Intended for
Becton, Dickinson and Company

Date
December 2019

ESTIMATION OF FUGITIVE ETHYLENE OXIDE EMISSIONS

GLOBAL DISTRIBUTION CENTER, COVINGTON, GEORGIA

RAMBOLL Bright ideas. Sustainable change.

ESTIMATION OF FUGITIVE ETHYLENE OXIDE EMISSIONS GLOBAL DISTRIBUTION CENTER, COVINGTON, GEORGIA

Project name	**BD: GDC FUGITIVE EMISSION ESTIMATION**
Project no.	**1690014483**
Recipient	**Becton, Dickinson and Company**
Version	**1**
Date	**December 13, 2019**
Prepared by	**Russell S. Kemp, PE**

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CONTENTS

EXECUTIVE SUMMARY

Ramboll US Corporation (Ramboll) conducted measurements and performed calculations to estimate the rate of fugitive ethylene oxide (EO) emissions from the Becton, Dickinson and Company Global Distribution Center (GDC) in Covington, Georgia, in fulfillment of the requirements of Paragraph 10 of the Consent Order entered into by the Georgia Environmental Protection Division (EPD) and Becton, Dickinson and Company (BD) on October 28, 2019.

The work presented in this Report was performed in accordance with the Plan approved by the EPD on November 19, 2019.

Based upon samples collected between November 21 and 22, 2019, and December 4 and 5, 2019, the estimated rate of EO emissions from the BD GDC is 0.65 pounds per hour (lb/hr).

1. APPROACH AND CONCEPT

Pursuant to a Consent Order entered into by the Georgia Environmental Protection Division (EPD) and Becton, Dickinson and Company (BD) on October 28, 2019, BD retained Ramboll US Corporation (Ramboll) as a third-party engineering firm to develop estimates of the fugitive ethylene oxide (EO) emissions occurring at any offsite warehouse(s) located in Newton County, Georgia in fulfillment of Paragraph 10 of that Consent Order.

Ramboll prepared a Fugitive Emissions Estimation Approach (Sampling Plan) dated November 15, 2019 which was submitted by BD to EPD for review and approval. EPD communicated its approval of the Sampling Plan to BD by email on November 19, 2019. The only modification to the approach requested by EPD was an encouragement to "also place a Summa Canister outside of the building near the property line to estimate 'background' concentration compared to the 8 indoor sampling canisters to be used." Both the Sampling Plan and EPD approval communication are included as **Appendix 1** to this report.

BD operates one offsite warehouse in Newton County – its Global Distribution Center (GDC) located at 14201 Lochridge Blvd. in Covington, Georgia. The GDC is a warehousing and distribution operation that receives ethylene oxide sterilized medical products from BD's nearby sterilization facilities in Covington and Madison, Georgia, and ships out these products to customers. The GDC's storage and shipping areas are divided by walls into numbered sections.

Sterilized products arrive by truck at the loading docks on the west side of Sections 3 and 5 to be distributed internally at the facility to be held in storage racks in Section 2 through 5 until transferred to Section 1 to be assembled into shipments to customers. Section 4 is temperature-controlled space and the freight doors separating that Section from others are high-speed roll-up type. The freight openings between the other walled sections are open.

Forty-One (41) roof fans are located to exhaust air from these sections and maintain regular air changes of the GDC space. These fans are of standard powered upblast propeller type with clamshell doors that close when the fans are not being run. Fan locations are noted on **Figure 1**. The fans are all nominally sized for 30,000 cubic-feet-per-minute (cfm) of exhaust with the exception of one fan each in Sections 4 West and 4 East that are 15,000 cfm.

Passive indraft louvers are located in the walls on the west side of Sections 2 and 3 such that air is drawn in from the west to be subsequently exhausted by the fans on the east side of those sections. Conversely, passive indraft wall louvers are located in the walls on the east end of Section 5 with air drawn in to move toward the exhaust fans at the west end of Section 5. Air in Section 1 is pulled from the trailer dock doors on the west end toward the exhaust fans on the east end. Air is drawn from the tempering units in Section 4 toward the exhaust fans in the roof in the middle of Section 4 East and toward the west end of Section 4 West. BD has established a minimum number of fans which must be operated in each section of the GDC to provide sufficient ventilation for the employees; however, additional fans can be operated when conditions (e.g., high temperatures) dictate.

The approach for estimating the rate of fugitive emissions from the GDC is based on determination of the concentrations of EO in the sectioned facility areas and applying those

concentrations to the associated exhaust fan volumetric flow rates for each section to compute the mass rate (pounds per hour) of EO from the facility.

2. SAMPLING ACTIVITY

In accordance with the EPD-approved Sampling Plan (**Appendix 1**), Ramboll staff conducted sampling of the indoor air spaces of each Section of the GDC on November 21-22, 2019 and December 4-15, 2019.

Samples were collected using Summa Canisters set to pull sample over an approximately 24-hour duration. Indoor canisters were placed between 1:30 and 2:30 p.m. on November 21st and collected between 12:30 and 1:30 p.m. on November 22nd. Similarly, indoor canisters were placed between 12:50 and 1:55 p.m. on December 4th and collected between 11:50 a.m. and 12:55 p.m. on December 5th. Canisters were placed at approximately 5 feet above floor level in each Section near the portion of the Section where the exhaust fans are above. In Section 1, stair access was available to higher levels in the storage rack system and those samples were collected from a third-level landing in the racks. Each sample duration exceeded 23 hours.

As encouraged by EPD, outdoor samples were collected at two points outside of the facility concurrent to the indoor sampling activity. **Figure 1** depicts the location of all indoor samples. **Figure 2** depicts the outdoor sampling locations.

As noted above, the facility does not operate all exhaust fans at all times and typically only operates approximately 1/3 of all the fans present. At the time of commencement of the sampling, it was noted which fans are in operation and only this subset of fans (no additions or subtractions) operated for the duration of the sampling period. At the conclusion of the sampling the operational state of the exhaust fans was confirmed to verify that the consistent subset operated for the duration of the sampling. **Figure 1** denotes in red all the fans that were in operation during the sampling events. Fans noted in blue were not in operation and closed. For the December 4-5th sampling, some fan operation changes were made during the sampling event. Fan EF-24, most proximate to Sample S1A was shut off at 6:26 a.m. on the morning of December 5th. Fan F-5-B in Section 5 (denoted in green on **Figure 1)** was turned on at 6:37 a.m. on the morning of December 5th.

Samples were collected from the following locations:

Section 1 – TWO samples collected from locations at the EAST end of Section 1, beneath or near an operating exhaust fan. [Section 1 is the largest section by floor area]

Section 2 – ONE sample collected from a location in the EAST end of Section 2, beneath or near an operating exhaust fan.

Section 3 – ONE sample collected from a location in the EAST end of Section 3, beneath or near an operating exhaust fan.

Section 4 East – ONE sample collected from a location beneath or near an operating exhaust fan.

Section 4 West – ONE sample collected from a location in the WEST end of Section 4 West, beneath or near an operating exhaust fan.

Section 5 – ONE sample collected from a location in the WEST end of Section 5, beneath or near an operating exhaust fan.

ONE additional DUPLICATE sample was collected immediately beside one of the above-listed samples selected randomly on the morning sampling commenced – at Section 4 East for the November sampling and in Section 2 for the December sampling.

TWO samples were collected from outdoor locations during each sampling event, one near the west exterior wall of the facility and one at the fence to the southwest of the facility.

3. RESULTS AND CALCULATIONS

The samples collected in the Summa Canisters (a total of 10 per sampling event, including the one duplicate for each sampling event) were analyzed using EPA Method TO-15 with GC/MS in the Selective Ion Monitoring (SIM) acquisition mode to determine the concentration of ethylene oxide. Analysis was performed by Eurofins, a national independent laboratory. Concentration results are reported in units of micrograms per cubic meter (ug/m^3).

COMPUTATIONAL STRUCTURE

Mass rate of EO from a given exhaust fan under the conceptual approach outlined above is simply the computation of concentration (mass/volume) times volumetric flow rate (volume/time) yielding mass/time while making the appropriate unit conversions. Example:

A (ug/m^3) * **B** (ft^3/min) * (60/35.31) * (1/1,000,000) * (1/454) = **C** lb/hr

The total estimated fugitive mass emission rate from the GDC is simply the sum of the above calculations for each fan.

Actual fan flow rates were measured by TAB Services, Inc. in November and December 2019. TAB Services' report is included as **Appendix 2**.

Table 1 presents the detailed data for each sample collected including sampling times, durations, starting and ending Summa Canister vacuum pressures and measured EO concentrations in ug/m^3.

Indoor sample concentrations ranged between 48 ug/m^3 in Section 1 (December sampling) to 2100 ug/m^3 in Section 3 (November sampling). The complete Eurofins laboratory reports are included as **Appendix 3** and the Ramboll Chain of Custody documents for the samples are included as **Appendix 4.**

Outdoor samples were all below 1 ug/m^3. Winds for the November sampling period were generally light and from the South or Southwest, such that outdoor sample P1 was upwind of the facility. Winds for the December sampling period were moderate and generally from the West or West-Northwest, such that the outdoor sample P1 was again generally not downwind of the facility exhausts. Hourly meteorological data are included as **Appendix 5**.

At least one sample was collected from each Section (see **Figure 1**). In Sections 1 and 2, more than one fan was in operation. The concentration measured at sample S1A is nearest fans EF-24 and EF-26 and that concentration was, accordingly, assigned to represent the concentration exhausted by both of those fans. One sample (S2) was collected in Section 2, with four operating fans. The S2 concentration was assumed to represent the concentration exhausted by those four fans.

Table 2 executes the calculations outlined above for combining concentrations and fan flows to compute mass emission rates of EO.

The total facility emission rate of EO for the periods November 21-22, 2019 and December 4th and 5th, 2019, averaged 0.65 lb/hr.

4. LIMITATIONS

Estimation of emissions from any operation or process based on measurements is always subject to limitations on the extent of the measurements and the temporal (time) coverage. In this case, a limited number of samples was collected within a facility approximately 1200 feet long by 500 feet wide and 32 feet tall. It is assumed that the concentration measured from a single point nearest the exhaust fans in each section represents the concentration emitted by those fans.

Further, this sampling occurred over a two single 24-hour periods in November and December 2019. It is assumed in this methodology that the emissions measured on these days are a reasonable representation of the average emissions of EO from the GDC throughout the year, though this is not known certain. For example, during the times that the November and December samples were collected, the GDC still had many lots of EO-sterilized products which did not have the benefit of the extended aeration which the Consent Order requires. Future measurements of EO from the GDC following the turnover of the inventory in the facility could demonstrate lower fugitive emissions.

TABLE 1
SAMPLE RESULTS

TABLE 1 **Sampling Results**

Becton, Dickinson and Company
Global Distribution Center, Covington, Georgia

November 21-22, 2019

Sample ID	**Label**	Section	Start Date	Start Time	Stop Date	Stop Time	Duration (hours)	Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)	**Concentration EO (ug/m^3)**
GDC-S1A 20191121	**S1A**	1	11/21/2019	13:34	11/22/2019	12:36	23:02	29.0	7.0	**90**
GDC-S1B 20191121	**S1B**	1	11/21/2019	13:39	11/22/2019	12:42	23:03	27.5	8.0	**200**
GDC-S2 20191121	**S2**	2	11/21/2019	13:46	11/22/2019	12:47	23:01	29.5	7.0	**1300**
GDC-S3 20191121	**S3**	3	11/21/2019	13:53	11/22/2019	12:54	23:01	28.0	7.5	**2100**
GDC-S4E 20191121	**S4E**	4 East	11/21/2019	14:11	11/22/2019	13:12	23:01	27.0	7.5	**96**
GDC-D 20191121	**DUP**	4 East	11/21/2019	14:11	11/22/2019	13:12	23:01	30.0	9.0	**83**
GDC-S4W 20191121	**S4W**	4 West	11/21/2019	14:20	11/22/2019	13:21	23:01	30.0	6.0	**59**
GDC-S5 20191121	**S5**	5	11/21/2019	14:27	11/22/2019	13:28	23:01	29.5	8.0	**490**
GDC-W1 20191121	**W1**	West Wall	11/21/2019	14:44	11/22/2019	13:49	23:05	28.0	6.5	**0.93**
GDC-P1 20191121	**P1**	Perimeter	11/21/2019	14:38	11/22/2019	13:41	23:03	29.5	7.5	**0.76**

December 4-5, 2019

Sample ID	**Label**	Section	Start Date	Start Time	Stop Date	Stop Time	Duration (hours)	Initial Vacuum (inches Hg)	Final Vacuum (inches Hg)	**Concentration EO (ug/m^3)**
GDC-S1A 20191204	**S1A**	1	12/4/2019	12:50	12/5/2019	11:54	23:04	28.0	7.5	**48**
GDC-S1B 20191204	**S1B**	1	12/4/2019	12:58	12/5/2019	12:00	23:02	26.5	6.5	**190**
GDC-S2 20191204	**S2**	2	12/4/2019	13:12	12/5/2019	12:13	23:01	29.5	8.5	**770**
GDC-D 20191204	**DUP**	2	12/4/2019	13:12	12/5/2019	12:13	23:01	28.0	7.0	**800**
GDC-S3 20191204	**S3**	3	12/4/2019	13:23	12/5/2019	12:24	23:01	28.5	7.5	**1700**
GDC-S4E 20191204	**S4E**	4 East	12/4/2019	13:34	12/5/2019	12:35	23:01	27.0	8.5	**160**
GDC-S4W 20191204	**S4W**	4 West	12/4/2019	13:43	12/5/2019	12:44	23:01	27.0	5.5	**120**
GDC-S5 20191204	**S5**	5	12/4/2019	13:53	12/5/2019	12:54	23:01	28.5	7.0	**1300**
GDC-W1 20191204	**W1**	West Wall	12/4/2019	14:33	12/5/2019	13:34	23:01	27.5	5.0	**0.3**
GDC-P1 20191204	**P1**	Perimeter	12/4/2019	14:23	12/5/2019	13:24	23:01	27.0	4.5	**0.3**

TABLE 2
EMISSION CALCULATIONS

TABLE 2 **Emission Estimation**

Becton, Dickinson and Company
Global Distribution Center, Covington, Georgia

November 21-22, 2019

Section	Sample	Concentration EO (ug/m^3)	Fan ID	Flow (cfm)	mass rate (lb/hr)
1	S1A	90	EF-26	23,309	0.008
1	S1A	90	EF-24	23,816	0.008
1	S1B	200	EF-18	24,404	0.018
2	S2	1300	EF-14	24,350	0.118
2	S2	1300	EF-9	14,418	0.070
2	S2	1300	EF-8	23,549	0.115
2	S2	1300	EF-7	24,270	0.118
3	S3	2100	EF-3	23,977	0.188
4 East	S4E	96	EF-33A	16,601	0.006
4 West	S4W	59	EF-30	16,281	0.004
5	S5	490	F-5-G	26,366	0.048
	Flow-weighted Average	**777 (ug/m^3)**	**Totals**	**241,341 (cfm)**	**0.702 (lb/hr)**

December 4-5, 2019

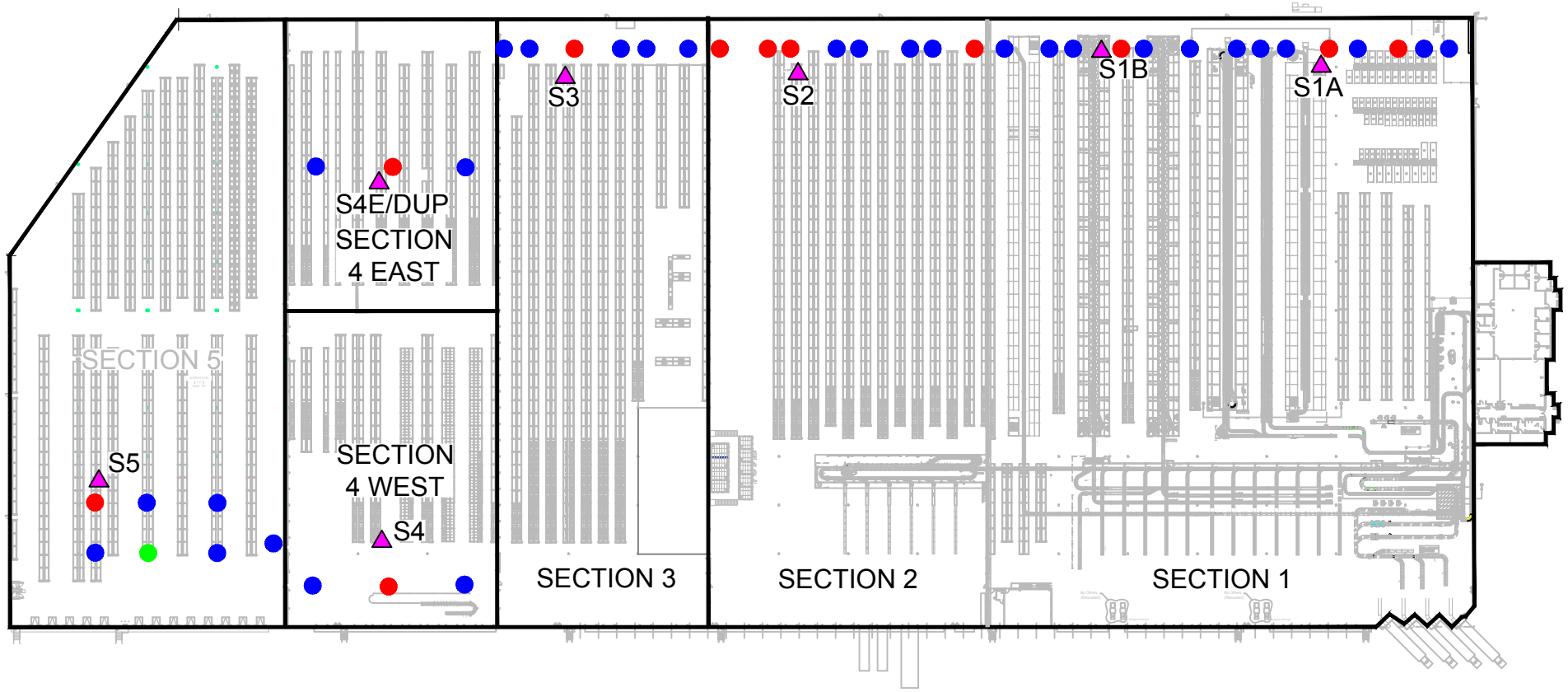
Section	Sample	Concentration EO (ug/m^3)	Fan ID	Flow (cfm)	mass rate (lb/hr)	
1	S1A	48	EF-26	23,309	0.004	
1	S1A	48	EF-24	18,172	0.003	(1)
1	S1B	190	EF-18	24,404	0.017	
2	S2	770	EF-14	24,350	0.070	
2	S2	770	EF-9	14,418	0.042	
2	S2	770	EF-8	23,549	0.068	
2	S2	770	EF-7	24,270	0.070	
3	S3	1700	EF-3	23,977	0.153	
4 East	S4E	160	EF-33A	16,601	0.010	
4 West	S4W	120	EF-30	16,281	0.007	
5	S5	1300	F-5-B	6,888	0.034	(2)
5	S5	1300	F-5-G	26,366	0.128	
	Flow-Weighted Average	**667 (ug/m^3)**	**Totals**	**242,585 (cfm)**	**0.606 (lb/hr)**	

(1) Fan EF-24 operated 1056 minutes out of 1384 minutes sampled by sample S1A
Flow rate of 23,816 cfm prorated by 1056/1384 = 0.763

(2) Fan F-5-B operated 377 minutes out of 1381 minutes sampled by sample S5
Flow rate of 25,232 cfm prorated by 377/1381 = 0.273

FIGURE 1
INDOOR SAMPLING LOCATIONS

GMILES 12/9/19 F:\GRAEME\1690014483 < ADDITIONAL_ROOF_FEATURES_OVERLAY_COVINGTON_GA >



LEGEND:

- NON-OPERATING FAN LOCATION (APPROXIMATE)
- OPERATING FAN LOCATION (APPROXIMATE)
- ADDITIONAL OPERATING FAN IN SECOND SAMPLING EVENT

0 130
SCALE IN FEET

ROOF FAN LOCATIONS

14201 LOCHRIDGE BOULEVARD
COVINGTON, GEORGIA

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FIGURE
1

DRAFTED BY: RGM	DATE: 12/09/2019	PROJECT: 1690014483

FIGURE 2
OUTDOOR SAMPLING LOCATIONS

LEGEND:

PROPERTY BOUNDARY (APPROXIMATE)
OUTDOOR SAMPLE LOCATION (APPROXIMATE)

SOURCE:
AERIAL IMAGERY: Google Earth; March 2017.

