INSPECTION REPORT

Inspection Date:	June 9, 2022	Inspection Announced: No
Time:	Entry: 9:20 AM	Exit: 4:45 PM
Media:	Wastewater and Stormwater	
Statute (s)/Program(s):	Clean Water Act, NPDES, Industrial Stormwater, Indirect Discharger Clean Water Act, NPDES, Pretreatment, Indirect Discharger	
Type of inspection:	CSI - Compliance Sampling Inspection	
Access:	Granted	
Permittee Name:	Vantage Oleochemicals	
Facility or Site Name:	Vantage Oleochemicals	
Facility/Site Physical Address:	4650 South Racine Avenue	
(City, State, Zip Code)	Chicago, Illinois 60609	
County/Parish:	Cook County	
Permit and Application Number:	No NPDES Permit	
SIC or NAICS:	32519	

Inspector Signature and Date: Flatebo, Theodore Digitally signed by Flatebo, Theodore Date: 2022.08.05 12:59:15 -05'00'

Approver Name and Title: Ryan J. Bahr, Section 2 Supervisor
Water Enforcement and Compliance Assurance Branch

Approver Signature and Date: Bahr, Ryan Digitally signed by Bahr, Ryan Date: 2022.08.05 13:28:55 -05'00'

Persons Participating in Inspection:					
Organization/Title	**Name**	**Phone**	**Email**	**Present at Opening Conference**	**Present at Closing Conference**
EPA, Environmental Engineer	Ted Flatebo	(312) 886-9402	flatebo.ted@epa.gov	Yes	Yes
EPA, Environmental Engineer	Andi Hodaj	(312) 353-4645	hodaj.andi@epa.gov	Yes	Yes
Illinois EPA, Environmental Engineer	Jayashree Jayaraj	(847) 284-4055	jayashree.jayaraj @illinois.gov	Yes	Yes
MWRD, Environmental Specialist	Luke Toonen	(773) 256-3516	toonenl@mwrd.org	Yes	Yes
MWRD, Environmental Specialist	Jennifer Entwhistle	(773) 256-35115	entwhistlej@mwrd.org	Yes	Yes
Vantage Oleochemicals, SSHE Manager	Tony Massa	(773) 650-7611	tony.massa @vantagegrp.com	Yes	Yes
Vantage Oleochemicals, Site Manager	Kai Slaasted	(773) 650-7770	kai.slaasted @vantagegrp.com	Yes	No

TABLE OF CONTENTS

SECTION I – INTRODUCTION

Site Entry and Inspection Objectives

U.S. Environmental Protection Agency Region 5 (EPA) inspectors Ted Flatebo and Andi Hodaj, Illinois Environmental Protection Agency (IEPA) inspector Jayashree Jayaraj, and Metropolitan Water Reclamation District of Greater Chicago (MWRD) representatives Luke Toonen and Jennifer Entwhistle arrived at Vantage Oleochemical (the "Site" or "Facility"), located at 4650 South Racine Avenue, Chicago, Illinois 60609 at 9:20

AM on June 9, 2022 for an unannounced inspection. The two EPA inspectors, one IEPA inspector, and two MWRD staff will be collectively referred to as the inspection team.

The inspection team presented their credentials to staff at the security building who contacted Facility representative Tony Massa. After Mr. Massa arrived, the inspection team presented their credentials to him and informed him that this was an EPA inspection to determine compliance with the Clean Water Act (CWA), the National Pollutant Discharge Elimination System (NPDES) program, and National Pretreatment Standards. The inspection was conducted under the authority of the CWA NPDES program and Section 308 of the CWA. The table above identifies the attendees who participated in the inspection.

This report is based on information supplied by Facility representatives, observations made by the EPA inspectors, and records and reports maintained by the permittee, MWRD, and EPA. These include the following: direct observations made by the EPA inspectors, photographs taken by EPA inspectors, and verbal or written statements made or supplied by Facility representatives (the permittee) during or subsequent to the on-site inspection, and materials, processes, data, photographs, or documents shown, demonstrated, or submitted to the EPA inspectors by Facility representatives during or subsequent to the on-site inspection. In addition, information gathered prior to or subsequent to the inspection from a review of EPA, MWRD, and public records may be included in this report. During the opening conference, facility representatives were asked if they considered any information confidential business information (CBI). Mr. Massa stated that no information was considered CBI by the Facility.

Background Information

Prior to the inspection, EPA inspectors confirmed the following facility information:

Process wastewater generated at the Facility is covered by MWRD Discharge Authorization No. 26573-3 (Permit). The Permit places pretreatment program prohibited discharges and local limits effluent requirements on wastewater discharged to the collection system. The effective date of the Permit is April 26, 2018, and the Permit is scheduled to expire on April 25, 2023. The Facility is classified as a Significant Industrial User (SIU) by MWRD, which is an approved Control Authority under the NPDES program. The MWRD collection system that the Facility discharges to is a combined sewer, meaning it conveys both wastewater and stormwater. The Facility does not have a stormwater permit.

MWRD personnel collect compliance samples from the Facility's Outfalls twice per year. Before the inspection, EPA representatives reviewed MWRD Facility compliance sample data from January 1, 2020 to June 1, 2022. The Facility did not have any documented effluent limit exceedances during this time period. Neither the Facility nor MWRD monitors for lower/upper explosive limits (LEL/UEL) in the Facility collection system or at its Outfalls.

SECTION II – FACILITY INSPECTION

Opening Conference

After the inspection team presented their credentials to Mr. Massa, he escorted the team to Engineering, Maintenance, Purchasing, and Production building. The inspection team began their opening conference at

approximately 9:25AM. Mr. Massa was present for the entire opening conference and Mr. Slaasted was present from approximately 9:45AM to 10:30AM.

According to Mr. Massa, the Facility produces a variety of fatty acid and glycerin products, including: vegetable Kosher glycerin, non-Kosher glycerin, oleic acid, tallow fatty acid, separated stearic acid, hydrogenated tallow fatty acid, high purity stearic acid, and distilled vegetable fatty acid. Mr. Massa reported that the North American Industrial Classification System (NAICS) code for the Facility is 32519. He also provided documentation that in 2021 the Facility produced 24,738 tons of non-Kosher glycerin, 21,498 tons of vegetable Kosher glycerin, and 202,632 tons of fatty acid products. The Facility uses a variety of non-food grade feed stocks including animal fats and vegetable oils such as soy oil, canola oil and coconut oil. The type of feed stock and its source are regularly changed based on market price and availability. Feed stocks arrive at the Facility via rail cars and truck. Final products also leave the Facility via rail cars and trucks.

Mr. Massa stated that the site where the Facility is located has historically been utilized to process animal byproducts but that since the 1950s the Facility has manufactured glycerin products. Mr. Massa also explained that the Facility underwent major upgrades in approximately 1987 but the core operations have remained the same. The Facility began operating under the name Vantage Oleochemicals in approximately 2009. The Facility operates 24 hours per day, 7 days per week. One day per year the Facility halts operations for annual maintenance activities. Mr. Massa stated the 2022 annual maintenance shutdown is scheduled for July 11th. The Facility has approximately 130 employees.

Mr. Massa explained that all of the process wastewater and the majority of the stormwater generated at the Facility is treated on site before it is discharged to the MWRD collection system. A wastewater treatment system diagram was provided to the inspection team (Appendix 2). Additional information about the wastewater treatment system is provided in the Facility Walk Through section of this inspection report.

The Facility stores hydrochloric acid on site for regenerating cation exchange columns for the water softening system, sodium hydroxide for saponification and pH adjustment within the wastewater treatment system, and phosphoric acid for pH adjustment in the wet scrubbers.

The opening conference concluded at approximately 11:00AM.

Sampling

Following the opening conference, the inspection team began to collect wastewater samples at approximately 11:15 AM. The Facility has four permitted Outfalls; 1A, 1B, 1C, and 1D. Each outfall discharges to the MWRD collection system that runs along South Racine Avenue on the Facility's east side. Outfall 1A flows east approximately 15 feet to Manhole D located in South Racine Avenue. Manhole D is located within the MWRD collection system. Per the Facility's Permit, and observations made during the inspection, the Outfalls have the following contributing flows:

Outfall 1A – Treated process effluent, treated stormwater, and untreated stormwater
Outfall 2A – Sanitary wastewater, boiler blowdown, and untreated stormwater

Outfall 3A – Sanitary wastewater and untreated stormwater
Outfall 4A – Sanitary wastewater and untreated stormwater

Additional information regarding sampling is provided in Section III. Wastewater analytical results are provided in Appendix 4.

Below is a table of the observations made at each Outfall during sample collection. Gas measurements were taken using a MSA Altair 5x owned by MWRD.

Sampling Location	Flowing	Observations
1A	Yes	ISCO 4210 flow meter = 239 gallon/min, Strong chemical odor, Wastewater = 42°C, pH = 6, Maximum Carbon Monoxide reading = 98 ppm.
2A	Yes	Flow = ~1 gallon/min, Wastewater = 19°C, pH = 7.
3A	Yes	Flow = ~1 gallon/min, Wastewater = 19°C, pH = 7, Maximum carbon monoxide measurement = 77 ppm, Maximum oxygen measurement = 21.3%.
4A	No	Not flowing, no measurements taken with gas meter.
Manhole D	Yes	Flow = ~239 gallon/min, Strong chemical odor, Wastewater = 42°C, pH = 6, Maximum carbon monoxide measurement = 302 ppm, Maximum hydrogen sulfide measurement = 5 ppm.

Facility Walk Through

The inspection team concluded sampling at approximately 1:00 PM. The team took a short lunch break and began the Facility walk through at approximately 1:30 PM. Mr. Massa walked the inspection team through the Facility process lines. The general process flow involves the raw material passing through the splitters, hydrogenation, and then vacuum distillation. At each stage of the process the concentration of glycerin is increased. A Facility process flow diagram is provided in Appendix 3.

After material is delivered to the Facility it is pumped to the raw material tank farm to be stored. Tallow raw material is sometimes passed through a filter to remove large impurities such as hair and bone. Not all tallow material passes through the filter before processing. The material is then sent to the splitting columns to undergo hydrolysis.

Before hydrolysis, tallow fatty acids are separated into crude stearic acid and crude oleic acid with a filter press after chilling the mixture to around 50°F. The Facility uses a continuous hydrogenation process to saturate the fatty acids. This process adds gaseous hydrogen to the material and utilizes a nickel catalyst. According to Mr. Massa, the Facility historically utilized a batch hydrogenation process but converted to a continuous hydrogenation process in approximately 2002. Similarly, the Facility historically used a wet separation process but in approximately 2015 converted to a dry separation process.

As part of the Kosher glycerin distillation process, salt is produced. The Facility considers the salt a waste product and it is disposed in a landfill as a non-hazardous waste. Mr. Massa estimated that 2-3 million pounds

of salt are generated at the Facility per year. Additionally, fatty acid residuals are generated during the glycerin distillation process. The residuals from this process are a solid material that is also sent to a landfill for disposal as a non-hazardous waste.

Mr. Massa explained that all the pipes within the Facility have a steam jacket or a different heating element around them to ensure the contents of the pipe are heated and flowing properly. The inspection team observed a steam hose placed in a drain within the Facility. Mr. Massa explained that when pipes get clogged, Facility personnel can inject steam to heat the blockage and restore flow. Additionally, there are stream traps throughout the Facility that collect steam condensate and discharge it to the Facility's collection system for treatment.

Mr. Massa also explained that between uses, pipes that connect tanks must be cleared to prevent cross contamination of different products. The pipes are blown out onto the ground within the secondary containment areas and allowed to flow to drains that direct the waste to the main catch basin for treatment. Similarly, when a sample is collected from the port attached to the bottom of tanks, operators will allow the port to flow onto the ground for a few seconds before the sample is collected.

The Facility has multiple tank farms to store material. The air in the headspace of these tanks is collected and sent to a wet scrubber for odor control. The Facility has four wet scrubbers, the wastewater generated by the scrubbers is sent to the main catch basin for treatment.

Wastewater is generated from a variety of sources, including: the steam condensation, pipe blowdown, sampling blowdown, and wet scrubbers described above as well as boiler blowdown, secondary containment stormwater, wash water, and cooling tower blowdown. All wastewater generated at the Facility flows to the main catch basin for treatment. Most of the stormwater from the Facility also flows to the main catch basin for treatment. There are some storm inlets located within the Facility that bypass treatment and flow directly to the MWRD collection system.

Water flows from the main catch basin to Tank 163. From Tank 163 wastewater flows via gravity to the hydroskimmer. According to Mr. Massa, the hydroskimmer is approximately 15-20 feet deep and allows fats to separate from the wastewater. A fat recovery pump was installed within the hydroskimmer in early 2021 to allow for easier recovery of fat from the system. Following the hydroskimmer, the water is treated by a coagulant (aluminum chloride hydroxide), then 50% sodium hydroxide for pH adjustment, then a polymer (Kurifloc 4224) before it reaches the dissolved air floatation (DAF) system. The DAF system generates sludge that is stored in two 5,000 gallon tanks inside the DAF building. These tanks are emptied twice per week and the contents are hauled off site for solidification and stabilization or for biodigestion. Following the DAF system, the treated effluent is either recycled back to the hydroskimmer to maintain its water level or it is discharged through outfall 1A. A wastewater treatment diagram is provided in Appendix 2.

Outfall 1A has a ISCO 4210 ultrasonic flow meter to measure effluent flows. This Outfall discharges an average of approximately 300,000 gallons per day during dry weather. The flow meter is calibrated annually by a contractor. Per the Facility's permit, compliance samples must be collected and analyzed twice annually. The sampling and analysis are conducted by a contractor on the Facility's behalf.

Mr. Massa stated the DAF system was installed in the early 2000's to replace the use of the aeration pond located on site. The pond was observed by inspectors to still contain water, but Mr. Massa stated that the pond is completely fenced in and that it is no longer utilized in any way by the company. Mr. Massa also explained that the pond's only source of influent is stormwater and there are no outlets for the water.

Mr. Massa explained that on Saturday, June 4, 2022 that Facility encountered two abnormal situations:

The first was pH effluent violation from the dissolved air floatation (DAF) system. The Facility's permit authorizes wastewater to be discharged with a pH between 5.0 – 10.0. On this day, wastewater was discharged with a pH of 4.26. Upon discovering the violation, a Facility representative called MWRD to inform them of the situation. Mr. Massa explained that the recirculating pump for the sodium hydroxide used in the DAF system for pH adjustment was broken and the problem was resolved in approximately 75 minutes.

The second situation was the leak in the wall of a hydrochloric acid tank within the Facility which was discovered on June 4, 2022. Mr. Massa explained that the leak was captured within the secondary containment and a contractor was hired to neutralize the acid. During the inspection, the team observed a contractor use a vac truck to load the neutralized waste and dispose of it in the main catch basin that leads to the wastewater treatment system.

SECTION III – SAMPLING AND ANALYTICAL RESULTS

Wastewater samples were collected from five locations during the inspection. Samples were analyzed for volatile organic compounds (VOCs) by the U.S EPA Region 5 Analytical Service Branch. Mr. Slaasted accompanied the inspection team while they sampled within the Facility, he did not accompany them to Manhole D. The inspection team offered split samples for each sample collected. Mr. Slaasted accepted split samples for sample location 1A but declined split samples for all other sample locations. Split samples were collected in the same manner as the samples analyzed by EPA.

Sample were collected from the following locations:

1A: MWRD Discharge Authorization Sample Location 1A
2A: MWRD Discharge Authorization Sample Location 2A
3A: MWRD Discharge Authorization Sample Location 3A
DAF: Effluent from the dissolved air floatation (DAF) treatment system
Manhole D: First manhole in the MWRD collection system to receive water from sample location 1A

Below is a summary of analytes that were detected in concentrations above 100 ug/L. The full sampling analytical data report is provided in Appendix 4.

Analyte	Manhole D (ug/L)	1A (ug/L)	DAF (ug/L)	2A (ug/L)	3A (ug/L)
Acrolein	676	578	494	2.02	Non-Detect
Acetone	2380	2350	2330	28.5	31.5
2-Butanone	665	611	610	2.61	8.14
2-Hexanone	165	178	170	ND	3.57

SECTION IV - AREAS OF CONCERN

The presentation of areas of concern does not constitute a formal compliance determination.

