

TMWRF/Huffaker Reservoir Interconnection Pipeline Evaluation

City of Reno

Proposed Project

Install a pipeline to allow the seasonal storage of TMWRF treated effluent in Washoe County's Huffaker Reservoir and to provide STMWRF additional effluent reuse opportunities.

To compare with other potential alternatives we need to better understand:

- How much storage is available in Huffaker?
- STMWRF needs for additional effluent disposal
- What are the expected TN, TP, and TDS load reductions?
- What infrastructure is needed?
- What are the capital costs?
- Other regional benefits not currently anticipated?

Project Objectives

Stantec was requested to work with the Regional Partners to evaluate the proposed interconnection pipeline:

- ✓ Estimate the available reservoir storage capacity
- ✓ Develop and evaluate potential seasonal storage strategies and constraints
- ✓ Estimate the potential TN, TP, & TDS reductions
- ✓ Determine what infrastructure is needed
- ✓ Develop planning-level cost estimates
- ✓ Identify other benefits that may be realized
- ✓ Evaluate potential impacts to existing permits

Approach

- Develop a water balance model of Huffaker Reservoir
- Develop storage strategies (modeling scenarios) that take advantage of seasonal TN variations and optimize availability of treated effluent
- Use Model to estimate available storage capacity
- Calculate TN, TP, & TDS load reductions – re-timed TMWRF diversions & expanded reuse
- Review existing STMWRF infrastructure for capacity to accommodate additional TMWRF flows
- Identify what additional infrastructure is needed
- Develop planning-level cost estimates
- Identify other potential benefits to TMWRF & STMWRF

