

Permit No.	Date	Document ID No.
38-02	July 20, 2011	14483

Gaither, Allen

From: Paul Dow [pdow@altamontenvironmental.com]
Sent: Wednesday, July 20, 2011 3:06 PM
To: Gaither, Allen
Cc: Jeannie Stewart; Chris Gilbert; Harrison, Troy
Subject: Closed Fontana Village Resort Landfill - Explosive Gas Preliminary Study
Attachments: NCDENR.pdf; ltr_Stewart_PrelimGasEval_5-18-11.pdf

Mr. Gaither,

I have attached the recent Facility Compliance Audit Report by the Division of Waste Management (DWM) and the "Explosive Gas Preliminary Study", conducted by Altamont Environmental, Inc., dated May 18, 2011 for the Closed Fontana Village Resort Landfill. The methods of the preliminary study were approved in a letter dated November 3, 2010 by the DWM. The preliminary study should address Item #5 in the Facility Compliance Audit Report.

Please contact me if you have any questions.

Thank you,

Paul Dow, P.E.
Altamont Environmental, Inc.
231 Haywood Street
Asheville, NC 28801
Tel. 828.771.0377
Cell. 828.545.3212
Fax 828.281.3351
pdow@altamontenvironmental.com
www.altamontenvironmental.com



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:												
Lined MSWLF		LCID		YW		Transfer		Compost		SLAS		COUNTY: Graham PERMIT NO.: 38-02 FILE TYPE: COMPLIANCE
Closed MSWLF	X	HHW		White goods		Incin		T&P		FIRM		
CDFL		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF		

Date of Audit: June 21, 2011

Date of Last Audit: July 30, 2010

FACILITY NAME AND ADDRESS:

Fontana Village Resort Landfill
 Gold Village Branch Court
 Fontana Dam, NC 28733

GPS COORDINATES: N: 35.43917 E: -83.82017

FACILITY CONTACT NAME AND PHONE NUMBER:

Jeff Williams, Maintenance Supervisor
 828-498-2211

FACILITY CONTACT ADDRESS:

P.O. Box 68
 Fontana Dam, NC 28733

AUDIT PARTICIPANTS:

Troy Harrison, NC DENR-Solid Waste Section

STATUS OF PERMIT:

Closure Letter was issued on March 31, 1993.

PURPOSE OF AUDIT:

Comprehensive Audit of Closed MSW Landfill

NOTICE OF VIOLATION(S):

None

STATUS OF PAST NOTED VIOLATIONS:

N/A

AREAS OF CONCERN AND COMMENTS:

- All photographs were taken by Troy Harrison on June 21, 2011.
- The entrance to the landfill was secured by a locked cable. Landscape features were used to prevent vehicles going around the cable.

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
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Entrance to Landfill

3. Vegetation was well established on the cap. The edge of waste was marked with stakes. **The landfill cap needed mowing.**



Cap of landfill

4. There are three groundwater monitoring wells surrounding the landfill. A letter, dated June 18, 2002, from Mr. Larry Rose, Groundwater Compliance Unit/Solid Waste Section approved the cessation of water quality monitoring requirements.
5. **During the previous audit on July 30, 2010, Fontana Village was required to conduct an investigation to determine to determine compliance with 15A NCAC 13B .0503(2)(a). A proposal for a preliminary study was submitted on October 19, 2010 and approved by Allen Gaither, Solid Waste Section Regional Engineer on November 3, 2010. The Solid Waste Section has no record that the explosive gas preliminary study was conducted. Please conduct the study as approved by Mr. Gaither and submit the results as to:**

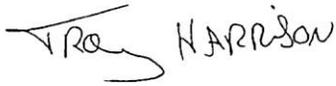
Allen Gaither, Regional Engineer
2090 US Hwy 70
Swannanoa, NC 28778

The results should be sent as soon as possible but no later than September 1, 2011.

FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

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Please contact me if you have any questions or concerns regarding this audit report.



(828) 296-4701

Phone: _____.