0 200
SCALE IN FEET

OUTDOOR SAMPLE LOCATIONS

14201 LOCHRIDGE BOULEVARD
COVINGTON, GEORGIA

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FIGURE
2

DRAFTED BY: RGM	DATE: 12/2/2019	PROJECT: 1690014483

GMILES 12/2/19 F:\GRAEME\1690014483 < OUTDOOR_SAMPLE_LOCATIONS_COVINGTON_GA >

APPENDIX 1
SAMPLING PLAN AND EPD APPROVAL

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ENVIRONMENT
& HEALTH

FUGITIVE EMISSIONS ESTIMATION APPROACH

Project name	**Fugitive Emissions Estimation – BD Global Distribution Center**
Client	**Becton, Dickinson and Company**
Version	**1**
To	**Georgia Environmental Protection Division (EPD)**
From	**Russell S. Kemp, PE**

Date November 15, 2019

TASK

Estimate the rate of fugitive ethylene oxide (EO) emissions from the Becton, Dickinson and Company (BD) Global Distribution Center (GDC) located at 14201 Lochridge Blvd. in Covington (Newton County), Georgia.

FACILITY OVERVIEW

The GDC is a warehousing and distribution operation that receives ethylene oxide sterilized medical products from BD's nearby sterilization facilities in Covington and Madison, Georgia, and ships out these products to customers. The overall structure measures approximately 500 ft. by 1,200 ft. with an average roof height of 32 feet. As depicted in the attached diagram, the GDC's storage and shipping areas are divided by walls into numbered sections.

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Sterilized products arrive by truck at the loading docks on the west side of Sections 3 and 5 to be distributed internally at the facility to be held in storage racks in Section 2 through 5 until transferred to Section 1 to be assembled into shipments to customers. Section 4 is temperature-controlled space and the freight doors separating that Section from others are high-speed roll-up type. The freight openings between the other walled sections are open.

Forty-One (41) roof fans are located to exhaust air from these section and maintain regular air changes of the GDC space. These fans are of standard powered upblast propeller type with clamshell doors that close when the fans are not being run. Fan locations are noted on the attached diagram. The fans are all nominally sized for 30,000 cubic-feet-per-minute (cfm) of exhaust with the exception of one fan each in Sections 4 West and 4 East that are 15,000 cfm.

Passive indraft louvers are located in the walls on the west side of Sections 2 and 3 such that air is drawn in from the west to be subsequently exhausted by the fans on the east side of those sections. Conversely, passive indraft wall louvers are located in the walls on the east end of Section 5 with air drawn in to move toward

the exhaust fans at the west end of Section 5. Air in Section 1 is pulled from the trailer dock doors on the west end toward the exhaust fans on the end. Air is drawn from the tempering units in Section 4 toward the exhaust fans in the roof in the middle of Section 4 East and toward the west end of Section 4 West.

APPROACH and CONCEPT

Updraft propeller exhaust fans of the type employed at the GDC are not amenable to direct testing via standard stack test methods given the absence of actual stacks of any appreciable length on these units. Levels of Detection using standard stack test methods (i.e., EPA Method 18) would also present a major challenge in detecting the concentrations of EO expected to be encountered from storage of these finished products in storage.

Accordingly, the proposed approach for estimating the rate of fugitive emissions from the GDC is based on determination of the concentrations of EO in the sectioned facility areas and applying those concentrations to the associated exhaust fan volumetric flow rates for each section to compute the mass rate (pounds per hour) of EO from the facility.

Details of the Sampling, Analysis, and Calculational approaches to be followed are presented below.

SAMPLING PLAN

Concentrations of EO in the air in each section of the GDC will be sampled over an approximately 24-hour period over two consecutive days. Samples will be collected using Summa Canisters set to pull sample over a 24-hour duration. Canisters will be placed in the mid-morning of the first day and collected the morning of the second day. Canisters will be placed at approximately 5 feet above floor level in each Section near the portion of the Section where the exhaust fans are above.

The facility does not operate all exhaust fans at all times and typically only operates approximately 1/3 of all the fans present. At the time of commencement of the sampling, it will be noted which fans are in operation and only this subset of fans (no additions or subtractions) will operate for the duration of the sampling period. At the conclusion of the sampling the operational state of the exhaust fans will be confirmed to verify that the consistent subset operated for the duration of the sampling.

Samples will be collected from the following locations:

Section 1 – TWO samples collected from locations at the EAST end of Section 1, beneath or near an operating exhaust fan. [Section 1 is the largest section by floor area]

Section 2 – ONE sample collected from a location in the EAST end of Section 2, beneath or near an operating exhaust fan.

Section 3 – ONE sample collected from a location in the EAST end of Section 3, beneath or near an operating exhaust fan.

Section 4 East – ONE sample collected from a location beneath or near an operating exhaust fan.

Section 4 West – ONE sample collected from a location in the WEST end of Section 4 West, beneath or near an operating exhaust fan.

Section 5 – ONE sample collected from a location in the WEST end of Section 5, beneath or near an operating exhaust fan.

ONE additional DUPLICATE sample will be collected immediately beside one of the above-listed samples selected randomly on the morning sampling commences.

Sample locations will be noted on a facility diagram.

SCHEDULE

In order to achieve the deadline for this effort (December 15, 2019) set forth in Paragraph 10 of the Consent Order entered into by the Georgia Environmental Protection Division (EPD) and BD on October 28, 2019, **it will be necessary to conduct this sampling between Wednesday November 20th and Friday November 22nd, 2019** with the actual two consecutive days to be determined early the week of November 18th in consideration of logistics and availability of personnel.

These dates are expected to be normal and representative operating days for the GDC facility.

ANALYTICAL METHODS

The samples collected in the Summa Canisters (a total of 8, including the one duplicate) will be analyzed using EPA Method TO-15 with GC/MS in the Selective Ion Monitoring (SIM) acquisition mode to determine the concentration of ethylene oxide. Analysis will be performed by Eurofins, a national independent laboratory. Concentration results will be reported in units of micrograms per cubic meter (ug/m^3).

COMPUTATIONAL STRUCTURE

Mass rate of EO from a given Section under the conceptual approach outlined above is simply the computation of concentration (mass/volume) times volumetric flow rate (volume/time) yielding mass/time while making the appropriate unit conversions. Example:

A (ug/m^3) * **B** (ft^3/min) * (60/35.31) * (1/1,000,000) * (1/454) = **C** lb/hr

In the case of Section 1, the two sample results will be averaged and multiplied by the total operating fan flow rate for Section 1 on the day of the sampling.

The total estimated fugitive mass emission rate from the GDC will simply be the sum of the above calculations for each Section.

REPORT

A report of results will be prepared for submittal to the EPD by December 15, 2019 in fulfillment of Paragraph 10 of the Consent Order.

The report will consist of:

Brief narrative of the sampling methodology and execution

Notation on a version of the attached facility diagram of:

Fans in operation during the sampling period

Location of each sample collected

Result of sampling at each location (concentration of EO - ug/m^3)

Tabulation of the concentration results, fan flow rates, and calculated EO fugitive emission rate for each Section, summing to a total estimated fugitive EO emission rate for the GDC facility as a whole (to be reported in pounds per hour - lb/hr)

Appendix containing:

Chain of Custody form for samples, indicating sampling times

Laboratory Report from Eurofins

From:	Taylor, Sean
To:	Boone Brothers; Hays, Karen; Damaske, Stephen; Waldron, Sherry
Cc:	Kuoh, Dika; Peggy Eckrote; michelle.quinn@bd.com; Ellen Kondracki; Travis Anderton; John LaMontagne; Russell Kemp; Oakes, Les; dhenderson@kslaw.com; Ron Pasdon; haide.villuendas@bd.com; Robin Leigh (rleigh@law.ga.gov); Williams, Laura
Subject:	RE: Consent Order Compliance Email (Par. 10) Estimates of the fugitive ethylene oxide emissions occurring at any offsite warehouse(s)
Date:	Tuesday, November 19, 2019 3:27:58 PM

Boone,

The Division approves your monitoring plan to estimate fugitive emissions from the BD Global Distribution Center. As suggestion, we would encourage you to also place a Summa Canister outside of the building near the property line to estimate "background" concentration compared to the 8 indoor canisters to be used.

If you have any questions, please feel free to contact me.

Thanks,
Sean Taylor
Program Manager
Stationary Source Compliance Program
Air Protection Branch
Office Phone: 404-363-7047
Mobile Phone: 404-665-7638
Fax: 678-692-6872

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

From: Hays, Karen <Karen.Hays@dnr.ga.gov>
Sent: Friday, November 15, 2019 6:08 PM
To: Taylor, Sean <Sean.Taylor@dnr.ga.gov>; Damaske, Stephen <stephen.damaske@dnr.ga.gov>; Waldron, Sherry <Sherry.Waldron@dnr.ga.gov>
Cc: Kuoh, Dika <Dika.Kuoh@dnr.ga.gov>
Subject: FW: Consent Order Compliance Email (Par. 10) Estimates of the fugitive ethylene oxide emissions occurring at any offsite warehouse(s)

From: Boone Brothers <Boone.Brothers@Bd.com>
Sent: Friday, November 15, 2019 5:55 PM
To: Hays, Karen <Karen.Hays@dnr.ga.gov>; Kuoh, Dika <Dika.Kuoh@dnr.ga.gov>; peckrote@law.ga.gov
Cc: Michelle Quinn <Michelle.Quinn@bd.com>; Ellen Kondracki <ellen.kondracki@bd.com>; Travis

Anderton <travis_anderton@bd.com>; John LaMontagne <John.LaMontagne@bd.com>; Russell Kemp <rkemp@ramboll.com>; loakes@kslaw.com; dhenderson@kslaw.com; Ron Pasdon <Ron.Pasdon@bd.com>; Haide Villuendas Sabate <Haide.Villuendas@bd.com>
Subject: Consent Order Compliance Email (Par. 10) Estimates of the fugitive ethylene oxide emissions occurring at any offsite warehouse(s)

Karen,

As Environmental Health and Safety Manager for BD Urology and Critical Care Business Unit, I am submitting this email in compliance with Paragraph 10 of Attachment A to the October 28, 2019 Consent Order.

Paragraph 10 provides: "By December 15, 2019, BD shall provide estimates of the fugitive ethylene oxide emissions occurring at any offsite warehouse(s) located in Newton County using a method defined by a third-party engineering firm and approved by EPD, including documentation of the data and engineering calculations supporting those estimates." The only warehouse used by BD to store and ship sterilized product it the Global Distribution Center. The GDC is located at 14201 Lochridge Blvd. in Covington (Newton County), Georgia.

Schedule:
In order to achieve the deadline for this effort (December 15, 2019) set forth in Paragraph 10 of the Consent Order entered into by the Georgia Environmental Protection Division (EPD) and BD on October 28, 2019, it will be necessary to conduct this sampling between Wednesday November 20th and Friday November 22nd, 2019. We are therefore seeking approval from EPD on the plan by Tuesday, Nov. 19th.

Accordingly, please see attached:

1. Proposal from Ramboll with a method to estimate fugitive ethylene oxide emissions from the Global Distribution Center.
2. Building layout indicating fan units locations

Please let me know if you have any questions or if I can help in any other way.

Sincerely,

Boone

Boone Brothers, CSP, CHMM
EHS Manager, UCC Business Unit

boone.brothers@bd.com

8195 Industrial Blvd.
Covington, GA, 30014
USA
t: (770)-784-6744
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APPENDIX 2
FAN TEST REPORT

INDEPENDENT TAB SERVICE SM

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATION AND HEATING SYSTEMS

INDEPENDENT TAB™ SERVICE

SURVEY

TEST AND BALANCE ANALYSIS REPORT

for

CR BARD

DISTRIBUTION CENTER SURVEY

COVINGTON, GEORGIA

TAB # 24024

AABC

TAB Services, Inc.
5680 Oakbrook Parkway, Suite 175
Norcross, Georgia 30093
404-329-1001
www.tabservices.com

INDEPENDENT TAB SERVICE SM

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

TEST AND BALANCE ANALYSIS REPORT

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
COVINGTON, GEORGIA

Date: SURVEY 12/9/19

TAB#: 24024

Contractor: BMD FACILITIES
MARK JOHNSON

ASSOCIATED AIR BALANCE COUNCIL

Certification:

This is to certify that TAB Services, Inc. has balanced the system described herein to their optium performance capabilities. The testing and balancing has been performed in accordance with the standard requirements and procedures of the Associated Air Balance Council and the results of these tests are herein recorded.

Certification No. 05-05-61 : J. Keith Roberts III, TBE

Signature: J. K. Roberts III

AABC

TAB Services, Inc. ASSOCIATED AIR BALANCE COUNCIL AABC TBE • 05-05-61 • James Keith Roberts III •

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

INSTRUMENT LIST

Project: CR BARD
DISTRIBUTION CENTER SURVEY
TAB#: 24024

Date: SURVEY 12/9/19

Instrument	Manufacturer	Model Number	Serial Number	Calibration Date
AIR DATA MULTIMETER	SHORTRIDGE	ADM-860C	M09268	10/23/19
AMPROBE / VOLTMETER	FLUKE	323	45330094MV	6/29/19
TACHOMETER	STICHT	MT-1B / MT-200	B193B5057P	8/21/19

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

TEST & BALANCE REPORT NOMENCLATURE

Project: CR BARD **Date:** SURVEY 12/9/19

DISTRIBUTION CENTER SURVEY **Page:** 4

TAB#: 24024

Abbreviation	Definition
" Ø	Inches Round (Duct Diameter)
AF	Air Foil
AFMS	Air Flow Measuring Station
BHP	Brake Horsepower
BTU	British Thermal Unit per Hour
CAV	Constant Air Volume Terminal Unit
CD	Ceiling Diffuser
CFM	Cubic Feet per Minute
CHW	Chilled Water
CW	Condenser Water
CVR	Constant Air Volume /w Reheat Terminal Unit
DB	Dry Bulb Temperature
DD	Direct Drive
DDTU	Dual Duct Terminal Unit
DMFH	Direct Measurement Flow Hood
DP, ΔP	Differential Pressure
DS	Ductsox
DT, ΔT	Differential Temperature
DX	Direct Expansion
EA	Exhaust Air
EAT	Entering Air Temperature
ECM	Electronically Commutated Motor
EG	Exhaust Grille
ER	Exhaust Register
ESP	External Static Pressure
EWT	Entering Water Temperature
FLA	Full Load Amperage
FPM	Feet Per Minute
FPP	Fan Powered Parallel Terminal Unit
FPS	Fan Powered Series Terminal Unit
FT	Feet
GPM	Gallons Per Minute
GT	Grille Total
HD	Hood
HEPA	High-Efficiency Particulate Arrestance
HP	Horsepower
HW	Hot Water
HZ	Hertz
IFS	Terminal Unit Inlet Flow Sensor
IN	Inches
KW	Kilowatts

Abbreviation	Definition
LAT	Leaving Air Temperature
LSD	Linear Slot Diffuser
LT	Light Troffer
LWT	Leaving Water Temperature
MBH	1000 British Thermal Units per Hour
NA	Not Available
NG	Not Given
NL	Not Listed
NM	Not Measured
OD	Open Duct or Outside Diameter
OA	Outside Air
PSI	Pounds Per Square Inch
RA	Return Air
RG	Return Grille
RH	Relative Humidity
RPM	Revolutions Per Minute
RR	Return Register
RVA	Rotating Vane Anemometer
SA	Supply Air
SD	Slot Diffuser
SF	Service Factor
SG	Supply Grille
SMBH	Sensible MBH
SN	Snorkel
SP	Static Pressure
SR	Supply Register
TG	Transfer Grille
TMBH	Total MBH
TP	Thermally Protected
TR	Traverse
TSP	Total Static Pressure
VFD	Variable Frequency Drive
VG	Velocity Grid
VAV	Variable Air Volume Terminal Unit
VVR	Variable Air Volume /w Reheat Terminal Unit
W	Watts
WB	Wet Bulb Temperature
W.C.	Water Column

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 5

Unit	**ATU-1**	**ATU-2**
Equipment Manufacturer	APPLIED AIR	APPLIED AIR
Model Number	GHLIFP-600S/400	GHLIFP-600/300
Serial Number	03-89461	03-59460

Fan Data	**Design**	**Actual**	**Design**	**Actual**
Total Airflow CFM	100000	29272	81400	NA(2)
Return Airflow CFM	100000	29272	81400	NA(2)
Outside Airflow CFM	- - -	- - -	- - -	- - -
	Total	Total	Total	Total
Static Pressure (in. w.c.)	NG	0.70	NG	NA(2)
Inlet Pressure (in. w.c.)	- - -	-0.39	- - -	NA(2)
Discharge Pressure (in. w.c.)	- - -	0.31	- - -	NA(2)
Fan RPM	NG	NA(1)	NG	NA(2)

Motor Data	**Design**	**Actual**	**Design**	**Actual**
Motor Manufacturer	NA(1)		NA(1)	
Motor HP	(2) 15		(2) 7.5	
Voltage / Phase	460/3	468/469/471	460/3	NA(2)
Amperage / SF	55.4/NA(1)	15.6/17.0/17.8	33.7/NA(1)	NA(2)
Motor RPM	NA(1)	NA(1)	NA(1)	NA(2)
Motor Sheave	NA(1)		NA(1)	
Fan Sheave	NA(1)		NA(1)	
Belts	NA(1)		NA(1)	
Center to Center (in.)	NA(1)		NA(1)	
Motor Adj. in/out (in.)	NA(1)		NA(1)	
Motor Frame	NA(1)		NA(1)	
Starter Heater	DISCONNECT		DISCONNECT	
Filter Condition	CLEAN		CLEAN	

Remarks-

(1) No safe access to obtain data due to unit configuration.

