

**RESOLUTION  
ROCK COUNTY BOARD OF SUPERVISORS**

The General Services Committee  
INITIATED BY



Brent Sutherland- Director-  
Facilities Management  
DRAFTED BY

The General Services Committee  
SUBMITTED BY

June 15, 2020  
DATE DRAFTED

**Awarding Contract for Installation of Bi-Polar Ionization Units in the Air Handling Systems at the Courthouse and Amending the 2020 Facilities Management Capital Budget**

**WHEREAS**, due to the COVID-19 Pandemic, the courts are not able to resume in-person court proceeding until Rock County develops a plan, and has it approved by the District Courts, to address air purification to help prevent the spread of the virus, and;

**WHEREAS**, several options were reviewed, and a Bi-Polar Ionization System was shown to have the best coverage for reducing the risk of the spread of the virus along with removing pollen and mold spores as well as Volatile Organic Compounds, and;

**WHEREAS**, a pin point Bi-Polar Ionization System changes the ion levels in the supply air which attaches to any virus and begins to kill the virus immediately, and;

**WHEREAS**, this system will be installed in each of the thirteen (13) air handling units (AHU) and will also be integrated into our building controls to continuously monitor the ion levels in the occupied space, and;

**WHEREAS**, Johnson Controls Inc. was awarded the Sourcewell Cooperative Purchasing Contract for HVAC and building efficiencies (Sourcewell Contract #030817-JHN).

**NOW, THEREFORE, BE IT RESOLVED** by the Rock County Board of Supervisors duly assembled this 25<sup>th</sup> day of June, 2020 that a contract be awarded to Johnson Controls Inc. of Madison, Wisconsin, to supply and install Bi-Polar Ionization units at the Rock County Courthouse in the amount of \$138,100.

**BE IT FURTHER RESOLVED**, a contingency fund of \$13,810 be established to cover any unforeseeable issues that arise.

**BE IT FURTHER RESOLVED**, that the Facilities Management 2020 budget be amended as follows:

<u>ACCOUNT/DESCRIPTION</u>	<u>BUDGET 6/15/2020</u>	<u>INCREASE/ (DECREASE)</u>	<u>AMENDED BUDGET</u>
<u>Source of Funds</u>			
18-1842-0000-47000 General Fund	0	\$150,000	\$150,000
<u>Use of Funds:</u>			
18-1842-0000-67200 Capital Improvements	\$1,160,000	\$150,000	\$1,310,000

Respectfully submitted,

GENERAL SERVICES COMMITTEE

FINANCE COMMITTEE ENDORSEMENT

Reviewed and approved on a vote of 5 – 0

Jeremy Zajac, Chair

/s/ Robert Potter  
Robert Potter, Vice Chair

/s/ Mary Mawhinney  
Mary Mawhinney, Chair

/s/ Tom Brien  
Tom Brien

/s/ David Homan  
David Homan

/s/ Brent Fox  
Brent Fox

FISCAL NOTE:

This resolution authorizes a \$150,000 transfer from the General Fund. This COVID-19 related expense is unlikely to be reimbursed by state or federal sources.

/s/Sherry Oja

Sherry Oja  
Finance Director

LEGAL NOTE:

The County Board is authorized to take this action pursuant to secs. 59.01 and 59.51, Wis. Stats. In addition, sec. 59.52(29), Wis. Stats. Requires the project to be let to the lowest responsible bidder. As an amendment to the adopted 2020 County Budget, this Resolution requires a 2/3 vote of the entire membership of the County Board pursuant to sec. 65.90(5)(a), Wis. Stats.

s/ Richard Greenlee

Richard Greenlee  
Corporation Counsel

ADMINISTRATIVE NOTE:

Recommended.

/s/ Josh Smith

Josh Smith  
County Administrator

**Rock County, Wisconsin**  
51 South Main Street  
Janesville WI 53545



**General Services**  
Facilities Management  
Maintenance  
(608) 757-5527

## **Executive Summary**

### **Awarding Contract for Installation of Bi-Polar Ionization Units in the Air Handling Systems at the Courthouse and Amending 2020 Facilities Management Capital Budget**

The resolution before you is to contract with Johnson Controls Inc. for the installation of Bi-Polar Ionization Units in all thirteen (13) air handling units at the Courthouse. Due to the Coronavirus Pandemic, Rock County is required to provide air purification in each courtroom prior to holding in-person court.

