Hernando, Florida 34442  
Phone: 352-489-4337

**Declaration of Conformance to ASTM D 7036-04:  
Standard Practice for Competence of Air Emission  
Testing Bodies**


C.E.M. Solutions operates in conformance with the requirements of ASTM D 7036-04: Standard Practice for Competence of Air Emission Testing Bodies through the use of a quality system which incorporates a quality manual, internal audit system, systematic training of personnel and rigorous review of test methods and operating procedures.



Joe Conti  
Quality Assurance Manager,  
C.E.M. Solutions, Inc.

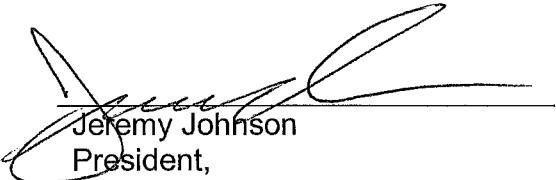
## Statement of Validity

I hereby certify the information and data provided in this emissions test report for tests performed at the Gainesville Renewable Energy Center's Woody Biomass Power Plant (Emission Units 001, 002, and 003), conducted on November 22, 23 and 25, 2013 and December 20, 2013 are complete and accurate to the best of my knowledge.



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Joe Conti  
Quality Assurance Manager,  
C.E.M. Solutions, Inc.



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Jeremy Johnson  
President,  
C.E.M. Solutions, Inc.

## Project Background

Name of Source Owner: Gainesville Renewable Energy Center

Address of Owner: 11201 NW Hwy 441  
Gainesville, FL 32653

Source Identification: Facility ID: 0010131  
Biomass Fuel Delivery Preparation, Storage  
and Handling (EU-001)  
Alkaline Sorbent Storage Silo (EU-002)  
Ash Handling, Storage and Shipment (EU-003)

Location of Source: Alachua County, Florida

Type of Operation: SIC Code: 4911

Tests Performed: Method 9 – Determination of Visible Emission

Test Technicians  
(VE Certified): Joe Conti  
Josh Cooper,  
Alex Houseal

Date(s) Tests Conducted: November 22, 2013: VE on Ash Silo Vacuum Blower #2  
VE on Ash Silo Vacuum Blower #1  
VE on Fly Ash Silo Bin Vent Filter  
November 23, 2013: VE on Fuel Day Bin Vent Filter #1  
VE on Fuel Day Bin Vent Filter #2  
November 25, 2013: Screen/Hog Building Baghouse  
December 20, 2013: Alkaline Sorbent Storage Silo Bin Vent

Site Test Coordinator: Eric Johnson, Fagen, Inc.

State Regulatory Observers: No Observers Present

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# 1.0 Introduction

Fagen, Inc. retained C.E.M. Solutions, Inc. to perform visible emissions monitoring on the Gainesville Renewable Energy Center's Woody Biomass Power Plant . Visible emissions were conducted on the Biomass Fuel Delivery System (EU-001), the Alkaline Sorbent Storage Silo (EU-002) and the Ash Handling System (EU-003) to show compliance with FDEP permit number 0010131-001-AC.

Eric Johnson of Fagen, Inc. coordinated plant operations throughout the monitoring program. All testing was conducted in accordance with test methods promulgated by the USEPA.

Table 1, summarizes the results of the test program.

**Table 1: Summary of Test Results  
Woody Biomass Power Plant  
Emission Units -001, -002 and -003**

Sample Location	Emission Unit ID	VE % <sup>a</sup>	Emission Limit	Status (Pass/Fail)
Screen/Hog Building Baghouse	001	0.0 %	5% VE	PASS
BFB Boiler Fuel Day Bin Vent Filter No. 1	001	0.0 %	5% VE	PASS
BFB Boiler Fuel Day Bin Vent Filter No. 2	001	0.0 %	5% VE	PASS
Alkaline Sorbent Storage Bon Vent Filter	002	0.0 %	5% VE	PASS
Ash Silo Vacuum Blower No. 1	003	0.0 %	5% VE	PASS
Ash Silo Vacuum Blower No. 2	003	0.0 %	5% VE	PASS
Fly Ash Silo Bin Vent Filter	003	0.0 %	5% VE	PASS

a = highest 6 minute block average

## **2.0 Facility Description**

The Gainesville Renewable Energy Center's Woody Biomass Power Plant consists of a Biomass Fuel Delivery, Preparation, Storage and Handling system, a Woody Biomass-fueled BFB Boiler, and an Ash Handling, Storage and Shipment system.

### **2.1 Biomass Fuel Delivery, Preparation Storage and Handling (EU 001)**

The biomass fuel delivery, preparation, storage and handling system consists of: three truck dumpers; two sets of screens and hogs (i.e., machines used to size wood chips); and automatic and manual stacker/reclaimers to maintain on average a 15 to 20 day supply of biomass fuel for the BFB boiler based on full load operation and average biomass fuel moisture content. The GREC biomass fuels are initially chipped/ground and processed at offsite locations and then transported to the site by truck. Between 130 and 150 fuel truck deliveries per day are expected based on the maximum BFB boiler biomass fuel consumption rate/average moisture content and a 6-day-per-week delivery schedule. During peak delivery periods, the delivery facilities are capable of unloading 24 truckloads of biomass fuel per hour. The GREC biomass fuel handling system includes scales to weigh each truck entering and departing the facility to determine the delivered fuel weight. The maximum designed hourly biomass processing rate is 600 tons per hour (TPH) with a maximum designed yearly rate of 1,395,030 tons per year (TPY).

### **2.2 Boiling fluidized bed (BFB) boiler (EU 002)**

The boiler is a woody biomass fueled bubbling fluidized bed (BFB) boiler wherein wood is combusted within a bed of hot sand. Heat from the exhaust is recovered to generate superheated steam to generate 100 MW (net) of electricity in a steam turbine generator. Primary fuel will be clean woody biomass. Natural gas is used as a startup fuel. The maximum heat input capacity is 1,358 MMBtu per hour (4 hour average basis) while firing woody biomass. Flue gas exhausts will exit a 230 feet tall, 12 ft. outer diameter stack at approximately 310°F and a volumetric flow rate of 520,600 actual cubic feet per minute (acfm).

