

# Western Regional Water Commission

## STAFF REPORT

**DATE:** March 15, 2018

**TO:** Chairman and Members, Western Regional Water Commission

**FROM:** Jim Smitherman, Water Resources Program Manager

**SUBJECT:** Discussion and possible approval of a recommendation from the Northern Nevada Water Planning Commission (“NNWPC”) for approval of a scope of work, and funding in an amount not to exceed \$561,000 from the Regional Water Management Fund (“RWMF”) over three fiscal years, for the development of a Regional Effluent Management Planning Guidance Document; if approved, authorize the Chairman to execute an Interlocal Agreement with the University of Nevada, Reno (“UNR”) for that purpose; and possible direction to staff

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### **SUMMARY**

The Regional Effluent Management Team (the “Team”), consisting of technical staff from the City of Reno, the City of Sparks, Washoe County, the Truckee Meadows Water Reclamation Facility, and the Truckee Meadows Water Authority, has accomplished a number of significant steps toward addressing region-wide water and wastewater planning issues. Important outcomes include the State Environmental Commission’s 2017 adoption of revised reclaimed water regulations; the Agreement for Treated Effluent between the City of Reno, City of Sparks and TRI General Improvement District; the ongoing Advanced Water Treatment Technologies Demonstration Project being conducted by the University of Nevada, Reno; and the recently completed Regional Effluent Management Planning Framework (the “Framework”).

In December 2017, the NNWPC ranked regional reclaimed water planning as its top priority for the foreseeable future. To address this priority, and as the next logical step following the completion of the Framework, the Team envisions developing an Inter-Agency Regional Effluent Management Planning Guidance Document (the “Guidance Document”) over the next three years. The Guidance Document will provide guidance and alternatives to decision makers facing future effluent and reclaimed water management decisions, and will potentially be incorporated into the Regional Water Management Plan.

On March 1, 2018, the Team recommended to the NNWPC that UNR, through its Department of Civil and Environmental Engineering, including the Nevada Water Innovation Campus (“NWIC”), be selected to provide primary support in developing the Guidance Document, in collaboration with the Team, as provided in the attached scope of work, using funding from the RWMF in an amount not to exceed \$561,000 distributed

over three fiscal years, beginning in FY 2018-2019. The NNWPC approved and recommended that the WRWC approve the funding request and attached scope of work.

**BACKGROUND**

The Team has been meeting since 2014 to discuss regional effluent management issues. In 2015, a local consulting firm was retained to provide project coordination services and assist the Team in developing an effluent management strategy focused on the Truckee Meadows Water Reclamation Facility and the South Truckee Meadows Water Reclamation Facility. The outcome of this effort, the Framework, was completed in late 2017 and presented to the NNWPC in March 2018. The Framework provides the core tasks for the Guidance Document scope of work.

**FISCAL IMPACT**

The fiscal impact to the RWMF for this item, if approved, will not exceed \$561,000 over three years, starting with an amount not to exceed \$181,422 in FY 2018-2019. Budget authority is provided in the FY 2018-2019 draft tentative budget, in Fund Group 766, Fund 7066, Account Number 710100, Professional Services, Cost Object WP310200.

**RECOMMENDATION**

Staff recommends that the WRWC approve the proposed scope of work, and funding in an amount not to exceed \$561,000 from the RWMF over three fiscal years, for the development of a Regional Effluent Management Planning Guidance Document and, if approved, authorize the Chairman to execute an Interlocal Agreement with UNR for that purpose.

**POSSIBLE MOTION**

"Move to approve the proposed scope of work, and funding in an amount not to exceed \$561,000 from the RWMF over three fiscal years, for the development of a Regional Effluent Management Planning Guidance Document; and authorize the Chairman to execute an Interlocal Agreement with UNR for that purpose."

JS:jp

**PROJECT PROPOSAL**

**Principal Investigator: Krishna Pagilla, Ph.D., P.E.**  
**Project Number:**

**1. Project Title:       Development of Inter-Agency Regional Effluent  
Management Planning Guidance Document**

**2. Principal Investigator:   Krishna Pagilla, Ph.D., P.E., Professor**  
University of Nevada, Reno  
Director, Nevada Water Innovation Campus  
Department of Civil and Environmental Engineering  
Phone: 775-682-1918; E-mail: pagilla@unr.edu

**3. Project Manager:       Jim Smitherman, Program Manager**  
Western Regional Water Commission  
Northern Nevada Water Planning Commission  
1001 E. Ninth Street, Reno, NV 89520  
Phone: 775-954-4657  
E-mail: jsmitherman@washoecounty.us

