From Carey Jensen <carey.jensen@bvsd.org>
Subject **New Voicemail From 5506 In Mailbox 6425**
To Rob Price <rob.price@bvsd.org>
Date June 15, 2026 3:46:32 PM MDT

Hi Rob,

I reviewed the files for BCSIS and found that there has been a lot of IAQ monitoring over the years. However, I don't believe any significant issues were identified. I managed to find two reviews conducted by Ramboll, one of which was limited to a single classroom. I've attached those reports for your review. If you'd like me to bring Ramboll on board for a comprehensive building assessment, please let me know.

Thank you.

On Mon, Jun 15, 2026 at 8:01 AM Rob Price <rob.price@bvsd.org> wrote:

> Hi Carey,
>
> For your information, please listen to Jenn's voicemail. Did we conduct a building assessment on A7 a few years ago? If so, could you send it to me?
>
> Thanks,
>
> **Rob Price**
> *Assistant Superintendent of Operational Services*
> 6500 East Arapahoe Road
> Boulder, Colorado 80303
> 720.561.6425 (office)
> 970.214.0110 (mobile)
> www.bvsd.org
>
> ---------- Forwarded message ---------
> From: **FluentStream Technologies** <noreply@fluentstream.com>
> Date: Thu, Jun 11, 2026 at 1:50 PM
> Subject: New Voicemail From 5506 In Mailbox 6425
> To: <rob.price@bvsd.org>
>
> # You Have A New Voicemail!
>
> **From:** Jennifer Barr <5506>
> **Mailbox:** 6425 - Rob Price
> **Message Length:** 96 Seconds
> **Message Time:** Thursday, 11-Jun-26 13:50:29 MDT
>
> Cheers!
> FluentStream Technologies
>
> FluentStream Technologies
> FluentStream.com • 303-GO-CLOUD • 1-877-312-6477

--
Carey Jensen, CHMM, CFM, CSP
Director of Facilities
720-561-5937 (o)
720-340-6579 (c)
The District Office will be CLOSED on Fridays 5/29/26 – 7/17/26.

"The people who manage your building have a greater impact on your health than your doctor" Joseph G. Allen and John D. Macomber

---

Attachments:

- BCSIS IAQ Room 115 Ramboll 10-2018.pdf
- VOC Ramboll Data Review BCSIS and HighPeaks.pdf

Intended for

Aaron Mikulewicz
HVAC & Environmental Manager
Boulder Valley School District

Date

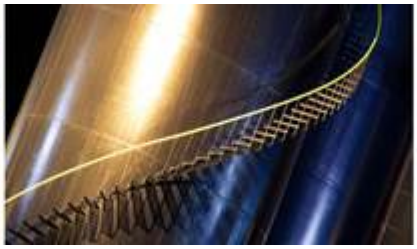
October 2018

Project Number

1690009997

Limited Indoor Air Quality and Mold Evaluation – September 21, 2018

Boulder Community School of Integrated Studies (BCSIS) Room 115


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RAMBOLL

Limited Indoor Air Quality and Mold Evaluation – September 21, 2018
BCSIS Room 115
Boulder, Colorado

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APPENDICES

Appendix A:	Data Tables
Appendix B:	Methodology & Standards & Guidelines
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ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
CO	Carbon Monoxide
CO_2	Carbon Dioxide
BCSIS	Boulder Community School of Integrated Studies
BVSD	Boulder Valley School District
IAQ	Indoor Air Quality
IEQ	Indoor Environmental Quality
lpm	liters of air per minute
NIOSH	National Institute Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
ppm	parts per million
Ramboll	Ramboll US Corporation
RH	Relative Humidity
spores/m^3	spores per cubic meter of air
USGBC	United States Green Building Council

Limited Indoor Air Quality and Mold Evaluation – September 21, 2018
BCSIS Room 115
Boulder, Colorado

EXECUTIVE SUMMARY

A Limited Indoor Environmental Quality (IEQ) and Mold Evaluation was conducted on September 21, 2018 at Boulder Valley School District (BVSD) Boulder Community School of Integrated Studies (BCSIS) Room 115 in Boulder, Boulder County, Colorado. The evaluation consisted of field observations, environmental measurements for IEQ parameters, and collection of air samples for mold. The evaluation was limited to room 115. The findings are summarized below. More detailed findings and recommendations are included in the Results, Conclusions and Recommendations sections of this report and photographs are included in Appendix D. Summary tables listing the air sampling results, laboratory reports and photographs are included in the appendices.

Visual Inspection

- The visual inspection of Room 115 identified no obvious water damage, mold growth or other factors that could affect IAQ. A rug was located in the east central portion of the classroom that may be in need of cleaning. . The remainder of the flooring was high traffic, low-pile carpet. A sink located in the northeast corner contained an untreated wooden shelf with several wet, stained cloths. Beneath the sink a small back of potting soil was unsealed. The northern wall (exterior wall) contained several closed windows and an exterior exit door along with an uninvent heating, ventilation and air conditioning (HVAC) unit solely for Room 115. The uninvent contained potted plants near the supply air diffuser. Ramboll viewed the interior elements of the uninvent (which was reported to be to be less than two years old). Interior components of the ventilation system appeared clean and well maintained. .

IEQ Measurements

Indoor air quality testing parameters included carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH).

- Indoor CO_2 concentrations were above recommended guidelines. This is not a health concern but an indicator that the amount of outside air brought in through the ventilation system should be increased.
- CO, Temperature and RH were all within recommended guidelines.

Airborne Mold Spore Sample Results

- Airborne mold spore levels in room 115 were lower indoors than outdoors in all samples. Indoor samples did have a higher percentage of *Penillium/Aspergillus* type spores compared to outdoors but overall level were low.

The following recommendations are offered for consideration:

1) Remove damp towels, move plants and other organic material from the top of the unit ventilator and keep the bag of soil sealed.

2) Verify that the throw rug is periodically cleaned.

3) Increase the amount of outside air being brought into the room through the ventilation system

1. INTRODUCTION

An Indoor Environmental Quality (IEQ) and mold evaluation was conducted on September 21, 2018 at BCSIS in Boulder, Colorado. The evaluation consisted of field observations, environmental measurements for IEQ parameters, and collection of air samples for mold. The objective was to perform an IEQ and mold evaluation at BCSIS Room 115 in response to concerns expressed by staff expressing that included runny eyes, headaches and breathing issues.

The assessment was completed by Mr. Joshua Myers, PG, Senior Consultant, with Ramboll US Corporation (Ramboll). Project oversight was provided by Mr. Robert Rottersman, MS, CIH, Principal with Ramboll. The assessment was performed at the request of BVSD.

This report is representative of observations, conditions, test data, and information obtained on the days of the assessment. The methodology for the investigation can be found in Appendix B.

2. RESULTS

Results are presented and discussed below. Laboratory reports are included in Appendix C.

