



CITY OF PHILADELPHIA

DEPARTMENT OF PUBLIC HEALTH
Carmen I. Paris
Interim Health Commissioner

Izzat Melhem, MS
Assistant Health Commissioner

Air Management Services
Morris Fine
Director

Source Registration
321 University Avenue, 2nd Floor
Philadelphia, PA 19104

Telephone (215) 685-7572
Fax (215) 685-7593

August 10, 2006

Mr. Scott Baker
Sunoco, Inc. (R&M)
3144 Passyunk Avenue
Philadelphia, PA 19145
PLID: 1501

Dear Mr. Baker,

Air Management Services received your request to amend some of the monitoring and record keeping requirements in Plan Approval No. 98005 for the Sewer Odor Control Treatment Unit at 3200 South 26th Street. Since some of the conditions are requirements in the plan approval, a plan approval application must be submitted to change them.

If you have any questions, please call me at (215) 685-9426.

Sincerely,

Edward Wiener
Environmental Engineer

AIR MANAGEMENT SERVICES

NOV 09 2006

SOURCE REGISTRATION



CITY OF PHILADELPHIA

DEPARTMENT OF PUBLIC HEALTH
PUBLIC HEALTH SERVICES
AIR MANAGEMENT SERVICES

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NOV 09 2006

Air Management Services
321 University Avenue
Philadelphia PA 19104-4543
Phone: (215) 685-7572
FAX: (215) 685-7593

APPLICATION FOR PLAN APPROVAL TO CONSTRUCT, ~~MODIFY~~ REACTIVATE AN AIR CONTAMINATION SOURCE AND/OR AIR CLEANING DEVICE

(Prepare all information completely in print or type in triplicate)

SECTION A - APPLICATION INFORMATION

Location of source (Street Address) 3200 S. 26 th Street , Philadelphia , PA 19145		Facility Name Sewer Odor Treatment Unit Adjacent to Sunoco Philadelphia Refinery. (Point Breeze Biofilter)	
Owner Sunoco Inc.		Tax ID No 23-1743285	
Mailing Address 3144 Passyunk Avenue , Philadelphia, PA 19145 - Environmental DEPT ATTN: Jim Oppenheim or Dina Toto		Telephone No. (610) 859-1881	Fax No. (888) 222-1643
Contact Person Jim Oppenheim, PE		Title Senior Environmental Consultant	
Mailing Address 100 Green Street - R&D Bldg 1 st Floor Marcus Hook, PA 19061		Telephone No. (610) 859-1881	Fax No (888) 222-1643

SECTION B - DESCRIPTION OF ACTIVITY

Application type ☐ New source ☒ Modification ☐ Replacement ☐ Reactivation ☐ Air cleaning device ☐ Other	SIC Code N/A	Completion Date Original 3/98
Applicable requirement N/A ☐ NSPS ☐ NESHAP ☐ Case by Case MACT ☐ NSR ☐ PSD	Does Facility submit Compliance Review Form biannually ? ☐ Yes ☐ No If No attach Air Pollution Control Act Compliance Review Form with this application. N/A	

Source Description

In 1998 AMS granted plan approval to Sunoco (Application # 98005) to operate a blower/biofilter system. The purpose of the blower and biofilter system is to extract the petroleum hydrocarbon vapors from the Packer Avenue and 26th Street combined sewers, treat the odor and volatile compounds in the vapors and discharge the treated vapors to the atmosphere.

This plan approval requests that certain monitoring frequencies in the original plan approval be changed based on lower influent concentrations, monitoring equipment challenges and an allowance for a more appropriate use of resources.

SECTION C - PERMIT COORDINATION (ONLY REQUIRED FOR LAND DEVELOPMENT) N/A

Question	YES	NO
1. Will the project involve construction activity that disturbs five or more acres of land?		
2. Will the project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system?		
3. Will the project involve the construction and operation of industrial waste treatment facility?		
4. Is onsite sewage disposal proposed for your project?		
5. Will the project involve construction of sewage treatment facilities, sanitary sewer, or sewage pumping station?		
6. Is a stormwater collection and discharge system proposed for this project?		
7. Will any work associated with this project take place in or near a stream, waterway, or wetland?		
8. Does the project involve dredging or construction of any dam, pier, bridge or outfall pipe?		
9. Will any solid waste or liquid wastes be generated as a result of the project?		
10. Is a State Park located within two miles from your project?		

