

Tonawanda Coke Corporation (TCC) Soil Study

2018 Six Month Report

January to June 2018

July 13, 2018

Introduction

This third semi-annual report covers the first six months of the TCC Soil Study, and includes efforts from the three study partners, staff and students from the Department of Chemistry at the University at Buffalo, SUNY, led by the overall Study Principal Investigator, Professor Joseph A. Gardella, Jr., students from Department of Chemistry at SUNY Fredonia, led by Professor Michael Milligan and efforts from community volunteers organized by Citizen Science Community Resources (CSCR), under the direction of Jackie James-Creedon. Attached are summaries of activities and budget reports from SUNY Fredonia Department of Chemistry and CSCR (**Appendices 1-3**).

The present report will focus on activities ***after what was reported in the January 2018 (dated February 12, 2018) report***, which included the Phase 1 sampling conducted from June to December 2017. This report will focus on the efforts to report individual phase 1 testing results to participants, inclusive of residential property owners, municipalities, school districts and corporate sites, along with the geospatial analysis of the testing data. The final step in Phase 1 will be to validate and report the Phase 1 maps of pollutants which are elevated above soil cleanup objectives (SCOs) and the identification of “hot spots” or areas of interest that can be investigated in Phase 2. Planning for Phase 2 sampling is taking place presently and will begin in July 2018 following through Summer and Fall 2018 with data analysis to present a **comprehensive picture of the legacy of pollution in the Town and City of Tonawanda, parts of North Buffalo, Black Rock and Riverside neighborhoods in the City of Buffalo and portions of Grand Island.**

Updates on recent efforts

- **Outreach and Community Education** efforts led Kathryn Little, TCC Soil Study Community Organizer and Dr. Tammy Milillo, detailed below the efforts to distribute over 17000 flyers by door to door canvassing in the month of June. Also, outreach led by Dr. Milillo resulted in well attended informal “Talks with Tammy” based on a model used in a study directed by Dr. Milillo in Niagara County.
- **UB has released FAQ sheets about the TCC Soil Study on the University Website** <http://www.buffalo.edu/news/key-issues/tonawanda-coke-soil-study.html>
- **Facebook, Twitter and Instagram Accounts were developed for Friends of Tonawanda Coke Soil Study.** Live streaming of Talks with Tammy were done with Facebook.
- **CSCR (Appendix 2)** developed further enhancements to Education Center, surveyed community on desires for Education center, facilitated Community Advisory Council meetings and began tabling at local Farmers Markets
- **A survey of Phase 1 reporting** by Kathryn Little was implemented. Results in **Appendix 5.**
- **Development and Validation of Phase 1 mapping results** (Dr. Tammy Milillo, UB Chemistry Dept) have yielded over 2000 draft maps resulting from various geographic analysis methodologies from the testing results. Review by the designated NYS DEC region 9 staff and

EPA Region 2 staff who have served since 2017 will occur in Late July or early August. Final release of Phase 1 map results is targeted for August 2018.

- **TCC Soil Study Phase 2 Sampling Plan** is being developed through outreach to potential participants. As noted in the outreach plan results, over 17000 flyers distributed have resulted in over 450 participants who have registered interest in Phase 2 sampling.
- **Expanded Air Sampling Study** was proposed by Prof. Michael Milligan in response to discussions with the Community Advisory Committee. Plans are being developed.
- **Meeting held with Tonawanda Coke leadership to provide access for soil sampling in July as part of Phase 2 Source Apportionment work**

Outreach and Education

Summary of Katie Little, Tammy Milillo, and Student Work/Outreach Campaign

Dear Neighbor,

- The University at Buffalo, SUNY Fredonia, and Citizen Science Community Resources are working together on the **Tonawanda Coke Soil Study**.
- This study hopes to develop a better understanding of how our community has been affected by Tonawanda Coke who knowingly released harmful coke oven gases.
- We are looking for residents in the neighborhood to participate in the study and have their soil tested.

**Contact Katie Little
if you are interested in
getting your soil tested.**

klittle@buffalo.edu
(716) 400-9410

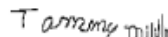
Soil samples are free of charge, confidential, and are limited

- Even if you don't have your soil tested, we want to share the results of the soil study with you and answer your questions.

Thank you for your interest in our community and our research.
In solidarity,



Katie Little
Community Organizer
klittle@buffalo.edu
716-400-9410



Tammy Milillo
Research Assistant Professor
tammymil@yahoo.com
716-645-4168



Community Q&A "Talks with Tammy" series

Sunday 7/1/18 2-4pm at Spot Coffee
1 Delaware Road Buffalo, NY 14217

Saturday 7/7 11am-1pm at Adrian's Custard and Beef
2335 Grand Island Boulevard Grand Island, NY 14072
(Rain location: Tim Hortons 1885 Grand Island Blvd 14072)

Monday 7/30 6-8pm at Panera Bread
1747 Sheridan Dr, Tonawanda, NY 14223

Saturday 8/4 1-3pm at Panera Bread
1747 Sheridan Dr, Tonawanda, NY 14223

Tuesday 8/21 6-8pm at Panera Bread
1747 Sheridan Dr, Tonawanda, NY 14223

Fun events in the community:

Saturday 7/14 1-4pm Buffalo Science Fest at Canalside
44 Prime Street, Buffalo, NY 14202

Saturday 8/25 Elmwood Avenue Arts Festival 10am – 6pm
Sunday 8/26 Elmwood Arts Festival 10am – 5pm
at Elmwood and Lafayette

facebook.com/TCCSoilStudy
instagram.com/TCCSoilStudy
twitter.com/TCCSoilStudy



We are always looking for volunteers from the community, if you are passionate about this project please contact Katie Little to get involved with us!