2.1 Visual Assessment

A walkthrough survey of room 115 was conducted to identify conditions, which could have a negative effect on the indoor environment. Such conditions can include, odors, water damaged building materials, visible mold growth, non-functioning ventilation systems, leaking or broken plumbing lines etc.

In general, these areas were clean and free of abnormal dust accumulation on horizontal surfaces.

Areas of interest include: a sink located in the northeast corner contained an untreated wooden shelf with several wet, stained cloths. Beneath the sink a there was an unsealed bag of potting soil. The damp clothes and potting soil can be a source of odors and microbial growth, including mold spores.

The northern wall (only exterior wall in the room) contained several closed windows and an exterior exit door along with a uninvent heating, ventilation and air conditioning (HVAC) unit solely for Room 115. The uninvent contained potted plants near the supply air discharge. Damp soil and organic debris in potted plants can be a source of mold.

Ramboll viewed the interior elements of the uninvent. The units were relatively new and appeared well maintained with no indications of standing water, mold or other IAQ risk factors.

A rug was located in the east central portion of the classroom that appeared to be in need of cleaning. Throw rugs tend to have deeper pile than carpet in the school and can entrap dust and mold spores from foot traffic. The remainder of the flooring was high traffic, low-pile carpet.

The outside air intake for the room was at ground level above a concrete surface. There were no obvious contaminants located near the outside air intake for this classroom.

2.2 Air Quality Measurements

2.2.1 Temperature & Relative Humidity

Temperature and RH are physical conditions, which can affect perceptions of indoor air quality by affecting human comfort. Temperature and RH measurements were collected in five (5) indoor locations within Room 115. Four (4) other interior locations were used for measurements to compare with Room 115 physical conditions.

Indoor temperatures on the day of the survey ranged from 71 to 75 degrees ^{o}F. Indoor temperature measurements made on the day of the survey were within recommended levels for comfort. Results are presented in Table I located in Appendix A.

Indoor RH levels ranged from 37 to 48%. The RH levels measured inside the building were typical for the time of year. Results are presented in Table I.

2.2.2 Carbon Dioxide

CO_2 is an odorless, nontoxic gas present in the outdoor air in concentrations usually ranging from 350 to 500 ppm. The primary source of CO_2 in the indoor environment is human respiration. CO_2 concentrations in the indoor air are usually diluted by the introduction of outside air through the ventilation system. During this survey, CO_2 concentrations were measured as a surrogate estimate to determine if the amount of outside air entering the rooms was sufficient for the population.

Measurements for CO_2 were taken outdoors for comparison to the recommended guideline of maintaining indoor levels within 700 ppm of outdoor levels. CO_2 outdoors measured around 460 to 480 ppm, therefore 1,160 to 1,180 ppm is used as a guideline.

Results are presented in Table I. CO_2 concentrations were measured in five (5) indoor locations on a day with normal classroom occupancy. Four (4) other interior locations were used for measurements to compare with Room 115 CO_2. CO_2 concentrations ranged from 1,257 to 2,012 ppm. CO_2 concentrations exceeded the recommended guidelines. This is not a health concern but indicated that the amount of air being provided to the rooms should be increased. .

2.2.3 Carbon Monoxide

CO is an odorless gas and a chemical asphyxiant produced as a result of incomplete combustion of carbon based fuels. Exhausts from gas powered vehicles, boilers, water heaters and/or malfunctioning gas or oil-fired heaters are common sources of CO in indoor environments.

CO concentrations on the day of the survey were within the recommended guidelines in all of the indoor test locations. Results are presented in Table I.

2.3 Airborne Mold Sampling

A summary of airborne mold spore results are presented in Table II in Appendix A. Laboratory reports are presented in Appendix C.

Mold is ubiquitous in the outdoor environment and produces spores as part of its reproductive cycle; these spores are commonly found airborne in both outdoor and indoor air. Due to ventilation system filtration and the fact that indoor conditions in general do not support mold growth, indoor mold spore counts are typically lower than outdoor counts. However, if sufficient moisture is present, mold can proliferate within a building as the nutrients for its growth are readily available. Currently levels of mold spores are not covered by any regulatory standard.

From experience, spore levels indoors should be lower than those measured outdoors. Buildings without significant mold problems typically are 10% to 60% of outdoor counts, depending on such variables as window openings, outdoor weather conditions, and ventilation system filtration etc.

Air samples for total airborne mold spores were collected from three (3) locations inside the building and four (4) locations outside the building to allow for comparison.

Airborne mold levels were lower than outdoors and consistent with concentrations that would be expected in a school building during this time of year. The types of mold identified in rooms where concerns were expressed was similar to outdoors. A difference between indoor and outdoor samples was higher percentage of *Penicillium/Aspergillus* type molds found indoors. However, levels of these types of molds were low and not a concern. ,

3. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are offered for consideration. They are intended to promote good environmental quality within the school. Implementation of these recommendations are not required by any regulatory agency but would be considered good practice. They should not be construed as the only options available or inclusive of all potential environmental quality parameters within the school.

Overall the classroom appeared to be in good condition with no evidence of water infiltration or mold growth. The ventilation system was clean and well maintained.

There were some items in the room that could cause IAQ concerns including damp clothes, an open bag of potting soil and plants near the supply air diffuser for the unit ventilator and possibly a throw rug. Mold spore samples identified higher percentage of *Pencillium/Aspergillus* type molds indoors when compared to outdoors. While the concentrations were low and not a concern, these types of mold can be found in soil and growing on damp fabric.

Measurements found CO_2 above recommended guidelines. This is not a health concern but indicated that the amount of outside air being brought into the room was not sufficient for the population. The purpose of outside air is to dilute contaminants that will normally occur in an occupied room.

It is likely that IAQ concerns reported in this room result from a combination of there being contaminant sources in the room and insufficient outside air to dilute contaminants from these sources.

The following recommendations are offered for consideration:

1) Remove or minimize potential contaminant sources. This includes removing damp towels, moving plants and other organic material from the top of the unit ventilator and keep the bag of soil sealed.

2) Verify the throw rug is periodically cleaned.

3) Increase the amount of outside air being brought into the room through the ventilation system.

4. CONFIDENTIALITY

Results of this survey are based on conditions present on the day of the survey. This survey was conducted for BVSD.

Please contact our office if you have any questions regarding the above report. Ramboll thanks you for the opportunity to be of service.