Unique Identifying No.	Record
TF-OB-001	Spent nickel catalysis is stored in large sacks outdoors. The sacks are not sealed and have potential expose to stormwater.
TF-OB-002	There is a large crack in the south wall of the hydroskimmer.
TF-OB-003	Water was observed bubbling out of a manhole immediately east of the DAF building.
TF-OB-004	There is a large buildup of solidified stearic acid on the ground in the stearic acid loading area.
TF-OB-005	One of the DAF effluent pH probes is due for calibration.
TF-OB-006	One June 3, 2022, there was a pH effluent violation caused by the failure of the sodium hydroxide recirculating pump.
TF-OB-007	On June 3, 2022, there was a leak of hydrochloric acid due to storage container failure.
TF-OB-008	A steam hose was being used to break up a suspected solidified fat blockage in a drain.
TF-OB-009	There were bubbles coming up through the water of the hydroskimmer. The source of these bubbles was not immediately clear.

SECTION V – CLOSING CONFERENCE

Closing Conference

The inspection team held a closing conference with Facility personnel beginning at approximately 4:15PM. During the closing conference, inspectors discussed the observations and Areas of Concern identified during the inspection. Observations and Areas of Concern have not yet been evaluated for a formal compliance determination. The inspection team departed the Facility at approximately 4:45 PM.

SECTION VI – LIST OF APPENDICES

Appendix 1 – Photo Log
Appendix 2 – Wastewater Treatment System Diagram
Appendix 3 – Process Flow Diagram
Appendix 4 – Sampling Analytical Data Report

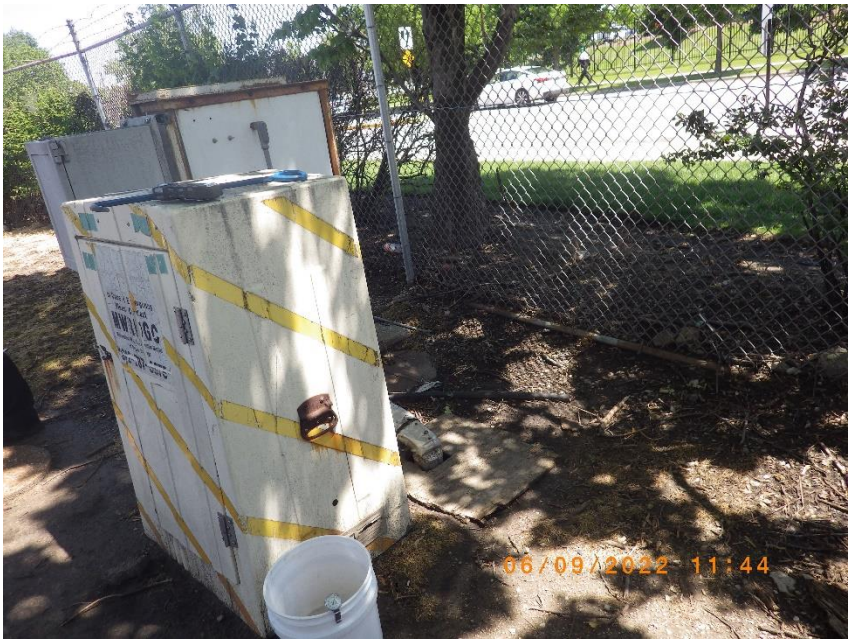
Appendix 1

Vantage Oleochemicals
EPA Inspection: June 9, 2022
All photos taken by Andi Hodaj, Environmental Engineer, U.S. EPA
Camera: Ricoh WG-4

1: RIMG2742
Description: Inside MWRD Sampling Point 1A.
Location: Along facility east fence line, east of glycerin distillation tank farm.
Camera Direction: Down.
Date/Time: June 9, 2022, 11:20

2: RIMG2743
Description: Overview of MWRD Sampling Point 1A.
Location: Along facility east fence line, east of glycerin distillation tank farm.
Camera Direction: East
Date/Time: June 9, 2022, 11:20

3: RIMG2744
Description: Wastewater samples collected from MWRD Sampling Point 1A.
Location: Along facility east fence line, east of glycerin distillation tank farm.
Camera Direction: East
Date/Time: June 9, 2022, 11:20



4: RIMG2745
Description: Overview of MWRD Sample Point 2A.
Location: Along facility east fence line, east of locker room.
Camera Direction: Northeast
Date/Time: June 9, 2022, 11:44

5: RIMG2746
Description: Inside of MWRD Sample Point 2A.
Location: Along facility east fence line, east of locker room.
Camera Direction: Down
Date/Time: June 9, 2022, 11:45

6: RIMG2747
Description: Wastewater samples collected from MWRD Sample Point 2A.
Location: Along facility east fence line, east of locker room.
Camera Direction: North
Date/Time: June 9, 2022, 11:56

7: RIMG2748
Description: Inside Manhole D
Location: Manhole in South Racine Aveune that recieves flow from Sample Point 1A. Approximately 15 feet east from Sample Point 1A. Photo obscured by steam exiting manhole.
Camera Direction: Down
Date/Time: June 9, 2022, 12:09

8: RIMG2749
Description: Overview photo of Manhole D.
Location: Manhole in South Racine Aveune approximately 15 feet east from Sample Point 1A.
Camera Direction: Down
Date/Time: June 9, 2022, 12:09

9: RIMG2750
Description: Wastewater samples collected from Manhole D.
Location: Manhole in South Racine Aveune approximately 15 feet east from Sample Point 1A.
Camera Direction: East
Date/Time: June 9, 2022, 12:14

10: RIMG2751
Description: Inside Manhole D. Photo obscured by steam exiting manhole.
Location: Manhole in South Racine Aveune approximately 15 feet east from Sample Point 1A.
Camera Direction: Down
Date/Time: June 9, 2022, 12:14

11: RIMG2752
Description: Summary of measurements taken my MWRD gas meter.
Location: Manhole D.
Camera Direction: Down.
Date/Time: June 9, 2022, 12:16

12: RIMG2753
Description: Overview of MWRD Sample Point 3A.
Location: Along facility east fence line, southeast of security building.
Camera Direction: East
Date/Time: June 9, 2022, 12:20

13: RIMG2754
Description: Inside MWRD Sample Point 3A.
Location: Along facility east fence line, southeast of security building.
Camera Direction: Down
Date/Time: June 9, 2022, 12:22

14: RIMG2755
Description: Inside MWRD Sample Point 3A.
Location: Along facility east fence line, southeast of security building.
Camera Direction: Down
Date/Time: June 9, 2022, 12:22

15: RIMG2756
Description: Inside MWRD Sample Point 3A.
Location: Along facility east fence line, southeast of security building.
Camera Direction: Down
Date/Time: June 9, 2022, 12:24

16: RIMG2757
Description: Wastewater samples collected from MWRD Sample Point 3A.
Location: Along facility east fence line, southeast of security building.
Camera Direction: East
Date/Time: June 9, 2022, 12:33

17: RIMG2758
Description: Overview of MWRD Sample Point 4A.
Location: South end of employee parking lot, north of administration building.
Camera Direction: West
Date/Time: June 9, 2022, 12:38

18: RIMG2759
Description: Overview of effluent treatment system building.
Location: Immedialtey northeast of DAF building.
Camera Direction: Northwest
Date/Time: June 9, 2022, 12:50

19: RIMG2760
Description: Overview of DAF building.
Location: Immediately south of hydroskimmer.
Camera Direction: West
Date/Time: June 9, 2022, 12:51

20: RIMG2761
Description: Sodium Hydroxide (50%) storage tank, used for effluent pH neutralization.
Location: South of effluent treatment building.
Camera Direction: North
Date/Time: June 9, 2022, 12:51

21: RIMG2762
Description: Overview of DAF treatment system. Effluent flowing out of the system on the right side of the photo.
Location: Inside DAF bulding.
Date/Time: June 9, 2022, 12:52

22: RIMG2763
Description: Effluent samples collected from DAF treatment system effluent.
Location: Inside DAF building.
Date/Time: June 9, 2022, 12:57

23: RIMG2764
Description: Water pooling on top of manhole. Source of water was not immediately clear.
Location: Between DAF building and effluent treatment building.
Camera Direction: West
Date/Time: June 9, 2022, 12:58

24: RIMG2765
Description: Combined sewer inlet downstream of wastewater treatment system.
Location: South of glycerin loading/unloading station.
Camera Direction: North
Date/Time: June 9, 2022, 13:37

25: RIMG2766
Description: Railcard unloading bulding. Each of the two tracks can accommodate 3 railcars at once.
Location:
Camera Direction: North
Date/Time: June 9, 2022, 13:39

26: RIMG2767
Description: Raw material tank farm.
Location: North of railcar unloading building.
Camera Direction: North
Date/Time: June 9, 2022, 13:41

27: RIMG2768
Description: Steam trap – collects non-contact steam condensation and discharges to drain. Water is treated on site before it is discharged as effluent.
Location: Adjacent to raw material tank farm.
Camera Direction: North
Date/Time: June 9, 2022, 13:42

28: RIMG2769
Description: Tallow storage tank. Note faded NFPA panel.
Location: Raw material tank farm.
Camera Direction: Norht
Date/Time: June 9, 2022, 13:44

29: RIMG2770
Description: Collection of oil and grease inside secondary containment.
Location: Raw material tank farm.
Camera Direction: East
Date/Time: June 9, 2022, 13:44

30: RIMG2771
Description: Collection of oil and grease inside secondary containment.
Location: Raw material tank farm.
Camera Direction: East
Date/Time: June 9, 2022, 13:44

31: RIMG2772
Description: Overview of splitting columns.
Location: Fatty acid splitting colums
Camera Direction: East
Date/Time: June 9, 2022, 13:45

32: RIMG2773
Description: Fat stock filter and dumpster for separated debris.
Location: West side of raw material tank farm.
Camera Direction: North
Date/Time: June 9, 2022, 13:54

33: RIMG2774
Description: Debris from fat stock filter.
Location: West side of raw material tank farm.
Camera Direction: North
Date/Time: June 9, 2022, 13:54

34: RIMG2775
Description: Standing water unable to flow into drain. Black hose is injecting steam into collection system to dislodge a potential blockage.
Location: West side of raw material tank farm.
Camera Direction: North
Date/Time: June 9, 2022, 13:58

35: RIMG2776
Description: Overview of hydrogenation reactor.
Location: South of hydrogen and nitrogen storage tank area.
Camera Direction: West
Date/Time: June 9, 2022, 14:01

36: RIMG2777
Description: Bags of spent nickel catalyst from the hydrogenation process.
Location: West of dissolved air floatation (DAF) building.
Camera Direction: East
Date/Time: June 9, 2022, 14:03

37: RIMG2778
Description: Wet scrubber blowdown pipe.
Location: South of raw material tank farm.
Camera Direction: Southwest
Date/Time: June 9, 2022, 14:11

38: RIMG2779
Description: Vacuum truck unloading dilluted waste into main catch basin from hydrochloric acid spill that occurred on site.
Location: Main catch basin
Camera Direction: North
Date/Time: June 9, 2022, 14:15

39: RIMG2780
Description: Storage tank sample valve located in red circle. Note excess waste during sample collection is allowed to flow onto the ground.
Location: Distillation tank farm.
Camera Direction: East
Date/Time: June 9, 2022, 14:30

40: RIMG2781
Description: 55-gallon drums and pallet totes stored outdoors with no secondary containment.
Location: Waste oil and miscellaneous drum storage area. Adjacent to tank 185.
Camera Direction: South
Date/Time: June 9, 2022, 14:31

41: RIMG2782
Description: Build up of solidified stearic acid.
Location: Stearic acid loading area.
Camera Direction: Southwest
Date/Time: June 9, 2022, 14:33

42: RIMG2783
Description: Standing water with mist falling down from wet scrubber exhaust. Green dumpsters in background contain large bags of spent nickel catalyst.
Location: East of glycerin distillation building.
Camera Direction: East
Date/Time: June 9, 2022, 14:54

43: RIMG2784
Description: Overview of glycerin distillation wet scrubber.
Location: North of glycerin distillation #1.
Camera Direction: South
Date/Time: June 9, 2022, 14:55

44: RIMG2785
Description: Overview of main catch basin.
Location: Main catch basin.
Camera Direction: East
Date/Time: June 9, 2022, 15:00

45: RIMG2786
Description: Overview of tank 163, which recieves flow from main catch basin. Note broken NFPA panel.
Location: Raw material tank farm.
Camera Direction: Northeast
Date/Time: June 9, 2022, 15:04

46: RIMG2787
Description: Blowdown from Conti scrubber.
Location: Conti hardening area.
Camera Direction: North
Date/Time: June 9, 2022, 15:05

47: RIMG2788
Description: Influent into hydroskimmer.
Location: Hydroskimmer.
Camera Direction: North
Date/Time: June 9, 2022, 15:09

48: RIMG2789
Description: Overview of hydroskimmer.
Location: Hydroskimmer.
Camera Direction: Northeast
Date/Time: June 9, 2022, 15:10

49: RIMG2791
Description: Collection of solids in the hydroskimmer.
Location: Hydroskimmer.
Camera Direction: North
Date/Time: June 9, 2022, 15:17

50: RIMG2793
Description: Collection of solids in the hydroskimmer.
Location: Hydroskimmer.
Camera Direction: North
Date/Time: June 9, 2022, 15:17

51: RIMG2794
Description: Crack in the south wall of the hydroskimmer.
Location: South wall of the hydroskimmer.
Camera Direction: North
Date/Time: June 9, 2022, 15:20

52: RIMG2795
Description: Water bubbling out of manhole.
Location: East of DAF building.
Camera Direction: Down
Date/Time: June 9, 2022, 15:21

53: RIMG2797
Description: Water bubbling out of manhole.
Location: East of DAF building.
Camera Direction: Down
Date/Time: June 9, 2022, 15:21

54: RIMG2798
Description: Water bubbling out of manhole. Note presense of bubbles.
Location: East of DAF building.
Camera Direction: Down
Date/Time: June 9, 2022, 15:21

55: RIMG2799
Description: Overview of 50% sodium hydroxide storage tank used for pH neutralization.
Location: Northeast of DAF building.
Camera Direction: West
Date/Time: June 9, 2022, 15:25

56: RIMG2800
Description: Parallel pH probes for DAF influent.
Location: Inside DAF building.
Camera Direction: North
Date/Time: June 9, 2022, 15:30