Figure 1: Example of a flyer distributed in the community to raise awareness about the soil study and upcoming events.

Distributing flyers (flyering)

Flyers were distributed as a method of increasing awareness about the soil study, identifying residents who are interested in participating in the soil study (either by having their soil tested or by volunteering), and informing residents of upcoming events related to the soil study. An example of a flyer can be seen above (Figure 1). Flyers also emphasized connecting to the soil study using social media as a way to stay informed about relevant soil study news and information.

General flyer distribution locations were chosen based on results from Phase 1. In each location a flyer was distributed to each house and was placed in the door or on the side of the mailbox. The breakdown of the number of flyers distributed in each location is denoted in the following table. The current total number of flyers distributed is approximately 17,400. All locations have not been completed, so the total number of distributed flyers is expected to increase.

Table 1: Approximate number of flyers distributed as of 7/12/2018

City of Tonawanda	Town of Tonawanda	Grand Island	Southern Study Border	Eastern Study Border	Grand Total
2,600	1,400	2,300	5,050	6,050	17,400

Katie, Tammy, and the Student team have fielded over 250 calls and emails in response to the flyering effort and have compiled the information into a list of people who are interested in getting their soil tested. In Phase 2 of the soil study we will mainly sample in areas of interest; those who expressed interest in having their soil tested in Phase 1 and are located in or near areas that have been tentatively identified as areas of interest were included in the list of interested participants for Phase 2. **The additions from the 2018 flyering effort have brought the total number of potential phase 2 locations, many of whom have expressed interest in having their soil sampled, to over 450.**

Talks with Tammy

In an effort to promote transparency and provide residents with the opportunity to ask questions about the research Katie and Tammy scheduled a series of Talks with Tammy events. These are informal sessions located at local restaurants and/or parks where Tammy and Katie are available and residents can come and go as they are available. Table 2 summarizing information about the Talks with Tammy events is provided on the next page.

Social Media Outreach Statistics

In an effort to make information about the soil study more readily available Katie has created accounts on Facebook, Instagram, and Twitter. These accounts are used to direct people who have an interest in the study to find out more information and to keep up with progress about the soil study. We intend to build our following and use the social media accounts as a tool- in addition to email, phone calls, and flyering, to get messages out to the community about soil study updates and other relevant news. We keep our Facebook followers engaged with our page by regularly posting about relevant science articles, current events, and updates about the soil study. Since our start date (4/17/2018), as of 7/12/2018 we have published 40 posts and which have reached 1,728 viewers. The average reach, or people who viewed the post, was 43 persons per post. Our most popular posts have been the live feeds, or videos, where Katie and Tammy discuss common questions about the soil study. The most popular live feed reached 167 viewers.

The number of people who we have reached through our Facebook posts have been purely “organic” meaning that people who see the post are those who have either liked our page, or who have seen a post that has been shared from our page. We have not used the “Boost” feature, which posts content to others who are not friends of the page for a fee.

Table 2: Talks with Tammy event dates, locations, and number of attendees.

Event Location	Date	Number of Attendees
Tim Hortons – 71 Niagara Street Tonawanda, NY 14150	Saturday, 6/23 11-1pm	1
Panera Bread – 1747 Sheridan Drive Tonawanda, NY 14223	Monday, 6/25 6-8pm	4
Spot Coffee – 1 Delaware Road Buffalo, NY 14217	Sunday, 7/1 2-4pm	5
Adrian’s Custard and Beef – 2335 Grand Island Blvd Grand Island, NY 14072	Saturday, 7/7 11-1pm	5
Panera Bread – 1747 Sheridan Drive Tonawanda, NY 14223	Monday, 7/30 6-8pm	-
Panera Bread – 1747 Sheridan Drive Tonawanda, NY 14223	Saturday, 8/4 1-3pm	-
Panera Bread – 1747 Sheridan Drive Tonawanda, NY 14223	Tuesday, 8/21 6-8pm	-

Table 3: Number of followers for social media accounts.

Facebook	Instagram	Twitter
85	21	9

Other events/meetings

Other events and meetings were scheduled by Katie and Tammy in an effort to promote transparency and knowledge about the research and to make information about the soil study more readily available to community members.

A summary of the past and future meetings is as follows:

Table 4: Summary of past and future soil study meetings.

Meeting Name	Location	Date	Purpose	Approximate # Attendees
Community Meeting	Kenmore Library	5/15/2018	General update about the soil study	30
Soil Sampling Training	UB	6/11/2018	Train student employees about soil sampling procedure	6
Canvassing with Compassion Training	University Tool Library	6/16/2018	Educate student employees about nuances of community outreach. Partnered with Science Demands Action community group. Workshop was livestreamed on Facebook for those who could not attend in person.	In person – 10 Online – 7.3K

Soil Sampling Training	UB	6/26/2018	Train student employees about soil sampling procedure. Students practiced taking a mock soil sample.	4
Science Fest	Canalside	7/14/2018	Educate visitors about the soil study, recruit participants and volunteers for Phase 2 of the study.	-
Nellie Brown Presentation	CSCR office	7/18/2018	Nellie Brown is the Director of Workplace Health and Safety Programs, Lead Programs Manager, and Certified Industrial Hygeienist at the Cornell University. Her first job was as a chemist at Tonawanda Coke. She will present to the soil study Community Advisory Committee.	-
Elmwood Avenue Festival of the Arts	Elmwood Avenue	8/25/2018 8/26/2018	Educate visitors about the soil study, recruit participants and volunteers for Phase 2 of the study.	-

Map Development from Phase 1 (Dr. Tammy Milillo)

Draft maps are complete. From the over 2000 maps created, optimized for minimized error in the estimates of spatial distribution of pollutants, 65 contaminants were identified with levels elevated above Soil Clean Up Objectives (SCOs). After review by NYS DEC (along with NYS DOH) and EPA advisors, in late July/early August, TCC Soil Study leadership will work to plan a public release.

