

CITY of NORTH PORT

F L O R I D A

LETTER OF INTEREST

Professional Engineering Services for City of North Port Utilities

NO. 2016-23

February 2020

*No. 2020-03: Myakkahatchee
Creek Water Treatment Plant
Water Treatability Evaluation*



**CDM
Smith**

City of North Port
Utilities Department
6644 West Price Boulevard
North Port, FL 34291

February 25, 2020

Subject: Professional Engineering Services for City of North Port Utilities No. 2016-23 - Request for Letter of Interest No. 2020-03: Myakkahatchee Creek Water Treatment Plant Water Treatability Evaluation

Dear Mr. Acosta and Ms. Brown:

The City has abundant water resources on hand to support a growing community; however, without a change in treatment, source water challenges at the MCWTP may limit the capacity of the current treatment processes to increase production for future needs. Planning ahead, NPU has identified an opportunity to increase utilization of surface water from Myakkahatchee Creek and the Cocoplum Waterway, especially during the dry winter season and drought conditions, by blending surface water into the RO treatment process, which relies on increasingly brackish groundwater wells. While RO is a proven, dependable technology for treating groundwater, blending surface waters into the supply of an RO treatment unit requires close attention to surface water quality and careful selection of pretreatment technologies to avoid rapid membrane fouling and achieve stable operations.

CDM Smith Inc. offers NPU the resources of a premier membrane treatment engineering firm delivered by local engineers you know and trust. As your WTP consultant for the past three years, CDM Smith has completed several recent projects at the MCWTP, taking the time to carefully consider your water sources, treatment processes, and operations. We know this plant and can deliver your vision better than any other team you will review. *NPU will enjoy convenient access and responsive service from our local membrane expert who resides within 20 minutes of the MCWTP.*

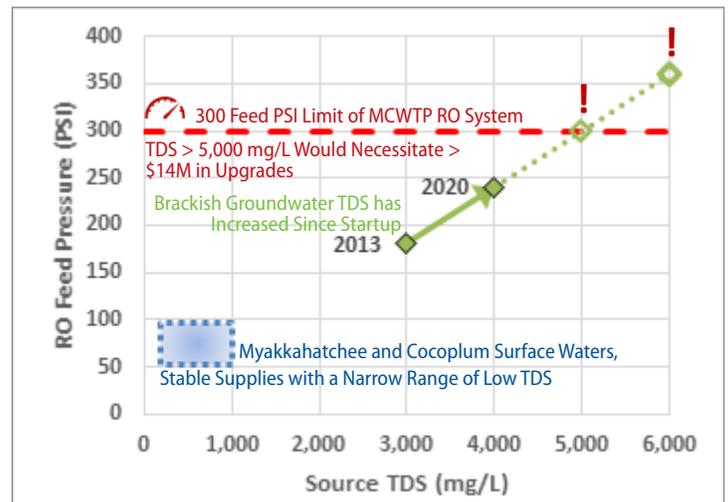
PROJECT PLAN

Our approach will provide the City with actionable treatment recommendations to expand use of available surface waters and increase capacity of surface water treatment at the MCWTP.

UNDERSTANDING OF PROJECT AND DELIVERABLES

NPU's MCWTP utilizes two sources of raw water supply: surface water from Myakkahatchee Creek and/or Cocoplum canal as a secondary source, and brackish groundwater from the Intermediate Aquifer System. Recognized as a Water Landmark by the Florida Section of the AWWA, MCWTP's conventional treatment plant has utilized alum coagulation and multimedia filtration since 1963 to treat surface water for potable supply. In 2013, NPU added RO treatment of brackish groundwater to provide a more consistent water quality year-round, balancing out the elevated TDS and sulfate of the conventional plant usually experienced during the winter dry season or during similar prolonged dry periods. Since the RO plant startup, brackish groundwater quality has increased steadily from 3,000 mg/L to 4,000 mg/L (see graph on page), with some wells nearly

