



# City of Norman, OK

Municipal Building  
Council Chambers  
201 West Gray  
Norman, OK 73069

## Master

**File Number: K-1920-115**

**File ID:** K-1920-115

**Type:** Contract

**Status:** Consent Item

**Version:** 1

**Reference:** Item 29

**In Control:** City Council

**Department:** Utilities Department

**Cost:** \$533,250.00

**File Created:** 01/31/2020

**File Name:** Water Reuse Pilot Study

**Final Action:**

**Title:** CONTRACT K-1920-115: A CONTRACT BY AND BETWEEN THE NORMAN UTILITIES AUTHORITY & GARVER, L.L.C., IN THE AMOUNT OF \$533,250 FOR DESIGN AND OVERSIGHT OF A RESEARCH PILOT STUDY FOR INLAND INDIRECT POTABLE REUSE LOCATED AT THE NORMAN WATER RECLAMATION FACILITY.

**Notes:** ACTION NEEDED: Acting as the Norman Utilities Authority, motion to approve or reject Contract K-1920-115 with Garver, L.L.C., in the amount of \$533,250; and, if approved, authorize the execution thereof.

ACTION TAKEN: \_\_\_\_\_

**Agenda Date:** 02/11/2020

**Agenda Number:** 29

**Attachments:** Garver Contract Reuse Pilot Study.pdf

**Project Manager:** Chris Mattingly, Capital Projects Engineer

**Entered by:** chris.mattingly@normanok.gov

**Effective Date:**

### History of Legislative File

| Version: | Acting Body: | Date: | Action: | Sent To: | Due Date: | Return Date: | Result: |
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### Text of Legislative File K-1920-115

Body

**BACKGROUND:** In March 2012, the Norman Utilities Authority (NUA) approved Contract K-1112-114 for a consultant to prepare the 2060 Strategic Water Supply Plan (the 2060 SWSP). The plan update was needed because the NUA was unable to supply sufficient potable water to meet peak demands during summer months and was concerned about probable regulatory changes affecting both our surface water and groundwater supplies.

The goal of the 2060 SWSP was to strengthen our knowledge of potential short and long-term water supply source(s) for our community and begin implementation of a robust, water supply

solution acceptable to the citizens of Norman. The 2060 SWSP Ad-Hoc Committee was appointed to ensure open and two-way dialogue with the community, to ensure the suggestions of the public are addressed, and to be able to communicate the objectives and conclusions of the 2060 SWSP to the public.

Eight meetings were held with the 2060 SWSP Ad-hoc Committee and six public meetings were held for public participation and input. Fourteen different potential water supply portfolios were developed, investigated and evaluated at these meetings. Each portfolio was developed to provide an annual average supply of 29 million gallons per day (MGD) in 2060 and a peak daily supply of 55.4 MGD in 2060. Ultimately, Resolution R-1314-146 was approved by the NUA on June 24, 2014 recommending Portfolio 14 for implementation; this portfolio included the following recommendations:

1. Continued use of Lake Thunderbird as a raw water supply source with treatment at an improved water treatment facility at the existing site (but with the current allocation reduced from 8.4 to 6.1 MGD of annual average supply based on a pending Bureau of Reclamation yield study);
2. Expanded water conservation practices ultimately resulting in additional annual average water supply savings of 1 MGD in 2060 through reduced water consumption;
3. Additional non-potable reuse ultimately resulting in additional annual average potable water supply savings of 0.8 MGD in 2060 (and reduced peak summertime demand of about 4.6 MGD by 2060);
4. Continued use of our current groundwater supply system of 36 wells and expanding the groundwater supply system by 2 MGD in the short term for a total of 8 MGD annual average supply capability;
5. The addition of treatment for arsenic and chromium 6 at a centralized facility increasing the groundwater annual average supply capacity from 8.0 to 10.1 MGD by bringing 12 inactive wells back on-line; and
6. Implementation of indirect potable reuse (IPR) over time by adding additional treatment at the Water Reclamation Facility (WRF) and discharging the highly treated effluent into Lake Thunderbird; raw water conveyance and water treatment expansions would be required.

The Fiscal Year Ending 2020 (FYE20) budget includes a capital improvement project known as the WRF Reuse Pilot Study (project WW0317). As noted in Item 6 above, this concept for long term water project was recommended as a part of the NUA approved 2060 Strategic Water Supply Plan.

Norman staff has participated with Oklahoma Department of Environmental Quality (DEQ) over the last 5 years to develop IPR regulations for Oklahoma. The DEQ has always leaned on reuse technologies that are currently used in California known as Microfiltration (MF), Reverse Osmosis (RO) followed with Ultraviolet Radiation and Hydrogen Peroxide (UV/H<sub>2</sub>O<sub>2</sub>). Though this treatment train is a proven technology, the waste stream from the RO is high in salts and the coastal cities are able to dispose of it in the ocean. For inland states, discharging salt water can harm the local streams so where to dispose of the salt water is a problem. Some small facilities have either selected to discharge to their water reclamation facility which may have negative effects if not blended thoroughly or they have discharged into underground injection

wells along with the oil and gas industry.

Garver approached the City of Norman to perform a pilot project to try other technologies that could lead to IPR. Garver's in-depth experience of designing our recent WRF expansion, upgrades and improvements made it an obvious decision for staff to partner with their firm in applying for grant funding from the Bureau of Reclamation's (BOR) Water Reclamation and Reuse Research under the Title XVI Program for Fiscal Year 2019 Funding Opportunity Announcement BOR-DO-19-F009.

Staff made application and submitted to the BOR September 20, 2019. The NUA received an email December 20, 2019 from the BOR stating that our application had been selected as 1 of 4 projects that they intend to award. The other three projects they will award are all from California. The BOR will award the Norman Utilities Authority \$700,109 in grant money to be used in the NUA's pilot study.

This pilot research will investigate 1) the comparison of two biological nutrient removal (BNR) technologies; 2) comparison of three pilot-scale filter technologies to meet very low effluent nutrient levels; and 3) advanced oxidation processes (AOP) for removal of constituents of emerging concern (CEC's). The pilot study is intended to cover a 30-month timeframe to address all seasons and various weather impacts that could be experienced. The total anticipated cost of the pilot and engineering is \$2,684,842. Staff will bring a contract forward at our next scheduled NUA meeting to accept these grant funds and establish a total pilot project budget.

**DESCRIPTION:** The pilot project will consist of utilizing 2 of the 6 aeration basins and 2 of the 6 secondary clarifiers to establish two parallel treatment trains. One batch train will flow no larger than 200,000 gallons per day and the other steady state train will flow up to 1 million gallons per day (MG/D). Effluent from the secondary clarifiers will be directed to rented equipment that will provide tertiary and advanced water treatment to meet OK's IPR regulatory requirements. These devices will be rented from manufacturers to demonstrate reliable performance capabilities, and provide robust operations and maintenance data. Staff will assist the consultant in operating and maintaining the unit during the approximate 30-month project.

The proposed \$533,250 contract with Garver will cover their costs to design and establish the pilot system. The remaining costs of the project will be used for renting appropriate treatment equipment as well as all testing and analyses associated with the project over the 30-month time frame. Funds in the amount of \$550,000 are available under FYE20 WRF Reuse Pilot Study, Design account (ORG 32999911/OBJECT 46201; project WW0317). The BOR is providing up to \$700,109 of reimbursement for this project.

**RECOMMENDATION:** Staff recommends approval of Contract K-1920-115 with Garver Engineers, Inc. of Norman, Oklahoma, in the amount of \$533,250.