Sincerely,

Ramboll US Corporation



Joshua R, Myers
Senior Consultant 2
D 303.382.5469
jmyers@ramboll.com

Reviewed & Approved by,



Robert B. Rottersman, MS, CIH
Principal
D 312.288.3857
rlrottersman@ramboll.com

APPENDIX A
DATA TABLES

Table I
CO_2, CO, Temperature, and Relative Humidity
BCSIS Room 115
Boulder, Colorado
September 21, 2018

Location	Time	CO_2 (ppm)	CO (ppm)	Temp (°F)	Relative Humidity (%)
115 Interior	11:57	1,671	0.4	75.6	41.4
	11:58	1,712	0.1	74.3	43.2
	12:00	1,705	0.0	72.9	45.4
Hallway of 115	12:00	708	0.0	71.4	43.1
	12:02	681	0.0	72.0	40.8
	12:03	698	0.0	72.3	41.3
115 Interior	12:09	2,012	0.0	73.1	48.2
	12:11	1,892	0.0	72.4	48.7
	12:13	1,791	0.0	72.3	48.2
	12:15	1,585	0.0	72.8	46.0
	12:18	1,810	0.0	73.5	47.2
	12:22	1,815	0.0	73.6	47.2
Outdoors near 115 Entrance	12:22	480	0.0	70.7	37.2
	12:24	477	0.0	69.9	37.0
	12:26	460	0.0	69.1	36.5
Hallway near 115	12:27	685	0.0	74.2	37.3
	12:28	708	0.0	74.0	37.6
	12:30	963	0.0	73.9	39.5
115 Interior	12:32	1,279	0.0	71.6	45.4
	12:33	1,268	0.0	71.6	45.5
	12:34	1,257	0.0	71.4	45.5
114 Interior	12:35	761	0.0	72.7	40.0
	12:36	806	0.0	73.5	40.5
	12:40	778	0.0	72.7	40.0
	12:51	1,174	0.0	74.4	44.4
	12:53	1,234	0.0	74.5	43.9
	12:56	1,238	0.0	74.4	44.1
115 Interior	12:57	1,576	0.0	72.2	47.1
	12:58	1,881	0.0	73.6	44.6
	12:59	2,003	0.0	74.1	45.3

Table II
Airborne Mold Spore Trap Sample Results
BCSIS Room 115
Boulder, Colorado
September 21, 2018

Location	Sample ID	Concentration (spores/ m^3)
Outdoors - East Side exterior of Building near grass and concrete steps from parking lot	180925-07-086	12,000
Near univent and northern side of interior of Room 115	180925-07-087	1,000
Outdoors - north of Room 115, intake of univent area near concrete exterior	180925-07-088	7,700
Room 115 interior near teacher's desk in southwest portion of the room	180925-07-089	310
Outdoors near Room 115, surfaces include concrete, bark for playground and other hard surfaces. Some trees and landscaping in the area	180925-07-090	6,800
Interior of Room 115, adult breathing height, walking entire room	180925-07-091	1,200
Outdoors , walking around at adult breathing height near and far from room on concrete	180925-07-092	4,600

APPENDIX B
METHODOLOGY & STANDARDS & GUIDELINES

METHODOLOGY

The survey included a visual inspection of classrooms, offices, mechanical and storage areas in the school, as well as the collection of comfort parameters including temperature, RH, CO, and CO_2. The collection of air samples for potential mold contamination was used as a tool to assess the potential for hidden indoor mold growth.

Airborne Mold Sampling

Airborne mold sampling was conducted using a Burkard spore trap device, which is a slit impactor. The Burkard spore trap uses a pre-greased microscope slide that is inserted into the Burkard and turned on for a pre-determined period of time (typically between 3 and 7 minutes) at a flow rate of 10 liters of air per minute (lpm). The slides are removed, placed in a plastic holding case, and sent to the laboratory for analysis. Samples were analyzed by light microscopy to provide a count and classification for fungal components trapped on the slide.

When mold is not visually apparent and there is no evidence of water intrusion (such as water stains, bubbling paint, efflorescence, etc.), sample results with normal concentrations and genus/species distribution can provide additional confidence that mold growth is not a concern in the test areas. Airborne mold spore levels fluctuate dramatically over time and short term samples should not be interpreted to have the ability of identifying all potential sources of mold. All methods for mold sampling have limitations. Total mold spore analysis was performed via light microscopy by Prestige EnviroMicrobiology, an AIHA EMLAP accredited laboratory.

Carbon Dioxide

CO_2 is a by-product of human respiration (exhaled air). Measurements of CO_2 concentrations within a building are often used as a surrogate for determining the adequacy of outside air ventilation provided to the space. All measurements were made with a TSI Q-Trak. Model 7575.

Temperature & Relative Humidity

Temperature and RH are comfort parameters, which are important to the perception of air quality. Temperature and RH readings were obtained at the same locations and times as CO_2 measurements as described above. All measurements were made with a TSI Q-Trak, Model 7575.

Carbon Monoxide

CO is a contaminant gas, which may enter an indoor environment from vehicle exhaust gas infiltration, cracked furnace heat exchangers, cross contamination from exhaust stacks, etc. Excess exposure can cause nausea, shortness of breath and headaches. Tests for CO were conducted at the same locations and times as the occupant comfort parameters using the TSI Q-Trak, Model 7575. The calibration certificate is available upon request.

STANDARDS & GUIDELINES

Many of the airborne contaminants selected for testing have maximum levels of acceptable exposure, which are set by various authoritative agencies. Some of the standards, such as those provided by the Occupational Safety and Health Administration (OSHA), American Conference of Governmental Industrial Hygienists (ACGIH), and the National Institute of Occupational Safety and Health (NIOSH) were designed for industrial work environments and are not appropriate for use when assessing IEQ in schools. More stringent voluntary standards, which are more suitable for assessing office & educational facility IEQ, are available from agencies such as the U.S. Green Building Council (USGBC), American Society of Heating Refrigeration and Air-conditioning Engineers (ASHRAE), and the AIHA.

The following chart, Table I, includes a comparison of various standards for select contaminants and test parameters included in this survey.

Table IV
Recommended Exposure Limits and IAQ Guidelines

	Industrial Workplace (Health Based) Standards			Appropriate Standards for Office Environments (Comfort Based)		
Parameter	**OSHA**	**ACGIH**	**NIOSH**	**AIHA**	**ASHRAE**	**USGBC**
Carbon dioxide	5,000 ppm	5,000 ppm	5,000 ppm		Outdoors +700 ppm	-
Temperature	-	-	-	68–76 °F	68–76 °F	-
Relative humidity	-	-	-	30–60% (20% typical during winter)	Variable	-
Carbon monoxide	50 ppm	25 ppm	35 ppm	-	-	9 ppm or 2 above outside

Key: **ppm** =parts per million
IAQ = Indoor Air Quality

Currently, there are no specific State of Colorado or Federal standards for airborne mold. As discussed previously, the current approach to the interpretation of airborne mold sample results relies on comparisons of indoor vs. outdoor results and professional judgment. In general, indoor levels should be lower than outdoor levels with a similar distribution of mold types.

