Western Regional Water Commission and Northern Nevada Water Planning Commission

STAFF REPORT

DATE: October 27, 2022

TO: Chairmen and Members, Western Regional Water Commission (WRWC) and Northern Nevada Water Planning Commission (NNWPC)

FROM: Kim Rigdon, Water Resources Program Manager

SUBJECT: Action, discussion, and possible direction to staff for approval of a scope of work and funding not to exceed $388,576 from the Regional Water Management Fund (RWMF), for an interlocal agreement (ILA)with the University of Nevada, Reno (UNR) for the Regional Wastewater Enhanced Source Control Monitoring-Phase 2 project tasks

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SUMMARY

UNR, through the Nevada Water Innovation Institute (NWII), submitted a proposal and scope of work for the Regional Wastewater Enhanced Source Control Monitoring-Phase 2 project tasks. The scope of work includes developing specific sampling and monitoring plans for each water reclamation facility (WRF), performing data analysis, and completing all aspects of wastewater source control strategy development. Each WRF agency is responsible to implement their individual sampling and monitoring plan for data collection. It is anticipated that each WRF will contract separately or coordinate with UNR to conduct the sampling, monitoring, and analysis of samples (both at UNR and external laboratories) during the project timeline.

If the NNWPC approves the scope of work and recommends the project for WRWC approval, and the WRWC approves the scope of work and funding for the project, the interlocal agreement will become effective January 1, 2023 with a project completion date of June 30, 2025. Should the proposal be accepted, the Fiscal Year 2023 (FY23) WRWC budget has sufficient funds in the professional services category for the UNR NWII scope of work.

BACKGROUND

At the recommendation of the NNWPC, on May 19, 2021, the WRWC approved the NWII scope of work and funding the Regional Wastewater Enhanced Source Control Plan Development- Phase 1 project from the RWMF. Through Phase 1, NWII developed enhanced source control frameworks for each of the five (5) regional water reclamation facilities. In September 2022, NWII submitted the *Enhanced Source Control for Regional Water Reuse and Resource Protection Final Report* and presented findings to the NNWPC on October 5, 2022 with a description of Phase 2 tasks.

FISCAL IMPACT

The funding request is $120,942 for FY23, $172,686 for FY24, and $94,948 for FY25, for a total agreement budget not to exceed $388,576 over the three-year term.

NNWPC RECOMMENDATION

Staff proposes that the NNWPC forward a recommendation to the WRWC for approval of UNR's scope of work and funding not to exceed $388,786 from the RWMF, in accordance with the proposed funding schedule: $120,942 for FY23, $172,686 for FY24 and $94,948 for FY25, contingent upon annual NNWPC priority setting and WRWC budget approvals, and a project completion date of June 30, 2025.

NNWPC POSSBILE MOTION

"Move to forward a recommendation to the WRWC for approval and funding of an ILA with UNR for services outlined in Regional Wastewater Enhanced Source Control Monitoring-Phase 2 proposal and funding, not to exceed $388,576 from the RWMF in accordance with the proposed funding schedule, contingent upon annual NNWPC priorities setting and WRWC Budget approval, and a project completion date of June 30, 2025."

WRWC RECOMMENDATION

Upon recommendation from the NNWPC, staff proposes the WRWC approve an ILA with UNR for services outlined in the Regional Wastewater Enhanced Source Control Monitoring-Phase 2 proposal and funding not to exceed $388,576 from the RWMF, in accordance with the proposed funding in accordance with the proposed funding schedule: $120,942 for FY23, $172,686 for FY24 and $94,948 for FY25, contingent upon annual NNWPC priority setting and WRWC budget approvals, and a project completion date of June 30, 2025.

WRWC POSSIBLE MOTION

"Move to approve funding, not to exceed $388,576 from the RWMF in accordance with the proposed funding schedule, contingent upon annual NNWPC priorities setting and WRWC Budget approval, for an ILA with UNR for services outlined in the Regional Wastewater Enhanced Source Control Monitoring-Phase 2 proposal with a project completion date of June 30, 2025, and authorize the Chair to execute an agreement with UNR, effective January 1, 2023."

