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Ammonia and Volatile Organic Compound Compliance Report

Sekisui Voltek, LLC
EUOVEN 09, EUOVEN 11, EUOVEN 12, and EU OVEN 13
Coldwater, Michigan
October 11 through 13, 2022

Report Submittal Date
November 29, 2022

Project No. M224102

Corporate Headquarters
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630-993-2100

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1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted a compliance emissions test program for at the Sekisui Voltek, LLC Coldwater Plant in Coldwater, Michigan, on the EUOVEN 09, EUOVEN 11, EUOVEN 12, and EUOVEN 13 from October 11 through 13, 2022. This report summarizes the results of the test program and test methods used. The test locations, test dates, and test parameters are summarized in the table below.

TEST INFORMATION		
Test Location	**Test Date**	**Test Parameters**
EUOVEN 9	October 13, 2022	Ammonia (NH_3) and Volatile Organic Compounds (VOC)
EUOVEN 11	October 12, 2022	NH_3 and VOC
EUOVEN 12	October 11, 2022	NH_3
EUOVEN 13	October 12, 2022	NH_3 and VOC

The purpose of the test program was to demonstrate ammonia emissions on each oven listed above as well the total non-methane, non-ethane hydrocarbon emissions on the EUOVEN 09, EUOVEN 11, and EUOVEN. Selected results of the test program are summarized below. A complete summary of emission test results follows the narrative portion of this report.

Test Location	Test Parameter	Emission Limit	Emission Rate
EUOVEN 9	NH_3	0.40 lb/hr	0.01 lb/hr
	VOC	0.12 lb/hr	0.01 lb/hr
EUOVEN 11	NH_3	0.40 lb/hr	0.17 lb/hr
	VOC	0.12 lb/hr	0.11 lb/hr
EUOVEN 12	NH_3	3.54 lb/hr	1.56 lb/hr

Test Location	Test Parameter	Emission Limit	Emission Rate
EUOVEN 13	NH_3	0.40 lb/hr	0.004 lb/hr
	VOC	0.12 lb/hr	0.01 lb/hr

The identification of individuals associated with the test program is summarized below.

TEST PERSONNEL INFORMATION		
Location	**Address**	**Contact**
Test Facility	Sekisui Voltek, LLC Coldwater Plant 17 Allen Avenue Coldwater, Michigan 49036	Donald Ostrander Environmental, Health & Safety Manager Sekisui Voltek, LLC 517-279-3527 (phone) Donald.Ostrander@SekisuiVoltek.com
Testing Company Supervisor	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Ryan Simon Project Supervisor 630-993-2100 (phone) rsimon@mp-mail.com

The test program was conducted by R. Spoolstra, D. Barnes, and R. Simon of Mostardi Platt.

2.0 TEST METHODOLOGY

Emission testing was conducted following the methods specified in 40 CFR, Part 60, Appendix A, and 40 CFR, Part 63, Appendix A. Schematics of the test section diagrams and sampling trains used are included in Appendix B and C, respectively. Calculation examples and nomenclature are included in Appendix D. Copies of analyzer print-outs for each test run are included in Appendix E.

The following methodologies were used during the test program:

Method 2 Volumetric Flow Rate Determination

Gas velocity was measured following Method 2, 40CFR60, Appendix A, for purposes of calculating stack gas volumetric flow rate and NH_3 and VOC emission rates on a lb/hr basis. An S-type pitot tube, as a component of the isokinetic sampling trains, differential pressure gauge, thermocouple, and temperature readout are used to determine gas velocity at each sample point. All of the equipment used is calibrated in accordance with the specifications of the Method. Calibration data can be found in Appendix F.

Method 25A Volatile Organic Compound (VOC) Determination

VOC concentrations and emission rates were determined in accordance with Method 25A. A Thermo 51i flame ionization detector (FID) analyzer was used to determine total hydrocarbon (THC) concentrations, while Method 320 was performed simultaneously to subtract CH_4 and C_2H_6 concentrations to determine VOC. Stack gas was delivered to the system via a Teflon® sampling

line, heated to a minimum temperature of 300°F. Sample was delivered first to the Method 320 FTIR analyzer, with the Method 25A FID analyzer connected to the exhaust of the FTIR analyzer.

