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Automated Report

Technical Report for

Providence Engineering

Valero-CAMS, Baton Rouge, LA

712-001

SGS Job Number: JC70598

Sampling Date: 07/24/18




Report to:

Providence Engineering
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Baton Rouge, LA 70802
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ATTN: Paul Hollis

Total number of pages in report: 35



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.


A. Paul Ioannidis
General Manager

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Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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Test results relate only to samples analyzed.

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Sample Summary

Providence Engineering

Job No: JC70598

Valero-CAMS, Baton Rouge, LA
Project No: 712-001

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JC70598-1	07/24/18	13:00 KH	07/25/18	AIR	Ambient Air Comp.	CAMS 423

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: CAMS 423		
Lab Sample ID: JC70598-1		Date Sampled: 07/24/18
Matrix: AIR - Ambient Air Comp. Summa ID: M244		Date Received: 07/25/18
Method: TO-15		Percent Solids: n/a
Project: Valero-CAMS, Baton Rouge, LA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W32255.D	1	08/02/18 02:25	GP	n/a	n/a	V5W1276
Run #2							

Run #	Initial Volume
Run #1	400 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	6.2	0.20	0.11	ppbv		15	0.48	0.26	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	0.046	ppbv		ND	0.44	0.10	ug/m3
71-43-2	78.11	Benzene	ND	0.20	0.012	ppbv		ND	0.64	0.038	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.20	0.027	ppbv		ND	1.3	0.18	ug/m3
75-25-2	252.8	Bromoform	ND	0.20	0.037	ppbv		ND	2.1	0.38	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	0.022	ppbv		ND	0.78	0.085	ug/m3
593-60-2	106.9	Bromoethene	0.29	0.20	0.022	ppbv		1.3	0.87	0.096	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.20	0.057	ppbv		ND	1.0	0.29	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	0.024	ppbv		ND	0.62	0.075	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	0.026	ppbv		ND	0.92	0.12	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	0.048	ppbv		ND	0.53	0.13	ug/m3
67-66-3	119.4	Chloroform	ND	0.20	0.020	ppbv		ND	0.98	0.098	ug/m3
74-87-3	50.49	Chloromethane	0.82	0.20	0.015	ppbv		1.7	0.41	0.031	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	0.040	ppbv		ND	0.63	0.13	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	0.025	ppbv		ND	1.0	0.13	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.024	ppbv		ND	1.3	0.15	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	0.022	ppbv		ND	0.69	0.076	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	0.012	ppbv		ND	0.81	0.049	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.20	0.017	ppbv		ND	0.79	0.067	ug/m3
106-93-4	187.9	1,2-Dibromoethane	5.9	0.20	0.018	ppbv		45	1.5	0.14	ug/m3
107-06-2	98.96	1,2-Dichloroethane	0.44	0.20	0.021	ppbv		1.8	0.81	0.085	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	0.019	ppbv		ND	0.92	0.088	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	0.052	ppbv		ND	0.72	0.19	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.46	0.20	0.017	ppbv		2.3	0.99	0.084	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.20	0.033	ppbv		ND	1.7	0.28	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.0073	ppbv		ND	0.79	0.029	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.012	ppbv		ND	0.79	0.048	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	0.020	ppbv		ND	0.91	0.091	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.20	0.019	ppbv		ND	1.2	0.11	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.20	0.022	ppbv		ND	1.2	0.13	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.20	0.018	ppbv		ND	1.2	0.11	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	0.020	ppbv		ND	0.91	0.091	ug/m3

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CAMS 423	Date Sampled:	07/24/18
Lab Sample ID:	JC70598-1	Date Received:	07/25/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M244	Percent Solids:	n/a
Method:	TO-15		
Project:	Valero-CAMS, Baton Rouge, LA		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	1.7	0.50	0.22	ppbv		3.2	0.94	0.41	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	0.015	ppbv		ND	0.87	0.065	ug/m3
141-78-6	88	Ethyl Acetate	ND	0.20	0.038	ppbv		ND	0.72	0.14	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	0.030	ppbv		ND	0.98	0.15	ug/m3
76-13-1	187.4	Freon 113	ND	0.20	0.017	ppbv		ND	1.5	0.13	ug/m3
76-14-2	170.9	Freon 114	ND	0.20	0.019	ppbv		ND	1.4	0.13	ug/m3
142-82-5	100.2	Heptane	ND	0.20	0.018	ppbv		ND	0.82	0.074	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.20	0.046	ppbv		ND	2.1	0.49	ug/m3
110-54-3	86.17	Hexane	0.41	0.20	0.011	ppbv		1.4	0.70	0.039	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	0.036	ppbv		ND	0.82	0.15	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.51	0.20	0.065	ppbv		1.3	0.49	0.16	ug/m3
75-09-2	84.94	Methylene chloride	0.21	0.20	0.015	ppbv		0.73	0.69	0.052	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.2	0.20	0.042	ppbv		3.5	0.59	0.12	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	0.036	ppbv		ND	0.82	0.15	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	0.019	ppbv		ND	0.72	0.069	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	0.033	ppbv		ND	0.82	0.14	ug/m3
115-07-1	42	Propylene	ND	0.50	0.016	ppbv		ND	0.86	0.027	ug/m3
100-42-5	104.1	Styrene	ND	0.20	0.019	ppbv		ND	0.85	0.081	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.20	0.033	ppbv		ND	1.1	0.18	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.20	0.027	ppbv		ND	1.4	0.19	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.20	0.030	ppbv		ND	1.1	0.16	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.20	0.089	ppbv		ND	1.5	0.66	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	0.033	ppbv		ND	0.98	0.16	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	0.034	ppbv		ND	0.98	0.17	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	0.022	ppbv		ND	0.93	0.10	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	0.014	ppbv		ND	0.61	0.042	ug/m3
127-18-4	165.8	Tetrachloroethylene	ND	0.040	0.031	ppbv		ND	0.27	0.21	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.20	0.050	ppbv		ND	0.59	0.15	ug/m3
108-88-3	92.14	Toluene	0.39	0.20	0.014	ppbv		1.5	0.75	0.053	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.019	ppbv		ND	0.21	0.10	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.26	0.20	0.028	ppbv		1.5	1.1	0.16	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.20	0.022	ppbv		ND	0.51	0.056	ug/m3
108-05-4	86	Vinyl Acetate	0.53	0.20	0.034	ppbv		1.9	0.70	0.12	ug/m3
	106.2	m,p-Xylene	ND	0.20	0.034	ppbv		ND	0.87	0.15	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	0.017	ppbv		ND	0.87	0.074	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	0.017	ppbv		ND	0.87	0.074	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	97%		65-128%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Summa Canister and Flow Controller Log

AIR

SGS

ACCUTEST

AIR CHAIN OF CUSTODY

SGS Accutest - Dayton
1335 Route 130, Dayton, NJ 08514
TEL: 732-379-0100 FAX: 732-329-3499 3480
www.accutest.com

FED-EX Tracking #
4357 6347 7891

Lab Order Control #
VP-06-2518-25
Lab Order #
JC70598

PAGE 1 OF 1

Client Reporting Information				Project Information				Weather Parameters				Requested Analysis			
Company Name: Providence Engr				Project Name: Valero Refining				Temperature (Fahrenheit)							
Address: 1201 Main St				Street				Start		Maximum					
City: BR LA 70602				City: Meraux LA				Stop		Minimum					
Project Contact: paulhollis@providenceeng.com				Project #				Atmospheric Pressure (inches of Hg)		Maximum					
Phone #: 225-766-7400				Client Purchase Order #				Stop		Minimum		TO-15			
Sampler(s) Name(s): K Hudson				Other weather comment:											
Lab Sample #	Field ID / Point of Collection	Air Type		Sampling Equipment Info			Start Sampling Information				Stop Sampling Information				
		Isocet (I) Sol Vap (SV) Ambient (A)	Canister Serial #	Canister Size (L or TL)	Flow Controller Serial #	Date	Time (24hr clock)	Canister Pressure ("Hg)	Interior Temp (F)	Sampler Init.	Date	Time (24hr clock)	Canister Pressure ("Hg)	Interior Temp (F)	Sampler Init.
1	CAMS 423	A	M244	6L	537	7-23	2:00	30	75KH	7-24	1:00	6	75KH	V	
Turnaround Time (Business days) <input checked="" type="checkbox"/> Standard - 15 Days 18 Day _____ 9 Day _____ 3 Day _____ 2 Day _____ 1 Day _____ Other _____															
Approved By: _____ Date: _____				Data Deliverable Information				Comments / Remarks							
				All NJDEP TO-15 is mandatory Full T1 Comm A _____ Comm B _____ Reduced T2 _____ Full T1 _____ Other: _____ <input type="checkbox"/> DRQP reporting				COC saved Fedex ship SUMAN							
Sample Custody must be documented below each time samples change possession, including courier delivery.															
Relinquished by Laboratory: Heeyah Francis		Date/Time: 08/26/19 16:19		Received By: Fedex		Received Date/Time: 3		Relinquished By: Fedex		Received Date/Time: 2		Received By: [Signature]		Received Date/Time: 4	
Relinquished by: [Signature]		Date/Time: 7/25/18 9:30		Received By: FCDX		Received Date/Time: 3		Relinquished By: FCDX		Received Date/Time: 4		Received By: [Signature]		Received Date/Time: 4	

