Environmental

Mr. Joseph Su
DEP, Northeast Regional Office
205B Lowell Street
Wilmington, MA 01877

September 30, 2008

Mr. John Winkler
DEP, Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

Dear Messrs. Su and Winkler:

Attached is the report for testing conducted at Sprague Energy's residual oil tanks located at 728 Southern Artery in Quincy and 30 Pine Street New Bedford, Massachusetts. This testing was conducted in accordance with your respective Request for Information (RFI) letters of 10 April 2008 to Sprague Energy.

If you have any questions or require any additional information regarding the test results presented herein, please do not hesitate to contact me.

Best Regards,

Michael P. Cahill
Vice President

Final Report
for
Headspace Sampling and Analysis
of one Residual Oil Tank and Vapor Recovery Unit
at
Sprague Energy
728 Southern Artery
Quincy, Massachusetts

and one Residual Oil Tank
at
Sprague Energy
30 Pine Street
New Bedford, Massachusetts

Prepared by:

Michael P. Cahill

September 30, 2008

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1.0 INTRODUCTION

CK Environmental (CK) of Canton, Massachusetts was retained by Sprague Energy of Portsmouth, New Hampshire to perform a headspace sampling and analysis program for one residual oil tank located at their Quincy, Massachusetts terminal and one residual oil tank located at their New Bedford, Massachusetts terminal. Also, the emissions from a vapory recovery unit (VRU) were tested at their Quincy location. The programs were conducted to determine the concentration of sulfur-bearing compounds and total non-methane hydrocarbons in accordance with the MADEP Request for Information (RFI) letters dated April 10, 2008 sent to the above mentioned Sprague Energy terminal locations.

As part of the headspace testing activities, the MADEP requested Sprague to collect and analyze contemporaneous, representative samples from each residual oil tank to determine the fuel oil characteristics including heat content, sulfur, nitrogen, volatiles, and ash composition. On May 22 and 23 a technician from Inspectorate visited both the New Bedford and Quincy, MA terminals and collected a sample from each of the tanks using sterilized sampling containers. The samples were analyzed and the results are contained in Appendix F for your reference.

The test protocol, this report and the test program were developed in compliance with the Air Pollution Control Regulation 310 CMR 7013 (1) regarding 'Stack Testing'. The on-site testing took place at Sprague's New Bedford and Quincy, MA terminals on July 22 and 23, 2008, respectively.

Section 2.0 of this report presents details regarding the test results. Section 3.0 of this report presents a description of the site test location and the processes that were tested. Section 4.0 presents descriptions of the sampling and analytical test methods conducted. Section 5.0 describes quality assurance procedures for CK's source measurement programs.

Michael Cahill (Vice President) is the CK point of contact (781 828 5200, mcahill@ckenvironmental.com). Peter Croteau (Regional HS&E Manager) is the Sprague Energy point of contact (603-430-7205,

pcroteau@spragueenergy.com) for this sampling and test program. Mr. Joseph Su of MADEP was at both sites to witness the testing.

2.0 SUMMARY OF TEST RESULTS

Table 2-1 through 2-3 present results summaries for facilities tested. Test results are presented as concentration expressed in parts per billion (ppb) for both the speciated VOC's and sulfur-bearing compounds. This data is supported by the analytical packages that are presented in Appendices A and B. Field data sheets for each site are presented in Appendix C.

Volumetric flow rate calculations and field data from the VRU are contained in Appendix D. Because of the very low differential pressure and relatively small diameter (4" ID) at the outlet of the VRU, the volumetric flow rate at the outlet was 70.4 standard cubic feet per minute (measured with a low-flow oil-in-glass inclined manometer).

Data and calibration gas certificates from the on-site non-methane organic analyzer are contained in Appendix E.

No anomalies occurred during testing. The only on-site modification to the test plan was that the outlet of a vapor recovery unit located at the Quincy site was added to the program for determination of speciated VOC's at the request of Joe Su, Environmental Engineer of MADEP (Table 2-3). Prior to beginning the field portion of this project, the testing analytical parameters were slightly modified from the original scope of work outlined in CK Environmental's test protocol (dated 30 May 2008) via an email from Joe Su to CK Environmental (dated 9 July 2008). The final analytical requirements are reported on herein.

TABLE 2-1 Results Summary

SOURCE: Sprague Energy; New Bedford, MA
FACILITY: TANK # 2 Residual Oil Tank Headspace Analysis
TEST DATE: 7/22/2008

VOC'S	UNITS (PPB)
1,2,4 - Trimethylbenzene	9000
1,3,5 - Trimethylbenzene	2470
4 - Ethyltoluene	2330
Benzene	6050
Cyclohexane	4730
Ethylbenzene	6280
Methyl tert butyl ether	545
p/m - Xylene	20400
o - Xylene	7900
Heptane	6250
n - Hexane	8270
Propylene	2410
Toluene	26900
Naphthalene	3130

SULFUR REARING COMPOUNDS	UNITS (PPB)
Thiophene	140
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	330

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TABLE 2-2 Results Summary

SOURCE: Sprague Energy; Quincy, MA
FACILITY: TANK # 11 Residual Oil Tank Headspace Analysis
TEST DATE: 7/23/2008

VOC'S	UNITS (PPB)
1,2,4 - Trimethylbenzene	8670
1,3,5 - Trimethylbenzene	2520
4 - Ethyltoluene	1940
Benzene	5920
Cyclohexane	5140
Ethanol	2750
Ethylbenzene	4860
Isopropanol	989
p/m - Xylene	19600
o - Xylene	7480
Heptane	10100
n - Hexane	18800
Propylene	45800
Toluene	23000
Naphthalene	3020

Sulfur Bearing compounds not detected

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TABLE 2-3 Results Summary

SOURCE: Sprague Energy; Quincy, MA
FACILITY: Vapor Recovery unit speciated VOC analysis
TEST DATE: 7/23/2008

VAPOR RECOVERY	UNITS (PPB)
1,2,4 - Trimethylbenzene	190
1,3,5 - Trimethylbenzene	48
4 - Ethyltoluene	52.7
Benzene	224
Cyclohexane	163
Ethanol	881
Ethylbenzene	146
Freon - 113	132
p/m - Xylene	460
o - Xylene	167
Heptane	217
n - Hexane	246
Propylene	9930
Toluene	726
Trichlorofluoromethane	48.9
Naphthalene	188

3.0 PROCESS DESCRIPTION

At their New Bedford terminal, Sprague currently has a single vertical above ground tank (#3) that stores residual oil. The terminal receives residual oil from a third party by barge or ship at the Terminal's Dock. The tank capacity is 76,221 barrels, though at the time of testing the tank was nearly empty with only 800 barrels of product.

At their Quincy terminal, Sprague has a single vertical above ground tank (#11) that stores residual oil. The terminal receives residual oil from a third party by barge or ship at the Terminal's Dock. The tank capacity is 77,901 barrels. The tank at the time of testing contained 56,868 barrels of product. Connected to this tank is a vapor recovery unit is a Model HF3000 Vapor Phase Activated Carbon Adsorber (High Flow Series) with a 4"diameter outlet. The VRU employs activated carbon which is packed into thin bed filters which are in the shape of annular cylinders. Vapor travels through a bank of filters and any volatile organics present are adsorbed onto the carbon. Upon saturation, the spent filters are replaced with new filters.

4.0 SAMPLING AND ANALYTICAL TEST METHODS

Each of the tanks contains a single sample location at roof level. The sample location was used as a test port, and at both terminals was situated within a few feet from the wall of the tank. At the New Bedford terminal, three test points along the vertical sample traverse were visited for 3 to 5 minutes to fill a 12-liter sample bag which was used for non-methane organic compound (NMOC) screening. Test points were located 7.5 feet, 22.5 feet, 37.5 feet from the tank roof. At the Quincy terminal, two test points along the vertical sample were visited for 3 to 5 minutes to fill a 12-liter sample bag (test point locations were located 3 feet, and 9 feet from the tank roof). At the VRU in Quincy, samples were taken by inserting approximately 4" of tubing directly into the 4" ID outlet duct; which makes the sample point one equivalent diameter upstream of the cross-sectional opening. Flow rate determination was made using methods and equipment specified in Reference Method 2 from 40 CFR 60, Appendix A, "Determination of Stack Gas Velocity and Volumetric Flow Rate". A small, standard pitot tube was used along with a low-flow inclined oil manometer. Ambient temperature and standard barometric pressure were used for the volumetric flow rate calculation as show in Appendix D.

NMOC screening sample bags were then transferred to CK's on-site NMOC analyzer (TECO Model 55-C, serial number 55C-66066-352) which screened the samples to confirm the absence of significant VOC concentration stratification in the headspace and to identify the TO-15/ASTM 5504 test point locations. The TO-15 canisters and the ASTM 5504 Tedlar bags were drawn from the point in the tank that had the highest NMOC concentration; which was the mid point in the New Bedford tank and the high point in the Quincy tank.

In order to collect the sample in media, e.g., Tedlar bag or canister, a 3/8" sample line was guided into the test port. The sample line was purged of ambient air with a sampling squeeze bulb and then the ASTM 5504 sample bag was filled for sulfur analysis. The canister for TO-15 had previously been evacuated with a 30" Hg vacuum, so after the sample line had been purged with the sample squeeze bulb a second time the canister was attached directly to the line, the canister valve was opened, and the canister was filled within a few seconds.

Duplicate (back-up) sample bags and canisters were also drawn at test points at both New Bedford and Quincy, but analysis of the back-up samples was not required as the primary samples arrived at the lab intact and without anomalies.

4.1 MEASUREMENT OF INDIVIUAL VOLATILE ORGANIC COMPOUNDS VIA US EPA COMPENDIUM TOXIC ORGANIC MEHTOD 15 (TO-15)

The headspace in the tank is sampled by introduction of air into a specially-prepared evacuated stainless steel canister. After the air sample is collected, the canister valve is closed, an identification tag is attached to the canister, and the canister is transported to the laboratory for analysis. Upon receipt at the laboratory, the canister tag data is recorded and the canister is stored until analysis. Storage time for TO-15 is up to thirty days.

To analyze the sample, a known volume is directed from the canister through a solid multisorbent concentrator. A portion of the water vapor in the sample breaks through the concentrator during sampling, to a degree depending on the multisorbent composition, duration of sampling, and other factors. Water content of the sample can be further reduced by dry purging the concentrator with helium while retaining target compounds. After the concentration and drying steps are completed, the VOCs are thermally desorbed, entrained in a carrier gas stream, and then focused in a small volume by trapping on a reduced temperature trap or small volume multisorbent trap. The sample is then released by thermal desorption and carried onto a gas chromatographic column for separation. As a simple alternative to the multisorbent/dry purge water management technique, the amount of water vapor in the sample can be reduced below any threshold for affecting the proper operation of the analytical system by VOCs reducing the sample size.

The analytical strategy for Compendium Method TO-15 involves using a high resolution gas chromatograph (GC) coupled to a mass spectrometer. If the mass spectrometer is a linear quadrupole system, it is operated either by continuously scanning a wide range of mass to charge ratios (SCAN mode) or by monitoring select ion monitoring mode (SIM) of compounds on the target list. If the mass spectrometer is based on a standard ion trap design, only a scanning mode is used (note however, that the Selected Ion Storage (SIS) mode for the ion trap has features of the SIM mode). Mass spectra for individual peaks in the total ion chromatogram are examined with respect to the fragmentation pattern of ions corresponding to various VOCs including the intensity of primary and secondary ions. The fragmentation pattern is compared with stored spectra taken under similar conditions, in order to identify the compound. For any given compound, the intensity of the

primary fragment is compared with the system response to the primary fragment for known amounts of the compound. This establishes the compound concentration that exists in the sample.

4.2 MEASUREMENT OF SULFUR BEARING COMPOUNDS VIA ASTM D 5504

The ASTM D 5504 analytical method was used to analyze sample bag for the determination of speciated volatile sulfur-containing compounds. This method is used for the determination of sulfur compounds in natural gas and gaseous fuels via gas chromatography and Chemiluminescence.

This method has been successfully applied to gaseous samples including air, digester, landfill, and refinery fuel gas. The detection range for sulfur compounds, reported as picograms sulfur, is ten (10) to one million (1,000,000). This is equivalent to 0.01 to 1,000 mg/m3, based upon the analysis of a 1 cc sample.
The detector response to sulfur is equimolar for all sulfur compounds within the scope of this test method. Thus, unidentified compounds are determined with equal precision to that of identified substances. Total sulfur content is determined from the total of individually quantified components.

An aliquot of sample is drawn from the bag and injected directly into the gas chromatograph via a 1.0 milliliter sample loop.

5.0 QA/QC PROCEDURES

CK emissions testing teams are committed to providing high quality testing services. CK follows EPA sampling methods and associated QA/QC procedures whenever they are applicable to a test program.

To verify reported results, all laboratory data and calculations undergo at least two technical reviews. The project manager performs the initial review of the report. An engineer then performs a second detailed review.

Sampling QA/QC measures for this program include a variety of measures that are specific to the individual sampling method or compound.

