ORANGE COUNTY
NORTH CAROLINA

ORANGE COUNTY
HIGH IMPACT OPIOID ABATEMENT STRATEGIES
Funding Proposal Application Form
Application Due Date: February 21, 2025

Applicant Agency: General Information			
Legal Name	C.E.C. Analytics, Ltd.		
Address	105 East Reno Ave, #8, Las Vegas, NV 89119		
Type of Agency (check one)	☐ Government/ Public Authority	☐ Non-Profit	☒ For-Profit Business
Telephone	(403) 404-5447		
Website	https://www.cecanalytics.com		
Primary Contact Full Name	Bob Kittredge		
Title	Head of Business Development, USA		
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Telephone	(508) 341-9861		
Name of Project	Wastewater Monitoring for Substances of Potential Abuse (SoPA)		
Total Application Funding Requested	$ 35,233.40 (Annual)		
Funding Period Requested (MM/DD/YYYY)	Start Date	07/01/2025	End Date 06/30/2026
Selected NC MOA Option A Strategy (Number and Name)	1. Collaborative Strategic Planning		
Agency Mission and Vision Statements	Communities First: We believe in breaking down barriers to ensure any community has the option to gather and analyze data pulled from their wastewater to monitor for contaminants of concern. Science-based Solutions: We apply our deep experience in wastewater-based		

	epidemiology to monitor for opioids and other illicit drugs and substances of concern and offer insights that support the vitality of communities.

1. Proposal Summary *(no more than 250 words, required but not scored)*

C.E.C.'s proposed project is a Wastewater Monitoring Program for Substances of Potential Abuse (SoPA), providing laboratory analysis for fentanyl and other opioids and substances of concern in Orange County wastewater. Wastewater from the Hillsborough Wastewater Treatment Plant (WWTP) will be tested to provide representative, population-level samples of residents. The result will be actionable, evidence-based data which enables Orange County to:

1. Plan and improve its strategic response to the opioid crisis by gaining a better understanding of the near-real time usage trends of opioids and other substances in the community to better target abatement efforts that address the needs of those with Opioid Use Disorder (OUD) and co-occurring Substance Use Disorder (SUD).
2. Evaluate the efficacy of abatement efforts based on usage trends of opioids and other substances in wastewater before and after their implementation.

Data produced will be unbiased and equitable in its representation of all residents contributing to the wastewater stream, including historically marginalized and underserved populations. Community-level samples collected at the WWTP will also protect the anonymity of individual residents struggling with OUD and SUD, thereby avoiding the perpetuation of stigma.

This program will support Strategy 1: Collaborative Strategic Planning under Exhibit A to the NCMOA, and further aligns with Activity E: Identify Key Indicators under Exhibit C.

Wastewater data stands in contrast to other indicators used to measure opioid harm such as overdose deaths and overdose ED visits for which data is often delayed and arrives too late in the most literal and tragic sense.

2. Project Narrative

A. Assessment of Community Need (16 points, page limit: not to exceed 1 ½ pages)

C.E.C.'s proposed wastewater monitoring program for substances of potential abuse (SoPA) is designed to address the need all communities have for objective, unbiased data to provide cost-effective, near-real time insights on the evolving nature of OUD and SUD as they combat the opioid crisis with abatement strategies. By generating a consistent dataset of 48 analyte targets including parent drugs, metabolites and other substances of concern, C.E.C. will provide Orange County with evidence-based data that can be used to inform the planning and assessment phase of all other opioid abatement programs, and later to evaluate their efficacy based on the trends seen in wastewater before and after their implementation.

The need for timely data on the evolving nature of OUD and SUD in Orange County is exemplified by a comparison of the most recent years' reporting of Overdose Deaths and Fentanyl Positive Deaths in NC DHHS's North Carolina Overdose Epidemic Data. In 2023, Orange County saw an Overdose Death rate of 21.0 per 100,000 residents, representing a projected 32 people who died of an overdose and a 12% decrease from the prior year. From 2022 to 2023, meanwhile, Orange County saw a 28% increase in Fentanyl-Positive Deaths, demonstrating a clear rise in the prevalence of fentanyl as a cause of Overdose Deaths. From 2023 to 2024 (Jan-Oct), however, Fentanyl-Positive Deaths in Orange County declined by 52%. While 2024 data on Overdose Deaths has not yet been published, if the decrease in Overdose Deaths is not as significant as the decrease in Fentanyl-Positive Deaths, a gap in understanding will exist as to which substance(s) are to blame. Wastewater monitoring can fill that gap by providing near real-time data on which substances are being used in the community.