An alkaline sorbent storage silo is used to store sodium bicarbonate for the IDSIS emission control system. The storage silo has a bin vent installed to control PM emissions while the silo is loaded with sorbent from a truck.



## **2.3 Ash Handling, Storage and Shipment (EU 003)**

Approximately two thirds of ash created by the combustion of biomass fuel exits the BFB boiler as fly ash with the remaining third leaving as bottom ash. The design maximum process throughput rates are 27,594 TPY of fly ash and 13,140 TPY of bottom ash.

Fly ash from the boiler convective pass and fabric filter baghouse hoppers is collected dry and transported pneumatically to a single fly ash storage silo by means of two vacuum blowers. The transferred fly ash first passes through a receiver/collector that separates the fly ash from the conveying air stream. The separated fly ash then flows through an air lock valve into the storage silo, which will be vented through a baghouse for control of PM emissions. From the silo, the fly ash is either stabilized using water in a pug mill or loaded dry into a receiving truck. For the fly ash stabilization case, fly ash and water are mixed in a pug mill and then transferred via a chute into covered trucks and then hauled offsite for reuse or disposal. During the dry transfer of fly ash, an enclosed process is utilized to transfer ash from the silo through a chute into sealed trucks.

### **3.0 Test Program/Operating Conditions**

Visible emission monitoring was conducted on the Ash Silos Vacuum Blowers and the Fly Ash Silo on November 22, 2013. The Fuel Day Bin Vents were observed for visible emissions on November 23, 2013. Visible emission observations on the Screen/Hog Building Baghouse were conducted on November 25, 2013. The Alkaline Sorbent Storage Silo was observed for visible emissions on December 20, 2013. Monitoring was conducted while the systems were operating at maximum capacity to the extent practicable. During the visible emission observations, the truck hoppers operated at approximately 389.23 tons/hr. The Metering Bins were operating at approximately xxx. The Alkaline storage tank was filled at a pressure of 10 psi. The depth of the sorbent in the silo was documented during the filling operation.

Plant operating data were provided by Gainesville Renewable Energy Center, Inc. and are located in Appendix A.

## 4.0 Test Methods

All testing was performed in accordance with methods approved by the USEPA and FDEP. The following discusses the methods, as well as quality assurance and sample handling procedures.

Table 2 summarizes the EPA test methods utilized to complete the test program.

**Table 2: Summary of EPA Reference Methods  
Woody Biomass Power Plant  
Emission Units -001, -002 and -003**

EPA Method	Description
9	Opacity (Visible Emissions)

### 4.1 Visible Emission Determination

USEPA Method 9 was utilized to determine visible emissions.

Visible emissions observations were performed by a FDEP certified visible emissions reader. Readings were taken at 15 second intervals and reduced into six minute averages as required by the applicable EPA standard. One, sixty (60) minute visible emissions test run was performed on each of the point sources while the system was operating at or near maximum capacity, to the extent practical.

Method 9 data summary, field data and VE reader's certification are located in Appendix B and C.

## **5.0 Emission Monitoring Results**

The following section presents the results of the monitoring program. Table 3 summarizes the test program results. Supporting RM field data are presented in Appendix B.

### **5.1 Biomass Fuel Delivery System (001)**

The highest six-minute average visible emission observation from the three point sources ( the Screen/Hog Building Baghouse, BFB Boiler Fuel Day Bin Vent Filter No. 1 and BFB Boiler Fuel Day Bin Vent Filter No. 2) that make up the Biomass Fuel Delivery, Preparation, Storage and Handling emission unit was 0.0%, each passing the emissions limitation of 5 %.

### **5.2 Alkaline Sorbent Storage Silo (002)**

The highest six-minute average visible emission observed from the Alkaline Sorbent Storage Silo was 0.0% passing the emissions limitation of 5%.

### **5.3 Ash Handling System (003)**

The highest six-minute average visible emission observation from the three point sources (the Ash Silo Vacuum Blower No. 1, Ash Silo Vacuum Blower No. 2 and the Fly Ash Silo Bin Vent Filter) that make up the Ash Handling, Storage and Shipment emission unit was 0.0%, each passing the emissions limitation of 5 %.

**Table 3: Visible Emissions Summary  
Woody Biomass Power Plant  
Emission Units -001, -002 and -003**

<b>Sample Location</b>	<b>Date</b>	<b>Start Time (EST)</b>	<b>End Time (EST)</b>	<b>VE %<sup>a</sup></b>	<b>Emission Limit</b>
Screen/Hog Building Baghouse	11/25/2013	08:40	10:05	0.0%	5% VE
BFB Boiler Fuel Day Bin Vent Filter No. 1	11/23/2013	09:45	10:45	0.0%	5% VE
BFB Boiler Fuel Day Bin Vent Filter No. 2	11/23/2013	09:45	10:45	0.0%	5% VE
Alkaline Sorbent Storage Bon Vent Filter	12/20/2013	14:33	15:03	0.0%	5% VE
Ash Silo Vacuum Blower No. 1	11/22/2013	14:00	15:00	0.0%	5% VE
Ash Silo Vacuum Blower No. 2	11/22/2013	12:20	13:20	0.0%	5% VE
Fly Ash Silo Bin Vent Filter	11/22/2013	14:00	15:00	0.0%	5% VE

a = highest 6 minute block average

## **Appendix A: Facility Operating Data**



**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT  
GOVERNOR

HERSCHEL T. VINYARD JR.  
SECRETARY

*Sent by Electronic mail – Received Receipt Requested*

Thomas W. Davis, P.E.  
Environmental Consulting & Technology, Inc.  
3701 Northwest 98<sup>th</sup> Street  
Gainesville, FL 32606  
[tdavis@ectinc.com](mailto:tdavis@ectinc.com)

Re: Required Visible Emissions Tests  
Gainesville Renewable Energy Center  
Permit No. 0010131-001-AC (PSD-FL-411)

Dear Mr. Davis:

The Department received your request for clarification of the required visible emissions tests at the above referenced facility. After reviewing the requirements of Permit No. 0010131-001-AC (PSD-FL-411), we agree with your interpretation that the following visible emissions tests are required:

EU-001 point sources required to have an initial EPA Method 9 VE test:

- Screen/Hog Building Baghouse
- BFB Boiler Fuel Day Bin Vent Filter No. 1
- BFB Boiler Fuel Day Bin Vent Filter No. 2

EU-002 point sources required to have an initial EPA Method 9 VE test:

- BFB Boiler
- Alkaline Sorbent Storage Silo Bin Vent Filter

EU-003 point sources required to have an initial EPA Method 9 VE test:

- Ash Silo Vacuum Blower No. 1
- Ash Silo Vacuum Blower No. 2
- Fly Ash Silo Bin Vent Filter

Please call Edward Svec at 850/717-9031 if you have any questions regarding this determination.