The calibration of all manual sampling equipment generally follows the QA/QC procedures in 40 CFR 60, the EPA "Quality Assurance Handbook," Volume III, and all applicable equipment manufactures procedures. The calibration gases used by CKE are Protocol NBS traceable.

5.1 Reference Method (RM) Sampling Equipment

All analyzers, e.g., the 55C, and other sampling systems are checked at the CK laboratory prior to field use. Analyzer calibrations are conducted at the start of the test program. System calibrations are conducted before and after each test run using Protocol cylinder gases and procedures outlined in the associated EPA Reference Test Methods from 40 CFR 60, Appendix A.

Specifically for this program, sampling was conducted in accordance with Reference Test Method 18 and 25A from 40 CFR 60, Appendix A, for the NMOC screening portion of the project. Analyses for speciated VOC's were conducted in accordance with the analytical specifications of Method TO-15. Analyses for sulfur-bearing compounds were conducted in accordance with ASTM Method 5504.

Appendix A
Analytical Results for VOC Speciation (TO-15)

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Alpha Sample ID	Client ID	Sample Location
L0812156-01	QUINCY #1	N.B./QUINCY
L0812156-02	QUINCY #2	N.B./QUINCY
L0812156-03	NEW BED #1	N.B./QUINCY
L0812156-04	NEW BED #2	N.B./QUINCY
L0812156-05	VAPOR RECOVERY	N.B./QUINCY
L0812156-06	UNUSED CAN	N.B./QUINCY

ALPHA ANALYTICAL

ANALYTICAL REPORT

Lab Number:	L0812156
Client:	CK Environmental 1020 Turnpike Street Unit 8 Canton, MA 02021
ATTN:	Michael Cahill
Project Name:	SPRAGUE
Project Number:	3429 CK
Report Date:	08/29/08

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

TO15-LL

Per client request, all samples were scanned for the presence of Carbonyl Sulfide. Carbonyl Sulfide was not detected at the expected elution time of this compound.

L0812156-01, -03, -05 and WG334048-4 Duplicate have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

The WG334048-2 LCS recoveries for 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene are outside the 70%-130% acceptance limit. 1,2,4-Trichlorobenzene exceeded method allowance with a high response. The associated compounds did not have 1,2,4-Trichlorobenzene detected, therefore, no further action was taken. Hexachlorobutadiene and Naphthalene are within method allowance.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kathleen M. O'Brien

Title: Technical Director/Representative

Date: 08/29/08

AIR

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-01
Client ID: QUINCY #1
Sample Location: N.B./QUINCY
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/23/08 00:13
Analyst: AR

Date Collected: 07/23/08 11:16
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	153.	ND	834.		765
1,1,2,2-Tetrachloroethane	ND	153.	ND	1050		765
1,1,2-Trichloroethane	ND	153.	ND	834.		765
1,1-Dichloroethane	ND	153.	ND	619.		765
1,1-Dichloroethene	ND	153.	ND	606.		765
1,2,4-Trichlorbenzene	ND	153.	ND	1130		765
1,2,4-Trimethylbenzene	8670	153	42600	752		765
1,2-Dibromoethane	ND	153.	ND	1170		765
1,2-Dichlorobenzene	ND	153.	ND	919.		765
1,2-Dichloroethane	ND	153.	ND	619.		765
1,2-Dichloropropane	ND	153.	ND	706.		765
1,3,5-Trimethybenzene	2520	153	12400	752		765
1,3-Butadiene	ND	153.	ND	338.		765
1,3-Dichlorobenzene	ND	153.	ND	919.		765
1,4-Dichlorobenzene	ND	153.	ND	919.		765
1,4-Dioxane	ND	153.	ND	551.		765
2,2,4-Trimethylpentane	ND	153.	ND	714.		765
2-Butanone	ND	153.	ND	451.		765
2-Hexanone	ND	153.	ND	626.		765
3-Chloropropene	ND	153.	ND	478.		765
4-Ethyltoluene	1940	153	9530	752		765
Acetone	ND	382.	ND	908.		765
Benzene	5920	153	18900	488		765
Benzyl chloride	ND	153.	ND	792.		765
Bromodichloromethane	ND	153.	ND	1020		765

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-01
Client ID: QUINCY #1
Sample Location: N.B./QUINCY

Date Collected: 07/23/08 11:16
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	153.	ND	1580		765
Bromomethane	ND	153.	ND	594.		765
Carbon disulfide	ND	153.	ND	476.		765
Carbon tetrachloride	ND	153.	ND	962.		765
Chlorobenzene	ND	153.	ND	704.		765
Chloroethane	ND	153.	ND	403.		765
Chloroform	ND	153.	ND	746.		765
Chloromethane	ND	153.	ND	316.		765
cis-1,2-Dichloroethene	ND	153.	ND	606.		765
cis-1,3-Dichloropropene	ND	153.	ND	694.		765
Cyclohexane	5140	153	17700	526		765
Dibromochloromethane	ND	153.	ND	1300		765
Dichlorodifluoromethane	ND	153.	ND	756.		765
Ethanol	2750	1910	5180	3600		765
Ethyl Acetate	ND	382.	ND	1380		765
Ethylbenzene	4860	153	21100	664		765
Freon-113	ND	153	ND	1170		765
Freon-114	ND	153.	ND	1070		765
Hexachlorobutadiene	ND	153.	ND	1630		765
Isopropanol	989	382	2430	939		765
Methylene chloride	ND	382	ND	1330		765
4-Methyl-2-pentanone	ND	153.	ND	626.		765
Methyl tert butyl ether	ND	153	ND	551		765
p/m-Xylene	19600	306	85000	1330		765
o-Xylene	7480	153	32500	664		765
Heptane	10100	153	41300	626		765
n-Hexane	18800	153	66100	539		765
Propylene	45800	153	78700	263		765

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-01
Client ID: QUINCY #1
Sample Location: N.B./QUINCY

Date Collected: 07/23/08 11:16
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
Styrene	ND	153	ND	651		765
Tetrachloroethene	ND	153	ND	1040		765
Tetrahydrofuran	ND	153.	ND	451.		765
Toluene	23000	153	86800	576		765
trans-1,2-Dichloroethene	ND	153.	ND	606.		765
trans-1,3-Dichloropropene	ND	153.	ND	694.		765
Trichloroethene	ND	153.	ND	822.		765
Trichlorofluoromethane	ND	153.	ND	859.		765
Vinyl acetate	ND	153.	ND	538.		765
Vinyl bromide	ND	153.	ND	669.		765
Vinyl chloride	ND	153.	ND	391.		765
Naphthalene	3020	153	15800	801		765

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-03
Client ID: NEW BED #1
Sample Location: N.B./QUINCY
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/23/08 01:24
Analyst: AR

Date Collected: 07/22/08 11:31
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	174.	ND	950.		871.4
1,1,2,2-Tetrachloroethane	ND	174.	ND	1200		871.4
1,1,2-Trichloroethane	ND	174.	ND	950.		871.4
1,1-Dichloroethane	ND	174.	ND	705.		871.4
1,1-Dichloroethene	ND	174.	ND	690.		871.4
1,2,4-Trichlorbenzene	ND	174.	ND	1290		871.4
1,2,4-Trimethylbenzene	9000	174	44200	856		871.4
1,2-Dibromoethane	ND	174.	ND	1340		871.4
1,2-Dichlorobenzene	ND	174.	ND	1050		871.4
1,2-Dichloroethane	ND	174.	ND	705.		871.4
1,2-Dichloropropane	ND	174.	ND	805.		871.4
1,3,5-Trimethybenzene	2470	174	12100	856		871.4
1,3-Butadiene	ND	174.	ND	385.		871.4
1,3-Dichlorobenzene	ND	174.	ND	1050		871.4
1,4-Dichlorobenzene	ND	174.	ND	1050		871.4
1,4-Dioxane	ND	174.	ND	628.		871.4
2,2,4-Trimethylpentane	ND	174.	ND	814.		871.4
2-Butanone	ND	174.	ND	514.		871.4
2-Hexanone	ND	174.	ND	713.		871.4
3-Chloropropene	ND	174.	ND	545.		871.4
4-Ethyltoluene	2330	174	11400	856		871.4
Acetone	ND	436.	ND	1030		871.4
Benzene	6050	174	19300	556		871.4
Benzyl chloride	ND	174.	ND	902.		871.4
Bromodichloromethane	ND	174.	ND	1170		871.4

Project Name: SPRAGUE
Project Number: 3429 CK
Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-03
Client ID: NEW BED #1
Sample Location: N.B./QUINCY
Date Collected: 07/22/08 11:31
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	174.	ND	1800		871.4
Bromomethane	ND	174.	ND	676.		871.4
Carbon disulfide	ND	174.	ND	542.		871.4
Carbon tetrachloride	ND	174.	ND	1100		871.4
Chlorobenzene	ND	174.	ND	802.		871.4
Chloroethane	ND	174.	ND	460.		871.4
Chloroform	ND	174.	ND	850.		871.4
Chloromethane	ND	174.	ND	360.		871.4
cis-1,2-Dichloroethene	ND	174.	ND	690.		871.4
cis-1,3-Dichloropropene	ND	174.	ND	790.		871.4
Cyclohexane	4730	174	16300	599		871.4
Dibromochloromethane	ND	174.	ND	1480		871.4
Dichlorodifluoromethane	ND	174.	ND	861.		871.4
Ethanol	ND	2180	ND	4100		871.4
Ethyl Acetate	ND	436.	ND	1570		871.4
Ethylbenzene	6280	174	27200	756		871.4
Freon-113	ND	174.	ND	1330		871.4
Freon-114	ND	174.	ND	1220		871.4
Hexachlorobutadiene	ND	174.	ND	1860		871.4
Isopropanol	ND	436	ND	1070		871.4
Methylene chloride	ND	436	ND	1510		871.4
4-Methyl-2-pentanone	ND	174.	ND	713.		871.4
Methyl tert butyl ether	545	174	1960	628		871.4
p/m-Xylene	20400	348	88300	1510		871.4
o-Xylene	7900	174	34300	756		871.4
Heptane	6250	174	25600	714		871.4
n-Hexane	8270	174	29100	614		871.4
Propylene	2410	174	4150	300		871.4

Project Name: SPRAGUE
Project Number: 3429 CK
Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-03
Client ID: NEW BED #1
Sample Location: N.B./QUINCY
Date Collected: 07/22/08 11:31
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
Styrene	ND	174.	ND	742.		871.4
Tetrachloroethene	ND	174.	ND	1180		871.4
Tetrahydrofuran	ND	174.	ND	514.		871.4
Toluene	26900	174	101000	656		871.4
trans-1,2-Dichloroethene	ND	174.	ND	690.		871.4
trans-1,3-Dichloropropene	ND	174.	ND	790.		871.4
Trichloroethene	ND	174.	ND	936.		871.4
Trichlorofluoromethane	ND	174.	ND	978.		871.4
Vinyl acetate	ND	174.	ND	613.		871.4
Vinyl bromide	ND	174.	ND	762.		871.4
Vinyl chloride	ND	174.	ND	445.		871.4
Naphthalene	3130	174	16400	913		871.4

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-05
Client ID: VAPOR RECOVERY
Sample Location: N.B./QUINCY
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/23/08 10:51
Analyst: AR

Date Collected: 07/23/08 12:00
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
1,1,1-Trichloroethane	ND	31.3	ND	171.		156.6
1,1,2,2-Tetrachloroethane	ND	31.3	ND	215.		156.6
1,1,2-Trichloroethane	ND	31.3	ND	171.		156.6
1,1-Dichloroethane	ND	31.3	ND	127.		156.6
1,1-Dichloroethene	ND	31.3	ND	124.		156.6
1,2,4-Trichlorbenzene	ND	31.3	ND	232.		156.6
1,2,4-Trimethylbenzene	190	31.3	935	154		156.6
1,2-Dibromoethane	ND	31.3	ND	240.		156.6
1,2-Dichlorobenzene	ND	31.3	ND	188.		156.6
1,2-Dichloroethane	ND	31.3	ND	127.		156.6
1,2-Dichloropropane	ND	31.3	ND	145.		156.6
1,3,5-Trimethybenzene	48.0	31.3	236	154		156.6
1,3-Butadiene	ND	31.3	ND	69.2		156.6
1,3-Dichlorobenzene	ND	31.3	ND	188.		156.6
1,4-Dichlorobenzene	ND	31.3	ND	188.		156.6
1,4-Dioxane	ND	31.3	ND	113.		156.6
2,2,4-Trimethylpentane	ND	31.3	ND	146.		156.6
2-Butanone	ND	31.3	ND	92.3		156.6
2-Hexanone	ND	31.3	ND	128.		156.6
3-Chloropropene	ND	31.3	ND	98.0		156.6
4-Ethyltoluene	52.7	31.3	259	154		156.6
Acetone	ND	78.3	ND	186.		156.6
Benzene	224	31.3	714	100		156.6
Benzyl chloride	ND	31.3	ND	162.		156.6
Bromodichloromethane	ND	31.3	ND	210.		156.6