Regarding outdoor mold levels, ambient mold levels fluctuate greatly throughout the year depending upon factors such as geographic location, temperature, humidity, wind velocity, season, precipitation and other variables. In addition to comparing total spore concentrations for indoor versus outdoor samples, it is also important to assess the diversity of mold spores present in sample sets. If the types of mold identified indoors are similar to those identified outdoors, then it is likely the mold identified in the indoor air was present as a result of being brought in from outdoors. If there are substantial differences between the types of mold identified indoors when compared to outdoors, then a source of indoor mold growth is possible even if the total levels are less than outdoors.

APPENDIX C
LABORATORY REPORTS

Analytical Test Report

Client: Ramboll Environ, 1560 Broadway, Suite 1905, Denver, CO 80202

Client Project/Name: 1690009997

Sample date: 9-21-2018

Submittal date: 9-24-2018

Samples submitted by: Josh Myers

Date analysis completed: September 28, 2018

Prestige Report number: 180925-07

Microscopic Method (P001): Analysis of Burkard Samples for Total Fungal Structures by Optical Microscopy

Prestige # Client sample ID Location	Air vol. (m^3)	% read	Presumptive fungal ID	Counts of fungal structures	Fungal structures/m^3	Percentage	Background rating
180925-07-086	0.050	26.2	*Alternaria*	8	610	5%	
115-1-ET			ascospores	30	2,300	19%	
BCSIS 115			basidiospores	4	310	3%	
			Cladosporium	97	7,400	61%	
			Epicoccum	1	76	1%	
			hyphal fragments	8	610	5%	
			myxomycetes	9	690	6%	
			Pen/Asp-like	1	76	1%	
			rusts	1	76	1%	
					Total 12,000		1
180925-07-087	0.050	26.2	*Cladosporium*	3	230	23%	
115-2-IN			hyphal fragments	1	76	8%	
BCSIS 115			Pen/Asp-like	9	690	69%	
					Total 1,000		1
180925-07-088	0.050	26.2	*Alternaria*	1	76	1%	
115-3-ET2			ascospores	17	1,300	17%	
BCSIS 115			basidiospores	3	230	3%	
			Cercospora	2	150	2%	
			Cladosporium	65	5,000	64%	
			hyphal fragments	5	380	5%	
			myxomycetes	5	380	5%	
			Nigrospora	1	76	1%	
			Pen/Asp-like	1	76	1%	
			unknowns	1	76	1%	
					Total 7,700		1
180925-07-089	0.050	26.2	ascospores	1	76	25%	
115-4-IN			*Cladosporium*	1	76	25%	
BCSIS 115			hyphal fragments	1	76	25%	
			Pen/Asp-like	1	76	25%	
					Total 310		1

180925-07-090 115-5-ET BCSIS 115	0.050	26.2	*Alternaria* ascospores basidiospores *Cladosporium* *Epicoccum* *Fusarium* hyphal fragments myxomycetes rusts	3 13 2 65 1 1 1 2 1	230 990 150 5,000 76 76 76 150 76 Total 6,800	3% 15% 2% 73% 1% 1% 1% 2% 1%	1
180925-07-091 115-7-IN BCSIS 115	0.050	26.2	*Alternaria* ascospores *Cladosporium* hyphal fragments myxomycetes Pen/Asp-like unknowns	1 1 4 1 1 6 1	76 76 310 76 76 460 76 Total 1,200	7% 7% 27% 7% 7% 40% 7%	2
180925-07-092 115-8-ET BCSIS 115	0.050	26.2	*Alternaria* ascospores basidiospores *Cladosporium* *Epicoccum* hyphal fragments myxomycetes *Pithomyces*	4 15 1 32 1 5 2 1	310 1,100 76 2,400 76 380 150 76 Total 4,600	7% 25% 2% 52% 2% 8% 3% 2%	1

Report approved: Theresa Lehman
Theresa Lehman, MPH, Lab Director

Technical Manager:
Chin S Yang, Ph.D.

Analyst: Shawn Backer

1. The samples in this report were received in good, acceptable conditions. Prestige EnviroMicrobiology has not performed sample collection for the sample items listed in this report. Results relate only to the items tested.
2. Spore trap samples are first scanned at 200x and then analyzed at 600x magnification.
3. Concentrations and percentages are rounded to the nearest two significant digits. Total percentage may not add up to 100% due to rounding. Percentage is for each group in total population.
4. Background rating 1-5 (1 being the lowest and 5 the highest) indicates density of sample deposit. The higher the sample deposit is, the more likely some fungal structures are obscured. A "0" background indicates no trace was observed.

5. The detection limit of this analysis is one fungal colony, one bacterial colony or one fungal structure. The analytical sensitivities vary from analysis to analysis or by air volume. For calculation of your analytical sensitivities, please visit our webpage http://prestige-em.com/index-tech.htm or contact us by calling 856-767-8300 or by email info@Prestige-em.com.
6. For technical information on result interpretation, please visit www.Prestige-EM.com.

Prestige EnviroMicrobiology, Inc. Tel: 856-767-8300 Fax: 856-767-8305
242 Terrace Boulevard., Suite B-1, Voorhees, New Jersey 08043

Prestige Proj.#: 180925-07

Chain-of-Custody and Analysis Request Form

Client name: Ramboll US Corporation Tel: 303-382-5469 Client proj.#: 1690009997

Address: 1560 Broadway Suite 1905 Fax: 303-382-5499 P.O.#:

Denver CO 80202 E-mail: jmyers@ramboll.com Date sampled: 9/21/2018

Sample ID	Location or source	Sample type	Air vol (L)/ Area (inch^2)	Water: potable or non-potable	Analysis requests code or description	Turnaround time	Notes or special instructions
115-1-ET	BCSIS 115	Spore trap	N/A 50 liter per Josh	N/A Myers	Pool		
115-2-IN	↓	↓	↓	↓	↓		
115-3-ET2							
115-4-IN							
115-5-ET							
115-7-IN							
115-8-ET							

Data QC'd by:
Report reviewed by:
Report emailed by:
Date & time:

Contact name: Josh Myers Submitted by: (sign & print) Josh Myers Date submitted: 9/24/2018

Received by: (sign & print) Joshua Jang Date & time received: 9/25/18 11:15a Delivered by: Fedex, UPS, USPO, in person

(For lab use only) Processed by: Sample type: Date:

* Send a copy to Rob Rottersman @ rrottersman@ramboll.com

APPENDIX D
PHOTOGRAPHS



Photo 1: BCSIS Room 115, facing southwest towards shared door with Room 114



Photo 2: Room 115 rug and carpet



Photo 3: Room 115 univent with plants near vent



Photo 4: Room 115 interior door to hallway



Photo 5: Room 115 northern exterior and univent intake



Photo 6: Room 115 sink, wood shelf and potting soil



Photo 7: Room 115 univent open panel



Photo 8: Room 115 univent open panel

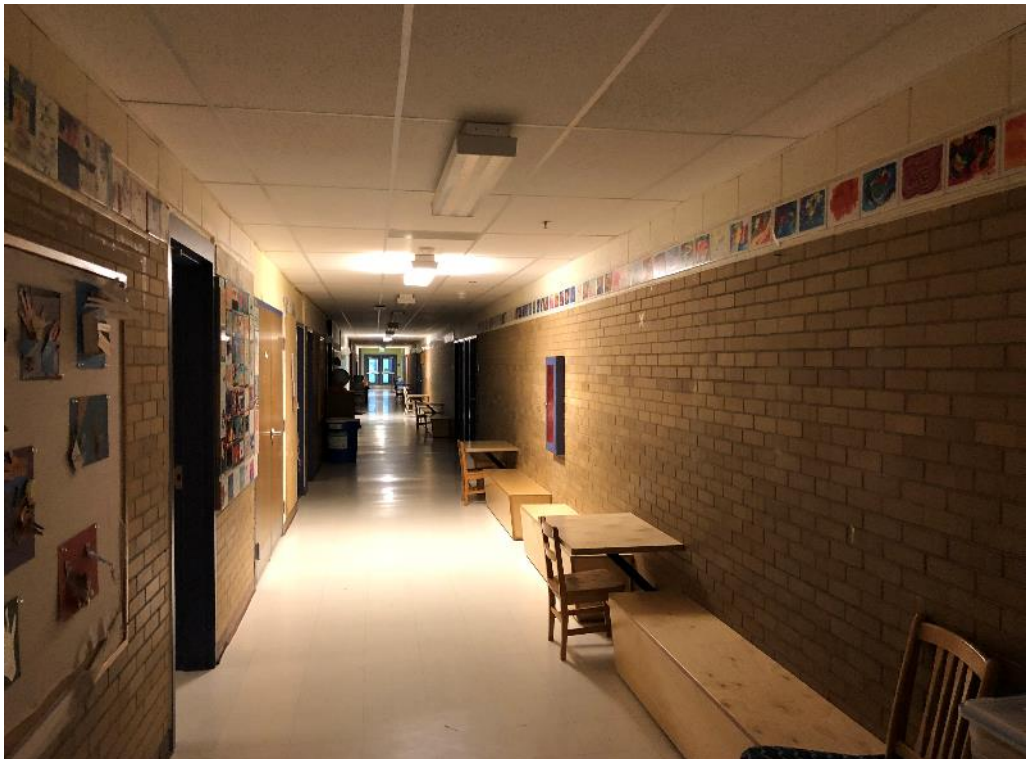


Photo 9: BCSIS hallway adjacent to Room 115

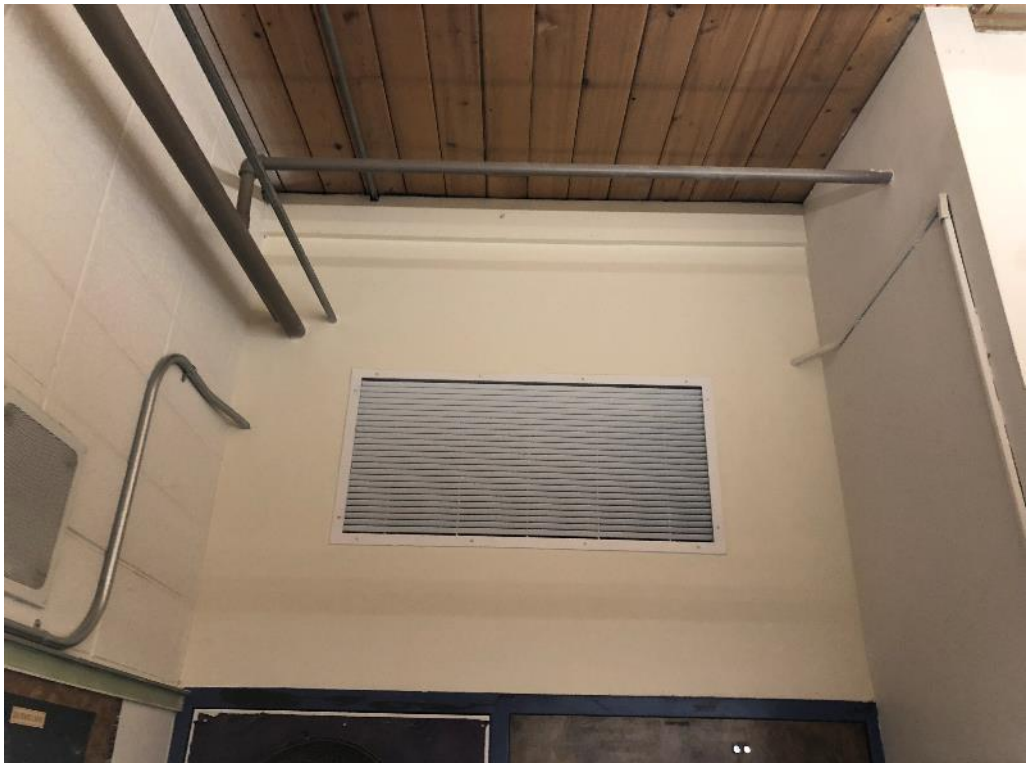


Photo 10: Room 115 vent to hallway



Photo 11: Room 115 vent interior



Photo 12: Room 115, wood moisture check, no concerns noted



Photo 13: Room 115 sink infrared camera check, no concerns noted



Photo 14: Room 115 carpet infrared camera check, no concerns noted



Photo 15: Room 115 exterior univent infrared camera check, no concerns noted



Photo 16: Room 115 ceiling materials, no evidence of water infiltration

RAMBOLL

ENVIRONMENT
& HEALTH

Sent via electronic mail: aaron.mikulewicz@bvsd.org

Aaron Mikulewicz
HVAC & Environmental Manager
Boulder Valley School District

Re: Review of Volatile Organic Compound (VOC) Air Measurements

Date August 14, 2018

Ramboll Environ
1560 Broadway
Suite 1905
Denver, CO 80202
USA

www.ramboll-environ.com

Dear Mr. Mikulewicz:

The following is in response to your request to review and provide an opinion of measurements made for volatile organic compounds (VOCs) on August 14, 2018 at BCSIS/High Peaks schools. Data provided to Ramboll is included in Appendix A.

It was reported that renovation had recently been completed in some areas of these buildings and was ongoing in an area in BCSIS. Ramboll is scheduled to perform indoor air quality testing on August 15, 2018. The VOC measurements provided for review were screening measurements, not made by Ramboll, in advance of the planned August 15 testing.

The VOC measurements from August 14 were made using a photo ionization detector. This type of instrument measures total VOCs and used the assumption that all VOCs have a molecular mass of 56.11. It was reported that the meter was used in data logging mode while walking through both buildings and outdoors.

There are currently no regulatory limits for acceptable or unacceptable levels of VOCs in school buildings. Guidance from the US Green Building Council has suggested 500 micrograms per cubic meter of air ($\mu g/m^3$) as an acceptable level. Assuming a molecular mass of 56.11 this would be the equivalent of 220 parts per billion (ppb).