Sincerely,

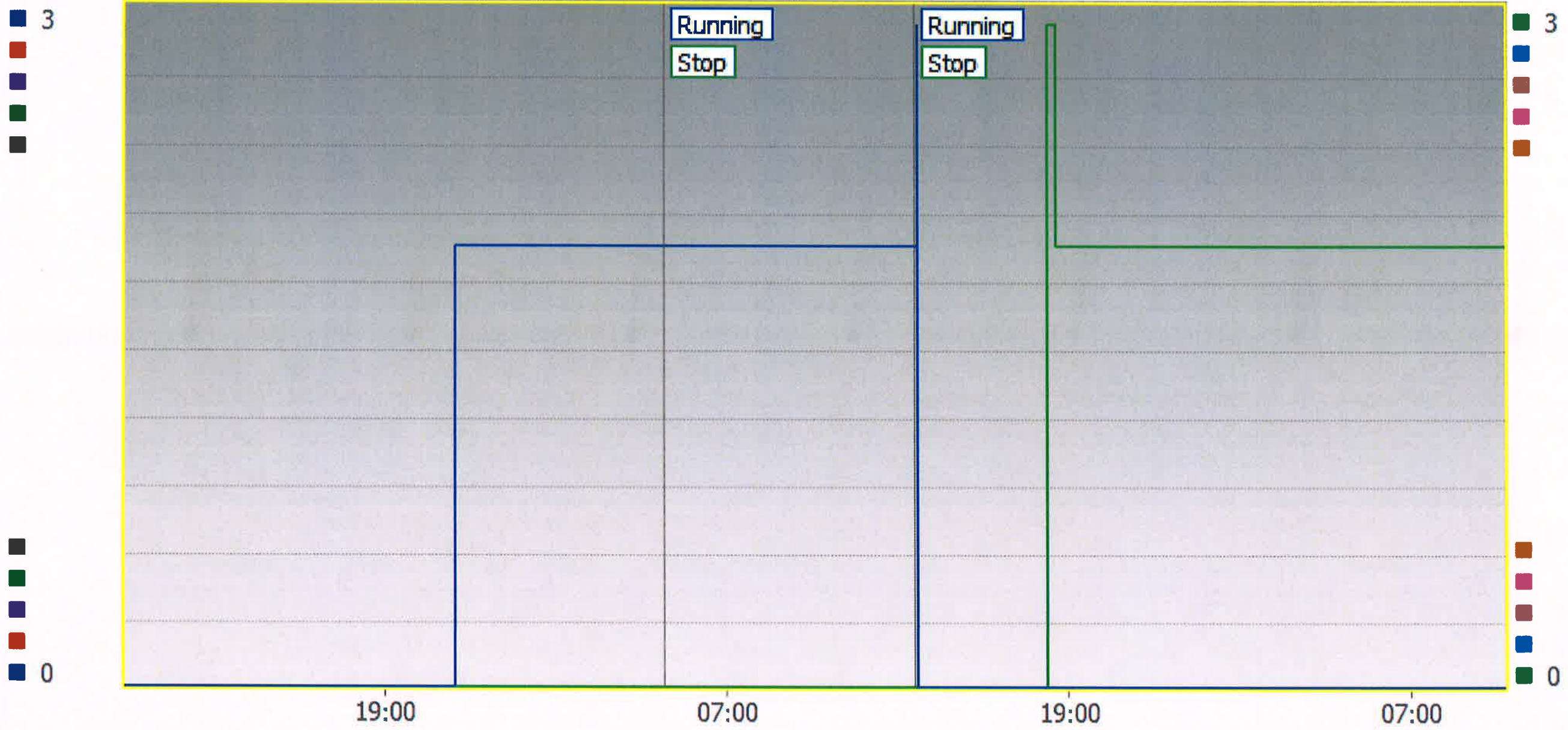
Syed Arif, Environmental Administrator  
Office of Permitting and Compliance  
Division of Air Resource Management

Mr. James Gordon, CEO, GREC: [jgordon@amrenewables.com](mailto:jgordon@amrenewables.com)  
Mr. Richard Rachal, FDEP Northeast District: [richard.rachal@dep.state.fl.us](mailto:richard.rachal@dep.state.fl.us)  
Ms. Lynn Searce, DEP OPC: [lynn.searce@dep.state.fl.us](mailto:lynn.searce@dep.state.fl.us)