doubling in salinity to as much as 6,000 mg/L over that time. We conducted a comprehensive hydrogeologic evaluation of the wellfield in 2018, and used a forensic investigation of water quality to link increased wellfield salinity to lateral seawater intrusion from downstream of the salinity barrier structures on the Myakkahatchee Creek and Cocoplum Waterway. In order to slow further saltwater intrusion and TDS increases, NPU has operated the RO treatment units at 1.0 mgd, just 67% of rated capacity, instead of the full design capacity 1.5 mgd. Furthermore, since the RO units are not operated at full capacity, utilization of the surface WTP is also constrained during dry periods to maintain finished water quality within Florida Secondary Drinking Water Standards for TDS at 500 mg/L and sulfate at 250 mg/L. NPU intends to increase utilization of the surface WTP utilizing the existing surface WTP, membrane treatment technologies, or other suitable technologies.



Local Surface Waters Can Provide a Stable Source of Low TDS Water to MCWTP RO Membranes as Brackish Groundwater TDS Increases.

Our scope includes project management; a desktop evaluation of treatment scenarios/technologies conducted in coordination with NPU; a TM documenting alternatives evaluated and probable construction costs; and a project workshop to share findings and recommendations to enhance or potentially increase capacity. Project controls, coordination, and reporting include as needed and biweekly communications and reports, monthly progress reports, and a final TM workshop.

Task 1: Project Management and Coordination: We will conduct a combined project kickoff and project alternatives development workshop with NPU within 3 weeks of Notice-to-Proceed (NTP). Before the workshop, we will submit a data request list to the City, requesting information that will be helpful for planning the workshop. Our experts, including our in-house O&M specialist, will attend the workshop, bringing NPU an expert understanding of how to navigate the

most common constraints affecting treatment alternatives development, including available onsite land, operational accessibility, water supply availability, intake hydraulic capacity, electrical service capacity, finished water quality goals, and residuals management. The output from the workshop will consist of three or more treatment alternatives for detailed evaluation, considering the existing surface water treatment process, membrane treatment technologies, and other applicable technologies. After the workshop, we will keep you informed of our alternatives development through monthly progress meetings. We will also provide assistance to NPU for permitting coordination identified in this or related project(s) and provide assistance to address regulatory concerns. Efforts for data gathering, information exchange, meetings, site visits, and project communications will be included in this task.

Task 2: Evaluation: Carrying forward ideas formulated with NPU staff, we will conduct desktop evaluations of feasible scenarios and technologies to maximize use of Creek and Cocoplum water via 1) use of the surface WTP with media filtration; 2) available membrane filtration approaches, described below, to pretreat surface water before blending with brackish groundwater for RO treatment; and 3) other potential approaches. The surface waters have higher TDS in winter and higher color, TOC, and turbidity in wet months. We will consider these seasonal variations to maximize future use year round.

We will maintain close communications to apprise NPU of significant findings or alternative approaches and obtain concurrence before conducting detailed evaluations. We will begin the treatability evaluation by reviewing the potential treatment technologies against historical Myakkahatchee Creek Water Quality, while considering lessons learned from our O&M specialists, your operations, and from our nationwide experience. We will evaluate candidate treatment technologies against historical water qualities for both the Creek and Cocoplum for three scenarios representing historical conditions: rainy, dry, and intermediate conditions. During the dry season, we understand Creek salinity increases, with attendant increases in sulfate, calcium, alkalinity, pH, and DO saturation. During the rainy season Creek water becomes fresher, and other constituents including organics, iron, color, algae, coliform bacteria, and turbidity increase. Several of these constituents can contribute to MF/UF fouling. We will evaluate the impact of known conditions on RO operations, fouling and scaling control, and bypass blending. We will consider how to better utilize the existing coagulation process as pretreatment before any potential membrane filtration treatment. The water quality summary will be compiled from the City's existing water quality records and data from the SWFWMD WMIS database, comprising 5,000+ observations over 20 years.