Project Name: SPRAGUE
Project Number: 3429 CK
Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-05
Client ID: VAPOR RECOVERY
Sample Location: N.B./QUINCY
Date Collected: 07/23/08 12:00
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
Bromoform	ND	31.3	ND	323.		156.6
Bromomethane	ND	31.3	ND	122.		156.6
Carbon disulfide	ND	31.3	ND	97.4		156.6
Carbon tetrachloride	ND	31.3	ND	197.		156.6
Chlorobenzene	ND	31.3	ND	144.		156.6
Chloroethane	ND	31.3	ND	82.6		156.6
Chloroform	ND	31.3	ND	153.		156.6
Chloromethane	ND	31.3	ND	64.6		156.6
cis-1,2-Dichloroethene	ND	31.3	ND	124.		156.6
cis-1,3-Dichloropropene	ND	31.3	ND	142.		156.6
Cyclohexane	163	31.3	560	108		156.6
Dibromochloromethane	ND	31.3	ND	266.		156.6
Dichlorodifluoromethane	ND	31.3	ND	155		156.6
Ethanol	881	392	1660	737		156.6
Ethyl Acetate	ND	78.3	ND	282.		156.6
Ethylbenzene	146	31.3	635	136		156.6
Freon-113	132	31.3	1010	240		156.6
Freon-114	ND	31.3	ND	219.		156.6
Hexachlorobutadiene	ND	31.3	ND	334.		156.6
Isopropanol	ND	78.3	ND	192		156.6
Methylene chloride	ND	78.3	ND	272		156.6
4-Methyl-2-pentanone	ND	31.3	ND	128.		156.6
Methyl tert butyl ether	ND	31.3	ND	113		156.6
p/m-Xylene	460	62.6	2000	272		156.6
o-Xylene	167	31.3	726	136		156.6
Heptane	217	31.3	889	128		156.6
n-Hexane	246	31.3	865	110		156.6
Propylene	9930	31.3	17100	53.8		156.6

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

SAMPLE RESULTS

Lab ID: L0812156-05
Client ID: VAPOR RECOVERY
Sample Location: N.B./QUINCY

Date Collected: 07/23/08 12:00
Date Received: 08/15/08
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air						
Styrene	ND	31.3	ND	133.		156.6
Tetrachloroethene	ND	31.3	ND	212.		156.6
Tetrahydrofuran	ND	31.3	ND	92.3		156.6
Toluene	726	31.3	2730	118		156.6
trans-1,2-Dichloroethene	ND	31.3	ND	124.		156.6
trans-1,3-Dichloropropene	ND	31.3	ND	142.		156.6
Trichloroethene	ND	31.3	ND	168.		156.6
Trichlorofluoromethane	48.9	31.3	274	176		156.6
Vinyl acetate	ND	31.3	ND	110.		156.6
Vinyl bromide	ND	31.3	ND	137.		156.6
Vinyl chloride	ND	31.3	ND	80.0		156.6
Naphthalene	188	31.3	987	164		156.6

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 08/22/08 15:28

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air for sample(s): 01,03,05 Batch: WG334048-3						
1,1,1-Trichloroethane	ND	0.200	ND	1.09		1
1,1,2,2-Tetrachloroethane	ND	0.200	ND	1.37		1
1,1,2-Trichloroethane	ND	0.200	ND	1.09		1
1,1-Dichloroethane	ND	0.200	ND	0.809		1
1,1-Dichloroethene	ND	0.200	ND	0.792		1
1,2,4-Trichlorbenzene	ND	0.200	ND	1.48		1
1,2,4-Trimethylbenzene	ND	0.200	ND	0.982		1
1,2-Dibromoethane	ND	0.200	ND	1.54		1
1,2-Dichlorobenzene	ND	0.200	ND	1.20		1
1,2-Dichloroethane	ND	0.200	ND	0.809		1
1,2-Dichloropropane	ND	0.200	ND	0.924		1
1,3,5-Trimethybenzene	ND	0.200	ND	0.982		1
1,3-Butadiene	ND	0.200	ND	0.442		1
1,3-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dichlorobenzene	ND	0.200	ND	1.20		1
1,4-Dioxane	ND	0.200	ND	0.720		1
2,2,4-Trimethylpentane	ND	0.200	ND	0.934		1
2-Butanone	ND	0.200	ND	0.589		1
2-Hexanone	ND	0.200	ND	0.819		1
3-Chloropropene	ND	0.200	ND	0.626		1
4-Ethyltoluene	ND	0.200	ND	0.982		1
Acetone	ND	0.500	ND	1.19		1
Benzene	ND	0.200	ND	0.638		1
Benzyl chloride	ND	0.200	ND	1.03		1
Bromodichloromethane	ND	0.200	ND	1.34		1

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 08/22/08 15:28

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air for sample(s): 01,03,05 Batch: WG334048-3						
Bromoform	ND	0.200	ND	2.06		1
Bromomethane	ND	0.200	ND	0.776		1
Carbon disulfide	ND	0.200	ND	0.622		1
Carbon tetrachloride	ND	0.200	ND	1.26		1
Chlorobenzene	ND	0.200	ND	0.920		1
Chloroethane	ND	0.200	ND	0.527		1
Chloroform	ND	0.200	ND	0.976		1
Chloromethane	ND	0.200	ND	0.413		1
cis-1,2-Dichloroethene	ND	0.200	ND	0.792		1
cis-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Cyclohexane	ND	0.200	ND	0.688		1
Dibromochloromethane	ND	0.200	ND	1.70		1
Dichlorodifluoromethane	ND	0.200	ND	0.988		1
Ethanol	ND	2.50	ND	4.71		1
Ethyl Acetate	ND	0.500	ND	1.80		1
Ethylbenzene	ND	0.200	ND	0.868		1
Freon-113	ND	0.200	ND	1.53		1
Freon-114	ND	0.200	ND	1.40		1
Hexachlorobutadiene	ND	0.200	ND	2.13		1
Isopropanol	ND	0.500	ND	1.23		1
Methylene chloride	ND	0.500	ND	1.74		1
4-Methyl-2-pentanone	ND	0.200	ND	0.819		1
Methyl tert butyl ether	ND	0.200	ND	0.720		1
p/m-Xylene	ND	0.400	ND	1.74		1
o-Xylene	ND	0.200	ND	0.868		1

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 08/22/08 15:28

Parameter	ppbV Results	ppbV RDL	ug/m3 Results	ug/m3 RDL	Qualifier	Dilution Factor
Low Level Volatile Organic Compounds in Air for sample(s): 01,03,05 Batch: WG334048-3						
Heptane	ND	0.200	ND	0.819		1
n-Hexane	ND	0.200	ND	0.704		1
Propylene	ND	0.200	ND	0.344		1
Styrene	ND	0.200	ND	0.851		1
Tetrachloroethene	ND	0.200	ND	1.36		1
Tetrahydrofuran	ND	0.200	ND	0.589		1
Toluene	ND	0.200	ND	0.753		1
trans-1,2-Dichloroethene	ND	0.200	ND	0.792		1
trans-1,3-Dichloropropene	ND	0.200	ND	0.907		1
Trichloroethene	ND	0.200	ND	1.07		1
Trichlorofluoromethane	ND	0.200	ND	1.12		1
Vinyl acetate	ND	0.200	ND	0.704		1
Vinyl bromide	ND	0.200	ND	0.874		1
Vinyl chloride	ND	0.200	ND	0.511		1
Naphthalene	ND	0.200	ND	1.05		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 Batch: WG334048-2					
1,1,1-Trichloroethane	108	-	70-130	-	
1,1,2,2-Tetrachloroethane	114	-	70-130	-	
1,1,2-Trichloroethane	98	-	70-130	-	
1,1-Dichloroethane	113	-	70-130	-	
1,1-Dichloroethene	109	-	70-130	-	
1,2,4-Trichlorobenzene	157	-	70-130	-	
1,2,4-Trimethylbenzene	111	-	70-130	-	
1,2-Dibromoethane	100	-	70-130	-	
1,2-Dichlorobenzene	108	-	70-130	-	
1,2-Dichloroethane	117	-	70-130	-	
1,2-Dichloropropane	97	-	70-130	-	
1,3,5-Trimethylbenzene	108	-	70-130	-	
1,3-Butadiene	104	-	70-130	-	
1,3-Dichlorobenzene	107	-	70-130	-	
1,4-Dichlorobenzene	108	-	70-130	-	
1,4-Dioxane	112	-	70-130	-	
2,2,4-Trimethylpentane	102	-	70-130	-	
2-Butanone	99	-	70-130	-	
2-Hexanone	111	-	70-130	-	
3-Chloropropene	101	-	70-130	-	
4-Ethyltoluene	108	-	70-130	-	

Lab Control Sample Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 Batch: WG334048-2					
Acetone	109	-	70-130	-	
Benzene	99	-	70-130	-	
Benzyl chloride	114	-	70-130	-	
Bromodichloromethane	99	-	70-130	-	
Bromoform	107	-	70-130	-	
Bromomethane	102	-	70-130	-	
Carbon disulfide	109	-	70-130	-	
Carbon tetrachloride	102	-	70-130	-	
Chlorobenzene	106	-	70-130	-	
Chloroethane	113	-	70-130	-	
Chloroform	116	-	70-130	-	
Chloromethane	104	-	70-130	-	
cis-1,2-Dichloroethene	113	-	70-130	-	
cis-1,3-Dichloropropene	89	-	70-130	-	
Cyclohexane	93	-	70-130	-	
Dibromochloromethane	110	-	70-130	-	
Dichlorodifluoromethane	112	-	70-130	-	
Ethyl Alcohol	107	-	70-130	-	
Ethyl Acetate	105	-	70-130	-	
Ethylbenzene	105	-	70-130	-	
1,1,2-Trichloro-1,2,2-Trifluoroethane	118	-	70-130	-	

Lab Control Sample Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 Batch: WG334048-2					
1,2-Dichloro-1,1,2,2-tetrafluoroethane	114	-	70-130	-	
Hexachlorobutadiene	134	-	70-130	-	
iso-Propyl Alcohol	110	-	70-130	-	
Methylene chloride	100	-	70-130	-	
4-Methyl-2-pentanone	100	-	70-130	-	
Methyl tert butyl ether	115	-	70-130	-	
p/m-Xylene	106	-	70-130	-	
o-Xylene	109	-	70-130	-	
Heptane	91	-	70-130	-	
n-Hexane	90	-	70-130	-	
Propylene	99	-	70-130	-	
Styrene	102	-	70-130	-	
Tetrachloroethene	116	-	70-130	-	
Tetrahydrofuran	89	-	70-130	-	
Toluene	108	-	70-130	-	
trans-1,2-Dichloroethene	112	-	70-130	-	
trans-1,3-Dichloropropene	79	-	70-130	-	
Trichloroethene	104	-	70-130	-	
Trichlorofluoromethane	116	-	70-130	-	
Vinyl acetate	108	-	70-130	-	
Vinyl bromide	116	-	70-130	-	

Lab Control Sample Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 Batch: WG334048-2					
Vinyl chloride	108	-	70-130	-	
Naphthalene	138	-	70-130	-	

Lab Duplicate Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 QC Batch ID: WG334048-4 QC Sample: L0812156-01 Client ID: QUINCY #1					
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethane	ND	ND	ppbV	NC	25
1,1-Dichloroethene	ND	ND	ppbV	NC	25
1,2,4-Trichlorbenzene	ND	ND	ppbV	NC	25
1,2,4-Trimethylbenzene	8670	10300	ppbV	17	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
1,3,5-Trimethybenzene	2520	2960	ppbV	16	25
1,3-Butadiene	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25
2-Butanone	ND	ND	ppbV	NC	25
2-Hexanone	ND	ND	ppbV	NC	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 QC Batch ID: WG334048-4 QC Sample: L0812156-01 Client ID: QUINCY #1					
3-Chloropropene	ND	ND	ppbV	NC	25
4-Ethyltoluene	1940	2310	ppbV	17	25
Acetone	ND	ND	ppbV	NC	25
Benzene	5920	7640	ppbV	25	25
Benzyl chloride	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Bromomethane	ND	ND	ppbV	NC	25
Carbon disulfide	ND	ND	ppbV	NC	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Chloroethane	ND	ND	ppbV	NC	25
Chloroform	ND	ND	ppbV	NC	25
Chloromethane	ND	ND	ppbV	NC	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Cyclohexane	5140	5620	ppbV	9	25
Dibromochloromethane	ND	ND	ppbV	NC	25
Dichlorodifluoromethane	ND	ND	ppbV	NC	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 QC Batch ID: WG334048-4 QC Sample: L0812156-01 Client ID: QUINCY #1					
Ethanol	2750	3280	ppbV	18	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Ethylbenzene	4860	6000	ppbV	21	25
Freon-113	ND	ND	ppbV	NC	25
Freon-114	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25
Isopropanol	989	1120	ppbV	12	25
Methylene chloride	ND	ND	ppbV	NC	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
p/m-Xylene	19600	24000	ppbV	20	25
o-Xylene	7480	8940	ppbV	18	25
Heptane	10100	9950	ppbV	1	25
n-Hexane	18800	20700	ppbV	10	25
Propylene	45800	47100	ppbV	3	25
Styrene	ND	ND	ppbV	NC	25
Tetrachloroethene	ND	ND	ppbV	NC	25
Tetrahydrofuran	ND	ND	ppbV	NC	25
Toluene	23000	28600	ppbV	22	25