gd:1:newschart

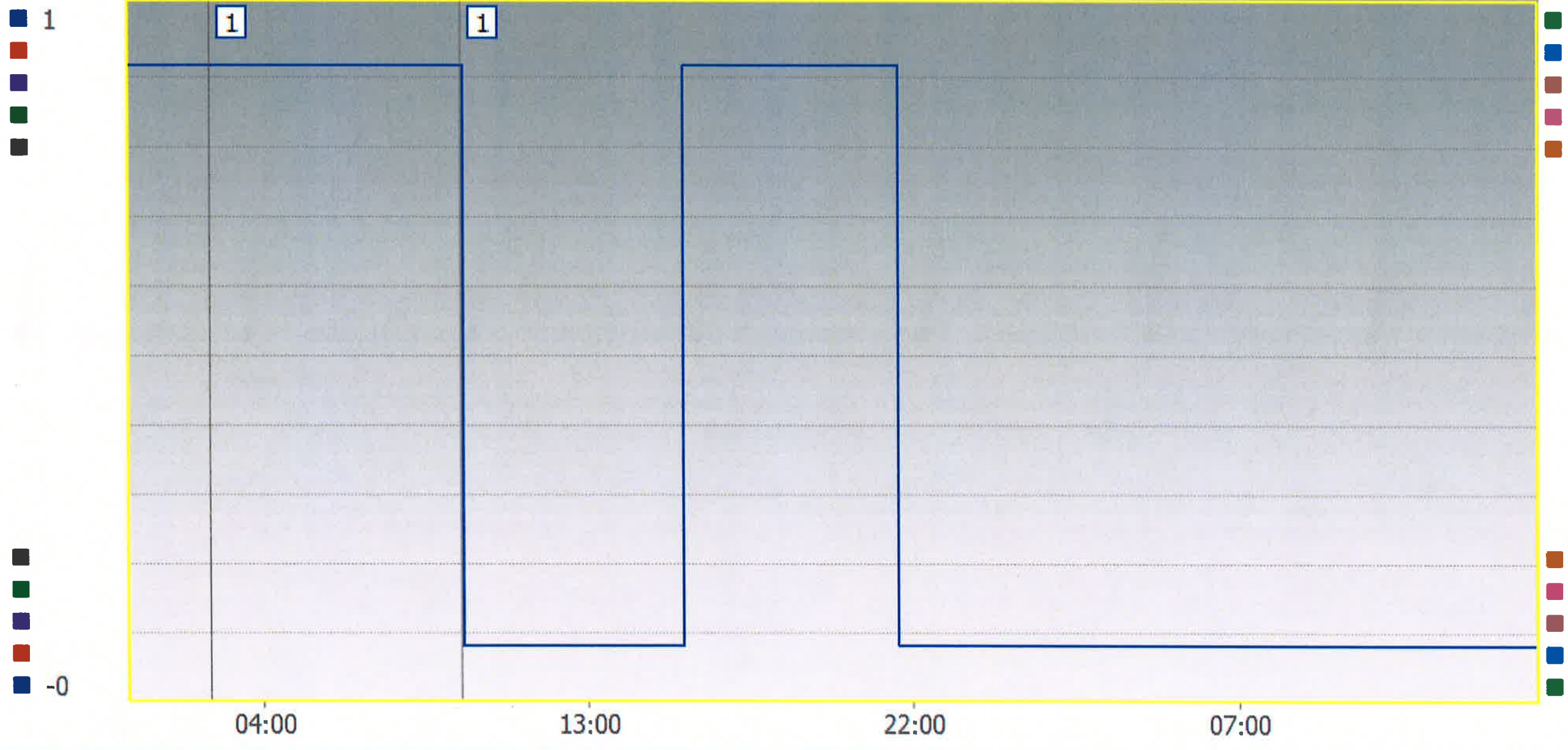
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■ VACUUM BLOWER B	AHS-BLR-1138	Running	■ VACUUM BLOWER A	AHS-BLR-1137	Stop
■			■		
■			■		
■			■		
■			■		



2013.11.23 02:28:32 2013.11.23 09:27:27 2013-11-24 15:19:32

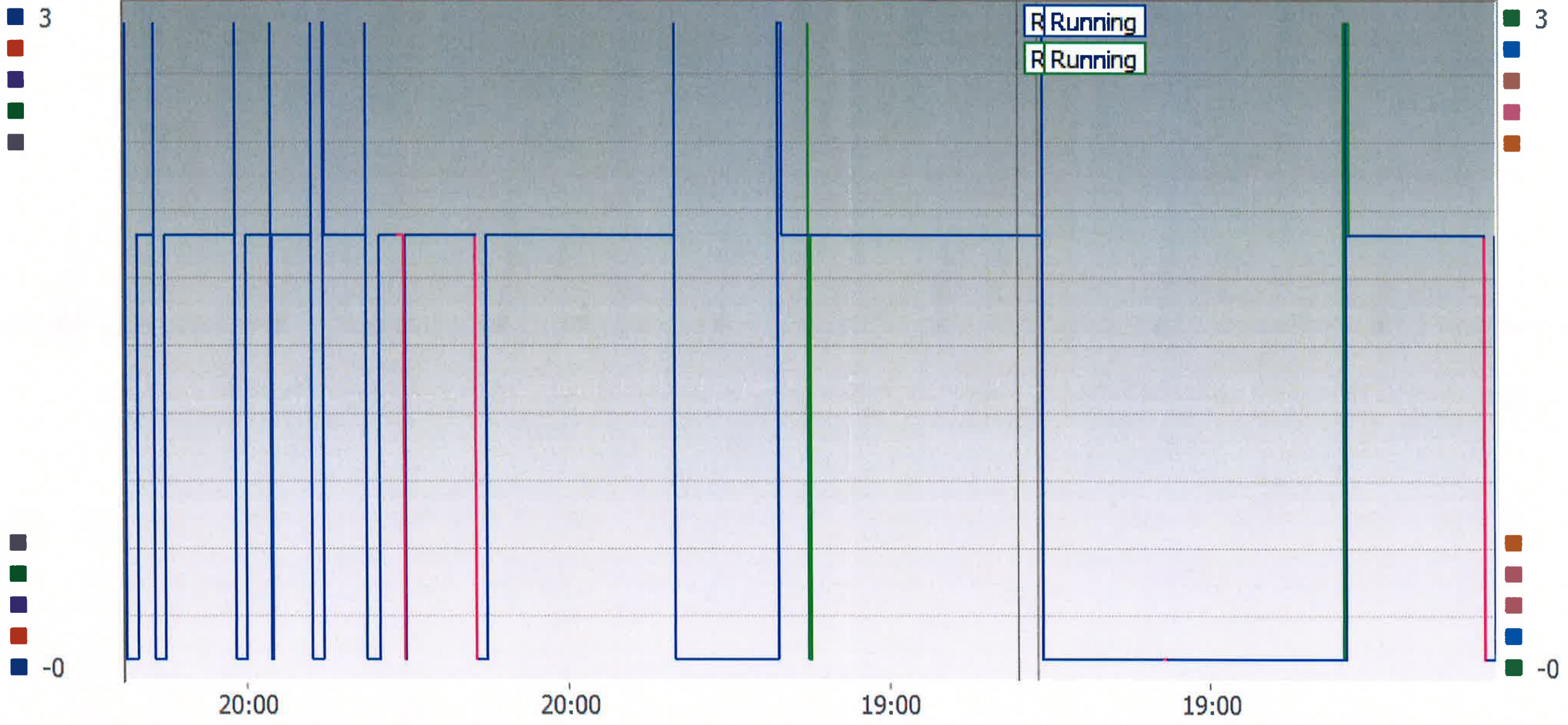


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■			■
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2013-09-24 16:07:58