Facilities Management, along with our building heating, ventilation and air-conditioning (HVAC) controls vendor, Johnson Controls Inc., investigated all options for our situation and deemed this option to be the best fit for the Rock County Courthouse. This system will change the ions in the courtrooms which will kill any virus in the room.

Johnson Controls was awarded the Sourcewell Cooperative Purchasing Contract for HVAC and building efficiencies under Sourcewell Contract # 030817-JHN.

# INNOVATIVE BIOANALYSIS

*creating solutions | getting results*

Innovative Bioanalysis  
5630 Cerritos Ave  
Cypress CA, 90630  
www.InnovativeBioanalysis.com  
Email: Albert.Brockman@innovativebioanalysis.com

## **SARS - CoV - 2 Neutralization by Needlepoint Bipolar Ionization, Powered by GPS**

**CLIENT:** ACA/IAE

**PROJECT:** Needlepoint Bipolar Ionization "NPBI™" applied to COVID19

**PRODUCT:** ACA-RN-0001 and ACA4800GU-1, Powered by GPS DM48 - AC NPBI™ Technology

**CAP LIC NO:** 9501843

**CLIA LIC NO:** 05D1064850

**SAMPLE RECEIVED:** 05/21/2020

**START DATE:** 05/27/2020

**REPORT DATE:** 06/02/2020

**CHALLENGE VIRUS:** SARS-CoV-2

### **EXPERIMENTAL SUMMARY:**

Single RE22 control chambers set on a table stainless steel table with pressure verification seals. Internal working dimensions 16.5"W x 9"H x 12"D for a total cubic footage of 1.031. Under initial observation it was determined to seal the unit completely with no intake or exhaust port. Control ionization counts were performed prior to initial test. Testing and control were conducted in an average ambient temperature of 72.6 degrees Fahrenheit.

A singular fan unit was set up at a 45-degree angle to the two ionization units affixed to the testing chamber. The initial control fan speed was measured at an average of 870 Ft/m. At these airflow speeds the initial ionization saturation counts were taken so adjustment could be made to lower or raise ionization levels depending on the testing parameters needed. Under the original control section, the primary fan was set 10 inches away from ion production unit A and the average air flow speed past the ion producing nodes was 250Ft/m

Under the original control section, the primary fan was set 13 inches away from ion production unit B and the average air flow speed past the ion producing nodes was 240Ft/m. Initial observations indicated large fluctuations of ions throughout the interior of the testing chamber based in the airflow. With unit B running the Ion count fluctuated from 800 thousand ions per cubic centimeter in the center of the testing chamber directly below the ionization unit to 152 thousand ions per cubic centimeter at the exterior edges of the testing chamber.

Initial observations indicated large fluctuations of ions throughout the interior of the testing chamber based in the airflow. With unit A running the Ion count fluctuated from 1.8 million ions per cubic centimeter in the center of the testing chamber directly below the ionization unit to 600 thousand ions per cubic centimeter at the exterior edges of the testing chamber.