(2) Unit not operating at the time of the survey.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: CR BARD
DISTRIBUTION CENTER SURVEY
TAB#: 24024

Date: SURVEY 12/9/19
Page: 6

Unit	ATU-4A	ATU-4B
Equipment Manufacturer	APPLIED AIR	APPLIED AIR
Model Number	GHLIFA-250/175	GHLIFA-250/175
Serial Number	2008-0009090001	2008-0009090002

Fan Data	Design	Actual	Design	Actual
Total Airflow CFM	23500	30677	23500	29781
Return Airflow CFM	23500	30677	23500	29781
Outside Airflow CFM	- - -	- - -	- - -	- - -
	Total	Total	Total	Total
Static Pressure (in. w.c.)	NG	0.44	NG	0.35
Inlet Pressure (in. w.c.)	- - -	-0.17	- - -	-0.15
Discharge Pressure (in. w.c.)	- - -	0.27	- - -	0.20
Fan RPM	NG	NA(1)	NG	NA(1)

Motor Data	Design	Actual	Design	Actual
Motor Manufacturer	NA(1)		NA(1)	
Motor HP	20		20	
Voltage / Phase	460/3	472/471/474	460/3	470/472/469
Amperage / SF	NA(1)	17.0/17.8/18.1	NA(1)	19.8/21.6/21.7
Motor RPM	NA(1)	NA(1)	NA(1)	NA(1)
Motor Sheave	NA(1)		NA(1)	
Fan Sheave	NA(1)		NA(1)	
Belts	NA(1)		NA(1)	
Center to Center (in.)	NA(1)		NA(1)	
Motor Adj. in/out (in.)	NA(1)		NA(1)	
Motor Frame	NA(1)		NA(1)	
Starter Heater	DISCONNECT		DISCONNECT	
Filter Condition	CLEAN		CLEAN	

Remarks-

(1) No safe access to obtain data due to unit configuration.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19

TAB#: **24024**

Unit	**ATU-5**	**ATU-6A**
Equipment Manufacturer	APPLIED AIR	APPLIED AIR
Model Number	GHLIFA-250/175	GMIFA-250/175
Serial Number	2008-0009090003	2008-0009090004

Fan Data	**Design**	**Actual**	**Design**	**Actual**
Total Airflow CFM	30000	21645	21300	25575
Return Airflow CFM	30000	21645	21300	25575
Outside Airflow CFM	- - -	- - -	- - -	- - -
	Total	Total	Total	Total
Static Pressure (in. w.c.)	NG	0.17	NG	0.52
Inlet Pressure (in. w.c.)	- - -	-0.07	- - -	-0.35
Discharge Pressure (in. w.c.)	- - -	0.10	- - -	0.17
Fan RPM	NG	NA(1)	NG	810

Motor Data	**Design**	**Actual**	**Design**	**Actual**
Motor Manufacturer	NA(1)		BALDOR	
Motor HP	20		15	
Voltage / Phase	460/3	470/470/472	460/3	470/471/468
Amperage / SF	NA(1)	NA(1)	19.0/1.15	14.3/14.3/15.1
Motor RPM	NA(1)	NA(1)	1760	1767
Motor Sheave	NA(1)		2VP71 x 1 5/8"	
Fan Sheave	NA(1)		12 3/4" OD x B 2"	
Belts	NA(1)		(2) BX78	
Center to Center (in.)	NA(1)		25 3/4"	
Motor Adj. in/out (in.)	NA(1)		-2" / +3"	
Motor Frame	NA(1)		254T	
Starter Heater	DISCONNECT		DISCONNECT	
Filter Condition	CLEAN		CLEAN	

Remarks-

(1) No safe access to obtain data due to unit configuration.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 8

Unit	**ATU-6B**	**ATU-7**
Equipment Manufacturer	APPLIED AIR	APPLIED AIR
Model Number	GMIFA-250/175	GMIFA-300/250
Serial Number	2008/0009090005	2008/0009090006

Fan Data	**Design**	**Actual**	**Design**	**Actual**
Total Airflow CFM	21300	24391	33750	37239
Return Airflow CFM	21300	24391	NG	33426
Outside Airflow CFM	- - -	- - -	NG	3813
	Total	Total	Total	Total
Static Pressure (in. w.c.)	NG	0.81	NG	0.45
Inlet Pressure (in. w.c.)	- - -	-0.13	- - -	-0.28
Discharge Pressure (in. w.c.)	- - -	0.68	- - -	0.17
Fan RPM	NG	862	NG	780

Motor Data	**Design**	**Actual**	**Design**	**Actual**
Motor Manufacturer	WEG		WEG	
Motor HP	15		30	
Voltage / Phase	460/3	471/472/469	460/3	471/470/473
Amperage / SF	19.0/1.15	11.9/13.8/14.6	35.6/NL	27.5/28.0/28.1
Motor RPM	1760	1756	1770	1760
Motor Sheave	2VP71 x 1 5/8"		8 1/4" OD x B 2 7/8"	
Fan Sheave	12 3/4" OD x B 2"		18 3/4" OD x 2 15/16"	
Belts	(2) BX78		BX99	
Center to Center (in.)	25 3/4"		29 1/4"	
Motor Adj. in/out (in.)	-2" / +3"		-2" / +3"	
Motor Frame	254T		NOT LEGIBLE	
Starter Heater	DISCONNECT		DISCONNECT	
Filter Condition	CLEAN		CLEAN	

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 9

Unit	**RTU-1**	**RTU-2**
Equipment Manufacturer	TRANE	TRANE
Model Number	YHD300G4RVB3KUN	YHD300G4RVB3KUN
Serial Number	192710107D	192710104D

Fan Data	**Design**		**Actual**		**Design**		**Actual**	
Total Airflow CFM	10000		4575		10000		9477	
Return Airflow CFM	6250		2178		6250		4508	
Outside Airflow CFM	3750		2397		3750		4969	
	External	Total	External	Total	External	Total	External	Total
Static Pressure (in. w.c.)	0.75	NG	0.35	0.39	0.75	NG	0.82	1.05
Inlet Pressure (in. w.c.)	- - -	- - -	-0.24	-0.28	- - -	- - -	-0.51	-0.74
Discharge Pressure (in. w.c.)	- - -	- - -	0.11	0.11	- - -	- - -	0.31	0.31
Fan RPM	NG		459		NG		712	

Motor Data	**Design**	**Actual**	**Design**	**Actual**
Motor Manufacturer	MARATHON		MARATHON	
Motor HP	7 1/2		7 1/2	
Voltage / Phase	460/3	478/480/482	460/3	478/480/481
Amperage / SF	11.0/1.15	1.2/1.3/1.6	11.0/1.15	6.4/6.5/7.0
Motor RPM	3450	2178	3450	3304
Motor Sheave	1VP44 x 1 1/8"		1VP44 x 1 1/8"	
Fan Sheave	BK185 x 1 1/4"		BK185 x 1 1/4"	
Belts	BX81		BX81	
Center to Center (in.)	21 1/4"		21 1/4"	
Motor Adj. in/out (in.)	BELT TENSIONER		BELT TENSIONER	
Motor Frame	184T		184T	
Starter Heater	DISCONNECT		DISCONNECT	
Filter Condition	CLEAN		CLEAN	

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 10

Unit	**RTU-3**	**RTU-4**
Equipment Manufacturer	TRANE	TRANE
Model Number	YHD300G4RVB3KUN	YHD300G4RVB3KUN
Serial Number	192710105D	192710108D

Fan Data	**Design**		**Actual**		**Design**		**Actual**	
Total Airflow CFM	10000		4663		10000		8567	
Return Airflow CFM	6250		2197		6250		4146	
Outside Airflow CFM	3750		2466		3750		4421	
	External	Total	External	Total	External	Total	External	Total
Static Pressure (in. w.c.)	0.75	NG	0.57	0.60	0.75	NG	0.76	0.92
Inlet Pressure (in. w.c.)	- - -	- - -	-0.40	-0.43	- - -	- - -	-0.49	-0.65
Discharge Pressure (in. w.c.)	- - -	- - -	0.17	0.17	- - -	- - -	0.27	0.27
Fan RPM	NG		472		NG		617	

Motor Data	**Design**	**Actual**	**Design**	**Actual**
Motor Manufacturer	MARATHON		MARATHON	
Motor HP	7 1/2		7 1/2	
Voltage / Phase	460/3	478/480/482	460/3	476/481/480
Amperage / SF	11.0/1.15	1.3/1.3/1.6	11.0/1.15	6.0/5.9/6.1
Motor RPM	3450	2232	3450	2920
Motor Sheave	1VP44 x 1 1/8"		1VP44 x 1 1/8"	
Fan Sheave	BK185 x 1 1/4"		BK185 x 1 1/4"	
Belts	BX81		BX81	
Center to Center (in.)	21 1/4"		21 1/4"	
Motor Adj. in/out (in.)	BELT TENSIONER		BELT TENSIONER	
Motor Frame	184T		184T	
Starter Heater	DISCONNECT		DISCONNECT	
Filter Condition	CLEAN		CLEAN	

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

AIR MOVEMENT TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 11

Unit	**RTU-5**
Equipment Manufacturer	TRANE
Model Number	YHD300G4RVB3KUN
Serial Number	192710106D

Fan Data	**Design**		**Actual**	
Total Airflow CFM	10000		8054	
Return Airflow CFM	6250		3823	
Outside Airflow CFM	3750		4231	
	External	Total	External	Total
Static Pressure (in. w.c.)	0.75	NG	0.77	1.04
Inlet Pressure (in. w.c.)	- - -	- - -	-0.53	-0.80
Discharge Pressure (in. w.c.)	- - -	- - -	0.24	0.24
Fan RPM	NG		594	

Motor Data	**Design**	**Actual**
Motor Manufacturer	MARATHON	
Motor HP	7 1/2	
Voltage / Phase	460/3	477/478/480
Amperage / SF	11.0/1.15	5.7/6.3/6.0
Motor RPM	3450	2831
Motor Sheave	1VP44 x 1 1/8"	
Fan Sheave	BK185 x 1 1/4"	
Belts	BX81	
Center to Center (in.)	21 1/4"	
Motor Adj. in/out (in.)	BELT TENSIONER	
Motor Frame	184T	
Starter Heater	DISCONNECT	
Filter Condition	CLEAN	

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

TRAVERSE / VELGRID TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 12

Unit	Duct Size (in.)	Area ($ft.^2$)	Design		Actual		
			FPM	CFM	FPM	CFM	
ATU-1							
RETURN AIR	322 x 53	118.51	844	100000	247	29272	
ATU-4A							
RETURN AIR	222 x 25.25	38.93	604	23500	788	30677	
ATU-4B							
RETURN AIR	222 x 25.25	38.93	604	23500	765	29781	
ATU-5							
RETURN AIR	222 x 25.25	38.93	771	30000	556	21645	
ATU-6A							
RETURN AIR	110 x 25	19.10	1115	21300	1339	25575	
ATU-6B							
RETURN AIR	110 x 25	19.10	1115	21300	1277	24391	
ATU-7							
SUPPLY AIR	177 x 29.5	36.26	931	33750	1027	37239	
RETURN AIR	133 x 28.5	26.32	NG	NG	1270	33426	

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

TRAVERSE / VELGRID TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 13

Unit	Duct Size (in.)	Area ($ft.^2$)	Design		Actual		
			FPM	CFM	FPM	CFM	
RTU-1				10000		4575	
RETURN AIR	37 x 37	9.51	657	6250	229	2178	
OUTSIDE AIR	64.5 x 17	7.61	493	3750	315	2397	
RTU-2				10000		9477	
RETURN AIR	37 x 37	9.51	657	6250	474	4508	
OUTSIDE AIR	64.5 x 17	7.61	493	3750	653	4969	
RTU-3				10000		4663	
RETURN AIR	37 x 37	9.51	657	6250	231	2197	
OUTSIDE AIR	64.5 x 17	7.61	493	3750	324	2466	
RTU-4				10000		8567	
RETURN AIR	37 x 37	9.51	657	6250	436	4146	
OUTSIDE AIR	64.5 x 17	7.61	493	3750	581	4421	
RTU-5				10000		8054	
RETURN AIR	37 x 37	9.51	657	6250	402	3823	
OUTSIDE AIR	64.5 x 17	7.61	493	3750	556	4231	

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 14

Unit	EF-1	EF-2	EF-3	EF-4	EF-5
Manufacturer	COOLAIR	COOLAIR	COOLAIR	COOLAIR	COOLAIR
Model Number	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363
Serial Number	100603M127870	100603M127870	100603M127870	100603M127870	100603M127870
Design CFM	35856	35856	35856	35856	35856
Actual CFM	25445	24244	23977	24884	25125
Design Static Pressure (in. w.c.)	0.13	0.13	0.13	0.13	0.13
Actual Static Pressure (in. w.c.)	NA	NA	NA	NA	NA
Motor Manufacturer	BALDOR	BALDOR	BALDOR	BALDOR	BALDOR
Motor HP	3	3	3	3	3
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	469/470/471	468/471/471	481/483/485	473/475/470	470/471/473
Design Amperage / Service Factor	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15
Actual Amperage	3.3/3.6/3.0	3.3/3.5/3.0	3.1/3.4/3.4	3.1/3.4/3.0	3.3/3.5/3.0
Design Fan RPM	NG	NG	NG	NG	NG
Actual Fan RPM	641	624	616	640	642
Design Motor RPM	1750	1750	1750	1750	1750
Actual Motor RPM	1763	1766	1750	1769	1761
Motor Sheave	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"
Fan Sheave	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"
Belts	BX50	BX50	BX50	BX50	BX50
Center to Center (in.)	12"	12"	12"	12"	12"
Motor Adjustments in/out (in.)	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"
Motor Frame	182T	182T	182T	182T	182T
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19

TAB#: **24024**

Unit	EF-6	EF-7	EF-8	EF-9	EF-10
Manufacturer	COOLAIR	COOLAIR	COOLAIR	COOLAIR	COOLAIR
Model Number	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363
Serial Number	100603M127870	100603M127870	100603M127870	100603M127870	100603M127870
Design CFM	35856	35856	35856	35856	35856
Actual CFM	(1)	24270	23549	14418(2)	24671
Design Static Pressure (in. w.c.)	0.13	0.13	0.13	0.13	0.13
Actual Static Pressure (in. w.c.)	(1)	NA	NA	NA	NA
Motor Manufacturer	BALDOR	BALDOR	BALDOR	BALDOR	BALDOR
Motor HP	3	3	3	3	3
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	(1)	471/467/470	468/471/469	470/468/470	468/469/471
Design Amperage / Service Factor	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15
Actual Amperage	(1)	3.2/3.5/3.0	3.1/3.0/3.4	2.8/2.8/3.1	3.3/3.2/3.3
Design Fan RPM	NG	NG	NG	NG	NG
Actual Fan RPM	(1)	626	617	621	630
Design Motor RPM	1750	1750	1750	1750	1750
Actual Motor RPM	(1)	1768	1753	1755	1761
Motor Sheave	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"
Fan Sheave	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"
Belts	BX50	BX50	BX50	BX50	BX50
Center to Center (in.)	12"	12"	12"	12"	12"
Motor Adjustments in/out (in.)	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"
Motor Frame	182T	182T	182T	182T	182T
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT

Remarks-

(1) Fan not operational at the time of the survey; turned off at the electrical disconnect.

(2) Backdraft damper is damaged; only partially open at the time of testing.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19

TAB#: **24024**

Unit	EF-11	EF-12	EF-13	EF-14	EF-15
Manufacturer	COOLAIR	COOLAIR	COOLAIR	COOLAIR	COOLAIR
Model Number	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363
Serial Number	100603M127870	100603M127870	100603M127870	100603M127870	100603M127870
Design CFM	35856	35856	35856	35856	35856
Actual CFM	23897	23523	23282	24350	(1)
Design Static Pressure (in. w.c.)	0.13	0.13	0.13	0.13	0.13
Actual Static Pressure (in. w.c.)	NA	NA	NA	NA	(1)
Motor Manufacturer	BALDOR	BALDOR	BALDOR	BALDOR	BALDOR
Motor HP	3	3	3	3	3
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	469/470/471	468/470/471	468/470/469	479/482/484	(1)
Design Amperage / Service Factor	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15
Actual Amperage	3.2/3.0/3.5	3.2/3.2/3.5	3.0/3.2/3.5	3.0/3.1/3.5	(1)
Design Fan RPM	NG	NG	NG	NG	NG
Actual Fan RPM	614	605	602	625	(1)
Design Motor RPM	1750	1750	1750	1750	1750
Actual Motor RPM	1745	1760	1740	1751	(1)
Motor Sheave	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"
Fan Sheave	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"
Belts	AX50	AX50	AX50	AX50	AX50
Center to Center (in.)	12"	12"	12"	12"	12"
Motor Adjustments in/out (in.)	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"
Motor Frame	182T	182T	182T	182T	182T
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT

Remarks-

(1) Fan not operational at the time of the survey; unable to eneergize the fan.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 17

Unit	EF-16	EF-17	EF-18	EF-19	EF-20
Manufacturer	COOLAIR	COOLAIR	COOLAIR	COOLAIR	COOLAIR
Model Number	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363
Serial Number	100603M127870	100603M127870	100603M127870	100603M127870	100603M127870
Design CFM	35856	35856	35856	35856	35856
Actual CFM	24484	25766	24404	24644	23816
Design Static Pressure (in. w.c.)	0.13	0.13	0.13	0.13	0.13
Actual Static Pressure (in. w.c.)	NA	NA	NA	NA	NA
Motor Manufacturer	BALDOR	BALDOR	BALDOR	BALDOR	BALDOR
Motor HP	3	3	3	3	3
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	478/481/482	480/483/484	478/482/480	481/483/483	480/479/481
Design Amperage / Service Factor	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15
Actual Amperage	3.0/3.3/3.5	2.9/3.4/3.5	3.1/3.2/3.5	2.9/3.4/3.5	2.8/3.2/3.4
Design Fan RPM	NG	NG	NG	NG	NG
Actual Fan RPM	632	652	631	638	606
Design Motor RPM	1750	1750	1750	1750	1750
Actual Motor RPM	1757	1763	1755	1760	1742
Motor Sheave	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"
Fan Sheave	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"
Belts	AX50	AX50	AX50	AX50	AX50
Center to Center (in.)	12"	12"	12"	12"	12"
Motor Adjustments in/out (in.)	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"
Motor Frame	182T	182T	182T	182T	182T
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 18

Unit	EF-21	EF-22	EF-23	EF-24	EF-25
Manufacturer	COOLAIR	COOLAIR	COOLAIR	COOLAIR	COOLAIR
Model Number	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363	JBC54PE8363
Serial Number	100603M127870	100603M127870	100603M127870	100603M127870	100603M127870
Design CFM	35856	35856	35856	35856	35856
Actual CFM	23763	23256	25418	23816	24057
Design Static Pressure (in. w.c.)	0.13	0.13	0.13	0.13	0.13
Actual Static Pressure (in. w.c.)	NA	NA	NA	NA	NA
Motor Manufacturer	BALDOR	BALDOR	BALDOR	BALDOR	BALDOR
Motor HP	3	3	3	3	3
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	481/485/486	480/479/483	478/483/481	481/479/480	480/483/479
Design Amperage / Service Factor	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15	4.1/1.15
Actual Amperage	2.9/3.3/3.5	2.8/3.1/3.4	2.9/3.3/3.5	3.0/3.3/3.4	3.0/3.4/3.4
Design Fan RPM	NG	NG	NG	NG	NG
Actual Fan RPM	613	595	648	614	620
Design Motor RPM	1750	1750	1750	1750	1750
Actual Motor RPM	1756	1739	1771	1757	1755
Motor Sheave	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"
Fan Sheave	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"
Belts	AX50	AX50	AX50	AX50	AX50
Center to Center (in.)	12"	12"	12"	12"	12"
Motor Adjustments in/out (in.)	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"	-1" / +3"
Motor Frame	182T	182T	182T	182T	182T
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19
Page: 19

TAB#: **24024**

Unit	EF-26	EF-27	EF-28		
Manufacturer	COOLAIR	COOLAIR	COOLAIR		
Model Number	JBC54PE8363	JBC54PE8363	JBC54PE8363		
Serial Number	100603M127870	100603M127870	100603M127870		
Design CFM	35856	35856	35856		
Actual CFM	23309	23790	24778		
Design Static Pressure (in. w.c.)	0.13	0.13	0.13		
Actual Static Pressure (in. w.c.)	NA	NA	NA		
Motor Manufacturer	BALDOR	BALDOR	BALDOR		
Motor HP	3	3	3		
Design Voltage / Phase	460/3	460/3	460/3		
Actual Voltage	481/485/479	480/482/478	480/481/477		
Design Amperage / Service Factor	4.1/1.15	4.1/1.15	4.1/1.15		
Actual Amperage	3.0/3.2/3.4	3.0/3.3/3.5	3.0/3.3/3.5		
Design Fan RPM	NG	NG	NG		
Actual Fan RPM	596	612	635		
Design Motor RPM	1750	1750	1750		
Actual Motor RPM	1739	1745	1761		
Motor Sheave	5" OD x 1 1/2"	5" OD x 1 1/2"	5" OD x 1 1/2"		
Fan Sheave	12" OD x B 1 5/8"	12" OD x B 1 5/8"	12" OD x B 1 5/8"		
Belts	AX50	AX50	AX50		
Center to Center (in.)	12"	12"	12"		
Motor Adjustments in/out (in.)	-1" / +3"	-1" / +3"	-1" / +3"		
Motor Frame	182T	182T	182T		
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT		

Remarks-

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

VELGRID TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY
TAB#: **24024**

Date: SURVEY 12/9/19
Page: 20

Unit	Duct Size (in.)	Area ($ft.^2$)	Design		Actual		
			FPM	CFM	FPM	CFM	
EF-1	62 x 62	26.7	1343	35856	953	25445	
EF-2	62 x 62	26.7	1343	35856	908	24244	
EF-3	62 x 62	26.7	1343	35856	898	23977	
EF-4	62 x 62	26.7	1343	35856	932	24884	
EF-5	62 x 62	26.7	1343	35856	941	25125	
EF-6	62 x 62	26.7	1343	35856	- - -	(1)	
EF-7	62 x 62	26.7	1343	35856	909	24270	
EF-8	62 x 62	26.7	1343	35856	882	23549	
EF-9	62 x 62	26.7	1343	35856	540	14418(2)	
EF-10	62 x 62	26.7	1343	35856	924	24671	
EF-11	62 x 62	26.7	1343	35856	895	23897	
EF-12	62 x 62	26.7	1343	35856	881	23523	
EF-13	62 x 62	26.7	1343	35856	872	23282	
EF-14	62 x 62	26.7	1343	35856	912	24350	
EF-15	62 x 62	26.7	1343	35856	- - -	(3)	
EF-16	62 x 62	26.7	1343	35856	917	24484	
EF-17	62 x 62	26.7	1343	35856	965	25766	
EF-18	62 x 62	26.7	1343	35856	914	24404	
EF-19	62 x 62	26.7	1343	35856	923	24644	
EF-20	62 x 62	26.7	1343	35856	892	23816	
EF-21	62 x 62	26.7	1343	35856	890	23763	
EF-22	62 x 62	26.7	1343	35856	871	23256	
EF-23	62 x 62	26.7	1343	35856	952	25418	
EF-24	62 x 62	26.7	1343	35856	892	23816	
EF-25	62 x 62	26.7	1343	35856	901	24057	
EF-26	62 x 62	26.7	1343	35856	873	23309	
EF-27	62 x 62	26.7	1343	35856	891	23790	
EF-28	62 x 62	26.7	1343	35856	928	24778	

Remarks-

(1) Fan not operational at the time of the survey; turned off at the electrical disconnect.