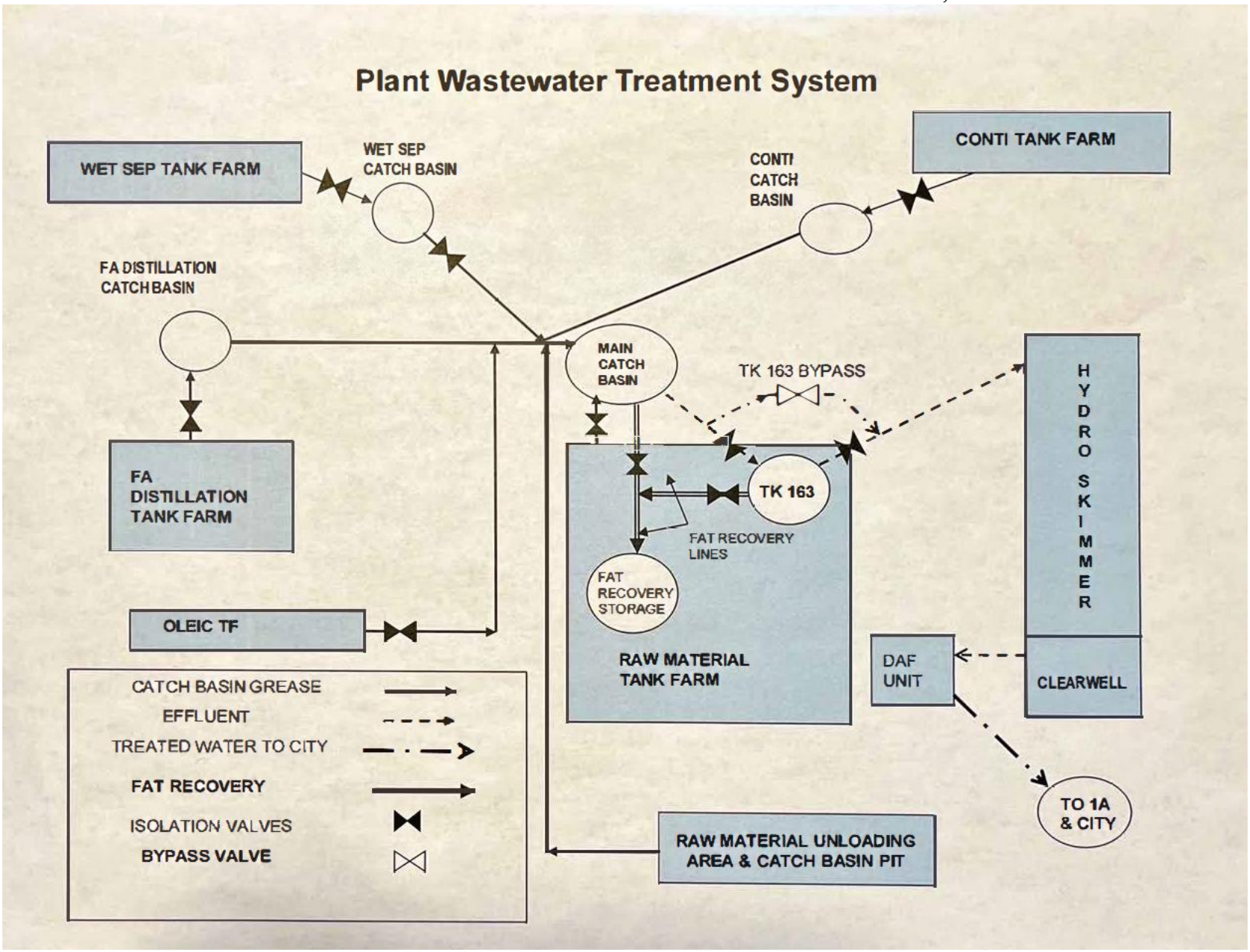
57: RIMG2802
Description: Overview of DAF treatment system.
Location: Inside DAF building.
Camera Direction: West
Date/Time: June 9, 2022, 15:38

58: RIMG2803
Description: Storage tanks for sludge generated during DAF treatment.
Location: Inside the DAF building.
Camera Direction: South
Date/Time: June 9, 2022, 15:38

59: RIMG2804
Description: Effluent from the DAF treatment system overflows from a weir into a grate below.
Location: Inside the DAF building.
Camera Direction: Down
Date/Time: June 9, 2022, 15:39

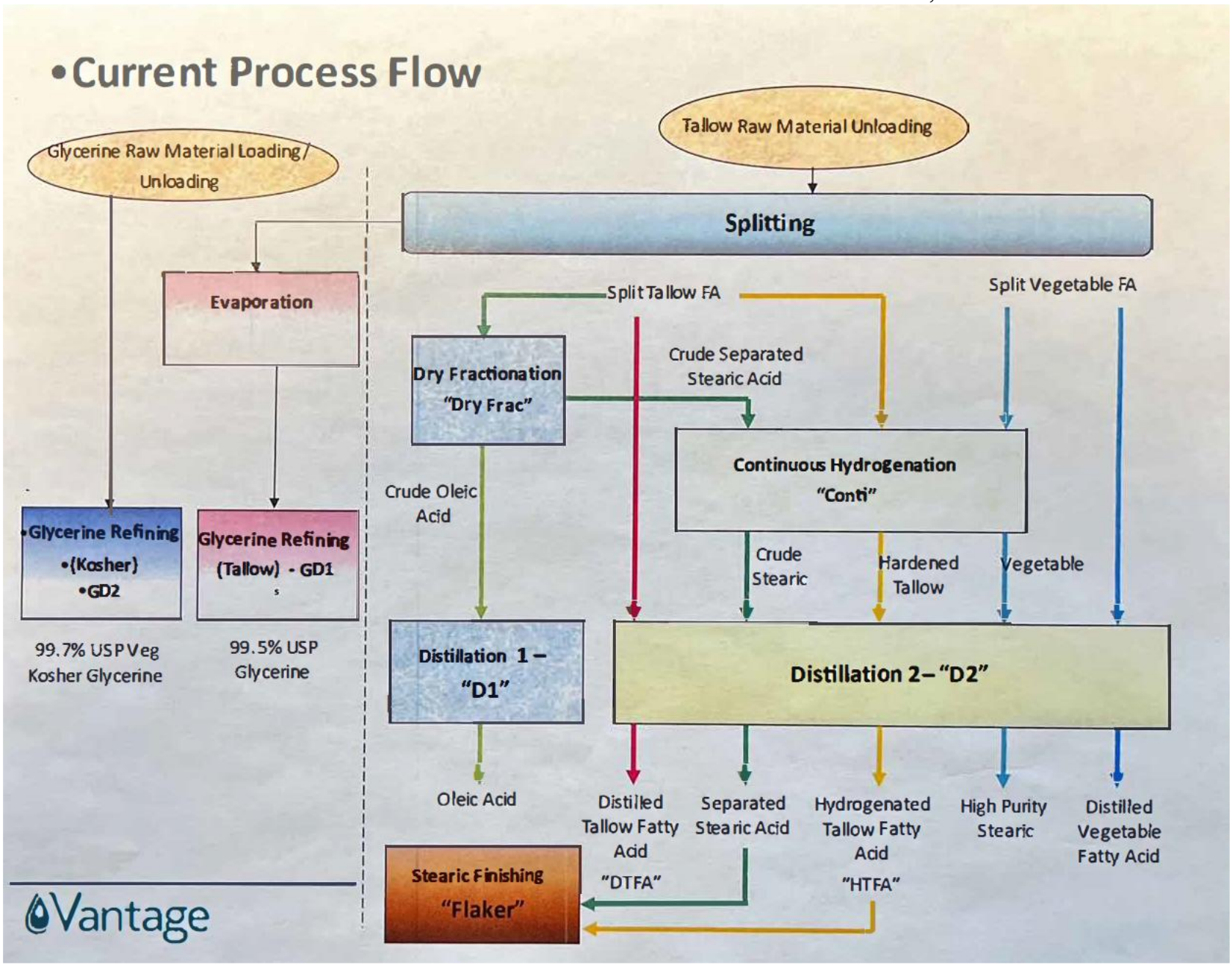
Appendix 2

Wastewater Treatment System Diagram


Plant Wastewater Treatment System
WET SEP TANK FARM
WET SEP CATCH BASIN
CONTI TANK FARM
CONTI CATCH BASIN
FA DISTILLATION CATCH BASIN
MAIN CATCH BASIN
TK 163 BYPASS
HYDRO SKIMMER
FA DISTILLATION TANK FARM
TK 163
FAT RECOVERY LINES
FAT RECOVERY STORAGE
OLEIC TF
RAW MATERIAL TANK FARM
DAF UNIT
CLEARWELL
CATCH BASIN GREASE
EFFLUENT
TREATED WATER TO CITY
FAT RECOVERY
ISOLATION VALVES
BYPASS VALVE
TO 1A & CITY
RAW MATERIAL UNLOADING AREA & CATCH BASIN PIT

Appendix 3

Process Flow Diagram


•Current Process Flow
Tallow Raw Material Unloading
Glycerine Raw Material Loading/ Unloading
Splitting
Evaporation
Split Tallow FA
Split Vegetable FA
Dry Fractionation "Dry Frac"
Crude Separated Stearic Acid
Continuous Hydrogenation "Conti"
Crude Oleic Acid
•Glycerine Refining •(Kosher) •GD2
Glycerine Refining (Tallow) - GD1
Crude Stearic
Hardened Tallow
Vegetable
99.7% USP Veg Kosher Glycerine
99.5% USP Glycerine
Distillation 1 – "D1"
Distillation 2– "D2"
Oleic Acid
Distilled Tallow Fatty Acid "DTFA"
Separated Stearic Acid
Hydrogenated Tallow Fatty Acid "HTFA"
High Purity Stearic
Distilled Vegetable Fatty Acid
Stearic Finishing "Flaker"
Vantage

Appendix 4

Sampling Analytical Data Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

US EPA Region 5 LSASD Analytical Services Branch

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: **7/27/2022**

Title: **ASB Data Report for Vantage Olechemical**

To: **Water Division, WECA Region 5**
77 West Jackson Boulevard
Chicago, IL 60604

From: **Kristen Leckrone, Chemist**
leckrone.kristen@epa.gov
US EPA Region 5 LSASD Analytical Services Branch

The results reported in this document apply to the samples as received and relate only to the items tested. The data transmitted under this cover memo successfully passed the data review process and applicable Analytical Services Branch (ASB) laboratory Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation*, ASB performs data verification on all the data generated internally. ASB does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

Kristen Leckrone

Please contact the analyst with any technical report issues, Amanda Wroble at (312)-353-0375 for sample project concerns, and Robert Snyder at (312)-353-9083 with data transmittal questions. Thank you.

Attached are Results for: **Vantage Olechemical**

Analyses included in this report:

VOA - 8260

Report Name: 2206006 VOA - 8260 FINAL Jul 27 22 1636

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Accredited Analyses included in this Report

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17025
TESTING LABORATORY

Method: ***EPA 8260C in Water***
Analysis: ***VOA - 8260***

Analyte	Certifications
Dichlorodifluoromethane	ISO/IEC 17025:2017
Chloromethane	ISO/IEC 17025:2017
Vinyl chloride	ISO/IEC 17025:2017
Bromomethane	ISO/IEC 17025:2017
Chloroethane	ISO/IEC 17025:2017
Trichlorofluoromethane	ISO/IEC 17025:2017
Acrolein	ISO/IEC 17025:2017
1,1-Dichloroethene	ISO/IEC 17025:2017
Acetone	ISO/IEC 17025:2017
Carbon disulfide	ISO/IEC 17025:2017
Methylene chloride	ISO/IEC 17025:2017
Acrylonitrile	ISO/IEC 17025:2017
trans-1,2-Dichloroethene	ISO/IEC 17025:2017
Methyl tert-butyl ether	ISO/IEC 17025:2017
1,1-Dichloroethane	ISO/IEC 17025:2017
2,2-Dichloropropane	ISO/IEC 17025:2017
cis-1,2-Dichloroethene	ISO/IEC 17025:2017

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Accredited Analyses included in this Report

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Method: ***EPA 8260C in Water***
Analysis: ***VOA - 8260***

Analyte	Certifications
2-Butanone	ISO/IEC 17025:2017
Bromochloromethane	ISO/IEC 17025:2017
Chloroform	ISO/IEC 17025:2017
1,1,1-Trichloroethane	ISO/IEC 17025:2017
Carbon tetrachloride	ISO/IEC 17025:2017
1,1-Dichloropropene	ISO/IEC 17025:2017
Benzene	ISO/IEC 17025:2017
1,2-Dichloroethane	ISO/IEC 17025:2017
Trichloroethene	ISO/IEC 17025:2017
1,2-Dichloropropane	ISO/IEC 17025:2017
Dibromomethane	ISO/IEC 17025:2017
Bromodichloromethane	ISO/IEC 17025:2017
cis-1,3-Dichloropropene	ISO/IEC 17025:2017
4-Methyl-2-pentanone	ISO/IEC 17025:2017
Toluene	ISO/IEC 17025:2017
trans-1,3-Dichloropropene	ISO/IEC 17025:2017
1,1,2-Trichloroethane	ISO/IEC 17025:2017
Tetrachloroethene	ISO/IEC 17025:2017
1,3-Dichloropropane	ISO/IEC 17025:2017

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Accredited Analyses included in this Report

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Method: ***EPA 8260C in Water***
Analysis: ***VOA - 8260***

Analyte	Certifications
2-Hexanone	ISO/IEC 17025:2017
Dibromochloromethane	ISO/IEC 17025:2017
1,2-Dibromoethane (EDB)	ISO/IEC 17025:2017
Chlorobenzene	ISO/IEC 17025:2017
1,1,1,2-Tetrachloroethane	ISO/IEC 17025:2017
Ethylbenzene	ISO/IEC 17025:2017
m+p-Xylene	ISO/IEC 17025:2017
o-Xylene	ISO/IEC 17025:2017
Styrene	ISO/IEC 17025:2017
Bromoform	ISO/IEC 17025:2017
Isopropylbenzene	ISO/IEC 17025:2017
Bromobenzene	ISO/IEC 17025:2017
1,2,3-Trichloropropane	ISO/IEC 17025:2017
n-Propylbenzene	ISO/IEC 17025:2017
2-Chlorotoluene	ISO/IEC 17025:2017
1,3,5-Trimethylbenzene	ISO/IEC 17025:2017
4-Chlorotoluene	ISO/IEC 17025:2017
1,1,2,2-Tetrachloroethane	ISO/IEC 17025:2017
tert-Butylbenzene	ISO/IEC 17025:2017

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Accredited Analyses included in this Report

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Method: ***EPA 8260C in Water***
Analysis: ***VOA - 8260***

Analyte	Certifications
1,2,4-Trimethylbenzene	ISO/IEC 17025:2017
sec-Butylbenzene	ISO/IEC 17025:2017
1,3-Dichlorobenzene	ISO/IEC 17025:2017
p-Isopropyltoluene	ISO/IEC 17025:2017
1,4-Dichlorobenzene	ISO/IEC 17025:2017
1,2-Dichlorobenzene	ISO/IEC 17025:2017
n-Butylbenzene	ISO/IEC 17025:2017
1,2-Dibromo-3-chloropropane	ISO/IEC 17025:2017
1,2,4-Trichlorobenzene	ISO/IEC 17025:2017
Hexachlorobutadiene	ISO/IEC 17025:2017
Naphthalene	ISO/IEC 17025:2017
1,2,3-Trichlorobenzene	ISO/IEC 17025:2017

Analytes not listed above are not accredited by ANAB.

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

ANALYSIS CASE NARRATIVE

General Information. Six samples were received by the Analytical Services Branch (ASB) on June 9, 2022 as work order (WO) 2206006, and were analyzed June 1st and 2nd for volatile organic compounds (VOCs) in batches B22F054 (screening only, not reported) and B22F058. All samples were refrigerated until analysis and met preservation (acidification) and hold time (14 days) requirements. The designated analyst for these samples, Kristen Leckrone, can be reached at (312) 353-9058. Analyst-in-training Emerita Quiamjot assisted with preparation of calibration standards and programming the initial instrument calibration sequence. Processing of all calibration files, completion of the associated processing method, and preparation and analysis of all continuing calibrations, batch quality control samples and client samples were performed by the designated analyst.

Sample Analysis and Results. Sample preparation and analysis were performed on the EST Purge and Trap Autosampler and Concentrator System and GC/MS#11 instrument via ASB standard operating procedure (SOP) MS023, VOA in Water (Based on EPA Method SW-846:8260C), Version 8 as modified by Pen & Ink (P&I) 27389. Data review was performed according to the guidelines in ASB SOP MS037 v.5 as modified by P&Is 21549 and 28831.

The data reported herein meets the requirements referenced in the referenced SOPs, except as discussed in the Quality Control section below. No additional client specifications different than or beyond those in the referenced SOPs were provided in the analytical request form “Vantage Olechemical, 4650 S. Racine, Chicago, IL, request date 6/1/22”. The standard MS023 analyte list is reported. Although not requested, the by-request compounds acrolein, acrylonitrile, and methyl tert-butyl ether are reported as a courtesy, because acrolein was observed at significant levels in several samples. In addition to the standard list and by-request analytes, many peaks were observed in the chromatogram for samples 2206006-01, 2206006-04, and 2206006-06, which do not coincide with any MS023 analytes. Some of these peaks were much larger than any of the listed MS023 analytes. Tentatively identified compounds (TICs) are discussed in the TIC section of the QC narrative below.

Quality Control. All quality control (QC) requirements were within ASB limits for the analytes or did not result in qualification of the data except as described below.

Initial calibration. The lowest calibration point, 1 ug/L, was dropped for acrolein and acrylonitrile, which could only be calibrated from 2 ug/L to 100 ug/L, rather than from 1 – 100 ug/L for most other analytes (2 – 200 ug/L for 2-hexanone, see MRL section below). The shortened calibration for acrolein and acrylonitrile met initial calibration requirements for number of calibration levels and for linearity. Although calibrated, 2-chloroethyl vinyl ether is not reported because it is unstable in acidic solution. Analysis for this analyte requires collected of separate, unacidified samples.