Phase 2 sampling

In Phase 2 the sampling will focus on hot spots and will develop sampling plans with a high spatial density of sampling to determine the extent of a hot spot to six inches depth. A detailed sampling plan will be developed from the maps developed in Phase 1. From those testing results a geographic analysis of the extent of Tonawanda Coke's impact on soil contamination in the City and Town of Tonawanda and areas of Buffalo and Grand Island will be evaluated. Phase 2 also includes a detailed analysis of source apportionment¹, as described in the UB led proposal to Judge Skretny, using advanced testing methods at SUNY Fredonia (two-dimensional gas chromatography with time-of-flight mass spectrometry (GCxGC-TOF)) and UB (Time of Flight Secondary Ion Mass Spectrometry) along with Geospatial data analysis to determine the impact of TCC separated from other sources of the same chemicals in the geographic area.

¹ Hopke P.K. (1995) The Mixture Resolution Problem Applied to Airborne Particle Source Apportionment. In: Einax J. (eds) Chemometrics in Environmental Chemistry - Applications. The Handbook of Environmental Chemistry, vol 2 / 2H. Springer, Berlin, Heidelberg

P. Hopke, (2015) Chemometrics applied to environmental systems, Chemometrics and Intelligent Laboratory Systems 149 205–214 <http://dx.doi.org/10.1016/j.chemolab.2015.07.015>

J. S. Wallace Modernizing Environmental Analysis: Mass Spectrometry as a Tool for Investigating and Answering Salient Environmental Questions, Ph.D. Dissertation, May, 2016.

Expanded Air Study

Figure 2 shows a map with soil sampling sites overlaid with a draft distribution of 10 air samples. The initial air sample will be taken at Tonawanda Coke to get a reference of emissions chemistry for source apportionment and was ordered by the Judge. We are presently working with Tonawanda Coke leadership to identify the ideal site. Two 24 hour air samplers will be deployed to collect air emissions for testing. We will use the same dual sample collection configuration at 9 additional sites in the community. We have identified addresses for the sites based on the geographic distribution shown in Figure 2.

The goal of this study is to get a detailed snapshot of the air emissions over a 9 day period (one day for each sample). A FAQ sheet is attached as Appendix 4 showing the equipment and explaining the study for the community.

Next Steps

1. We will be collecting air samples collaboratively between UB and SUNY Fredonia.
2. We will establish sites for Phase 2 sampling and gain permissions to sample.
3. We will hold a press conference and meetings to announce the Phase 1 results.
4. We will develop the collaborative effort for source apportionment analysis of contributions from Tonawanda Coke and separating these results from other polluters in the area.