C.E.C. proposes initiating weekly wastewater sample collection at Hillsborough WWTP, which will provide data that directly represents the town's population and, by extension, serves as a representative sample of Orange County. The selection of a single sampling location is meant to keep the program budget as low as possible, and Hillsborough appears to be an ideal location given its geographic position in the County and coverage of major highway intersections, but if awarded funding, an initial step in collaborative program design between C.E.C. and Orange County stakeholders will be to discuss and confirm desired sampling locations. If different or additional sampling locations are identified and the County chooses to sample at more than one, two options exist:

- Increase budget to accommodate weekly sample collection and analysis at multiple locations (annual cost of $35,233.40 for 52 weekly samples per location)
- Decrease sampling frequency, i.e. collect samples once every two weeks at two locations (annual cost of $35,233.40 for 26 samples bi-weekly at two locations)

References:

1. North Carolina Overdose Epidemic Data (NC DHHS)

2. Orange County Fentanyl Positive Overdose Deaths (NC Office of the Chief Medical Examiner Toxicology)

B. Project Description and Program Sustainability *(28 points, page limit: not to exceed 3 pages)*

How Wastewater Monitoring for Substances of Potential Abuse (SoPA) Works:

Wastewater monitoring programs are simple to implement and sustainable to manage. In partnership with Orange County stakeholders, C.E.C. will work to identify the best-suited sampling location(s) within the County to provide wastewater samples that are representative of its residents. Based on preliminary research, C.E.C. recommends sampling at the Town of Hillsborough Wastewater Treatment Plant (WWTP) to provide wastewater samples that are representative of the Orange County community, and we have already been in touch with staff at the plant to discuss the program. However, if the County feels that it is important to collect samples from multiple locations, this can be accomplished by either increasing budget or decreasing sampling frequency (i.e. collect samples once every two weeks at two locations instead of weekly at one location). These options can be discussed with County stakeholders at the outset of the program.

The only requirement of WWTP staff is collection and shipment of one (1) wastewater sample per week to C.E.C.'s laboratory. C.E.C. then analyzes the samples using mass spectrometry to provide chemical substance quantification and consumption estimate data for use in Orange County's Planning, Assessment and Evaluation phases of opioid abatement strategies.

Wastewater samples (24-hour composites collected at 15-minute intervals by an autosampler) can be collected in a wide variety of locations, but the preferred initial sampling locations are municipal wastewater treatment facilities. WWTP staff regularly collect samples for a variety of testing purposes, so collecting 100 mL of influent wastewater weekly to ship to C.E.C. for analysis will be a low operational burden. A Memorandum of Understanding (MOU) detailing the requested collaboration with Hillsborough WWTP is included in Attachment 3 as a Letter of Support/Commitment.

By collecting samples at a wastewater treatment plant location, data produced will represent Orange County residents at the community-level, creating an unbiased and equitable dataset while protecting the privacy of individual community members. While many County residents utilize septic systems rather than sewer lines, waste from septic tanks often ends up at treatment plants for processing as well, and the influent wastewater stream at Hillsborough WWTP will assuredly capture significant and representative samples of the community at large.

C.E.C. provides sample collection kits, return shipping materials and pre-paid overnight shipping labels to transport weekly samples to our laboratory for analysis. There, each sample is processed and analyzed for C.E.C.'s full panel of SoPA targets including parent drugs and metabolites. C.E.C.'s full SoPA Analytical Suite is found in Attachment 9. The C.E.C. team recognizes the complexity of substance use (and polysubstance use) and responds by offering

the largest panel of analytes available, and by adding new targets over time at no additional cost to the communities we partner with. By testing for a wide range of analytes including fentanyl, opioids, methamphetamines, psychedelics, benzodiazepines and emerging classes such as nitazines (synthetic opioids), C.E.C. wastewater monitoring programs deliver a comprehensive view of OUD and SUD within a community.