Results indicate that BCSIS had an average concentration of 70 parts per billion (ppb) with a maximum concentration of 370 ppb. The maximum concentration was reportedly from an area that is currently under construction and the remainder of the school had concentrations less than 200 ppb.

High Peaks had an average concentration of 30 ppb with a maximum concentration of 120 ppb.

Review of this data indicated that, with the exception of an active construction area, VOCs in both schools were less than indoor air quality guidelines. Based on this data, exposure to VOCs in areas where renovation has been completed would not be a concern.

Ramboll was not involved in the measurements included in this report. Findings and opinions are based on the assumption that measurements were taken appropriately with a properly calibrated instrument. More comprehensive testing is planned for August 15, this testing will provide information on the concentration of specific VOC compounds as well as airborne particulate and formaldehyde concentrations.

Sincerely,

Ramboll Environ US Corporation



Robert Rottersman, MS, CIH
Principal

D 312.288.3857
rrottersman@environcorp.com

ATTACHMENT A
DATA PROVIDED TO RAMBOLL FOR REVIEW

Test 024

A7HPBCOD

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	08/14/2018
Meter S/N	7575X1732003	Start Time	07:49:22
Probe Model	984	Stop Date	08/14/2018
Probe S/N	P17410020	Stop Time	07:54:22
Meter Cal Date	02/26/2018	Total Time	0:00:05:00
Temperature Cal	08/14/2018	Logging Interval	15 seconds
VOC Cal	08/14/2018		
VOC Response Factor	1.000		
VOC Mole Weight	56.11		

Statistics			
	T	BP	VOC
Avg	66.1 deg F	24.95 inHg	0 ppb
Max	67.4 deg F	24.95 inHg	0 ppb
Max Date	08/14/2018	08/14/2018	08/14/2018
Max Time	07:50:37	07:51:07	07:50:07
Min	65.3 deg F	24.94 inHg	0 ppb
Min Date	08/14/2018	08/14/2018	08/14/2018
Min Time	07:51:52	07:53:37	07:54:07
TWA (8 hr)			N/A
TWA Start Date			08/14/2018
TWA Start Time			07:49:22
TWA End Time			07:54:22

Test Data					
Sample	Date	Time	T deg F	BP inHg	VOC ppb
1	08/14/2018	07:49:37	66.1	24.95	0
2	08/14/2018	07:49:52	66.4	24.94	0
3	08/14/2018	07:50:07	66.6	24.95	0
4	08/14/2018	07:50:22	67.0	24.94	0
5	08/14/2018	07:50:37	67.4	24.95	0
6	08/14/2018	07:50:52	66.5	24.95	0
7	08/14/2018	07:51:07	66.2	24.95	0
8	08/14/2018	07:51:22	66.0	24.95	0
9	08/14/2018	07:51:37	65.3	24.95	0
10	08/14/2018	07:51:52	65.3	24.95	0
11	08/14/2018	07:52:07	65.6	24.95	0

12	08/14/2018	07:52:22	65.7	24.94	0
13	08/14/2018	07:52:37	65.6	24.95	0
14	08/14/2018	07:52:52	65.5	24.95	0
15	08/14/2018	07:53:07	66.2	24.94	0
16	08/14/2018	07:53:22	67.3	24.95	0
17	08/14/2018	07:53:37	66.5	24.94	0
18	08/14/2018	07:53:52	65.9	24.95	0
19	08/14/2018	07:54:07	65.4	24.95	0
20	08/14/2018	07:54:22	65.9	24.94	0

Test 026

BCSIS026

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	08/14/2018
Meter S/N	7575X1732003	Start Time	08:31:56
Probe Model	984	Stop Date	08/14/2018
Probe S/N	P17410020	Stop Time	08:48:11
Meter Cal Date	02/26/2018	Total Time	0:00:16:15
Temperature Cal	08/14/2018	Logging Interval	15 seconds
VOC Cal	08/14/2018		
VOC Response Factor	1.000		
VOC Mole Weight	56.11		

Statistics			
	T	BP	VOC
Avg	74.7 deg F	24.94 inHg	70 ppb
Max	76.2 deg F	24.95 inHg	370 ppb
Max Date	08/14/2018	08/14/2018	08/14/2018
Max Time	08:32:41	08:47:56	08:46:26
Min	73.7 deg F	24.94 inHg	0 ppb
Min Date	08/14/2018	08/14/2018	08/14/2018
Min Time	08:38:56	08:32:56	08:33:26
TWA (8 hr)			0
TWA Start Date			08/14/2018
TWA Start Time			08:31:56
TWA End Time			08:48:11

Test Data					
Sample	Date	Time	T deg F	BP inHg	VOC ppb
1	08/14/2018	08:32:11	76.1	24.94	10
2	08/14/2018	08:32:26	76.1	24.94	30
3	08/14/2018	08:32:41	76.2	24.94	20
4	08/14/2018	08:32:56	76.0	24.94	30
5	08/14/2018	08:33:11	75.4	24.94	10
6	08/14/2018	08:33:26	74.8	24.94	0
7	08/14/2018	08:33:41	74.6	24.94	10
8	08/14/2018	08:33:56	74.5	24.94	50
9	08/14/2018	08:34:11	74.5	24.94	60
10	08/14/2018	08:34:26	74.4	24.94	70
11	08/14/2018	08:34:41	74.4	24.94	90

12	08/14/2018	08:34:56	74.4	24.94	70
13	08/14/2018	08:35:11	74.1	24.94	90
14	08/14/2018	08:35:26	74.3	24.94	130
15	08/14/2018	08:35:41	74.3	24.94	100
16	08/14/2018	08:35:56	74.4	24.94	80
17	08/14/2018	08:36:11	74.2	24.94	70
18	08/14/2018	08:36:26	74.4	24.94	120
19	08/14/2018	08:36:41	74.4	24.94	80
20	08/14/2018	08:36:56	74.2	24.94	40
21	08/14/2018	08:37:11	74.4	24.94	40
22	08/14/2018	08:37:26	74.4	24.94	40
23	08/14/2018	08:37:41	74.2	24.94	40
24	08/14/2018	08:37:56	74.1	24.94	50
25	08/14/2018	08:38:11	74.0	24.94	70
26	08/14/2018	08:38:26	74.1	24.94	70
27	08/14/2018	08:38:41	73.9	24.94	80
28	08/14/2018	08:38:56	73.7	24.94	70
29	08/14/2018	08:39:11	73.8	24.94	50
30	08/14/2018	08:39:26	73.9	24.94	40
31	08/14/2018	08:39:41	74.1	24.94	50
32	08/14/2018	08:39:56	74.2	24.94	50
33	08/14/2018	08:40:11	74.3	24.94	50
34	08/14/2018	08:40:26	74.2	24.94	50
35	08/14/2018	08:40:41	74.3	24.94	50
36	08/14/2018	08:40:56	74.3	24.94	50
37	08/14/2018	08:41:11	74.2	24.94	50
38	08/14/2018	08:41:26	74.1	24.94	30
39	08/14/2018	08:41:41	74.0	24.94	30
40	08/14/2018	08:41:56	74.1	24.94	30
41	08/14/2018	08:42:11	74.1	24.94	40
42	08/14/2018	08:42:26	74.3	24.94	30
43	08/14/2018	08:42:41	74.3	24.94	30
44	08/14/2018	08:42:56	74.3	24.94	30
45	08/14/2018	08:43:11	74.5	24.94	30
46	08/14/2018	08:43:26	74.5	24.94	30
47	08/14/2018	08:43:41	74.6	24.94	30
48	08/14/2018	08:43:56	75.1	24.94	50
49	08/14/2018	08:44:11	75.9	24.94	50
50	08/14/2018	08:44:26	75.8	24.94	50