(2) Backdraft damper is damaged; only partially open at the time of testing.

(3) Fan not operational at the time of the survey; unable to energize the fan.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

VELGRID TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19
Page: 21

TAB#: **24024**

Unit	Duct Size (in.)	Area ($ft.^2$)	Design		Actual		Remarks
			FPM	CFM	FPM	CFM	
INTAKE LOUVERS							
L-1-1	108 x 33	24.75	NG	NG	526	13019(1)	5 BAY DOORS OPEN
L-1-2	108 x 29.5	22.13	NG	NG	542	11994(1)	
L-1-3	108 x 33.5	25.13	NG	NG	596	14977(1)	
L-1-4	108 x 33.5	25.13	NG	NG	494	12414(1)	
L-2-1	108 x 33.5	25.13	NG	NG	393	9876(1)	ZERO BAY DOORS OPEN
L-2-2	108 x 33.5	25.13	NG	NG	356	8946(1)	
L-2-3	108 x 120	90.00	NG	NG	155	13950(1)	
L-3-1	108 x 33.5	25.13	NG	NG	469	11786(1)	1 BAY OPEN
L-4B-1	- - -	- - -	- - -	NG	- - -	- - -	NOT INSTALLED
L-4B-2	- - -	- - -	- - -	NG	- - -	- - -	
L-4B-3	- - -	- - -	- - -	NG	- - -	- - -	
L-5-1	130 x 66.25	59.81	NG	NG	- - -	(2)	
L-5-2	130 x 66.25	59.81	NG	NG	560	33494	
L-5-3	130 x 66.25	59.81	NG	NG	584	34929	
L-5-4	130 x 66.25	59.81	NG	NG	- - -	(2)	
L-5-5	130 x 66.25	59.81	NG	NG	597	35707	
L-5-6	130 x 66.25	59.81	NG	NG	- - -	(2)	
L-5-7	130 x 66.25	59.81	NG	NG	575	34391(3)	
AREA L-5 RE-TESTED WITH A SINGLE OPEN LOUVER (SIX CLOSED)							
INTAKE	130 x 66.25	59.81	NG	NG	860	51437	

Remarks-

(1) The connecting doors between areas L-1 & L-2 and between areas L-2 & L-3 were open at the time of testing.

(2) Louver stuck in the closed position.

(3) One of the 23x23 intake mesh filters was not installed at the time of the survey.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19

TAB#: **24024**

Unit	EF-29	EF-30	EF-31	EF-32	EF-33A
Manufacturer	COOK	COOK	COOK	COOK	COOK
Model Number	540LXUL54LXUL	360LXUL36LXUL	540LXUL54LXUL	540LXUL54LXUL	360LXUL36LXUL
Serial Number	NA(1)	NL	NA(1)	050SC36201 -01/0000701	044S129344 -00/0000702
Design CFM	30000	15000	30000	30000	15000
Actual CFM	NA(1)	16281	NA(1)	NA(1)	16601
Design Static Pressure (in. w.c.)	0.13	0.10	0.13	0.13	0.10
Actual Static Pressure (in. w.c.)	NA(1)	NA	NA(1)	NA(1)	NA
Motor Manufacturer	NA(1)	WESTINGHOUSE	NA(1)	NA(1)	WESTINGHOUSE
Motor HP	NA(1)	3	NA(1)	3	3
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	NA(1)	470/468/469	NA(1)	NA(1)	471/470/470
Design Amperage / Service Factor	NA(1)	NL/1.15	NA(1)	NA(1)	NL/1.15
Actual Amperage	NA(1)	2.9/2.9/2.9	NA(1)	NA(1)	2.9/3.0/3.2
Design Fan RPM	392	645	392	392	645
Actual Fan RPM	NA(1)	664	NA(1)	NA(1)	671
Design Motor RPM	1725	1725	1725	1725	1725
Actual Motor RPM	NA(1)	1740	NA(1)	NA(1)	1756
Motor Sheave	NA(1)	4" OD	NA(1)	NA(1)	4" OD
Fan Sheave	NA(1)	9 1/4" OD	NA(1)	NA(1)	9 1/4" OD
Belts	NA(1)	(2) A35	NA(1)	NA(1)	(2) A35
Center to Center (in.)	NA(1)	8"	NA(1)	NA(1)	8"
Motor Adjustments in/out (in.)	NA(1)	-1" / +3"	NA(1)	NA(1)	-1" / +3"
Motor Frame	NA(1)	NL	NA(1)	NA(1)	NL
Starter Heater	NA(1)	DISCONNECT	NA(1)	NA(1)	DISCONNECT

Remarks-

(1) Existing fan not operating at the time of the survey.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19

TAB#: **24024**

Unit	EF-33B	F-5-A	F-5-B	F-5-C	F-5-D
Manufacturer	COOK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
Model Number	540LXUL54LXUL	RBU-3L48-50	RBU-3L48-50	RBU-3L48-50	RBU-3L48-50
Serial Number	050SC36201 -01/0004706	15126158	15126154	15126155	15126153
Design CFM	30000	38974	38974	38974	38974
Actual CFM	NA(1)	NA(1)	25232	30780	NA(1)
Design Static Pressure (in. w.c.)	0.13	NG	NG	NG	NG
Actual Static Pressure (in. w.c.)	NA(1)	NA(1)	NA	NA	NA
Motor Manufacturer	NA(1)	BALDOR	BALDOR	BALDOR	BALDOR
Motor HP	3	5	5	5	5
Design Voltage / Phase	460/3	460/3	460/3	460/3	460/3
Actual Voltage	NA(1)	NA(1)	469/471/471	470/469/471	NA(1)
Design Amperage / Service Factor	NA(1)	6.6/1.15	6.6/1.15	6.6/1.15	6.6/1.15
Actual Amperage	NA(1)	NA(1)	4.4/4.4/4.6	5.6/5.8/5.8	NA(1)
Design Fan RPM	392	NG	NG	NG	NG
Actual Fan RPM	NA(1)	NA(1)	510	584	NA(1)
Design Motor RPM	1725	1750	1750	1750	1750
Actual Motor RPM	NA(1)	NA(1)	1739	1755	NA(1)
Motor Sheave	NA(1)	2VP50 x 1 1/8"	2VP50 x 1 1/8"	2VP50 x 1 1/8"	2VP50 x 1 1/8"
Fan Sheave	NA(1)	14" OD x B 1 1/2"	14" OD x B 1 1/2"	14" OD x B 1 1/2"	14" OD x B 1 1/2"
Belts	NA(1)	(2) AX56	(2) AX56	(2) AX56	(2) AX56
Center to Center (in.)	NA(1)	14 1/2"	14 1/2"	14 1/2"	14 1/2"
Motor Adjustments in/out (in.)	NA(1)	-1" / +1"	-1" / +1"	-1" / +1"	-1" / +1"
Motor Frame	NA(1)	184T	184T	184T	184T
Starter Heater	NA(1)	DISCONNECT	DISCONNECT	DISCONNECT	DISCONNECT

Remarks-

(1) Existing fan not operating at the time of the survey.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

FAN TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19
Page: 24

TAB#: **24024**

Unit	F-5-E	F-5-F	F-5-G		
Manufacturer	GREENHECK	GREENHECK	GREENHECK		
Model Number	RBU-3L48-50	RBU-3L48-50	RBU-3L48-50		
Serial Number	15126152	15126156	15126157		
Design CFM	38974	38974	38974		
Actual CFM	26912	NA(1)	26366		
Design Static Pressure (in. w.c.)	NG	NG	NG		
Actual Static Pressure (in. w.c.)	NA	NA(1)	NA		
Motor Manufacturer	BALDOR	BALDOR	BALDOR		
Motor HP	5	5	5		
Design Voltage / Phase	460/3	460/3	460/3		
Actual Voltage	469/469/471	NA(1)	469/469/471		
Design Amperage / Service Factor	6.6/1.15	6.6/1.15	6.6/1.15		
Actual Amperage	4.4/4.5/4.4	NA(1)	4.4/4.5/4.6		
Design Fan RPM	NG	NG	NG		
Actual Fan RPM	517	NA(1)	511		
Design Motor RPM	1750	1750	1750		
Actual Motor RPM	1763	NA(1)	1752		
Motor Sheave	2VP50 x 1 1/8"	2VP50 x 1 1/8"	2VP50 x 1 1/8"		
Fan Sheave	14" OD x B 1 1/2"	14" OD x B 1 1/2"	14" OD x B 1 1/2"		
Belts	(2) AX56	(2) AX56	(2) AX56		
Center to Center (in.)	14 1/2"	14 1/2"	14 1/2"		
Motor Adjustments in/out (in.)	-1" / +1"	-1" / +1"	-1" / +1"		
Motor Frame	184T	184T	184T		
Starter Heater	DISCONNECT	DISCONNECT	DISCONNECT		

Remarks-

(1) Existing fan not operating at the time of the survey.

TAB SERVICES, INC.

TESTING, ADJUSTING AND BALANCING AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

TRAVERSE / VELGRID TEST DATA

Project: **CR BARD**
DISTRIBUTION CENTER SURVEY

Date: SURVEY 12/9/19
Page: 25

TAB#: **24024**

Unit	Duct Size (in.)	Area ($ft.^2$)	Design		Actual		
			FPM	CFM	FPM	CFM	
EF-30	62 x 62	26.69	562	15000	610	16281	
EF-33A	62 x 62	26.69	562	15000	622	16601	
F-5-B	54 x 54	20.25	1925	38974	1246	25232	
F-5-C	54 x 54	20.25	1925	38974	1520	30780	
F-5-E	54 x 54	20.25	1925	38974	1329	26912	
F-5-G	54 x 54	20.25	1925	38974	1302	26366	

Remarks-

Section-3

Section-2

Section-1

EF-1 EF-2 EF-3 EF-4 EF-5 EF-6 EF-7 EF-8 EF-9 EF-10 EF-11 EF-12 EF-13 EF-14 EF-15 EF-16 EF-17 EF-18 EF-19 EF-20 EF-21 EF-22 EF-23 EF-24 EF-25 EF-26 EF-27 EF-28

ATU-2 ATU-1

UH-1 UH-2 UH-3 UH-4 UH-5 UH-6 UH-7 UH-8 UH-9 UH-10 UH-11 UH-12 UH-13 UH-14 UH-15 UH-16 UH-17 UH-18 UH-19

IH-1 IH-2 IH-3 IH-4 IH-5 IH-6 IH-7 IH-8

AC-1 AC-2 AC-3 AC-4 AC-5 AC-6 AC-7 AC-8

EF-01 EF-02

2" NATURAL GAS

3" NATURAL GAS

1" NATURAL GAS

1-1/2" NATURAL GAS

2"N.G.

WAREHOUSE 203

WAREHOUSE 202

WAREHOUSE 201

3 AIR CHANGES PER HOUR PROVIDED FOR WARM SEASON VENTILATION, FAN MAKE-UP AIR TO COME THRU OPEN OVERHEAD DOORS

LIEBERT CONDENSING UNITS 1 AND 2

NATURAL GAS METER LOCATION

FF-03

L-3-1 L-2-3 L-2-2 L-2-1 L-1-4 L-1-3 L-1-2 L-1-1

TAB SERVICES, INC.

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

MECHANICAL PLAN	CR BARD DISTRIBUTION CENTER SURVEY	TAB Number	Date	Drawing Number
		24024	SURVEY 12/9/19	M1.1

Section 4A

Section 3

Section 2

Section 1

Section 5

Section 4B

ATU-7 ATU-6B ATU-6A

ATU-4A ATU-4B ATU-5

EF-32 EF-33A EF-33B

EF-31 EF-30 EF-29

PEDESTRIAN TUNNEL

INTERNATIONAL 12,041 sq ft

RECEIVING AREA

RECEIVING/STAGING AREA

L-5-1 L-5-2 L-5-3 L-5-4 L-5-5 L-5-6 L-5-7

F-5-G F-5-E F-5-C F-5-D F-5-B F-5-A F-5-F

L-4B-1 L-4B-2 L-4B-3

L-3-1

L-2-1 L-2-2 L-2-3

L-1-1 L-1-2 L-1-3 L-1-4

33'2" AISLE

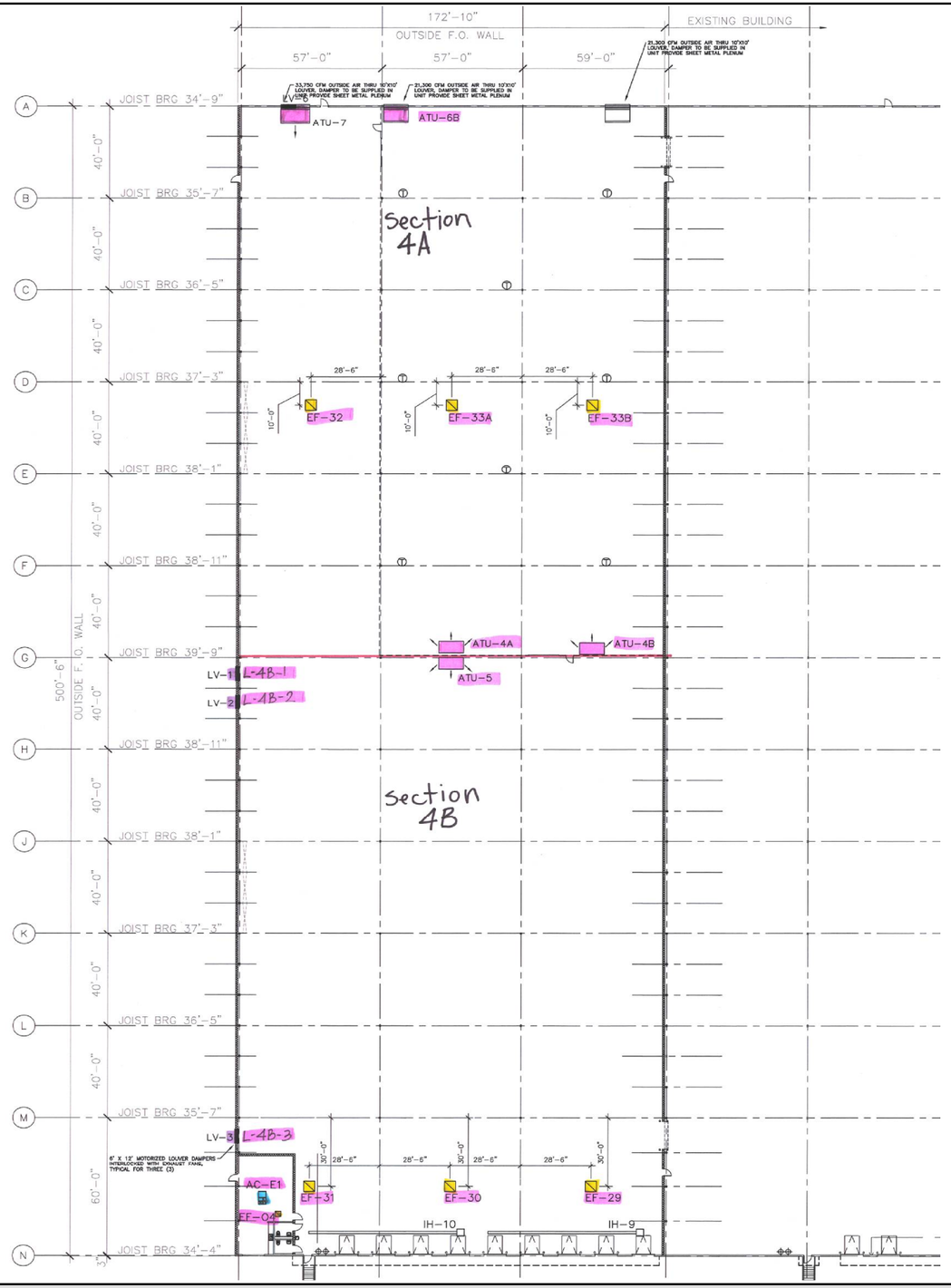
20'0" AISLE

36'10" AISLE

TAB SERVICES, INC.

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

MECHANICAL - OVERALL PLAN	CR BARD DISTRIBUTION CENTER SURVEY	TAB Number	Date	Drawing Number
		24024	SURVEY 12/9/19	M-0



TAB SERVICES, INC.