JC70598: Chain of Custody

Page 1 of 2

SGS Sample Receipt Summary

Job Number: JC70598

Client: _____

Project: _____

Date / Time Received: 7/25/2018 9:30:00 AM

Delivery Method: _____

Airbill #'s: _____

Cooler Temps (Raw Measured) °C:

Cooler Temps (Corrected) °C:

Cooler Security

- | | |
|--|---|
| 1. Custody Seals Present: <input checked="" type="checkbox"/> <u>Y</u> <input type="checkbox"/> <u>N</u> | 3. COC Present: <input checked="" type="checkbox"/> <u>Y</u> <input type="checkbox"/> <u>N</u> |
| 2. Custody Seals Intact: <input checked="" type="checkbox"/> <u>Y</u> <input type="checkbox"/> <u>N</u> | 4. Smpl Dates/Time OK: <input checked="" type="checkbox"/> <u>Y</u> <input type="checkbox"/> <u>N</u> |

Cooler Temperature

- | | |
|--|-----|
| 1. Temp criteria achieved: <input type="checkbox"/> <u>Y</u> <input type="checkbox"/> <u>N</u> | |
| 2. Cooler temp verification: _____ | N/A |
| 3. Cooler media: _____ | N/A |
| 4. No. Coolers: _____ | N/A |

Quality Control Preservation

- | | | | |
|---------------------------------|--|--|--|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> <u>Y</u> | <input checked="" type="checkbox"/> <u>N</u> | <input type="checkbox"/> <u>N/A</u> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> <u>Y</u> | <input checked="" type="checkbox"/> <u>N</u> | <input type="checkbox"/> <u>N/A</u> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> | <input type="checkbox"/> <u>N/A</u> |
| 4. VOCs headspace free: | <input type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> | <input checked="" type="checkbox"/> <u>N/A</u> |

Sample Integrity - Documentation

- | | | |
|--|--|-----------------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> |

Sample Integrity - Condition

- | | | |
|----------------------------------|--|-----------------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

- | | | | | |
|--|--|--|--|--|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> | | |
| 2. Bottles received for unspecified tests: | <input type="checkbox"/> <u>Y</u> | <input checked="" type="checkbox"/> <u>N</u> | | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> | | |
| 4. Compositing instructions clear: | <input type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> | | <input checked="" type="checkbox"/> <u>N/A</u> |
| 5. Filtering instructions clear: | <input type="checkbox"/> <u>Y</u> | <input type="checkbox"/> <u>N</u> | | <input checked="" type="checkbox"/> <u>N/A</u> |

Test Strip Lot #s:	pH 1-12: 216017	pH 12+: 208717	Other: (Specify) _____
--------------------	-----------------	----------------	------------------------

Comments

SM089-03
Rev. Date 12/7/17

3.1
3

Summa Canister and Flow Controller Log

Job Number: JC70598
Account: PROVLABR Providence Engineering
Project: Valero-CAMS, Baton Rouge, LA
Received: 07/25/18

32
3

SUMMA CANISTERS													
Shipping							Receiving						
Summa ID	Vac L	Date " Hg	Date Out	By	SCC Batch	SCC FileID	Sample Number	Date In	By	Vac " Hg	Pres psig	Final psig	Dil Fact
M244	6	29.4	06/26/18	JT	CP9807	6W06250.D	JC70598-1	07/26/18	JT	7			1

SGS Bottle Order(s):
 VP-062518-25

Prep Date **Room Temp(F)** **Bar Pres "Hg**
 06/26/18 70 29.92

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5W1276-MB	5W32238.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-64-1	Acetone	ND	0.20	0.11	ppbv		ND	0.48	ug/m3
106-99-0	1,3-Butadiene	ND	0.20	0.046	ppbv		ND	0.44	ug/m3
71-43-2	Benzene	ND	0.20	0.012	ppbv		ND	0.64	ug/m3
75-27-4	Bromodichloromethane	ND	0.20	0.027	ppbv		ND	1.3	ug/m3
75-25-2	Bromoform	ND	0.20	0.037	ppbv		ND	2.1	ug/m3
74-83-9	Bromomethane	ND	0.20	0.022	ppbv		ND	0.78	ug/m3
593-60-2	Bromoethene	ND	0.20	0.022	ppbv		ND	0.87	ug/m3
100-44-7	Benzyl Chloride	ND	0.20	0.057	ppbv		ND	1.0	ug/m3
75-15-0	Carbon disulfide	ND	0.20	0.024	ppbv		ND	0.62	ug/m3
108-90-7	Chlorobenzene	ND	0.20	0.026	ppbv		ND	0.92	ug/m3
75-00-3	Chloroethane	ND	0.20	0.048	ppbv		ND	0.53	ug/m3
67-66-3	Chloroform	ND	0.20	0.020	ppbv		ND	0.98	ug/m3
74-87-3	Chloromethane	ND	0.20	0.015	ppbv		ND	0.41	ug/m3
107-05-1	3-Chloropropene	ND	0.20	0.040	ppbv		ND	0.63	ug/m3
95-49-8	2-Chlorotoluene	ND	0.20	0.025	ppbv		ND	1.0	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.024	ppbv		ND	1.3	ug/m3
110-82-7	Cyclohexane	ND	0.20	0.022	ppbv		ND	0.69	ug/m3
75-34-3	1,1-Dichloroethane	ND	0.20	0.012	ppbv		ND	0.81	ug/m3
75-35-4	1,1-Dichloroethylene	ND	0.20	0.017	ppbv		ND	0.79	ug/m3
106-93-4	1,2-Dibromoethane	ND	0.20	0.018	ppbv		ND	1.5	ug/m3
107-06-2	1,2-Dichloroethane	ND	0.20	0.021	ppbv		ND	0.81	ug/m3
78-87-5	1,2-Dichloropropane	ND	0.20	0.019	ppbv		ND	0.92	ug/m3
123-91-1	1,4-Dioxane	ND	0.20	0.052	ppbv		ND	0.72	ug/m3
75-71-8	Dichlorodifluoromethane	ND	0.20	0.017	ppbv		ND	0.99	ug/m3
124-48-1	Dibromochloromethane	ND	0.20	0.033	ppbv		ND	1.7	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.0073	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.012	ppbv		ND	0.79	ug/m3
10061-01-5	cis-1,3-Dichloropropene	ND	0.20	0.020	ppbv		ND	0.91	ug/m3
541-73-1	m-Dichlorobenzene	ND	0.20	0.019	ppbv		ND	1.2	ug/m3
95-50-1	o-Dichlorobenzene	ND	0.20	0.022	ppbv		ND	1.2	ug/m3
106-46-7	p-Dichlorobenzene	ND	0.20	0.018	ppbv		ND	1.2	ug/m3
10061-02-6	trans-1,3-Dichloropropene	ND	0.20	0.020	ppbv		ND	0.91	ug/m3
64-17-5	Ethanol	ND	0.50	0.22	ppbv		ND	0.94	ug/m3
100-41-4	Ethylbenzene	ND	0.20	0.015	ppbv		ND	0.87	ug/m3
141-78-6	Ethyl Acetate	ND	0.20	0.038	ppbv		ND	0.72	ug/m3
622-96-8	4-Ethyltoluene	ND	0.20	0.030	ppbv		ND	0.98	ug/m3