51	08/14/2018	08:44:41	75.9	24.94	70
52	08/14/2018	08:44:56	75.7	24.94	100
53	08/14/2018	08:45:11	75.4	24.94	70
54	08/14/2018	08:45:26	75.5	24.95	170
55	08/14/2018	08:45:41	75.6	24.94	180
56	08/14/2018	08:45:56	75.4	24.95	190
57	08/14/2018	08:46:11	75.4	24.94	270
58	08/14/2018	08:46:26	75.3	24.94	370
59	08/14/2018	08:46:41	75.4	24.94	200
60	08/14/2018	08:46:56	75.3	24.94	170
61	08/14/2018	08:47:11	75.1	24.94	140
62	08/14/2018	08:47:26	74.8	24.94	50
63	08/14/2018	08:47:41	74.8	24.94	40
64	08/14/2018	08:47:56	74.8	24.95	110
65	08/14/2018	08:48:11	75.0	24.94	180

Test 024

A7HPBCOD

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	08/14/2018
Meter S/N	7575X1732003	Start Time	07:49:22
Probe Model	984	Stop Date	08/14/2018
Probe S/N	P17410020	Stop Time	07:54:22
Meter Cal Date	02/26/2018	Total Time	0:00:05:00
Temperature Cal	08/14/2018	Logging Interval	15 seconds
VOC Cal	08/14/2018		
VOC Response Factor	1.000		
VOC Mole Weight	56.11		

Statistics			
	T	BP	VOC
Avg	66.1 deg F	24.95 inHg	0 ppb
Max	67.4 deg F	24.95 inHg	0 ppb
Max Date	08/14/2018	08/14/2018	08/14/2018
Max Time	07:50:37	07:51:07	07:50:07
Min	65.3 deg F	24.94 inHg	0 ppb
Min Date	08/14/2018	08/14/2018	08/14/2018
Min Time	07:51:52	07:53:37	07:54:07
TWA (8 hr)			N/A
TWA Start Date			08/14/2018
TWA Start Time			07:49:22
TWA End Time			07:54:22

Test Data					
Sample	Date	Time	T deg F	BP inHg	VOC ppb
1	08/14/2018	07:49:37	66.1	24.95	0
2	08/14/2018	07:49:52	66.4	24.94	0
3	08/14/2018	07:50:07	66.6	24.95	0
4	08/14/2018	07:50:22	67.0	24.94	0
5	08/14/2018	07:50:37	67.4	24.95	0
6	08/14/2018	07:50:52	66.5	24.95	0
7	08/14/2018	07:51:07	66.2	24.95	0
8	08/14/2018	07:51:22	66.0	24.95	0
9	08/14/2018	07:51:37	65.3	24.95	0
10	08/14/2018	07:51:52	65.3	24.95	0
11	08/14/2018	07:52:07	65.6	24.95	0

12	08/14/2018	07:52:22	65.7	24.94	0
13	08/14/2018	07:52:37	65.6	24.95	0
14	08/14/2018	07:52:52	65.5	24.95	0
15	08/14/2018	07:53:07	66.2	24.94	0
16	08/14/2018	07:53:22	67.3	24.95	0
17	08/14/2018	07:53:37	66.5	24.94	0
18	08/14/2018	07:53:52	65.9	24.95	0
19	08/14/2018	07:54:07	65.4	24.95	0
20	08/14/2018	07:54:22	65.9	24.94	0

Test 025

HIGHPKS5

Instrument		Data Properties	
Model	VelociCalc/Q-Trak 7575	Start Date	08/14/2018
Meter S/N	7575X1732003	Start Time	07:54:59
Probe Model	984	Stop Date	08/14/2018
Probe S/N	P17410020	Stop Time	08:31:27
Meter Cal Date	02/26/2018	Total Time	0:00:36:28
Temperature Cal	08/14/2018	Logging Interval	15 seconds
VOC Cal	08/14/2018		
VOC Response Factor	1.000		
VOC Mole Weight	56.11		

Statistics			
	T	BP	VOC
Avg	73.7 deg F	24.94 inHg	30 ppb
Max	76.7 deg F	24.95 inHg	120 ppb
Max Date	08/14/2018	08/14/2018	08/14/2018
Max Time	08:31:12	08:23:27	08:27:42
Min	68.1 deg F	24.94 inHg	0 ppb
Min Date	08/14/2018	08/14/2018	08/14/2018
Min Time	07:55:14	08:29:57	08:22:27
TWA (8 hr)			0
TWA Start Date			08/14/2018
TWA Start Time			07:54:59
TWA End Time			08:31:27

Test Data					
Sample	Date	Time	T deg F	BP inHg	VOC ppb
1	08/14/2018	07:55:14	68.1	24.94	10
2	08/14/2018	07:55:29	68.6	24.94	10
3	08/14/2018	07:55:44	68.7	24.94	10
4	08/14/2018	07:55:59	68.8	24.94	20
5	08/14/2018	07:56:14	69.4	24.94	10
6	08/14/2018	07:56:29	70.0	24.94	20
7	08/14/2018	07:56:44	70.0	24.94	20
8	08/14/2018	07:56:59	70.8	24.94	20
9	08/14/2018	07:57:14	71.1	24.94	20
10	08/14/2018	07:57:29	71.3	24.94	20
11	08/14/2018	07:57:44	71.4	24.94	20