The system was calibrated before and after each test run using certified calibration gases of methane for the THC determination. A list of calibration gases used and the results of all calibration and other required quality assurance checks can be found in Appendix F. Copies of calibration gas certifications can be found in Appendix G.

Method 320 Fourier Transform Infrared (FTIR) Detector Multi-Gas Determination of NH_3 and Moisture (H_2O)

The Method 320 sampling and measurement system meets the requirements of US EPA Reference Method 320, "Vapor Phase Organic and Inorganic Emissions by Extractive FTIR," 40CFR63, Appendix A. This method applies to the measurement of NH_3 and H_2O concentrations. USEPA Method 4, 40CFR60, specifies method 320 as an acceptable alternative for moisture determination.

With this method, gas samples are extracted from the sample locations through heated Teflon sample lines to the analyzers. FTIR technology works on the principle that most gases absorb infrared light. This is true for all compounds with the exception of homonuclear diatomic molecules and noble gases such as: N_2, O_2, H_2, He, Ne, and Ar. Vibrations, stretches, bends, and rotations within the bonds of a molecule determine the infrared absorption distinctiveness. The absorption creates a "fingerprint" which is unique to each given compound. The quantity of infrared light absorbed is proportional to the gas concentration. Most compounds have absorbencies at different infrared frequencies, thus allowing the simultaneous analysis of multiple compounds at one time. The FTIR software compares each sample spectrum to a user selected list of calibration references and concentration data is generated.

FTIR data was collected using an MKS MultiGas 2030 FTIR spectrometer. Spiking was performed following each test run to verify the ability of the sampling system to quantitatively deliver a sample containing volatile organic compounds from the base of the probe to the FTIR. Analyte spiking assures the ability of the FTIR to quantify analytes of interest in the presence of effluent gas. All analyte spikes were introduced using an instrument grade stainless steel rotameter. All QA/QC procedures were within the acceptance criteria allowance of Method 320. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix F.

3.0 TEST RESULT SUMMARIES

Sekisui Voltek, LLC Coldwater Facility EUOVEN09 Gaseous Summary							
Test No.	Date	Start Time	End Time	H2O% %v	Flowrate DSCFM	VOC as Propane ppmv Wet	VOC as Propane ppmv Dry
1	10/13/22	9:10	10:09	2.57	290	3.06	3.10
2	10/13/22	10:25	11:24	2.70	300	4.96	4.50
3	10/13/22	11:45	12:45	2.66	296	4.61	5.30
Average				**2.64**	**295**	**4.21**	**4.30**

Test No.	Date	Start Time	End Time	NH3 ppmv Dry	NH3 ppmv Wet	NH3 lb/hr	VOC lb/hr
1	10/13/2022	9:10	10:09	21.98	21.42	0.02	0.01
2	10/13/2022	10:25	11:24	14.16	13.78	0.01	0.01
3	10/13/2022	11:45	12:45	9.52	9.27	0.01	0.01
Average				**15.22**	**14.82**	**0.01**	**0.01**

Sekisui Voltek, LLC Coldwater Facility EUOVEN11 Gaseous Summary							
Test No.	Date	Start Time	End Time	H2O% %v	Flowrate DSCFM	VOC as Propane ppmv Wet	VOC as Propane ppmv Dry
1	10/12/22	14:00	14:59	5.32	526	30.68	30.10
2	10/12/22	15:15	16:15	5.26	522	31.30	31.30
3	10/12/22	16:31	17:31	5.21	520	31.15	31.50
Average				**5.26**	**523**	**31.04**	**30.97**

Test No.	Date	Start Time	End Time	NH3 ppmv Dry	NH3 ppmv Wet	NH3 lb/hr	VOC lb/hr
1	10/12/2022	14:00	14:59	142.05	134.41	0.20	0.11
2	10/12/2022	15:15	16:15	115.62	109.51	0.16	0.11
3	10/12/2022	16:31	17:31	110.63	104.83	0.15	0.11
Average				**122.77**	**116.25**	**0.17**	**0.11**

Sekisui Voltek, LLC Coldwater Facility EUOVEN12 Gaseous Summary					
Test No.	Date	Start Time	End Time	H2O% %v	Flowrate DSCFM
1	10/11/22	9:20	10:20	23.40	6,225
2	10/11/22	10:45	11:45	29.68	6,277
3	10/11/22	12:00	12:59	35.04	5,839
Average				**29.37**	**6,114**