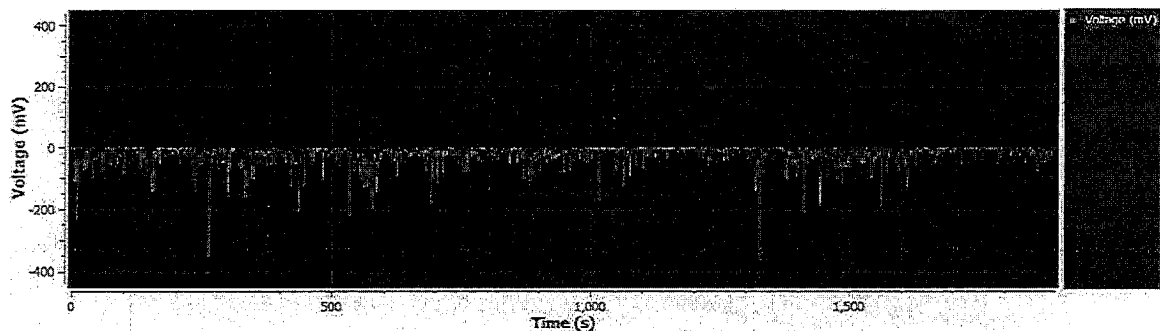
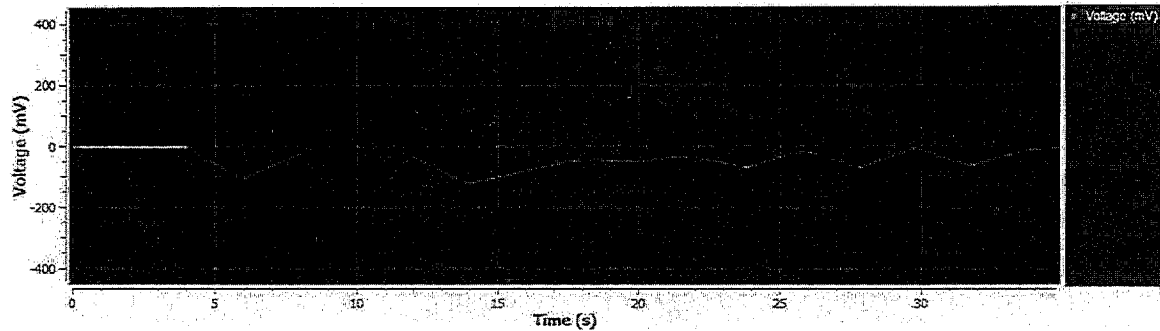
When looking at initial overall Ion situation of an open area with a controlled airflow we observed the below graph range. Ion count recorded in the 100 thousand range when.

	1	2	3
Ft/m	230	330	380
FT	ION	ION	ION
4'	630	1100	1400
7'	250	240	380
11'	92	143	170
15'	21	40	arc
19'	6	24	arc
24'	6	18	9
46'			5

After control samples were completed for saturation levels a slower moving fan was introduced to lessen the airflow across the ionization nodes to reduce the overall Ion concentration levels to something more similar to conditions found inside a standard aircraft when running the ion cleaning system. Based on historical observations the standard Ion count inside aircrafts was 10,000 – 50,000 ions per cubic centimeter. With the slower fan speed and slightly altered angle the average negative ion count inside the test chamber was reduced to an average of 27 thousand per cubic centimeter for the viral testing phase.

During viral sample testing the viral chamber had one continual ionization sensor document the overall ion counts and logged for the course of the test. The average Ion count within the testing chamber at point of viral placement was -27.2307 (+\_ 10,000) cm3. Viral cultures added to test chamber in independent sealable dishes. The initial test the ionizations units were ran for 30 minutes. Each viral sample was sealed at a pre-determined time. Sample A sealed up after 10 minutes of Ion exposure. Sample B sealed after 15 minutes of ion exposure. Sample C sealed up after 30 min of Ion exposure. After final sample was sealed the samples were removed from testing chamber and transferred to lab staff for further testing.

Attached is the continual time points for test on the minute as well as a constant graph of ion levels in the test chamber. Recommended further testing with various times and concentrations of ion levels in the atmosphere.



Secondary wave of tests recommended aerosol product upon confirmation of safety review.

Upon test results data completion determine safety of using 8x20x8 containment pod for large scale control testing.