12	08/14/2018	07:57:59	71.6	24.94	10
13	08/14/2018	07:58:14	71.8	24.94	10
14	08/14/2018	07:58:29	71.9	24.94	10
15	08/14/2018	07:58:44	72.0	24.94	20
16	08/14/2018	07:58:59	72.1	24.94	20
17	08/14/2018	07:59:14	72.2	24.94	20
18	08/14/2018	07:59:29	72.3	24.94	20
19	08/14/2018	07:59:44	72.4	24.94	20
20	08/14/2018	07:59:59	72.5	24.94	10
21	08/14/2018	08:00:14	72.5	24.94	10
22	08/14/2018	08:00:29	72.6	24.94	20
23	08/14/2018	08:00:44	72.7	24.94	10
24	08/14/2018	08:00:59	72.8	24.94	10
25	08/14/2018	08:01:14	72.7	24.94	10
26	08/14/2018	08:01:29	72.9	24.94	20
27	08/14/2018	08:01:44	73.0	24.94	10
28	08/14/2018	08:01:59	73.0	24.94	10
29	08/14/2018	08:02:14	73.1	24.94	10
30	08/14/2018	08:02:29	73.3	24.94	20
31	08/14/2018	08:02:44	73.5	24.94	20
32	08/14/2018	08:02:59	73.5	24.95	20
33	08/14/2018	08:03:14	73.4	24.94	20
34	08/14/2018	08:03:29	73.7	24.94	20
35	08/14/2018	08:03:44	73.9	24.94	20
36	08/14/2018	08:03:59	74.0	24.95	20
37	08/14/2018	08:04:14	74.1	24.94	20
38	08/14/2018	08:04:29	74.2	24.94	20
39	08/14/2018	08:04:44	74.2	24.94	20
40	08/14/2018	08:04:59	74.3	24.95	20
41	08/14/2018	08:05:14	74.4	24.94	20
42	08/14/2018	08:05:29	74.4	24.94	20
43	08/14/2018	08:05:44	74.5	24.95	20
44	08/14/2018	08:05:59	74.5	24.95	20
45	08/14/2018	08:06:14	74.5	24.94	20
46	08/14/2018	08:06:29	74.3	24.94	10
47	08/14/2018	08:06:44	74.4	24.95	20
48	08/14/2018	08:06:59	74.4	24.94	10
49	08/14/2018	08:07:14	74.4	24.95	20
50	08/14/2018	08:07:29	74.1	24.94	20

51	08/14/2018	08:07:44	74.1	24.94	20
52	08/14/2018	08:07:59	74.2	24.94	20
53	08/14/2018	08:08:14	74.2	24.94	30
54	08/14/2018	08:08:29	74.3	24.94	30
55	08/14/2018	08:08:44	74.4	24.95	30
56	08/14/2018	08:08:59	74.4	24.94	30
57	08/14/2018	08:09:14	74.4	24.94	30
58	08/14/2018	08:09:29	74.3	24.94	30
59	08/14/2018	08:09:44	74.4	24.94	40
60	08/14/2018	08:09:59	74.3	24.94	40
61	08/14/2018	08:10:14	74.2	24.94	40
62	08/14/2018	08:10:29	74.4	24.94	40
63	08/14/2018	08:10:44	74.6	24.94	40
64	08/14/2018	08:10:59	74.5	24.94	40
65	08/14/2018	08:11:14	74.1	24.94	10
66	08/14/2018	08:11:29	74.2	24.94	30
67	08/14/2018	08:11:44	74.4	24.94	40
68	08/14/2018	08:11:59	74.3	24.94	40
69	08/14/2018	08:12:14	74.2	24.94	20
70	08/14/2018	08:12:29	74.2	24.94	10
71	08/14/2018	08:12:44	74.2	24.94	10
72	08/14/2018	08:12:59	74.0	24.94	10
73	08/14/2018	08:13:14	74.0	24.94	10
74	08/14/2018	08:13:29	73.8	24.94	0
75	08/14/2018	08:13:44	73.9	24.94	30
76	08/14/2018	08:13:59	73.9	24.94	30
77	08/14/2018	08:14:14	74.3	24.94	20
78	08/14/2018	08:14:29	74.1	24.94	40
79	08/14/2018	08:14:44	74.2	24.94	40
80	08/14/2018	08:14:59	74.2	24.94	40
81	08/14/2018	08:15:14	74.2	24.94	50
82	08/14/2018	08:15:29	74.2	24.94	50
83	08/14/2018	08:15:44	74.1	24.94	60
84	08/14/2018	08:15:59	74.1	24.94	50
85	08/14/2018	08:16:14	74.1	24.94	50
86	08/14/2018	08:16:29	74.2	24.94	30
87	08/14/2018	08:16:44	74.4	24.94	0
88	08/14/2018	08:16:59	74.5	24.94	0
89	08/14/2018	08:17:14	74.6	24.94	30

90	08/14/2018	08:17:29	74.7	24.94	30
91	08/14/2018	08:17:44	74.8	24.94	30
92	08/14/2018	08:17:59	74.8	24.94	30
93	08/14/2018	08:18:14	74.9	24.94	30
94	08/14/2018	08:18:29	75.1	24.94	20
95	08/14/2018	08:22:27	73.4	24.94	0
96	08/14/2018	08:22:42	72.8	24.95	0
97	08/14/2018	08:22:57	72.6	24.95	0
98	08/14/2018	08:23:12	72.8	24.94	0
99	08/14/2018	08:23:27	72.5	24.95	0
100	08/14/2018	08:23:42	72.4	24.95	0
101	08/14/2018	08:23:57	72.3	24.95	0
102	08/14/2018	08:24:12	72.5	24.95	0
103	08/14/2018	08:24:27	72.6	24.95	10
104	08/14/2018	08:24:42	72.6	24.94	20
105	08/14/2018	08:24:57	73.1	24.95	40
106	08/14/2018	08:25:12	73.5	24.95	20
107	08/14/2018	08:25:27	74.0	24.95	60
108	08/14/2018	08:25:42	74.1	24.95	70
109	08/14/2018	08:25:57	74.3	24.95	70
110	08/14/2018	08:26:12	74.4	24.95	70
111	08/14/2018	08:26:27	74.6	24.95	80
112	08/14/2018	08:26:42	74.8	24.95	80
113	08/14/2018	08:26:57	75.0	24.94	70
114	08/14/2018	08:27:12	75.3	24.95	80
115	08/14/2018	08:27:27	75.4	24.94	90
116	08/14/2018	08:27:42	75.3	24.94	120
117	08/14/2018	08:27:57	75.5	24.95	100
118	08/14/2018	08:28:12	75.7	24.94	100
119	08/14/2018	08:28:27	75.8	24.95	100
120	08/14/2018	08:28:42	75.8	24.94	110
121	08/14/2018	08:28:57	75.6	24.94	100
122	08/14/2018	08:29:12	75.6	24.94	90
123	08/14/2018	08:29:27	75.8	24.94	70
124	08/14/2018	08:29:42	76.2	24.94	40
125	08/14/2018	08:29:57	76.2	24.94	20
126	08/14/2018	08:30:12	76.3	24.94	20
127	08/14/2018	08:30:27	76.5	24.94	30
128	08/14/2018	08:30:42	76.6	24.94	20

129	08/14/2018	08:30:57	76.7	24.94	10
130	08/14/2018	08:31:12	76.7	24.94	10
131	08/14/2018	08:31:27	76.2	24.94	10