Our evaluation will consider key decision points as separate scenarios for selection of membrane filtration technology, including MF vs. UF; submerged vs. pressurized membranes; universal rack design or proprietary system design; full-flow filtration or partial flow; and whether to fully abandon, partially abandon, or keep the existing multimedia filters. We will draw from our extensive experience retrofitting existing WTPs and designing MF/UF facilities to provide NPU with a clear presentation of available methods.

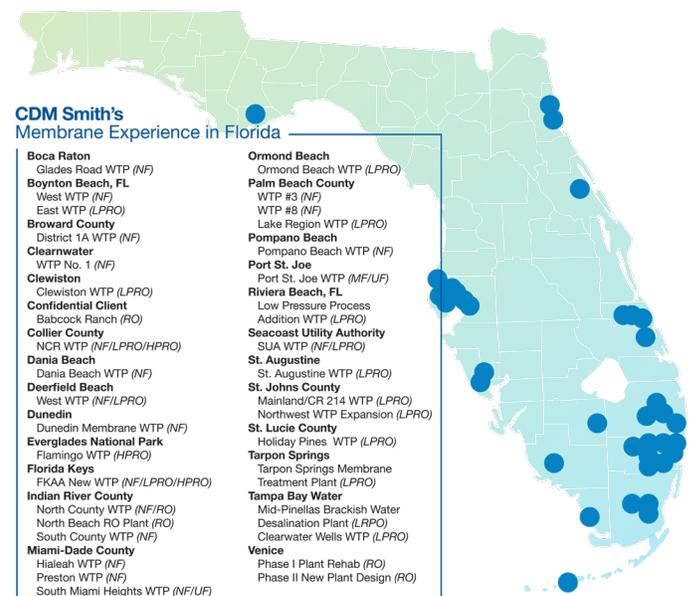
While not the focus of this effort, we will include a narrative for adapting MCWTP treatment processes for potential future conditions, such as capability to treat compounds of emerging concern (CECs), and the supplementation of traditional source waters with highly treated reclaimed water.

Task 3: Technical Memorandum (TM): We will provide NPU a TM summarizing the evaluation of the treatment technologies available, changes to the existing MCWTP necessary to implement each scenario, and the budgetary level of cost opinion to implement the changes. We will utilize dedicated cost estimators from our internal construction group to prepare opinions of probable construction cost for the scenarios, drawing from more than \$1B in completed construction costs in the last 3 years. This provides NPU with realistic planning level costs for alternatives evaluated in the TM.

Task 4: Report of Findings: We will provide paper and electronic copies of the project TM as listed in the City's RLI. To capture NPU's vision and ensure project success, we are proposing to conduct a project workshop after NPU's review of the draft TM. The workshop will be attended by our technical specialist, project manager, and client service leader to capture NPU's comments from operations, engineering, and administration. We will then address NPU comments and resubmit the final TM.

ABILITIES AND RELEVANT EXPERTISE/QUALIFICATIONS

Industry and State Leadership in Membranes: CDM Smith is an industry leader in membrane technologies, with work at 200+ plants worldwide totaling more than 2 bgd of installed membrane treatment processes. Our experience includes the planning, design, construction, and operation of small systems to some of the largest and most complex membrane plants in the world. In Florida, we have work at more than 40 membrane plants, completing literally hundreds of design projects. Our experience also includes over 1 bgd of installed membrane filtration capacity from more than 70 plants utilizing MF or UF membranes and treating sources including surface water, wastewater, groundwater, and landfill leachate.



Knowledge of Southern Water Use Caution Area:

We have delivered 3 recent groundwater modeling projects simulating withdrawals within SWUCA for NPU, Polk County, and SWFWMD's review of the Polk Regional Water Cooperative Southeast Wellfield. We can use our in-house solute transport model—the only groundwater model accepted by SWFWMD within SWUCA—as needed, to serve the City in modeling, negotiations, and funding requests with SWFWMD.

AVAILABILITY OF STAFF

The staff identified below were selected specifically for their availability and ability to meet project schedule.