#### PROCEDURE:

#### **VIRUS: SARS-CoV-2**

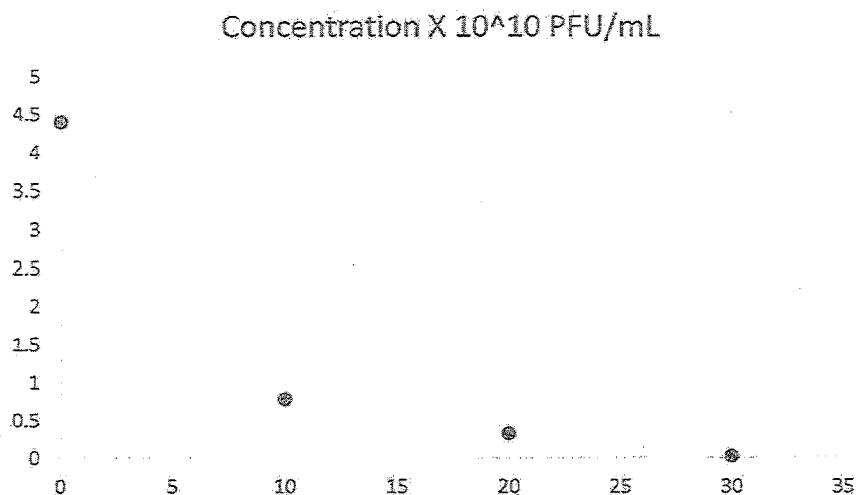
Nasopharyngeal swabs were collected on day 4 post symptom onset, placed in 2–3 mL of viral transport medium, used for molecular diagnosis, and frozen. Vero CCL-81 cells were cultured in Dulbecco minimal essential medium (DMEM) supplemented with heat-inactivated fetal bovine serum (5% or 10%) and antibiotics/antimycotics. For isolation, limiting dilution, and passage 1 of the virus, 50  $\mu\text{L}$  of serum-free DMEM was pipetted into columns 2–12 of a 96-well tissue culture plate. Then 100  $\mu\text{L}$  of clinical specimens pipetted into column 1 and serially diluted 2-fold across the plate. Then trypsinized and resuspended Vero cells in DMEM containing 10% fetal bovine serum, 2 $\times$  penicillin/streptomycin, 2 $\times$  antibiotics/antimycotics, and 2 $\times$  amphotericin B at a concentration of  $2.5 \times 10^5$  cells/mL. 100  $\mu\text{L}$  of cell suspension added directly to the clinical specimen dilutions and mixed gently by pipetting. The inoculated cultures were grown in a humidified 37°C incubator in an atmosphere of 5%  $\text{CO}_2$  and observed for cytopathic effects (CPEs) daily.

**INOCULATION OF THE TEST CARRIER:**

Sterile sealable dishes were coated with 1 mL viral suspension containing samples with a viral titer of  $4.4 \times 10^{10}$  PFU/mL crude SARS-CoV-2 virus. Using the Poisson distribution, one would determine the TCID50 value would be equivalent to roughly .7 X PFU/mL or  $3.8 \times 10^{10}$  TCID50/mL

**EFFICACY TESTING:**

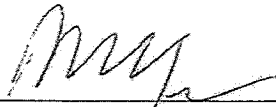
Viral media with a known concentration of Plaque Forming Units was applied to a sterile static dish composed of polystyrene plastic and individually sealable and exposed to bipolar ionization for a period of 10, 15, and 30 minutes. Swabs were taken of all plates and cultured by the same means as the original nasopharyngeal swab culture. Based on viral titrations it was determined that at 10 minutes 84.2 % of the virus was inactivated, at 15 minutes 92.6% of the virus was inactivated, and at 30 minutes 99.4% of the virus was inactivated.



**CONCLUSIONS/OBSERVATIONS:**

Based on the results listed above, it can be determine that hydrolysis via positively charged hydrogen ions binding to peplomers of the SARS-CoV-2 virus can render 99.4 % or viral particles are inactivated on a stagnant surface at 30 minutes. The ionization technology allows for the saturation of hemagglutinin with hydroxyl groups effectively inactivating the hemagglutinin receptors and rendering the virus ineffective and eliminating its ability to bind to and infect cells. Initial testing has demonstrated the ionizers ability to neutralize pathogen, namely SARS-CoV-2, on a static surface. Further studies are required for reproducibility testing as well as variation in environment and environmental factors.

**Disclaimer:**



Dr. Dana Yee M.D. Medical Director

03 JUN 2020

Date

  
06/03/2020 10:52:25 AM

Sam Kabbani, MS, BS, MT(ASCP), CLS  
Chief Scientific Officer, Innovative Bioanalysis

06/03/2020

Date



Albert Brockman  
Director of Biosafety, Lead Biosafety Officer

6/02/2020

Date