List of Appendices

Appendix 1: SUNY Fredonia Report with SUNY Fredonia Budget Report

Appendix 2: CSCR Report

Appendix 3: Budget Reports, UB and CSCR

Appendix 4: FAQ Sheet for Air Study

Appendix 5: Survey of participants on Phase 1 reporting quality

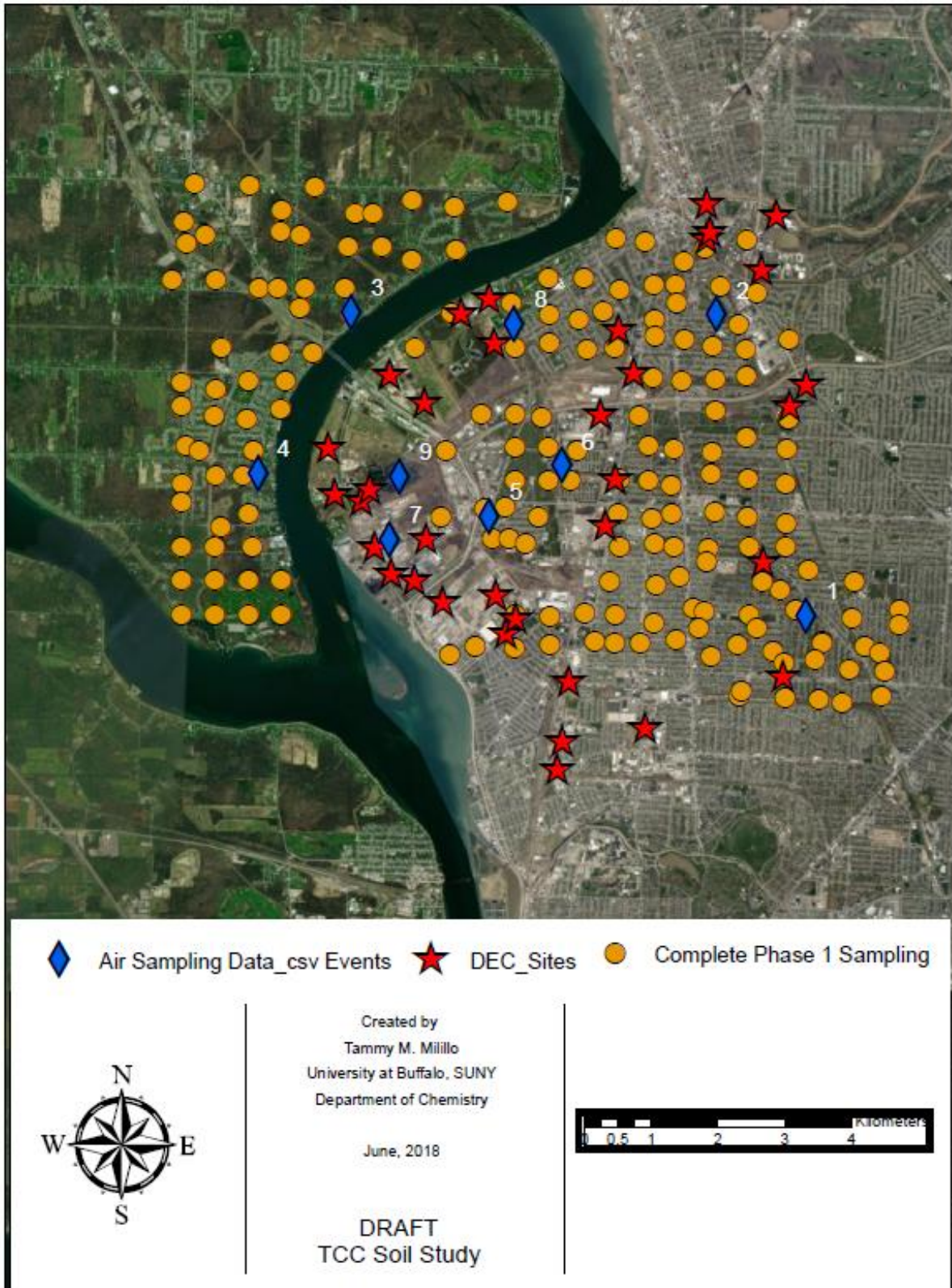


Figure 2 Map of Air Sampling Sites relative to Soil Sampling Sites

Appendix 1

Report from SUNY Fredonia Department of Chemistry

Determining the Environmental Impact of Coke Oven Emissions Originating from Tonawanda Coke Corporation on Surrounding Residential Community

Progress Report for Subcontract awarded to SUNY Fredonia, Co-PI Michael S. Milligan 01-01-18 to 07-10-18

Progress

- Purchased a Tisch Environmental TE-1000 PUF+ high volume air sampler to support air sampling efforts around the Tonawanda Coke facility and the surrounding community in the second half of the summer of 2018.
- Continued work on the development, improvement, and refinement of analytical methods using comprehensive two-dimensional gas chromatography with time-of-flight mass spectrometry (GCxGC-TOF) to be used for non-targeted analysis of soil sample extracts and air samples. Our hope is to identify unique chemical markers to the coking industrial process.
- Assisted in the analysis and interpretation of the analytical results generated from the Phase I soil sampling
- Attended meetings with the Community Advisory Committee to update them with the details of our progress.
- Attended meetings with community members, under the supervision of Dr. Joe Gardella, to discuss soil sample results with individual property owners who had agreed to have their soil sampled during the Phase I process.
- Currently supervising a paid undergraduate research assistant (Samuel Johnson) for the summer of 2018. His responsibilities include assisting in optimizing analytical and instrumental techniques for soil and air analyses, and in the deployment and operation of the high-volume air sampler.

Plans

- We are in the final planning stages of deploying the TE-1000 PUF+ high volume air sampler for at least ten 24-hour sampling runs. Current plans are to collect one sample from the Tonawanda Coke grounds and nine other samples from property owners selected from a grid surrounding the Tonawanda Coke facility.

Budget details

- The total SUNY Fredonia subcontract for the two year period of this project was \$87,659.
- As of 07-10-18, the following expenditures have been made:
 - \$8,890 on Co-PI Milligan partial summer salary, and undergraduate research student salary for the summer of 2017 , \$1,245 in fringe benefits
 - \$5,270 in indirect costs
 - \$7,000 to purchase the TE-1000 PUF+ high-volume air sampler
- The remaining funds will be used for the following in 2018:
 - 2018 Summer salaries and indirect costs for Co-PI Milligan and undergraduate research student Samuel Johnson (approximately \$20,000)
 - Analytical standards to be used in GCxGC-TOF analyses of soil and air samples (approximately \$5,000)
 - Costs of analysis for air samples to be collected at the Tonawanda Coke site and in the surrounding neighborhood (approximately \$10,000)
 - Travel expenses for ten air sampling events (approximately \$1,000)

Appendix 2

CSCR Six Month Report

To: Dr. Joe Gardella, University at Buffalo

From: Jackie James Creedon, Citizen Science Community Resources, Inc.

Re: First 6 Month Update for Tonawanda Coke Soil Project

Date: July 10, 2018.

Responsibility #1:

Act as a facilitator between researchers and community:

Task #1: Over see Community Advisory Committee (CAC)

Communication with CAC: fielded, and answered questions

6 meetings scheduled and facilitated

Task #2

Built Community Capacity

Volunteer database management

Community organizing & education and outreach which included: communication (emails, calls and meetings), attended tabling events, recruitment of volunteers

Responsibility #2

Develop Community Office and Education Center

Task #1

Held Strategic planning meeting on 3/28/18

Developed ideas for Center and launched community wide survey.