5680 OAKBROOK PARKWAY, SUITE 175, NORCROSS, GEORGIA 30093

MECHANICAL - ENLARGED PARTIAL PLAN SECTION 4A & 4B	CR BARD DISTRIBUTION CENTER SURVEY	TAB Number	Date	Drawing Number
		24024	SURVEY 12/9/19	M1.1

APPENDIX 3
LAB REPORTS

eurofins | Air Toxics

11/27/2019
Mr. Robert DeMott
Ramboll Environ
10150 Highland Manor Drive
Suite 440
Tampa FL 33610

Project Name: K & S Bard
Project #: 1690014483
Workorder #: 1911536

Dear Mr. Robert DeMott

The following report includes the data for the above referenced project for sample(s) received on 11/25/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Brian Whittaker

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1911536

Work Order Summary

CLIENT:	Mr. Robert DeMott Ramboll 10150 Highland Manor Drive Suite 440 Tampa, FL 33610	**BILL TO:**	Accounts Payable Ramboll 10150 Highland Manor Drive Suite 440 Tampa, FL 33610
PHONE:	813-628-4325	**P.O. #**	
FAX:	813-628-4983	**PROJECT #**	1690014483 K & S Bard
DATE RECEIVED:	11/25/2019	**CONTACT:**	Brian Whittaker
DATE COMPLETED:	11/27/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	GDC-S1A 20191121	Modified TO-15 SIM	6.5 "Hg	5 psi
02A	GDC-S1B 20191121	Modified TO-15 SIM	7.5 "Hg	5 psi
03A	GDC-S2 20191121	Modified TO-15 SIM	6.5 "Hg	5 psi
04A	GDC-S3 20191121	Modified TO-15 SIM	7.0 "Hg	5 psi
05A	GDC-S4E 20191121	Modified TO-15 SIM	6.5 "Hg	5 psi
06A	GDC-S4W 20191121	Modified TO-15 SIM	6.5 "Hg	5 psi
07A	GDC-S5 20191121	Modified TO-15 SIM	7.5 "Hg	5 psi
08A	GDC-D 20191121	Modified TO-15 SIM	7.5 "Hg	5 psi
09A	GDC-W1 20191121	Modified TO-15 SIM	7.0 "Hg	5 psi
10A	GDC-P1 20191121	Modified TO-15 SIM	6.5 "Hg	5 psi
11A	Lab Blank	Modified TO-15 SIM	NA	NA
11B	Lab Blank	Modified TO-15 SIM	NA	NA
12A	CCV	Modified TO-15 SIM	NA	NA
12B	CCV	Modified TO-15 SIM	NA	NA
13A	LCS	Modified TO-15 SIM	NA	NA
13AA	LCSD	Modified TO-15 SIM	NA	NA
13B	LCS	Modified TO-15 SIM	NA	NA
13BB	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Hayes

Technical Director

DATE: 11/27/19

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA TO-15 Ethylene oxide (SIM)
Ramboll Environ
Workorder# 1911536

Eight 6 Liter Summa Canister (EO) and two 6 Liter Summa Canister (100% SIM Ambient) samples were received on November 25, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the SIM acquisition mode for the measurement of Ethylene oxide in ambient air.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Ethylene Oxide is not included on the laboratory's NELAP scope of accreditation for TO-15 SIM. However, TO-15 method and NELAP quality requirements were met.

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. The canisters used for this project have been certified to the Reporting Limit for Ethylene Oxide. Concentrations that are below the level at which the canister was certified may be false positives.

The compound 2,5-Dimethylfuran is reported as a semi-quantitative concentration using a three-point calibration with the lowest calibration level of 0.05 ppbv used to establish the reporting limit. No second source verification of the calibration was performed, and no method detection limit study was conducted.

Dilution was performed on samples GDC-S2 20191121, GDC-S3 20191121 and GDC-S5 20191121 due to the presence of high level target species.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.
CN - See Case Narrative

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S1A 20191121		
Lab ID:	1911536-01A	**Date/Time Analyzed:**	11/25/19 06:06 PM
Date/Time Collected:	11/22/19 12:36 PM	**Dilution Factor:**	1.71
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112509sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.046	D	0.15	90

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S1B 20191121		
Lab ID:	1911536-02A	**Date/Time Analyzed:**	11/25/19 06:50 PM
Date/Time Collected:	11/22/19 12:42 PM	**Dilution Factor:**	1.79
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112510sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.35	Not Detected
Ethylene Oxide	75-21-8	0.048	D	0.16	200

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S2 20191121		
Lab ID:	1911536-03A	**Date/Time Analyzed:**	11/26/19 05:47 PM
Date/Time Collected:	11/22/19 12:47 PM	**Dilution Factor:**	13.7
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112610sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	2.7	Not Detected
Ethylene Oxide	75-21-8	0.37	D	1.2	1300

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S3 20191121		
Lab ID:	1911536-04A	**Date/Time Analyzed:**	11/26/19 06:34 PM
Date/Time Collected:	11/22/19 12:54 PM	**Dilution Factor:**	28.0
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112611sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	5.5	Not Detected
Ethylene Oxide	75-21-8	0.75	D	2.5	2100

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S4E 20191121		
Lab ID:	1911536-05A	**Date/Time Analyzed:**	11/25/19 09:02 PM
Date/Time Collected:	11/22/19 01:12 PM	**Dilution Factor:**	1.71
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112513sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.046	D	0.15	96

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S4W 20191121		
Lab ID:	1911536-06A	**Date/Time Analyzed:**	11/25/19 11:38 PM
Date/Time Collected:	11/22/19 01:21 PM	**Dilution Factor:**	1.71
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112515sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.046	D	0.15	59

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-S5 20191121		
Lab ID:	1911536-07A	**Date/Time Analyzed:**	11/26/19 07:14 PM
Date/Time Collected:	11/22/19 01:28 PM	**Dilution Factor:**	3.57
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112612sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.70	Not Detected
Ethylene Oxide	75-21-8	0.096	D	0.32	490

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-D 20191121		
Lab ID:	1911536-08A	**Date/Time Analyzed:**	11/26/19 01:06 AM
Date/Time Collected:	11/22/19 01:12 PM	**Dilution Factor:**	1.79
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30112517sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.35	Not Detected
Ethylene Oxide	75-21-8	0.048	D	0.16	83

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-W1 20191121		
Lab ID:	1911536-09A	**Date/Time Analyzed:**	11/26/19 01:50 AM
Date/Time Collected:	11/22/19 01:49 PM	**Dilution Factor:**	1.75
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd30.i / 30112518sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.047	D	0.16	0.93

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	GDC-P1 20191121		
Lab ID:	1911536-10A	**Date/Time Analyzed:**	11/26/19 02:34 AM
Date/Time Collected:	11/22/19 01:41 PM	**Dilution Factor:**	1.71
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd30.i / 30112519sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.046	D	0.15	0.76

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	Lab Blank		
Lab ID:	1911536-11A	**Date/Time Analyzed:**	11/25/19 11:54 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112506sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.20	Not Detected
Ethylene Oxide	75-21-8	0.027	D	0.090	Not Detected

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	Lab Blank		
Lab ID:	1911536-11B	**Date/Time Analyzed:**	11/26/19 02:22 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112607sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.20	Not Detected
Ethylene Oxide	75-21-8	0.027	D	0.090	Not Detected

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	CCV		
Lab ID:	1911536-12A	**Date/Time Analyzed:**	11/25/19 08:47 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112502sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	74
Ethylene Oxide	75-21-8	95

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	CCV		
Lab ID:	1911536-12B	**Date/Time Analyzed:**	11/26/19 11:10 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112603sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	98
Ethylene Oxide	75-21-8	94

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	LCS		
Lab ID:	1911536-13A	**Date/Time Analyzed:**	11/25/19 09:29 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112503sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	121

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	LCSD		
Lab ID:	1911536-13AA	**Date/Time Analyzed:**	11/25/19 10:10 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112504sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	123

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	LCS		
Lab ID:	1911536-13B	**Date/Time Analyzed:**	11/26/19 11:52 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112604sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	116

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K & S Bard

Client ID:	LCSD		
Lab ID:	1911536-13BB	**Date/Time Analyzed:**	11/26/19 12:33 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30112605sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	111

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

eurofins | Air Toxics

12/10/2019
Mr. Robert DeMott
Ramboll Environ
10150 Highland Manor Drive
Suite 440
Tampa FL 33610

Project Name: K&S Bard
Project #:
Workorder #: 1912125

Dear Mr. Robert DeMott

The following report includes the data for the above referenced project for sample(s) received on 12/6/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Brian Whittaker

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1912125

Work Order Summary

CLIENT:	Mr. Robert DeMott Ramboll 10150 Highland Manor Drive Suite 440 Tampa, FL 33610	**BILL TO:**	Accounts Payable Ramboll 10150 Highland Manor Drive Suite 440 Tampa, FL 33610
PHONE:	813-628-4325	**P.O. #**	1690014483
FAX:	813-628-4983	**PROJECT #**	K&S Bard
DATE RECEIVED:	12/06/2019	**CONTACT:**	Brian Whittaker
DATE COMPLETED:	12/10/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	GDC-S1A 20191204	Modified TO-15 SIM	8.0 "Hg	5 psi
02A	GDC-S1B 20191204	Modified TO-15 SIM	8.0 "Hg	5 psi
03A	GDC-S2 20191204	Modified TO-15 SIM	7.5 "Hg	5 psi
04A	GDC-S3 20191204	Modified TO-15 SIM	7.5 "Hg	5 psi
05A	GDC-S4E 20191204	Modified TO-15 SIM	8.5 "Hg	5 psi
06A	GDC-S4W 20191204	Modified TO-15 SIM	7.5 "Hg	5 psi
07A	GDC-S5 20191204	Modified TO-15 SIM	7.5 "Hg	5 psi
08A	GDC-D 20191204	Modified TO-15 SIM	7.0 "Hg	5 psi
09A	GDC-P1 20191204	Modified TO-15 SIM	6.0 "Hg	5 psi
10A	GDC-W1 20191204	Modified TO-15 SIM	6.5 "Hg	5 psi
10AA	GDC-W1 20191204 Lab Duplicate	Modified TO-15 SIM	6.5 "Hg	5 psi
11A	Lab Blank	Modified TO-15 SIM	NA	NA
12A	CCV	Modified TO-15 SIM	NA	NA
13A	LCS	Modified TO-15 SIM	NA	NA
13AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:  DATE: 12/10/19

Technical Director

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA TO-15 Ethylene oxide (SIM)
Ramboll Environ
Workorder# 1912125

Ten 6 Liter Summa Canister samples were received on December 06, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the SIM acquisition mode for the measurement of Ethylene oxide in ambient air.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Ethylene Oxide is not included on the laboratory's NELAP scope of accreditation for TO-15 SIM. However, TO-15 method and NELAP quality requirements were met.

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. The canisters used for this project have been certified to the Reporting Limit for Ethylene Oxide. Concentrations that are below the level at which the canister was certified may be false positives.

The compound 2,5-Dimethylfuran is reported as a semi-quantitative concentration using a three-point calibration with the lowest calibration level of 0.05 ppbv used to establish the reporting limit. No second source verification of the calibration was performed, and no method detection limit study was conducted.

Dilution was performed on samples GDC-S2 20191204, GDC-S3 20191204, GDC-S5 20191204 and GDC-D 20191204 due to the presence of high level target species.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.
CN - See Case Narrative

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S1A 20191204		
Lab ID:	1912125-01A	**Date/Time Analyzed:**	12/10/19 04:32 AM
Date/Time Collected:	12/5/19 11:54 AM	**Dilution Factor:**	1.83
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120925sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.36	Not Detected
Ethylene Oxide	75-21-8	0.049	D	0.16	48

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S1B 20191204		
Lab ID:	1912125-02A	**Date/Time Analyzed:**	12/10/19 03:48 AM
Date/Time Collected:	12/5/19 12:00 PM	**Dilution Factor:**	1.83
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120924sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.36	Not Detected
Ethylene Oxide	75-21-8	0.049	D	0.16	190

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S2 20191204		
Lab ID:	1912125-03A	**Date/Time Analyzed:**	12/10/19 05:53 AM
Date/Time Collected:	12/5/19 12:13 PM	**Dilution Factor:**	14.3
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120927sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	2.8	Not Detected
Ethylene Oxide	75-21-8	0.38	D	1.3	770

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S3 20191204		
Lab ID:	1912125-04A	**Date/Time Analyzed:**	12/10/19 06:33 AM
Date/Time Collected:	12/5/19 12:24 PM	**Dilution Factor:**	17.9
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120928sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	3.5	Not Detected
Ethylene Oxide	75-21-8	0.48	D	1.6	1700

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S4E 20191204		
Lab ID:	1912125-05A	**Date/Time Analyzed:**	12/10/19 03:04 AM
Date/Time Collected:	12/5/19 12:35 PM	**Dilution Factor:**	1.87
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120923sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.37	Not Detected
Ethylene Oxide	75-21-8	0.050	D	0.17	160

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S4W 20191204		
Lab ID:	1912125-06A	**Date/Time Analyzed:**	12/10/19 02:20 AM
Date/Time Collected:	12/5/19 12:44 PM	**Dilution Factor:**	1.79
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120922sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.35	Not Detected
Ethylene Oxide	75-21-8	0.048	D	0.16	120

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-S5 20191204		
Lab ID:	1912125-07A	**Date/Time Analyzed:**	12/10/19 09:10 AM
Date/Time Collected:	12/5/19 12:54 PM	**Dilution Factor:**	14.3
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120932sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	2.8	Not Detected
Ethylene Oxide	75-21-8	0.38	D	1.3	1300

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-D 20191204		
Lab ID:	1912125-08A	**Date/Time Analyzed:**	12/10/19 08:31 AM
Date/Time Collected:	12/5/19 12:13 PM	**Dilution Factor:**	6.99
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120931sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	1.4	Not Detected
Ethylene Oxide	75-21-8	0.19	D	0.63	800

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-P1 20191204		
Lab ID:	1912125-09A	**Date/Time Analyzed:**	12/10/19 12:52 AM
Date/Time Collected:	12/5/19 01:24 PM	**Dilution Factor:**	1.68
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd30.i / 30120920sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.33	Not Detected
Ethylene Oxide	75-21-8	0.045	D	0.15	0.30

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-W1 20191204		
Lab ID:	1912125-10A	**Date/Time Analyzed:**	12/9/19 11:23 PM
Date/Time Collected:	12/5/19 01:34 PM	**Dilution Factor:**	1.71
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120918sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.046	D	0.15	0.30

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	GDC-W1 20191204 Lab Duplicate		
Lab ID:	1912125-10AA	**Date/Time Analyzed:**	12/10/19 12:07 AM
Date/Time Collected:	12/5/19 01:34 PM	**Dilution Factor:**	1.71
Media:	6 Liter Summa Canister (EO)	**Instrument/Filename:**	msd30.i / 30120919sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.34	Not Detected
Ethylene Oxide	75-21-8	0.046	D	0.15	0.31

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	Lab Blank		
Lab ID:	1912125-11A	**Date/Time Analyzed:**	12/9/19 03:45 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30120910sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.20	Not Detected
Ethylene Oxide	75-21-8	0.027	D	0.090	Not Detected

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	CCV		
Lab ID:	1912125-12A	**Date/Time Analyzed:**	12/9/19 11:07 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30120904sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	86
Ethylene Oxide	75-21-8	83

D: Analyte not within the DoD scope of accreditation.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	LCS		
Lab ID:	1912125-13A	**Date/Time Analyzed:**	12/9/19 01:18 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30120907sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	95

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM
K&S Bard

Client ID:	LCSD		
Lab ID:	1912125-13AA	**Date/Time Analyzed:**	12/9/19 01:59 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd30.i / 30120908sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	93

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

APPENDIX 4
CHAIN OF CUSTODY

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only
PID: _____ Workorder #: 1911536

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client:	Ramboll	PID:	
Project Name:	K&S Bard		
Project Manager:	Robert DeMott	P.O.#	1690014483
Sampler:	Scott Zadig		
Site Name:	K&S Bard		

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: Rush

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	Ethylene Oxide	2,5-Dimethyl Furan		
01A	GDC-S1A 20191121	6L0977	24470	11/21/2019	1334	11/22/2019	1236	29.0	7.0			X	X		
02A	GDC-S1B 20191121	6L1526	21932	11/21/2019	1339	11/22/2019	1242	27.5	8.0			X	X		
03A	GDC-S2 20191121	6L0287	24468	11/21/2019	1346	11/22/2019	1247	29.5	7.0			X	X		
04A	GDC-S3 20191121	6L1840	24411	11/21/2019	1353	11/22/2019	1254	28.0	7.5			X	X		
05A	GDC-S4E 20191121	6L1259	24446	11/21/2019	1411	11/22/2019	1312	27.0	7.5			X	X		
06A	GDC-S4W 20191121	6L1693	40339	11/21/2019	1420	11/22/2019	1321	30.0	6.0			X	X		
07A	GDC-S5 20191121	6L1084	22090	11/21/2019	1427	11/22/2019	1328	29.5	8.0			X	X		
08A	GDC-D 20191121	6L1284	22848	11/21/2019	1411	11/22/2019	1312	30.0	9.0			X	X		
09A	GDC-W1 20191121	6L1012	21931	11/21/2019	1444	11/22/2019	1349	28.0	6.5			X	X		
10A	GDC-P1 20191121	6L1352	23884	11/21/2019	1438	11/22/2019	1341	29.5	7.5			X	X		

Relinquished by: (Signature/Affiliation) Scott Zadig (To FedEx)	Date 11/22/19	Time 1622	Received by: (Signature/Affiliation) SATL	Date 11/25/19	Time 0945
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: FedEx | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only
PID: _____ Workorder #: 1912125

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client:	Ramboll	PID:	
Project Name:	K&S Bard		
Project Manager:	Robert DeMott	P.O.#	1690014483
Sampler:	Scott Zadig		
Site Name:	K&S Bard		

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: Rush

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	Ethylene Oxide	2,5-Dimethyl Furan		
01A	GDC-S1A 20191204	6L1502	30817	12/4/2019	1250	12/5/2019	11:54	28.0	7.5			X	X		
02A	GDC-S1B 20191204	6L1080	24099	12/4/2019	1258	12/5/2019	12:00	26.5	6.5			X	X		
03A	GDC-S2 20191204	6L0703	22883	12/4/2019	1312	12/5/2019	12:13	29.5	8.5			X	X		
04A	GDC-S3 20191204	6L1290	24457	12/4/2019	1323	12/5/2019	12:24	28.5	7.5			X	X		
05A	GDC-S4E 20191204	6L1101	24432	12/4/2019	1334	12/5/2019	12:35	27.0	8.5			X	X		
06A	GDC-S4W 20191204	6L0624	21931	12/4/2019	1343	12/5/2019	12:44	27.0	5.5			X	X		
07A	GDC-S5 20191204	6L1673	24	12/4/2019	1353	12/5/2019	12:54	28.5	7.0			X	X		
08A	GDC-D 20191204	6L0652	24468	12/4/2019	1312	12/5/2019	12:13	28.0	7.0			X	X		
09A	GDC-P1 20191204	6L0436	22210	12/4/2019	1423	12/5/2019	13:24	27.0	4.5			X	X		
10A	GDC-W1 20191204	6L1671	21939	12/4/2019	1433	12/5/2019	13:34	27.5	5.0			X	X		

Relinquished by: (Signature/Affiliation) (T. FedEx)	Date 12/5/19	Time 1532	Received by: (Signature/Affiliation)	Date 12/06/19	Time 0825
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: FedEx | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

APPENDIX 5
METEOROLOGICAL DATA

Covington, GA Past Weather

Last 30 Days

- **Tue, Dec 3rd 2019**
- **Mon, Dec 2nd 2019**
- **Sun, Dec 1st 2019**
- **Sat, Nov 30th 2019**
- **Fri, Nov 29th 2019**
- **Thu, Nov 28th 2019**
- **Wed, Nov 27th 2019**
- **Tue, Nov 26th 2019**
- **Mon, Nov 25th 2019**
- **Sun, Nov 24th 2019**
- **Sat, Nov 23rd 2019**
- **Fri, Nov 22nd 2019**
- **Thu, Nov 21st 2019**

High: 66.2ºf @2:55 PM **Low**: 39.02ºf @6:56 AM **Approx. Precipitation / Rain Total**: in.