Calibration was verified via a 2nd-source initial calibration verification (ICV) standard. The ICV failed low for dichlorodifluoromethane and chloroethane. These analytes are qualified L, (ICV), low bias observed in the ICV, for all field and QC samples, including both detected and undetected results. The analytes acrolein, acrylonitrile, methyl tert-butyl ether, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone are absent from the ICV mix, so calibration for these analytes is not subject to second-source verification.

The accuracy of the low-level calibration was evaluated by reprocessing calibration points through the calibration equations at calibration level 2, which represents the method reporting limit (RL, 2 ug/L for most compounds, 4 ug/L for 2-hexanone), and at calibration level 1 (half the reporting limit, 1 ug/L most analytes, 2 ug/L for hexanone). Accuracy within

the 50-150% limit was confirmed for all analytes down to calibration level 1, except for acrolein and acrylonitrile, which were recovered acceptably at the reporting limit,, but are not evaluated at 1 ug/L due to their shortened calibration. No results, including blanks, are reported below 2 ug/L for either of these analytes.

Blanks. For most analytes, blanks were evaluated down to the method detection limit (MDL). No analytes were detected down to this level in any method blanks. For acrolein and acrylonitrile, blanks could not be evaluated below the MRL due to the shortened calibration.. For these two analytes, no blanks were detected down to the 2 ug/L reporting limit. All sample results for these analytes met blank criteria that detected sample results exceed 5x the highest measured blank. No blank qualifiers were required for any analytes.

Blank spike/blank spike duplicate (-BS/BSD). Acrolein was also recovered below acceptance limits in batch B22F054, an unreported screening batch for work order 2206006, but multiple samples in the screening batch showed significant hits for this compound. As an on-the-spot corrective action, a new ampoule of acrolein was opened. (The ampoule also contained acrylonitrile, since both analytes are present together as a commercial mix, but performance in the prior solution was still in control). New spiking solutions and -BS/BSD control samples were prepared, including with all analytes (B22F054-BS1, -BSD1, and -BS3), and with only acrolein and acrylonitrile (B22F054-BS2, -BSD2, and -BS4), as simplified solutions prepared with minimal handling. Acceptable calibration of acrolein was established from the latter solutions (-BS2, -BSD2 and -BS4), so no qualification of acrolein was required for samples in batch B22F058.

Dichlorodifluoromethane, chloromethane and vinyl chloride were recovered low in B22F058-BS1, -BSD1, and -BS3, and bromomethane was recovered low in B22F058-BSD1 and -BS3. These analytes are qualified L, LCS for all samples in the batch, including both detected and nondetected results. Chloroethane was recovered low in B22F058-BS3. Results are already qualified L, (ICV). An (LCS) descriptive qualifier is added to affected samples 2206006-01RE4 and -06RE5, which are the only injections bracketed by -BS3. Carbon disulfide was recovered above limits in B22F058-BS1 and -BSD1, but there is no impact to data because in was undetected in samples bracketed by these standards.

Matrix Spike and Duplicate (MS and MSD). No sample or QC results, including the MS/MSD, are reported from batch B22F052, a 50x screening batch performed to identify the correct dilutions at which to analyze for each analyte. Although only one MS/MSD pair is required per batch, in batch B22F058, two MS/MSD pairs were performed due to the wide range of concentrations of analytes in the samples. One MS/MSD pair was prepared for the 20x bench dilution, and a second pair for the undiluted (1x) source. Each analyte is reported in the source and the MS/MSD of matching dilution. All analytes passed in the MS/MSDs for which they were on scale and reported, and no matrix qualifiers were required.

Tentatively Identified Compounds (TICs). For samples 2206016-01, 2206016-04, and 2206016-06, , the total ion chromatograms were dominated by peaks that did not correspond to supported analytes in MS023, including many which were significantly larger than the supported compounds, surrogates and internal standards. Unidentified peaks in the total ion chromatogram were searched against the National Institute of Standards & Technology (NIST) spectral library, and the highest library matches were evaluated against TIC qualitative acceptance criteria in MS 023. The eleven most significant TICs were tentatively identified as acetaldehyde, 2-heptanone, 2-octanone, 1-octanol, 2-nonanone, 1-heptanol, 1-hexanol, 1-butanol, 2-decanone, 1-nonanol, and 2-octanol, in order of decreasing peak area. This is consistent with observations that the highest concentrations of MS023-supported analytes were also aldehydes (acrolein, 286 ug/L) and ketones (acetone, 2-butanone, 2-hexanone measured at 3110, 804, and 176 ug/L, respectively). Alcohols are not generally analyzed by VOA-8260 purge and trap methods, and no alcohols are included in the standard MS023 analyte list, so there are no listed alcohols against which to compare the magnitudes of the unlisted ones. Unsupported analytes cannot be reliably quantitated from the total ion chromatogram, however, the peak area of the eleven TICs named above ranged from 25 to 5 times the average area of the 50 ug/L internal standards. Based on their peak areas relative to those of the

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

known 50 ug/L internal standards, a crude order-of-magnitude estimate is that these eleven compounds could be present in concentrations of hundreds to thousands of ug/L. If alcohols, aldehydes, and/or ketones are important for the site these samples represent, it may be of value to identify laboratories and methods that support analysis of these compound classes.

Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

WORK ORDER **Printed: 7/5/2022 8:02:45AM**

2206006

US EPA Region 5 LSASD Analytical Services Branch

Client: Water Division, WECA Region 5 **Project Manager:** Angela Ockrassa Davis
Project: Vantage Olechemical **Project Number:** [none]

Report To:

Andi Hodaj	77 West Jackson Boulevard	Phone: (312) 353-4645
Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due: Jul-25-22 15:00 (45 day TAT)
Received By: Luis Antonio Flores Date Received: Jun-09-22 17:36
Logged In By: Robert Snyder Date Logged In: Jun-10-22 11:17

Sample tags/labels	Yes	**Work Order Comments:**
Seals Intact	Yes	Copy/Relog from 2205016.
Received on ice	Yes	
Paperwork Included	Yes	

Cooler(s) information:
Default Cooler - 19.00 C

Sample ID: 2206006-01 **Sampled:** Jun-09-22 11:17 **Matrix:** Water *QC Source Sample*
Sample Name: 1A **Sample Location/Comments:** MWRD Permit 1A
Sample Comments:

Analysis	Hold time (days)	Expires	Comments
VOA - 8260	14	Jun-23-22 11:17	

Sample ID: 2206006-02 **Sampled:** Jun-09-22 11:50 **Matrix:** Water
Sample Name: 2A **Sample Location/Comments:** MWRD Permit 2A
Sample Comments:

Analysis	Hold time (days)	Expires	Comments
VOA - 8260	14	Jun-23-22 11:50	

Sample ID: 2206006-03 **Sampled:** Jun-09-22 11:55 **Matrix:** Water
Sample Name: Trip Blank **Sample Location/Comments:** Trip Blank
Sample Comments:

Analysis	Hold time (days)	Expires	Comments
VOA - 8260	14	Jun-23-22 11:55	

2206006

US EPA Region 5 LSASD Analytical Services Branch

Client:	**Water Division, WECA Region 5**	**Project Manager:**	**Angela Ockrassa Davis**
Project:	**Vantage Olechemical**	**Project Number:**	**[none]**

Sample ID: 2206006-04 **Sampled:** Jun-09-22 12:10 **Matrix:** Water

Sample Name: Manhole D **Sample Location/Comments:** Manhole D

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
VOA - 8260	14	Jun-23-22 12:10	

Sample ID: 2206006-05 **Sampled:** Jun-09-22 12:32 **Matrix:** Water

Sample Name: 3A **Sample Location/Comments:** MWRD Permit 3A

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
VOA - 8260	14	Jun-23-22 12:32	

Sample ID: 2206006-06 **Sampled:** Jun-09-22 12:55 **Matrix:** Water

Sample Name: DAF **Sample Location/Comments:** DAF Effluent

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
VOA - 8260	14	Jun-23-22 12:55	

WORK ORDER MEMO: IR 29375

Reviewed By Date

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

1A (2206006-01RE3) **Matrix: Water** **Sampled: Jun-09-22 11:17** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Acrolein	**578**			40.0	ug/L	20	B22F058	Jun-15-22	Jun-16-22
Acetone	**2350**			200	"	"	"	"	"
2-Butanone	**611**			200	"	"	"	"	"
2-Hexanone	**178**			80.0	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	10.4	*104%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	10.7	*106%*	*70-130*	"	"	"
Toluene-d8	9.56	*95.6%*	*70-130*	"	"	"
4-Bromofluorobenzene	10.3	*103%*	*70-130*	"	"	"

1A (2206006-01RE4) **Matrix: Water** **Sampled: Jun-09-22 11:17** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Dichlorodifluoromethane	**U**	(ICV), (LCS), L		2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Chloromethane	**6.83**	(LCS), L		2.00	"	"	"	"	"
Vinyl chloride	**U**	(LCS), L		2.00	"	"	"	"	"
Bromomethane	**U**	(LCS), L		2.00	"	"	"	"	"
Chloroethane	**U**	(ICV), (LCS), L		2.00	"	"	"	"	"
Trichlorofluoromethane	**U**			2.00	"	"	"	"	"
1,1-Dichloroethene	**U**			2.00	"	"	"	"	"
Carbon disulfide	**U**			2.00	"	"	"	"	"
Methylene chloride	**U**			2.00	"	"	"	"	"
Acrylonitrile	**U**			2.00	"	"	"	"	"
trans-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Methyl tert-butyl ether	**U**			2.00	"	"	"	"	"
1,1-Dichloroethane	**U**			2.00	"	"	"	"	"
2,2-Dichloropropane	**U**			2.00	"	"	"	"	"
cis-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Bromochloromethane	**U**			2.00	"	"	"	"	"
Chloroform	**U**			2.00	"	"	"	"	"
1,1,1-Trichloroethane	**U**			2.00	"	"	"	"	"
Carbon tetrachloride	**U**			2.00	"	"	"	"	"
1,1-Dichloropropene	**U**			2.00	"	"	"	"	"
Benzene	**12.1**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

1A (2206006-01RE4) **Matrix: Water** **Sampled: Jun-09-22 11:17** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,2-Dichloroethane	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Trichloroethene	**U**			2.00	"	"	"	"	"
1,2-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromomethane	**U**			2.00	"	"	"	"	"
Bromodichloromethane	**U**			2.00	"	"	"	"	"
cis-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
4-Methyl-2-pentanone	**7.91**			4.00	"	"	"	"	"
Toluene	**3.39**			2.00	"	"	"	"	"
trans-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
1,1,2-Trichloroethane	**U**			2.00	"	"	"	"	"
Tetrachloroethene	**U**			2.00	"	"	"	"	"
1,3-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromochloromethane	**U**			2.00	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.00	"	"	"	"	"
Chlorobenzene	**U**			2.00	"	"	"	"	"
1,1,1,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
Ethylbenzene	**U**			2.00	"	"	"	"	"
m+p-Xylene	**U**			4.00	"	"	"	"	"
o-Xylene	**U**			2.00	"	"	"	"	"
Styrene	**6.84**			2.00	"	"	"	"	"
Bromoform	**U**			2.00	"	"	"	"	"
Isopropylbenzene	**U**			2.00	"	"	"	"	"
Bromobenzene	**U**			2.00	"	"	"	"	"
1,2,3-Trichloropropane	**U**			2.00	"	"	"	"	"
n-Propylbenzene	**U**			2.00	"	"	"	"	"
2-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.00	"	"	"	"	"
4-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,1,2,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
tert-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			2.00	"	"	"	"	"
sec-Butylbenzene	**U**			2.00	"	"	"	"	"
1,3-Dichlorobenzene	**U**			2.00	"	"	"	"	"
p-Isopropyltoluene	**U**			2.00	"	"	"	"	"
1,4-Dichlorobenzene	**U**			2.00	"	"	"	"	"
1,2-Dichlorobenzene	**U**			2.00	"	"	"	"	"
n-Butylbenzene	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

1A (2206006-01RE4) **Matrix: Water** **Sampled: Jun-09-22 11:17** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,2-Dibromo-3-chloropropane	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,2,4-Trichlorobenzene	**U**			2.00	"	"	"	"	"
Hexachlorobutadiene	**U**			2.00	"	"	"	"	"
Naphthalene	**U**			2.00	"	"	"	"	"
1,2,3-Trichlorobenzene	**U**			2.00	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	9.55	*94.9%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	10.1	*99.8%*	*70-130*	"	"	"
Toluene-d8	10.1	*101%*	*70-130*	"	"	"
4-Bromofluorobenzene	10.7	*107%*	*70-130*	"	"	"

2A (2206006-02RE1) **Matrix: Water** **Sampled: Jun-09-22 11:50** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Dichlorodifluoromethane	**U**	(ICV), (LCS), L		2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Chloromethane	**U**	(LCS), L		2.00	"	"	"	"	"
Vinyl chloride	**U**	(LCS), L		2.00	"	"	"	"	"
Bromomethane	**U**	(LCS), L		2.00	"	"	"	"	"
Chloroethane	**U**	(ICV), L		2.00	"	"	"	"	"
Trichlorofluoromethane	**U**			2.00	"	"	"	"	"
Acrolein	**2.02**			2.00	"	"	"	"	"
1,1-Dichloroethene	**U**			2.00	"	"	"	"	"
Acetone	**28.5**			10.0	"	"	"	"	"
Carbon disulfide	**U**			2.00	"	"	"	"	"
Methylene chloride	**U**			2.00	"	"	"	"	"
Acrylonitrile	**U**			2.00	"	"	"	"	"
trans-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Methyl tert-butyl ether	**U**			2.00	"	"	"	"	"
1,1-Dichloroethane	**U**			2.00	"	"	"	"	"
2,2-Dichloropropane	**U**			2.00	"	"	"	"	"
cis-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
2-Butanone	**U**			10.0	"	"	"	"	"
Bromochloromethane	**U**			2.00	"	"	"	"	"
Chloroform	**12.5**			2.00	"	"	"	"	"
1,1,1-Trichloroethane	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

2A (2206006-02RE1) **Matrix: Water** **Sampled: Jun-09-22 11:50** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Carbon tetrachloride	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,1-Dichloropropene	**U**			2.00	"	"	"	"	"
Benzene	**U**			2.00	"	"	"	"	"
1,2-Dichloroethane	**U**			2.00	"	"	"	"	"
Trichloroethene	**U**			2.00	"	"	"	"	"
1,2-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromomethane	**U**			2.00	"	"	"	"	"
Bromodichloromethane	**U**			2.00	"	"	"	"	"
cis-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
4-Methyl-2-pentanone	**U**			4.00	"	"	"	"	"
Toluene	**U**			2.00	"	"	"	"	"
trans-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
1,1,2-Trichloroethane	**U**			2.00	"	"	"	"	"
Tetrachloroethene	**U**			2.00	"	"	"	"	"
1,3-Dichloropropane	**U**			2.00	"	"	"	"	"
2-Hexanone	**U**			4.00	"	"	"	"	"
Dibromochloromethane	**U**			2.00	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.00	"	"	"	"	"
Chlorobenzene	**U**			2.00	"	"	"	"	"
1,1,1,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
Ethylbenzene	**U**			2.00	"	"	"	"	"
m+p-Xylene	**U**			4.00	"	"	"	"	"
o-Xylene	**U**			2.00	"	"	"	"	"
Styrene	**U**			2.00	"	"	"	"	"
Bromoform	**U**			2.00	"	"	"	"	"
Isopropylbenzene	**U**			2.00	"	"	"	"	"
Bromobenzene	**U**			2.00	"	"	"	"	"
1,2,3-Trichloropropane	**U**			2.00	"	"	"	"	"
n-Propylbenzene	**U**			2.00	"	"	"	"	"
2-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.00	"	"	"	"	"
4-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,1,2,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
tert-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			2.00	"	"	"	"	"
sec-Butylbenzene	**U**			2.00	"	"	"	"	"
1,3-Dichlorobenzene	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