SECTION D - CERTIFICATION

I certify that I have the authority to submit this Permit Application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Signature Michael McKee Date 11/3/2006 Address 3144 Passyunk Avenue , Philadelphia, PA 19145
Name & Title Michael McKee, Sunoco Philadelphia Refinery Manager Phone 610-859-6285 215-339-7414

SECTION E - OFFICIAL USE ONLY

Application No. <u>06170</u>	Plant ID <u>01501</u>	Health District <u>4</u>	Census Tract	Fee <u>1,000</u>	Date Received
Approved by		Date	Conformance by		Date

SECTION F 1 - GENERAL SOURCE INFORMATION

2. NORMAL PROCESS OPERATING SCHEDULE

1. SOURCE										2. NORMAL THROUGHPUT OF PROCESS			
	A. Type Source (Describe)	B. Manufacturer of Source	C. Model No.	D. Rated Capacity (Specify units)	E. Type of Materials Processed	A. Amount Processed/yr. (Specify units)	B. Average hr/day	C. Total hr/yr	D. % Throughput/Quarter				
									1 st	2 nd	3 rd	4 th	
1	N/A SOURCE OF ODORS IS WITHIN CITY SEWERS												
2													
3													
4													
5													

3. ESTIMATED FUEL USAGE (Specify Units)

4. ANNUAL FUEL USAGE

A. Used in Unit	B. Type Fuel	C. Average Hourly Rate	D. Maximum Hourly Rate	E. Percent Sulfur	F. Percent Ash	G. Heating Value	A. Annual Amounts	B. Average hr/day	C. Total hr/yr	D. % Throughput/Quarter			
										1 st	2 nd	3 rd	4 th

5. IMPORTANT: Attach on a separate sheet a flow diagram of process giving all (gaseous, liquid, and solid) flow rates. Also list raw materials charged to process equipment and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, hoods or other pickup points, etc.).

SECTION F 1 - GENERAL SOURCE INFORMATION, CONTINUED

6. Describe process equipments in detail.

The purpose of the blower and biofilter system is to extract the petroleum hydrocarbon vapors from the Packer Avenue and 26th Street combined sewers, treat the odor and volatile compounds in the vapors and discharge the treated vapors to the atmosphere. The system was required by the Pennsylvania Department of Environmental Protection (PADep) as part of a consent order between Sunoco, PAdep, and the Defense Personnel Support Center (DSCP). The source of the odors is due to the hydrocarbon infiltration into existing City of Philadelphia sanitary and storm sewers. In 1998 (plan approval # 98005) Sunoco was permitted by AMS to operate biofilter.

7. Describe fully the methods used to monitor and record all operating conditions that may affect the emission of air contaminants. Provide detailed information to show that these methods provided are adequate.

Existing Monitoring requirements and the proposed requirements are outlined below :

Parameter	Existing Requirement	Proposed New Requirement
Humidity	Daily monitoring	Monitor Steam Injection System Weekly
Temperature	Daily monitoring	Weekly
CDM Checklists	Complete daily lists	Complete weekly (Attached)
Fan Current	Weekly checklists	Monthly checklist
Steam valve positions	"	"
Fan differential pressure	"	"
Biofilter cell pressures	"	"
Blower Fan performance	Monthly checks	Quarterly checks
pH cell beds	Monthly checks	Quarterly checks

8. Describe modifications to process equipments in detail.

Change to monitoring frequencies on CDM Checklists: Organic vapor analyzer (OVA) readings of the biofilter influent and effluent streams demonstrate that there consistently is and has been a significant reduction in volatile organic compounds (VOCs) in the air stream (Appendix B). Sunoco therefore recommends that the permit be revised to reduce the maintenance frequency of system performance monitoring and maintenance, to reduce the overall quantity of information collected, and revise the manual to establish more appropriate system operation and maintenance requirements and parameters. Specifically, the frequency at which numerous system operating parameters, such as pressures, valve positions, and fan motor amp draw, should be reduced. The reductions in monitoring will not affect the system performance, and will allow for a more appropriate use of resources that will ensure the system is operated and maintained in a manner to maximize odor reduction for the air stream it controls. An updated checklist (adapted from the original checklist contained in the maintenance manual prepared by Camp, Dresser and McKee) is attached in Appendix A outlining the new maintenance schedule.