Time (EST)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
11:56 PM	46.94	89.65	44.06	30.17	-	-	-	-	-
11:55 PM	46.4	93.4	44.6	30.17	-	-	-	-	-
11:50 PM	46.4	93.4	44.6	30.17	-	-	-	-	-
11:45 PM	46.4	93.4	44.6	30.17	-	-	-	-	-

Time (EST)	Temp. (ºF)	Humidity (%)	Dew Point (ºf)	Barometer (in Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
11:15 PM	48.2	87.28	44.6	30.17	-	-	-	-	-
11:10 PM	46.4	93.4	44.6	30.17	-	-	-	-	-
11:05 PM	48.2	87.28	44.6	30.17	-	-	-	-	-
11:00 PM	48.2	87.28	44.6	30.17	-	-	-	-	-
10:56 PM	48.02	86.08	44.06	30.17	-	-	-	-	-
10:55 PM	48.2	87.28	44.6	30.17	-	-	-	-	-
10:50 PM	48.2	87.28	44.6	30.17	-	-	-	-	-
10:45 PM	48.2	87.28	44.6	30.18	-	-	-	-	-
10:15 PM	50	81.61	44.6	30.19	-	-	-	-	-
10:10 PM	50	81.61	44.6	30.19	-	-	-	-	-
10:05 PM	51.8	76.35	44.6	30.19	-	-	-	-	-
10:00 PM	51.8	76.35	44.6	30.19	-	-	-	-	-
9:56 PM	51.98	74.3	44.06	30.2	-	-	-	-	-
9:55 PM	51.8	76.35	44.6	30.2	-	-	-	-	-
9:50 PM	51.8	76.35	44.6	30.19	-	-	-	-	-
9:45 PM	53.6	71.47	44.6	30.2	-	-	-	-	-
9:15 PM	51.8	76.35	44.6	30.19	-	-	-	-	-
9:10 PM	51.8	76.35	44.6	30.19	-	-	-	-	-
9:05 PM	51.8	76.35	44.6	30.19	-	-	-	-	-
9:00 PM	51.8	76.35	44.6	30.2	-	-	-	-	-
8:56 PM	51.98	76.89	44.96	30.2	-	-	-	-	-
8:55 PM	51.8	76.35	44.6	30.2	-	-	-	-	-
8:50 PM	51.8	76.35	44.6	30.2	-	-	-	-	-
8:45 PM	53.6	71.47	44.6	30.2	-	-	-	-	-
8:15 PM	53.6	71.47	44.6	30.2	-	-	-	-	-
8:10 PM	53.6	71.47	44.6	30.2	-	-	-	-	-
8:05 PM	53.6	71.47	44.6	30.19	-	-	-	-	-
8:00 PM	53.6	71.47	44.6	30.19	-	-	-	-	-
7:56 PM	53.96	69.1	44.06	30.19	5	se	-	-	-
7:55 PM	53.6	71.47	44.6	30.19	6	se	-	-	-
7:50 PM	55.4	66.93	44.6	30.2	3	se	-	-	-
7:45 PM	55.4	62.48	42.8	30.21	-	-	-	-	-
7:15 PM	55.4	62.48	42.8	30.2	3	sw	-	-	-
7:10 PM	55.4	62.48	42.8	30.19	-	-	-	-	-
7:05 PM	55.4	62.48	42.8	30.19	-	-	-	-	-
7:00 PM	55.4	62.48	42.8	30.18	-	-	-	-	-
6:56 PM	57.02	59.33	42.98	30.18	4	s	-	-	-
6:55 PM	57.2	58.55	42.8	30.18	4	s	-	-	-

Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°F)	Barometer (in)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
6:50 PM	57.2	58.55	42.8	30.17	5	sse	-	-	-
6:45 PM	57.2	58.55	42.8	30.18	5	sse	-	-	-
6:15 PM	57.2	58.55	42.8	30.18	5	s	-	-	-
6:10 PM	57.2	58.55	42.8	30.18	5	s	-	-	-
6:05 PM	57.2	58.55	42.8	30.18	5	sse	-	-	-
6:00 PM	57.2	58.55	42.8	30.19	5	s	-	-	-
5:56 PM	59	53.39	42.08	30.18	4	sse	-	-	-
5:55 PM	59	54.89	42.8	30.18	5	sse	-	-	-
5:50 PM	59	51.21	41	30.18	5	sse	-	-	-
5:45 PM	59	51.21	41	30.19	5	sse	-	-	-
5:15 PM	60.8	44.78	39.2	30.2	4	s	-	-	-
5:10 PM	60.8	44.78	39.2	30.19	3	sse	-	-	-
5:05 PM	60.8	44.78	39.2	30.2	4	s	-	-	-
5:00 PM	60.8	44.78	39.2	30.2	4	s	-	-	-
4:56 PM	60.98	45.77	39.92	30.2	4	s	-	-	-
4:55 PM	60.8	44.78	39.2	30.2	4	s	-	-	-
4:50 PM	60.8	44.78	39.2	30.19	5	s	-	-	-
4:45 PM	62.6	42.03	39.2	30.2	6	ssw	-	-	-
4:15 PM	62.6	42.03	39.2	30.2	6	s	-	-	-
4:10 PM	62.6	42.03	39.2	30.2	7	s	-	-	-
4:05 PM	62.6	42.03	39.2	30.2	7	ssw	-	-	-
4:00 PM	62.6	42.03	39.2	30.2	7	s	-	-	-
3:56 PM	62.96	41.21	39.02	30.19	4	s	-	-	-
3:55 PM	62.6	42.03	39.2	30.19	4	s	-	-	-
3:50 PM	64.4	39.46	39.2	30.19	5	s	-	-	-
3:45 PM	64.4	39.46	39.2	30.19	7	s	-	-	-
3:15 PM	64.4	39.46	39.2	30.2	4	ssw	-	-	-
3:10 PM	66.2	37.07	39.2	30.2	7	s	-	-	-
3:05 PM	66.2	37.07	39.2	30.2	7	sse	-	-	-
3:00 PM	66.2	34.54	37.4	30.2	6	s	-	-	-
2:56 PM	66.02	34.27	37.04	30.2	-	-	-	-	-
2:55 PM	66.2	34.54	37.4	30.2	3	sw	-	-	-
2:50 PM	66.2	34.54	37.4	30.2	4	sw	-	-	-
2:45 PM	66.2	34.54	37.4	30.2	6	ssw	-	-	-
2:15 PM	66.2	37.07	39.2	30.2	8	s	-	-	-
2:10 PM	64.4	39.46	39.2	30.2	4	sw	-	-	-
2:05 PM	64.4	39.46	39.2	30.2	4	s	-	-	-
2:00 PM	64.4	39.46	39.2	30.2	3	sse	-	-	-

Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°F)	Barometer (in Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
1:15 PM	64.4	39.46	39.2	30.22	7	sse	-	-	-
1:10 PM	64.4	39.46	39.2	30.22	7	sse	-	-	-
1:05 PM	64.4	39.46	39.2	30.22	8	sse	-	-	-
1:00 PM	64.4	39.46	39.2	30.23	7	s	-	-	-
12:56 PM	62.96	41.21	39.02	30.23	5	-	-	-	-
12:55 PM	64.4	39.46	39.2	30.23	5	ssw	-	-	-
12:50 PM	64.4	39.46	39.2	30.23	7	s	-	-	-
12:45 PM	62.6	42.03	39.2	30.24	6	se	-	-	-
12:15 PM	62.6	42.03	39.2	30.25	6	ssw	-	-	-
12:10 PM	62.6	42.03	39.2	30.26	10	s	-	-	-
12:05 PM	62.6	42.03	39.2	30.26	6	s	-	-	-
12:00 PM	60.8	44.78	39.2	30.26	7	sse	-	-	-
11:56 AM	60.98	45.77	39.92	30.26	4	sse	-	-	-
11:55 AM	62.6	42.03	39.2	30.26	5	sse	-	-	-
11:50 AM	60.8	44.78	39.2	30.27	6	sse	-	-	-
11:45 AM	60.8	44.78	39.2	30.27	6	se	-	-	-
11:15 AM	60.8	48.03	41	30.29	5	ssw	-	-	-
11:10 AM	60.8	48.03	41	30.29	5	sw	-	-	-
11:05 AM	60.8	51.48	42.8	30.29	5	sse	-	-	-
11:00 AM	59	51.21	41	30.3	4	sse	-	-	-
10:56 AM	59	51.21	41	30.3	5	s	-	-	-
10:55 AM	59	54.89	42.8	30.3	5	s	-	-	-
10:50 AM	57.2	54.62	41	30.3	4	s	-	-	-
10:45 AM	59	54.89	42.8	30.3	4	s	-	-	-
10:15 AM	55.4	58.29	41	30.31	4	sse	-	-	-
10:10 AM	55.4	58.29	41	30.31	4	s	-	-	-
10:05 AM	55.4	58.29	41	30.31	5	s	-	-	-
10:00 AM	55.4	58.29	41	30.31	4	s	-	-	-
9:56 AM	55.04	61.57	42.08	30.31	-	-	-	-	-
9:55 AM	55.4	62.48	42.8	30.31	-	-	-	-	-
9:50 AM	55.4	62.48	42.8	30.31	-	-	-	-	-
9:45 AM	55.4	62.48	42.8	30.31	3	e	-	-	-
9:15 AM	51.8	71.27	42.8	30.3	3	ne	-	-	-
9:10 AM	51.8	71.27	42.8	30.31	-	-	-	-	-
9:05 AM	51.8	71.27	42.8	30.3	-	-	-	-	-
9:00 AM	50	76.18	42.8	30.3	3	e	-	-	-
8:56 AM	50	76.71	42.98	30.3	-	-	-	-	-
8:55 AM	48.2	81.48	42.8	30.3	3	ene	-	-	-

Time (EST)	Temp. (ºF)	Humidity (%)	Dew Point (ºf)	Barometer (in)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
8:50 AM	48.2	81.48	42.8	30.3	-	-	-	-	-
8:45 AM	48.2	81.48	42.8	30.3	-	-	-	-	-
8:15 AM	44.6	87.09	41	30.3	-	-	-	-	-
8:10 AM	44.6	87.09	41	30.3	-	-	-	-	-
8:05 AM	42.8	93.3	41	30.3	-	-	-	-	-
8:00 AM	42.8	93.3	41	30.3	-	-	-	-	-
7:56 AM	41	100	41	30.3	-	-	-	-	-
7:55 AM	41	93.24	39.2	30.3	-	-	-	-	-
7:50 AM	41	93.24	39.2	30.3	-	-	-	-	-
7:45 AM	41	93.24	39.2	30.3	-	-	-	-	-
7:15 AM	39.2	100	39.2	30.29	-	-	-	-	-
7:10 AM	39.2	100	39.2	30.29	-	-	-	-	-
7:05 AM	39.2	100	39.2	30.3	-	-	-	-	-
7:00 AM	39.2	100	39.2	30.29	-	-	-	-	-
6:56 AM	39.02	95.86	37.94	30.29	-	-	-	-	-
6:55 AM	39.2	100	39.2	30.29	-	-	-	-	-
6:50 AM	41	93.24	39.2	30.29	-	-	-	-	-
6:45 AM	41	93.24	39.2	30.29	-	-	-	-	-
6:15 AM	39.2	100	39.2	30.27	-	-	-	-	-
6:10 AM	39.2	100	39.2	30.27	-	-	-	-	-
6:05 AM	39.2	100	39.2	30.26	-	-	-	-	-
6:00 AM	39.2	100	39.2	30.27	-	-	-	-	-
5:15 AM	39.2	100	39.2	30.27	3	nne	-	-	-
5:10 AM	39.2	100	39.2	30.26	-	-	-	-	-
5:05 AM	39.2	100	39.2	30.26	-	-	-	-	-
5:00 AM	39.2	100	39.2	30.26	-	-	-	-	-
4:15 AM	39.2	100	39.2	30.25	-	-	-	-	-
4:10 AM	39.2	100	39.2	30.25	-	-	-	-	-
4:05 AM	39.2	100	39.2	30.25	-	-	-	-	-
4:00 AM	39.2	100	39.2	30.25	-	-	-	-	-
3:56 AM	39.02	100	39.02	30.25	-	-	-	-	-
3:55 AM	39.2	100	39.2	30.25	-	-	-	-	-
3:50 AM	39.2	100	39.2	30.25	-	-	-	-	-
3:45 AM	39.2	100	39.2	30.25	-	-	-	-	-
3:15 AM	39.2	100	39.2	30.26	-	-	-	-	-
3:10 AM	39.2	100	39.2	30.26	-	-	-	-	-
3:05 AM	39.2	100	39.2	30.26	-	-	-	-	-
3:00 AM	39.2	100	39.2	30.26	-	-	-	-	-

Time (EST)	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (in.Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
2:15 AM	41	93.24	39.2	30.25	-	-	-	-	-
2:10 AM	41	93.24	39.2	30.25	-	-	-	-	-
2:05 AM	41	93.24	39.2	30.25	-	-	-	-	-
2:00 AM	41	93.24	39.2	30.24	-	-	-	-	-
1:56 AM	41	95.89	39.92	30.25	-	-	-	-	-
1:55 AM	41	93.24	39.2	30.25	-	-	-	-	-
1:50 AM	41	93.24	39.2	30.25	-	-	-	-	-
1:45 AM	41	100	41	30.25	-	-	-	-	-
1:15 AM	41	100	41	30.23	-	-	-	-	-
1:10 AM	41	93.24	39.2	30.23	-	-	-	-	-
1:05 AM	39.2	100	39.2	30.23	-	-	-	-	-
1:00 AM	39.2	100	39.2	30.23	-	-	-	-	-
12:56 AM	41	95.89	39.92	30.23	-	-	-	-	-
12:55 AM	41	93.24	39.2	30.23	-	-	-	-	-
12:50 AM	41	93.24	39.2	30.22	-	-	-	-	-
12:45 AM	41	93.24	39.2	30.23	-	-	-	-	-
12:10 AM	42.8	93.3	41	30.23	-	-	-	-	-
12:05 AM	42.8	93.3	41	30.23	-	-	-	-	-
12:00 AM	42.8	93.3	41	30.24	-	-	-	-	-

- **Wed, Nov 20th 2019**
- **Tue, Nov 19th 2019**
- **Mon, Nov 18th 2019**
- **Sun, Nov 17th 2019**
- **Sat, Nov 16th 2019**
- **Fri, Nov 15th 2019**
- **Thu, Nov 14th 2019**
- **Wed, Nov 13th 2019**
- **Tue, Nov 12th 2019**
- **Mon, Nov 11th 2019**
- **Sun, Nov 10th 2019**
- **Sat, Nov 9th 2019**
- **Fri, Nov 8th 2019**

Past Weather Disclaimer | Note regarding "Approx. Precipitation / Rain Total"

Covington, GA Past Weather

Last 30 Days

- **Tue, Dec 3rd 2019**
- **Mon, Dec 2nd 2019**
- **Sun, Dec 1st 2019**
- **Sat, Nov 30th 2019**
- **Fri, Nov 29th 2019**
- **Thu, Nov 28th 2019**
- **Wed, Nov 27th 2019**
- **Tue, Nov 26th 2019**
- **Mon, Nov 25th 2019**
- **Sun, Nov 24th 2019**
- **Sat, Nov 23rd 2019**
- **Fri, Nov 22nd 2019**

High: 66.2ºf @2:53 PM **Low**: 42.8ºf @5:50 AM **Approx. Precipitation / Rain Total**: 0.006 in.

Time (EST)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
11:56 PM	57.92	100	57.92	30	-	-	-	0.001	-
11:55 PM	59	100	59	30	-	-	-	-	-
11:50 PM	59	100	59	30	-	-	-	-	-
11:45 PM	59	100	59	30	-	-	-	-	-
11:15 PM	59	100	59	30.01	3	wsw	-	-	-

Time (EST)	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (inHg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
11:10 PM	59	100	59	30.02	3	sw	-	-	-
11:05 PM	59	100	59	30.02	3	sw	-	-	-
11:00 PM	59	100	59	30.02	3	wsw	-	-	-
10:56 PM	59	100	59	30.02	3	sw	-	0.001	-
10:55 PM	59	100	59	30.02	-	-	-	-	-
10:50 PM	59	100	59	30.02	3	sw	-	-	-
10:45 PM	59	100	59	30.02	3	sw	-	-	-
10:15 PM	60.8	93.8	59	30.02	5	sw	-	-	-
10:10 PM	60.8	93.8	59	30.02	5	wsw	-	-	-
10:05 PM	60.8	93.8	59	30.03	4	sw	-	-	-
10:00 PM	60.8	93.8	59	30.02	5	sw	-	-	-
9:56 PM	60.08	92.58	57.92	30.02	5	sw	-	-	-
9:55 PM	60.8	87.94	57.2	30.02	5	sw	-	-	-
9:50 PM	60.8	87.94	57.2	30.02	4	wsw	-	-	-
9:45 PM	60.8	87.94	57.2	30.03	5	sw	-	-	-
9:15 PM	59	93.75	57.2	30.02	4	wsw	-	-	-
9:10 PM	60.8	87.94	57.2	30.02	4	sw	-	-	-
9:05 PM	60.8	87.94	57.2	30.02	4	sw	-	-	-
9:00 PM	60.8	87.94	57.2	30.02	4	sw	-	-	-
8:56 PM	60.08	92.58	57.92	30.02	4	wsw	-	-	-
8:55 PM	60.8	87.94	57.2	30.02	4	wsw	-	-	-
8:50 PM	60.8	87.94	57.2	30.02	3	wsw	-	-	-
8:45 PM	60.8	87.94	57.2	30.02	4	wsw	-	-	-
8:10 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
8:05 PM	59	93.75	57.2	30.02	-	-	-	-	-
8:00 PM	59	93.75	57.2	30.02	-	-	-	-	-
7:56 PM	59	96.21	57.92	30.02	-	-	-	0.001	-
7:55 PM	59	93.75	57.2	30.02	-	-	-	-	-
7:50 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
7:45 PM	59	93.75	57.2	30.03	-	-	-	-	-
6:56 PM	60.08	92.58	57.92	30.02	-	-	-	0.001	-
6:55 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
6:53 PM	60.8	87.94	57.2	30.02	-	-	-	0.001	-
6:50 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
6:45 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
6:15 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
6:10 PM	60.8	87.94	57.2	30.03	-	-	-	-	-
6:05 PM	60.8	87.94	57.2	30.02	-	-	-	-	-

Time (EDT)	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (inHg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
6:00 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
5:56 PM	60.08	89.63	57.02	30.02	-	-	-	0.001	-
5:55 PM	60.8	87.94	57.2	30.02	-	-	-	-	-
5:50 PM	60.8	87.94	57.2	30.01	-	-	-	-	-
5:45 PM	60.8	87.94	57.2	30.01	3	ssw	-	-	-
5:15 PM	62.6	77.33	55.4	30.01	6	sw	-	-	-
5:10 PM	62.6	77.33	55.4	30.01	6	ssw	-	-	-
5:05 PM	62.6	77.33	55.4	30.01	7	s	-	-	-
5:00 PM	64.4	72.6	55.4	30.01	6	ssw	-	-	-
4:56 PM	64.04	72.57	55.04	30.01	6	ssw	-	-	-
4:55 PM	64.4	72.6	55.4	30.01	6	ssw	-	-	-
4:50 PM	64.4	72.6	55.4	30.01	7	ssw	-	-	-
4:45 PM	64.4	72.6	55.4	30.01	7	ssw	-	-	-
4:15 PM	64.4	72.6	55.4	30.02	7	ssw	-	-	-
4:10 PM	64.4	72.6	55.4	30.02	7	ssw	-	-	-
4:05 PM	64.4	72.6	55.4	30.02	7	ssw	-	-	-
4:00 PM	64.4	72.6	55.4	30.02	7	ssw	-	-	-
3:56 PM	64.94	70.32	55.04	30.02	8	ssw	-	-	-
3:55 PM	64.4	72.6	55.4	30.02	8	ssw	-	-	-
3:50 PM	64.4	72.6	55.4	30.02	8	sw	-	-	-
3:45 PM	66.2	68.2	55.4	30.01	9	wsw	-	-	-
3:15 PM	66.2	68.2	55.4	30.02	11	sw	-	-	-
3:10 PM	66.2	68.2	55.4	30.02	8	sw	-	-	-
3:05 PM	66.2	68.2	55.4	30.02	9	sw	-	-	-
3:00 PM	66.2	68.2	55.4	30.02	7	wsw	-	-	-
2:56 PM	66.02	67.74	55.04	30.02	7	wsw	-	-	-
2:55 PM	66.2	68.2	55.4	30.02	7	w	-	-	-
2:53 PM	66.2	68.2	55.4	30.02	6	w	-	-	-
2:50 PM	66.2	68.2	55.4	30.02	8	wsw	-	-	-
2:45 PM	66.2	68.2	55.4	30.02	8	wsw	-	-	-
2:10 PM	66.2	63.87	53.6	30.03	4	wsw	-	-	-
2:05 PM	66.2	59.79	51.8	30.03	6	ssw	-	-	-
2:00 PM	64.4	63.64	51.8	30.03	6	sw	-	-	-
1:15 PM	64.4	63.64	51.8	30.04	4	sw	-	-	-
1:10 PM	64.4	63.64	51.8	30.04	5	wsw	-	-	-
1:05 PM	64.4	63.64	51.8	30.05	7	sw	-	-	-
1:00 PM	64.4	63.64	51.8	30.05	6	wsw	-	-	-
12:56 PM	64.04	62.76	51.08	30.05	5	w	-	-	-