Data will be delivered to County stakeholders in spreadsheet and/or data visualization format within 10 business days from sample receipt (often much faster). Each sample analyzed adds a new data point for each substance target. Within 2-3 months, baseline levels of substance use in the community are observed, and over time, deviations from baseline become apparent. Wastewater data will equip Orange County with clear insight into OUD and SUD trends for better Assessment of the opioid crisis it faces. Additionally, the County will gain a method of Evaluating its prevention, harm reduction and treatment programs based on changes in substance use levels over time.

Orange County will own the data generated from its wastewater samples and control who accesses it. While some communities share wastewater data publicly, others reserve it for internal public health use, and this decision is up to the County. C.E.C. requests the right to use data only in de-identified aggregate forms, which can be decided during contracting.

By looking to wastewater as an unbiased and equitable source of data on OUD and SUD in Orange County, the County will gain data which can be used first to better understand the evolving nature of the problem (which substances are being used?) and target abatement strategies to it, and then to evaluate the efficacy of those strategies (are decreases in substance use observed after prevention programs are implemented? Is naloxone observed in wastewater following the implementation of distribution programs?). As such, the County will be better equipped with data for both **Assessment** and **Evaluation** of its opioid abatement programs. County administrators and residents alike will have greater confidence in their valuable opioid settlement funds being put to good use with the knowledge that wastewater data serves as an unbiased source for planning and evaluating all funded projects.

Alignment with the NC MOA's Option A List of High-Impact Opioid Abatement Strategies:

Wastewater monitoring for SoPA is an innovative and cutting-edge strategy which aligns directly with **Strategy 1. Collaborative Strategic Planning** under Exhibit A to the NC MOA.

Strategy 1. Collaborative Strategic Planning: Support collaborative strategic planning to address opioid misuse, addiction, overdose, or related issues, including staff support, facilitation services, or any activity or combination of activities listed in Exhibit C to the MOA (collaborative strategic planning.

Within Exhibit C, the wastewater monitoring program aligns with *Activity E. Identify Key Indicator(s): Identify one or more* ***population-level*** *measures to monitor in order to gauge progress toward the shared vision.*

Wastewater monitoring will provide Orange County with key indicators for use in both planning/assessment and evaluation phases of its opioid abatement strategies, and as such, this program stands to become a core element of Orange County's overall Opioid Abatement Strategy and can be used to inform, benefit and evaluate all other programs the County launches.

Program Timeline

Phase	Task	Description	Timeline
Onboarding	Kick-off Call	Upon contract execution, hold call with County stakeholders to discuss program logistics and support.	Once, within 2 weeks of contract award
Onboarding	Implementation	C.E.C. works with Hillsborough WWTP to set up sample collection process.	Once, within 2-4 weeks of contract award
Ongoing	Sample Collection	Wastewater samples are collected and shipped to C.E.C.'s lab for analysis.	Weekly
Ongoing	Sample Analysis	Wastewater samples are tested for SoPA targets.	Weekly
Ongoing	Data Delivery	Analysis results shared with Orange County's approved recipients.	Weekly
Ongoing	Check-in Call	C.E.C. and Orange County stakeholders meet to discuss program logistics and data interpretation.	Quarterly
Ongoing	Evaluation (see below)	C.E.C. reports quantitative data demonstrating program's impact.	Quarterly
Conclusion	Final Report	C.E.C. submits a final (annual) report with qualitative findings and complete quantitative metrics at the end of each year of funding.	Once, within 60 days of timeline completion

Program Enhancements

Wastewater monitoring for SoPA will provide Orange County with data on OUD and SUD in the community which demonstrates immediate value and yet can be both enhanced and expanded in the future. As noted in the project description above, C.E.C. continuously enhances its SoPA analyte panel at no additional cost to community partners, so the breadth of substance targets on which Orange County receives data will grow. Wastewater monitoring also offers flexibility in sampling locations. While the initial proposal is to sample from Hillsborough WWTP, program impact can be expanded by sampling at locations including 1) upstream sites (manholes) to target opioid abatement efforts where they are most needed and 2) neighboring towns and cities to increase

collaborative coverage. Expansion of analyte targets and incorporating additional sampling locations will not only sustain but enhance the program's value over time.