Task 2

Create soil, air, or water toolkit and hold workshop

Created soil sampling toolkit with technical advisor, volunteers and community input.

Held Workshop on 4/12/18

Task 3

Create education materials

Videos, flyer, manual and quick guide

Deliverables (as of 6/30/18):

- Created short informational videos posted on Citizen Science Community Resources youtube station. https://www.youtube.com/channel/UCpoVY08L5gGlcXgAiY1_40A
- Workshop on 4/12/18
- Developed ideas with community (3/28/18 meeting) for Center and created survey.
- Developed schedule of markets (education and outreach)
- Developed volunteer/outreach plan with UB's community organizer
- Held 6 CAC meetings
- Soil sampling toolkit, flyer, manual and quick guide



Empowering People to Protect our Planet

3200 Elmwood Ave. Room 212. Kenmore, N.Y. 14217

csresources.org

WNY Community Science Education Center

Background:

As part of the \$711,000 environmental project that the U.S. District Court of W.N.Y. ordered Tonawanda Coke to fund, this year (2018) we are developing an Education Center and want to hear from you what programs and resources should be included as we grow.

Here's what we will be doing in 2018:

- **Hold strategic planning event/workshop with community to develop ideas and a vision for the Education Center**
- **Create schedule of workshops/meetings and information to market Center**
- **Create education media materials (which could include brochures, flyers, video, etc.)**
- **Educate community on adverse health impacts pertaining to toxins present.**
- **Create a soil tool kit and hold workshop with community. (Workshop was held on April 12th)**

To take our 5 min survey, please visit our website at: www.csresources.org



Citizen Science Community Resources empowers communities by providing the tools to fight for public health and environmental justice.

on line link:
survey monkey.com/r/QLLVR3R



Empowering People to Protect our Planet

3200 Elnwood Ave. Room 212. Kenmore, N.Y. 14217
csresources.org

Community Science Education Center

A Community Science Education Center is coming to your neighborhood. We need your help to make it effective!


1. What types of programs would you like to see? (check all that apply)

- youth education
- Wellness programming
- Soil Safety: Best practices for gardeners
- Community networking
- Citizen science classes (environmental justice)
- Citizen science lending library (air, soil and water testing tool kits)
- Holistic classes (yoga, tai chi, etc.)
- Cooking classes
- Support network
- Environmental Health classes and education materials.
- Environmental justice research library

Other (please specify):

2. Who would you like to be involved in planning and implementing center programs? (Community leaders, educators, etc)

3. Do you have any skills you'd like to contribute to the Community Science Education Center? (Administrative, educational, scientific, nutritional, etc.)


**Citizen Science Community Resources empowers communities by
providing the tools to fight for public health and environmental justice.**

Volunteer/outreach

Notes for meeting with JJC, KLI Monday 6/18/18 – 2:45-3:30pm

- KL progress in 2018 re: volunteers:
 - Contacted volunteers from 2017
 - Added those who are interested in volunteering in 2018 to the schedule
 - Have engaged volunteers in basic tasks
- Community meetings/"science cafes"
 - JJC would like to schedule/plan these community engagement events
 - Purpose: general awareness about the Soil Study, Health Study, Science
 - Potential speakers: Matt Bonner, Nellie Brown
- Volunteer Plan
 - Organizing soil testing teams
 - JJC should send contact information of potential volunteers to KL
 - KL will organize soil testing teams
 - Soil testing will begin after Phase 1 maps are released
 - Soil sampling training for volunteers
 - Will schedule a date after Phase 1 maps are released
- Farmer's markets
 - JJC will table at local farmer's markets
 - KL will ask available volunteers if they are interested in attending the farmer's markets
- Talks with Tammy events
 - KL and TM will be available in the community to answer resident's questions

Quick summary of action items:

JJC – Recruit volunteers; send contact information to KL

JJC – Contact Matt Bonner re: speaking at a community meeting

JJC – Let KL know the dates/times for the farmers markets

KL – Ask volunteers if they are interested in attending the farmer's markets

Osteach Education / Farmer Market Schedule

July

2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
<p>2 GI Market 4-7pm Knight of Columbus 1841 Whitehaven Blvd.</p>	<p>3</p>	<p>4</p>	<p>5</p>	<p>6</p>	<p>1 July Kenmore Market ✓ 6/24, 9-1pm Village Green COT Market 7/1, 10-2pm</p>
<p>7/8 COT Market 10-2pm The Hub at Young St</p>	<p>9 GI Market 4-7pm Knight of Columbus 1841 Whitehaven Blvd</p>	<p>10</p>	<p>11</p>	<p>12</p>	<p>14/15 COT Market 10-2pm The Hub at Young St</p>
<p>16 GI Market 4-7pm Knight of Columbus 1841 Whitehaven Blvd</p>	<p>17</p>	<p>18</p>	<p>19</p>	<p>20</p>	<p>21/22 COT Market 10-2pm The Hub at Young St</p>
<p>23 GI Market 4-7pm Knight of Columbus 1841 Whitehaven Blvd</p>	<p>24</p>	<p>25</p>	<p>26</p>	<p>27</p>	<p>28/29 Sunday Kenmore Market 9-1pm Village Green</p>
<p>30 GI Market 4-7pm Knight of Columbus 1841 Whitehaven Blvd</p>	<p>31</p>				