2A (2206006-02RE1) **Matrix: Water** **Sampled: Jun-09-22 11:50** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
p-Isopropyltoluene	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,4-Dichlorobenzene	**U**			2.00	"	"	"	"	"
1,2-Dichlorobenzene	**U**			2.00	"	"	"	"	"
n-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2-Dibromo-3-chloropropane	**U**			2.00	"	"	"	"	"
1,2,4-Trichlorobenzene	**U**			2.00	"	"	"	"	"
Hexachlorobutadiene	**U**			2.00	"	"	"	"	"
Naphthalene	**U**			2.00	"	"	"	"	"
1,2,3-Trichlorobenzene	**U**			2.00	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	10.5	*104%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	11.0	*109%*	*70-130*	"	"	"
Toluene-d8	9.64	*96.4%*	*70-130*	"	"	"
4-Bromofluorobenzene	9.18	*91.8%*	*70-130*	"	"	"

Trip Blank (2206006-03RE1) **Matrix: Water** **Sampled: Jun-09-22 11:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Dichlorodifluoromethane	**U**	(ICV), (LCS), L		2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Chloromethane	**U**	(LCS), L		2.00	"	"	"	"	"
Vinyl chloride	**U**	(LCS), L		2.00	"	"	"	"	"
Bromomethane	**U**	(LCS), L		2.00	"	"	"	"	"
Chloroethane	**U**	(ICV), L		2.00	"	"	"	"	"
Trichlorofluoromethane	**U**			2.00	"	"	"	"	"
Acrolein	**U**			2.00	"	"	"	"	"
1,1-Dichloroethene	**U**			2.00	"	"	"	"	"
Acetone	**U**			10.0	"	"	"	"	"
Carbon disulfide	**U**			2.00	"	"	"	"	"
Methylene chloride	**U**			2.00	"	"	"	"	"
Acrylonitrile	**U**			2.00	"	"	"	"	"
trans-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Methyl tert-butyl ether	**U**			2.00	"	"	"	"	"
1,1-Dichloroethane	**U**			2.00	"	"	"	"	"
2,2-Dichloropropane	**U**			2.00	"	"	"	"	"
cis-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

Trip Blank (2206006-03RE1) **Matrix: Water** **Sampled: Jun-09-22 11:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
2-Butanone	**U**			10.0	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Bromochloromethane	**U**			2.00	"	"	"	"	"
Chloroform	**U**			2.00	"	"	"	"	"
1,1,1-Trichloroethane	**U**			2.00	"	"	"	"	"
Carbon tetrachloride	**U**			2.00	"	"	"	"	"
1,1-Dichloropropene	**U**			2.00	"	"	"	"	"
Benzene	**U**			2.00	"	"	"	"	"
1,2-Dichloroethane	**U**			2.00	"	"	"	"	"
Trichloroethene	**U**			2.00	"	"	"	"	"
1,2-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromomethane	**U**			2.00	"	"	"	"	"
Bromodichloromethane	**U**			2.00	"	"	"	"	"
cis-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
4-Methyl-2-pentanone	**U**			4.00	"	"	"	"	"
Toluene	**U**			2.00	"	"	"	"	"
trans-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
1,1,2-Trichloroethane	**U**			2.00	"	"	"	"	"
Tetrachloroethene	**U**			2.00	"	"	"	"	"
1,3-Dichloropropane	**U**			2.00	"	"	"	"	"
2-Hexanone	**U**			4.00	"	"	"	"	"
Dibromochloromethane	**U**			2.00	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.00	"	"	"	"	"
Chlorobenzene	**U**			2.00	"	"	"	"	"
1,1,1,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
Ethylbenzene	**U**			2.00	"	"	"	"	"
m+p-Xylene	**U**			4.00	"	"	"	"	"
o-Xylene	**U**			2.00	"	"	"	"	"
Styrene	**U**			2.00	"	"	"	"	"
Bromoform	**U**			2.00	"	"	"	"	"
Isopropylbenzene	**U**			2.00	"	"	"	"	"
Bromobenzene	**U**			2.00	"	"	"	"	"
1,2,3-Trichloropropane	**U**			2.00	"	"	"	"	"
n-Propylbenzene	**U**			2.00	"	"	"	"	"
2-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.00	"	"	"	"	"
4-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,1,2,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

Trip Blank (2206006-03RE1) **Matrix: Water** **Sampled: Jun-09-22 11:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
tert-Butylbenzene	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,2,4-Trimethylbenzene	**U**			2.00	"	"	"	"	"
sec-Butylbenzene	**U**			2.00	"	"	"	"	"
1,3-Dichlorobenzene	**U**			2.00	"	"	"	"	"
p-Isopropyltoluene	**U**			2.00	"	"	"	"	"
1,4-Dichlorobenzene	**U**			2.00	"	"	"	"	"
1,2-Dichlorobenzene	**U**			2.00	"	"	"	"	"
n-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2-Dibromo-3-chloropropane	**U**			2.00	"	"	"	"	"
1,2,4-Trichlorobenzene	**U**			2.00	"	"	"	"	"
Hexachlorobutadiene	**U**			2.00	"	"	"	"	"
Naphthalene	**U**			2.00	"	"	"	"	"
1,2,3-Trichlorobenzene	**U**			2.00	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	10.8	*107%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	11.0	*109%*	*70-130*	"	"	"
Toluene-d8	9.64	*96.4%*	*70-130*	"	"	"
4-Bromofluorobenzene	9.13	*91.3%*	*70-130*	"	"	"

Manhole D (2206006-04RE1) **Matrix: Water** **Sampled: Jun-09-22 12:10** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Acrolein	**676**			40.0	ug/L	20	B22F058	Jun-15-22	Jun-17-22
Acetone	**2380**			200	"	"	"	"	"
2-Butanone	**665**			200	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	10.6	*105%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	11.0	*109%*	*70-130*	"	"	"
Toluene-d8	9.77	*97.7%*	*70-130*	"	"	"
4-Bromofluorobenzene	9.85	*98.5%*	*70-130*	"	"	"

Environmental Protection Agency Region 5

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

Manhole D (2206006-04RE2) **Matrix: Water** **Sampled: Jun-09-22 12:10** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Dichlorodifluoromethane	**U**	(ICV), (LCS), L		2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Chloromethane	**6.73**	(LCS), L		2.00	"	"	"	"	"
Vinyl chloride	**U**	(LCS), L		2.00	"	"	"	"	"
Bromomethane	**U**	(LCS), L		2.00	"	"	"	"	"
Chloroethane	**U**	(ICV), L		2.00	"	"	"	"	"
Trichlorofluoromethane	**U**			2.00	"	"	"	"	"
1,1-Dichloroethene	**U**			2.00	"	"	"	"	"
Carbon disulfide	**U**			2.00	"	"	"	"	"
Methylene chloride	**U**			2.00	"	"	"	"	"
Acrylonitrile	**U**			2.00	"	"	"	"	"
trans-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Methyl tert-butyl ether	**U**			2.00	"	"	"	"	"
1,1-Dichloroethane	**U**			2.00	"	"	"	"	"
2,2-Dichloropropane	**U**			2.00	"	"	"	"	"
cis-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Bromochloromethane	**U**			2.00	"	"	"	"	"
Chloroform	**U**			2.00	"	"	"	"	"
1,1,1-Trichloroethane	**U**			2.00	"	"	"	"	"
Carbon tetrachloride	**U**			2.00	"	"	"	"	"
1,1-Dichloropropene	**U**			2.00	"	"	"	"	"
Benzene	**10.5**			2.00	"	"	"	"	"
1,2-Dichloroethane	**U**			2.00	"	"	"	"	"
Trichloroethene	**U**			2.00	"	"	"	"	"
1,2-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromomethane	**U**			2.00	"	"	"	"	"
Bromodichloromethane	**U**			2.00	"	"	"	"	"
cis-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
4-Methyl-2-pentanone	**11.6**			4.00	"	"	"	"	"
Toluene	**2.74**			2.00	"	"	"	"	"
trans-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
1,1,2-Trichloroethane	**U**			2.00	"	"	"	"	"
Tetrachloroethene	**U**			2.00	"	"	"	"	"
1,3-Dichloropropane	**U**			2.00	"	"	"	"	"
2-Hexanone	**165**			4.00	"	"	"	"	"
Dibromochloromethane	**U**			2.00	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

Manhole D (2206006-04RE2) **Matrix: Water** **Sampled: Jun-09-22 12:10** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Chlorobenzene	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,1,1,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
Ethylbenzene	**U**			2.00	"	"	"	"	"
m+p-Xylene	**U**			4.00	"	"	"	"	"
o-Xylene	**U**			2.00	"	"	"	"	"
Styrene	**6.14**			2.00	"	"	"	"	"
Bromoform	**U**			2.00	"	"	"	"	"
Isopropylbenzene	**U**			2.00	"	"	"	"	"
Bromobenzene	**U**			2.00	"	"	"	"	"
1,2,3-Trichloropropane	**U**			2.00	"	"	"	"	"
n-Propylbenzene	**U**			2.00	"	"	"	"	"
2-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.00	"	"	"	"	"
4-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,1,2,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
tert-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			2.00	"	"	"	"	"
sec-Butylbenzene	**U**			2.00	"	"	"	"	"
1,3-Dichlorobenzene	**U**			2.00	"	"	"	"	"
p-Isopropyltoluene	**U**			2.00	"	"	"	"	"
1,4-Dichlorobenzene	**U**			2.00	"	"	"	"	"
1,2-Dichlorobenzene	**U**			2.00	"	"	"	"	"
n-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2-Dibromo-3-chloropropane	**U**			2.00	"	"	"	"	"
1,2,4-Trichlorobenzene	**U**			2.00	"	"	"	"	"
Hexachlorobutadiene	**U**			2.00	"	"	"	"	"
Naphthalene	**U**			2.00	"	"	"	"	"
1,2,3-Trichlorobenzene	**U**			2.00	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	9.54	*94.8%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	9.57	*94.9%*	*70-130*	"	"	"
Toluene-d8	9.90	*99.0%*	*70-130*	"	"	"
4-Bromofluorobenzene	10.6	*106%*	*70-130*	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

3A (2206006-05RE1) **Matrix: Water** **Sampled: Jun-09-22 12:32** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Dichlorodifluoromethane	**U**	(ICV), (LCS), L		2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Chloromethane	**U**	(LCS), L		2.00	"	"	"	"	"
Vinyl chloride	**U**	(LCS), L		2.00	"	"	"	"	"
Bromomethane	**U**	(LCS), L		2.00	"	"	"	"	"
Chloroethane	**U**	(ICV), L		2.00	"	"	"	"	"
Trichlorofluoromethane	**U**			2.00	"	"	"	"	"
Acrolein	**U**			2.00	"	"	"	"	"
1,1-Dichloroethene	**U**			2.00	"	"	"	"	"
Acetone	**31.5**			10.0	"	"	"	"	"
Carbon disulfide	**U**			2.00	"	"	"	"	"
Methylene chloride	**U**			2.00	"	"	"	"	"
Acrylonitrile	**U**			2.00	"	"	"	"	"
trans-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Methyl tert-butyl ether	**U**			2.00	"	"	"	"	"
1,1-Dichloroethane	**U**			2.00	"	"	"	"	"
2,2-Dichloropropane	**U**			2.00	"	"	"	"	"
cis-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
2-Butanone	**U**			10.0	"	"	"	"	"
Bromochloromethane	**U**			2.00	"	"	"	"	"
Chloroform	**U**			2.00	"	"	"	"	"
1,1,1-Trichloroethane	**U**			2.00	"	"	"	"	"
Carbon tetrachloride	**U**			2.00	"	"	"	"	"
1,1-Dichloropropene	**U**			2.00	"	"	"	"	"
Benzene	**U**			2.00	"	"	"	"	"
1,2-Dichloroethane	**U**			2.00	"	"	"	"	"
Trichloroethene	**U**			2.00	"	"	"	"	"
1,2-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromomethane	**U**			2.00	"	"	"	"	"
Bromodichloromethane	**U**			2.00	"	"	"	"	"
cis-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
4-Methyl-2-pentanone	**U**			4.00	"	"	"	"	"
Toluene	**U**			2.00	"	"	"	"	"
trans-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
1,1,2-Trichloroethane	**U**			2.00	"	"	"	"	"
Tetrachloroethene	**U**			2.00	"	"	"	"	"
1,3-Dichloropropane	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

3A (2206006-05RE1) **Matrix: Water** **Sampled: Jun-09-22 12:32** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
2-Hexanone	**U**			4.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Dibromochloromethane	**U**			2.00	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.00	"	"	"	"	"
Chlorobenzene	**U**			2.00	"	"	"	"	"
1,1,1,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
Ethylbenzene	**U**			2.00	"	"	"	"	"
m+p-Xylene	**U**			4.00	"	"	"	"	"
o-Xylene	**U**			2.00	"	"	"	"	"
Styrene	**U**			2.00	"	"	"	"	"
Bromoform	**U**			2.00	"	"	"	"	"
Isopropylbenzene	**U**			2.00	"	"	"	"	"
Bromobenzene	**U**			2.00	"	"	"	"	"
1,2,3-Trichloropropane	**U**			2.00	"	"	"	"	"
n-Propylbenzene	**U**			2.00	"	"	"	"	"
2-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.00	"	"	"	"	"
4-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,1,2,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
tert-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			2.00	"	"	"	"	"
sec-Butylbenzene	**U**			2.00	"	"	"	"	"
1,3-Dichlorobenzene	**U**			2.00	"	"	"	"	"
p-Isopropyltoluene	**U**			2.00	"	"	"	"	"
1,4-Dichlorobenzene	**U**			2.00	"	"	"	"	"
1,2-Dichlorobenzene	**U**			2.00	"	"	"	"	"
n-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2-Dibromo-3-chloropropane	**U**			2.00	"	"	"	"	"
1,2,4-Trichlorobenzene	**U**			2.00	"	"	"	"	"
Hexachlorobutadiene	**U**			2.00	"	"	"	"	"
Naphthalene	**U**			2.00	"	"	"	"	"
1,2,3-Trichlorobenzene	**U**			2.00	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	10.3	*102%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	10.9	*108%*	*70-130*	"	"	"
Toluene-d8	9.71	*97.1%*	*70-130*	"	"	"
4-Bromofluorobenzene	9.82	*98.2%*	*70-130*	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

DAF (2206006-06RE4) **Matrix: Water** **Sampled: Jun-09-22 12:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Acrolein	**494**			40.0	ug/L	20	B22F058	Jun-15-22	Jun-17-22
Acetone	**2330**			200	"	"	"	"	"
2-Butanone	**610**			200	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	10.2	*101%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	10.4	*103%*	*70-130*	"	"	"
Toluene-d8	9.53	*95.3%*	*70-130*	"	"	"
4-Bromofluorobenzene	10.1	*101%*	*70-130*	"	"	"

DAF (2206006-06RE5) **Matrix: Water** **Sampled: Jun-09-22 12:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Dichlorodifluoromethane	**U**	(ICV), (LCS), L		2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
Chloromethane	**13.2**	(LCS), L		2.00	"	"	"	"	"
Vinyl chloride	**U**	(LCS), L		2.00	"	"	"	"	"
Bromomethane	**U**	(LCS), L		2.00	"	"	"	"	"
Chloroethane	**U**	(ICV), (LCS), L		2.00	"	"	"	"	"
Trichlorofluoromethane	**U**			2.00	"	"	"	"	"
1,1-Dichloroethene	**U**			2.00	"	"	"	"	"
Carbon disulfide	**U**			2.00	"	"	"	"	"
Methylene chloride	**U**			2.00	"	"	"	"	"
Acrylonitrile	**U**			2.00	"	"	"	"	"
trans-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Methyl tert-butyl ether	**U**			2.00	"	"	"	"	"
1,1-Dichloroethane	**U**			2.00	"	"	"	"	"
2,2-Dichloropropane	**U**			2.00	"	"	"	"	"
cis-1,2-Dichloroethene	**U**			2.00	"	"	"	"	"
Bromochloromethane	**U**			2.00	"	"	"	"	"
Chloroform	**U**			2.00	"	"	"	"	"
1,1,1-Trichloroethane	**U**			2.00	"	"	"	"	"
Carbon tetrachloride	**U**			2.00	"	"	"	"	"
1,1-Dichloropropene	**U**			2.00	"	"	"	"	"
Benzene	**18.0**			2.00	"	"	"	"	"
1,2-Dichloroethane	**U**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