Test No.	Date	Start Time	End Time	NH3 ppmv Dry	NH3 lb/hr
1	10/11/2022	9:20	10:20	97.67	1.61
2	10/11/2022	10:45	11:45	82.40	1.37
3	10/11/2022	12:00	12:59	108.53	1.68
Average				**96.20**	**1.56**

Sekisui Voltek, LLC Coldwater Facility EUOVEN13 Gaseous Summary							
Test No.	Date	Start Time	End Time	H2O% %v	Flowrate DSCFM	VOC as Propane ppmv Wet	VOC as Propane ppmv Dry
1	10/12/22	8:55	9:54	3.93	123	14.10	13.40
2	10/12/22	10:15	11:14	4.12	142	14.01	13.20
3	10/12/22	11:30	12:29	4.43	154	14.02	13.70
Average				**4.16**	**140**	**14.05**	**13.43**

Test No.	Date	Start Time	End Time	NH3 ppmv Dry	NH3 ppmv Wet	NH3 lb/hr	VOC lb/hr
1	10/12/2022	8:55	9:54	7.36	7.07	0.002	0.01
2	10/12/2022	10:15	11:14	12.03	11.53	0.005	0.01
3	10/12/2022	11:30	12:29	13.41	12.82	0.005	0.01
Average				**10.93**	**10.47**	**0.004**	**0.01**

4.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to Sekisui Voltek, LLC. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

As project manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results, and the test program was performed in accordance with the methods specified in this test report.

MOSTARDI PLATT

Program Manager

Ryan Simon

Quality Assurance

Eric Ehlers

APPENDICES

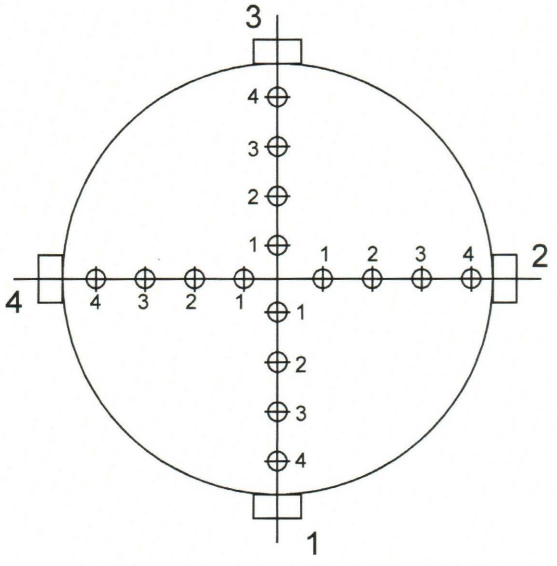
Appendix A - Plant Operating Data

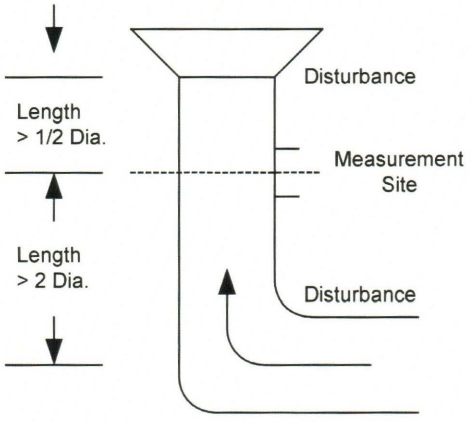
Oven Operating Summary				
Oven ID	09	11	12	13
AZO RR lb/hr	14.4	24.1	42.8	15.2
Date	10/13/2022	10/12/2022	10/11/2022	10/12/2022
	068HBP00195PX	020A 0188WH	020EA 0500WH	040EO 0063WH
1st Furnace Output	841			
Catalyst Output	918	990	N/A	969
Chill Roll Speed	71	21	13.3	34.9
Total RR lb/hr	223	201	329	224
Density (Operator Entry)	6.95	2.02	1.98	3.99
Thickness (Operator Entry)	0.0192	0.1892	0.5	0.06335
Width (Operator Entry)	56.38	60.00	60.00	61.00
FA%	6.456%	12.000%	13.000%	6.800%
Splits	N/A	N/A	N/A	N/A

Appendix B - Test Section Diagrams

EQUAL AREA TRAVERSE FOR ROUND DUCTS

(Volumetric Flow Rate)