Jason A. Sciandra, PE, principal-in-charge (PIC), has served as project manager (PM)/PIC for our projects under this contract, bringing intimate knowledge of NPUs policies, preferences, and procedures.

Dr. Raj D. Vaidya PE, BCEE, PMP, our PM, brings 19 years in design, permitting, and construction of RO WTPs. He served as PM for our structural evaluations at the MCWTP, and brings an in-depth understanding of the plant's processes. The City will benefit from convenient access to **Dr. Dave MacNevin, PE, LEED® AP**, our regional expert in RO WTP design and operations, whose primary residence is within a 20-minute drive of the MCWTP. He brings 14 years in membrane treatment, distribution system water quality, and corrosion control. Both Dave and Raj are currently assisting NPU with a technical review of the WVID WTP to safeguard the City's interests; as such, both are conversant with the City's water system infrastructure and operational requirements.

Richard K. Newberg is an O&M Specialist with 41 years in the operation of WTPs. **Craig A. Gadberry, PE** brings 26 years of cost estimation in FL and the SE. **Michael A. Zafer, PE**, technical reviewer, brings 31 years, 300+ WTP projects, and expertise in optimization and increase of surface water yields. We will also leverage **Dr. YuJung Chang**, a 28-year membrane expert, to offset major membrane upgrades and enable blended water to meet TDS and water quality requirements.

ABILITY TO MEET PROJECT SCHEDULE

We have proposed a schedule of 26 weeks from NTP. As PM, Dr. Vaidya will efficiently leverage staff and ensure adherence to schedule, monitoring project status on a monthly basis and proactively identifying variances in schedule to facilitate early initiation of corrective action measure. Dr. MacNevin's locality allows our team to respond quickly and efficiently to the City.

PROPOSED COST SAVING MEASURES

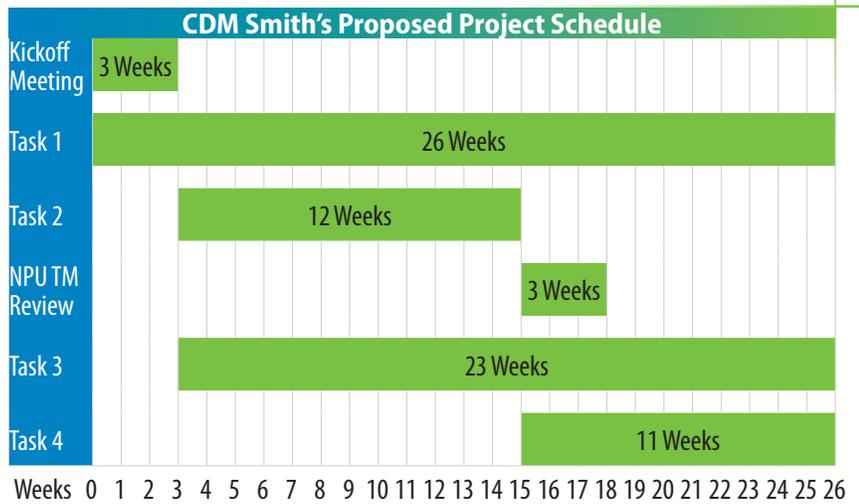
To protect City budget, our team will develop initial concepts and obtain NPU concurrence prior to performing more detailed evaluations; conduct workshops for project kickoff and final delivery to capture innovation within practically feasible constraints; and leverage our existing knowledge of NPU's system and our membrane experience for long-term planning.

REFERENCES FOR THREE SIMILAR PROJECTS

Pinellas County, FL:

Membrane Filtration Pretreatment Improvements (2019 to Present)

Contact: Catherine Nguyen, Project Manager  **Email:** cnguyen@pinellascounty.org  **Tel:** 727.464.7525



For this fast-track project, we are designing a new solids contact clarifier to bring an underperforming 2.5-mgd MF/RO WRTP, treating landfill leachate, into compliance with a consent order. We completed a series of jar tests that demonstrated the benefits of lower coagulant dosages and potential changes in coagulant chemicals to increase clarifier flow capacity. We are currently designing the new clarifier and planning a full-scale pilot test of alternative coagulants.