Appendix 3

UB Budget Report

CSCR Budget Report

Report Date: 07/13/18

Sponsor: US District Court for the Western District of New

RF Award No: 76458

Sponsor Address: 2 Niagara Square, Buffalo, NY 14202

Sponsor ID# : 110cr00219WMSHKS

Report Type: Interim

Report Period From: 08/12/16 To: 06/30/18

Title of Project: UB Soil Sample Study: Determining the Environmental Impact of Coke Oven Emissions Originating from Tonawanda Coke C

Under direction of : Gardella, Dr. Joseph A

Award Period From: 08/12/16 To: 12/31/18

Award Authorized for Expenditure

-Cash Reconciliation-

Award	\$712,906.62	Total Award Authorized For Expenditures	\$712,906.62
Authorized Transfer from Previous Year		Less: Cash Received to Date	\$712,906.62
Total Award Authorized For Expenditures	\$712,906.62	Balance	\$0.00
-Expenditures-		Unexpended Award Balance	\$258,633.37

Salary and Wages	\$169,596.94
Employee Benefits	\$62,500.90
Consultant Services	\$0.00
Equipment	\$6,846.00
Supplies	\$10,980.24
Travel Domestic	\$1,579.59
Travel Foreign	\$0.00
Tuition and Fees	\$0.00
Fellowships & Part. Support	\$112.00
Subaward	\$100,967.40
Conference & Training	\$0.00
General Services	\$94,383.72
Postage	\$0.00
Miscellaneous	\$7,306.46
SUBTOTAL DIRECT COSTS	\$454,273.25
F&A Cost Rate: 0.00 %	\$0.00

Comments:

This is an interim report of expenditures. Thanks!

TOTAL	\$454,273.25
Expenditure Previously Reported	\$0.00
TOTAL EXPENDITURES	\$454,273.25
UNEXPENDED AWARD BALANCE	\$258,633.37

I hereby affirm that the foregoing report is true in all respects and that all the expenditures and obligations indicated above have been made within the provisions of the grant or contract.



Signature
Name, Title

Maryssa Kunes
AR Financial Reporting Coordinator

Appendix 4

Air Study FAQ Sheet

Tonawanda Coke Soil Study

Frequently Asked Questions about [Air Sampling](#)

UNIVERSITY AT BUFFALO, CITIZEN SCIENCE COMMUNITY RESOURCES, AND SUNY FREDONIA

The Tonawanda Coke Soil Study is collecting and analyzing soil samples in the Town and City of Tonawanda, Eastern Grand Island, and North Buffalo communities. This will help us to better understand the effects of industrial pollution in our community. The research team will take air samples on-site at Tonawanda Coke and, responding to the concerns of community members, a small number of air samples within the community to capture a snapshot of our air quality.

1. What is the goal of air sampling?

- Sampling at Tonawanda Coke (TCC) gives the research team a reference of what chemicals are being emitted from the facility. This data will help to determine if chemicals found in the soil came from TCC.
- Samples taken in the community will give us a snapshot of our air quality. If anything of concern is found we will alert the New York State Department of Environmental Conservation (DEC).

2. Where will sampling occur?

Sampling locations will be located within the soil sampling area. We will be looking for families willing to host the equipment for a 24-hour period.

3. Will the air sampling procedure be reviewed by the DEC/EPA?

We are using standard EPA methods. Those methods have already been reviewed.

4. What chemicals are being tested for?

We will be measuring commonly analyzed volatile organic contaminants (VOCs), semi-volatile organic contaminants (SVOCs), and fine particulate matter (PM_{2.5}). These methods are standard EPA procedures.

5. Where will the data be analyzed?

Samples will be analyzed at TestAmerica's Knoxville, TN laboratory. This lab is certified by the Federal Government to perform the highest quality analysis of air samples and also maintains NYS certification for analysis of air emissions. Particulate matter will be analyzed at UB and SUNY Fredonia using advanced analytical tools.

6. What is the sampling/equipment hosting process like?

- Sampling occurs over a 24-hour period.
- Staff from UB would set up and start the sampling process.
- Families would host the equipment overnight and monitor to make sure the set-up is undisturbed.
- **Equipment from Fredonia is larger, noisier, and requires a power outlet.**

7. How many samples will be taken?

We will be taking 8 samples in the community in addition to the samples being taken at TCC.

8. How will this air monitoring data affect the soil/health study?

This data is unlikely to affect the soil/health study. If anything of concern is found we will alert the DEC.

9. Will we be able to map the data from air sampling?

Air sampling efforts will only create a snapshot of our air quality. We will not be able to map the data from air sampling.



Revised July 2018

Contact Information:



Professor Joseph A. Gardella Jr.
tcsoilstudyquestions@gmail.com | Office: 716-645-1499

Katie Little | klittle@buffalo.edu | Office: 716-400-9410

Dr. Tammy Milillo | tammymmil@gmail.com | Office: 716-645-4168

Professor Mike Milligan | michael.milligan@fredonia.edu
Office 716-673-3500

Jackie James-Creedon | jackie@csresources.org | Office 716-873-6191

Tonawanda Coke Soil Study

Frequently Asked Questions about the air sampling equipment:

Fredonia's Equipment

- Can sample about 300 cubic meters of air per day
- Can detect much more dilute (lower concentration) contaminants
- Needs external power (110 line).
- Larger than a suitcase.
- Loud- like a big vacuum cleaner.
- Chemicals are measured in nanograms per cubic meter.