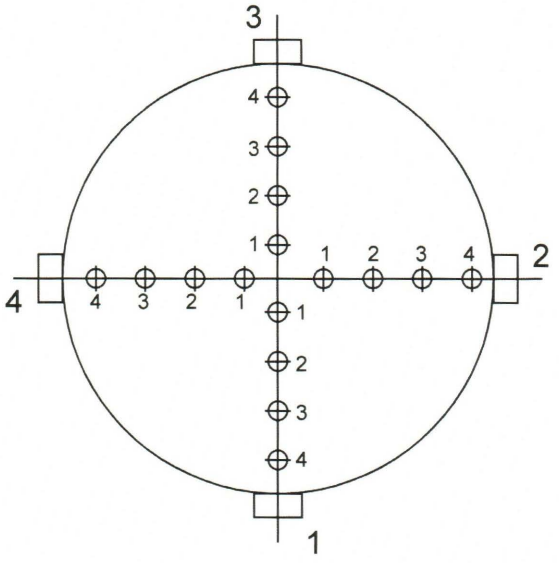


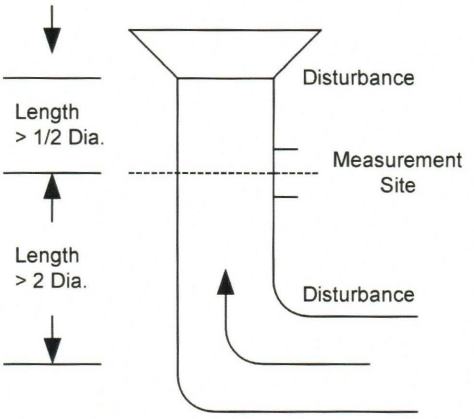


Project:	Sekisui Voltek, LLC
Test Locations:	EUOVENS 09 & 11
No. Sample Points:	16
Diameter:	0.67 Feet
Flue Area:	0.35 Square Feet
Upstream Diameters:	>0.5
Downstream Diameters:	>2.0

EQUAL AREA TRAVERSE FOR ROUND DUCTS

(Volumetric Flow Rate)

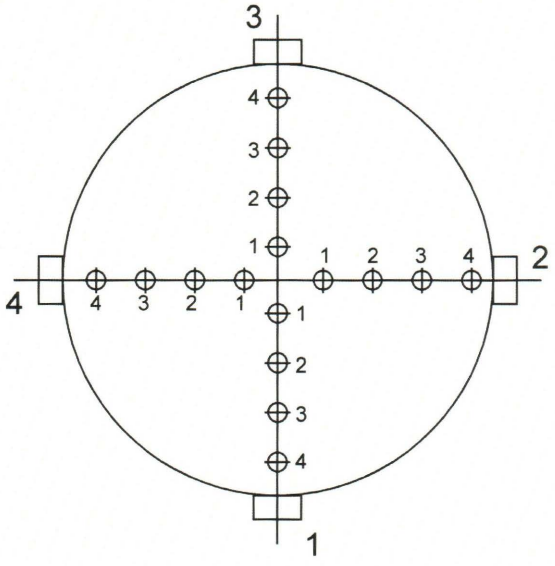


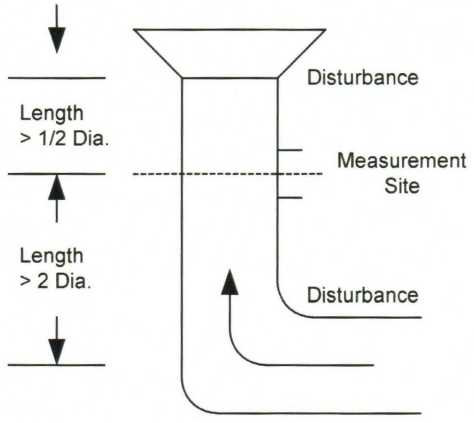


Project:	Sekisui Voltek, LLC
Test Locations:	EUOVEN 12
No. Sample Points:	16
Diameter:	2.125 Feet
Flue Area:	3.55 Square Feet
Upstream Diameters:	>0.5
Downstream Diameters:	>2.0

EQUAL AREA TRAVERSE FOR ROUND DUCTS

(Volumetric Flow Rate)