Lab Duplicate Analysis
Batch Quality Control

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Low Level Volatile Organic Compounds in Air Associated sample(s): 01,03,05 QC Batch ID: WG334048-4 QC Sample: L0812156-01 Client ID: QUINCY #1					
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
Trichloroethene	ND	ND	ppbV	NC	25
Trichlorofluoromethane	ND	ND	ppbV	NC	25
Vinyl acetate	ND	ND	ppbV	NC	25
Vinyl bromide	ND	ND	ppbV	NC	25
Vinyl chloride	ND	ND	ppbV	NC	25
Naphthalene	3020	3270	ppbV	8	25

Project Name: SPRAGUE

Project Number: 3429 CK

Lab Number: L0812156

Report Date: 08/29/08

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L0812156-01	QUINCY #1	238	2.7L Can	I0809690	-29.5	-2.3	-	-	-
L0812156-02	QUINCY #2	533	2.7L Can	I0809690	-29.5	-3.2	-	-	-
L0812156-03	NEW BED #1	380	2.7L Can	I0809690	-29.5	-5.5	-	-	-
L0812156-04	NEW BED #2	387	2.7L Can	I0809690	-29.5	-1.5	-	-	-
L0812156-05	VAPOR RECOVERY	477	2.7L Can	I0809690	-29.5	-2.7	-	-	-

Project Name: SPRAGUE
Project Number: 3429 CK

Lab Number: L0812156
Report Date: 08/29/08

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0812156-01A	Canister - 2.7 Liter	NA	NA		NA	Absent	TO15-LL(30)
L0812156-02A	Canister - 2.7 Liter	NA	NA		NA	Absent	CLEAN-FEE()
L0812156-03A	Canister - 2.7 Liter	NA	NA		NA	Absent	TO15-LL(30)
L0812156-04A	Canister - 2.7 Liter	NA	NA		NA	Absent	CLEAN-FEE()
L0812156-05A	Canister - 2.7 Liter	NA	NA		NA	Absent	TO15-LL(30)
L0812156-06A	Canister - 2.7 Liter	NA	NA		NA	Absent	CLEAN-FEE()

*Hold days indicated by values in parentheses

Project Name: SPRAGUE **Lab Number:** L0812156
Project Number: 3429 CK **Report Date:** 08/29/08

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.
LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD - Laboratory Control Sample Duplicate: Refer to LCS.
MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD - Matrix Spike Sample Duplicate: Refer to MS.
NA - Not Applicable.
NI - Not Ignitable.
NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
ND - Not detected at the reported detection limit for the sample.
RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Not Specified

Project Name: SPRAGUE
Project Number: 3429 CK
Lab Number: L0812156
Report Date: 08/29/08

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Woods Hole Labs.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

AIR ANALYSIS

PAGE 1 OF 1

ALPHA ANALYTICAL — **CHAIN OF CUSTODY**

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L0812156

Client Information

Client: M. CAHILL
Address: CK ENVIRONMENTAL
1020 TURNPIKE ST.
CANTON, MA
Phone: 7818285200
Fax: 5380
Email: MCAHILL@CKENVIRONMENTAL.COM

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SPRAGUE
Project Location: N.B./QUINCY
Project #: 3429
Project Manager: MP CAHILL
ALPHA Quote #: VERBAL ANDY R.

Turn-Around Time

☑ Standard (10 DAYS) ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☐ Same as Client info | PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

Other Project Specific Requirements/Comments:
EMAIL ONLY RESULTS, NO FAX, NO US MAIL

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-13A	TO-4 / TO-10	Sample Comments (i.e. PID)
12156-01	QUINCY #1**	7/23	11:15 ~~10:30~~	11:16 ~~10:31~~	30	4	*	MPC	2l	238			✓						Please see
-02	QUINCY #2	7/23	11:32 ~~10:30~~	11:33 ~~10:31~~	31	3	↓			533									attached list
-03	NEW BED #1**	7/22	11:30	11:31	31	3				380			✓						of compounds
-04	NEW BED #2	7/22	11:32 ~~11:00~~	11:33 ~~11:44~~	30	2				387									to be req'd
-05	VAPOR RECOVERY	7/23	≈ 12:00							477			✓						in results

** Analyze samples NUMBER 1 FIRST, IF PROBLEM W/SAMPLE PROCEED TO ANALYZE SAMPLE #2 (BACK-UP)
* VAPOR FROM HEADSPACE IN RESID OIL TANK

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
R. Cahill / Robert Ciriello	8/15/08 745	Robert Ciriello	8/15/08 1440

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 (rev.1-Feb-08)

Appendix B
Analytical Results for Sulfur Bearing Compound (ASTM 5504)

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: M. CABLL
Collected by: (Print and Sign) M. CABLL
Company: CK ENVIRONMENTAL Email: [illegible]
Address: 1020 TURNPIKE St. City: CANTON State: MA Zip: 02021
Phone: 781 828 5200 Fax:

Project Info:
P.O. #: VERBAL CABLL
CKI Project #: 3429
Project Name: SPRAGUE

Turn Around Time:
☒ Normal *
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SPRAGUE QUINCY #1		7/23/08	11:30	ASTM 5504 (Sulfur compounds)				
02A **	SPRAGUE QUINCY #2			11:31					
03A	SPRAGUE N.B. #1			11:25					
04A *	SPRAGUE N.B. #2			11:26					
	analysis to include								

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
[signature]	7/23/08 16:17	Monica Gregson AIL	7/24/08 910
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes: * ~~[illegible]~~ isn't normal TAT for ASTM 5504 one day?
** #2 samples are back-up, analyze only if #1 samples are NG.

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		NA	Good	Yes No (None)	0807428

Extra note - samples are from head space of distillate oil tanks. Email only results.

Form 1293 rev.11

Air Toxics LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0807428

Work Order Summary

CLIENT:	Mr. Michael Cahill CK Environmental 1020 Turnpike Street Suite 8 Canton, MA 02021	**BILL TO:**	Accounts Payable CK Environmental 1020 Turnpike Street Suite 8 Canton, MA 02021
PHONE:	781-828-5200	**P.O. #**	VERBAL CAHILL
FAX:	781-828-5380	**PROJECT #**	3429 Sprague
DATE RECEIVED:	07/24/2008	**CONTACT:**	Bryanna Langley
DATE COMPLETED:	07/28/2008		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SPRAGUE QUINCY #1	ASTM D-5504	Tedlar Bag	Tedlar Bag
01AA	SPRAGUE QUINCY #1 Lab Duplicate	ASTM D-5504	Tedlar Bag	Tedlar Bag
02A(on hold)	SPRAGUE QUINCY #2	ASTM D-5504	Tedlar Bag	Tedlar Bag
03A	Sprague N.B. #1	ASTM D-5504	Tedlar Bag	Tedlar Bag
04A(on hold)	Sprague N.B. #2	ASTM D-5504	Tedlar Bag	Tedlar Bag
05A	Lab Blank	ASTM D-5504	NA	NA
06A	LCS	ASTM D-5504	NA	NA

CERTIFIED BY: Linda J. Freeman DATE: 07/28/08

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
ASTM D-5504
CK Environmental
Workorder# 0807428

Three 1 Liter Tedlar Bag and one 3 Liter Tedlar Bag samples were received on July 24, 2008. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 1.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

Samples SPRAGUE QUINCY #2 and Sprague N.B. #2 were placed on hold per the client's request.

Samples were received past the recommended hold time of 24 hours. Analysis proceeded.

Analytical Notes

Ethyl Methyl Sulfide and n-Butyl Mercaptan coelute with 3-Methyl Thiophene.

The Reporting Limit of 3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide was raised to 270 ppbv.

The Reporting Limit was raised to 90 ppbv for all other compounds.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: SPRAGUE QUINCY #1

Lab ID#: 0807428-01A

No Detections Were Found.

Client Sample ID: SPRAGUE QUINCY #1 Lab Duplicate

Lab ID#: 0807428-01AA

No Detections Were Found.

Client Sample ID: Sprague N.B. #1

Lab ID#: 0807428-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Thiophene	90	140
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	270	330

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Client Sample ID: SPRAGUE QUINCY #1

Lab ID#: 0807428-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b072415**	**Date of Collection:**	**7/23/08**
Dil. Factor:	**2.00**	**Date of Analysis:**	**7/24/08 03:36 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	180	Not Detected
Carbonyl Sulfide	180	Not Detected
Methyl Mercaptan	180	Not Detected
Ethyl Mercaptan	180	Not Detected
Dimethyl Sulfide	180	Not Detected
Carbon Disulfide	180	Not Detected
Isopropyl Mercaptan	180	Not Detected
tert-Butyl Mercaptan	180	Not Detected
n-Propyl Mercaptan	180	Not Detected
Thiophene	180	Not Detected
Isobutyl Mercaptan	180	Not Detected
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	540	Not Detected
Diethyl Sulfide	180	Not Detected
Dimethyl Disulfide	180	Not Detected
Tetrahydrothiophene	180	Not Detected
2-Ethylthiophene	180	Not Detected
2,5-Dimethylthiophene	180	Not Detected
Diethyl Disulfide	180	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: SPRAGUE QUINCY #1 Lab Duplicate

Lab ID#: 0807428-01AA

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b072416**	**Date of Collection:**	**7/23/08**
Dil. Factor:	**1.00**	**Date of Analysis:**	**7/24/08 04:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	90	Not Detected
Carbonyl Sulfide	90	Not Detected
Methyl Mercaptan	90	Not Detected
Ethyl Mercaptan	90	Not Detected
Dimethyl Sulfide	90	Not Detected
Carbon Disulfide	90	Not Detected
Isopropyl Mercaptan	90	Not Detected
tert-Butyl Mercaptan	90	Not Detected
n-Propyl Mercaptan	90	Not Detected
Thiophene	90	Not Detected
Isobutyl Mercaptan	90	Not Detected
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	270	Not Detected
Diethyl Sulfide	90	Not Detected
Dimethyl Disulfide	90	Not Detected
Tetrahydrothiophene	90	Not Detected
2-Ethylthiophene	90	Not Detected
2,5-Dimethylthiophene	90	Not Detected
Diethyl Disulfide	90	Not Detected

Container Type: 1 Liter Tedlar Bag

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Sprague N.B. #1

Lab ID#: 0807428-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	b072417	Date of Collection:	7/23/08
Dil. Factor:	1.00	Date of Analysis:	7/24/08 04:37 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	90	Not Detected
Carbonyl Sulfide	90	Not Detected
Methyl Mercaptan	90	Not Detected
Ethyl Mercaptan	90	Not Detected
Dimethyl Sulfide	90	Not Detected
Carbon Disulfide	90	Not Detected
Isopropyl Mercaptan	90	Not Detected
tert-Butyl Mercaptan	90	Not Detected
n-Propyl Mercaptan	90	Not Detected
Thiophene	90	140
Isobutyl Mercaptan	90	Not Detected
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	270	330
Diethyl Sulfide	90	Not Detected
Dimethyl Disulfide	90	Not Detected
Tetrahydrothiophene	90	Not Detected
2-Ethylthiophene	90	Not Detected
2,5-Dimethylthiophene	90	Not Detected
Diethyl Disulfide	90	Not Detected

Container Type: 1 Liter Tedlar Bag

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0807428-05A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b072411**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/24/08 02:03 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	90	Not Detected
Carbonyl Sulfide	90	Not Detected
Methyl Mercaptan	90	Not Detected
Ethyl Mercaptan	90	Not Detected
Dimethyl Sulfide	90	Not Detected
Carbon Disulfide	90	Not Detected
Isopropyl Mercaptan	90	Not Detected
tert-Butyl Mercaptan	90	Not Detected
n-Propyl Mercaptan	90	Not Detected
Thiophene	90	Not Detected
Isobutyl Mercaptan	90	Not Detected
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	270	Not Detected
Diethyl Sulfide	90	Not Detected
Dimethyl Disulfide	90	Not Detected
Tetrahydrothiophene	90	Not Detected
2-Ethylthiophene	90	Not Detected
2,5-Dimethylthiophene	90	Not Detected
Diethyl Disulfide	90	Not Detected

Container Type: NA - Not Applicable

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0807428-06A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	b072410	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 7/24/08 01:39 PM	

Compound	%Recovery
Hydrogen Sulfide	120
Carbonyl Sulfide	107
Methyl Mercaptan	110
Ethyl Mercaptan	103
Dimethyl Sulfide	107
Carbon Disulfide	116
Isopropyl Mercaptan	113
tert-Butyl Mercaptan	100
n-Propyl Mercaptan	106
Thiophene	108
Isobutyl Mercaptan	99
3-Methyl Thiophene/n-Butyl Mercaptan/Ethyl Methyl Sulfide	104
Diethyl Sulfide	112
Dimethyl Disulfide	108
Tetrahydrothiophene	114
2-Ethylthiophene	101
2,5-Dimethylthiophene	101
Diethyl Disulfide	101

Container Type: NA - Not Applicable

Appendix C
Field Data Sheets

CK ENVIRONMENTAL, INC.
1020 Turnpike St., Suite 8
CANTON, MASSACHUSETTS 02021
(781) 828-5200
Fax (781) 828-5380
E-Mail info@ckenvironmental.com

JOB Sprague Energy
SHEET NO. 1 OF 1
CALCULATED BY M. CAHILL DATE 22 JULY 08
CHECKED BY _____ DATE _____
SITE ~~SCALE~~ NEW BEDFORD, MA (FIELD)

SCREENING DATA

Cal gas ne

NMOC cals on TECO 55 C

GAS	C* (ppm) RESPONSE	TIME
600 CH_4	611	9:04
ZERO C_3H_8	0.4	9:04
448 C_3H_8 } in AIR	452	9:07
ZERO CH_4 } in AIR	0.05	9:07
849 C_3H_8 } in AIR	863	9:17
301 C_3H_8		

* CONCENTRATION in ppm

Mid BAG @ 10:00
1960 NMHC } as C_3H_8
610 CH_4

CH_4 post test cal @ ≈ 12:15 LOST analyzer because of power outage, cal OK though.