Daily Humidity/ Temperature Readings: The humidity and temperature of the biofilter influent are difficult to measure on a daily basis. The probes and transmitters required to maintain daily monitoring of the biofilter influent were specifically selected to operate in a relatively harsh environment but were not successful. Records show that the humidity and temperature sensor and transmitter have been replaced, however, new equipment had similar problems operating in constant high humidity conditions. Based on the performance of the biofilter and the stable nature of the influent stream, Sunoco believes that monitoring the operation of the steam injection system and temperature of the biofilter influent on a weekly basis is appropriate. In most cases, the data reviewed showed that the relative humidity was above 90% and the temperature was well above 55°F; note that the daily system operation and maintenance sheets require action when the relative humidity is below 90% and the temperature is below 55°F. In addition to noting the relatively stable nature of the relative humidity and temperature of the biofilter influent, Sunoco noted that reduced relative humidity did not have a significant impact on the performance of the biofilter with regards to reduction of vapor concentrations (Appendix B). Sunoco proposes removing the faulty humidity meter and monitoring the steam injection system weekly by continuing consistent operation to ensure levels of 90-100% humidity.

9. Attach any and all additional information necessary to adequately describe the process equipment and to perform a thorough evaluation of the extent and nature of its emissions.

- Provide equipment information on this page if sources do not belong to special categories in F2 to F8, otherwise remove this page from this application.
- If there are more equipment, copy this page and fill in the information as indicated

SECTION H - CONTROL EQUIPMENT, CONTINUED**10. ABSORPTION EQUIPMENT (IF APPLICABLE) N/A**

A. Manufacturer N/A		B. Type		C. Model No.	
D. Volume of gases handled (ACFM)	E. Design inlet volume (ACFM)	F. Inlet temperature (°F)	G. Configuration ☐ Counter-current Cross flow ☐ Cocurrent flow		
H. Pressure drop (water gage)		I. Absorbent type and concentration		J. Retention time (sec)	
K. Inlet concentration		L. Outlet concentration		M. Overall efficiency (%)	
N. Describe pH and/or other monitoring and controls					
O. Type packing and size (if applicable)	P. Height of packing (ft)	Q. Number of trays	R. Diameter of tower (ft)		
S. Attach equilibrium data for absorber (If applicable)					

11. OTHER CONTROL EQUIPMENT (IF APPLICABLE)**Existing Design NO CHANGES**

A. Manufacturer Designer: CDM		B. Type Biofilter		C. Model No. N/A	
D. Volume of gases handled (ACFM) Design Flow Rate 14,000 cfm		E. Design inlet temperature (ACFM)		F. Inlet temperature (°F) 60-85 F	
G. Inlet concentration (lbs/hr or gr/DSCF) Variable		H. Outlet concentration (lbs/hr or gr/DSCF) Variable		I. Overall efficiency (%) Variable	
J. Attach particle size efficiency curve or other efficiency information.					
K. Describe fully, giving important parameters and method of operation. Discussed in Section F.1					

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.

SECTION I - MISCELLANEOUS INFORMATION

1. Specify monitoring and recording devices will be used for monitoring and recording of the emission of air contaminants. Provide detailed information to show that the facilities provided are adequate. Include cost and maintenance information.

- | | | |
|--|---|---|
| ☐ Opacity monitoring system | ☐ SOx monitoring system | ☐ NOx monitoring system |
| ☐ CO monitoring system | ☐ CO2 monitoring system | ☐ Oxygen monitoring system |
| ☐ HCL monitoring system | ☐ TRS monitoring system | ☐ H2S monitoring system |
| ☐ Temperature monitoring system | ☐ Stack flow monitoring system | ☒ Other _____ |

If checked, provide manufacturer's name, model no. and pertinent technical specifications.

2. Attach Air Pollution Episode Strategy (if applicable)

N/A

3. If the source is subject to 25 Pa. Code Subchapter E, New Source Review requirements,

a. Demonstrate the availability of emission offset (if applicable)

N/A

b. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs.

4. Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III of the rules and regulations of Philadelphia Air Management, Pennsylvania Department of Environmental Protection and those requirements promulgated by the Administrator of the United States Environmental Protection Agency pursuant to the provisions of the Clean Air Act.