DAF (2206006-06RE5) **Matrix: Water** **Sampled: Jun-09-22 12:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Trichloroethene	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,2-Dichloropropane	**U**			2.00	"	"	"	"	"
Dibromomethane	**U**			2.00	"	"	"	"	"
Bromodichloromethane	**U**			2.00	"	"	"	"	"
cis-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
4-Methyl-2-pentanone	**5.08**			4.00	"	"	"	"	"
Toluene	**4.57**			2.00	"	"	"	"	"
trans-1,3-Dichloropropene	**U**			2.00	"	"	"	"	"
1,1,2-Trichloroethane	**U**			2.00	"	"	"	"	"
Tetrachloroethene	**U**			2.00	"	"	"	"	"
1,3-Dichloropropane	**U**			2.00	"	"	"	"	"
2-Hexanone	**170**			4.00	"	"	"	"	"
Dibromochloromethane	**U**			2.00	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.00	"	"	"	"	"
Chlorobenzene	**U**			2.00	"	"	"	"	"
1,1,1,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
Ethylbenzene	**U**			2.00	"	"	"	"	"
m+p-Xylene	**U**			4.00	"	"	"	"	"
o-Xylene	**U**			2.00	"	"	"	"	"
Styrene	**9.71**			2.00	"	"	"	"	"
Bromoform	**U**			2.00	"	"	"	"	"
Isopropylbenzene	**U**			2.00	"	"	"	"	"
Bromobenzene	**U**			2.00	"	"	"	"	"
1,2,3-Trichloropropane	**U**			2.00	"	"	"	"	"
n-Propylbenzene	**U**			2.00	"	"	"	"	"
2-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.00	"	"	"	"	"
4-Chlorotoluene	**U**			2.00	"	"	"	"	"
1,1,2,2-Tetrachloroethane	**U**			2.00	"	"	"	"	"
tert-Butylbenzene	**U**			2.00	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			2.00	"	"	"	"	"
sec-Butylbenzene	**U**			2.00	"	"	"	"	"
1,3-Dichlorobenzene	**U**			2.00	"	"	"	"	"
p-Isopropyltoluene	**2.61**			2.00	"	"	"	"	"
1,4-Dichlorobenzene	**U**			2.00	"	"	"	"	"
1,2-Dichlorobenzene	**U**			2.00	"	"	"	"	"
n-Butylbenzene	**2.77**			2.00	"	"	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified)

US EPA Region 5 LSASD Analytical Services Branch

DAF (2206006-06RE5) **Matrix: Water** **Sampled: Jun-09-22 12:55** **Received: Jun-09-22 17:36**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
1,2-Dibromo-3-chloropropane	**U**			2.00	ug/L	1	B22F058	Jun-15-22	Jun-17-22
1,2,4-Trichlorobenzene	**U**			2.00	"	"	"	"	"
Hexachlorobutadiene	**U**			2.00	"	"	"	"	"
Naphthalene	**U**			2.00	"	"	"	"	"
1,2,3-Trichlorobenzene	**U**			2.00	"	"	"	"	"

Surrogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Dibromofluoromethane	9.34	*92.8%*	*70-130*	"	"	"
1,2-Dichloroethane-d4	9.29	*92.1%*	*70-130*	"	"	"
Toluene-d8	10.1	*101%*	*70-130*	"	"	"
4-Bromofluorobenzene	10.5	*105%*	*70-130*	"	"	"

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Blank (B22F058-BLK1) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	U	(ICV), L		2.00	ug/L						
Chloromethane	U			2.00	"						
Vinyl chloride	U			2.00	"						
Bromomethane	U			2.00	"						
Chloroethane	U	(ICV), L		2.00	"						
Trichlorofluoromethane	U			2.00	"						
Acrolein	U			2.00	"						
1,1-Dichloroethene	U			2.00	"						
Acetone	U			10.0	"						
Carbon disulfide	U			2.00	"						
Methylene chloride	U			2.00	"						
Acrylonitrile	U			2.00	"						
trans-1,2-Dichloroethene	U			2.00	"						
Methyl tert-butyl ether	U			2.00	"						
1,1-Dichloroethane	U			2.00	"						
2,2-Dichloropropane	U			2.00	"						
cis-1,2-Dichloroethene	U			2.00	"						
2-Butanone	U			10.0	"						
Bromochloromethane	U			2.00	"						
Chloroform	U			2.00	"						
1,1,1-Trichloroethane	U			2.00	"						
Carbon tetrachloride	U			2.00	"						
1,1-Dichloropropene	U			2.00	"						
Benzene	U			2.00	"						
1,2-Dichloroethane	U			2.00	"						
Trichloroethene	U			2.00	"						
1,2-Dichloropropane	U			2.00	"						
Dibromomethane	U			2.00	"						
Bromodichloromethane	U			2.00	"						
cis-1,3-Dichloropropene	U			2.00	"						
4-Methyl-2-pentanone	U			4.00	"						
Toluene	U			2.00	"						

Environmental Protection Agency Region 5

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Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Blank (B22F058-BLK1) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
trans-1,3-Dichloropropene	U			2.00	ug/L						
1,1,2-Trichloroethane	U			2.00	"						
Tetrachloroethene	U			2.00	"						
1,3-Dichloropropane	U			2.00	"						
2-Hexanone	U			4.00	"						
Dibromochloromethane	U			2.00	"						
1,2-Dibromoethane (EDB)	U			2.00	"						
Chlorobenzene	U			2.00	"						
1,1,1,2-Tetrachloroethane	U			2.00	"						
Ethylbenzene	U			2.00	"						
m+p-Xylene	U			4.00	"						
o-Xylene	U			2.00	"						
Styrene	U			2.00	"						
Bromoform	U			2.00	"						
Isopropylbenzene	U			2.00	"						
Bromobenzene	U			2.00	"						
1,2,3-Trichloropropane	U			2.00	"						
n-Propylbenzene	U			2.00	"						
2-Chlorotoluene	U			2.00	"						
1,3,5-Trimethylbenzene	U			2.00	"						
4-Chlorotoluene	U			2.00	"						
1,1,2,2-Tetrachloroethane	U			2.00	"						
tert-Butylbenzene	U			2.00	"						
1,2,4-Trimethylbenzene	U			2.00	"						
sec-Butylbenzene	U			2.00	"						
1,3-Dichlorobenzene	U			2.00	"						
p-Isopropyltoluene	U			2.00	"						
1,4-Dichlorobenzene	U			2.00	"						
1,2-Dichlorobenzene	U			2.00	"						
n-Butylbenzene	U			2.00	"						
1,2-Dibromo-3-chloropropane	U			2.00	"						
1,2,4-Trichlorobenzene	U			2.00	"						

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Blank (B22F058-BLK1) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Hexachlorobutadiene	U			2.00	ug/L						
Naphthalene	U			2.00	"						
1,2,3-Trichlorobenzene	U			2.00	"						
Surrogate: Dibromofluoromethane	*10.8*				*"*	*10.06*		*107%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*11.1*				*"*	*10.08*		*110%*	*70-130*		
Surrogate: Toluene-d8	*9.65*				*"*	*10.00*		*96.5%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*8.86*				*"*	*10.00*		*88.6%*	*70-130*		

Blank (B22F058-BLK2) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	U	(ICV), L		2.00	ug/L						
Chloromethane	U			2.00	"						
Vinyl chloride	U			2.00	"						
Bromomethane	U			2.00	"						
Chloroethane	U	(ICV), L		2.00	"						
Trichlorofluoromethane	U			2.00	"						
Acrolein	U			2.00	"						
1,1-Dichloroethene	U			2.00	"						
Acetone	U			10.0	"						
Carbon disulfide	U			2.00	"						
Methylene chloride	U			2.00	"						
Acrylonitrile	U			2.00	"						
trans-1,2-Dichloroethene	U			2.00	"						
Methyl tert-butyl ether	U			2.00	"						
1,1-Dichloroethane	U			2.00	"						
2,2-Dichloropropane	U			2.00	"						
cis-1,2-Dichloroethene	U			2.00	"						
2-Butanone	U			10.0	"						
Bromochloromethane	U			2.00	"						
Chloroform	U			2.00	"						
1,1,1-Trichloroethane	U			2.00	"						
Carbon tetrachloride	U			2.00	"						

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Blank (B22F058-BLK2) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,1-Dichloropropene	U			2.00	ug/L						
Benzene	U			2.00	"						
1,2-Dichloroethane	U			2.00	"						
Trichloroethene	U			2.00	"						
1,2-Dichloropropane	U			2.00	"						
Dibromomethane	U			2.00	"						
Bromodichloromethane	U			2.00	"						
cis-1,3-Dichloropropene	U			2.00	"						
4-Methyl-2-pentanone	U			4.00	"						
Toluene	U			2.00	"						
trans-1,3-Dichloropropene	U			2.00	"						
1,1,2-Trichloroethane	U			2.00	"						
Tetrachloroethene	U			2.00	"						
1,3-Dichloropropane	U			2.00	"						
2-Hexanone	U			4.00	"						
Dibromochloromethane	U			2.00	"						
1,2-Dibromoethane (EDB)	U			2.00	"						
Chlorobenzene	U			2.00	"						
1,1,1,2-Tetrachloroethane	U			2.00	"						
Ethylbenzene	U			2.00	"						
m+p-Xylene	U			4.00	"						
o-Xylene	U			2.00	"						
Styrene	U			2.00	"						
Bromoform	U			2.00	"						
Isopropylbenzene	U			2.00	"						
Bromobenzene	U			2.00	"						
1,2,3-Trichloropropane	U			2.00	"						
n-Propylbenzene	U			2.00	"						
2-Chlorotoluene	U			2.00	"						
1,3,5-Trimethylbenzene	U			2.00	"						
4-Chlorotoluene	U			2.00	"						
1,1,2,2-Tetrachloroethane	U			2.00	"						

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Blank (B22F058-BLK2) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
tert-Butylbenzene	**U**			2.00	ug/L						
1,2,4-Trimethylbenzene	**U**			2.00	"						
sec-Butylbenzene	**U**			2.00	"						
1,3-Dichlorobenzene	**U**			2.00	"						
p-Isopropyltoluene	**U**			2.00	"						
1,4-Dichlorobenzene	**U**			2.00	"						
1,2-Dichlorobenzene	**U**			2.00	"						
n-Butylbenzene	**U**			2.00	"						
1,2-Dibromo-3-chloropropane	**U**			2.00	"						
1,2,4-Trichlorobenzene	**U**			2.00	"						
Hexachlorobutadiene	**U**			2.00	"						
Naphthalene	**U**			2.00	"						
1,2,3-Trichlorobenzene	**U**			2.00	"						
Surrogate: Dibromofluoromethane	*10.9*				*"*	*10.06*		*108%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*11.6*				*"*	*10.08*		*115%*	*70-130*		
Surrogate: Toluene-d8	*9.92*				*"*	*10.00*		*99.2%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*8.62*				*"*	*10.00*		*86.2%*	*70-130*		

LCS (B22F058-BS1) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	**4.44**	(ICV), L, Q		2.00	ug/L	25.00		17.8%	70-130		
Chloromethane	**11.9**	Q		2.00	"	25.00		47.6%	70-130		
Vinyl chloride	**17.0**	Q		2.00	"	25.00		68.1%	70-130		
Bromomethane	**18.2**			2.00	"	25.00		72.8%	70-130		
Chloroethane	**21.8**	(ICV), L		2.00	"	25.00		87.3%	70-130		
Trichlorofluoromethane	**26.0**			2.00	"	25.00		104%	70-130		
Acrolein	**13.4**	Q		2.00	"	25.00		53.6%	70-130		
1,1-Dichloroethene	**25.5**			2.00	"	25.00		102%	70-130		
Acetone	**143**			10.0	"	125.0		114%	70-130		
Carbon disulfide	**32.9**	Q		2.00	"	25.00		132%	70-130		
Methylene chloride	**27.4**			2.00	"	25.00		110%	70-130		
Acrylonitrile	**28.8**			2.00	"	25.00		115%	70-130		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS (B22F058-BS1) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
trans-1,2-Dichloroethene	**26.4**			2.00	ug/L	25.00		106%	70-130		
Methyl tert-butyl ether	**25.5**			2.00	"	25.00		102%	70-130		
1,1-Dichloroethane	**27.2**			2.00	"	25.00		109%	70-130		
2,2-Dichloropropane	**26.6**			2.00	"	25.00		106%	70-130		
cis-1,2-Dichloroethene	**25.8**			2.00	"	25.00		103%	70-130		
2-Butanone	**129**			10.0	"	125.0		103%	70-130		
Bromochloromethane	**25.5**			2.00	"	25.00		102%	70-130		
Chloroform	**26.7**			2.00	"	25.00		107%	70-130		
1,1,1-Trichloroethane	**26.8**			2.00	"	25.00		107%	70-130		
Carbon tetrachloride	**27.5**			2.00	"	25.00		110%	70-130		
1,1-Dichloropropene	**26.1**			2.00	"	25.00		105%	70-130		
Benzene	**26.3**			2.00	"	25.00		105%	70-130		
1,2-Dichloroethane	**27.7**			2.00	"	25.00		111%	70-130		
Trichloroethene	**26.3**			2.00	"	25.00		105%	70-130		
1,2-Dichloropropane	**27.0**			2.00	"	25.00		108%	70-130		
Dibromomethane	**26.2**			2.00	"	25.00		105%	70-130		
Bromodichloromethane	**26.9**			2.00	"	25.00		108%	70-130		
cis-1,3-Dichloropropene	**25.9**			2.00	"	25.00		104%	70-130		
4-Methyl-2-pentanone	**51.3**			4.00	"	50.00		103%	70-130		
Toluene	**25.5**			2.00	"	25.00		102%	70-130		
trans-1,3-Dichloropropene	**24.8**			2.00	"	25.00		99.3%	70-130		
1,1,2-Trichloroethane	**24.4**			2.00	"	25.00		97.4%	70-130		
Tetrachloroethene	**24.1**			2.00	"	25.00		96.3%	70-130		
1,3-Dichloropropane	**24.4**			2.00	"	25.00		97.4%	70-130		
2-Hexanone	**49.2**			4.00	"	50.00		98.5%	70-130		
Dibromochloromethane	**24.8**			2.00	"	25.00		99.1%	70-130		
1,2-Dibromoethane (EDB)	**24.1**			2.00	"	25.00		96.3%	70-130		
Chlorobenzene	**24.4**			2.00	"	25.00		97.5%	70-130		
1,1,1,2-Tetrachloroethane	**23.7**			2.00	"	25.00		95.0%	70-130		
Ethylbenzene	**24.5**			2.00	"	25.00		97.9%	70-130		
m+p-Xylene	**50.4**			4.00	"	50.00		101%	70-130		
o-Xylene	**24.6**			2.00	"	25.00		98.3%	70-130		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS (B22F058-BS1) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Styrene	**24.5**			2.00	ug/L	25.00		98.0%	70-130		
Bromoform	**24.2**			2.00	"	25.00		96.8%	70-130		
Isopropylbenzene	**24.7**			2.00	"	25.00		98.7%	70-130		
Bromobenzene	**24.5**			2.00	"	25.00		97.9%	70-130		
1,2,3-Trichloropropane	**24.5**			2.00	"	25.00		97.8%	70-130		
n-Propylbenzene	**25.3**			2.00	"	25.00		101%	70-130		
2-Chlorotoluene	**25.7**			2.00	"	25.00		103%	70-130		
1,3,5-Trimethylbenzene	**25.4**			2.00	"	25.00		101%	70-130		
4-Chlorotoluene	**25.8**			2.00	"	25.00		103%	70-130		
1,1,2,2-Tetrachloroethane	**23.8**			2.00	"	25.00		95.2%	70-130		
tert-Butylbenzene	**24.3**			2.00	"	25.00		97.2%	70-130		
1,2,4-Trimethylbenzene	**25.4**			2.00	"	25.00		102%	70-130		
sec-Butylbenzene	**25.1**			2.00	"	25.00		100%	70-130		
1,3-Dichlorobenzene	**24.8**			2.00	"	25.00		99.3%	70-130		
p-Isopropyltoluene	**24.7**			2.00	"	25.00		98.7%	70-130		
1,4-Dichlorobenzene	**24.8**			2.00	"	25.00		99.4%	70-130		
1,2-Dichlorobenzene	**24.4**			2.00	"	25.00		97.8%	70-130		
n-Butylbenzene	**25.4**			2.00	"	25.00		101%	70-130		
1,2-Dibromo-3-chloropropane	**23.2**			2.00	"	25.00		92.7%	70-130		
1,2,4-Trichlorobenzene	**22.8**			2.00	"	25.00		91.0%	70-130		
Hexachlorobutadiene	**24.8**			2.00	"	25.00		99.2%	70-130		
Naphthalene	**22.5**			2.00	"	25.00		90.2%	70-130		
1,2,3-Trichlorobenzene	**23.6**			2.00	"	25.00		94.3%	70-130		
Surrogate: Dibromofluoromethane	*10.1*				"	*10.06*		*100%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.5*				"	*10.08*		*104%*	*70-130*		
Surrogate: Toluene-d8	*10.5*				"	*10.00*		*105%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.4*				"	*10.00*		*104%*	*70-130*		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS (B22F058-BS2) **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acrolein	**31.0**			2.00	ug/L	25.00		124%	70-130		
Acrylonitrile	**30.0**			2.00	"	25.00		120%	70-130		
Surrogate: Dibromofluoromethane	*10.8*				*"*	*10.06*		*107%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*11.1*				*"*	*10.08*		*110%*	*70-130*		
Surrogate: Toluene-d8	*9.73*				*"*	*10.00*		*97.3%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*8.88*				*"*	*10.00*		*88.8%*	*70-130*		