University at Buffalo's Equipment

- Can sample about 14 cubic meters of air per day
- Allows us to collect a duplicate sample for additional, more sophisticated analysis at UB/Fredonia
- Runs on rechargeable batteries.
- Suitcase sized.
- Quiet.
- Chemicals are measured in nanograms per cubic meter.



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Contact Information:

Professor Joseph A. Gardella Jr.
tccsoilstudyquestions@gmail.com | Office: 716-645-1499

Katie Little | klittle@buffalo.edu | Office: 716-400-9410

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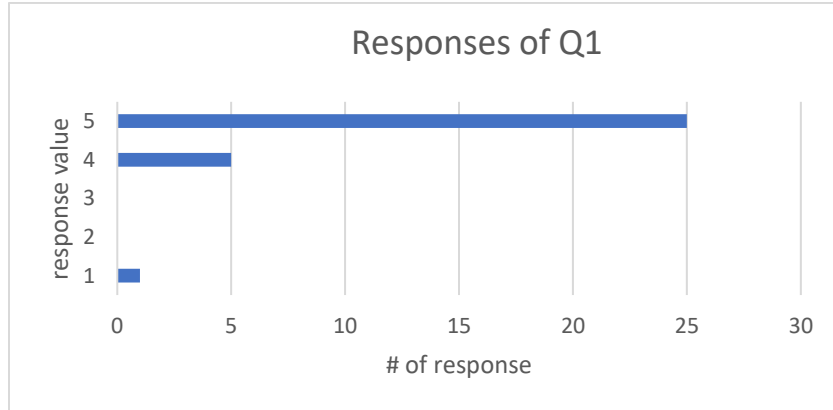
Appendix 5

Results of survey of participants regarding Phase 1 reporting quality

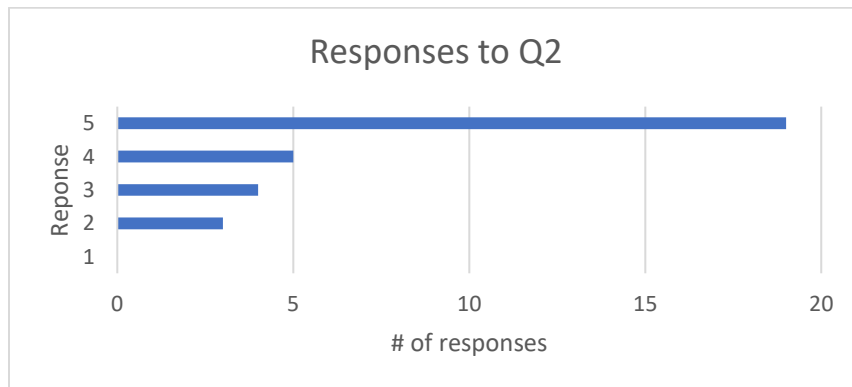
PHASE ONE SURVEY RESULTS

N = 32

Question 1: "On a scale of 1 to 5... Could you rate flexibility and scheduling in giving you your results?"

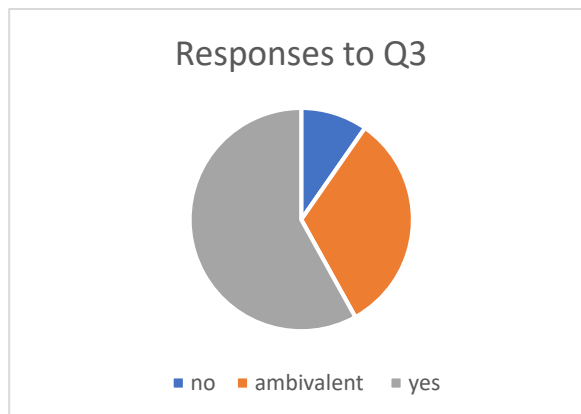


Question 2: "On a scale of 1 to 5... could you rate your understanding of our permission process in collecting and using your data?"

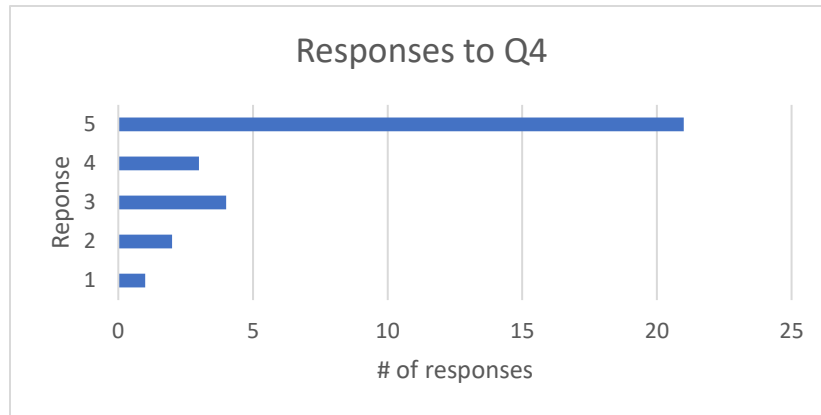


Question 3: "Would you prefer a more streamlined permission process by only using one permission form?"