4.1.1
4

Method Blank Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5W1276-MB	5W32238.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
76-13-1	Freon 113	ND	0.20	0.017	ppbv		ND	1.5	ug/m3
76-14-2	Freon 114	ND	0.20	0.019	ppbv		ND	1.4	ug/m3
142-82-5	Heptane	ND	0.20	0.018	ppbv		ND	0.82	ug/m3
87-68-3	Hexachlorobutadiene	ND	0.20	0.046	ppbv		ND	2.1	ug/m3
110-54-3	Hexane	ND	0.20	0.011	ppbv		ND	0.70	ug/m3
591-78-6	2-Hexanone	ND	0.20	0.036	ppbv		ND	0.82	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.065	ppbv		ND	0.49	ug/m3
75-09-2	Methylene chloride	ND	0.20	0.015	ppbv		ND	0.69	ug/m3
78-93-3	Methyl ethyl ketone	ND	0.20	0.042	ppbv		ND	0.59	ug/m3
108-10-1	Methyl Isobutyl Ketone	ND	0.20	0.036	ppbv		ND	0.82	ug/m3
1634-04-4	Methyl Tert Butyl Ether	ND	0.20	0.019	ppbv		ND	0.72	ug/m3
80-62-6	Methylmethacrylate	ND	0.20	0.033	ppbv		ND	0.82	ug/m3
115-07-1	Propylene	ND	0.50	0.016	ppbv		ND	0.86	ug/m3
100-42-5	Styrene	ND	0.20	0.019	ppbv		ND	0.85	ug/m3
71-55-6	1,1,1-Trichloroethane	ND	0.20	0.033	ppbv		ND	1.1	ug/m3
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.20	0.027	ppbv		ND	1.4	ug/m3
79-00-5	1,1,2-Trichloroethane	ND	0.20	0.030	ppbv		ND	1.1	ug/m3
120-82-1	1,2,4-Trichlorobenzene	ND	0.20	0.089	ppbv		ND	1.5	ug/m3
95-63-6	1,2,4-Trimethylbenzene	ND	0.20	0.033	ppbv		ND	0.98	ug/m3
108-67-8	1,3,5-Trimethylbenzene	ND	0.20	0.034	ppbv		ND	0.98	ug/m3
540-84-1	2,2,4-Trimethylpentane	ND	0.20	0.022	ppbv		ND	0.93	ug/m3
75-65-0	Tertiary Butyl Alcohol	ND	0.20	0.014	ppbv		ND	0.61	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.031	ppbv		ND	0.27	ug/m3
109-99-9	Tetrahydrofuran	ND	0.20	0.050	ppbv		ND	0.59	ug/m3
108-88-3	Toluene	ND	0.20	0.014	ppbv		ND	0.75	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.019	ppbv		ND	0.21	ug/m3
75-69-4	Trichlorofluoromethane	ND	0.20	0.028	ppbv		ND	1.1	ug/m3
75-01-4	Vinyl chloride	ND	0.20	0.022	ppbv		ND	0.51	ug/m3
108-05-4	Vinyl Acetate	ND	0.20	0.034	ppbv		ND	0.70	ug/m3
	m,p-Xylene	ND	0.20	0.034	ppbv		ND	0.87	ug/m3
95-47-6	o-Xylene	ND	0.20	0.017	ppbv		ND	0.87	ug/m3
1330-20-7	Xylenes (total)	ND	0.20	0.017	ppbv		ND	0.87	ug/m3

4.1.1
4

Method Blank Summary

Job Number: JC70598
Account: PROVLABR Providence Engineering
Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5W1276-MB	5W32238.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	86% 65-128%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ppbv	

4.1.1
4

Method Blank Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-MB	6W06233.D	1	05/18/18	PC	n/a	n/a	V6W211

The QC reported here applies to the following samples:

Method: TO-15

V6W211-SCC

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-64-1	Acetone	ND	0.20	0.062	ppbv		ND	0.48	ug/m3
106-99-0	1,3-Butadiene	ND	0.20	0.028	ppbv		ND	0.44	ug/m3
71-43-2	Benzene	ND	0.20	0.026	ppbv		ND	0.64	ug/m3
75-27-4	Bromodichloromethane	ND	0.20	0.029	ppbv		ND	1.3	ug/m3
75-25-2	Bromoform	ND	0.20	0.018	ppbv		ND	2.1	ug/m3
74-83-9	Bromomethane	ND	0.20	0.033	ppbv		ND	0.78	ug/m3
593-60-2	Bromoethene	ND	0.20	0.016	ppbv		ND	0.87	ug/m3
100-44-7	Benzyl Chloride	ND	0.20	0.021	ppbv		ND	1.0	ug/m3
75-15-0	Carbon disulfide	ND	0.20	0.033	ppbv		ND	0.62	ug/m3
108-90-7	Chlorobenzene	ND	0.20	0.017	ppbv		ND	0.92	ug/m3
75-00-3	Chloroethane	ND	0.20	0.036	ppbv		ND	0.53	ug/m3
67-66-3	Chloroform	ND	0.20	0.031	ppbv		ND	0.98	ug/m3
74-87-3	Chloromethane	ND	0.20	0.065	ppbv		ND	0.41	ug/m3
107-05-1	3-Chloropropene	ND	0.20	0.037	ppbv		ND	0.63	ug/m3
95-49-8	2-Chlorotoluene	ND	0.20	0.036	ppbv		ND	1.0	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.020	ppbv		ND	1.3	ug/m3
110-82-7	Cyclohexane	ND	0.20	0.035	ppbv		ND	0.69	ug/m3
75-34-3	1,1-Dichloroethane	ND	0.20	0.033	ppbv		ND	0.81	ug/m3
75-35-4	1,1-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
106-93-4	1,2-Dibromoethane	ND	0.20	0.022	ppbv		ND	1.5	ug/m3
107-06-2	1,2-Dichloroethane	ND	0.20	0.026	ppbv		ND	0.81	ug/m3
78-87-5	1,2-Dichloropropane	ND	0.20	0.033	ppbv		ND	0.92	ug/m3
123-91-1	1,4-Dioxane	ND	0.20	0.047	ppbv		ND	0.72	ug/m3
75-71-8	Dichlorodifluoromethane	ND	0.20	0.025	ppbv		ND	0.99	ug/m3
124-48-1	Dibromochloromethane	ND	0.20	0.025	ppbv		ND	1.7	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.026	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.034	ppbv		ND	0.79	ug/m3
10061-01-5	cis-1,3-Dichloropropene	ND	0.20	0.023	ppbv		ND	0.91	ug/m3
541-73-1	m-Dichlorobenzene	ND	0.20	0.029	ppbv		ND	1.2	ug/m3
95-50-1	o-Dichlorobenzene	ND	0.20	0.028	ppbv		ND	1.2	ug/m3
106-46-7	p-Dichlorobenzene	ND	0.20	0.029	ppbv		ND	1.2	ug/m3
10061-02-6	trans-1,3-Dichloropropene	ND	0.20	0.029	ppbv		ND	0.91	ug/m3
64-17-5	Ethanol	ND	0.50	0.095	ppbv		ND	0.94	ug/m3
100-41-4	Ethylbenzene	ND	0.20	0.023	ppbv		ND	0.87	ug/m3
141-78-6	Ethyl Acetate	ND	0.20	0.065	ppbv		ND	0.72	ug/m3
622-96-8	4-Ethyltoluene	ND	0.20	0.028	ppbv		ND	0.98	ug/m3

4.1.2
4

Method Blank Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-MB	6W06233.D	1	05/18/18	PC	n/a	n/a	V6W211

The QC reported here applies to the following samples:

Method: TO-15

V6W211-SCC

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
76-13-1	Freon 113	ND	0.20	0.024	ppbv		ND	1.5	ug/m3
76-14-2	Freon 114	ND	0.20	0.024	ppbv		ND	1.4	ug/m3
142-82-5	Heptane	ND	0.20	0.046	ppbv		ND	0.82	ug/m3
87-68-3	Hexachlorobutadiene	ND	0.20	0.024	ppbv		ND	2.1	ug/m3
110-54-3	Hexane	ND	0.20	0.026	ppbv		ND	0.70	ug/m3
591-78-6	2-Hexanone	ND	0.20	0.041	ppbv		ND	0.82	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.090	ppbv		ND	0.49	ug/m3
75-09-2	Methylene chloride	ND	0.20	0.033	ppbv		ND	0.69	ug/m3
78-93-3	Methyl ethyl ketone	ND	0.20	0.043	ppbv		ND	0.59	ug/m3
108-10-1	Methyl Isobutyl Ketone	ND	0.20	0.057	ppbv		ND	0.82	ug/m3
1634-04-4	Methyl Tert Butyl Ether	ND	0.20	0.019	ppbv		ND	0.72	ug/m3
80-62-6	Methylmethacrylate	ND	0.20	0.044	ppbv		ND	0.82	ug/m3
115-07-1	Propylene	ND	0.50	0.059	ppbv		ND	0.86	ug/m3
100-42-5	Styrene	ND	0.20	0.046	ppbv		ND	0.85	ug/m3
71-55-6	1,1,1-Trichloroethane	ND	0.20	0.017	ppbv		ND	1.1	ug/m3
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.20	0.036	ppbv		ND	1.4	ug/m3
79-00-5	1,1,2-Trichloroethane	ND	0.20	0.022	ppbv		ND	1.1	ug/m3
120-82-1	1,2,4-Trichlorobenzene	ND	0.20	0.038	ppbv		ND	1.5	ug/m3
95-63-6	1,2,4-Trimethylbenzene	ND	0.20	0.051	ppbv		ND	0.98	ug/m3
108-67-8	1,3,5-Trimethylbenzene	ND	0.20	0.030	ppbv		ND	0.98	ug/m3
540-84-1	2,2,4-Trimethylpentane	ND	0.20	0.026	ppbv		ND	0.93	ug/m3
75-65-0	Tertiary Butyl Alcohol	ND	0.20	0.026	ppbv		ND	0.61	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.016	ppbv		ND	0.27	ug/m3
109-99-9	Tetrahydrofuran	ND	0.20	0.045	ppbv		ND	0.59	ug/m3
108-88-3	Toluene	ND	0.20	0.029	ppbv		ND	0.75	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.012	ppbv		ND	0.21	ug/m3
75-69-4	Trichlorofluoromethane	ND	0.20	0.015	ppbv		ND	1.1	ug/m3
75-01-4	Vinyl chloride	ND	0.20	0.038	ppbv		ND	0.51	ug/m3
108-05-4	Vinyl Acetate	ND	0.20	0.027	ppbv		ND	0.70	ug/m3
	m,p-Xylene	ND	0.20	0.067	ppbv		ND	0.87	ug/m3
95-47-6	o-Xylene	ND	0.20	0.035	ppbv		ND	0.87	ug/m3
1330-20-7	Xylenes (total)	ND	0.20	0.035	ppbv		ND	0.87	ug/m3

4.1.2
4

Method Blank Summary

Job Number: JC70598
Account: PROVLABR Providence Engineering
Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-MB	6W06233.D	1	05/18/18	PC	n/a	n/a	V6W211

The QC reported here applies to the following samples:

Method: TO-15

V6W211-SCC

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	96% 65-128%

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5W1276-BS	5W32235.D	1	08/01/18	GP	n/a	n/a	V5W1276
V5W1276-BSD	5W32236.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10	8.1	81	8.0	80	1	70-130/30
106-99-0	1,3-Butadiene	10	9.1	91	9.6	96	5	70-130/30
71-43-2	Benzene	10	9.3	93	9.4	94	1	70-130/30
75-27-4	Bromodichloromethane	10	9.4	94	9.4	94	0	70-130/30
75-25-2	Bromoform	10	10.0	100	10.2	102	2	70-130/30
74-83-9	Bromomethane	10	8.7	87	8.6	86	1	70-130/30
593-60-2	Bromoethene	10	9.9	99	9.7	97	2	70-130/30
100-44-7	Benzyl Chloride	10	8.4	84	8.4	84	0	70-130/30
75-15-0	Carbon disulfide	10	9.7	97	9.8	98	1	70-130/30
108-90-7	Chlorobenzene	10	9.0	90	9.1	91	1	70-130/30
75-00-3	Chloroethane	10	9.4	94	9.1	91	3	70-130/30
67-66-3	Chloroform	10	9.1	91	9.3	93	2	70-130/30
74-87-3	Chloromethane	10	9.7	97	9.6	96	1	70-130/30
107-05-1	3-Chloropropene	10	9.5	95	9.7	97	2	70-130/30
95-49-8	2-Chlorotoluene	10	9.9	99	9.8	98	1	70-130/30
56-23-5	Carbon tetrachloride	10	9.3	93	9.5	95	2	70-130/30
110-82-7	Cyclohexane	10	10	100	10.1	101	1	70-130/30
75-34-3	1,1-Dichloroethane	10	9.5	95	9.6	96	1	70-130/30
75-35-4	1,1-Dichloroethylene	10	9.5	95	9.6	96	1	70-130/30
106-93-4	1,2-Dibromoethane	10	9.4	94	9.6	96	2	70-130/30
107-06-2	1,2-Dichloroethane	10	9.3	93	9.4	94	1	70-130/30
78-87-5	1,2-Dichloropropane	10	10.1	101	10.2	102	1	70-130/30
123-91-1	1,4-Dioxane	10	9.9	99	9.9	99	0	70-130/30
75-71-8	Dichlorodifluoromethane	10	9.1	91	9.1	91	0	70-130/30
124-48-1	Dibromochloromethane	10	9.7	97	9.9	99	2	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	9.8	98	10.0	100	2	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	9.6	96	9.8	98	2	70-130/30
10061-01-5	cis-1,3-Dichloropropene	10	9.7	97	9.9	99	2	70-130/30
541-73-1	m-Dichlorobenzene	10	8.9	89	8.8	88	1	70-130/30
95-50-1	o-Dichlorobenzene	10	8.8	88	8.8	88	0	70-130/30
106-46-7	p-Dichlorobenzene	10	8.4	84	8.2	82	2	70-130/30
10061-02-6	trans-1,3-Dichloropropene	10	9.9	99	10.2	102	3	70-130/30
64-17-5	Ethanol	10	7.8	78	7.7	77	1	70-130/30
100-41-4	Ethylbenzene	10	9.4	94	9.4	94	0	70-130/30
141-78-6	Ethyl Acetate	10	10.2	102	10.1	101	1	70-130/30
622-96-8	4-Ethyltoluene	10	9.7	97	9.6	96	1	70-130/30

* = Outside of Control Limits.

4.2.1
4

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5W1276-BS	5W32235.D	1	08/01/18	GP	n/a	n/a	V5W1276
V5W1276-BSD	5W32236.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
76-13-1	Freon 113	10	9.2	92	9.3	93	1	70-130/30
76-14-2	Freon 114	10	9.6	96	9.5	95	1	70-130/30
142-82-5	Heptane	10	9.9	99	10.1	101	2	70-130/30
87-68-3	Hexachlorobutadiene	10	8.2	82	8.4	84	2	70-130/30
110-54-3	Hexane	10	10.1	101	10.1	101	0	70-130/30
591-78-6	2-Hexanone	10	9.7	97	9.8	98	1	70-130/30
67-63-0	Isopropyl Alcohol	10	8.1	81	8.7	87	7	70-130/30
75-09-2	Methylene chloride	10	8.5	85	8.5	85	0	70-130/30
78-93-3	Methyl ethyl ketone	10	9.4	94	9.5	95	1	70-130/30
108-10-1	Methyl Isobutyl Ketone	10	9.7	97	9.9	99	2	70-130/30
1634-04-4	Methyl Tert Butyl Ether	10	9.3	93	9.4	94	1	70-130/30
80-62-6	Methylmethacrylate	10	10.1	101	10.2	102	1	70-130/30
115-07-1	Propylene	10	9.9	99	9.8	98	1	70-130/30
100-42-5	Styrene	10	9.5	95	9.5	95	0	70-130/30
71-55-6	1,1,1-Trichloroethane	10	9.1	91	9.2	92	1	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	10	9.5	95	9.4	94	1	70-130/30
79-00-5	1,1,2-Trichloroethane	10	9.6	96	9.8	98	2	70-130/30
120-82-1	1,2,4-Trichlorobenzene	10	8.1	81	8.1	81	0	70-130/30
95-63-6	1,2,4-Trimethylbenzene	10	9.9	99	9.8	98	1	70-130/30
108-67-8	1,3,5-Trimethylbenzene	10	9.4	94	9.4	94	0	70-130/30
540-84-1	2,2,4-Trimethylpentane	10	10.3	103	10.3	103	0	70-130/30
75-65-0	Tertiary Butyl Alcohol	10	9.6	96	9.7	97	1	70-130/30
127-18-4	Tetrachloroethylene	10	8.9	89	9.0	90	1	70-130/30
109-99-9	Tetrahydrofuran	10	9.6	96	9.8	98	2	70-130/30
108-88-3	Toluene	10	9.6	96	9.8	98	2	70-130/30
79-01-6	Trichloroethylene	10	9.6	96	9.7	97	1	70-130/30
75-69-4	Trichlorofluoromethane	10	9.1	91	9.0	90	1	70-130/30
75-01-4	Vinyl chloride	10	9.5	95	9.6	96	1	70-130/30
108-05-4	Vinyl Acetate	10	9.0	90	9.2	92	2	70-130/30
	m,p-Xylene	20	18.8	94	18.7	94	1	70-130/30
95-47-6	o-Xylene	10	10	100	9.9	99	1	70-130/30
1330-20-7	Xylenes (total)	30	28.8	96	28.6	95	1	70-130/30