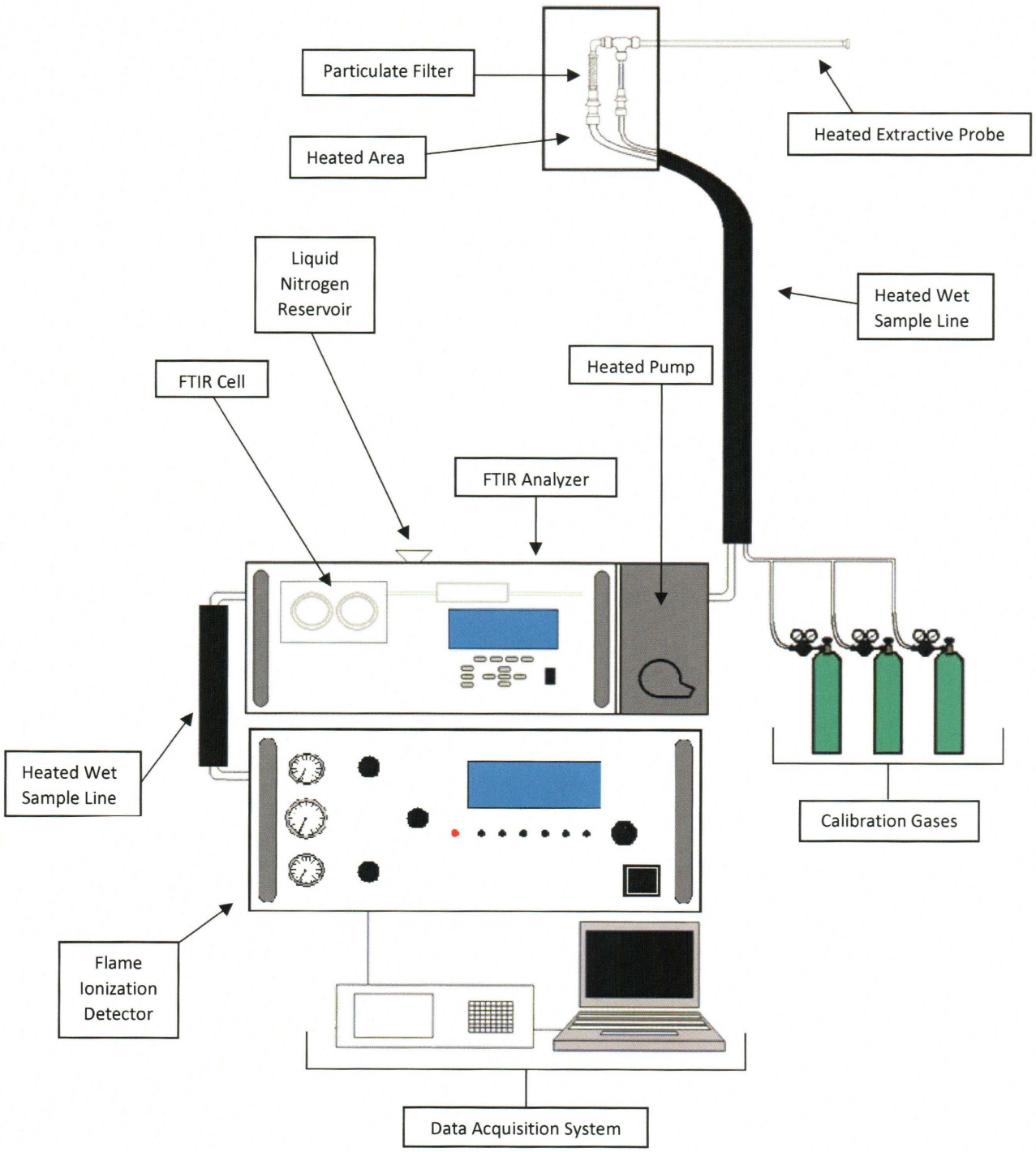




Project:	Sekisui Voltek, LLC
Test Locations:	EUOVEN 13
No. Sample Points:	16
Diameter:	0.625 Feet
Flue Area:	0.31 Square Feet
Upstream Diameters:	>0.5
Downstream Diameters:	>2.0

Appendix C - Sample Train Diagrams

USEPA Methods 25A and 320 – Sample Train Diagram



USEPA Method 2 – Type S Pitot Tube Manometer Assembly