LOW BAG @ 10:24
1790 NMHC
571 CH_4

HIGH BAG @ 10:43
1803 NMHC
571.5 CH_4

T = 85°F @ ≈ 11:30 VIA Hg in glass thermometer @ test point #2 (mid)

TANK ROOF

TEST POINTS
7.5'
22.5'
37.5'

BOTTOM

post cals on MONARCH

cal gas certs for JOE

CK ENVIRONMENTAL, INC.
1020 Turnpike St., Suite 8
CANTON, MASSACHUSETTS 02021
(781) 828-5200
Fax (781) 828-5380
E-Mail info@ckenvironmental.com

JOB: SPRAGUE - QUINCY
SHEET NO. 1 OF 1
CALCULATED BY: MPC DATE: 7/23/08
CHECKED BY: DATE:
SITE SCALE: QUINCY, MA (FIELD)

SCREENING DATA

RESPONSE → C (PPM)

BOTTOM 623 CH_4
1994 NMOC
-596

TOP 812 CH_4
1995 NMOC

checked cal again @ 11:37 on 549 C_3H_8

Using 1506 C_3H_8 in Air $\bar{C} \equiv 1560$

73% of 45' = 12' from roof

ESTIMATED TEST POINTS @ 3' + 9'

STAND-BY TIME
99 - 0.25 on-site @ meeting RE: carbon bed, BOB travel, shop prep, 0.5 HR XTRA on-site.

Appendix D
VRU Volumetric Flow Rate Field & Calculation Sheet (Quincy)

CK ENVIRONMENTAL, INC.
1020 Turnpike St., Suite 8
CANTON, MASSACHUSETTS 02021
(781) 828-5200
Fax (781) 828-5380
E-Mail info@ckenvironmental.com

JOB: Sprague Energy
SHEET NO. 1 OF 1
CALCULATED BY: MPC DATE: 7/23/2008
CHECKED BY: N/A DATE:
SCALE: N/A

observations + calculation from VRU testing

T = 75°F Δp = 0.05, 0.04*, 0.03, 0.04 (inches WC)

= 535°R

ID = 4" T_{STD} = 528°R where air

$\sqrt{\Delta p}$ = 0.20 P_{STD} = 29.92 29.0 g/g-mole

P_2 = 29.9

Δ_s = 0.09 ft² C_p = 0.99 (STD pitot tube)

$$* V_s = 85.49 \times 0.99 \times 0.20 \times \sqrt{\left(\frac{535}{29.9 \times 29.0}\right)}$$

= 13.3 ft/sec

$$Q_{STD} = 60 \times V_s \times \Delta_s \times (1 - B_{ws}) \times 1^{**} \times 0.98$$

$$= 60 \times 13.2 \times 0.09 \times 0.98$$

assume 2% moisture

Q_{STD} = 70.4 ft³/min → volumetric flow rate

$$* V_{STACK} = 85.49 \times C_p \times \sqrt{\Delta p} \times \sqrt{\frac{T_s}{P_s \times MW}}$$

conversion constant pitot coefficient

** assume no temp correction or pressure correction

PRODUCT 204-1 (Single Sheets) 205-1 (Padded)

Appendix E
Calibration Gas Certificates and NMOC Instrumentation Data

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: CK Environmental
SGI ORDER # : 0112164
ITEM# : 1
P.O.# : VERBAL-KEVIN

CYLINDER # : CC-20164
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 7/11/2007
EXPIRATION DATE: 7/11/2010

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Methane	7/11/2007	600 ppm	600 ppm	+/- 1%

BALANCE Air
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Methane	GMIS-1	CC-55777	993 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Methane	Horiba VIA-510	57141706	NDIR	7/11/2007

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl L Patino
CHERYL PATINO

DATE: 7/11/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: CK Environmental
SGI ORDER # : 105315
ITEM# : 7
P.O.# : 3512MU

CYLINDER # : CC-17952
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 2/27/2007
EXPIRATION DATE: 2/27/2010

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Propane	2/27/2007	301 ppm	301 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Propane	GMIS-1	CC-20010	1013 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Propane	H. Packard 6890	US00001434	GC - FID	2/27/2007

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

Cheryl L Patino

ANALYST: _____ **DATE:** 2/27/2007

CHERYL PATINO

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RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET,TROY,MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY,MI 48083

P.O. No.: 4859
05-36083-004

Customer

ENVIRONMENTAL SCIENCE SER

401 WAMPANOAG TRAIL
SUITE 400
RIVERSIDE RI 02915

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September; 1997.

Cylinder Number: AAL11216 **Certification Date:** 24Oct2005 **Exp. Date:** 23Oct2008
Cylinder Pressure*:** 1900 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
PROPANE	448.3	PPM	+/- 1%	Direct NIST and NMi
AIR		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1200	01Feb2006	K019476	1186. PPM	PROPANE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3600/0455	14Oct2005	FLAME IONIZATION

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis

PROPANE

Date: 24Oct2005	Response Unit:AREA	
Z1 = 0.00000	R1 = 128619.0	T1 = 48396.00
R2 = 128716.0	Z2 = 0.00000	T2 = 48161.00
Z3 = 0.00000	T3 = 48279.00	R3 = 128822.0
Avg. Concentration:	448.3	PPM

Second Triad Analysis

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4	
r = 0.999981	
Constants:	A = 4.293506
B = 0.009163	C = 0
D = 0	E = 0

APPROVED BY: _____
HILARY THATCHER

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: CK Environmental
SGI ORDER # : 105315
ITEM# : 8
P.O.# : 3512MU

CYLINDER # : CC-84899
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 2/27/2007
EXPIRATION DATE: 2/27/2010

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Propane	2/27/2007	849 ppm	849 ppm	+/- 1%

BALANCE Air
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Propane	GMIS-1	CC-20010	1013 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Propane	H. Packard 6890	US00001434	GC - FID	2/27/2007

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl L Patino
CHERYL PATINO

DATE: 2/27/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 55804-71-65000
Project No.: 05-55770-006

Customer

CLEAN AIR ENGINEERING
DON ALLEN
500 W. WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM006553 **Certification Date:** 26Jun2007 **Exp. Date:** 25Jun2010
Cylinder Pressure*:** 1900 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
PROPANE	1,506	PPM	+/- 1%	Direct NIST and NMI
AIR		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2647	01May2011	ALM036405	2499. PPM	PROPANE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3600/0455	25Jun2007	FLAME IONIZATION

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis

PROPANE

Date: 27Jun2006 Response Unit:AREA

Z1=0.00000	R1=188618.0	T1=113759.0
R2=188449.0	Z2=0.00000	T2=113544.0
Z3=0.00000	T3=113467.0	R3=188446.0

Avg. Concentration: 1505. PPM

Second Triad Analysis

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999997

Constants:	A=0.574068
B=0.013231	C=0
D=0	E=0

APPROVED BY: _____

NMOC Instrumentation Calibrations and Field data; Sprague Energy - New Bedford, MA

12 hour time	THC OUT	(P NMOC (PPM)	
7/22/08 10:01	613.0	1961.8	AM cals not charted, shown on sheet titled:
7/22/08 10:01	613.0	1961.7	"site - New Bedford, MA (Field)"
7/22/08 10:01	611.1	1961.8	Mid test point sample bag
7/22/08 10:02	610.9	1961.7	
7/22/08 10:02	611.0	1961.7	
7/22/08 10:02	611.0	1954.6	
7/22/08 10:02	611.0	1953.7	
7/22/08 10:03	619.2	1953.7	
7/22/08 10:03	621.1	1953.6	
7/22/08 10:03	621.1	1953.6	
7/22/08 10:03	621.1	1990.0	
7/22/08 10:04	621.0	2000.0	
7/22/08 10:04	621.1	2000.0	
7/22/08 10:04	621.1	2000.0	
7/22/08 10:04	621.1	2000.0	
7/22/08 10:05	621.1	2000.0	
7/22/08 10:05	621.1	2000.0	
7/22/08 10:05	243.4	2000.0	
7/22/08 10:05	0.0	2000.0	
7/22/08 10:06	0.0	2000.0	
7/22/08 10:06	0.0	901.5	
7/22/08 10:06	0.0	116.8	
7/22/08 10:06	0.0	116.8	
7/22/08 10:07	0.0	116.8	
7/22/08 10:07	0.0	116.8	
7/22/08 10:07	0.0	87.3	
7/22/08 10:07	0.0	54.8	
7/22/08 10:08	0.0	54.8	
7/22/08 10:08	0.0	54.8	
7/22/08 10:08	0.0	54.8	
7/22/08 10:08	0.0	48.8	
7/22/08 10:09	0.0	38.8	
7/22/08 10:09	0.0	38.9	
7/22/08 10:09	0.0	38.9	
7/22/08 10:09	0.0	38.8	
7/22/08 10:10	0.0	36.7	
7/22/08 10:10	0.0	30.9	
7/22/08 10:10	0.0	30.9	
7/22/08 10:10	0.0	30.8	
7/22/08 10:11	0.0	30.8	
7/22/08 10:11	0.0	29.8	
7/22/08 10:11	0.0	24.8	
7/22/08 10:11	0.0	24.8	
7/22/08 10:12	0.0	24.8	
7/22/08 10:12	0.0	24.8	
7/22/08 10:12	0.0	24.6	
7/22/08 10:12	0.0	20.8	
7/22/08 10:13	0.0	20.8	
7/22/08 10:13	0.0	20.8	

7/22/08 10:13	0.0	20.8	
7/22/08 10:13	0.0	20.8	
7/22/08 10:14	0.0	18.9	
7/22/08 10:14	0.0	18.7	
7/22/08 10:14	0.0	18.5	
7/22/08 10:14	0.0	18.6	
7/22/08 10:15	0.0	18.5	
7/22/08 10:15	0.0	16.9	
7/22/08 10:15	0.0	16.5	
7/22/08 10:15	0.0	16.5	
7/22/08 10:16	0.0	16.5	
7/22/08 10:16	0.0	16.5	
7/22/08 10:16	0.0	15.0	
7/22/08 10:16	0.0	14.6	
7/22/08 10:17	0.0	14.5	
7/22/08 10:17	0.0	14.5	
7/22/08 10:17	0.0	14.5	
7/22/08 10:17	0.0	13.2	
7/22/08 10:18	0.0	12.5	
7/22/08 10:18	0.0	12.5	
7/22/08 10:18	0.0	12.5	
7/22/08 10:18	0.0	12.5	
7/22/08 10:19	0.0	12.5	
7/22/08 10:19	0.0	12.6	
7/22/08 10:19	0.0	12.5	
7/22/08 10:37	570.9	1701.9	
7/22/08 10:37	570.9	1743.7	Low test point sample bag
7/22/08 10:38	571.0	1790.0	
7/22/08 10:38	574.4	1790.0	
7/22/08 10:38	579.1	1790.0	
7/22/08 10:38	579.1	1790.0	
7/22/08 10:39	579.2	1812.5	
7/22/08 10:39	579.3	1850.1	
7/22/08 10:39	579.9	1850.1	
7/22/08 10:39	581.3	1850.1	
7/22/08 10:40	581.3	1850.1	
7/22/08 10:40	581.3	1844.2	
7/22/08 10:40	581.3	1828.0	
7/22/08 10:40	579.7	1828.1	
7/22/08 10:41	573.2	1828.1	
7/22/08 10:41	573.2	1828.1	
7/22/08 10:41	573.2	1823.7	
7/22/08 10:41	573.1	1802.1	
7/22/08 10:42	572.9	1802.0	
7/22/08 10:42	571.1	1802.0	
7/22/08 10:42	571.1	1802.0	
7/22/08 10:42	571.1	1802.1	
7/22/08 10:43	571.1	1804.0	High test point sample bag
7/22/08 10:43	571.2	1804.0	
7/22/08 10:43	573.0	1804.1	
7/22/08 10:43	573.0	1804.1	