* = Outside of Control Limits.

4.2.1
4

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC70598

Account: PROVLABR Providence Engineering

Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5W1276-BS	5W32235.D	1	08/01/18	GP	n/a	n/a	V5W1276
V5W1276-BSD	5W32236.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	105%	103%	65-128%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-BS	6W06230.D	1	05/18/18	PC	n/a	n/a	V6W211
V6W211-BSD	6W06231.D	1	05/18/18	PC	n/a	n/a	V6W211

The QC reported here applies to the following samples:

Method: TO-15

V6W211-SCC

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10	10.4	104	10.6	106	2	70-130/30
106-99-0	1,3-Butadiene	10	11.7	117	12.0	120	3	70-130/30
71-43-2	Benzene	10	10.7	107	11.1	111	4	70-130/30
75-27-4	Bromodichloromethane	10	11.9	119	12.6	126	6	70-130/30
75-25-2	Bromoform	10	14.5	145* a	13.0	130	11	70-130/30
74-83-9	Bromomethane	10	10.8	108	11.2	112	4	70-130/30
593-60-2	Bromoethene	10	10.9	109	11.2	112	3	70-130/30
100-44-7	Benzyl Chloride	10	14.5	145* a	13.0	130	11	70-130/30
75-15-0	Carbon disulfide	10	10.8	108	11.2	112	4	70-130/30
108-90-7	Chlorobenzene	10	11.7	117	10.5	105	11	70-130/30
75-00-3	Chloroethane	10	11.8	118	12.1	121	3	70-130/30
67-66-3	Chloroform	10	11.0	110	11.4	114	4	70-130/30
74-87-3	Chloromethane	10	11.4	114	11.7	117	3	70-130/30
107-05-1	3-Chloropropene	10	11.6	116	12.0	120	3	70-130/30
95-49-8	2-Chlorotoluene	10	12.7	127	11.3	113	12	70-130/30
56-23-5	Carbon tetrachloride	10	11.8	118	12.2	122	3	70-130/30
110-82-7	Cyclohexane	10	11.4	114	11.8	118	3	70-130/30
75-34-3	1,1-Dichloroethane	10	11.2	112	11.6	116	4	70-130/30
75-35-4	1,1-Dichloroethylene	10	11.2	112	11.6	116	4	70-130/30
106-93-4	1,2-Dibromoethane	10	11.2	112	11.9	119	6	70-130/30
107-06-2	1,2-Dichloroethane	10	11.3	113	11.6	116	3	70-130/30
78-87-5	1,2-Dichloropropane	10	11.6	116	12.3	123	6	70-130/30
123-91-1	1,4-Dioxane	10	10.3	103	11.1	111	7	70-130/30
75-71-8	Dichlorodifluoromethane	10	11.0	110	11.4	114	4	70-130/30
124-48-1	Dibromochloromethane	10	12.5	125	13.3	133* a	6	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	11.1	111	11.5	115	4	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	11.3	113	11.8	118	4	70-130/30
10061-01-5	cis-1,3-Dichloropropene	10	12.1	121	12.8	128	6	70-130/30
541-73-1	m-Dichlorobenzene	10	12.1	121	10.8	108	11	70-130/30
95-50-1	o-Dichlorobenzene	10	11.9	119	10.6	106	12	70-130/30
106-46-7	p-Dichlorobenzene	10	11.9	119	10.6	106	12	70-130/30
10061-02-6	trans-1,3-Dichloropropene	10	12.5	125	13.3	133* a	6	70-130/30
64-17-5	Ethanol	10	9.8	98	10.1	101	3	70-130/30
100-41-4	Ethylbenzene	10	12.1	121	10.8	108	11	70-130/30
141-78-6	Ethyl Acetate	10	12.4	124	12.9	129	4	70-130/30
622-96-8	4-Ethyltoluene	10	12.8	128	11.5	115	11	70-130/30

* = Outside of Control Limits.

4.2.2
4

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-BS	6W06230.D	1	05/18/18	PC	n/a	n/a	V6W211
V6W211-BSD	6W06231.D	1	05/18/18	PC	n/a	n/a	V6W211

The QC reported here applies to the following samples:

Method: TO-15

V6W211-SCC

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
76-13-1	Freon 113	10	10.5	105	10.8	108	3	70-130/30
76-14-2	Freon 114	10	10.9	109	11.2	112	3	70-130/30
142-82-5	Heptane	10	11.5	115	12.1	121	5	70-130/30
87-68-3	Hexachlorobutadiene	10	12.7	127	11.5	115	10	70-130/30
110-54-3	Hexane	10	11.4	114	11.8	118	3	70-130/30
591-78-6	2-Hexanone	10	11.1	111	11.8	118	6	70-130/30
67-63-0	Isopropyl Alcohol	10	11.5	115	11.9	119	3	70-130/30
75-09-2	Methylene chloride	10	9.4	94	9.7	97	3	70-130/30
78-93-3	Methyl ethyl ketone	10	11.4	114	11.8	118	3	70-130/30
108-10-1	Methyl Isobutyl Ketone	10	11.6	116	12.3	123	6	70-130/30
1634-04-4	Methyl Tert Butyl Ether	10	10.9	109	11.2	112	3	70-130/30
80-62-6	Methylmethacrylate	10	11.8	118	12.5	125	6	70-130/30
115-07-1	Propylene	10	11.8	118	12.1	121	3	70-130/30
100-42-5	Styrene	10	12.6	126	11.2	112	12	70-130/30
71-55-6	1,1,1-Trichloroethane	10	11.2	112	11.5	115	3	70-130/30
79-34-5	1,1,2,2-Tetrachloroethane	10	13.3	133* a	11.9	119	11	70-130/30
79-00-5	1,1,2-Trichloroethane	10	11.4	114	12.0	120	5	70-130/30
120-82-1	1,2,4-Trichlorobenzene	10	10.2	102	9.3	93	9	70-130/30
95-63-6	1,2,4-Trimethylbenzene	10	12.9	129	11.6	116	11	70-130/30
108-67-8	1,3,5-Trimethylbenzene	10	12.8	128	11.5	115	11	70-130/30
540-84-1	2,2,4-Trimethylpentane	10	11.6	116	12.2	122	5	70-130/30
75-65-0	Tertiary Butyl Alcohol	10	11.4	114	11.8	118	3	70-130/30
127-18-4	Tetrachloroethylene	10	9.5	95	10.1	101	6	70-130/30
109-99-9	Tetrahydrofuran	10	11.2	112	11.6	116	4	70-130/30
108-88-3	Toluene	10	10.9	109	11.5	115	5	70-130/30
79-01-6	Trichloroethylene	10	11.0	110	11.7	117	6	70-130/30
75-69-4	Trichlorofluoromethane	10	10.8	108	11.2	112	4	70-130/30
75-01-4	Vinyl chloride	10	11.2	112	11.6	116	4	70-130/30
108-05-4	Vinyl Acetate	10	12.4	124	12.8	128	3	70-130/30
	m,p-Xylene	20	24.2	121	21.6	108	11	70-130/30
95-47-6	o-Xylene	10	12.5	125	11.1	111	12	70-130/30
1330-20-7	Xylenes (total)	30	36.7	122	32.7	109	12	70-130/30

* = Outside of Control Limits.