Brunswick County, NC: Northwest WTP Evaluation (2018 to Present)

 **Contact:** Glenn Walker, Water Resources Manager  **Email:** glenn.walker@brunswickcountync.gov  **Tel:** 910.371.3490
To provide additional capacity at their 24-mgd Northwest WTP, CDM Smith was retained to evaluate the alternatives needed to expand the conventional water treatment process, evaluate the presence of emerging contaminants in the Cape Fear River, and determine which advanced treatment options (including MF/RO) would be best suited to efficiently remove them. The initial pilot results and report were notably completed in only 3 months, and we are now designing the improvements.

Mount Pleasant Waterworks, SC: Potable Reuse Study (2019 to Present)

 **Contact:** David P. Niesse, PE; Engineering Manager  **Email:** dniesse@mpwonline.com  **Tel:** 843.971.7506
We are conducting a treatability study to evaluate the water quality and operational impacts of blending highly treated reclaimed water into the feed of an existing brackish groundwater ROWTP. We will recommend a treatment train and assess treatability through internal bench testing to observe if direct potable reuse is a feasible option for the Waterworks' water supply challenges.

CDM Smith is excited for the opportunity to continue our service to the City and its MCWTP. Our team is local, **understands your plant better than any consultant under this contract**, and brings outstanding lessons learned and best practices from similar projects in FL and the SE.

Very truly yours,

Jason A. Sciandra, PE; Principal; CDM Smith Inc.

CONFLICT OF INTEREST FORM

F.S. §112.313 places limitations on public officers (including advisory board members) and employees' ability to contract with the City either directly or indirectly. Therefore, please indicate if the following applies:

PART I.

- I am an employee, public officer or advisory board member of the City
_____ (List Position or Board)
- I am the spouse or child of an employee, public officer or advisory board member of the City
Name: _____
- An employee, public officer or advisory board member of the City, or their spouse or child, is an officer, partner, director, or proprietor of Respondent or has a material interest in Respondent. "Material interest" means direct or indirect ownership of more than 5 percent of the total assets or capital stock of any business entity. For the purposes of [§112.313], indirect ownership does not include ownership by a spouse or minor child.
Name: _____
- Respondent employs or contracts with an employee, public officer or advisory board member of the City
Name: _____
- None of The Above

PART II:

Are you going to request an advisory board member waiver?

- I will request an advisory board member waiver under §112.313(12)
- I will NOT request an advisory board member waiver under §112.313(12)
- N/A

The City shall review any relationships which may be prohibited under the Florida Ethics Code and will disqualify any vendors whose conflicts are not waived or exempt.

COMPANY: CDM Smith Inc. _____

SIGNATURE: Jason A. Sciandra, PE; Principal _____



THIS PAGE MUST BE SUBMITTED WITH LETTER OF INTEREST

DISCLOSURE FORM
FOR
CONSULTANT/ENGINEER/ARCHITECT

Please select (only) one of the following three options:

Our firm has no actual, potential, or reasonably perceived, **financial*** or **other interest**** in the outcome of the project.

Our firm has a potential or reasonably perceived **financial*** or **other interest**** in the outcome of the project as described here: _____.

Our firm proposes to mitigate the potential or perceived conflict according to the following plan:
_____.

Our firm has an actual **financial*** or **other interest**** in the outcome of the project as described here: _____.

***What does "financial interest" mean?**

If your firm, or employee of your firm working on the project (or a member of the employee's household), will/may be perceived to receive or lose private income depending on the government business choices based on your firm's findings and recommendations, this must be listed as a financial interest. An example would be ownership in physical assets affected by the government business choices related to this project. The possibility of contracting for further consulting services is not included in this definition and is not prohibited.