**3. Scope of Work:         See Page 2**

**4. Duration of the Project:   July 1, 2018 to June 30, 2021**

**5. Specified Deliverable Items:**

As described in the Scope of Work

**6. Equipment:             None**

**7. Budget:                 See Page 4**

# **Development of Inter-Agency Regional Effluent Management Planning Guidance Document**

## **University of Nevada, Reno**

### **Scope of Work**

#### **A. Introduction and Background**

Staff from the Northern Nevada Water Planning Commission, City of Reno, City of Sparks, Truckee Meadows Water Authority (“TMWA”) and Washoe County, the Regional Effluent Management Team (“Regional Team”) are effective at addressing region-wide water and wastewater planning issues. The Regional Team’s accomplishments are evidenced by their efforts working collaboratively with the State of Nevada Division of Environmental Protection staff to adopt updated reclaimed water regulations in 2017, the Agreement for Treated Effluent between the City of Reno, City of Sparks and TRI General Improvement District, and the ongoing Advanced Water Treatment Technologies Demonstration Project with the University of Nevada, Reno.

The Northern Nevada Water Planning Commission (“NNWPC”) has identified effluent and reclaimed water management planning as a top priority for the region over the next several years. Local water, wastewater, and effluent issues are inter-related, creating a need for integrated planning and management. To accomplish the effluent and reclaimed water management planning objective, the Regional Team envisions developing an Inter-Agency Regional Effluent Management Planning Guidance Document (“Guidance Document”) over the next three years. The result would be a “living document” that would guide future effluent and reclaimed water management decisions. The Guidance Document would include the following elements:

- Effluent inter-relationships between facilities to guide decisions
- Facility-specific effluent management alternatives with implementation lead times
- Budgetary costs for effluent management alternatives
- Public input
- Facility-specific timelines showing critical milestones to meet effluent management constraints
- Development of technical analysis supporting reclaimed water regulations and regional policies

To effectively develop the Guidance Document in a timely manner, the Regional Team requires internal and external support. After much deliberation, the Regional Team recommends that the University of Nevada, Reno, through the Nevada Water Innovation Campus (NWIC), be tasked with providing primary external support at the direction of the Regional Team. Alternatives investigated included the status quo approach, which has been essentially staff-led effort with consultant assistance; adding additional agency staff; and the recommended approach, continuing the staff-led effort with additional project management and technical assistance provided by the University of Nevada on a contract basis. It should be noted that additional, independent analysis of technologies or options, such as treatment process technologies to reduce constituent concentrations (nitrogen, phosphorus, TDS, etc.) to meet Truckee River discharge requirements, may also be required.

**B. Project Goals**

The overall goal of the project is to develop an Inter-Agency Regional Effluent Management Planning Guidance Document. The specific goals are as follows:

1. Identify effluent management goals for each local water reclamation facility;
2. Identify and evaluate future facility-specific effluent management alternatives with implementation lead times;
3. Develop evaluation criteria, such as least life-cycle cost, robust operation, and optimization of available water rights, etc.
4. Develop budgetary costs for effluent management alternatives;
5. Following public input, present the multi-agency work plan with planning-level costs and critical effluent capacity milestones for local government approvals.

**C. Project Tasks**

To achieve the overall project goal and specific goals identified above, NWIC will perform the following tasks under this project, at the specific direction of the Regional Team. The tasks are further outlined below to describe the scope of the study.

**Task 1: Establish Effluent Management Goals.** The purpose of this task is to identify the short-term and long-term regional effluent management goals, and to identify the goals that are common to the community, along with agency-specific and facility-specific goals. Examples of possible goals include: community goals from public input, protect and enhance the environment, growth readiness, provide for sustainable water resources, infrastructure flexibility and resiliency, a common vision for effluent use, and long-term funding requirements and affordability. Common goals and goals that are specific to each facility will be developed.

**Task 2: Document Planning Resources.** The purpose of this task is to identify support personnel and inventory the available planning resources. Truckee Meadows Regional Planning Agency regional growth projections, water reclamation facility flow projections, the Regional Water Management Plan, TMWA Water Resource Plan and water reclamation facility master plans are examples of current, relevant information.

**Task 3: Effluent Management Constraints.** The purpose of this task is to identify current and future management constraints, such as: water rights, TROA, WQSA and TMDLs, regulatory discharge permits, interlocal agreements, infrastructure limitations, geographic constraints, public perception, and financial considerations.

**Task 4: Effluent Management Methods.** The purpose of this task is to review current and potential effluent management methods. The management methods currently being used by local facilities include: surface water discharge, non-potable reuse and rapid infiltration basins. Future

potential management options may include: export of the effluent outside of the existing collection area, uses of Class A+ exceptional quality reclaimed water, or other management options. The potential management methods that might be used by each local treatment facility and the methods most viable for each facility will be presented.