4.2.2
4

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC70598
Account: PROVLABR Providence Engineering
Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-BS	6W06230.D	1	05/18/18	PC	n/a	n/a	V6W211
V6W211-BSD	6W06231.D	1	05/18/18	PC	n/a	n/a	V6W211

The QC reported here applies to the following samples:

Method: TO-15

V6W211-SCC

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	104%	105%	65-128%

(a) High percent recoveries and no associated positive reported in the QC batch.

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC70988-1DUP	5W32249.D	1	08/01/18	GP	n/a	n/a	V5W1276
JC70988-1	5W32248.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Compound	JC70988-1 ppbv	DUP Q	ppbv	Q	RPD	Limits
67-64-1	Acetone	5.8		5.7		2	25
106-99-0	1,3-Butadiene	ND		ND		nc	25
71-43-2	Benzene	ND		ND		nc	25
75-27-4	Bromodichloromethane	ND		ND		nc	25
75-25-2	Bromoform	ND		ND		nc	25
74-83-9	Bromomethane	ND		ND		nc	25
593-60-2	Bromoethene	ND		ND		nc	25
100-44-7	Benzyl Chloride	ND		ND		nc	25
75-15-0	Carbon disulfide	ND		ND		nc	25
108-90-7	Chlorobenzene	ND		ND		nc	25
75-00-3	Chloroethane	ND		ND		nc	25
67-66-3	Chloroform	ND		ND		nc	25
74-87-3	Chloromethane	0.59		0.61		3	25
107-05-1	3-Chloropropene	ND		ND		nc	25
95-49-8	2-Chlorotoluene	ND		ND		nc	25
56-23-5	Carbon tetrachloride	ND		ND		nc	25
110-82-7	Cyclohexane	ND		ND		nc	25
75-34-3	1,1-Dichloroethane	ND		ND		nc	25
75-35-4	1,1-Dichloroethylene	ND		ND		nc	25
106-93-4	1,2-Dibromoethane	0.68		0.43		45* a	25
107-06-2	1,2-Dichloroethane	ND		ND		nc	25
78-87-5	1,2-Dichloropropane	ND		ND		nc	25
123-91-1	1,4-Dioxane	ND		ND		nc	25
75-71-8	Dichlorodifluoromethane	0.43		0.42		2	25
124-48-1	Dibromochloromethane	ND		ND		nc	25
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	25
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	25
10061-01-5	cis-1,3-Dichloropropene	ND		ND		nc	25
541-73-1	m-Dichlorobenzene	ND		ND		nc	25
95-50-1	o-Dichlorobenzene	ND		ND		nc	25
106-46-7	p-Dichlorobenzene	ND		ND		nc	25
10061-02-6	trans-1,3-Dichloropropene	ND		ND		nc	25
64-17-5	Ethanol	5.8		5.7		2	25
100-41-4	Ethylbenzene	ND		ND		nc	25
141-78-6	Ethyl Acetate	2.1		2.1		0	25
622-96-8	4-Ethyltoluene	ND		ND		nc	25

* = Outside of Control Limits.

4.3.1
4

Duplicate Summary

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC70988-1DUP	5W32249.D	1	08/01/18	GP	n/a	n/a	V5W1276
JC70988-1	5W32248.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Compound	JC70988-1 ppbv	DUP Q	ppbv	Q	RPD	Limits
76-13-1	Freon 113	ND		ND		nc	25
76-14-2	Freon 114	ND		ND		nc	25
142-82-5	Heptane	ND		ND		nc	25
87-68-3	Hexachlorobutadiene	ND		ND		nc	25
110-54-3	Hexane	ND		ND		nc	25
591-78-6	2-Hexanone	ND		ND		nc	25
67-63-0	Isopropyl Alcohol	0.93		0.91		2	25
75-09-2	Methylene chloride	0.20		0.20		0	25
78-93-3	Methyl ethyl ketone	0.36		0.35		3	25
108-10-1	Methyl Isobutyl Ketone	ND		ND		nc	25
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	25
80-62-6	Methylmethacrylate	ND		ND		nc	25
115-07-1	Propylene	ND		ND		nc	25
100-42-5	Styrene	ND		ND		nc	25
71-55-6	1,1,1-Trichloroethane	ND		ND		nc	25
79-34-5	1,1,2,2-Tetrachloroethane	ND		ND		nc	25
79-00-5	1,1,2-Trichloroethane	ND		ND		nc	25
120-82-1	1,2,4-Trichlorobenzene	ND		ND		nc	25
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	25
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	25
540-84-1	2,2,4-Trimethylpentane	ND		ND		nc	25
75-65-0	Tertiary Butyl Alcohol	0.20		0.18	J	11	25
127-18-4	Tetrachloroethylene	0.039	J	0.039	J	0	25
109-99-9	Tetrahydrofuran	ND		ND		nc	25
108-88-3	Toluene	0.42		0.40		5	25
79-01-6	Trichloroethylene	0.053		0.053		0	25
75-69-4	Trichlorofluoromethane	0.24		0.24		0	25
75-01-4	Vinyl chloride	ND		ND		nc	25
108-05-4	Vinyl Acetate	ND		ND		nc	25
	m,p-Xylene	ND		ND		nc	25
95-47-6	o-Xylene	ND		ND		nc	25
1330-20-7	Xylenes (total)	ND		ND		nc	25

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC70598

Account: PROVLABR Providence Engineering

Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC70988-1DUP	5W32249.D	1	08/01/18	GP	n/a	n/a	V5W1276
JC70988-1	5W32248.D	1	08/01/18	GP	n/a	n/a	V5W1276

The QC reported here applies to the following samples:

Method: TO-15

JC70598-1

CAS No.	Surrogate Recoveries	DUP	JC70988-1	Limits
460-00-4	4-Bromofluorobenzene	96%	96%	65-128%

(a) Analytical precision exceeds in-house control limits.

* = Outside of Control Limits.

Summa Cleaning Certification

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-SCC	6W06250.D	1	05/19/18	PC	n/a	n/a	V6W211

The QC reported here (Summa A081) applies to the following samples: Method: TO-15