Obstacles and Future Funding Sources

By establishing a collaborative partnership through this Wastewater Monitoring Program for SoPA, C.E.C. hopes to become a trusted partner to Orange County for years to come, and there are no obstacles to our ability to sustain the program beyond the initial project cycle. In terms of funding sources, opioid settlement funds provide an excellent opportunity to establish wastewater monitoring programs for opioids and other substances of concern, as other jurisdictions around the United States have done. However, other funding sources including federal, state and local public health advancement grants exist which can provide long-term sustainability, so opioid settlement funds will not be the only relevant funding source in the future and C.E.C. stands ready to assist Orange County with identification and pursuit of those funds.

C. Equity Impact (8 points, page limit: not to exceed ¾ page)

Wastewater monitoring embodies equity and inclusion by serving as a passive and unbiased source of evidence-based data on OUD and SUD among all residents who contribute to the wastewater stream. Wastewater samples include historically marginalized populations and are not impacted by access to insurance, employment status or many other social determinants of health. Analyzing samples collected at Hillsborough WWTP will produce data on substance use trends across the entire community, while importantly protecting the anonymity of individuals and avoiding stigma. Orange County will gain data and insights which are equitable in their representation of the community, impactful in their ability to inform and evaluate opioid abatement strategies, and respectful of residents' privacy – all of which strengthens community values.

D. Organizational Readiness (20 points, page limit: not to exceed 3 pages)

C.E.C. Analytics is a water technology and advisory company specializing in wastewater analysis to support public health efforts, particularly the opioid crisis. The team includes experts in wastewater science, opioid surveillance program management, and data science to help communities interpret and act on their data. Founded in 2020, C.E.C. has successfully implemented wastewater monitoring programs across the U.S., Canada, and internationally.

Wastewater-based epidemiology became a core pillar of public health data during the Covid-19 pandemic. C.E.C. provided technology and validated analysis methods for the Public Health Agency of Canada (PHAC)'s nationwide wastewater monitoring program, and served as program lead for the Pan-Alberta Wastewater Surveillance Program, which provides pathogen and substance surveillance representing 75% of the population of Alberta. In the U.S., C.E.C. has

participated in wastewater monitoring programs in various settings including municipalities, schools, hospitals and **homeless shelters**, providing both technology (sampling devices) and laboratory services.

In one of the largest cities in Canada, **C.E.C. administered a wastewater monitoring program to provide data on consumption of illicit drugs and other substances of concern over the course of 3 years, analyzing samples from both the city's wastewater treatment facility and from a city homeless shelter**. Wastewater data showed correlation with overdoses in the city, the nature of polysubstance use among the homeless, and the emergence of dangerous new substances like xylazine. This program demonstrates both C.E.C.'s ability to sustain a successful wastewater monitoring program for SoPA over multiple years, and the valuable insights communities gain by monitoring wastewater.

Key personnel supporting Orange County's wastewater monitoring program will include Paul Westlund, PhD, Founder and CEO. Mr. Westlund has applied his analytical chemistry expertise to wastewater analysis for the past 15 years, including developing methods for government bodies to estimate drug consumption pre- and post-legalization policies. Bob Kittredge, Head of Business Development, USA will serve as Orange County's program manager, providing support on logistics, implementation, sample collection and data delivery. Prior to joining C.E.C., Mr. Kittredge spent 3 years at Biobot Analytics implementing and supporting wastewater programs in communities across the U.S., including the CDC's National Wastewater Surveillance System (NWSS), the state of Massachusetts wastewater surveillance program, and several county- and city-level programs utilizing Opioid Abatement Funds including a wastewater testing program for fentanyl in Denver, CO.

An organizational chart and roster of C.E.C.'s Board of Directors, including descriptions of their areas of expertise relevant to opioid abatement work, are provided in Attachment 8.

A list of current and past wastewater monitoring programs administered by C.E.C. (some of which are mentioned above) is included below to demonstrate our organization's ability to implement and sustain an effective and impactful program for Orange County:

- Providing wastewater monitoring services to Walter Reed National Military Medical Center (WRNMMC) in Bethesda, MD for a 1-year program.

