

CONTRACT FOR SERVICES

This CONTRACT FOR SERVICES ("Contract"), effective September 1, 2017 by and between UNIVERSITY OF NORTH CAROLINA AT WILMINGTON ("UNCW") and CAPE FEAR PUBLIC UTILITY AUTHORITY ("CFPUA")

WITNESSETH

WHEREAS, CFPUA provides water and wastewater services to approximately 200,000 people within New Hanover County, including UNCW; and

WHEREAS, it was recently determined that discharges to the Cape Fear River upstream of the CFPUA raw water intake include unregulated compounds and chemicals about which very little is known; and

WHEREAS, CFPUA would like to identify and quantify those compounds and chemicals; and

WHEREAS, UNCW has researchers with the expertise and resources to identify and quantify those compounds and chemicals; and

WHEREAS, CFPUA and UNCW desire to cooperate in efforts to collect and analyze water quality data; and

WHEREAS, CFPUA would like NCDEQ and USEPA to have information about Cape Fear River water quality so those agencies can properly and adequately regulate discharges to the river.

NOW, THEREFORE, the parties agree as follows:

A. SCOPE OF WORK

Statement of the Problem:

Per- and polyfluoroalkyl substances (PFAS) refer to a class of compounds used extensively in the production of plastics, water/stain repellents, firefighting foams and food contact paper coatings. These compounds have been manufactured since the late 1940's and to date there are greater than 3000 PFASs compounds that have either been on the global market or are in current use. Recent peer reviewed publications (Nakayama et al., 2007; Sun et al 2016) describing research on PFAS in the Cape Fear River highlight the occurrence of these compounds in drinking water in the Wilmington region. Authors of these studies identified and quantified several PFAS in the raw water from the Cape Fear River. However, it is possible that there are other poorly quantified or unidentified PFAS that are present in the raw intake water or finished drinking water.

Purpose of Work:

As a public utility, CFPUA is committed to providing its customers the highest quality water possible. Recent studies suggest there may be unregulated compounds and chemicals in

the Cape Fear River that may be difficult for CFPUA to remove and that may have unknown health effects. This study will help identify those emerging contaminants and provide a scientific basis for state and federal regulatory agencies to determine whether discharge controls would be appropriate.

Proposed Work:

Building upon previous published research UNCW will focus its efforts on two goals listed below.

Goal 1: Establish a method at UNCW for the analysis of PFAS in raw and finished drinking water using published methodology (e.g. Nakayama et al 2010). Quality assurance and control is vital and will be monitored using established procedures, including spike recoveries and internal standards. When appropriate, selected samples will be split and sent to Dr. Mark Strynar’s (EPA Research Triangle Park) laboratory for analysis to test the accuracy of the method.

Deliverable 1: A brief report that summarizes the methods developed, sampling strategies, QA/QC procedures, results, and possible additional research needs. After Goal 1 is approved by both parties, UNCW will move to Goal 2.

Goal 2: Once UNCW is confident in the analytical methodology, a sampling campaign of raw and finished drinking water will begin. Weekly raw and finished water samples will be collected for 8 months using the optimized method developed in goal 1. Building upon Sun et al. (2016) and Newton et al. (2017), PFAS will be identified and where appropriate, quantified when authentic standards are available. If an authentic standard is not available, high-resolution mass spectrometry and multidimensional mass spectrometry will be used to propose a tentative structure for unknown PFAS. Additional purification and pre-concentration may be used for fluorine and proton nuclear magnetic resonance (NMR) spectrometry for structural elucidation.

Deliverable 2: A brief report that summarizes the sampling plan, sampling procedures, results, findings and recommendations.

Milestones:

It is anticipated a 12 month research project as highlighted in the table below. Month 1 will be the first full month following the date this agreement is executed.

Month											
1	2	3	4	5	6	7	8	9	10	11	12
G1	G1	G1	G1								
				G2	G2	G2	G2	G2	G2	G2	G2

UNCW will provide monthly status reports to CFPUA. These can be through email or meetings if warranted.

B. GENERAL PROVISIONS

1. Designated Representatives For purposes of this Contract, all reports, correspondence, notices and requests shall be effective when sent to the addresses designated:

UNCW: for program/projects reports, correspondence directly relating to the activities of the project:

Ralph Mead, Ph.D., Professor
University of North Carolina Wilmington
Department of Chemistry and Biochemistry, 253 Dobo Hall
601 South College Road
Wilmington, NC 28403
meadr@uncw.edu

UNCW: for administrative and legal correspondence, notices and requests as well as general UNCW notifications:

Panda Powell, Director
Sponsored Programs and Research Compliance
UNCW
601 S. College Rd.
Wilmington, NC 28403-5973
Phone: 910-962-3167
Fax: 910-962-4011
powellp@uncw.edu

For CFPUA:

James R. Flechtner, PE
Executive Director
Cape Fear Public Utility Authority
235 Government Center Drive
Wilmington, NC 28403
Jim.Flechtner@cfpua.org

2. Independent Contractor Each party is an independent contractor and is not an agent or employee of the other.

3. Effective Date, Modification, Termination and Renewals This Contract may be modified by consent of both parties at any time. Upon 60 days written notice, CFPUA or UNCW may terminate this Contract. In the event of termination, UNCW will be reimbursed for all costs properly incurred and any non-cancelable obligations properly incurred through the effective date of termination.

This Contract shall expire 400 days after it is fully executed unless sooner terminated as provided hereunder. It may be amended for additional work and terms if agreed upon between the parties thirty (30) days prior to expiration of the original term or any subsequent extension.

4. Compensation CFPUA shall pay UNCW a total of \$64,607.88 for the services described herein. UNCW shall submit monthly electronic invoices for twelve equal payments of \$5,383.99 over the term of this contract.

5. Communicating Information CFPUA and UNCW shall each designate a representative who shall be responsible for coordinating all data and information associated with this contract. CFPUA shall be the lead agency in releasing data and shall be responsible for coordinating and responding to inquiries. Prior to release of any coordinating data, information and/or reports, CFPUA shall consult and coordinate this release with UNCW.

6. Publishing Findings At the completion of work associated with this contract, CFPUA and UNCW will make the findings public and provide them to other public agencies such as NCDEQ, NCDHHS, and USEPA. CFPUA and UNCW may decide to publish papers or other related information in professional journals and such. UNCW shall be free to use the results of the subject research for its own teaching, research, educational, and clinical purposes.

7. Logo and Name usage: CFPUA agrees that without the prior written consent of UNCW, CFPUA will not make use of UNCW's name or logo for any purpose.

IN WITNESS WHEREOF, UNCW and CFPUA have caused the execution of this instrument, by authority duly given and on the day and year first above written.

UNIVERSITY OF NORTH CAROLINA
AT WILMINGTON
a state university

By: Panda Powell
Panda Powell, Director
Sponsored Programs and Research Compliance
Office of Sponsored Programs and Research Compliance

This the 21st day of August, 20 17.

CAPE FEAR PUBLIC UTILITY AUTHORITY

By: James R. Flechtner
James R. Flechtner
Executive Director

This the 25th day of AUGUST, 20 17.

THIS INSTRUMENT HAS BEEN PRE-AUDITED IN THE
MANNER REQUIRED BY THE LOCAL GOVERNMENT
BUDGET AND FISCAL CONTROL ACT.

BY: [Signature]
AUTHORITY FINANCE OFFICER

ACCT: _____

[Signature]
Approved as to Form