no ambivalent yes
3 10 18

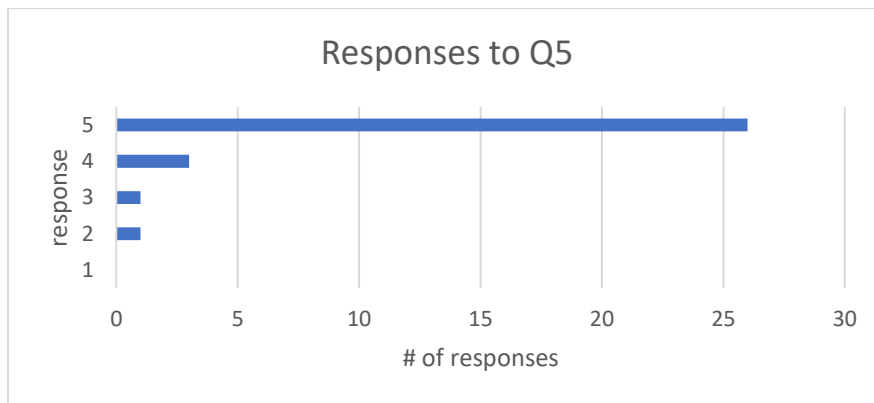


Question 4: "On a scale of 1 to 5 could you rate our clarity in the soil test sampling process?"

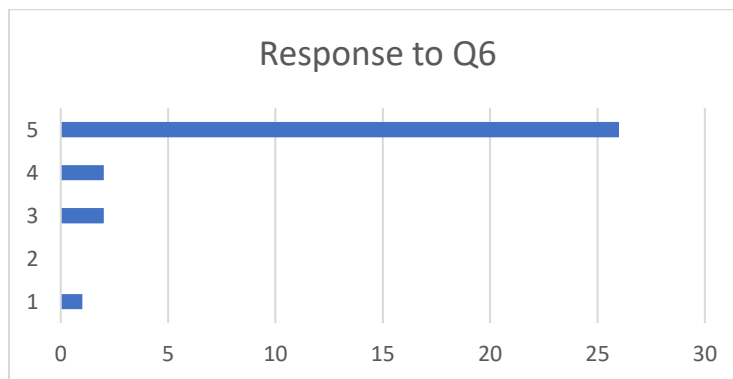


Average 4.322581

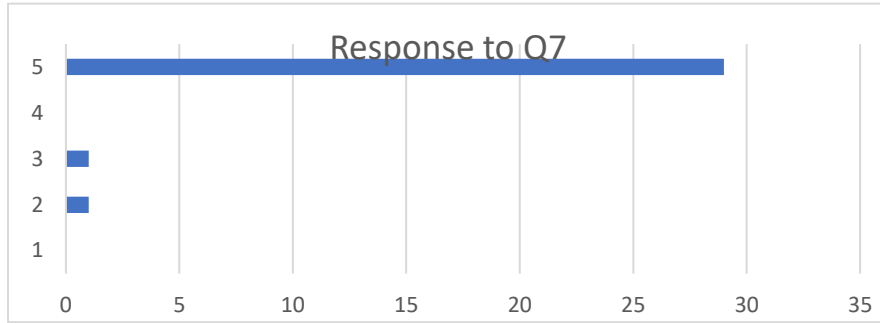
Question 5: "On a scale of 1 to 5 could you rate your ability to contact us for a question you had?"



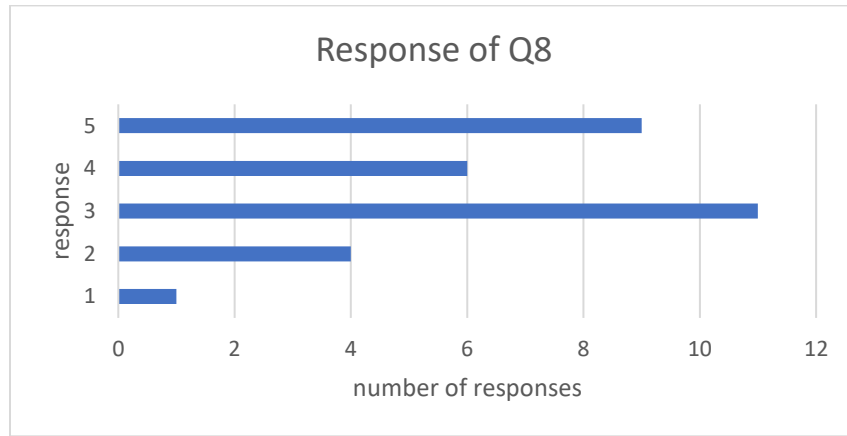
Question 6: "On a scale of 1 to 5 could you rate our ability to answer your questions?"



Question 7: "On a scale of 1 to 5 how did you find our research team to be"



Question 8: "On a scale of 1 to 5 could you describe how understandable your results packet was, in your experience?"



1	2	3	4	5	Average
1	4	11	6	9	3.580645

1- Not clear at all, even after asking questions 3- clear once explained 5-very clear, did not need an explanation

Question 9: Anything you would like to add?

don't know about chemistry and she has a hard time explaining what she needs. How do you decipher everyday illness from the potential toxicity of the soil.
are we in any danger??
done good work and were clear and open
got results, talked with doctor and katie and got a full explanation. Is there anything to be done about it?? Did a good job with the soil test
see the map of the plume
felt like how it came about Kessner help to put GI on the study
see the map of the plume
the packet needed unpacking/explaining
not sure how you could put it any other way
don't know what to do with the information
very pleased
more layman's terms, summary of results with statement of contaminated or not
very technical, stuff that she doesn't normally read
information packet with the breakdown really should get more simplified too comprehensive and over peoples heads -- simplify more with more plain language. Smart person that put it together but did not appreciate looking things up in a dictionary. Comprehensive to the everyday person.