2013.11.23 14:50:03

2013-12-23 15:07:58



■ FUEL SILO 1 RECLAIMER	FCS-CNV-1016	Running	■ FUEL SILO 2 RECLAIMER	FCS-CNV-1017	Running
■			■		
■			■		
■			■		
■			■		

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,490 11/25/13 9:51 am

Order MJOHNSON

Trk ID GREC000139

Cust ID WRR Order Number WRRMJOHNSON

Gross : 86840 lb

Tare : 28320 lb

Net : 58520 lb 29.26 tn

Adjusted Net :

Mat ID UWW 29.26 Tons

<0x1D564205>

VE

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,491 11/25/13 8:45 am

Order MJOHNSON

Trk ID GREC000016

Cust ID WRR Order Number WRRMJOHNSON

Gross : 83480 lb

Tare : 28500 lb

Net : 54980 lb 27.49 tn

Adjusted Net :

Mat ID UWW 27.49 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,492 11/25/13 8:46 am

Order MJOHNSON

Trk ID GREC000189

Cust ID WRR Order Number WRRMJOHNSON

Gross : 83320 lb

Tare : 34180 lb

Net : 49140 lb 24.57 tn

Adjusted Net :

Mat ID UWW 24.57 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,493 11/25/13 8:59 am

Order Parnell

Trk ID GREC000097

Cust ID RIGONI Order Number COL012

Gross : 83140 lb

Tare : 30680 lb

Net : 52460 lb 26.23 tn

Adjusted Net :

Mat ID HWRES 26.23 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,494 11/25/13 8:57 am

Order KANAPAHA

Trk ID GREC000162

Cust ID CTC Order Number ALA013

Gross : 83720 lb

Tare : 30800 lb

Net : 52920 lb 26.46 tn

Adjusted Net :

Mat ID HWWTC 26.46 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441  
Gainesville, FL 32653  
Ticket # 8,496 11/25/13 9:01 am  
Order MJOHNSON  
Trk ID GREC000169  
Cust ID WRR Order Number WRRMJOHNSON  
Gross : 87580 lb  
Tare : 34120 lb  
Net : 53460 lb 26.73 tn

Adjusted Net :

Mat ID UWW 26.73 Tons

<0x1D564205>



Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,497 11/25/13 9:08 am

Order MJOHNSON

Trk ID GREC000170

Cust ID WRR Order Number WRRMJOHNSON

Gross : 82200 lb

Tare : 34060 lb

Net : 48140 lb 24.07 tn

Adjusted Net :

Mat ID UWW 24.07 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441  
Gainesville, FL 32653  
Ticket # 8,526 11/25/13 11:20 am  
Order MJOHNSON  
Trk ID GREC000171  
Cust ID WRR Order Number WRRMJOHNSON  
Gross : 86840 lb  
Tare : 34060 lb  
Net : 52780 lb 26.39 tn

Adjusted Net :

Mat ID UWW 26.39 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,498 11/25/13 9:38 am

Order HOGFUEL

Trk ID GREC000192

Cust ID SLC Order Number HOGFUEL

Gross : 74920 lb

Tare : 27180 lb

Net : 47740 lb 23.87 tn

Moisture Content :

Adjusted Net :

Mat ID KDHOGFUEL 23.87 Tons

<0x1D564205>

VE2

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,499 11/25/13 9:42 am

Order Thomas & Thomas

Trk ID GREC000085

Cust ID HARLEY Order Number SUW010

Gross : 82940 lb

Tare : 34160 lb

Net : 48780 lb 24.39 tn

Adjusted Net :

Mat ID HWRES 24.39 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441  
Gainesville, FL 32653  
Ticket # 8,500 11/25/13 9:39 am  
Order MJOHNSON  
Trk ID GREC000073  
Cust ID WRR Order Number WRRMJOHNSON  
Gross : 83520 lb  
Tare : 28240 lb  
Net : 55280 lb 27.64 tn

Adjusted Net :

Mat ID UWW 27.64 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,501 11/25/13 9:49 am

Order PCS PHOSPHATE

Trk ID GREC000078

Cust ID BANDE Order Number HAM007

Gross : 84380 lb

Tare : 26360 lb

Net : 58020 lb 29.01 tn

Adjusted Net :

Mat ID MIXEDRES 29.01 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,502 11/25/13 9:51 am

Order WRR Ocala yard

Trk ID GREC000012

Cust ID WRR Order Number WRROCA

Gross : 68220 lb

Tare : 29240 lb

Net : 38980 lb 19.49 tn

Adjusted Net :

Mat ID UWW 19.49 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,503 11/25/13 9:57 am

Order WRR Ocala yard

Trk ID GREC000115

Cust ID WRR Order Number WRROCA

Gross : 80560 lb

Tare : 27760 lb

Net : 52800 lb 26.40 tn

Adjusted Net :

Mat ID UWW 26.40 Tons

<0x1D564205>



Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,504 11/25/13 9:52 am

Order MJOHNSON

Trk ID GREC000075

Cust ID WRR Order Number WRRMJOHNSON

Gross : 83900 lb

Tare : 27580 lb

Net : 56320 lb 28.16 tn

Adjusted Net :

Mat ID UWW 28.16 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,505 11/25/13 10:04 am

Order GREER

Trk ID GREC000024

Cust ID RJN Order Number ORA001

Gross : 83920 lb

Tare : 33000 lb

Net : 50920 lb 25.46 tn

Adjusted Net :

Mat ID HWRES 25.46 Tons

<0x1D564205>

Gainesville Renewable Energy Center  
11201 NW US 441

Gainesville, FL 32653

Ticket # 8,506 11/25/13 10:07 am

Order Parnell

Trk ID GREC000093

Cust ID RIGONI Order Number COL012

Gross : 86920 lb

Tare : 31000 lb

Net : 55920 lb 27.96 tn

Adjusted Net :