****What does "other interest" mean?**

If your firm, or employee of your firm working on the project (or a member of the employee's household), will/may be perceived to have political, legal or any other interests that will affect what goes into your firm's findings and recommendations, or will be/may be perceived to be affected by the government business choices related to this project, this must be listed as another interest.

BUSINESS NAME: CDM Smith Inc.

NAME (PERSON AUTHORIZED TO BIND THE COMPANY): Jason A. Sciandra, PE; Principal

SIGNATURE: 

DATE: February 26, 2020

THIS PAGE MUST BE SUBMITTED WITH LETTER OF INTEREST

Scrutinized Company Certification Form

Company Name: <u>CDM Smith Inc.</u>			
Authorized Representative Name and Title: <u>Jason A. Sciandra, PE; Principal</u>			
Address: <u>4210 Metro Parkway, #230</u>	City: <u>Fort Myers</u>	State: <u>FL</u>	ZIP: <u>33916</u>
Phone Number: <u>239.938.9600</u>	Email Address: <u>sciandraja@cdmsmith.com</u>		

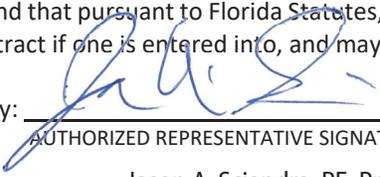
A company is ineligible to, and may not, bid on, submit a proposal for, or enter into or renew a contract with the City of North Port for goods or services of any amount if, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to Florida Statutes, section 215.4725, or is engaged in a boycott of Israel.

A company is ineligible to, and may not, bid on, submit a proposal for, or enter into or renew a contract with the City of North Port for goods or services of \$1 million or more if, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company is on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Florida Statutes, section 215.473, or with companies engaged in business operations in Cuba or Syria.

CHOOSE ONE OF THE FOLLOWING

- This bid, proposal, contract or contract renewal is for goods or services of less than \$1 million. As the person authorized to sign on behalf of the above-named company, and as required by Florida Statutes, section 287.135(5), I hereby certify that the above-named company is not participating in a boycott of Israel.

- This bid, proposal, contract or contract renewal is for goods or services of \$1 million or more. As the person authorized to sign on behalf of the above-named company, and as required by Florida Statutes, section 287.135(5), I hereby certify that the above-named company is not participating in a boycott of Israel, is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and it does not have business operations in Cuba or Syria.

I understand that pursuant to Florida Statutes, section 287.135, the submission of a false certification may result in the termination of the contract if one is entered into, and may subject the above-named company to civil penalties, attorney's fees and costs.	
Certified By: 	_____
AUTHORIZED REPRESENTATIVE SIGNATURE	
Print Name and Title: <u>Jason A. Sciandra, PE; Principal</u>	_____
Date Certified: <u>February 26, 2020</u>	_____

Solicitation/Contract/PO Number (Completed by Purchasing): _____

STATEMENT OF NON-SUBMITTAL

If you **do not** intend to submit a bid on this service, please return this form (see information below) immediately.

We, the undersigned, have declined to submit a bid on the requested Request for Bid No. 2020-03 **Myakkahatchee Creek Water Treatment Plant Water Treatability Evaluation**

- Insufficient time to respond to the Request for Bid.
- We do not offer this product/service.
- Unable to meet bond/insurance requirements.
- Specifications are unclear (explain below).
- OTHER (please specify below).

REMARKS:

COMPANY NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____

TELEPHONE: _____ FAX: _____

E-MAIL ADDRESS: _____

SIGNATURE: _____ DATE: _____

PRINT NAME: _____

Note: Please email "Statement of Non-Submittal" to:

MIKE ACOSTA: MACOSTA@CITYOFNORTHPORT.COM
AND
NICOLE BROWN: NBROWN@CITYOFNORTHPORT.COM

The logo for CDM Smith, featuring the text "CDM" stacked above "Smith" in a bold, white, sans-serif font. A registered trademark symbol (®) is located to the right of "Smith".

**CDM
Smith**®

cdmsmith.com