- Provided wastewater-based monitoring services for a 9-month pilot program on behalf of the Pennsylvania Department of Health at Mercersburg High School in Mercersburg, PA. Program addressed monitoring international students for Covid-19, RSV and Influenza A/B. Deployed C.E.C. autosamplers and conducted collection of composite

samples and shipping logistics. Conducted point-of-care analysis pilot program at school location verifying performance of mobile analytical capabilities.

- Provided sampling devices and validated analysis methods for the Public Health Agency of Canada (PHAC)'s nationwide wastewater monitoring program.

- Program lead for the Pan-Alberta Wastewater Surveillance Program, which launched in 2021. C.E.C. worked collaboratively across public health agencies, state laboratories and academic institutions to provide both pathogen and substance surveillance in wastewater representing nearly 75% of the population of Alberta.

- Administered a wastewater surveillance program in partnership with one of the largest cities in Canada over the course of 3 years, monitoring illicit drugs and contaminants in samples from the city's wastewater treatment plant and a city homeless shelter for comparison purposes. Wastewater data showed correlation with overdoses in the city, insights into polysubstance use among residents accessing the homeless shelter, and emergence of new substances of concern such as xylazine.

- Led or participated in several wastewater monitoring programs in the United States in a wide variety of settings including municipalities, schools, hospitals and homeless shelters, providing both technology (sampling devices) and analysis services.

- Implemented wastewater monitoring in remote work camps at dormitory-level, informing harm reduction strategies among workforce and providing cost savings as compared to drug testing and random search methods.

E. Evidence of Collaborations/Partnerships (10 points, page limit: not to exceed 1 ¼ pages)

Success of Orange County's Wastewater Monitoring Program for SoPA, like that of its overall opioid abatement strategy, depends on close collaboration between various organizations and stakeholders in the community. For the wastewater monitoring program to have its greatest possible impact, collaboration will be required for operational support as well as for actionability of the wastewater data produced.

Town of Hillsborough WWTP

As described in the project description in section 2.B., the wastewater monitoring program for SoPA will involve close collaboration with the Town of Hillsborough WWTP to collect and ship wastewater samples to C.E.C.'s laboratory for analysis. A Memorandum of Understanding (MOU) for the WWTP's requested partnership in support of this program is included as Attachment 3. We have already been in contact with Jeff Mahagan, Deputy Utilities Director – Water Treatment and he has expressed willingness to support the program if Orange County requests it.

Orange County Opioid Advisory Committee and Opioid Abatement Program Administrators
Collaboration with the Orange County Opioid Advisory Committee will be sought to ensure that the wastewater data on substance use produced through this program is in the hands of community stakeholders who can use it to guide opioid abatement strategies. Program administrators of other opioid abatement projects receiving funding should be equipped with the wastewater data to integrate its insights into the Assessment and Evaluation phases of their projects. C.E.C. team members will be available to work with community stakeholders to assist their understanding and interpretation of data.

Orange County Health Department (and other public health agencies)
Direct sharing of wastewater data with members of the Orange County Health Department is also encouraged to equip health officials with valuable data to advance their knowledge of OUD and SUD trends in the community and to guide public health interventions. Additionally, Orange County may find value in sharing its wastewater data with public health organizations such as the North Carolina DHHS.

Wastewater monitoring for SoPA and leveraging the insights wastewater data provides to combat the opioid crisis is an innovative approach which has been employed by some counties and cities across the United States, but is not yet utilized in Orange County and therefore will not be a duplicative effort with any other programs. While the NC DHHS wastewater monitoring dashboard tracks Covid-19, Influenza and RSV in wastewater across the state, Orange County stands to become an early adopter of wastewater monitoring for fentanyl and other opioids and substances of concern.

F. Performance Measures and Program Evaluation (18 points, page limit: not to exceed 1 page)

Success of Orange County's Wastewater Monitoring Program for SoPA will be evaluated against its ability to achieve the following two goals:

1. Provide Orange County stakeholders, including public health officials and anyone implementing opioid abatement strategies in the County, with evidence-based data to

better inform the Assessment phase of all opioid abatement programs. High quality, timely and unbiased wastewater data on substance use in the County will enable clear definition of the problem in terms of which opioids and substances are in highest need of targeted abatement efforts, before incidents such as overdose deaths and overdose ED visits occur.