Troy Harrison
Environmental Senior Specialist
Regional Representative

Mailed on : <u>July 1, 2011</u> by		Hand delivery	<input checked="" type="checkbox"/>	US-Mail		Certified No. []
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cc: Jason Watkins, Western District Supervisor
Donald Herndon, Compliance Officer
Allen Gaither, Regional Engineer
Jennie Stewart, Fontana Village General Manager

ALTAMONT ENVIRONMENTAL, INC.

ENGINEERING & HYDROGEOLOGY

231 HAYWOOD STREET, ASHEVILLE, NC 28801

TEL. 828.281.3350 FAC. 828.281.3351

WWW.ALTAMONTENVIRONMENTAL.COM

May 18, 2011

Ms. Jeannie Stewart
50 Fontana Road
Fontana Dam, North Carolina 28733

Subject: Explosive Gas Preliminary Study
Closed Fontana Village Resort Landfill
Graham County, North Carolina
Permit #38-02

Dear Ms. Stewart,

Altamont Environmental, Inc. (Altamont) conducted an explosive gas preliminary study at the closed Fontana village resort landfill (site) on May 6, 2011. The general location of the site is depicted in Figure 1. This study was done in accordance with the Altamont letter dated October 19, 2010 to the North Carolina Department of Environment and Natural Resources Division of Waste Management (DWM). The DWM approved the method of the study in a letter to you dated November 3, 2010.

Scope of Work and Methods

Using publically available aerial information, Altamont established a 100-foot grid across the site. A map showing the location of the landfill gas readings is included as Figure 2. These grid locations were uploaded into a Trimble® GeoXH GPS Unit. This global positioning system (GPS) unit has an available subfoot post-processed GPS accuracy. Altamont used the GPS unit to locate each sampling location in the field. Once the sampling location was identified, a Toxic Vapor Analyzer (TVA) 1000 flame ionization detector, calibrated to methane, was used to detect organic vapors in parts per million (ppm). A copy of the calibration record for the TVA 1000 is attached. The "log" function was used for the TVA 1000, which records the highest reading within a selected ten second period. A background reading that was both upwind of and in close proximity to the landfill was also recorded. Each reading was recorded relevant to its respective location. The readings obtained at each location are shown on Table 1 attached.

Barometric readings were obtained using a Brunton® ADC-Ridge analog barometer/altimeter at the beginning and end of the sampling event (see "Atmospheric Pressure" on Table 1). According to the technical data for this instrument, the resolution is 0.01 inches of mercury and the accuracy is +/- 0.01 inches of mercury.

Altamont also walked the approximate edge of waste with Mr. Jeff Williams of Fontana Village Resorts. This approximate edge of waste was recorded with the GPS unit and is shown on Figure 2.

Findings

The barometric pressure did not change significantly during the sampling event. The highest detectable explosive gas reading obtained was 1.26 ppm at location C-1, which translates to approximately 0.00252 %

of the lower explosive limit for methane. Furthermore, areas of stressed vegetation were not directly observed.

Photo Documentation



Photo 1: View of center of the landfill area, facing west.



Photo 2: View of north edge of waste, facing northeast.

Ms. Jeannie Stewart
May 18, 2011
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Thank you for your time and consideration on this project. Please feel free to call or respond with any questions or comments related to this project.