LCS (B22F058-BS3) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	**4.12**	(ICV), L, Q		2.00	ug/L	25.00		16.5%	70-130		
Chloromethane	**10.1**	Q		2.00	"	25.00		40.6%	70-130		
Vinyl chloride	**15.2**	Q		2.00	"	25.00		60.6%	70-130		
Bromomethane	**14.3**	Q		2.00	"	25.00		57.1%	70-130		
Chloroethane	**17.0**	(ICV), L, Q		2.00	"	25.00		68.2%	70-130		
Trichlorofluoromethane	**25.8**			2.00	"	25.00		103%	70-130		
Acrolein	**22.2**			2.00	"	25.00		88.7%	70-130		
1,1-Dichloroethene	**26.0**			2.00	"	25.00		104%	70-130		
Acetone	**126**			10.0	"	125.0		101%	70-130		
Carbon disulfide	**30.6**			2.00	"	25.00		122%	70-130		
Methylene chloride	**25.7**			2.00	"	25.00		103%	70-130		
Acrylonitrile	**25.5**			2.00	"	25.00		102%	70-130		
trans-1,2-Dichloroethene	**25.6**			2.00	"	25.00		102%	70-130		
Methyl tert-butyl ether	**25.9**			2.00	"	25.00		104%	70-130		
1,1-Dichloroethane	**25.2**			2.00	"	25.00		101%	70-130		
2,2-Dichloropropane	**26.5**			2.00	"	25.00		106%	70-130		
cis-1,2-Dichloroethene	**25.2**			2.00	"	25.00		101%	70-130		
2-Butanone	**116**			10.0	"	125.0		93.2%	70-130		
Bromochloromethane	**25.2**			2.00	"	25.00		101%	70-130		
Chloroform	**25.1**			2.00	"	25.00		101%	70-130		
1,1,1-Trichloroethane	**26.4**			2.00	"	25.00		106%	70-130		
Carbon tetrachloride	**26.2**			2.00	"	25.00		105%	70-130		
1,1-Dichloropropene	**25.4**			2.00	"	25.00		102%	70-130		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS (B22F058-BS3) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**24.5**			2.00	ug/L	25.00		98.2%	70-130		
1,2-Dichloroethane	**25.1**			2.00	"	25.00		100%	70-130		
Trichloroethene	**25.5**			2.00	"	25.00		102%	70-130		
1,2-Dichloropropane	**24.9**			2.00	"	25.00		99.7%	70-130		
Dibromomethane	**25.0**			2.00	"	25.00		100%	70-130		
Bromodichloromethane	**25.2**			2.00	"	25.00		101%	70-130		
cis-1,3-Dichloropropene	**25.0**			2.00	"	25.00		100%	70-130		
4-Methyl-2-pentanone	**49.0**			4.00	"	50.00		98.1%	70-130		
Toluene	**24.9**			2.00	"	25.00		99.5%	70-130		
trans-1,3-Dichloropropene	**24.8**			2.00	"	25.00		99.1%	70-130		
1,1,2-Trichloroethane	**23.2**			2.00	"	25.00		92.7%	70-130		
Tetrachloroethene	**24.4**			2.00	"	25.00		97.6%	70-130		
1,3-Dichloropropane	**23.3**			2.00	"	25.00		93.2%	70-130		
2-Hexanone	**48.2**			4.00	"	50.00		96.4%	70-130		
Dibromochloromethane	**24.1**			2.00	"	25.00		96.4%	70-130		
1,2-Dibromoethane (EDB)	**23.6**			2.00	"	25.00		94.2%	70-130		
Chlorobenzene	**24.2**			2.00	"	25.00		97.0%	70-130		
1,1,1,2-Tetrachloroethane	**23.6**			2.00	"	25.00		94.3%	70-130		
Ethylbenzene	**24.9**			2.00	"	25.00		99.5%	70-130		
m+p-Xylene	**50.4**			4.00	"	50.00		101%	70-130		
o-Xylene	**25.0**			2.00	"	25.00		100%	70-130		
Styrene	**24.7**			2.00	"	25.00		98.7%	70-130		
Bromoform	**23.6**			2.00	"	25.00		94.6%	70-130		
Isopropylbenzene	**25.0**			2.00	"	25.00		99.9%	70-130		
Bromobenzene	**25.0**			2.00	"	25.00		100%	70-130		
1,2,3-Trichloropropane	**22.5**			2.00	"	25.00		89.8%	70-130		
n-Propylbenzene	**24.4**			2.00	"	25.00		97.5%	70-130		
2-Chlorotoluene	**24.8**			2.00	"	25.00		99.2%	70-130		
1,3,5-Trimethylbenzene	**24.5**			2.00	"	25.00		98.1%	70-130		
4-Chlorotoluene	**24.9**			2.00	"	25.00		99.6%	70-130		
1,1,2,2-Tetrachloroethane	**22.0**			2.00	"	25.00		87.9%	70-130		
tert-Butylbenzene	**24.7**			2.00	"	25.00		98.9%	70-130		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS (B22F058-BS3) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	**24.4**			2.00	ug/L	25.00		97.6%	70-130		
sec-Butylbenzene	**24.5**			2.00	"	25.00		98.0%	70-130		
1,3-Dichlorobenzene	**24.6**			2.00	"	25.00		98.3%	70-130		
p-Isopropyltoluene	**24.1**			2.00	"	25.00		96.4%	70-130		
1,4-Dichlorobenzene	**24.4**			2.00	"	25.00		97.8%	70-130		
1,2-Dichlorobenzene	**24.6**			2.00	"	25.00		98.4%	70-130		
n-Butylbenzene	**23.2**			2.00	"	25.00		92.7%	70-130		
1,2-Dibromo-3-chloropropane	**23.1**			2.00	"	25.00		92.5%	70-130		
1,2,4-Trichlorobenzene	**23.8**			2.00	"	25.00		95.3%	70-130		
Hexachlorobutadiene	**23.8**			2.00	"	25.00		95.1%	70-130		
Naphthalene	**23.8**			2.00	"	25.00		95.3%	70-130		
1,2,3-Trichlorobenzene	**23.6**			2.00	"	25.00		94.4%	70-130		
Surrogate: Dibromofluoromethane	*9.76*				"	*10.06*		*97.0%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.48*				"	*10.08*		*94.1%*	*70-130*		
Surrogate: Toluene-d8	*10.3*				"	*10.00*		*103%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.4*				"	*10.00*		*104%*	*70-130*		

LCS (B22F058-BS4) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acrolein	**27.6**			2.00	ug/L	25.00		111%	70-130		
Acrylonitrile	**25.7**			2.00	"	25.00		103%	70-130		
Surrogate: Dibromofluoromethane	*10.0*				"	*10.06*		*99.9%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.2*				"	*10.08*		*101%*	*70-130*		
Surrogate: Toluene-d8	*10.1*				"	*10.00*		*101%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*9.91*				"	*10.00*		*99.1%*	*70-130*		

LCS Dup (B22F058-BSD1) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	**4.40**	(ICV), L, Q		2.00	ug/L	25.00		17.6%	70-130	1.09	30
Chloromethane	**11.5**	Q		2.00	"	25.00		46.1%	70-130	3.26	30
Vinyl chloride	**16.9**	Q		2.00	"	25.00		67.6%	70-130	0.731	30

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS Dup (B22F058-BSD1) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Bromomethane	**15.8**	Q		2.00	ug/L	25.00		63.3%	70-130	13.9	30
Chloroethane	**19.5**	(ICV), L		2.00	"	25.00		78.1%	70-130	11.2	30
Trichlorofluoromethane	**26.1**			2.00	"	25.00		104%	70-130	0.176	30
Acrolein	**14.3**	Q		2.00	"	25.00		57.0%	70-130	6.22	30
1,1-Dichloroethene	**26.4**			2.00	"	25.00		105%	70-130	3.40	30
Acetone	**141**			10.0	"	125.0		113%	70-130	1.29	30
Carbon disulfide	**33.1**	Q		2.00	"	25.00		132%	70-130	0.400	30
Methylene chloride	**27.3**			2.00	"	25.00		109%	70-130	0.482	30
Acrylonitrile	**28.5**			2.00	"	25.00		114%	70-130	1.17	30
trans-1,2-Dichloroethene	**27.0**			2.00	"	25.00		108%	70-130	1.95	30
Methyl tert-butyl ether	**26.1**			2.00	"	25.00		105%	70-130	2.35	30
1,1-Dichloroethane	**27.3**			2.00	"	25.00		109%	70-130	0.448	30
2,2-Dichloropropane	**27.3**			2.00	"	25.00		109%	70-130	2.65	30
cis-1,2-Dichloroethene	**25.7**			2.00	"	25.00		103%	70-130	0.148	30
2-Butanone	**125**			10.0	"	125.0		99.8%	70-130	3.10	30
Bromochloromethane	**24.8**			2.00	"	25.00		99.1%	70-130	2.81	30
Chloroform	**26.8**			2.00	"	25.00		107%	70-130	0.0374	30
1,1,1-Trichloroethane	**27.5**			2.00	"	25.00		110%	70-130	2.43	30
Carbon tetrachloride	**27.3**			2.00	"	25.00		109%	70-130	0.634	30
1,1-Dichloropropene	**26.6**			2.00	"	25.00		106%	70-130	1.59	30
Benzene	**26.2**			2.00	"	25.00		105%	70-130	0.511	30
1,2-Dichloroethane	**27.1**			2.00	"	25.00		109%	70-130	2.04	30
Trichloroethene	**26.4**			2.00	"	25.00		106%	70-130	0.485	30
1,2-Dichloropropane	**26.6**			2.00	"	25.00		107%	70-130	1.48	30
Dibromomethane	**26.2**			2.00	"	25.00		105%	70-130	0.0763	30
Bromodichloromethane	**26.7**			2.00	"	25.00		107%	70-130	0.790	30
cis-1,3-Dichloropropene	**26.0**			2.00	"	25.00		104%	70-130	0.200	30
4-Methyl-2-pentanone	**50.4**			4.00	"	50.00		101%	70-130	1.63	30
Toluene	**26.0**			2.00	"	25.00		104%	70-130	1.83	30
trans-1,3-Dichloropropene	**24.8**			2.00	"	25.00		99.4%	70-130	0.121	30
1,1,2-Trichloroethane	**24.2**			2.00	"	25.00		97.0%	70-130	0.444	30
Tetrachloroethene	**24.3**			2.00	"	25.00		97.1%	70-130	0.811	30

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS Dup (B22F058-BSD1) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3-Dichloropropane	**24.7**			2.00	ug/L	25.00		98.7%	70-130	1.33	30
2-Hexanone	**49.4**			4.00	"	50.00		98.9%	70-130	0.434	30
Dibromochloromethane	**24.3**			2.00	"	25.00		97.3%	70-130	1.78	30
1,2-Dibromoethane (EDB)	**23.8**			2.00	"	25.00		95.1%	70-130	1.24	30
Chlorobenzene	**24.7**			2.00	"	25.00		98.8%	70-130	1.35	30
1,1,1,2-Tetrachloroethane	**24.3**			2.00	"	25.00		97.2%	70-130	2.37	30
Ethylbenzene	**25.2**			2.00	"	25.00		101%	70-130	2.80	30
m+p-Xylene	**51.0**			4.00	"	50.00		102%	70-130	1.17	30
o-Xylene	**25.2**			2.00	"	25.00		101%	70-130	2.32	30
Styrene	**25.1**			2.00	"	25.00		100%	70-130	2.31	30
Bromoform	**23.3**			2.00	"	25.00		93.1%	70-130	3.89	30
Isopropylbenzene	**25.6**			2.00	"	25.00		102%	70-130	3.52	30
Bromobenzene	**24.9**			2.00	"	25.00		99.4%	70-130	1.54	30
1,2,3-Trichloropropane	**24.1**			2.00	"	25.00		96.5%	70-130	1.38	30
n-Propylbenzene	**25.5**			2.00	"	25.00		102%	70-130	0.763	30
2-Chlorotoluene	**26.3**			2.00	"	25.00		105%	70-130	2.43	30
1,3,5-Trimethylbenzene	**25.2**			2.00	"	25.00		101%	70-130	0.681	30
4-Chlorotoluene	**25.8**			2.00	"	25.00		103%	70-130	0.202	30
1,1,2,2-Tetrachloroethane	**23.6**			2.00	"	25.00		94.2%	70-130	1.01	30
tert-Butylbenzene	**25.2**			2.00	"	25.00		101%	70-130	3.76	30
1,2,4-Trimethylbenzene	**25.5**			2.00	"	25.00		102%	70-130	0.314	30
sec-Butylbenzene	**25.5**			2.00	"	25.00		102%	70-130	1.82	30
1,3-Dichlorobenzene	**24.9**			2.00	"	25.00		99.6%	70-130	0.306	30
p-Isopropyltoluene	**24.7**			2.00	"	25.00		98.8%	70-130	0.130	30
1,4-Dichlorobenzene	**24.9**			2.00	"	25.00		99.5%	70-130	0.105	30
1,2-Dichlorobenzene	**24.6**			2.00	"	25.00		98.5%	70-130	0.774	30
n-Butylbenzene	**24.8**			2.00	"	25.00		99.3%	70-130	2.14	30
1,2-Dibromo-3-chloropropane	**23.3**			2.00	"	25.00		93.0%	70-130	0.362	30
1,2,4-Trichlorobenzene	**23.4**			2.00	"	25.00		93.6%	70-130	2.82	30
Hexachlorobutadiene	**23.8**			2.00	"	25.00		95.4%	70-130	3.96	30
Naphthalene	**23.3**			2.00	"	25.00		93.1%	70-130	3.20	30
1,2,3-Trichlorobenzene	**23.6**			2.00	"	25.00		94.6%	70-130	0.246	30

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

LCS Dup (B22F058-BSD1) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane	*9.75*				*ug/L*	*10.06*		*96.9%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.0*				*"*	*10.08*		*99.5%*	*70-130*		
Surrogate: Toluene-d8	*10.2*				*"*	*10.00*		*102%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.4*				*"*	*10.00*		*104%*	*70-130*		

LCS Dup (B22F058-BSD2) **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acrolein	**29.5**			2.00	ug/L	25.00		118%	70-130	4.80	30
Acrylonitrile	**28.7**			2.00	"	25.00		115%	70-130	4.65	30
Surrogate: Dibromofluoromethane	*10.4*				*"*	*10.06*		*103%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*11.1*				*"*	*10.08*		*110%*	*70-130*		
Surrogate: Toluene-d8	*9.93*				*"*	*10.00*		*99.3%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*9.30*				*"*	*10.00*		*93.0%*	*70-130*		