Time	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (inHg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
12:55 PM	64.4	63.64	51.8	30.06	4	wsw	-	-	-
12:50 PM	64.4	63.64	51.8	30.06	4	wsw	-	-	-
12:45 PM	64.4	63.64	51.8	30.05	4	wsw	-	-	-
12:15 PM	62.6	67.79	51.8	30.07	4	wsw	-	-	-
12:10 PM	62.6	63.42	50	30.08	5	sw	-	-	-
12:05 PM	60.8	67.57	50	30.08	4	wsw	-	-	-
12:00 PM	60.8	67.57	50	30.09	5	w	-	-	-
11:56 AM	60.98	67.15	50	30.09	5	wsw	-	-	-
11:55 AM	60.8	67.57	50	30.09	5	wsw	-	-	-
11:50 AM	60.8	67.57	50	30.09	6	wsw	-	-	-
11:45 AM	60.8	67.57	50	30.1	5	wsw	-	-	-
11:15 AM	60.8	63.18	48.2	30.1	5	wsw	-	-	-
11:10 AM	60.8	63.18	48.2	30.1	7	sw	-	-	-
11:05 AM	60.8	63.18	48.2	30.1	7	sw	-	-	-
11:00 AM	59	67.36	48.2	30.11	7	sw	-	-	-
10:56 AM	57.92	71.93	48.92	30.11	7	sw	-	0.001	-
10:55 AM	57.2	71.85	48.2	30.11	7	wsw	-	-	-
10:50 AM	57.2	71.85	48.2	30.11	7	wsw	-	-	-
10:45 AM	57.2	71.85	48.2	30.12	6	wsw	-	-	-
10:15 AM	57.2	71.85	48.2	30.12	7	sw	-	-	-
10:10 AM	57.2	67.15	46.4	30.12	6	ssw	-	-	-
10:05 AM	55.4	71.66	46.4	30.11	6	ssw	-	-	-
10:00 AM	57.2	67.15	46.4	30.12	5	wsw	-	-	-
9:56 AM	57.02	68.98	46.94	30.11	5	wsw	-	-	-
9:55 AM	57.2	67.15	46.4	30.11	5	wsw	-	-	-
9:50 AM	55.4	71.66	46.4	30.12	5	sw	-	-	-
9:45 AM	55.4	71.66	46.4	30.12	5	sw	-	-	-
9:10 AM	51.8	81.75	46.4	30.13	4	w	-	-	-
9:05 AM	51.8	81.75	46.4	30.11	3	s	-	-	-
9:00 AM	51.8	81.75	46.4	30.13	-	-	-	-	-
8:56 AM	51.98	80.11	46.04	30.12	3	w	-	0.001	-
8:55 AM	51.8	81.75	46.4	30.12	4	w	-	-	-
8:50 AM	51.8	81.75	46.4	30.12	3	w	-	-	-
8:45 AM	51.8	81.75	46.4	30.1	3	sse	-	-	-
8:15 AM	51.8	76.35	44.6	30.13	5	wnw	-	-	-
8:10 AM	50	81.61	44.6	30.11	3	w	-	-	-
8:05 AM	50	81.61	44.6	30.11	4	wsw	-	-	-
8:00 AM	51.8	76.35	44.6	30.11	4	ssw	-	-	-

Time (EST)	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (in Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
7:56 AM	51.08	76.81	44.06	30.12	3	w	-	-	-
7:55 AM	51.8	76.35	44.6	30.12	3	w	-	-	-
7:50 AM	50	81.61	44.6	30.11	4	w	-	-	-
7:45 AM	50	81.61	44.6	30.12	5	wsw	-	-	-
7:10 AM	48.2	87.28	44.6	30.11	4	w	-	-	-
7:05 AM	48.2	87.28	44.6	30.09	3	sse	-	-	-
7:00 AM	48.2	87.28	44.6	30.1	3	ssw	-	-	-
6:56 AM	48.02	86.08	44.06	30.11	3	-	-	-	-
6:55 AM	48.2	87.28	44.6	30.11	3	wnw	-	-	-
6:50 AM	48.2	87.28	44.6	30.11	3	nw	-	-	-
6:45 AM	48.2	87.28	44.6	30.1	6	sw	-	-	-
6:15 AM	42.8	100	42.8	30.11	-	-	-	-	-
6:10 AM	42.8	100	42.8	30.11	-	-	-	-	-
6:05 AM	42.8	100	42.8	30.11	-	-	-	-	-
6:00 AM	42.8	100	42.8	30.11	-	-	-	-	-
5:56 AM	42.98	100	42.98	30.12	-	-	-	-	-
5:55 AM	42.8	100	42.8	30.12	-	-	-	-	-
5:50 AM	42.8	100	42.8	30.12	-	-	-	-	-
5:45 AM	42.8	100	42.8	30.12	-	-	-	-	-
4:10 AM	44.6	100	44.6	30.12	-	-	-	-	-
4:05 AM	44.6	100	44.6	30.11	-	-	-	-	-
4:00 AM	44.6	100	44.6	30.11	-	-	-	-	-
3:56 AM	46.04	95.99	44.96	30.11	-	-	-	-	-
3:55 AM	46.4	93.4	44.6	30.11	-	-	-	-	-
3:50 AM	46.4	93.4	44.6	30.11	-	-	-	-	-
3:45 AM	46.4	93.4	44.6	30.11	-	-	-	-	-
3:10 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
3:05 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
3:00 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
2:56 AM	46.94	92.78	44.96	30.13	-	-	-	-	-
2:55 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
2:50 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
2:45 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
2:10 AM	46.4	93.4	44.6	30.14	-	-	-	-	-
2:05 AM	46.4	93.4	44.6	30.14	-	-	-	-	-
2:00 AM	46.4	93.4	44.6	30.14	-	-	-	-	-
1:56 AM	46.94	92.78	44.96	30.15	-	-	-	-	-
1:55 AM	46.4	93.4	44.6	30.15	-	-	-	-	-

Time (EST)	Temp. (ºF)	Humidity (%)	Dew Point (ºf)	Barometer (in.)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
1:50 AM	46.4	93.4	44.6	30.13	-	-	-	-	-
1:45 AM	46.4	93.4	44.6	30.14	-	-	-	-	-
1:10 AM	46.4	93.4	44.6	30.14	-	-	-	-	-
1:05 AM	46.4	93.4	44.6	30.14	-	-	-	-	-
1:00 AM	46.4	93.4	44.6	30.15	-	-	-	-	-
12:56 AM	48.02	86.08	44.06	30.15	-	-	-	-	-
12:55 AM	48.2	87.28	44.6	30.15	-	-	-	-	-
12:50 AM	46.4	93.4	44.6	30.15	-	-	-	-	-
12:45 AM	46.4	93.4	44.6	30.15	-	-	-	-	-
12:10 AM	46.4	93.4	44.6	30.16	-	-	-	-	-
12:05 AM	46.4	93.4	44.6	30.17	-	-	-	-	-
12:00 AM	46.4	93.4	44.6	30.17	-	-	-	-	-

- **Thu, Nov 21st 2019**
- **Wed, Nov 20th 2019**
- **Tue, Nov 19th 2019**
- **Mon, Nov 18th 2019**
- **Sun, Nov 17th 2019**
- **Sat, Nov 16th 2019**
- **Fri, Nov 15th 2019**
- **Thu, Nov 14th 2019**
- **Wed, Nov 13th 2019**
- **Tue, Nov 12th 2019**
- **Mon, Nov 11th 2019**
- **Sun, Nov 10th 2019**
- **Sat, Nov 9th 2019**
- **Fri, Nov 8th 2019**

Past Weather Disclaimer | Note regarding "Approx. Precipitation / Rain Total"

Currently

36 ºF

Fair

29.96in Barometer

73% Humidity

West 10.4mph Wind

☰ Covington, GA Menu

Home (https://www.localconditions.com) / Local Weather & Traffic (https://www.localconditions.com/local-weather.php) / Georgia (https://www.localconditions.com/us/weather/georgia/) / Covington (https://www.localconditions.com/weather-covington-georgia/30014/) / Past Weather

Covington, GA Past Weather

Last 30 Days

▸ **Tue, Dec 10th 2019**

▸ **Mon, Dec 9th 2019**

▸ **Sun, Dec 8th 2019**

▸ **Sat, Dec 7th 2019**

▸ **Fri, Dec 6th 2019**

▸ **Thu, Dec 5th 2019**

▾ **Wed, Dec 4th 2019**

High: 57.92ºf @1:56 PM **Low**: 33.8ºf @6:05 AM **Approx. Precipitation / Rain Total**: in.

Time (EST)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
11:56 PM	48.02	58.06	33.98	29.97	4	w	-	-	-
11:55 PM	48.2	57.25	33.8	29.97	5	w	-	-	-
11:50 PM	48.2	57.25	33.8	29.97	6	w	-	-	-
11:45 PM	48.2	57.25	33.8	29.96	6	w	-	-	-
10:56 PM	48.92	56.14	33.98	29.95	6	w	-	-	-
10:55 PM	48.2	57.25	33.8	29.95	6	w	-	-	-
10:50 PM	48.2	57.25	33.8	29.95	7	w	-	-	-
10:45 PM	48.2	57.25	33.8	29.95	7	w	-	-	-
10:10 PM	48.2	57.25	33.8	29.94	6	w	-	-	-
10:05 PM	48.2	57.25	33.8	29.94	6	w	-	-	-
10:00 PM	48.2	57.25	33.8	29.94	8	w	-	-	-

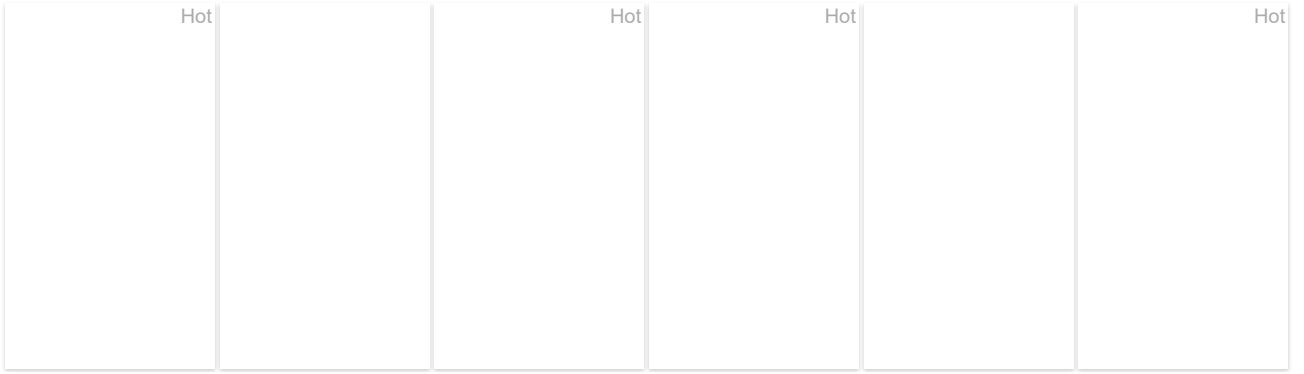
Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°F)	Barometer (in Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
9:56 PM	48.92	54.15	33.08	29.96	5	w	-	-	-
9:55 PM	48.2	57.25	33.8	29.94	6	w	-	-	-
9:50 PM	48.2	57.25	33.8	29.94	7	w	-	-	-
9:45 PM	48.2	57.25	33.8	29.94	6	w	-	-	-
9:15 PM	48.2	57.25	33.8	29.94	6	w	-	-	-
9:10 PM	48.2	57.25	33.8	29.94	7	w	-	-	-
9:05 PM	48.2	57.25	33.8	29.93	9	w	-	-	-
9:00 PM	48.2	57.25	33.8	29.94	6	w	-	-	-
8:15 PM	48.2	57.25	33.8	29.93	6	w	-	-	-
8:10 PM	48.2	57.25	33.8	29.93	6	w	-	-	-
8:05 PM	48.2	57.25	33.8	29.93	5	w	-	-	-
8:00 PM	48.2	57.25	33.8	29.93	5	w	-	-	-
7:56 PM	48.92	54.15	33.08	29.93	5	w	-	-	-
7:55 PM	48.2	57.25	33.8	29.92	6	w	-	-	-
7:50 PM	48.2	57.25	33.8	29.92	6	w	-	-	-
7:45 PM	48.2	57.25	33.8	29.92	6	w	-	-	-
7:15 PM	48.2	49.51	30.2	29.92	3	w	-	-	-
7:10 PM	50	46.29	30.2	29.92	3	w	-	-	-
7:05 PM	51.8	43.31	30.2	29.92	3	w	-	-	-
7:00 PM	51.8	43.31	30.2	29.92	4	w	-	-	-
6:56 PM	51.08	44.15	30.02	29.92	5	w	-	-	-
6:55 PM	51.8	43.31	30.2	29.92	5	w	-	-	-
6:50 PM	51.8	43.31	30.2	29.92	5	w	-	-	-
6:45 PM	51.8	43.31	30.2	29.92	5	w	-	-	-
6:15 PM	51.8	43.31	30.2	29.91	4	wnw	-	-	-
6:10 PM	53.6	40.54	30.2	29.91	4	wnw	-	-	-
6:05 PM	53.6	40.54	30.2	29.91	5	w	-	-	-
6:00 PM	53.6	40.54	30.2	29.9	4	w	-	-	-
5:56 PM	53.06	41.05	30.02	29.9	4	w	-	-	-
5:55 PM	53.6	40.54	30.2	29.9	4	w	-	-	-
5:50 PM	53.6	40.54	30.2	29.9	4	w	-	-	-
5:45 PM	53.6	40.54	30.2	29.89	5	w	-	-	-
5:10 PM	55.4	35.27	28.4	29.88	5	w	-	-	-
5:05 PM	55.4	35.27	28.4	29.88	8	w	-	-	-
5:00 PM	55.4	35.27	28.4	29.88	7	w	-	-	-
4:56 PM	55.94	35.36	28.94	29.88	10	w	15	-	-
4:55 PM	55.4	35.27	28.4	29.88	7	w	-	-	-
4:50 PM	55.4	35.27	28.4	29.88	6	w	-	-	-

Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°f)	Barometer (inHg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
4:55 PM	57.4	35.27	28.4	29.86	6	w	-	-	-
4:00 PM	57.2	35.58	30.2	29.86	6	w	-	-	-
3:56 PM	57.02	35.55	30.02	29.86	8	w	-	-	-
3:55 PM	57.2	35.58	30.2	29.86	9	w	-	-	-
3:50 PM	57.2	33.05	28.4	29.86	9	wnw	-	-	-
3:45 PM	57.2	35.58	30.2	29.86	9	w	16	-	-
3:10 PM	57.2	33.05	28.4	29.86	9	w	15	-	-
3:05 PM	57.2	33.05	28.4	29.86	12	w	19	-	-
3:00 PM	57.2	33.05	28.4	29.85	10	wnw	-	-	-
2:10 PM	57.2	35.58	30.2	29.85	7	w	-	-	-
2:05 PM	57.2	35.58	30.2	29.85	8	w	-	-	-
2:00 PM	57.2	33.05	28.4	29.85	5	wnw	-	-	-
1:56 PM	57.92	34.41	30.02	29.85	7	wnw	-	-	-
1:55 PM	57.2	35.58	30.2	29.85	4	w	-	-	-
1:50 PM	57.2	33.05	28.4	29.86	9	wnw	-	-	-
1:45 PM	57.2	33.05	28.4	29.86	8	wnw	-	-	-
1:10 PM	55.4	37.97	30.2	29.86	12	w	-	-	-
1:05 PM	55.4	40.84	32	29.86	10	w	-	-	-
1:00 PM	55.4	40.84	32	29.86	9	w	-	-	-
12:56 PM	55.04	41.38	32	29.86	13	w	19	-	-
12:55 PM	55.4	40.84	32	29.87	12	w	19	-	-
12:50 PM	55.4	40.84	32	29.86	8	w	-	-	-
12:45 PM	55.4	40.84	32	29.87	9	w	-	-	-
12:10 PM	53.6	43.61	32	29.88	8	w	-	-	-
12:05 PM	53.6	43.61	32	29.88	10	wnw	-	-	-
12:00 PM	53.6	40.54	30.2	29.89	8	w	-	-	-
11:56 AM	53.06	44.48	32	29.89	12	w	16	-	-
11:55 AM	53.6	43.61	32	29.89	9	w	-	-	-
11:50 AM	53.6	43.61	32	29.89	8	w	-	-	-
11:45 AM	53.6	43.61	32	29.89	8	w	-	-	-
11:10 AM	51.8	46.59	32	29.89	10	w	-	-	-
11:05 AM	51.8	46.59	32	29.89	11	w	-	-	-
11:00 AM	50	53.53	33.8	29.89	8	w	-	-	-
10:56 AM	50	49.8	32	29.89	6	-	14	-	-
10:55 AM	50	49.8	32	29.89	6	w	-	-	-
10:50 AM	48.2	53.26	32	29.89	9	wnw	-	-	-
10:45 AM	48.2	57.25	33.8	29.88	7	w	-	-	-
9:56 AM	44.96	60.19	32	29.89	9	w	14	-	-

Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°f)	Barometer (in Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
9:55 AM	44.6	61.02	32	29.89	6	w	-	-	-
9:50 AM	44.6	61.02	32	29.89	6	w	-	-	-
9:45 AM	44.6	61.02	32	29.89	7	w	-	-	-
8:15 AM	37.4	74.96	30.2	29.87	6	w	-	-	-
8:10 AM	37.4	74.96	30.2	29.88	6	w	-	-	-
8:05 AM	37.4	74.96	30.2	29.87	7	w	-	-	-
8:00 AM	37.4	74.96	30.2	29.87	7	w	-	-	-
7:56 AM	35.96	78.77	30.02	29.87	7	w	-	-	-
7:55 AM	35.6	80.49	30.2	29.87	7	w	-	-	-
7:50 AM	35.6	80.49	30.2	29.87	7	w	-	-	-
7:45 AM	35.6	80.49	30.2	29.86	5	w	-	-	-
7:15 AM	33.8	86.48	30.2	29.86	4	w	-	-	-
7:10 AM	35.6	80.49	30.2	29.85	5	w	-	-	-
7:05 AM	35.6	80.49	30.2	29.85	4	w	-	-	-
7:00 AM	35.6	80.49	30.2	29.85	5	w	-	-	-
6:15 AM	33.8	86.48	30.2	29.84	4	w	-	-	-
6:10 AM	33.8	86.48	30.2	29.83	4	w	-	-	-
6:05 AM	33.8	86.48	30.2	29.83	5	w	-	-	-
6:00 AM	35.6	80.49	30.2	29.83	5	w	-	-	-
5:56 AM	35.06	81.63	30.02	29.83	5	w	-	-	-
5:55 AM	35.6	80.49	30.2	29.83	5	w	-	-	-
5:50 AM	35.6	80.49	30.2	29.83	4	w	-	-	-
5:45 AM	35.6	80.49	30.2	29.83	6	w	-	-	-
5:15 AM	35.6	80.49	30.2	29.82	5	w	-	-	-
5:10 AM	35.6	80.49	30.2	29.83	6	w	-	-	-
5:05 AM	35.6	80.49	30.2	29.83	5	w	-	-	-
5:00 AM	35.6	80.49	30.2	29.83	5	w	-	-	-
4:56 AM	35.06	81.63	30.02	29.83	5	-	-	-	-
4:55 AM	35.6	80.49	30.2	29.83	5	w	-	-	-
4:50 AM	35.6	80.49	30.2	29.83	7	w	-	-	-
4:45 AM	35.6	80.49	30.2	29.83	6	w	-	-	-
4:00 AM	35.6	80.49	30.2	29.84	7	w	-	-	-
3:56 AM	35.96	78.77	30.02	29.84	8	w	-	-	-
3:55 AM	35.6	80.49	30.2	29.84	7	w	-	-	-
3:50 AM	35.6	80.49	30.2	29.84	6	w	-	-	-
3:45 AM	37.4	74.96	30.2	29.84	6	w	-	-	-
3:15 AM	37.4	74.96	30.2	29.84	6	wnw	-	-	-
3:10 AM	37.4	74.96	30.2	29.83	7	w	-	-	-

Time (EST)	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (in.Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
3:05 AM	37.4	74.96	30.2	29.83	7	w	-	-	-
3:00 AM	37.4	74.96	30.2	29.83	7	w	-	-	-
1:56 AM	37.04	75.48	30.02	29.84	8	w	-	-	-
1:55 AM	37.4	74.96	30.2	29.84	7	w	-	-	-
1:50 AM	37.4	74.96	30.2	29.84	7	w	-	-	-
1:45 AM	37.4	74.96	30.2	29.84	7	w	-	-	-
1:15 AM	37.4	74.96	30.2	29.84	7	w	-	-	-
1:10 AM	37.4	74.96	30.2	29.84	8	w	-	-	-
1:05 AM	37.4	74.96	30.2	29.84	7	w	-	-	-
1:00 AM	37.4	74.96	30.2	29.84	6	w	-	-	-
12:56 AM	37.04	78.29	30.92	29.84	7	w	-	-	-
12:55 AM	37.4	74.96	30.2	29.84	6	w	-	-	-
12:50 AM	37.4	74.96	30.2	29.84	8	w	-	-	-
12:45 AM	37.4	74.96	30.2	29.84	6	w	-	-	-
12:15 AM	37.4	74.96	30.2	29.84	8	w	-	-	-
12:10 AM	37.4	74.96	30.2	29.85	8	w	-	-	-
12:05 AM	37.4	74.96	30.2	29.85	10	w	-	-	-
12:00 AM	37.4	74.96	30.2	29.85	8	w	-	-	-

- **Tue, Dec 3rd 2019**
- **Mon, Dec 2nd 2019**
- **Sun, Dec 1st 2019**
- **Sat, Nov 30th 2019**
- **Fri, Nov 29th 2019**
- **Thu, Nov 28th 2019**
- **Wed, Nov 27th 2019**
- **Tue, Nov 26th 2019**
- **Mon, Nov 25th 2019**
- **Sun, Nov 24th 2019**
- **Sat, Nov 23rd 2019**
- **Fri, Nov 22nd 2019**
- **Thu, Nov 21st 2019**
- **Wed, Nov 20th 2019**
- **Tue, Nov 19th 2019**
- **Mon, Nov 18th 2019**
- **Sun, Nov 17th 2019**



Covington, GA Past Weather

Last 30 Days

Tue, Dec 10th 2019

Mon, Dec 9th 2019

Sun, Dec 8th 2019

Sat, Dec 7th 2019

Fri, Dec 6th 2019

Thu, Dec 5th 2019

High: 64.4ºf @3:10 PM **Low**: 37.4ºf @7:10 AM **Approx. Precipitation / Rain Total**: in.

Time (EST)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (inHG)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
11:56 PM	42.08	67.2	32	30.18	-	-	-	-	-
11:55 PM	42.8	65.37	32	30.18	-	-	-	-	-
11:50 PM	41	75.32	33.8	30.18	-	-	-	-	-
11:45 PM	42.8	70.27	33.8	30.18	-	-	-	-	-
11:15 PM	42.8	70.27	33.8	30.17	-	-	-	-	-
11:10 PM	41	75.32	33.8	30.17	-	-	-	-	-
11:05 PM	41	80.92	35.6	30.17	3	e	-	-	-
11:00 PM	42.8	75.5	35.6	30.17	-	-	-	-	-
10:56 PM	41	75.86	33.98	30.17	-	-	-	-	-
10:55 PM	41	75.32	33.8	30.17	-	-	-	-	-
10:50 PM	42.8	70.27	33.8	30.18	-	-	-	-	-
10:45 PM	42.8	70.27	33.8	30.18	-	-	-	-	-

Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°F)	Barometer (in)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
10:15 PM	42.8	70.27	33.8	30.17	-	-	-	-	-
10:10 PM	41	75.32	33.8	30.17	-	-	-	-	-
10:05 PM	41	75.32	33.8	30.17	-	-	-	-	-
10:00 PM	41	75.32	33.8	30.17	-	-	-	-	-
9:56 PM	39.92	76.31	33.08	30.17	-	-	-	-	-
9:55 PM	39.2	80.78	33.8	30.17	-	-	-	-	-
9:50 PM	39.2	80.78	33.8	30.17	-	-	-	-	-
9:45 PM	39.2	80.78	33.8	30.16	-	-	-	-	-
9:15 PM	39.2	69.85	30.2	30.16	-	-	-	-	-
9:10 PM	39.2	75.14	32	30.16	-	-	-	-	-
9:05 PM	39.2	80.78	33.8	30.16	-	-	-	-	-
9:00 PM	39.2	75.14	32	30.16	-	-	-	-	-
8:56 PM	41	70.06	32	30.16	-	-	-	-	-
8:55 PM	41	70.06	32	30.16	-	-	-	-	-
8:50 PM	41	70.06	32	30.16	-	-	-	-	-
8:45 PM	42.8	65.37	32	30.16	-	-	-	-	-
8:15 PM	42.8	65.37	32	30.15	-	-	-	-	-
8:10 PM	42.8	65.37	32	30.15	-	-	-	-	-
8:05 PM	44.6	61.02	32	30.15	-	-	-	-	-
8:00 PM	44.6	61.02	32	30.15	-	-	-	-	-
7:56 PM	44.06	62.29	32	30.15	-	-	-	-	-
7:55 PM	44.6	61.02	32	30.15	-	-	-	-	-
7:50 PM	44.6	61.02	32	30.15	-	-	-	-	-
7:45 PM	44.6	61.02	32	30.15	-	-	-	-	-
7:15 PM	44.6	65.6	33.8	30.15	-	-	-	-	-
7:10 PM	44.6	65.6	33.8	30.15	-	-	-	-	-
7:05 PM	46.4	61.27	33.8	30.15	-	-	-	-	-
7:00 PM	46.4	56.99	32	30.15	-	-	-	-	-
6:56 PM	46.94	55.84	32	30.14	-	-	-	-	-
6:55 PM	48.2	49.51	30.2	30.14	-	-	-	-	-
6:50 PM	48.2	53.26	32	30.14	-	-	-	-	-
6:45 PM	48.2	53.26	32	30.14	-	-	-	-	-
6:15 PM	51.8	43.31	30.2	30.14	-	-	-	-	-
6:10 PM	51.8	43.31	30.2	30.14	-	-	-	-	-
6:05 PM	51.8	40.24	28.4	30.14	-	-	-	-	-
6:00 PM	53.6	37.66	28.4	30.13	-	-	-	-	-
5:56 PM	53.06	37.85	28.04	30.13	-	-	-	-	-
5:55 PM	53.6	37.66	28.4	30.13	-	-	-	-	-

Time (EST)	Temp. (°F)	Humidity (%)	Dew Point (°f)	Barometer (in)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
5:50 PM	60.8	26.99	26.6	30.12	-	-	-	-	-
5:45 PM	53.6	37.66	28.4	30.13	-	-	-	-	-
5:15 PM	60.8	26.99	26.6	30.12	-	-	-	-	-
5:10 PM	60.8	26.99	26.6	30.12	-	-	-	-	-
5:05 PM	60.8	26.99	26.6	30.12	-	-	-	-	-
5:00 PM	60.8	26.99	26.6	30.12	3	w	-	-	-
4:56 PM	60.98	27.22	26.96	30.12	3	w	-	-	-
4:55 PM	60.8	26.99	26.6	30.12	4	w	-	-	-
4:50 PM	60.8	26.99	26.6	30.12	-	-	-	-	-
4:45 PM	62.6	25.32	26.6	30.12	-	-	-	-	-
4:15 PM	62.6	23.5	24.8	30.12	3	w	-	-	-
4:10 PM	62.6	23.5	24.8	30.11	-	-	-	-	-
4:05 PM	62.6	25.32	26.6	30.11	3	w	-	-	-
4:00 PM	62.6	23.5	24.8	30.11	3	w	-	-	-
3:56 PM	62.96	24.45	26.06	30.11	4	-	-	-	-
3:55 PM	62.6	25.32	26.6	30.11	5	w	-	-	-
3:50 PM	62.6	23.5	24.8	30.11	6	wsw	-	-	-
3:45 PM	62.6	23.5	24.8	30.11	4	sw	-	-	-
3:15 PM	62.6	25.32	26.6	30.11	3	wnw	-	-	-
3:10 PM	64.4	23.78	26.6	30.11	6	w	-	-	-
3:05 PM	62.6	23.5	24.8	30.11	3	w	-	-	-
3:00 PM	62.6	23.5	24.8	30.11	3	sw	-	-	-
2:56 PM	62.96	23.38	24.98	30.11	6	wsw	-	-	-
2:55 PM	64.4	22.06	24.8	30.11	6	wsw	-	-	-
2:50 PM	62.6	23.5	24.8	30.11	5	w	-	-	-
2:45 PM	62.6	23.5	24.8	30.11	3	n	-	-	-
2:15 PM	62.6	23.5	24.8	30.11	3	sw	-	-	-
2:10 PM	62.6	25.32	26.6	30.11	4	w	-	-	-
2:05 PM	62.6	23.5	24.8	30.11	6	wsw	-	-	-
2:00 PM	62.6	23.5	24.8	30.11	-	-	-	-	-
1:56 PM	62.96	23.38	24.98	30.11	-	-	-	-	-
1:55 PM	62.6	23.5	24.8	30.11	3	wsw	-	-	-
1:50 PM	62.6	25.32	26.6	30.11	6	wnw	-	-	-
1:45 PM	62.6	25.32	26.6	30.11	3	wnw	-	-	-
1:15 PM	62.6	25.32	26.6	30.12	3	nnw	-	-	-
1:10 PM	62.6	25.32	26.6	30.12	5	wnw	-	-	-
1:05 PM	62.6	25.32	26.6	30.12	7	wsw	-	-	-
1:00 PM	62.6	23.5	24.8	30.12	4	wsw	-	-	-

Time	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (in)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
12:56 PM	62.06	25.24	26.06	30.12	-	-	-	-	-
12:55 PM	62.6	25.32	26.6	30.13	-	-	-	-	-
12:50 PM	62.6	25.32	26.6	30.13	6	w	-	-	-
12:45 PM	60.8	26.99	26.6	30.13	4	nnw	-	-	-
12:10 PM	59	30.99	28.4	30.14	7	w	-	-	-
12:05 PM	59	30.99	28.4	30.14	4	nw	-	-	-
12:00 PM	57.2	33.05	28.4	30.14	5	w	-	-	-
11:56 AM	57.92	31.73	28.04	30.14	-	-	-	-	-
11:55 AM	57.2	33.05	28.4	30.14	3	wsw	-	-	-
11:50 AM	57.2	33.05	28.4	30.14	6	w	-	-	-
11:45 AM	59	30.99	28.4	30.14	4	nw	-	-	-
11:15 AM	57.2	33.05	28.4	30.15	5	w	-	-	-
11:10 AM	57.2	33.05	28.4	30.15	4	nnw	-	-	-
11:05 AM	57.2	33.05	28.4	30.15	3	wnw	-	-	-
11:00 AM	55.4	37.97	30.2	30.15	6	w	-	-	-
10:56 AM	55.94	35.36	28.94	30.15	5	-	-	-	-
10:55 AM	55.4	35.27	28.4	30.16	5	wnw	-	-	-
10:50 AM	55.4	37.97	30.2	30.15	7	w	-	-	-
10:45 AM	55.4	37.97	30.2	30.15	3	wnw	-	-	-
10:10 AM	53.6	40.54	30.2	30.14	3	w	-	-	-
10:05 AM	51.8	43.31	30.2	30.14	5	wnw	-	-	-
10:00 AM	51.8	43.31	30.2	30.14	7	wnw	-	-	-
9:56 AM	51.98	42.71	30.02	30.14	5	w	-	-	-
9:55 AM	51.8	43.31	30.2	30.14	5	w	-	-	-
9:50 AM	51.8	43.31	30.2	30.13	6	w	-	-	-
9:45 AM	51.8	43.31	30.2	30.13	3	wnw	-	-	-
9:15 AM	48.2	53.26	32	30.11	4	w	-	-	-
9:10 AM	48.2	49.51	30.2	30.11	5	w	-	-	-
9:05 AM	48.2	53.26	32	30.11	5	w	-	-	-
9:00 AM	46.4	52.98	30.2	30.1	5	w	-	-	-
8:56 AM	46.04	55.3	30.92	30.1	5	w	-	-	-
8:55 AM	46.4	52.98	30.2	30.1	4	w	-	-	-
8:50 AM	46.4	52.98	30.2	30.1	5	wsw	-	-	-
8:45 AM	46.4	56.99	32	30.09	5	w	-	-	-
8:10 AM	42.8	65.37	32	30.08	-	-	-	-	-
8:05 AM	42.8	65.37	32	30.08	3	w	-	-	-
8:00 AM	42.8	65.37	32	30.08	3	w	-	-	-
7:56 AM	41	73.18	33.08	30.08	-	-	-	-	-

Time	Temp. (°f)	Humidity (%)	Dew Point (°f)	Barometer (in.)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
7:55 AM	41	72.32	32	30.07	-	-	-	-	-
7:50 AM	42.8	65.37	32	30.07	-	-	-	-	-
7:45 AM	42.8	65.37	32	30.07	-	-	-	-	-
7:10 AM	37.4	74.96	30.2	30.06	3	sw	-	-	-
7:05 AM	39.2	69.85	30.2	30.06	-	-	-	-	-
7:00 AM	39.2	69.85	30.2	30.05	-	-	-	-	-
6:15 AM	42.8	60.77	30.2	30.03	-	-	-	-	-
6:10 AM	42.8	60.77	30.2	30.03	3	wnw	-	-	-
6:05 AM	42.8	60.77	30.2	30.02	3	w	-	-	-
6:00 AM	42.8	60.77	30.2	30.02	4	w	-	-	-
5:15 AM	42.8	60.77	30.2	30.01	6	w	-	-	-
5:10 AM	42.8	60.77	30.2	30.01	5	w	-	-	-
5:05 AM	44.6	56.72	30.2	30.01	4	w	-	-	-
5:00 AM	44.6	56.72	30.2	30.01	5	w	-	-	-
4:56 AM	44.06	59.62	30.92	30.02	4	w	-	-	-
4:55 AM	44.6	56.72	30.2	30.02	5	w	-	-	-
4:50 AM	44.6	56.72	30.2	30.01	5	w	-	-	-
4:45 AM	44.6	56.72	30.2	30.01	4	w	-	-	-
4:15 AM	44.6	61.02	32	30.01	3	nw	-	-	-
4:10 AM	44.6	61.02	32	30.01	3	wnw	-	-	-
4:05 AM	44.6	61.02	32	30.01	5	wnw	-	-	-
4:00 AM	44.6	61.02	32	30.01	-	-	-	-	-
3:56 AM	44.96	62.86	33.08	30.01	4	-	-	-	-
3:55 AM	44.6	65.6	33.8	30.01	4	wnw	-	-	-
3:50 AM	44.6	65.6	33.8	30.01	5	wnw	-	-	-
3:45 AM	44.6	65.6	33.8	30.01	5	w	-	-	-
3:10 AM	46.4	61.27	33.8	30	4	w	-	-	-
3:05 AM	46.4	61.27	33.8	30	6	w	-	-	-
3:00 AM	46.4	61.27	33.8	-	6	w	-	-	-
2:56 AM	46.04	60.34	33.08	29.99	6	-	-	-	-
2:55 AM	46.4	61.27	33.8	29.99	6	w	-	-	-
2:50 AM	46.4	61.27	33.8	29.99	5	w	-	-	-
2:45 AM	46.4	61.27	33.8	29.99	6	w	-	-	-
2:15 AM	46.4	61.27	33.8	29.99	5	w	-	-	-
2:10 AM	46.4	61.27	33.8	29.99	6	w	-	-	-
2:05 AM	46.4	61.27	33.8	29.99	7	w	-	-	-
2:00 AM	46.4	61.27	33.8	29.99	7	w	-	-	-
1:56 AM	46.94	60.46	33.98	29.99	6	w	-	-	-

Time (EST)	Temp. (ºf)	Humidity (%)	Dew Point (ºf)	Barometer (in.Hg)	Wind Speed (mph)	Wind Direction	Wind Gust (mph)	1hr. Precip / Rain Total (in.)	Snow Depth
1:55 AM	46.4	61.27	33.8	29.98	6	w	-	-	-
1:50 AM	46.4	61.27	33.8	29.98	6	w	-	-	-
1:45 AM	46.4	61.27	33.8	29.98	6	w	-	-	-
1:15 AM	46.4	61.27	33.8	29.98	9	w	-	-	-
1:10 AM	46.4	61.27	33.8	29.98	7	w	-	-	-
1:05 AM	46.4	61.27	33.8	29.98	7	w	-	-	-
1:00 AM	46.4	61.27	33.8	29.98	6	w	-	-	-
12:56 AM	46.94	60.46	33.98	29.98	7	w	-	-	-
12:55 AM	46.4	61.27	33.8	29.98	7	w	-	-	-
12:50 AM	46.4	61.27	33.8	29.98	6	w	-	-	-
12:45 AM	48.2	57.25	33.8	29.98	6	w	-	-	-
12:15 AM	48.2	57.25	33.8	29.97	5	wnw	-	-	-
12:10 AM	48.2	57.25	33.8	29.97	6	w	-	-	-
12:05 AM	48.2	57.25	33.8	29.97	6	w	-	-	-
12:00 AM	48.2	57.25	33.8	29.97	5	w	-	-	-

- **Wed, Dec 4th 2019**
- **Tue, Dec 3rd 2019**
- **Mon, Dec 2nd 2019**
- **Sun, Dec 1st 2019**
- **Sat, Nov 30th 2019**
- **Fri, Nov 29th 2019**
- **Thu, Nov 28th 2019**
- **Wed, Nov 27th 2019**
- **Tue, Nov 26th 2019**
- **Mon, Nov 25th 2019**
- **Sun, Nov 24th 2019**
- **Sat, Nov 23rd 2019**
- **Fri, Nov 22nd 2019**
- **Thu, Nov 21st 2019**
- **Wed, Nov 20th 2019**
- **Tue, Nov 19th 2019**
- **Mon, Nov 18th 2019**
- **Sun, Nov 17th 2019**
- **Sat, Nov 16th 2019**
- **Fri, Nov 15th 2019**