Exhibit G
Scope of Work Document as prepared by Gwinnett County Department of Water Resources
Demonstration of High Quality Drinking Water Production Using Multi-Stage Ozone-Biological Filtration (BAF): A Comparison of DPR with Existing IPR Practice
(WRRF-15-11)

National trends indicate increasing interest in providing sustainable water supply solutions that leverage advances in the science and engineering of water treatment for potable reuse practices. There are already utilities in the United States implementing direct potable reuse (DPR), and many others that are evaluating how this practice fits into a diversified water supply portfolio. Currently, the operating DPR projects in Texas rely on a modification of the full advanced treatment (FAT) model that has been the standard for planned IPR in California. The FAT train leverages advanced treatment technologies that are linked together and include microfiltration/ultrafiltration (MF/UF), reverse osmosis (RO), ultraviolet (UV) light disinfection, and advanced oxidation (AOP) to form a multi-barrier treatment process. While this model has been proven in terms of producing source water quality that is suitable for both IPR and DPR, the process has a very high capital cost and is energy intensive, particularly for inland facilities where RO concentrate disposal is complicated and expensive. When total dissolved solids reduction is not necessary from the source water, there are alternative treatment processes such as ozone biologically active filtration (BAF), following advanced wastewater treatment that can achieve high quality for drinking water supplies.

Ozone-BAF has been used for reducing total organic carbon, microbial contaminants and unregulated compounds in the drinking water industry for years, and its applicability to diverse water qualities including both planned and de facto (or unplanned) indirect potable reuse (IPR) supplies in North America has prompted this Tailored Collaboration project. This research will develop important data allowing a meaningful evaluation of BAF in a planned IPR scenario as well as a direct potable reuse (DPR) scenario. This research is unique and innovative because ozone-BAF has only been studied in a very limited capacity for DPR treatment trains, and past research has always coupled this process with RO. This research will be the first study focused on this alternative treatment process that eliminates issues associated with RO concentrate disposal while addressing the following technical goals:

- Develop a process control strategy for BAF that can be applied to DPR
- Integrate the monitoring framework developed for WRF Project Number (No.) 4508/WRRF Project No. 13-14 and provide an in-depth validation of these tools. This will provide data to allow rigorous analysis of the practicality and functionality of these monitoring parameters.
- Integrate the project with several concurrent research projects, allowing development of a robust dataset for comparison with both current drinking water quality produced by IPR and with data that CDM Smith has previously collected potable reuse pilots and full-scale FAT treatment train projects.
- Finally, there are lake-turnover events that impact the source water quality in Lake Lanier; this project will investigate the feasibility of utilizing DPR to overcome process challenges that Gwinnett County Department of Water Resources (DWR) and many other municipalities face. This unique aspect of the project will provide additional data which may demonstrate that DPR using two-stage BAF could be a viable means of providing additional process resiliency to upset conditions.

If this research demonstrates that two-stage ozone-BAF—at the advanced wastewater reclamation facility and at the water treatment plant—can produce drinking water quality equal to or better than the current IPR process, then, it is a viable means to eliminate RO (or other membrane processes) from the DPR treatment train. This approach would reduce capital, operating, and disposal costs associated with

implementation of DPR, particularly for inland-based utilities. If optimized and robust performance can be demonstrated, this research has the potential to significantly change the economics and application of DPR both nationally and internationally.

Gwinnett County Department DWR currently practices planned IPR by use of advanced wastewater treatment including ozone-BAF at its F. Wayne Hill Water Resources Center (WRC) and ozone-BAF at its drinking water plants. DWR is proactively evaluating options for meeting future water supply demands, including DPR. DWR is also participating in WRF Project No. 4555 to investigate optimization strategies for BAF as a means of meeting a variety of treatment objectives for various source water quality conditions at its drinking water treatment plants. Both the Shoal Creek Filter Plant (SCFP) and Lanier Filter Plant (LFP) currently utilize incidental BAF. DWR is interested in developing an engineered control strategy to optimize BAF performance. As part of its participation in WRF Project No. 4555, Gwinnett County DWR will construct a pilot at the SCFP and conduct optimization testing for one year to validate optimization strategies, evaluate synergy between multiple optimization strategies, and test resiliency to process upsets.

A side-by-side DPR pilot will be constructed with the objective of evaluating the potential for using reclaimed water from the F. Wayne Hill WRC in combination with Lake Lanier water at various blending ratios and alone as a raw water source. Performance data, including primary and secondary drinking water standards as well as unregulated microbial contaminants and chemical compounds will be evaluated. Co-locating the pilot facilities allows DWR to capitalize on related research and offers the advantage of easily accessing both water sources (Lake Lanier and F. Wayne Hill WRC effluent) at a common location. This Tailored Collaboration project will also assess dual ozone-BAF (at the F. Wayne Hill WRC and SCFP) that could be used for DPR.

With the overall objective of evaluating two-stage ozone-BAF as a sustainable and cost-effective treatment technology for addressing wastewater-derived contaminants for both IPR and DPR, this proposed Tailored Collaboration Research project is organized into four tasks:

- Literature review and pilot test work plan
- Pilot testing: baseline acclimation, testing of three DPR blending ratios, process optimization, robustness and contingency testing
- Process Integration – full scale process implementation strategies
- Reporting

The pilot will replicate the processes used at the full-scale SCFP, with the exception that the DPR pilot will allow blending of effluent from F. Wayne Hill WRC with water from Lake Lanier. This research will demonstrate whether an ozone-BAF approach to DPR can provide water quality of as high quality as the current drinking water supply, and whether it removes a targeted list of microbial contaminants and chemical indicator compounds to the same extent as the FAT train. If proven, the ozone-BAF approach could be a more cost effective and sustainable approach to providing DPR than treatment processes based on RO, changing the paradigm for DPR.