2. Provide Orange County stakeholders with consistent, reliable evidence-based data for Evaluation of all opioid abatement strategies in the County, enabling better understanding of the impact of programs based on what is seen in wastewater data before and after their implementation to measure their efficacy in an unbiased way.

Additionally, C.E.C.'s common goals in all wastewater monitoring programs are to:

1. Provide best-in-class data quality, program management and support.
2. Ensure the wastewater data produced is insightful and actionable for Orange County.
3. Make all operational elements of the program (sample collection and shipping) easy for Hillsborough WWTP staff.
4. Establish the program as a long-term, sustainable component of Orange County's Opioid Abatement Strategy.

C.E.C. will provide quarterly reports to Orange County with quantitative data demonstrating the positive impacts of the program. Each quarterly report will include a narrative describing key successes and challenges encountered in the previous quarter, along with the following data points:

Metric	Measurement (Per Quarter)
Samples collected	Count of samples collected by Hillsborough WWTP
Samples analyzed	Count of samples analyzed by C.E.C.
Data delivered	Count of data points delivered to Orange County
Data Use: Opioid Commission/Public Health	(Y/N) Is wastewater data being utilized by the Orange County and/or public health officials? Provide details.
Data Use: Opioid Abatement Program Admins	(Y/N) Is wastewater data being utilized by administrators of other opioid abatement programs? Provide details.

Include in the same PDF document as this form, after the Certifications section below, the following required documents. If an item is not applicable to your organization, please indicate this by an "N/A" and explain why it is not applicable.

3. **Letters of Commitment and/or Support (Up to 5 letters)**
   A. Memorandum of Understanding (MOU) with Town of Hillsborough Wastewater Treatment Plant to support wastewater sample collection for the program is included. While the MOU has not yet been signed, we have communicated with Jeff Mahagan, Deputy Utilities Director – Water Treatment with Town of Hillsborough and he has expressed willingness to participate upon Orange County's request.
4. **Latest Audited Financial Statements**, including Management letter (Attach letter of explanation if unable to provide)
5. **Documentation of Tax Identification Number** (can be IRS Determination Letter for non-profit agencies):
   A. **N/A as C.E.C. Analytics is based in Canada and does not have a TIN. We are in the process of applying for a non-resident corporation tax number and will provide this to Orange County if awarded funding.**
6. **Certificate of Insurance**
7. **For non-profit agencies only**: **N/A as C.E.C. Analytics is not a non-profit agency.**
   A. IRS Determination Letter: provide a copy of an IRS determination letter which states that your organization has been granted exemption from federal income tax under section 501(c)(3) of the Internal Revenue Code. The organization's name on the letter must match your current organization's name and address. This IRS determination letter can also satisfy the documentation requirement of your organization's tax identification number (TIN).
   B. Verification of 501(c)(3) Status Form: If applicable, an Authorized Representative must annually submit verification that the organization remains a qualified 501(c)(3) tax-exempt organization.
   C. Copy of Form 990 Federal Tax return filed for latest fiscal year.
   D. Agency organizational chart.
   E. Current Board of Directors Roster with names, addresses, office terms (with dates), and professional and/or community affiliations.
8. **For-profit agencies only:**
   A. Current Board of Directors Roster with names, addresses, office terms (with dates), and professional and/or community affiliations.
   B. Appropriate tax form filed with IRS filed for latest fiscal year.
      i. **N/A as C.E.C. Analytics is based in Canada and did not file taxes with the U.S. IRS last year.**
   C. Agency organizational chart.
9. **C.E.C. Analytics Substances of Potential Abuse (SoPA) Analytical Suite**
   A. Full list of analytical targets C.E.C. tests for in wastewater samples to provide communities with a comprehensive view of population-level substance use trends among residents.

Insert/Attach these required documents here.