Batch CP9807 cleaned 05/09/18: JC70598-1(M244)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-64-1	Acetone	ND	0.20	0.062	ppbv		ND	0.48	ug/m3
106-99-0	1,3-Butadiene	ND	0.20	0.028	ppbv		ND	0.44	ug/m3
71-43-2	Benzene	ND	0.20	0.026	ppbv		ND	0.64	ug/m3
75-27-4	Bromodichloromethane	ND	0.20	0.029	ppbv		ND	1.3	ug/m3
75-25-2	Bromoform	ND	0.20	0.018	ppbv		ND	2.1	ug/m3
74-83-9	Bromomethane	ND	0.20	0.033	ppbv		ND	0.78	ug/m3
593-60-2	Bromoethene	ND	0.20	0.016	ppbv		ND	0.87	ug/m3
100-44-7	Benzyl Chloride	ND	0.20	0.021	ppbv		ND	1.0	ug/m3
75-15-0	Carbon disulfide	ND	0.20	0.033	ppbv		ND	0.62	ug/m3
108-90-7	Chlorobenzene	ND	0.20	0.017	ppbv		ND	0.92	ug/m3
75-00-3	Chloroethane	ND	0.20	0.036	ppbv		ND	0.53	ug/m3
67-66-3	Chloroform	ND	0.20	0.031	ppbv		ND	0.98	ug/m3
74-87-3	Chloromethane	ND	0.20	0.065	ppbv		ND	0.41	ug/m3
107-05-1	3-Chloropropene	ND	0.20	0.037	ppbv		ND	0.63	ug/m3
95-49-8	2-Chlorotoluene	ND	0.20	0.036	ppbv		ND	1.0	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.020	ppbv		ND	1.3	ug/m3
110-82-7	Cyclohexane	ND	0.20	0.035	ppbv		ND	0.69	ug/m3
75-34-3	1,1-Dichloroethane	ND	0.20	0.033	ppbv		ND	0.81	ug/m3
75-35-4	1,1-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
106-93-4	1,2-Dibromoethane	ND	0.20	0.022	ppbv		ND	1.5	ug/m3
107-06-2	1,2-Dichloroethane	ND	0.20	0.026	ppbv		ND	0.81	ug/m3
78-87-5	1,2-Dichloropropane	ND	0.20	0.033	ppbv		ND	0.92	ug/m3
123-91-1	1,4-Dioxane	ND	0.20	0.047	ppbv		ND	0.72	ug/m3
75-71-8	Dichlorodifluoromethane	ND	0.20	0.025	ppbv		ND	0.99	ug/m3
124-48-1	Dibromochloromethane	ND	0.20	0.025	ppbv		ND	1.7	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.026	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.034	ppbv		ND	0.79	ug/m3
10061-01-5	cis-1,3-Dichloropropene	ND	0.20	0.023	ppbv		ND	0.91	ug/m3
541-73-1	m-Dichlorobenzene	ND	0.20	0.029	ppbv		ND	1.2	ug/m3
95-50-1	o-Dichlorobenzene	ND	0.20	0.028	ppbv		ND	1.2	ug/m3
106-46-7	p-Dichlorobenzene	ND	0.20	0.029	ppbv		ND	1.2	ug/m3
10061-02-6	trans-1,3-Dichloropropene	ND	0.20	0.029	ppbv		ND	0.91	ug/m3
64-17-5	Ethanol	ND	0.50	0.095	ppbv		ND	0.94	ug/m3
100-41-4	Ethylbenzene	ND	0.20	0.023	ppbv		ND	0.87	ug/m3
141-78-6	Ethyl Acetate	ND	0.20	0.065	ppbv		ND	0.72	ug/m3
622-96-8	4-Ethyltoluene	ND	0.20	0.028	ppbv		ND	0.98	ug/m3

4.4.1
4

Summa Cleaning Certification

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-SCC	6W06250.D	1	05/19/18	PC	n/a	n/a	V6W211

The QC reported here (Summa A081) applies to the following samples: Method: TO-15

Batch CP9807 cleaned 05/09/18: JC70598-1(M244)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
76-13-1	Freon 113	ND	0.20	0.024	ppbv		ND	1.5	ug/m3
76-14-2	Freon 114	ND	0.20	0.024	ppbv		ND	1.4	ug/m3
142-82-5	Heptane	ND	0.20	0.046	ppbv		ND	0.82	ug/m3
87-68-3	Hexachlorobutadiene	ND	0.20	0.024	ppbv		ND	2.1	ug/m3
110-54-3	Hexane	ND	0.20	0.026	ppbv		ND	0.70	ug/m3
591-78-6	2-Hexanone	ND	0.20	0.041	ppbv		ND	0.82	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.090	ppbv		ND	0.49	ug/m3
75-09-2	Methylene chloride	ND	0.20	0.033	ppbv		ND	0.69	ug/m3
78-93-3	Methyl ethyl ketone	ND	0.20	0.043	ppbv		ND	0.59	ug/m3
108-10-1	Methyl Isobutyl Ketone	ND	0.20	0.057	ppbv		ND	0.82	ug/m3
1634-04-4	Methyl Tert Butyl Ether	ND	0.20	0.019	ppbv		ND	0.72	ug/m3
80-62-6	Methylmethacrylate	ND	0.20	0.044	ppbv		ND	0.82	ug/m3
115-07-1	Propylene	ND	0.50	0.059	ppbv		ND	0.86	ug/m3
100-42-5	Styrene	ND	0.20	0.046	ppbv		ND	0.85	ug/m3
71-55-6	1,1,1-Trichloroethane	ND	0.20	0.017	ppbv		ND	1.1	ug/m3
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.20	0.036	ppbv		ND	1.4	ug/m3
79-00-5	1,1,2-Trichloroethane	ND	0.20	0.022	ppbv		ND	1.1	ug/m3
120-82-1	1,2,4-Trichlorobenzene	ND	0.20	0.038	ppbv		ND	1.5	ug/m3
95-63-6	1,2,4-Trimethylbenzene	ND	0.20	0.051	ppbv		ND	0.98	ug/m3
108-67-8	1,3,5-Trimethylbenzene	ND	0.20	0.030	ppbv		ND	0.98	ug/m3
540-84-1	2,2,4-Trimethylpentane	ND	0.20	0.026	ppbv		ND	0.93	ug/m3
75-65-0	Tertiary Butyl Alcohol	ND	0.20	0.026	ppbv		ND	0.61	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.016	ppbv		ND	0.27	ug/m3
109-99-9	Tetrahydrofuran	ND	0.20	0.045	ppbv		ND	0.59	ug/m3
108-88-3	Toluene	ND	0.20	0.029	ppbv		ND	0.75	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.012	ppbv		ND	0.21	ug/m3
75-69-4	Trichlorofluoromethane	ND	0.20	0.015	ppbv		ND	1.1	ug/m3
75-01-4	Vinyl chloride	ND	0.20	0.038	ppbv		ND	0.51	ug/m3
108-05-4	Vinyl Acetate	ND	0.20	0.027	ppbv		ND	0.70	ug/m3
	m,p-Xylene	ND	0.20	0.067	ppbv		ND	0.87	ug/m3
95-47-6	o-Xylene	ND	0.20	0.035	ppbv		ND	0.87	ug/m3
1330-20-7	Xylenes (total)	ND	0.20	0.035	ppbv		ND	0.87	ug/m3

4.4.1
4

Summa Cleaning Certification

Job Number: JC70598
Account: PROVLABR Providence Engineering
Project: Valero-CAMS, Baton Rouge, LA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6W211-SCC	6W06250.D	1	05/19/18	PC	n/a	n/a	V6W211

The QC reported here (Summa A081) applies to the following samples: Method: TO-15

Batch CP9807 cleaned 05/09/18: JC70598-1(M244)

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	98% 65-128%

4.4.1
4

Instrument Performance Check (BFB)

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample: V5W1272-BFB	Injection Date: 07/25/18
Lab File ID: 5W32136.D	Injection Time: 19:00
Instrument ID: GCMS5W	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	8.0 - 40.0% of mass 95	14088	18.2	Pass
75	30.0 - 66.0% of mass 95	36365	47.0	Pass
95	Base peak, 100% relative abundance	77328	100.0	Pass
96	5.0 - 9.0% of mass 95	5266	6.81	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	71760	92.8	Pass
175	4.0 - 9.0% of mass 174	5404	6.99 (7.53) ^a	Pass
176	93.0 - 101.0% of mass 174	69072	89.3 (96.3) ^a	Pass
177	5.0 - 9.0% of mass 176	4588	5.93 (6.64) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V5W1272-IC1272	5W32137.D	07/25/18	19:45	00:45	Initial cal 0.04
V5W1272-IC1272	5W32138.D	07/25/18	20:29	01:29	Initial cal 0.1
V5W1272-IC1272	5W32141.D	07/25/18	22:44	03:44	Initial cal 5
V5W1272-ICC1272	5W32142.D	07/25/18	23:29	04:29	Initial cal 10
V5W1272-IC1272	5W32143.D	07/26/18	00:16	05:16	Initial cal 20
V5W1272-IC1272	5W32145.D	07/26/18	01:53	06:53	Initial cal 40
V5W1272-IC1272	5W32150.D	07/26/18	11:21	16:21	Initial cal 0.5
V5W1272-IC1272	5W32151.D	07/26/18	12:07	17:07	Initial cal 0.2

Instrument Performance Check (BFB)

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample: V5W1272-BFB2	Injection Date: 07/26/18
Lab File ID: 5W32154.D	Injection Time: 15:21
Instrument ID: GCMS5W	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	8.0 - 40.0% of mass 95	14225	17.3	Pass
75	30.0 - 66.0% of mass 95	37984	46.2	Pass
95	Base peak, 100% relative abundance	82189	100.0	Pass
96	5.0 - 9.0% of mass 95	5380	6.55	Pass
173	Less than 2.0% of mass 174	296	0.36 (0.36) ^a	Pass
174	50.0 - 120.0% of mass 95	81475	99.1	Pass
175	4.0 - 9.0% of mass 174	6023	7.33 (7.39) ^a	Pass
176	93.0 - 101.0% of mass 174	79624	96.9 (97.7) ^a	Pass
177	5.0 - 9.0% of mass 176	5229	6.36 (6.57) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V5W1272-ICV1272	5W32155.D	07/26/18	16:06	00:45	Initial cal verification 10