Sincerely,

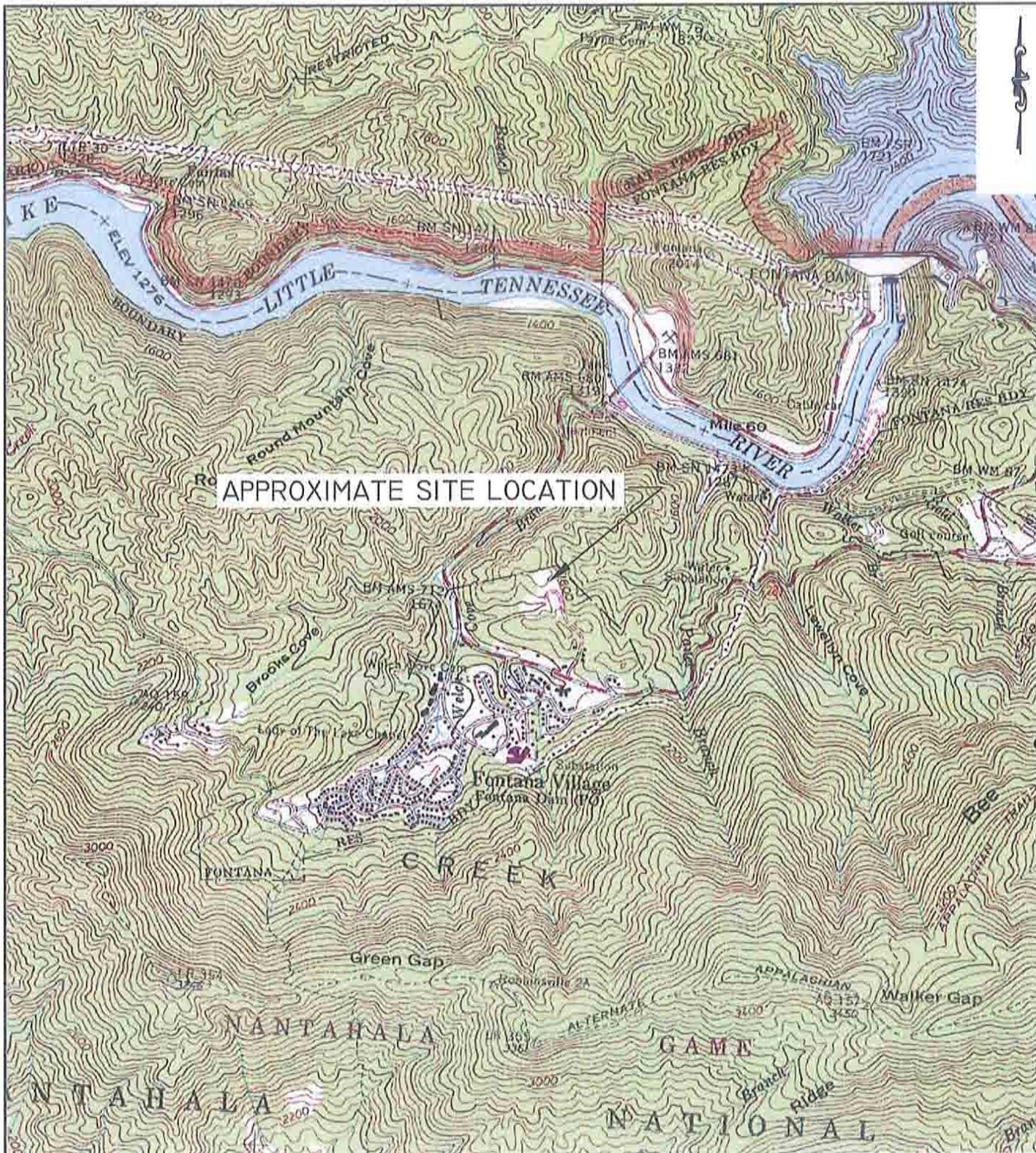
ALTAMONT ENVIRONMENTAL, INC.



Paul Dow, P.E.



Enclosures: Figure 1—Site Location Map
Figure 2—Landfill Gas Reading Locations
Table 1—Explosive Gas Preliminary Study
Enviro-Equipment, Inc. Calibration Record for TVA 1000



MAP SOURCE: USGS TOPOGRAPHICAL MAP - FONTANA DAM QUADRANGLE. CREATED 1961; REVISED 1978

ALTAMONT ENVIRONMENTAL, INC.