Attachment 3. Memorandum of Understanding (MOU) with Town of Hillsborough Wastewater Treatment Plant

C.E.C. ANALYTICS

TOWN OF HILLSBOROUGH NORTH CAROLINA

To: Town of Hillsborough – Wastewater Treatment Plant
From: C.E.C. Analytics, Ltd.
Date: February 18, 2025
Subject: Orange County Opioid Settlement Funds Application: Wastewater Monitoring Program for Substances of Potential Abuse (SoPA)

In response to Orange County's request for applications (RFA) for opioid settlement funds, C.E.C. Analytics is submitting a proposal for a Wastewater Monitoring Program for Substances of Potential Abuse (SoPA). Wastewater surveillance for fentanyl and other opioids and substances of concern will provide comprehensive, unbiased data on substance use in Orange County. Wastewater monitoring is a cost-effective, near real-time source of evidence-based data which will benefit all opioid abatement projects and strategies in the County during their Assessment (understanding the problem) and Evaluation (measuring impact) phases.

C.E.C. Analytics requests the support and partnership of the Town of Hillsborough Wastewater Treatment Plant (WWTP) staff to assist with collection and shipping of wastewater samples, as described below. Partnership in this program will incur no financial cost to Hillsborough WWTP, aside from minimal labor resources required to collect and ship samples once per week. Additional information is included below to summarize sampling logistics, laboratory analysis methods and targets, and data sharing.

Sampling Logistics
The proposed Wastewater Monitoring Program for SoPA for Orange County will be free of financial cost to the supporting utilities department. All program costs are accounted for in C.E.C.'s proposal to Orange County for opioid settlement funds. All materials required for sample collection and shipping will be provided by C.E.C., including sample collection kits and pre-paid return shipping labels.

In support of the program, we request that Hillsborough WWTP staff collect one (1) influent 24-hour composite wastewater sample per week, on a day to be agreed upon. The wastewater volume requested per sample is 100 mL. Samples should be shipped back to C.E.C. on the day of collection or refrigerated and shipped as soon as possible.

The initial contract period is expected to span one year, and C.E.C. is optimistic that Orange County will see positive impact and value of the program leading to annual renewal.

C.E.C. team members will be available to provide logistical support to Hillsborough WWTP staff for any questions or issues that may arise related to sample collection, shipping, or any aspects of the wastewater monitoring program

via phone and email. If at any point you have questions regarding sampling or any elements of the wastewater monitoring program, please do not hesitate to contact us!

Analysis Details

Each wastewater sample will be tested at C.E.C.'s laboratory using mass spectrometry analysis to produce data on raw chemical substance quantification and consumption estimates, which are delivered to County stakeholders in spreadsheet and/or data visualization format. Analyses are conducted by C.E.C. team members with PhD and MSc degrees in analytical chemistry, and all results produced are subject to rigorous quality control parameters to ensure they are high quality and accurate.

Samples are tested for a panel of 48 analytes, including parent drugs and metabolites of fentanyl, methamphetamine, cocaine, other opiates, psychedelics, benzodiazepines and more. The full list of analytical targets is included as an attachment to C.E.C.'s application for opioid settlement funds. As substance use trends evolve, C.E.C. adds new targets to its analysis panel over time, at no cost to the communities we partner with.

Data Sharing

Orange County will own the data generated from the wastewater samples and will determine who may access the data. C.E.C. will share sample analysis results only with recipients identified by the County.

While some communities in the United States make data generated from wastewater monitoring programs publicly available, others reserve it for internal use by public health officials and other stakeholders. This choice is entirely up to Orange County. C.E.C. requests the right to use and publish data only as part of aggregate datasets (i.e. state, regional or national level) and this request can be negotiated during contracting.

Please do not hesitate to contact us with any questions regarding this proposed partnership or any of the information contained herein. Thank you for your consideration and we hope to work closely with you in the near future!

Signatures of Agreement to this MOU:

Jeff Mahagan, Deputy Utilities Director – Water Treatment, Town of Hillsborough _____

Paul Westlund, PhD, C.E.C. Analytics, Founder & CEO _____

Bob Kittredge, C.E.C. Analytics, Head of Business Development, USA _____
Robert L. Kittredge (Feb 21, 2025 10:08 MST)