SEE Appendix B Attached 2006 Performance Data

5. List all attachments included in this Application.

Appendix A – Updated Proposed Maintenance Checklists (Weekly, Monthly, Quarterly and Annual Tasks)

Appendix B – 2006 Biofilter Performance Data

Appendix C – Drawings (PB Biofilter Overview Drawing, G-7, G-1, and G-3)

Appendix A – Updated Proposed Maintenance Checklists

PB Biofilter Maintenance Schedule

10/1/2006 0:00

SYSTEM DATA - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		SYSTEM OPERATIONAL	SAT/UNSAT
		H2O Injection Present	SAT/UNSAT
		ODOR	YES/NO
		Bed Dry	YES/NO
		Building Temp	F

BIOFILTER INFLUENT PID - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		PACKER AVENUE	PPM
AOI 1 - PB BIOFILTER		26TH STREET	PPM
AOI 1 - PB BIOFILTER		ST-1	PPM

BIOFILTER EFFLUENT PID - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		CELL 1N	PPM
AOI 1 - PB BIOFILTER		CELL 2N	PPM
AOI 1 - PB BIOFILTER		CELL 3N	PPM
AOI 1 - PB BIOFILTER		CELL 4N	PPM
AOI 1 - PB BIOFILTER		CELL 1S	PPM
AOI 1 - PB BIOFILTER		CELL 2S	PPM
AOI 1 - PB BIOFILTER		CELL 3S	PPM
AOI 1 - PB BIOFILTER		CELL 4S	PPM

CELL 1 - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		TEMPERATURE	F
AOI 1 - PB BIOFILTER		PRESSURE	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 1N (depth)	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 1S (depth)	INCHES

CELL 2 - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		TEMPERATURE	F
AOI 1 - PB BIOFILTER		PRESSURE	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 2N (depth)	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 2S (depth)	INCHES

CELL 3 - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		TEMPERATURE	F
AOI 1 - PB BIOFILTER		PRESSURE	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 3N (depth)	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 3S (depth)	INCHES

CELL 4 - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		TEMPERATURE	F
AOI 1 - PB BIOFILTER		PRESSURE	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 4N (depth)	INCHES
AOI 1 - PB BIOFILTER		MOISTURE 4S (depth)	INCHES

TI-4 - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		TEMPERATURE	F

TI-5 - WEEKLY

Segment name	Asset name	POINT description	Inspection result
AOI 1 - PB BIOFILTER		TEMPERATURE	F

CALIBRATION - WEEKLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
AOI 1 - PB BIOFILTER		OVA or PID CALIBRATION	SAT/UNSAT
AOI 1 - PB BIOFILTER		MOISTURE CALIBRATION	SAT/UNSAT
CALIBRATION - WEEKLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
AOI PB BIOFILTER			
AOI PB BIOFILTER		TEMP CONTROL SYSTEM	SAT/UNSAT
PH READINGS - QUARTERLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
AOI PB BIOFILTER		PB LEACHATE PH	Ph Scale
		CELL 1 - PB MEDIA PH	Ph Scale
AOI PB BIOFILTER		CELL 2 - PB MEDIA PH	Ph Scale
AOI PB BIOFILTER		CELL 3 - PB MEDIA PH	Ph Scale
AOI PB BIOFILTER		CELL 4 - PB MEDIA PH	Ph Scale
BLOWER - FAN 1 - MONTHLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
AOI PB BIOFILTER		VIBRATION	SAT/UNSAT
AOI PB BIOFILTER		TIGHTEN ANCHOR BOLT	SAT/UNSAT
AOI PB BIOFILTER		V-BELTS	SAT/UNSAT
AOI PB BIOFILTER		BEARINGS LUBRICATION	SAT/UNSAT
	Valve	V-1	OPEN/CLOSE
	Valve	DP-1A Pres	INCHES
	Valve	DP-1B Pres	INCHES
		FAN1 Current	0-20 mA
BLOWER - FAN 2 - MONTHLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
AOI PB BIOFILTER		VIBRATION	SAT/UNSAT
AOI PB BIOFILTER		TIGHTEN ANCHOR BOLT	SAT/UNSAT
AOI PB BIOFILTER		V-BELTS	SAT/UNSAT
AOI PB BIOFILTER		BEARINGS LUBRICATION	SAT/UNSAT
	Valve	V-2	OPEN/CLOSE
	Valve	DP-2A Pres	INCHES
	Valve	DP-2B Pres	INCHES
		FAN2 Current	0-20 mA
BLOWER - FAN 3 MONTHLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
AOI PB BIOFILTER		VIBRATION	SAT/UNSAT
AOI PB BIOFILTER		TIGHTEN ANCHOR BOLT	SAT/UNSAT
AOI PB BIOFILTER		V-BELTS	SAT/UNSAT
AOI PB BIOFILTER		BEARINGS LUBRICATION	SAT/UNSAT
		V-BELTS	SAT/UNSAT
	Valve	V-3	Open/close
	Valve	DP-3A Pres	in
	Valve	DP-3B Pres	in
	Valve	V-4	Open/close
	Valve	V-5	Open/close
	Valve	V-6	Open/close
		FAN3 Current	0-20 mA
QUARTERLY			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
PB BIOFILTER		BEDS SAMPLED	SAT/UNSAT
PB BIOFILTER		STEAM TRAP BLOWN/Drains	SAT/UNSAT
ANNUAL			
<u>Segment name</u>	<u>Asset name</u>	<u>POINT description</u>	<u>Inspection result</u>
PB BIOFILTER		MAINT SCHED - DUE DEC	SAT/UNSAT