KR:BW:jp
Attachments: UNR Regional Wastewater Enhanced Source Control Monitoring-Phase 2 proposal

University of Nevada, Reno

PROJECT PROPOSAL

1. Project Title:	**Regional Wastewater Enhanced Source Control Monitoring – Phase 2**
2. Principal Investigators:	**Krishna Pagilla, Ph.D., P.E., Professor** **Director, Nevada Water Innovation Institute** **Laura Haak, PhD** **Research Scientist** University of Nevada, Reno Department of Civil and Environmental Engineering Phone: 775-682-7918; E-mail: pagilla@unr.edu
3. Project Manager:	**Kim Rigdon** **Water Resources Program Manager** Western Regional Water Commission 1001 East Ninth St., Reno, NV 89512 775-954-4682 krigdon@washoecounty.us
4. Statement of Work:	See attached
5. Duration of the Project:	January 1, 2023 to March 31, 2025 (27 months)
6. Deliverables:	As described in the Statement of Work
7. Equipment:	None
8. Budget and Description:	As described in the Statement of Work

4. Statement of Work

Section 1 Proposal Summary

The Nevada Water Innovation Institute (NWII) developed enhanced source control frameworks, characterized users across collection systems, and reviewed monitoring data for the three (3) largest regional water reclamation facilities (WRFs). The proposed Phase II work will involve close collaboration with the regional agencies to develop individualized criteria for enhanced source control according to their needs and sewershed-specific considerations.

Phase II goals include to develop and carry out sampling and monitoring plans, develop the list of Priority Pollutants for individual WRFs, further characterize discharges from industrial users in the collection system, and to evaluate mitigation measures for prioritized pollutants. These goals will be carried out during two separate tasks:

Task 5 – Water Quality Sampling Plan Development and Implementation

Task 6 – Wastewater Source Control Strategy Development

The scope of work for this proposal includes the development of specific sampling and monitoring plans for each WRF, carrying out data analysis, and all aspects of Task 6. Under Task 5, the agencies will be responsible for carrying out sampling and monitoring for data collection. It is anticipated that each WRF will contract separately or coordinate with UNR to conduct the sampling and monitoring, and analysis of samples (both at UNR and external laboratories) within the duration of this project proposal.

Section 2 Proposal Rationale

Wastewater effluent management strategies, ranging from environmental discharges to potable reuse systems, can have very specific water quality objectives that are met through treatment processes and operational protocols. Improving the quality of the wastewater being received at a treatment facility is an effective and efficient strategy to manage the facility's effluent water quality. This water quality enhancement method is referred to as "wastewater source control".

Source water control strategies, including improving non-point water pollution sources, are often utilized to help meet effluent receiving water quality objectives, protect sources of drinking water supplies, and enhance ecosystems. Through the wastewater source control development process, key water quality constituents of concern or interest are identified and may range from trace organics to bulk parameters such as salinity.

Developing and implementing a wastewater source control plan for each WRF within the Truckee Meadows region is timely. Key drivers include:

- The City of Reno and Truckee Meadows Water Authority, in collaboration with OneWater Nevada, are planning an advanced purified water project in the Reno Stead area. A wastewater source control plan for RSWRF must meet Nevada Administrative Code (NAC) 445A.27616(5) requirements to protect reclaimed water quality intended for indirect potable reuse (category A+).

- Effluent originating from TMWRF, and possibly from STMWRF, will be utilized for data center cooling and high purity industrial water applications that require Category B water quality criteria, but source control may alleviate some treatment requirements for the Tahoe Reno Industrial Center General Improvement District to meet end user water quality needs.
- Source water quality control plans will complement the current regional reclaimed water master planning, which is predominantly addressing infrastructure needs and water resource management needs.
- Source water quality control plans will complement individual facility plans from the outside-the-fence perspective to eliminate or minimize significant capital-intensive upgrades or retrofits.