Mat ID HWRES 27.96 Tons

<0x1D564205>



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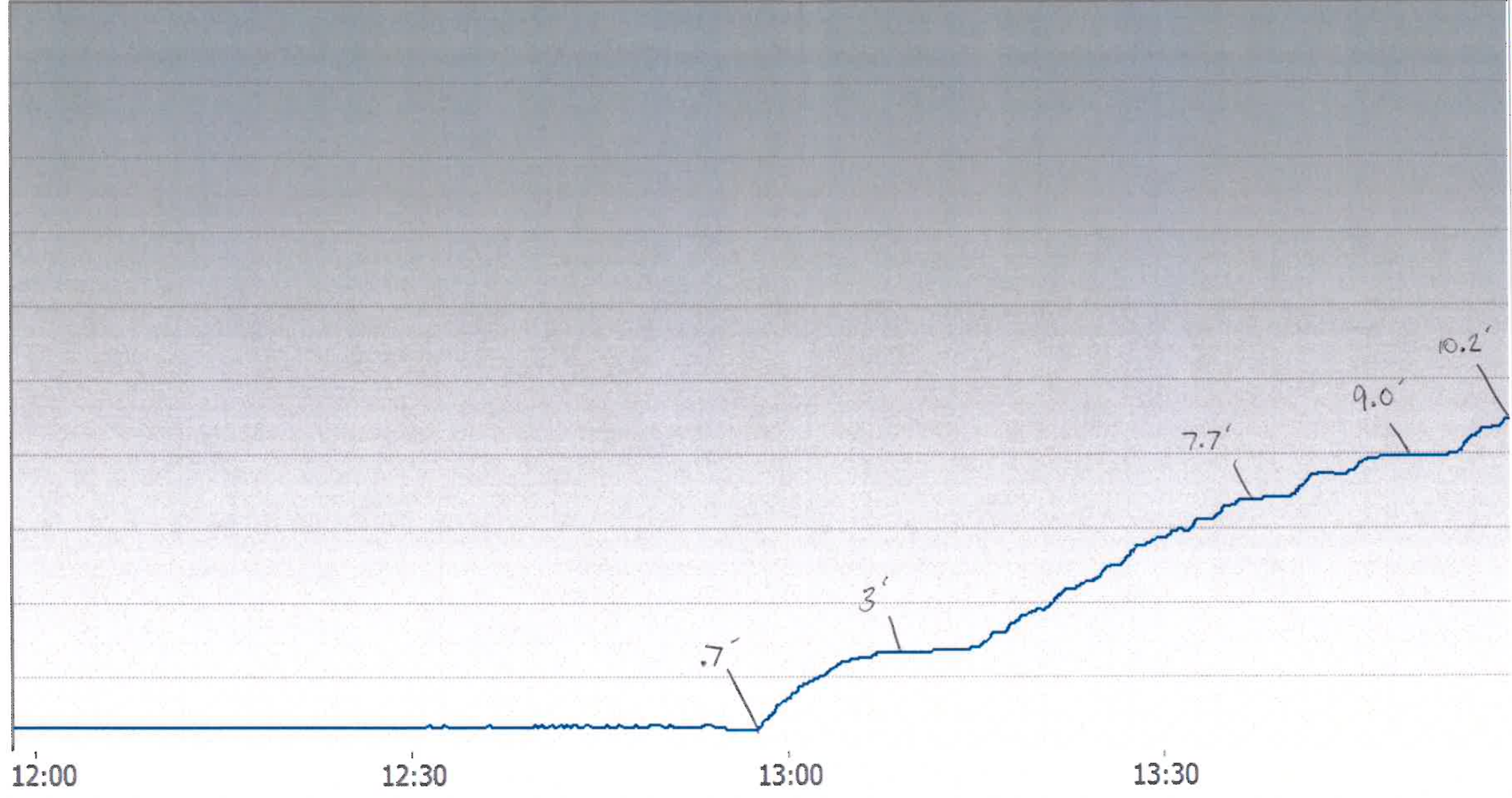
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- SBC SILO LEVEL
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SBC-LI-1001-40 10.1 ft

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## **Appendix B: Method 9 Support Data**

VE Field Documentation



RECORD OF VISUAL DETERMINATION OF OPACITY

u

SOURCE/PROCESS INFORMATION				OBSERVATION RECORD									
FACILITY NAME GREC		EU-001		DATE 11/25/13		STACK A				STACK B			
SOURCE NAME screen/hog baghouse		PERMIT NUMBER 0310131-001-AC		HOUR	MINUTE	0	15	30	45	0	15	30	45
LOCATION ADDRESS 11201 NW US Hwy 441				08	40								
CITY Gainesville		STATE FL	ZIP 32653										
UNIT LOAD Base		HEAT INPUT											
CONTROL EQUIPMENT baghouse		OPERATING MODE Normal											
FUEL TYPE/RATE		PERMITTED RATE 500 fph											
DESCRIBE EMISSION POINT vent on south side of baghouse													
HEIGHT ABOVE GROUND LEVEL 25 FT		HEIGHT OF OBSERVATION POINT 4 FT		08	50								
<b>EMISSIONS DESCRIPTION</b>													
DESCRIBE EMISSIONS													
START clear		END same											
PLUME COLOR clear		PLUME TYPE											
WATER DROPLETS PRESENT <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		IF YES, IS PLUME <input type="checkbox"/> Attached <input checked="" type="checkbox"/> Detached											
<b>METEOROLOGICAL INFORMATION</b>													
BACKGROUND START sky END sky		BACKGROUND COLOR START blue END blue											
SKY CONDITIONS - CLOUD COVER START scattered END scattered		AMBIENT TEMPERATURE START 46 END 49		09	00								
WIND SPEED START 10 END 10		WIND DIRECTION START NE END NE		09	01								
<b>OBSERVATION DATA, SITE DIAGRAM</b>				09	02								
<p>Distance 100 Direction to Source 290° Sun Location Line 140° wind</p>				09	03								
<b>SUMMARY OF AVERAGE OPACITY</b>				09	04								
SET NUMBER	TIME		OPACITY		09	05							
	START	END	SUM	AVERAGE	09	07							
					09	33							
<b>COMPLIANCE INFORMATION</b>				09	35								
RANGE OF OPACITY READINGS		MINIMUM		09	38								
MAXIMUM		MINIMUM		09	40								
HIGHEST 5 MINUTE AVERAGE		MINIMUM		09	42								
COMMENTS inclination = 3° 1) 08:40 - 0908 first wave of trucks 2) 09:33 - 1005				09	44								
OBSERVER Joe Cook		DATE 11/25/13		09	46								
OBSERVER'S SIGNATURE		DATE		09	48								
OBSERVER'S IDENTIFICATION NUMBER 414132		EXPIRATION DATE 2/13/2014		09	50								
				09	52								
				09	54								
				09	56								
				09	58								
				09	59								