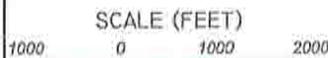
ENGINEERING & HYDROGEOLOGY

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DRAWN BY: PAUL DOW
 PROJECT MANAGER: CHRIS GILBERT
 CLIENT: FONTANA VILLAGE RESORT
 DATE: 5/9/11

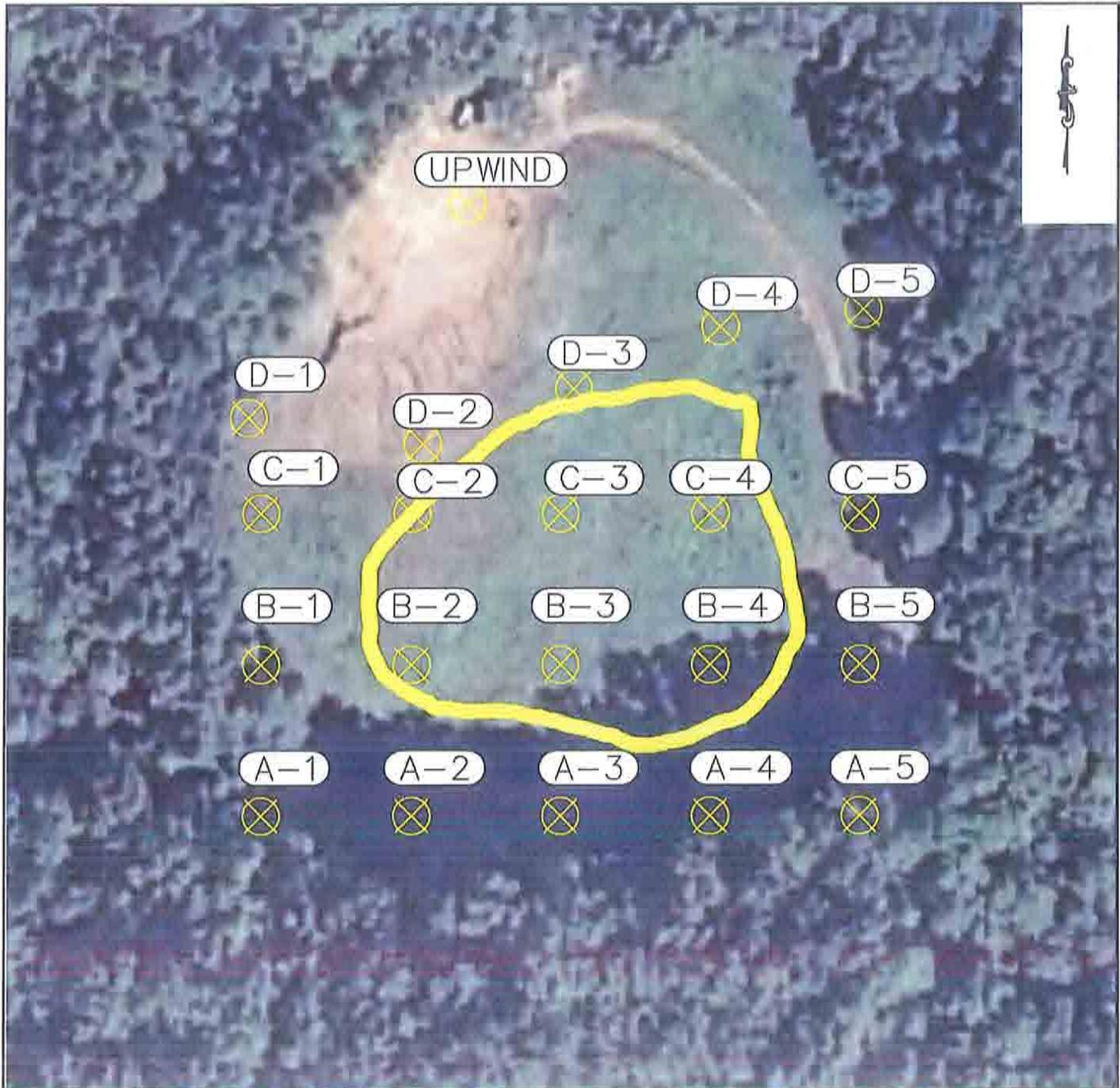


SITE LOCATION MAP

**CLOSED LANDFILL
 FONTANA VILLAGE RESORT
 GRAHAM COUNTY, NORTH CAROLINA**

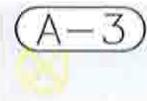
FIGURE

1



Aerial Source: USDA National Agriculture Imagery Program – November 17, 2009

Legend



Reading Location



Approximate Edge of Waste

ALTAMONT ENVIRONMENTAL, INC.