7/22/08 10:44	573.1	1804.1	
7/22/08 10:44	573.1	1815.6	
7/22/08 10:44	573.1	1816.1	
7/22/08 10:44	569.5	1816.1	data from 10:45 - 11:57 truncated, no activity on instrument,
7/22/08 10:45	569.0	1816.2	grabbing TO-15 and ASTM 5504 samples
7/22/08 11:57	0.0	1.1	
7/22/08 11:57	0.0	1.1	
7/22/08 11:57	0.0	1.1	
7/22/08 11:57	0.0	1.2	
7/22/08 11:58	0.0	1.2	
7/22/08 11:58	0.0	626.9	
7/22/08 11:58	0.0	671.6	
7/22/08 11:58	0.0	671.6	
7/22/08 11:59	0.0	671.6	
7/22/08 11:59	0.0	671.6	
7/22/08 11:59	0.0	574.3	
7/22/08 11:59	0.0	553.6	
7/22/08 12:00	0.0	553.5	
7/22/08 12:00	0.0	553.5	
7/22/08 12:00	0.0	553.5	
7/22/08 12:00	0.0	630.4	
7/22/08 12:01	0.0	659.6	
7/22/08 12:01	0.0	659.5	
7/22/08 12:01	0.0	659.5	
7/22/08 12:01	0.0	659.5	
7/22/08 12:02	0.0	594.2	
7/22/08 12:02	0.0	553.5	
7/22/08 12:02	0.0	553.5	
7/22/08 12:02	0.0	553.6	
7/22/08 12:03	0.0	553.5	
7/22/08 12:03	0.0	541.6	
7/22/08 12:03	0.0	529.5	Calibration check with 448 ppm C3H8
7/22/08 12:03	0.0	529.4	
7/22/08 12:04	0.0	529.3	Post-test calibration check with 660 ppm CH4
7/22/08 12:04	0.0	529.3	
7/22/08 12:04	0.0	580.5	
7/22/08 12:04	0.0	657.2	
7/22/08 12:05	0.0	657.1	
7/22/08 12:05	0.0	657.0	
7/22/08 12:05	0.0	656.8	
7/22/08 12:05	0.0	461.0	
7/22/08 12:06	0.0	4.5	
7/22/08 12:06	0.0	4.4	
7/22/08 12:06	0.0	4.4	
7/22/08 12:06	0.0	4.4	
7/22/08 12:07	0.0	110.0	
7/22/08 12:07	0.0	580.6	
7/22/08 12:07	0.0	580.7	
7/22/08 12:07	0.0	580.6	
7/22/08 12:08	0.0	580.6	
7/22/08 12:08	0.0	581.8	

7/22/08 12:08	0.0	594.6
7/22/08 12:08	0.0	594.6
7/22/08 12:09	0.0	594.6
7/22/08 12:09	0.0	594.7
7/22/08 12:09	0.0	594.7
7/22/08 12:09	0.0	23.2
7/22/08 12:10	0.0	8.6
7/22/08 12:10	365.0	8.2
7/22/08 12:10	405.6	8.2
7/22/08 12:10	405.6	8.2
7/22/08 12:11	405.5	1.1
7/22/08 12:11	405.5	0.1
7/22/08 12:11	466.6	0.0
7/22/08 12:11	481.8	0.0
7/22/08 12:12	481.9	0.0
7/22/08 12:12	482.0	0.1
7/22/08 12:12	481.9	0.0
7/22/08 12:12	407.5	0.1
7/22/08 12:13	375.6	0.1
7/22/08 12:13	375.7	0.2
7/22/08 12:13	375.6	0.3
7/22/08 12:13	375.6	0.3
7/22/08 12:14	409.7	0.3
7/22/08 12:14	431.8	0.3
7/22/08 12:14	61.8	0.0
7/22/08 12:14	0.0	0.0
7/22/08 12:15	0.0	0.0
7/22/08 12:20	0.0	0.3
7/22/08 12:21	0.0	0.3
7/22/08 12:21	0.0	0.3
7/22/08 12:21	0.0	0.3
7/22/08 12:21	0.0	0.1
7/22/08 12:22	0.0	0.0
7/22/08 12:22	0.0	0.0
7/22/08 12:22	0.0	0.0
7/22/08 12:22	0.0	0.0
7/22/08 12:23	0.0	2.3
7/22/08 12:23	0.0	3.1
7/22/08 12:23	0.0	3.1
7/22/08 12:23	0.0	3.1
7/22/08 12:24	0.0	3.1
7/22/08 12:24	0.0	60.9
7/22/08 12:24	0.0	93.1
7/22/08 12:24	0.0	93.1
7/22/08 12:25	0.0	93.2
7/22/08 12:25	0.0	93.1
7/22/08 12:25	0.0	93.1
7/22/08 12:25	0.0	93.1
7/22/08 12:26	0.0	93.1
7/22/08 12:26	0.0	93.2
7/22/08 12:26	3.5	93.2

7/22/08 12:26	6.6	93.2
7/22/08 12:27	6.6	93.2
7/22/08 12:27	6.6	44.3
7/22/08 12:27	6.7	0.0
7/22/08 12:27	269.2	0.0
7/22/08 12:28	601.2	0.0
7/22/08 12:28	601.0	0.0
7/22/08 12:28	601.0	0.0
7/22/08 12:28	601.2	0.0
7/22/08 12:29	401.1	0.0
7/22/08 12:29	0.8	0.0
7/22/08 12:29	0.9	0.0
7/22/08 12:29	0.8	0.0
7/22/08 12:30	0.7	0.0
7/22/08 12:30	0.6	0.0
7/22/08 12:30	0.0	0.0
7/22/08 12:30	0.0	0.0
7/22/08 12:31	0.0	177.9
7/22/08 12:31	0.0	853.8
7/22/08 12:31	0.0	853.8
7/22/08 12:31	0.0	853.8

NMOC Instrumentation Calibrations and Field data; Sprague Energy - Quincy, MA

12 hour time	CH4 (ppm)	NMOC (ppm)	
7/23/08 10:17	595.3	0.0	
7/23/08 10:18	595.3	0.0	
7/23/08 10:18	595.3	0.0	
7/23/08 10:18	595.3	0.0	
7/23/08 10:18	595.3	0.0	
7/23/08 10:19	595.3	0.0	
7/23/08 10:19	607.4	0.0	
7/23/08 10:19	615.4	0.0	calibration with 600 ppm CH4
7/23/08 10:19	615.4	0.0	
7/23/08 10:20	615.4	0.0	
7/23/08 10:20	615.5	0.0	
7/23/08 10:20	334.2	0.0	
7/23/08 10:20	71.1	0.0	
7/23/08 10:21	71.1	0.0	
7/23/08 10:21	71.1	0.0	
7/23/08 10:21	71.1	0.0	
7/23/08 10:21	48.0	1.8	
7/23/08 10:22	13.4	4.4	
7/23/08 10:22	13.4	4.2	
7/23/08 10:22	8.3	251.3	
7/23/08 10:22	0.0	663.3	
7/23/08 10:23	0.0	663.4	
7/23/08 10:23	0.0	663.5	
7/23/08 10:23	0.0	663.5	
7/23/08 10:23	0.0	663.5	
7/23/08 10:24	0.0	663.5	
7/23/08 10:24	0.0	663.5	
7/23/08 10:24	0.0	663.3	
7/23/08 10:24	0.0	663.1	
7/23/08 10:25	0.0	663.1	
7/23/08 10:25	0.0	663.1	
7/23/08 10:25	0.0	663.1	
7/23/08 10:25	0.0	832.8	
7/23/08 10:26	0.0	843.4	
7/23/08 10:26	0.0	843.4	
7/23/08 10:26	0.0	843.4	
7/23/08 10:26	0.0	843.4	
7/23/08 10:27	0.0	858.6	
7/23/08 10:27	0.0	867.4	calibration with 849 ppm C3H8
7/23/08 10:27	0.0	867.4	
7/23/08 10:27	0.0	867.5	
7/23/08 10:28	0.0	867.5	
7/23/08 10:28	0.0	698.8	
7/23/08 10:28	0.0	551.4	
7/23/08 10:28	0.0	551.4	
7/23/08 10:29	0.0	551.4	
7/23/08 10:29	0.0	551.4	
7/23/08 10:29	0.0	540.2	
7/23/08 10:29	0.0	525.4	
7/23/08 10:30	0.0	525.3	
7/23/08 10:30	0.0	525.0	
7/23/08 10:30	0.0	525.1	
7/23/08 10:30	0.0	520.0	
7/23/08 10:31	0.0	509.1	
7/23/08 10:31	0.0	509.2	
7/23/08 10:31	0.0	509.2	
7/23/08 10:31	0.0	509.2	
7/23/08 10:32	0.0	507.1	
7/23/08 10:32	0.0	499.2	calibration check with 448 ppm C3H8

7/23/08 10:32	0.0	499.3	
7/23/08 10:32	0.0	499.3	
7/23/08 10:33	0.0	499.3	
7/23/08 10:33	0.0	445.2	
7/23/08 10:33	0.0	0.0	
7/23/08 10:33	0.0	0.0	
7/23/08 10:34	0.0	0.0	
7/23/08 10:34	0.0	0.0	
7/23/08 10:34	0.1	2.9	
7/23/08 10:34	13.4	346.7	
7/23/08 10:35	13.5	347.2	
7/23/08 10:35	13.3	347.0	
7/23/08 10:35	13.3	346.9	
7/23/08 10:35	13.3	346.8	
7/23/08 10:36	13.2	343.1	calibration check with 301 ppm C3H8
7/23/08 10:36	13.1	342.5	
7/23/08 10:36	13.1	342.4	
7/23/08 10:36	13.1	342.4	
7/23/08 10:37	13.1	342.4	
7/23/08 10:37	13.1	348.7	
7/23/08 10:37	13.1	350.3	
7/23/08 10:37	13.1	350.3	
7/23/08 10:38	13.0	350.3	
7/23/08 10:38	13.0	350.3	
7/23/08 10:38	13.0	348.9	
7/23/08 10:38	13.3	349.1	
7/23/08 10:39	14.5	349.0	
7/23/08 10:39	15.2	348.9	
7/23/08 10:39	15.2	348.9	
7/23/08 10:39	6.3	145.4	begin sample bag period
7/23/08 10:40	0.0	0.0	
7/23/08 10:40	349.0	0.0	
7/23/08 10:40	686.7	0.0	
7/23/08 10:40	686.8	0.0	
7/23/08 10:41	687.0	964.0	
7/23/08 10:41	687.1	1994.4	Bottom test point sample bag
7/23/08 10:41	688.8	1994.5	
7/23/08 10:41	691.2	1994.5	
7/23/08 10:42	691.2	1994.5	
7/23/08 10:42	691.3	1994.5	
7/23/08 10:42	691.3	1994.5	
7/23/08 10:42	670.8	1994.5	
7/23/08 10:43	623.0	1994.6	
7/23/08 10:43	623.0	1994.6	
7/23/08 10:43	623.0	1994.6	
7/23/08 10:43	623.0	1994.6	
7/23/08 10:44	616.3	1994.7	
7/23/08 10:44	588.9	1994.7	
7/23/08 10:44	588.9	1994.7	
7/23/08 10:44	588.9	1978.9	
7/23/08 10:45	588.9	1904.5	
7/23/08 10:45	537.3	1905.8	
7/23/08 10:45	25.8	1918.3	
7/23/08 10:45	25.7	1918.2	
7/23/08 10:46	24.1	1799.0	
7/23/08 10:46	2.0	130.7	
7/23/08 10:46	1.9	130.7	
7/23/08 10:46	798.9	129.6	
7/23/08 10:47	805.6	129.6	
7/23/08 10:47	805.6	129.6	
7/23/08 10:47	805.9	1932.3	