1005

RECORD OF VISUAL DETERMINATION OF OPACITY

SOURCE/PROCESS INFORMATION				OBSERVATION RECORD									
FACILITY NAME: <b>GREC</b>		PERMIT NUMBER: <b>(EU-002)</b>		DATE: <b>12/20/2013</b>		STACK A				STACK B			
SOURCE NAME: <b>Alkaline Sulfate Storage Silo</b>		PERMIT NUMBER: <b>0070131-01-AU</b>		12:50	0	0	0	0	0	0	0	0	0
LOCATION ADDRESS: <b>11201 NW US Hwy 441</b>					1	0	0	0	0				
CITY: <b>Gamesville</b>		STATE: <b>FL</b>	ZIP: <b>32653</b>		2	0	0	0	0				
UNIT LOAD: <b>Base</b>		HEAT INPUT: <b>-</b>			3	0	0	0	0				
CONTROL EQUIPMENT: <b>filter</b>		OPERATING MODE: <b>Normal</b>			4	0	0	0	0				
FUEL TYPE/RATE		PERMITTED RATE			5	0	0	0	0				
DESCRIBE EMISSION POINT: <b>Northern end white silo east side of plant</b>					6	0	0	0	0				
HEIGHT ABOVE GROUND LEVEL: <b>50 FT</b>		HEIGHT OF OBSERVATION POINT: <b>4 FT</b>		13:00	7	0	0	0	0				
<b>EMISSIONS DESCRIPTION</b>					8	0	0	0	0				
DESCRIBE EMISSIONS: <b>START clear END smoke</b>					9	0	0	0	0				
PLUME COLOR: <b>-</b>		PLUME TYPE: <b>-</b>			10	0	0	0	0				
WATER DROPLETS PRESENT: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		IF YES, IS PLUME: <input type="checkbox"/> Attached <input checked="" type="checkbox"/> Detached			11	0	0	0	0				
<b>METEOROLOGICAL INFORMATION</b>					12	0	0	0	0				
BACKGROUND: <b>START sky END sky</b>		BACKGROUND COLOR: <b>START blue END blue</b>			13	0	0	0	0				
SKY CONDITIONS - CLOUD COVER: <b>START clear END clear</b>		AMBIENT TEMPERATURE: <b>START 79 END 81</b>		13:10	14	0	0	0	0				
WIND SPEED: <b>START 0-5 END 0-5</b>		WIND DIRECTION: <b>START 0-55 END S</b>			15	0	0	0	0				
<b>OBSERVATION DATA - SITE DIAGRAM</b>					16	0	0	0	0				
					17	0	0	0	0				
<b>SUMMARY OF AVERAGE OPACITY</b>					18	0	0	0	0				
SET NUMBER	TIME		OPACITY			19	0	0	0				
	START	END	SUM	AVERAGE		20	0	0	0				
					13:30	21	0	0	0				
						22	0	0	0				
						23	0	0	0				
						24	0	0	0				
						25	0	0	0				
						26	0	0	0				
						27	0	0	0				
						28	0	0	0				
					13:20	29	0	0	0				
						30	0	0	0				
						31	0	0	0				
						32	0	0	0				
						33	0	0	0				
						34	0	0	0				
						35	0	0	0				
						36	0	0	0				
						37	0	0	0				
						38	0	0	0				
						39	0	0	0				
					13:30	40	0	0	0				
						41	0	0	0				
						42	0	0	0				
						43	0	0	0				
<b>COMPLIANCE INFORMATION</b>					44	0	0	0	0				
RANGE OF OPACITY READINGS: MAXIMUM <b>0</b> MINIMUM <b>0</b>					45	0	0	0	0				
HIGHEST 6 MINUTE AVERAGE: <b>0.3</b>					46	0	0	0	0				
COMMENTS: <b>truck pumped at 10 psi</b>					47	0	0	0	0				
					48	0	0	0	0				
					49	0	0	0	0				
				13:40	50	0	0	0	0				
					51	0	0	0	0				
					52	0	0	0	0				
					53	0	0	0	0				
					54	0	0	0	0				
OBSERVER: <b>Joe Corti</b> DATE: <b>12/20/2013</b>					55	0	0	0	0				
OBSERVER'S SIGNATURE: <i>[Signature]</i>					56	0	0	0	0				
OBSERVER IDENTIFICATION NUMBER: <b>414132</b> EXPIRATION DATE: <b>2/13/2014</b>					57	0	0	0	0				
					58	0	0	0	0				
				13:50	59	0	0	0	0				