4.5.2
4

Instrument Performance Check (BFB)

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample: V5W1276-BFB	Injection Date: 08/01/18
Lab File ID: 5W32233.D	Injection Time: 08:29
Instrument ID: GCMS5W	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	8.0 - 40.0% of mass 95	12382	17.9	Pass
75	30.0 - 66.0% of mass 95	32261	46.5	Pass
95	Base peak, 100% relative abundance	69341	100.0	Pass
96	5.0 - 9.0% of mass 95	4790	6.91	Pass
173	Less than 2.0% of mass 174	262	0.38 (0.40) ^a	Pass
174	50.0 - 120.0% of mass 95	64755	93.4	Pass
175	4.0 - 9.0% of mass 174	4836	6.97 (7.47) ^a	Pass
176	93.0 - 101.0% of mass 174	63131	91.0 (97.5) ^a	Pass
177	5.0 - 9.0% of mass 176	4178	6.03 (6.62) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V5W1276-CC1272	5W32234.D	08/01/18	09:15	00:46	Continuing cal 10
V5W1276-BS	5W32235.D	08/01/18	10:00	01:31	Blank Spike
V5W1276-BSD	5W32236.D	08/01/18	10:46	02:17	Blank Spike Duplicate
V5W1276-MB	5W32238.D	08/01/18	12:21	03:52	Method Blank
ZZZZZZ	5W32239.D	08/01/18	13:06	04:37	(unrelated sample)
ZZZZZZ	5W32246.D	08/01/18	18:43	10:14	(unrelated sample)
ZZZZZZ	5W32247.D	08/01/18	19:27	10:58	(unrelated sample)
JC70988-1	5W32248.D	08/01/18	20:18	11:49	(used for QC only; not part of job JC70598)
JC70988-1DUP	5W32249.D	08/01/18	21:11	12:42	Duplicate
ZZZZZZ	5W32250.D	08/01/18	22:02	13:33	(unrelated sample)
ZZZZZZ	5W32251.D	08/01/18	22:55	14:26	(unrelated sample)
ZZZZZZ	5W32252.D	08/01/18	23:48	15:19	(unrelated sample)
ZZZZZZ	5W32253.D	08/02/18	00:40	16:11	(unrelated sample)
V5W1276-SCC	5W32254.D	08/02/18	01:30	17:01	Summa Cleaning Certification
JC70598-1	5W32255.D	08/02/18	02:25	17:56	CAMS 423

Instrument Performance Check (BFB)

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample: V6W202-BFB	Injection Date: 05/07/18
Lab File ID: 6W06052.D	Injection Time: 14:10
Instrument ID: GCMS6W	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	8.0 - 40.0% of mass 95	34632	14.7	Pass
75	30.0 - 66.0% of mass 95	100149	42.5	Pass
95	Base peak, 100% relative abundance	235691	100.0	Pass
96	5.0 - 9.0% of mass 95	15602	6.62	Pass
173	Less than 2.0% of mass 174	1664	0.71 (0.77) ^a	Pass
174	50.0 - 120.0% of mass 95	215787	91.6	Pass
175	4.0 - 9.0% of mass 174	15801	6.70 (7.32) ^a	Pass
176	93.0 - 101.0% of mass 174	210304	89.2 (97.5) ^a	Pass
177	5.0 - 9.0% of mass 176	13850	5.88 (6.59) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V6W202-IC202	6W06053.D	05/07/18	14:59	00:49	Initial cal 5
V6W202-ICC202	6W06054.D	05/07/18	15:50	01:40	Initial cal 10
V6W202-IC202	6W06055.D	05/07/18	16:42	02:32	Initial cal 20
V6W202-IC202	6W06057.D	05/07/18	18:29	04:19	Initial cal 40
V6W202-IC202	6W06059.D	05/07/18	20:13	06:03	Initial cal 0.2
V6W202-IC202	6W06061.D	05/07/18	22:01	07:51	Initial cal 0.5
V6W202-IC202	6W06062.D	05/08/18	09:14	19:04	Initial cal 0.1
V6W202-IC202	6W06063.D	05/08/18	10:56	20:46	Initial cal 0.04
V6W202-ICV202	6W06064.D	05/08/18	11:47	21:37	Initial cal verification 10

Instrument Performance Check (BFB)

Job Number: JC70598
 Account: PROVLABR Providence Engineering
 Project: Valero-CAMS, Baton Rouge, LA

Sample:	V6W211-BFB	Injection Date:	05/18/18
Lab File ID:	6W06227.D	Injection Time:	09:07
Instrument ID:	GCMS6W		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	8.0 - 40.0% of mass 95	30141	16.3	Pass
75	30.0 - 66.0% of mass 95	81904	44.4	Pass
95	Base peak, 100% relative abundance	184384	100.0	Pass
96	5.0 - 9.0% of mass 95	12151	6.59	Pass
173	Less than 2.0% of mass 174	1444	0.78 (0.88) ^a	Pass
174	50.0 - 120.0% of mass 95	164288	89.1	Pass
175	4.0 - 9.0% of mass 174	11936	6.47 (7.27) ^a	Pass
176	93.0 - 101.0% of mass 174	158805	86.1 (96.7) ^a	Pass
177	5.0 - 9.0% of mass 176	10382	5.63 (6.54) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V6W211-CC202	6W06229.D	05/18/18	10:50	01:43	Continuing cal 10
V6W211-BS	6W06230.D	05/18/18	11:42	02:35	Blank Spike
V6W211-BSD	6W06231.D	05/18/18	12:34	03:27	Blank Spike Duplicate
V6W211-MB	6W06233.D	05/18/18	14:20	05:13	Method Blank
ZZZZZZ	6W06236.D	05/18/18	17:20	08:13	(unrelated sample)
ZZZZZZ	6W06237.D	05/18/18	18:18	09:11	(unrelated sample)
ZZZZZZ	6W06238.D	05/18/18	19:14	10:07	(unrelated sample)
ZZZZZZ	6W06239.D	05/18/18	20:11	11:04	(unrelated sample)
ZZZZZZ	6W06240.D	05/18/18	21:10	12:03	(unrelated sample)
ZZZZZZ	6W06241.D	05/18/18	22:07	13:00	(unrelated sample)
JC66307-7	6W06242.D	05/18/18	23:03	13:56	(used for QC only; not part of job JC70598)
JC66307-7DUP	6W06243.D	05/18/18	23:58	14:51	Duplicate
ZZZZZZ	6W06244.D	05/19/18	00:55	15:48	(unrelated sample)
ZZZZZZ	6W06245.D	05/19/18	01:51	16:44	(unrelated sample)
ZZZZZZ	6W06246.D	05/19/18	02:48	17:41	(unrelated sample)
ZZZZZZ	6W06247.D	05/19/18	03:48	18:41	(unrelated sample)
ZZZZZZ	6W06248.D	05/19/18	04:45	19:38	(unrelated sample)
ZZZZZZ	6W06249.D	05/19/18	05:41	20:34	(unrelated sample)
V6W211-SCC	6W06250.D	05/19/18	06:38	21:31	Summa Cleaning Certification
V6W211-ECC202	6W06251.D	05/19/18	07:30	22:23	Ending cal 10

Surrogate Recovery Summary

Job Number: JC70598
Account: PROVLABR Providence Engineering
Project: Valero-CAMS, Baton Rouge, LA

Method: TO-15 Matrix: AIR

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JC70598-1	5W32255.D	97
JC70988-1DUP	5W32249.D	96
V5W1276-BS	5W32235.D	105
V5W1276-BSD	5W32236.D	103
V5W1276-MB	5W32238.D	86
V6W211-SCC	6W06250.D	98
V6W211-BS	6W06230.D	104
V6W211-BSD	6W06231.D	105
V6W211-MB	6W06233.D	96

Surrogate Compounds	Recovery Limits
S1 = 4-Bromofluorobenzene	65-128%

4.6.1
4