Wastewater source control frameworks for each regional water reclamation facility will reflect current and anticipated effluent management/water recycling practices and the existing and planned unit treatment processes. When implemented, the wastewater source control strategies will complement established agency environmental control policies, regulations, and protocols protecting effluent water quality.

Section 3 Phase 2 Task Items

Task 5 Water Quality Sampling Plan Development and Implementation

Task 5 will be carried out in collaboration with each local agency by implementing a facility-specific water quality sampling program. The scope of work includes developing the sampling and monitoring plans (Tasks 5.1, 5.3, and 5.4) for the WRFs. Under Tasks 5.2 and 5.5, the NWII team will carry out data analysis and prepare data summaries for the agencies; field sampling and analytical testing and their respective costs will be managed separately through contracts between the respective agencies and UNR-subcontracted certified laboratories according to the sampling and monitoring plans. Task 5.6 will be completed by NWII following the conclusion of data collection. NWII will process the data to prepare technical reports for each facility and make recommendations for source control which will guide the strategies to be identified in Task 6.

5.1 – Development of a final testing and monitoring plan for the WRF will occur with close collaboration between the University and agencies according to budget, ongoing monitoring that the agency performs, and priorities for the sewershed.

5.2 – Monitoring of influent and effluent will include the regulated and unregulated constituents to evaluate their prevalence and prioritization on a quarterly basis. In the case of the RSWRF sewershed, sampling events and constituents will be coordinated for RSWRF and LVWRF and up to six sampling events may occur per annum.

5.3 – Biosolids monitoring will occur for TMWRF in conjunction with the plant influent and effluent sampling events. These sampling events will occur on a quarterly basis for the first year of baseline monitoring.

5.4 – The Testing and Monitoring Plan for the WRF collection system will be developed after four quarterly sampling events have occurred at the WRF and the pollutant watchlist has been reviewed.

5.5 – Collection system monitoring will be conducted according to the WRF's pollutant watchlist. This phase will also include developing more targeted wastewater surveillance for prioritized pollutants in the collection system to characterize their sources.

5.6 – Industrial user discharge characterizations will be an output from the collection system monitoring and source investigations. This will provide a general assessment of discharge characteristics and chemical inventories according to chemicals stored on-site by these users.

Task 6 Wastewater Source Control Strategy Development

NWII, in collaboration with the regional agencies, will prepare wastewater source control strategies for each regional facility. During Task 6 the monitoring data collected during Task 5 will be applied to inform the long-term priorities for enhanced source control in each sewershed.

6.1 – Monitoring data will be evaluated using risk assessment to develop pollutant prioritization and a pollutant watchlist. The pollutant watchlist will be developed after four quarterly sampling events have occurred at the WRF. The watchlist will be revised as needed over the second year of WRF monitoring.

6.2 – Likely sources of prioritized pollutants in the collection system will be evaluated using monitoring data and findings from the Phase I report on potential sources. This sub-task will be implemented in coordination with local environmental control staff.

6.3 – Potential mitigation measures will be evaluated for prioritized pollutants according to the understanding of their sources and feasible options. Mitigation measures can include regulatory authority to limit discharge of a pollutant, public outreach, and industrial user outreach programs.

Section 4 Phase 2 Schedule

Phase 2 consists of Task 5 and Task 6. In collaboration with individual agencies, NWII will develop a detailed scope of work, budget, schedule, and deliverables for each facility, based upon the needs developed in Task 4. The anticipated Task 5 and Task 6 activities are included for reference.