7/23/08 10:47	805.9	1994.3	
7/23/08 10:48	818.4	1994.3	
7/23/08 10:48	820.0	1994.3	Top test point sample bag
7/23/08 10:48	820.0	1994.3	
7/23/08 10:48	820.0	1994.3	
7/23/08 10:49	820.0	1994.3	
7/23/08 10:49	813.7	1994.3	
7/23/08 10:49	812.0	1994.3	
7/23/08 10:49	812.0	1994.3	
7/23/08 10:50	812.0	1994.3	
7/23/08 10:50	812.0	1994.3	
7/23/08 10:50	263.9	1995.2	
7/23/08 10:50	0.0	1995.6	
7/23/08 10:51	0.0	1995.6	
7/23/08 10:51	0.0	708.1	
7/23/08 10:51	0.0	14.7	
7/23/08 10:51	0.0	14.7	
7/23/08 10:52	0.0	14.7	
7/23/08 10:52	0.0	14.8	
7/23/08 10:52	0.0	7.1	
7/23/08 10:52	0.0	0.8	
7/23/08 10:53	0.0	0.8	
7/23/08 10:53	0.0	0.8	
7/23/08 10:53	0.0	0.7	
7/23/08 10:53	0.0	0.4	data from 10:53 - 11:35 truncated, no activity on instrument,
7/23/08 10:54	0.0	0.0	grabbing TO-15 and ASTM 5504 samples
7/23/08 10:54	0.0	0.0	
7/23/08 10:54	0.0	0.0	
7/23/08 10:54	0.0	0.0	
7/23/08 10:55	0.0	0.0	
7/23/08 10:55	0.0	0.0	
7/23/08 10:55	0.0	0.0	
7/23/08 10:55	0.0	0.0	
7/23/08 10:56	0.0	0.0	
7/23/08 10:56	0.0	0.0	
7/23/08 10:56	0.0	0.0	
7/23/08 10:56	0.0	0.0	
7/23/08 10:57	0.0	0.0	
7/23/08 10:57	0.0	0.0	
7/23/08 10:57	0.0	0.0	
7/23/08 10:57	0.0	0.0	
7/23/08 10:58	0.0	0.0	
7/23/08 10:58	0.0	0.0	
7/23/08 10:58	0.0	0.0	
7/23/08 10:58	0.0	0.0	
7/23/08 10:59	0.0	0.0	
7/23/08 10:59	0.0	0.0	
7/23/08 10:59	0.0	0.0	
7/23/08 10:59	0.0	0.0	
7/23/08 11:00	0.0	0.0	
7/23/08 11:00	0.0	0.0	
7/23/08 11:00	0.0	0.0	
7/23/08 11:00	0.0	0.0	
7/23/08 11:01	0.0	0.0	
7/23/08 11:01	0.0	0.0	
7/23/08 11:01	0.0	0.0	
7/23/08 11:01	0.0	0.0	
7/23/08 11:02	0.0	0.0	
7/23/08 11:02	0.0	0.0	
7/23/08 11:02	0.0	0.0	
7/23/08 11:02	10.4	703.5	

7/23/08 11:03	14.5	981.4
7/23/08 11:03	14.4	981.3
7/23/08 11:03	14.3	981.2
7/23/08 11:03	14.3	981.1
7/23/08 11:04	14.3	982.3
7/23/08 11:04	14.3	983.0
7/23/08 11:04	14.2	983.0
7/23/08 11:04	14.2	982.9
7/23/08 11:05	14.2	982.9
7/23/08 11:05	14.2	977.7
7/23/08 11:05	14.2	972.9
7/23/08 11:05	14.2	972.9
7/23/08 11:06	14.4	973.4
7/23/08 11:06	14.7	974.2
7/23/08 11:06	14.7	974.1
7/23/08 11:06	14.6	974.0
7/23/08 11:07	14.6	973.9
7/23/08 11:07	1.0	848.7
7/23/08 11:07	0.0	839.8
7/23/08 11:07	0.0	840.0
7/23/08 11:08	0.0	840.1
7/23/08 11:08	0.0	840.1
7/23/08 11:08	0.0	846.6
7/23/08 11:08	0.0	862.2
7/23/08 11:09	0.0	862.3
7/23/08 11:09	0.0	862.3
7/23/08 11:09	0.0	862.3
7/23/08 11:09	0.0	860.8
7/23/08 11:10	0.0	854.3
7/23/08 11:10	0.0	854.4
7/23/08 11:10	0.0	854.4
7/23/08 11:10	0.0	854.4
7/23/08 11:11	0.0	776.2
7/23/08 11:11	0.0	0.0
7/23/08 11:11	0.0	0.0
7/23/08 11:11	0.0	0.0
7/23/08 11:12	0.0	0.0
7/23/08 11:12	0.0	0.0
7/23/08 11:12	0.0	0.0
7/23/08 11:12	0.0	0.0
7/23/08 11:13	0.0	0.0
7/23/08 11:13	0.0	0.0
7/23/08 11:13	0.0	0.0
7/23/08 11:13	0.0	0.0
7/23/08 11:14	0.0	0.0
7/23/08 11:14	0.0	0.0
7/23/08 11:14	0.0	0.0
7/23/08 11:14	0.0	0.0
7/23/08 11:15	0.0	0.0
7/23/08 11:15	0.0	0.0
7/23/08 11:15	0.0	0.0
7/23/08 11:15	0.0	0.0
7/23/08 11:16	0.0	0.0
7/23/08 11:16	0.0	0.0
7/23/08 11:16	0.0	0.0
7/23/08 11:16	0.0	0.0
7/23/08 11:17	0.0	0.0
7/23/08 11:17	0.0	0.0
7/23/08 11:17	0.0	0.0
7/23/08 11:17	0.0	0.0
7/23/08 11:18	0.0	0.0

7/23/08 11:18	0.0	0.0
7/23/08 11:18	0.0	0.0
7/23/08 11:18	0.0	0.0
7/23/08 11:19	0.0	0.0
7/23/08 11:19	0.0	0.0
7/23/08 11:19	0.0	0.0
7/23/08 11:19	0.0	0.0
7/23/08 11:20	0.0	0.0
7/23/08 11:20	0.0	0.0
7/23/08 11:20	0.0	0.0
7/23/08 11:20	0.0	0.0
7/23/08 11:21	0.0	0.0
7/23/08 11:21	0.0	0.0
7/23/08 11:21	0.0	0.0
7/23/08 11:21	0.0	0.0
7/23/08 11:22	0.0	0.0
7/23/08 11:22	0.0	0.0
7/23/08 11:22	0.0	0.0
7/23/08 11:22	0.0	0.0
7/23/08 11:23	0.0	0.0
7/23/08 11:23	0.0	0.0
7/23/08 11:23	0.0	0.0
7/23/08 11:23	0.0	0.0
7/23/08 11:24	0.0	0.0
7/23/08 11:24	0.0	0.0
7/23/08 11:24	0.0	0.0
7/23/08 11:24	0.0	0.0
7/23/08 11:25	0.0	0.0
7/23/08 11:25	0.0	0.0
7/23/08 11:25	0.0	0.0
7/23/08 11:25	0.0	0.0
7/23/08 11:26	0.0	0.0
7/23/08 11:26	0.0	0.0
7/23/08 11:26	0.0	0.0
7/23/08 11:26	0.0	0.0
7/23/08 11:27	0.0	0.0
7/23/08 11:27	0.0	0.0
7/23/08 11:27	0.0	0.0
7/23/08 11:27	0.0	0.0
7/23/08 11:28	0.0	0.0
7/23/08 11:28	0.0	0.0
7/23/08 11:28	0.0	0.0
7/23/08 11:28	0.0	0.0
7/23/08 11:29	0.0	0.0
7/23/08 11:29	0.0	0.0
7/23/08 11:29	0.0	0.0
7/23/08 11:29	0.0	0.0
7/23/08 11:30	0.0	0.0
7/23/08 11:30	0.0	0.0
7/23/08 11:30	0.0	0.0
7/23/08 11:30	0.0	0.0
7/23/08 11:31	0.0	0.0
7/23/08 11:31	0.0	0.0
7/23/08 11:31	0.0	0.0
7/23/08 11:31	0.0	0.0
7/23/08 11:32	0.0	0.0
7/23/08 11:32	0.0	0.0
7/23/08 11:32	0.0	0.0
7/23/08 11:32	0.0	0.0
7/23/08 11:33	0.0	0.0
7/23/08 11:33	0.0	0.0

7/23/08 11:33	0.0	0.0
7/23/08 11:33	0.0	0.0
7/23/08 11:34	0.0	0.0
7/23/08 11:34	0.0	0.0
7/23/08 11:34	0.0	0.0
7/23/08 11:34	0.0	0.0
7/23/08 11:35	0.0	0.0
7/23/08 11:35	0.0	0.0
7/23/08 11:35	0.0	0.0
7/23/08 11:35	0.0	0.0
7/23/08 11:36	0.0	0.0
7/23/08 11:36	0.0	0.0
7/23/08 11:36	0.0	19.4
7/23/08 11:36	0.0	1164.8
7/23/08 11:37	0.0	1165.0
7/23/08 11:37	0.0	1165.0
7/23/08 11:37	0.0	1165.0
7/23/08 11:37	0.0	1165.0
7/23/08 11:38	0.0	1238.4
7/23/08 11:38	0.0	1245.1
7/23/08 11:38	0.0	1244.7
7/23/08 11:38	0.0	1244.7
7/23/08 11:39	0.0	1244.8
7/23/08 11:39	0.0	1277.2
7/23/08 11:39	0.0	1285.1
7/23/08 11:39	0.0	1285.1
7/23/08 11:40	0.0	1285.2
7/23/08 11:40	0.0	1285.2
7/23/08 11:40	0.0	1188.7
7/23/08 11:40	0.0	1149.0
7/23/08 11:41	0.0	1149.0
7/23/08 11:41	0.0	1149.0
7/23/08 11:41	0.0	1149.0
7/23/08 11:41	8.2	1204.1
7/23/08 11:42	13.8	1241.1
7/23/08 11:42	13.7	1241.0
7/23/08 11:42	13.7	1241.1
7/23/08 11:42	13.6	1240.9
7/23/08 11:43	6.8	1201.7
7/23/08 11:43	0.0	1162.7
7/23/08 11:43	0.0	1162.7
7/23/08 11:43	0.0	1162.7
7/23/08 11:44	0.0	1162.8
7/23/08 11:44	0.0	1184.4
7/23/08 11:44	0.0	1216.9
7/23/08 11:44	0.0	1217.0
7/23/08 11:45	0.0	1217.2
7/23/08 11:45	0.0	1217.2
7/23/08 11:45	0.0	1212.0
7/23/08 11:45	0.0	1199.3
7/23/08 11:46	0.0	1199.3
7/23/08 11:46	0.0	1199.3
7/23/08 11:46	0.0	1199.3
7/23/08 11:46	0.0	1196.0
7/23/08 11:47	0.0	1181.3
7/23/08 11:47	0.0	1181.3
7/23/08 11:47	0.0	1181.4
7/23/08 11:47	0.0	1181.4
7/23/08 11:48	0.0	1185.0
7/23/08 11:48	0.0	1229.5
7/23/08 11:48	0.0	1229.5

7/23/08 11:48	0.0	1229.4
7/23/08 11:49	0.0	1229.4
7/23/08 11:49	0.0	1229.4
7/23/08 11:49	0.0	1129.8
7/23/08 11:49	0.0	1127.3
7/23/08 11:50	0.0	1127.3
7/23/08 11:50	0.0	1127.3
7/23/08 11:50	0.0	1127.3
7/23/08 11:50	0.0	1127.3
7/23/08 11:51	0.0	1127.4
7/23/08 11:51	5.7	1131.8
7/23/08 11:51	13.5	1138.0
7/23/08 11:51	13.5	1137.9
7/23/08 11:52	13.4	1137.9
7/23/08 11:52	13.4	1137.9
7/23/08 11:52	13.3	1137.5
7/23/08 11:52	13.3	1137.4
7/23/08 11:53	13.2	1137.4
7/23/08 11:53	13.2	1137.4
7/23/08 11:53	13.2	1053.3
7/23/08 11:53	13.2	993.2
7/23/08 11:54	13.2	993.2
7/23/08 11:54	13.2	993.0
7/23/08 11:54	13.2	993.0
7/23/08 11:54	10.2	984.8
7/23/08 11:55	0.0	955.3
7/23/08 11:55	0.0	955.4
7/23/08 11:55	0.0	955.4
7/23/08 11:55	0.0	955.4
7/23/08 11:56	0.0	1037.7
7/23/08 11:56	0.0	1660.6
7/23/08 11:56	0.0	1660.8
7/23/08 11:56	0.0	1660.8
7/23/08 11:57	0.0	1660.8
7/23/08 11:57	0.0	1660.1
7/23/08 11:57	0.0	1618.7
7/23/08 11:57	0.2	1618.8
7/23/08 11:58	0.0	1618.7
7/23/08 11:58	0.0	1618.7
7/23/08 11:58	0.0	1618.7
7/23/08 11:58	0.0	1700.6
7/23/08 11:59	0.0	1708.7
7/23/08 11:59	0.0	1708.7
7/23/08 11:59	0.0	1708.8
7/23/08 11:59	0.0	1708.8
7/23/08 12:00	0.0	1652.7
7/23/08 12:00	0.0	1638.4
7/23/08 12:00	0.0	1638.4
7/23/08 12:00	0.0	1638.4
7/23/08 12:01	0.0	1638.4
7/23/08 12:01	0.0	1599.6
7/23/08 12:01	0.0	1582.5
7/23/08 12:01	0.0	1582.4
7/23/08 12:02	0.0	1582.4
7/23/08 12:02	0.0	1582.4
7/23/08 12:02	0.0	1614.0
7/23/08 12:02	0.0	1636.1
7/23/08 12:03	0.0	1636.1
7/23/08 12:03	0.0	1636.1
7/23/08 12:03	0.0	1636.1
7/23/08 12:03	0.0	1636.1