Matrix Spike (B22F058-MS1) **Source: 2206006-01RE3** **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acrolein	**1160**			40.0	ug/L	500.0	578	116%	70-130		
Acetone	**5050**			200	"	2500	2350	108%	70-130		
2-Butanone	**3390**			200	"	2500	611	111%	70-130		
2-Hexanone	**1300**			80.0	"	1000	178	112%	70-130		
Surrogate: Dibromofluoromethane	*10.0*				*"*	*10.06*		*99.6%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.5*				*"*	*10.08*		*104%*	*70-130*		
Surrogate: Toluene-d8	*10.6*				*"*	*10.00*		*106%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.5*				*"*	*10.00*		*105%*	*70-130*		

Matrix Spike (B22F058-MS3) **Source: 2206006-01RE4** **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	**2.98**	(ICV), (LCS), L, Q		2.00	ug/L	25.00	U	11.9%	70-130		
Chloromethane	**15.8**	(LCS), L, Q		2.00	"	25.00	6.83	35.8%	70-130		
Vinyl chloride	**15.1**	(LCS), L, Q		2.00	"	25.00	U	60.5%	70-130		
Bromomethane	**13.7**	(LCS), L, Q		2.00	"	25.00	0.638	52.3%	70-130		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Matrix Spike (B22F058-MS3) **Source: 2206006-01RE4** **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Chloroethane	**17.3**	(ICV), (LCS), L, Q		2.00	ug/L	25.00	U	69.1%	70-130		
Trichlorofluoromethane	**25.9**			2.00	"	25.00	U	104%	70-130		
1,1-Dichloroethene	**26.6**			2.00	"	25.00	U	106%	70-130		
Carbon disulfide	**32.9**	(LCS), K, Q		2.00	"	25.00	U	132%	70-130		
Methylene chloride	**24.9**			2.00	"	25.00	U	99.7%	70-130		
Acrylonitrile	**26.8**			2.00	"	25.00	U	107%	70-130		
trans-1,2-Dichloroethene	**25.4**			2.00	"	25.00	U	102%	70-130		
Methyl tert-butyl ether	**25.1**			2.00	"	25.00	U	100%	70-130		
1,1-Dichloroethane	**25.8**			2.00	"	25.00	U	103%	70-130		
2,2-Dichloropropane	**27.8**			2.00	"	25.00	U	111%	70-130		
cis-1,2-Dichloroethene	**24.6**			2.00	"	25.00	U	98.4%	70-130		
Bromochloromethane	**23.6**			2.00	"	25.00	U	94.4%	70-130		
Chloroform	**25.5**			2.00	"	25.00	0.468	100%	70-130		
1,1,1-Trichloroethane	**26.4**			2.00	"	25.00	U	106%	70-130		
Carbon tetrachloride	**26.5**			2.00	"	25.00	U	106%	70-130		
1,1-Dichloropropene	**26.7**			2.00	"	25.00	U	107%	70-130		
Benzene	**34.7**			2.00	"	25.00	12.1	90.5%	70-130		
1,2-Dichloroethane	**24.7**			2.00	"	25.00	U	98.7%	70-130		
Trichloroethene	**25.7**			2.00	"	25.00	U	103%	70-130		
1,2-Dichloropropane	**25.2**			2.00	"	25.00	U	101%	70-130		
Dibromomethane	**24.0**			2.00	"	25.00	U	96.1%	70-130		
Bromodichloromethane	**25.3**			2.00	"	25.00	U	101%	70-130		
cis-1,3-Dichloropropene	**24.8**			2.00	"	25.00	U	99.1%	70-130		
4-Methyl-2-pentanone	**57.1**			4.00	"	50.00	7.91	98.4%	70-130		
Toluene	**27.1**			2.00	"	25.00	3.39	94.8%	70-130		
trans-1,3-Dichloropropene	**25.1**			2.00	"	25.00	U	100%	70-130		
1,1,2-Trichloroethane	**22.4**			2.00	"	25.00	U	89.7%	70-130		
Tetrachloroethene	**23.7**			2.00	"	25.00	U	94.8%	70-130		
1,3-Dichloropropane	**23.1**			2.00	"	25.00	U	92.3%	70-130		
Dibromochloromethane	**23.4**			2.00	"	25.00	U	93.6%	70-130		
1,2-Dibromoethane (EDB)	**23.4**			2.00	"	25.00	U	93.6%	70-130		
Chlorobenzene	**23.4**			2.00	"	25.00	U	93.8%	70-130		

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Matrix Spike (B22F058-MS3) **Source: 2206006-01RE4** **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	**23.1**			2.00	ug/L	25.00	U	92.4%	70-130		
Ethylbenzene	**25.1**			2.00	"	25.00	0.842	97.1%	70-130		
m+p-Xylene	**49.7**			4.00	"	50.00	1.54	96.4%	70-130		
o-Xylene	**24.8**			2.00	"	25.00	U	99.2%	70-130		
Styrene	**29.7**			2.00	"	25.00	6.84	91.6%	70-130		
Bromoform	**23.9**			2.00	"	25.00	U	95.7%	70-130		
Isopropylbenzene	**25.1**			2.00	"	25.00	U	100%	70-130		
Bromobenzene	**23.1**			2.00	"	25.00	U	92.3%	70-130		
1,2,3-Trichloropropane	**23.9**			2.00	"	25.00	U	95.7%	70-130		
n-Propylbenzene	**24.8**			2.00	"	25.00	0.736	96.3%	70-130		
2-Chlorotoluene	**24.2**			2.00	"	25.00	U	96.8%	70-130		
1,3,5-Trimethylbenzene	**24.2**			2.00	"	25.00	U	96.9%	70-130		
4-Chlorotoluene	**24.7**			2.00	"	25.00	U	98.7%	70-130		
1,1,2,2-Tetrachloroethane	**23.3**			2.00	"	25.00	U	93.3%	70-130		
tert-Butylbenzene	**25.2**			2.00	"	25.00	U	101%	70-130		
1,2,4-Trimethylbenzene	**25.8**			2.00	"	25.00	U	103%	70-130		
sec-Butylbenzene	**25.5**			2.00	"	25.00	U	102%	70-130		
1,3-Dichlorobenzene	**24.3**			2.00	"	25.00	U	97.3%	70-130		
p-Isopropyltoluene	**25.8**			2.00	"	25.00	1.45	97.5%	70-130		
1,4-Dichlorobenzene	**23.8**			2.00	"	25.00	U	95.0%	70-130		
1,2-Dichlorobenzene	**24.0**			2.00	"	25.00	U	95.9%	70-130		
n-Butylbenzene	**26.1**			2.00	"	25.00	1.69	97.6%	70-130		
1,2-Dibromo-3-chloropropane	**27.7**			2.00	"	25.00	U	111%	70-130		
1,2,4-Trichlorobenzene	**24.5**			2.00	"	25.00	U	97.9%	70-130		
Hexachlorobutadiene	**24.9**			2.00	"	25.00	U	99.5%	70-130		
Naphthalene	**27.2**			2.00	"	25.00	1.01	105%	70-130		
1,2,3-Trichlorobenzene	**23.6**			2.00	"	25.00	U	94.4%	70-130		
Surrogate: Dibromofluoromethane	*9.39*				"	*10.06*		*93.3%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.56*				"	*10.08*		*94.8%*	*70-130*		
Surrogate: Toluene-d8	*10.2*				"	*10.00*		*102%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.7*				"	*10.00*		*107%*	*70-130*		

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Matrix Spike Dup (B22F058-MSD1) **Source: 2206006-01RE3** **Prepared & Analyzed: Jun-16-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Acrolein	**1210**			40.0	ug/L	500.0	578	127%	70-130	4.71	30
Acetone	**5040**			200	"	2500	2350	108%	70-130	0.217	30
2-Butanone	**3450**			200	"	2500	611	114%	70-130	1.67	30
2-Hexanone	**1300**			80.0	"	1000	178	112%	70-130	0.0922	30
Surrogate: Dibromofluoromethane	*9.93*				*"*	*10.06*		*98.7%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.2*				*"*	*10.08*		*101%*	*70-130*		
Surrogate: Toluene-d8	*10.5*				*"*	*10.00*		*105%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.3*				*"*	*10.00*		*103%*	*70-130*		

Matrix Spike Dup (B22F058-MSD3) **Source: 2206006-01RE4** **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Dichlorodifluoromethane	**3.05**	(ICV), (LCS), L, Q		2.00	ug/L	25.00	U	12.2%	70-130	2.25	30
Chloromethane	**15.9**	(LCS), L, Q		2.00	"	25.00	6.83	36.2%	70-130	0.657	30
Vinyl chloride	**15.3**	(LCS), L, Q		2.00	"	25.00	U	61.3%	70-130	1.35	30
Bromomethane	**14.2**	(LCS), L, Q		2.00	"	25.00	0.638	54.3%	70-130	3.57	30
Chloroethane	**18.0**	(ICV), (LCS), L		2.00	"	25.00	U	72.2%	70-130	4.33	30
Trichlorofluoromethane	**26.7**			2.00	"	25.00	U	107%	70-130	3.15	30
1,1-Dichloroethene	**29.0**			2.00	"	25.00	U	116%	70-130	8.96	30
Carbon disulfide	**35.6**	(LCS), K, Q		2.00	"	25.00	U	142%	70-130	7.86	30
Methylene chloride	**27.0**			2.00	"	25.00	U	108%	70-130	8.04	30
Acrylonitrile	**30.0**			2.00	"	25.00	U	120%	70-130	11.4	30
trans-1,2-Dichloroethene	**28.1**			2.00	"	25.00	U	112%	70-130	10.0	30
Methyl tert-butyl ether	**28.2**			2.00	"	25.00	U	113%	70-130	11.6	30
1,1-Dichloroethane	**28.1**			2.00	"	25.00	U	112%	70-130	8.55	30
2,2-Dichloropropane	**30.1**			2.00	"	25.00	U	120%	70-130	7.77	30
cis-1,2-Dichloroethene	**27.1**			2.00	"	25.00	U	108%	70-130	9.61	30
Bromochloromethane	**25.9**			2.00	"	25.00	U	104%	70-130	9.47	30
Chloroform	**27.5**			2.00	"	25.00	0.468	108%	70-130	7.45	30
1,1,1-Trichloroethane	**29.1**			2.00	"	25.00	U	117%	70-130	9.74	30
Carbon tetrachloride	**29.1**			2.00	"	25.00	U	117%	70-130	9.36	30
1,1-Dichloropropene	**29.0**			2.00	"	25.00	U	116%	70-130	8.40	30

Environmental Protection Agency Region 5

US EPA Region 5 LSASD Analytical Services Branch

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Matrix Spike Dup (B22F058-MSD3) **Source: 2206006-01RE4** **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**37.0**			2.00	ug/L	25.00	12.1	99.6%	70-130	6.36	30
1,2-Dichloroethane	**27.0**			2.00	"	25.00	U	108%	70-130	9.18	30
Trichloroethene	**28.0**			2.00	"	25.00	U	112%	70-130	8.70	30
1,2-Dichloropropane	**27.3**			2.00	"	25.00	U	109%	70-130	8.23	30
Dibromomethane	**26.3**			2.00	"	25.00	U	105%	70-130	8.88	30
Bromodichloromethane	**27.6**			2.00	"	25.00	U	110%	70-130	8.36	30
cis-1,3-Dichloropropene	**27.2**			2.00	"	25.00	U	109%	70-130	9.43	30
4-Methyl-2-pentanone	**64.9**			4.00	"	50.00	7.91	114%	70-130	12.8	30
Toluene	**29.5**			2.00	"	25.00	3.39	104%	70-130	8.48	30
trans-1,3-Dichloropropene	**27.8**			2.00	"	25.00	U	111%	70-130	10.3	30
1,1,2-Trichloroethane	**25.2**			2.00	"	25.00	U	101%	70-130	11.5	30
Tetrachloroethene	**26.2**			2.00	"	25.00	U	105%	70-130	10.1	30
1,3-Dichloropropane	**25.7**			2.00	"	25.00	U	103%	70-130	10.9	30
Dibromochloromethane	**26.2**			2.00	"	25.00	U	105%	70-130	11.4	30
1,2-Dibromoethane (EDB)	**26.2**			2.00	"	25.00	U	105%	70-130	11.3	30
Chlorobenzene	**25.9**			2.00	"	25.00	U	104%	70-130	9.91	30
1,1,1,2-Tetrachloroethane	**25.7**			2.00	"	25.00	U	103%	70-130	10.6	30
Ethylbenzene	**27.5**			2.00	"	25.00	0.842	106%	70-130	8.92	30
m+p-Xylene	**54.7**			4.00	"	50.00	1.54	106%	70-130	9.54	30
o-Xylene	**27.3**			2.00	"	25.00	U	109%	70-130	9.45	30
Styrene	**32.4**			2.00	"	25.00	6.84	102%	70-130	8.75	30
Bromoform	**27.3**			2.00	"	25.00	U	109%	70-130	13.0	30
Isopropylbenzene	**27.5**			2.00	"	25.00	U	110%	70-130	9.24	30
Bromobenzene	**25.8**			2.00	"	25.00	U	103%	70-130	11.1	30
1,2,3-Trichloropropane	**26.9**			2.00	"	25.00	U	108%	70-130	11.8	30
n-Propylbenzene	**27.0**			2.00	"	25.00	0.736	105%	70-130	8.39	30
2-Chlorotoluene	**26.5**			2.00	"	25.00	U	106%	70-130	9.10	30
1,3,5-Trimethylbenzene	**26.2**			2.00	"	25.00	U	105%	70-130	7.81	30
4-Chlorotoluene	**27.1**			2.00	"	25.00	U	108%	70-130	9.23	30
1,1,2,2-Tetrachloroethane	**26.2**			2.00	"	25.00	U	105%	70-130	11.5	30
tert-Butylbenzene	**27.5**			2.00	"	25.00	U	110%	70-130	8.84	30
1,2,4-Trimethylbenzene	**28.0**			2.00	"	25.00	U	112%	70-130	8.16	30

Environmental Protection Agency Region 5

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 LSASD Analytical Services Branch

Batch B22F058 - Volatiles

Matrix Spike Dup (B22F058-MSD3) **Source: 2206006-01RE4** **Prepared: Jun-16-22 Analyzed: Jun-17-22**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
sec-Butylbenzene	**27.5**			2.00	ug/L	25.00	U	110%	70-130	7.35	30
1,3-Dichlorobenzene	**26.5**			2.00	"	25.00	U	106%	70-130	8.65	30
p-Isopropyltoluene	**27.7**			2.00	"	25.00	1.45	105%	70-130	7.15	30
1,4-Dichlorobenzene	**26.3**			2.00	"	25.00	U	105%	70-130	10.3	30
1,2-Dichlorobenzene	**26.5**			2.00	"	25.00	U	106%	70-130	9.95	30
n-Butylbenzene	**27.3**			2.00	"	25.00	1.69	102%	70-130	4.35	30
1,2-Dibromo-3-chloropropane	**32.0**			2.00	"	25.00	U	128%	70-130	14.5	30
1,2,4-Trichlorobenzene	**26.5**			2.00	"	25.00	U	106%	70-130	7.90	30
Hexachlorobutadiene	**27.4**			2.00	"	25.00	U	109%	70-130	9.60	30
Naphthalene	**30.0**			2.00	"	25.00	1.01	116%	70-130	9.60	30
1,2,3-Trichlorobenzene	**26.0**			2.00	"	25.00	U	104%	70-130	9.52	30
Surrogate: Dibromofluoromethane	*9.28*				*"*	*10.06*		*92.3%*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.28*				*"*	*10.08*		*92.1%*	*70-130*		
Surrogate: Toluene-d8	*10.1*				*"*	*10.00*		*101%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.7*				*"*	*10.00*		*107%*	*70-130*		

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Water Division, WECA Region 5	Project: Vantage Olechemical	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60604	Project Manager: Andi Hodaj	Jul-27-22 16:36

Notes and Definitions

L	The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
K	The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
(LCS)	Blank spike recovery criteria not met for this analyte
(ICV)	Initial calibration verification criteria not met for this analyte
U	Not Detected
NR	Not Reported
Q	QC limit Exceeded