Phase 2 Schedule

Task 5	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
1. Develop Final Testing and Monitoring Plan for WRFs									
2. Influent and Effluent Monitoring at WRF									
3. Biosolids Monitoring									
4. Develop Final Testing and Monitoring Plan for the Collection System									
5. Collection System Monitoring									
6. Industrial User Characterizations									
Task 6									
1. Prioritization of Pollutants for Sewershed (Pollutant Watchlist, etc.)									
2. Identify Likely Sources of Prioritized Pollutants									
3. Evaluation of Mitigation Measures for Prioritized Pollutants									

Start Activity	In Progress Work	End Activity

Section 5 Phase 2 Deliverables

Task 5 – Water Quality Sampling Plan Development and Implementation

- Technical Memorandum 4 – WRF Testing and Monitoring
  - Final list of pollutants to be monitored in WRF influent and effluent.
  - Two year WRF-specific sampling program including sampling intervals, frequency, sample type, and analytical methods for selected water quality criteria.
  - Data summary and analysis for pollutants monitored at each WRF, including occurrence, removal, and comparison of concentration compared to goals.
- Technical Memorandum 5 – Collection System Testing and Monitoring
  - Assessment criterion and decision making approach for selecting pollutants to be monitored in the collection system.
  - Approach for identifying sampling locations representative of industrial users and domestic users across the sewershed.
  - Collection system sampling program specific to each WRF that includes sampling intervals, frequency, sample type, and analytical methods for selected water quality criteria.

- Data summary and analysis for pollutants monitored and their associated concentrations at each collection system sampling site.

Task 6 – Wastewater Enhanced Source Control Strategy Development

- Technical Memorandum 6 – Enhanced Source Control Strategies
  - Risk-based assessments for Pollutant Watchlist and Priority Pollutants for each WRF according to monitoring.
  - Evaluation of likely sources associated with the Priority Pollutants and Pollutant Watchlist constituents present in each sewershed according to monitoring data and literature review.
  - Evaluation of enhanced source control strategies applicable for Priority Pollutants, including technical, policy, regulatory, and other mitigation strategies.

PROJECT BUDGET AND EXPLANATION

This Phase 2 of the project as described above will take place over the course of 24 months + 3 months for final report revisions, with a start date of January 1, 2023 following approval by WRWC, with a final completion date of March 31, 2025. It is anticipated that one research scientist (Dr. Laura Haak, Co-PI)) will be needed at 1.0 FTE for 6 months in FY 22-23, at 0.5FTE for 12 months in FY 23-24, and 1.0 FTE for 6 months in FY24-25 to conduct this study. In addition, Dr. Krishna Pagilla will manage and direct the project requiring 0.5 month in FY 22-23 and 1.0 month in FY23-24. An undergraduate student assistant will support both Drs. Pagilla and Haak during the entire duration of the project and has been budgeted for a total of $20,000. Dr. Pagilla will be the director of the study and will supervise all functions including communication with the regional partners to assess their needs and goals with respect to wastewater source control monitoring at the regional WRFs. Mr. Rick Warner of Warner & Associates, LLC will be given a subaward for an amount of $50,000 to offer program coordination including regulatory aspects, assist in monitoring plan development, and interagency communications for the project. The overall budget is shown in Table 1 below.

Table 1: UNR's Budget for the Project

Item	FY 2022-23	FY 2023-24	FY 2024-25
Co-PI Salary	$48,161	$62,910	$37,390
Undergraduate Assistant	$5,000	$10,000	$5,000
Fringe Benefits	$15,676	$20,560	$12,197
Local Travel	$1,500	$3,000	$1,500
Subaward to Warner & Associates	$12,500	$25,000	$12,500
Total Modified Direct Costs	$82,837	$108,970	$56,087
UNR Facilities & Administration Costs (46%)[1]	$38,105	$51,216	$26,361
Annual Funds Requested from WRWC	**$120,942**	**$172,686**	**$94,948**

Note 1: 46%, 47%, and 47% of total modified direct costs in FY22-23, FY23-24, and FY24-25, respectively.

Total Funds Requested for 27 months: $388,576