ENGINEERING & HYDROGEOLOGY

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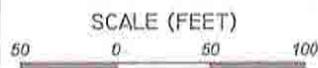
**LANDFILL GAS
 READING LOCATIONS**

CLOSED LANDFILL
 FONTANA VILLAGE RESORT
 GRAHAM COUNTY, NORTH CAROLINA

FIGURE

2

DRAWN BY: PAUL DOW
 PROJECT MANAGER: CHRIS GILBERT
 CLIENT: FONTANA VILLAGE RESORT
 DATE: 5/5/11



P:\FONTANA VILLAGE\FIGURES\CAD\FONTANA GRID

Table 1
Explosive Gas Preliminary Study
Closed Fontana Village Resort Landfill
May 6, 2011

Name of Person Taking Readings:	Paul Dow/Chris Gilbert	Date:	5/6/2011
Weather Conditions:	Sunny/Clear	Ambient Temperature:	Approximately 68° F
Atmospheric Pressure:	28.2 "Hg at 13:00 and 28.2 "Hg at 13:41	Gas Monitoring Equipment:	TVA 1000
TVA 1000 Serial Number:	4916478	Calibration Date:	5/4/2011

Location	PPM	% LEL
A-1	0.94	0.00188
A-2	0.86	0.00172
A-3	0.73	0.00146
A-4	0.64	0.00128
A-5	0.45	0.00090
B-1	1.04	0.00208
B-2	1.09	0.00218
B-3	1.09	0.00218
B-4	1.11	0.00222
B-5	1.13	0.00226
C-1	1.26	0.00252
C-2	1.21	0.00242
C-3	1.21	0.00242
C-4	1.12	0.00224
C-5	1.09	0.00218
D-1	1.17	0.00234
D-2	1.17	0.00234
D-3	1.23	0.00246
D-4	1.23	0.00246
D-5	1.20	0.00240
UPWIND	1.23	0.00246

Notes:

1. PPM means "parts per million."
2. LEL means "lower explosive limit."
3. % LEL is calculated using 5% CH4 as 100% LEL.

Enviro-Equipment, Inc.

Foxboro TVA-1000 FID/PID Quality Assurance Data Sheet

Inspector: WAA

Date: 05/04/2011

Serial Number: 4916478

Battery Date Code: 02/08/2010

Battery Voltage: 7.8VDC

Hydrogen Low Pressure Setting: 11.5 psi

NOTE:

PID – Calibrated to Isobutylene

FID – Calibrated to Methane

Span Gas Calibration Check (Performed at room temperature)

Nominal Gas Concentration (PPM)	Calibration Gas (PPM)	TVA Reading (PPM)	Tolerance (PPM)
PID 100	<u>99.09</u>	<u>99.15</u>	+/- 25
FID 500	<u>500</u>	<u>503</u>	+/- 125
Zero <0.1	PID <u>ZERO</u>	<u>0.00</u>	<3
	FID <u>ZERO</u>	<u>0.01</u>	

Inspectors Maintenance Notes

Date: 12/13/2010

Date: 05/03/2011

Counts		
Zero (PID)	<u>4,216</u>	<u>5,095</u>
Zero (FID)	<u>3,679</u>	<u>9,727</u>
Span (PID)	<u>351,853</u>	<u>346,515</u>
Span (FID)	<u>119,822</u>	<u>117,429</u>

Accepted

Pump Flow Rate: 1,422 CC/Minute

Inspected Particulate Filters: ✓

Maintenance Notes: _____

Inspected FID Capsule/Exhaust: ✓

Inspected PID Capsule/Exhaust: ✓