Sun Company Inc. Operation and Maintenance Log

Philadelphia, PA

Blower & Biofilter System - Winterization checklist

Time / Date: _____

Collected By: _____

Alarm Conditions: _____

Completed

Clean building heater #1 coils: ☐

Clean building heater #2 coils: ☐

Turn steam on building heater # 1:(test with thermostat): ☐

Turn steam on building heater # 2:(test with thermostat): ☐

Clean in line heater coils: ☐

Drain sprinkler system: ☐

Smoke test ducts and biofilters for leaks: ☐

Appendix B – 2006 Biofilter Performance Data

Sunoco, Inc. - Philadelphia Refinery
AOI-1: 26th Street & Packer Avenue Sewers Biofilter System
Organic Vapor Analyzer (OVA) Readings

Date	Biofilter Influent			Biofilter Effluent								Percent Reduction
	Packer Ave. (ppm)	26 th Street (ppm)	ST-1 (Combined Influent) (ppm)	Cell-1N	Cell-1S	Cell-2N	Cell-2S	Cell-3N	Cell-3S	Cell-4N	Cell-4S	
1/9/2006	0.0	12.9	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
1/12/2006	0.0	59.8	35.2	0.3	0.0	0.0	0.0	1.6	1.9	2.1	2.2	96.16%
1/19/2006	3.2	41.6	21.9	1.6	0.5	0.8	1.1	2.3	1.7	0.0	2.2	92.24%
1/24/2006	0.0	20.6	13.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
1/31/2006	0.0	12.3	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
2/7/2006	0.0	13.8	11.6	0.7	0.3	1.0	0.8	0.0	1.1	0.0	1.7	91.95%
2/13/2006	0.0	26.9	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
2/24/2006	1.6	8.7	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
2/27/2006	0.4	8.6	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
3/6/2006	2.8	34.6	30.7	0.0	1.2	0.4	0.0	3.5	0.0	0.3	0.0	97.07%
3/14/2006	2.5	22.7	21.8	1.8	0.0	1.8	0.0	0.0	0.0	0.2	0.9	96.41%
3/23/2006	0.4	8.6	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
3/30/2006	0.4	29.6	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
4/7/2006	0.0	18.7	15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
4/12/2006	0.0	29.9	18.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
4/21/2006	1.7	18.3	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
4/27/2006	1.8	8.7	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
5/12/2006	1.6	24.3	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
5/16/2006	0.0	22.3	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
5/26/2006	1.3	26.4	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
6/2/2006	0.0	22.3	18.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
6/7/2006	2.8	34.1	14.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
6/28/2006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
7/5/2006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
7/13/2006	0.0	2.3	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
7/25/2006	0.6	15.8	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
8/2/2006	4.9	7.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
8/18/2006	0.0	11.3	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
8/24/2006	0.0	7.9	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
8/30/2006	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
9/10/2006	0.0	7.4	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
9/13/2006	0.0	9.2	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
9/21/2006	0.0	3.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%
9/27/2006	0.0	6.7	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00%

NOTES: ppm: Parts per Million.
NA: Not Available.
Readings are collected using a ThermoEnvironmental Photoionization Detector (PID).

Appendix C – Drawings