7/23/08 12:04	0.0	1636.2	
7/23/08 12:04	0.0	1636.2	
7/23/08 12:04	0.0	1636.2	
7/23/08 12:04	0.0	1636.2	
7/23/08 12:05	0.0	1628.6	
7/23/08 12:05	0.0	1616.4	
7/23/08 12:05	0.0	1616.5	
7/23/08 12:05	0.0	1616.5	
7/23/08 12:06	0.0	1616.5	
7/23/08 12:06	0.0	1610.1	
7/23/08 12:06	0.0	1592.3	
7/23/08 12:06	0.0	1592.2	
7/23/08 12:07	0.0	1592.2	
7/23/08 12:07	0.0	1592.2	
7/23/08 12:07	0.0	1590.2	
7/23/08 12:07	0.0	1580.2	post-test calibration check with 1506 ppm C3H4
7/23/08 12:08	0.0	1580.2	This gas was brought on-site to confirm linearity at
7/23/08 12:08	0.0	1580.2	New Bedford site, e.g., reading there were out of cal gas span.
7/23/08 12:08	0.0	1580.2	
7/23/08 12:08	0.0	1581.8	
7/23/08 12:09	0.0	1612.3	
7/23/08 12:09	0.0	1612.3	
7/23/08 12:09	0.0	1612.3	
7/23/08 12:09	0.0	1612.2	
7/23/08 12:10	0.0	1612.2	
7/23/08 12:10	0.0	1709.4	
7/23/08 12:10	0.0	1714.5	
7/23/08 12:10	0.0	1714.5	
7/23/08 12:11	0.0	1714.5	
7/23/08 12:11	0.0	1714.5	
7/23/08 12:11	0.0	214.3	
7/23/08 12:11	0.0	0.0	
7/23/08 12:12	0.0	0.0	
7/23/08 12:12	0.0	0.0	
7/23/08 12:12	0.0	0.0	
7/23/08 12:12	0.0	0.0	
7/23/08 12:13	0.0	0.0	
7/23/08 12:13	0.0	653.0	
7/23/08 12:13	0.0	1632.4	
7/23/08 12:13	0.0	1632.4	
7/23/08 12:14	0.0	1632.4	
7/23/08 12:14	0.0	1632.4	
7/23/08 12:14	0.0	1277.9	
7/23/08 12:14	0.0	450.9	
7/23/08 12:15	0.0	450.8	
7/23/08 12:15	0.0	450.9	
7/23/08 12:15	0.0	450.8	
7/23/08 12:15	0.0	557.3	
7/23/08 12:16	0.0	983.4	
7/23/08 12:16	0.0	983.3	
7/23/08 12:16	0.0	983.4	
7/23/08 12:16	0.0	983.3	
7/23/08 12:17	0.0	980.0	
7/23/08 12:17	0.0	947.4	
7/23/08 12:17	0.0	947.4	
7/23/08 12:17	0.0	947.3	
7/23/08 12:18	0.0	947.3	
7/23/08 12:18	0.0	947.3	
7/23/08 12:18	0.0	947.3	
7/23/08 12:18	0.0	947.3	
7/23/08 12:19	0.0	947.3	

7/23/08 12:19	11.6	865.7	
7/23/08 12:19	13.3	853.1	
7/23/08 12:19	1.7	844.4	
7/23/08 12:20	0.0	843.1	
7/23/08 12:20	0.0	843.2	
7/23/08 12:20	0.0	843.2	
7/23/08 12:20	0.0	843.2	
7/23/08 12:21	0.0	843.2	
7/23/08 12:21	0.0	843.2	
7/23/08 12:21	0.0	843.1	post-test calibration check with 849 ppm C3H8
7/23/08 12:21	0.0	843.2	
7/23/08 12:22	0.0	843.2	
7/23/08 12:22	0.0	843.2	
7/23/08 12:22	0.0	843.2	
7/23/08 12:22	0.0	843.2	
7/23/08 12:23	0.0	842.2	
7/23/08 12:23	374.8	841.6	
7/23/08 12:23	692.0	841.2	
7/23/08 12:23	692.0	841.3	
7/23/08 12:24	692.0	399.6	
7/23/08 12:24	692.0	0.0	
7/23/08 12:24	686.6	0.0	
7/23/08 12:24	679.9	0.0	
7/23/08 12:25	680.0	0.0	
7/23/08 12:25	680.0	0.0	post-test calibration check with 600 ppm CH4
7/23/08 12:25	680.0	0.0	
7/23/08 12:25	684.8	0.0	
7/23/08 12:26	694.1	0.0	
7/23/08 12:26	694.1	0.0	
7/23/08 12:26	694.1	0.0	
7/23/08 12:26	694.1	0.0	
7/23/08 12:27	694.1	0.0	
7/23/08 12:27	694.1	0.0	
7/23/08 12:27	694.1	0.0	
7/23/08 12:27	694.1	0.0	
7/23/08 12:28	654.8	0.0	
7/23/08 12:28	593.7	0.0	
7/23/08 12:28	593.7	0.0	
7/23/08 12:28	593.7	0.0	
7/23/08 12:29	593.7	0.0	
7/23/08 12:29	593.7	0.0	
7/23/08 12:29	593.7	0.0	
7/23/08 12:29	593.7	0.0	
7/23/08 12:30	593.7	0.0	
7/23/08 12:30	593.7	0.0	
7/23/08 12:30	593.7	0.0	
7/23/08 12:30	593.7	0.0	
7/23/08 12:31	593.7	0.0	
7/23/08 12:31	593.7	0.0	
7/23/08 12:31	593.7	0.0	
7/23/08 12:31	593.7	0.0	
7/23/08 12:32	593.7	0.0	
7/23/08 12:32	593.7	0.0	
7/23/08 12:32	593.7	0.0	
7/23/08 12:32	593.7	0.0	
7/23/08 12:33	593.7	0.0	
7/23/08 12:33	593.7	0.0	
7/23/08 12:33	593.7	0.0	
7/23/08 12:33	593.7	0.0	
7/23/08 12:34	593.7	0.0	
7/23/08 12:34	593.7	0.0	

7/23/08 12:34	593.7	0.0
7/23/08 12:34	593.7	0.0
7/23/08 12:35	593.7	0.0
7/23/08 12:35	593.7	0.0
7/23/08 12:35	593.7	0.0
7/23/08 12:35	593.7	0.0
7/23/08 12:35	593.7	0.0

Appendix F
Inspectorate Data

2 Williams Street Chelsea, MA
Phone:(617) 889-6515
Fax:(617) 889-6311

INSPECTORATE

"Sample & Analysis"

Customer	**Sprague Energy**
Customer Reference	**1.) N/A**
	2.) N/A
	3.) N/A
Job Number	**071308**
Bill of Lading Number	**N/A**
Port of Inspection	**Boston, MA**
Date of Inspection	**July 23, 2008**
Location	**Sprague Deepwater Quincy**
Type of Operation	**Analysis**
Cargo Grades	**1.) No 6 Fuel Oil**
	2.)
	3.)
	4.)
	5.)

ALL MEASUREMENTS CONTAINED IN THIS REPORT WERE PERFORMED IN ACCORDANCE WITH THE API CHAPTERS OF PETROLEUM MEASUREMENT STANDARDS AND ASTM PROCEDURES INCLUDING, BUT NOT LIMITED TO: (CHAPTER 3- TANK GAUGING), (CHAPTER 7-TEMPERATURE DETERMINATION), (CHAPTER 8

Michael White
Inspectorate Boston,MA

INSPECTORATE
ISO 9001:2000 Certified

Certificate of Analysis

Vessel / Shore Tank :	**Sample & Analysis Sprague Deepwater Quincy 0**	Sample Submitted By :	IAC Boston
Product :	**#6 Fuel Oil**	Analysis Performed By :	IAC Boston
Client Reference :		Date Sampled :	23-Jul-2008
Terminal / Port / Office :	Sprague Deepwater Quincy / Boston, MA	Date Reported :	23-Jul-2008
Job ID :	071308	Submission ID :	2008-064-00562
Comments :	Headspace Testing		

	Tank #11 UML Composite	
	2008-064-00562-004	11 UML Composite
Method	**Test**	**Result**
ASTM D4052	API Gravity	13.2
	Test Temperature	15.56°C (60°F)
	Density, g/mL	0.9780
ASTM D4294	Sulfur Content, mass %	0.455
ASTM D482	Ash Content, mass %	0.0870
ASTM D240	Gross Heat of Combustion, BTU/lb	18631
	Gross Heat of Combustion Unit Conversion, BTU/gal	151731
ASTM D5762	Nitrogen, ppm (ug/g)	3494

For Inspectorate: _____
David Smee, Laboratory Assistant Manager

2 William Street, Chelsea, Massachusetts 02150 Ph: 617-889-6515 Fax: 617-889-6311

INSPECTORATE

TANK GAUGE TICKET

915308

MATERIAL: 6. oil

DELIVERED BY:

TO: SPRAGUE QUINCY

TANK NO.: 11

	OPENED	CLOSED
OBSERVED HEIGHT		
REFERENCE HEIGHT	45.3 3/4	
TAPE IN TANK	22.10 3/4	
DIFFERENCE	22.5	
OIL ON TAPE		
ACTUAL GAUGE	22.5	
AUTOMATIC GAUGE	N.A	
TEMPERATURE TOP	133°	
TEMPERATURE MIDDLE	131.4	
TEMPERATURE BOTTOM	131.3	
AVERAGE TEMPERATURE		
FREE WATER GAUGE		
A.P.I. GRAVITY @ 60 DEG F		

CTSH DATA

AMBIENT TEMPERATURE OPEN CLOSE

INSULATED [ ] YES [ ] NO [ ] MILD STEEL [ ] STAINLESS STEEL 304 [ ] STAINLESS STEEL 316

TIME 0930	OPEN	INSPECTOR TD	
DATE 7.23.08		WITNESS	
TIME	CLOSE	INSPECTOR	
DATE		WITNESS	

REV. 9-98

2 Williams Street Chelsea, MA
Phone:(617) 889-6515
Fax:(617) 889-6311

INSPECTORATE

"Sample & Analysis"

Customer	**Sprague Energy**
Customer Reference	**1.) N/A**
	2.) N/A
	3.) N/A
Job Number	**071408**
Bill of Lading Number	**N/A**
Port of Inspection	**Boston, MA**
Date of Inspection	**July 22, 2008**
Location	**Sprague New Bedford**
Type of Operation	**Analysis**
Cargo Grades	**1.) No 6 Fuel Oil**
	2.)
	3.)
	4.)
	5.)

ALL MEASUREMENTS CONTAINED IN THIS REPORT WERE PERFORMED IN ACCORDANCE WITH THE API CHAPTERS OF PETROLEUM MEASUREMENT STANDARDS AND ASTM PROCEDURES INCLUDING, BUT NOT LIMITED TO: (CHAPTER 3- TANK GAUGING), (CHAPTER 7-TEMPERATURE DETERMINATION), (CHAPTER 8- SAMPLING), (CHAPTER 12- CALCULATION OF PETROLEUM QUANTITIES), AND (CHAPTER 17- MARINE MEASUREMENTS)

Michael White
Inspectorate Boston,MA

INSPECTORATE
ISO 9001:2000 Certified

Certificate of Analysis

Vessel / Shore Tank :	**Submitted Sprague New Bedford 071408**	Sample Submitted By :	IAC Boston
Product :	**# 6 Fuel Oil**	Analysis Performed By :	IAC Boston
Client Reference :		Date Sampled :	22-Jul-2008
Terminal / Port / Office :	Sprague New Bedford / New Bedford, MA	Date Reported :	22-Jul-08
Job ID :	071408	Submission ID :	2008-064-00558
Comments :			

	SHORE TANK #3 Submitted	
	2008-064-00558-001	#3 Submitted
Method	**Test**	**Result**
ASTM D4052	API Gravity	15.3
	Test Temperature	15.56°C (60°F)
	Density, g/mL	0.9637
ASTM D4294	Sulfur Content, mass %	0.707
ASTM D482	Ash Content, mass %	0.0293
ASTM D5762	Nitrogen, ppm (ug/g)	1993
ASTM D240	Net Heat of Combustion, BTU/lb	18425
	Net Heat of Combustion Unit Conversion, BTU/gal	147897

For Inspectorate: _____
David Smee, Laboratory Assistant Manager

2 William Street, Chelsea, Massachusetts 02150 Ph: 617-889-6515 Fax: 617-889-6311

INSPECTORATE

TANK GAUGE TICKET
915307

MATERIAL: Coil
DELIVERED BY:
TO: SPRAGUE NEW BEDFORD
TANK NO.: 3

	OPENED	CLOSED
OBSERVED HEIGHT		
REFERENCE HEIGHT	48-1-12	
TAPE IN TANK	45-3-11/16	
DIFFERENCE	1-7.13/16	
OIL ON TAPE		
ACTUAL GAUGE	1-7-3/16	
AUTOMATIC GAUGE	27578	
TEMPERATURE TOP		
TEMPERATURE MIDDLE		
TEMPERATURE BOTTOM		
AVERAGE TEMPERATURE	N/A	
FREE WATER GAUGE		
A.P.I. GRAVITY @ 60 DEG F		

CTSH DATA

AMBIENT TEMPERATURE OPEN 78 CLOSE

INSULATED [ ] YES [ ] NO [ ] MILD STEEL [ ] STAINLESS STEEL 304 [ ] STAINLESS STEEL 316

TIME 0900	OPEN	INSPECTOR TD	
DATE 7 23 08		WITNESS	
TIME	CLOSE	INSPECTOR	
DATE		WITNESS	

REV. 9-98