**Task 5: Water Quality and Resource Management.** The purpose of this task is to develop local water quality, water resources, and effluent constraints and opportunities in the context of exploring creative solutions for effluent management. Examples of possible creative solutions may include inter-facility raw sewage / reclaimed water interties, uses of Class A+ exceptional quality reclaimed water, reclaimed water export and storage for future use (i.e. Bedell Flat Water Bank) or satellite flow shaving facilities.

**Task 6: Inter-Agency Coordination & Evaluations.** The purpose of this task is to identify and evaluate future management options for each existing wastewater facility, including: opportunities for inter-facility or inter-agency coordination and potential joint projects, options for new facilities or treatment processes, flow shaving facilities, or decommissioning existing facilities.

**Task 7: Financial Evaluation.** The purpose of this task is to identify and estimate future cost implications for each viable management option for each existing wastewater facility. Planning level estimates will be provided for capital costs and typical operating costs to compare alternatives. In addition, a planning level evaluation will consider impacts to rates, connection fees, funding sources and the potential for joint ventures.

**Task 8: Inter-Agency Regional Effluent Management Planning Guidance Document.** An Inter-Agency Guidance Document will be produced, which summarizes the key findings, outcomes and recommendations from the effluent and reclaimed water management planning effort. The intent is not to write a large report, but rather to summarize the key findings and recommendations in a living document for decision makers. The Guidance Document would include a discussion of the inter-relationships between the various water reclamation facilities, including a flowchart to guide decisions. It would present the recommended Work Plan, including facility-specific effluent management alternatives with implementation lead times, budgetary costs for the recommended effluent management alternatives and timelines showing critical milestones for effluent management actions. A summary of the alternatives considered and public input and responses would also be included.

#### **D. Project Team**

The UNR project team will consist of the Principal Investigator, Dr. Krishna Pagilla, PE, one Associate Research Professor, and undergraduate student assistants, as necessary. Additional faculty and staff at UNR will be used for unique and supplementary tasks as needed with approval from the Regional Team.

**E. Project Schedule**

The project schedule for UNR tasks will extend over a period of 3 years. A detailed project schedule for UNR involvement outlining the exact duration of each task described above and the respective deliverables will be developed during the first quarter of the project after the scope has been refined by the Regional Team.

**F. Project Costs and Status Reports**

Required Western Regional Water Commission ("WRWC") funding for the project is estimated at \$181,422 for year 1, \$186,786 for year 2 and \$192,302 for year 3. The cumulative total is \$560,510. Project status reports, schedule updates, task progress, and refinements to the scope of work will be presented to the NNWPC and WRWC for input at least semi-annually, or as requested.

## BUDGET JUSTIFICATION

*The University of Nevada, Reno is on an 8-month academic and 4-month summer calendar schedule.*

### **Senior Personnel: \$352,363**

*Faculty. \$352,363.* Costs include the creation of an associate professor position with a beginning base salary of \$114,000 in Year 1, with a 3% increase in the base salary in Year 2 and 3. Total salary for associate professor is **\$352,363** (\$114,000+\$117,420+\$120,943).

### **Other Personnel: \$15,000**

*Undergraduate Assistant. \$15,000.* One undergraduate student will dedicate time to the project at a rate of \$4,800 in Year 1, plus a \$200 per year increase in Years 2 and 3. Total wages of the undergraduate assistant: **\$15,000** (\$4,800+\$5,000+\$5,200).

### **Fringe: \$65,487**

Fringe rates for the University of Nevada, Reno, are based on actual fringe costs. The rate for the Associate Professor is faculty non-contract (i.e. "summer") at 18.5% of the requested salaries. The rate for the undergraduate assistant is 2% of the requested wages. (Assoc. Professor: **\$65,187**; Undergraduate assistant: **\$300**).

### **Travel: \$6,000**

Travel costs for the PI, faculty members and/or undergraduate assistant to attend related meetings and/or conferences during the project period at a total cost of \$2,000 per year or **\$6,000** for total project. Determination of number of trips and locations to be determined as project needs require.

### **Other Direct Costs: \$6,000**

*Materials and Supplies. \$6,000.* Includes costs for lab supplies and consumable materials for the project at a cost of \$2,000 per year or **\$6,000** for the total project.

### **Total Direct Costs: \$444,850**

### **Indirect Costs: \$115,660**

The University of Reno has an approved, federally-negotiated facilities and administrative cost rate for off-campus research of 26.0% on Modified Total Direct Costs (MTDC). All activities will be conducted at field sites and at user facilities of regional agencies involved on the project.

### **Total Funding Request: \$560,510**