RECORD OF VISUAL DETERMINATION OF OPACITY

SOURCE/PROCESS INFORMATION				OBSERVATION RECORD													
FACILITY NAME: <b>GHFC</b>		PERMIT NUMBER: <b>EU-003</b>		DATE: <b>11-22-13</b>		STACK A				STACK B							
SOURCE NAME: <b>Ash Silo Vacuum blower 2</b>		LOCATION ADDRESS: <b>WTA Zone 17 365 Kilometers east / 3293.8 Km North</b>		STATE: <b>FL</b>	DP: <b>32653</b>	HOUR	MINUTE	0	15	30	45	0	15	30	45		
CITY: <b>Gainesville</b>		HEAT INPUT: <b>700</b>		CONTROL EQUIPMENT: <b>Filter</b>		OPERATING MODE: <b>Normal</b>		12:20									
FUEL TYPE/RATE: <b>Wood</b>		PERMITTED RATE: <b>1358 MMBtu/hr</b>		DESCRIBE EMISSION POINT: <b>Vacuum at the base of silo ash silo</b>		HEIGHT ABOVE GROUND LEVEL: <b>6 FT</b>		HEIGHT OF OBSERVATION POINT: <b>6 FT</b>		12:25							
<b>EMISSIONS DESCRIPTION</b>																	
DESCRIBE EMISSIONS: <b>N-A</b>		END: <b>N-A</b>		PLUME COLOR: <b>N-A</b>		PLUME TYPE: <b>N-A</b>		12:30									
WATER DROPLETS PRESENT: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				IF YES, IS PLUME: <input type="checkbox"/> Attached <input type="checkbox"/> Detached				12:35									
<b>METEOROLOGICAL INFORMATION</b>																	
BACKGROUND: <b>Tank</b>				BACKGROUND COLOR: <b>White</b>				12:40									
SKY CONDITIONS - CLOUD COVER: <b>Overcast</b>				AMBIENT TEMPERATURE: <b>76</b>				12:45									
WIND SPEED: <b>1 mph</b>				WIND DIRECTION: <b>E/NE</b>				13:00									
<b>OBSERVATION DATA: SITE DIAGRAM</b>																	
<p>The diagram shows a 'main stack' and 'cedling Towers' with an 'Emission Point' marked with an 'X'. The 'Observer's Position' is marked with a dot, and the 'Sun Location' is marked with a circle. A distance of '50' is noted, along with the 'Direction to Source' being 'East'. A '140°' angle is also indicated. A legend shows symbols for 'STACK WITH PLUME', 'SUN', and 'WIND'. A note says 'DRAW NORTH ARROW' with a circle containing a north arrow.</p>																	
<b>SUMMARY OF AVERAGE OPACITY</b>																	
SET NUMBER	TIME		OPACITY														
	START	END	SUM	AVERAGE													
					13:05												
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					13:15												
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					19:55												
					20:00												

OBSERVER: **Josh Cooper**  
 OBSERVER SIGNATURE: *[Signature]*  
 IDENTIFICATION NUMBER: **414133**

DATE: **11-22-13**  
 EXPIRATION DATE: **2/13/2014**

Source name

- ash silo vacuum blower number 1
- FLY ash silo Bin Vent Filter

Alpha vacume

ash silo

RECORD OF VISUAL DETERMINATION OF OPACITY

SOURCE/PROCESS INFORMATION				OBSERVATION RECORD																								
FACILITY NAME GREC		EU-003		DATE 11-22-13		STACK A				STACK B																		
SOURCE NAME Unit 1 (E4-002) (C)		PERMIT NUMBER 0010131-001-A4		1400	0	0	15	30	45	0	15	30	45															
LOCATION ADDRESS UTM Zone 17 365 Kilometers east / 3293.8 Kilometers				1		0	0	0	0	0	0	0	0															
CITY Gainesville		STATE FL	ZIP 32653	2		0	0	0	0	0	0	0																
UNIT LOAD Base		HEAT INPUT TDD		3		0	0	0	0	0	0	0																
CONTROL EQUIPMENT #1 @ F. Filter		OPERATING MODE Normal		4		0	0	0	0	0	0	0																
FUEL TYPE/RATE Wood		PERMITTED RATE 1358 mm/btu h/		5		0	0	0	0	0	0	0																
DESCRIBE EMISSION POINT Vacuum at base of ash silo / Grey silo N of cooling towers				6		0	0	0	0	0	0	0																
HEIGHT ABOVE GROUND LEVEL 6 FT		HEIGHT OF OBSERVATION POINT 80 FT		7		0	0	0	0	0	0	0																
<b>EMISSIONS DESCRIPTION</b>																												
DESCRIBE EMISSIONS Clear				END Same																								
PLUME COLOR N-A				PLUME TYPE N-A																								
WATER DROPLETS PRESENT <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				IF YES, IS PLUME <input type="checkbox"/> Attached <input checked="" type="checkbox"/> Detached																								
<b>METEOROLOGICAL INFORMATION</b>																												
BACKGROUND START SKY END Same				BACKGROUND COLOR START 76 grey END Same																								
SKY CONDITIONS - CLOUD COVER START Cloudy END Same				AMBIENT TEMPERATURE START 76 END 64																								
WIND SPEED START 1 mph END Same				WIND DIRECTION START ENE END Same																								
<b>OBSERVATION DATA SITE DIAGRAM</b>																												
<b>SUMMARY OF AVERAGE OPACITY</b>																												
SET NUMBER	TIME		OPACITY		38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59		
	START	END	SUM	AVERAGE																								
<b>COMPLIANCE INFORMATION</b>																												
RANGE OF OPACITY READINGS MAXIMUM 0 MINIMUM 0																												
HIGHEST 6 MINUTE AVERAGE 0.0 both units																												
COMMENTS																												
OBSERVER Josh Cooper																												
OBSERVER SIGNATURE [Signature]																												
DATE 11-22-13																												
OBSERVER IDENTIFICATION NUMBER 414133																												
EXPIRATION DATE 2/13/2014																												

## **Appendix C: Accreditations and Certifications**



# VISIBLE EMISSIONS EVALUATOR

**Joseph Conti**

This is to certify that the above named observer has met the specifications of Federal Reference Method 9 and is qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates, Inc. of Raleigh, N.C. This certificate is valid for six months from date of issue.

**414132**

Certificate #

**CON689124**

Student ID Number

**8/14/2013**

Date of Certification

**Tampa, FL**

Location

**2/13/2014**

Certification Expiration Date

**TMPS12**

Last Lecture

*Marty Hughes*  
**Director of Training**



# VISIBLE EMISSIONS EVALUATOR

**Joshua Cooper**

This is to certify that the above named observer has met the specifications of Federal Reference Method 9 and is qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates, Inc. of Raleigh, N.C. This certificate is valid for six months from date of issue.

**414133**

Certificate #

**CO0752114**

Student ID Number

**8/14/2013**

Date of Certification

**Tampa, FL**

Location

**2/13/2014**

Certification Expiration Date

**TMPF12**

Last Lecture

*Marty Hughes*  
**Director of Training**



# VISIBLE EMISSIONS EVALUATOR

**Alex Houseal**

This is to certify that the above named observer has met the specifications of Federal Reference Method 9 and is qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates, Inc. of Raleigh, N.C. This certificate is valid for six months from date of issue.

413941

Certificate #

**HOU704558**

Student ID Number

8/7/2013

Date of Certification

**Orlando, FL**

Location

2/6/2014

Certification Expiration Date

TMPS12

Last Lecture

*Marty Hughes*  
**Director of Training**