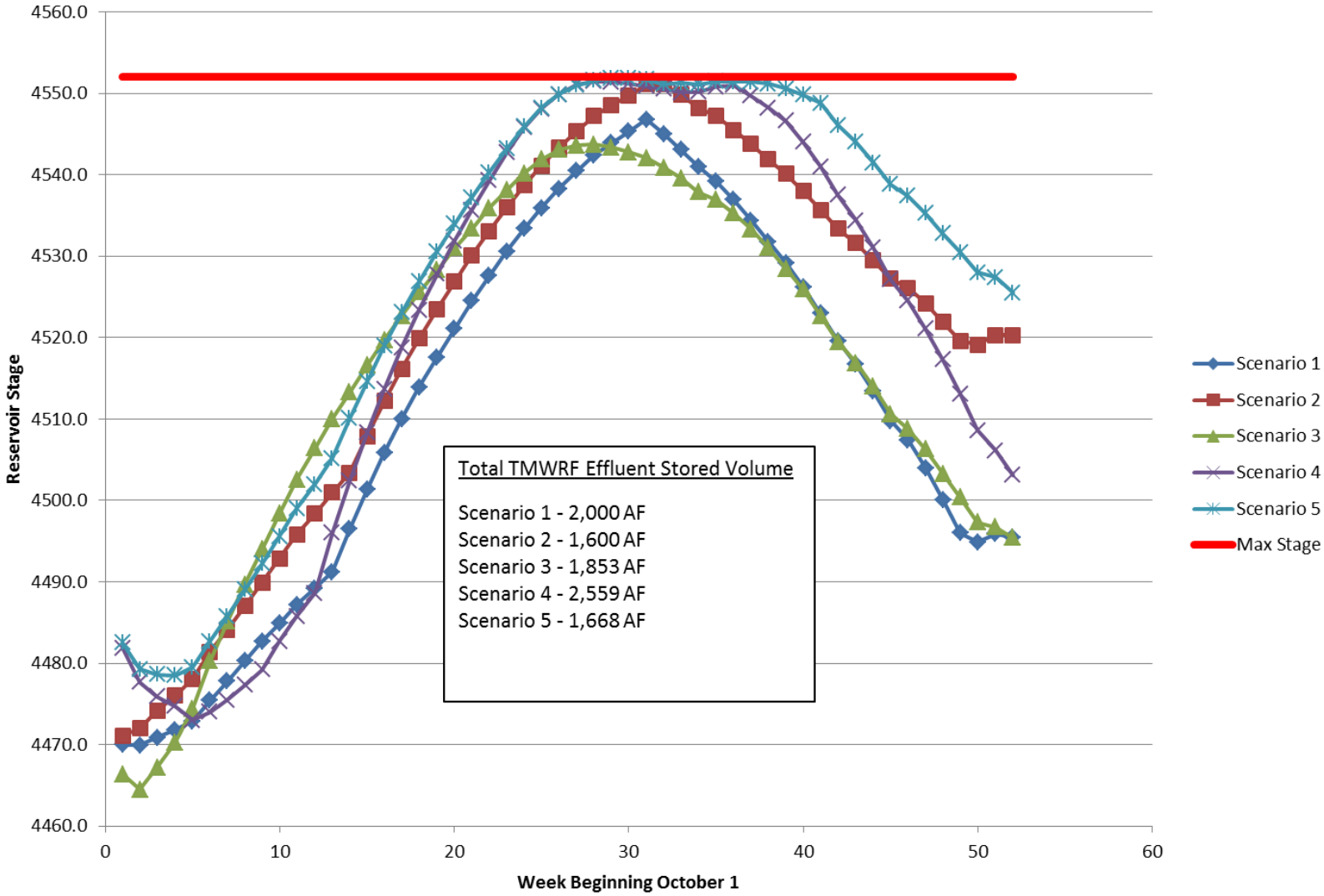
Modeling Scenarios Developed

- Current Operations (meet Reno/Sparks reuse demand on an as-needed schedule)
- Winter Storage (2013)
- Winter Storage (2034)
- 6,700 AFY Constant Diversion/Demand (2013)
- 6,700 AFY Variable Diversion/Demand (2013)
- 6,700 AFY Variable Diversion/Demand (2034)

Key Modeling Observations & Findings

- STMWRF will require effluent disposal opportunities in addition to the currently anticipated reuse demands
- Huffaker Reservoir can potentially provide about 1,600 AF of storage capacity for TMWRF effluent
- TMWRF can reduce TN discharges to the Truckee River by taking advantage of winter storage strategies
- The project allows STMWRF to cease reliance on Thomas Cr. for make-up water
- Storage of TMWRF effluent may improve water quality conditions in Huffaker
- Increases availability of treated effluent for East Truckee Canyon developments
- Provides STMWRF access to RIB disposal

Stage in Huffaker Reservoir



Load Reductions (2013 loading rates)

Operational Strategy	Reno/ Sparks Reuse Volume (AFY)	Loads to Truckee River		
		TP	TN	TDS
		Avg. Daily (lb.)	Avg. Daily (lb.)	Avg. Daily (lb.)
TMWRF TMDL Load Allocations		134	500	120,168
No Diversion to Reuse (2013 loading rates)	0	66	545	73,388
2013 Demand & Flow Rates				
Current Operations (no storage)	4,818	54	471	59,639
Scenario 1 – Winter Storage	4,818	54	435	59,605
Scenario 3 – 6,700 Ac-Ft (constant diversion)	6,700	49	404	54,293
Scenario 4 – 6,700 Ac-Ft (variable demand)	6,700	49	383	54,209
2034 Demand & Flow Rates				
Scenario 2 – Winter Storage	4,818	54	443	59,626
Scenario 5 – 6,700 Ac-Ft (variable demand)	6,700	49	400	54,218

Infrastructure Considerations

Capacity of STMWRF tertiary filters, disinfection, and pumping systems are insufficient for the long-term

Infrastructure needs:

- Interconnection pipeline
- Tertiary filters
- Disinfection (chemical storage/dosing and contact basin)
- Pump station
- Reservoir liner (Washoe Co. may proceed with partial lining project)

Cost Considerations

Infrastructure System	Cost Estimate (in millions)
Interconnection Pipeline	\$4.15M
Pump Station	\$1.33M
Tertiary Filtration	\$6.10M
Disinfection	\$2.73M
Reservoir Liner	\$5.39M
Total of Interconnection Pipeline Systems	\$19.70M
Early-Start Infrastructure	\$15.54M



Summary

- The proposed project may reduce TMWRF's average daily TN discharges an estimated 28 to 88 pounds per day
- Provides STMWRF access to additional effluent reuse/disposal opportunities
- Allows STMWRF to cease diversion of Thomas Cr. water
- Optimizes availability of TMWRF treated effluent
- Increases the amount of treated effluent available for regional development projects
- Planning-Level Cost Estimate \$20M
- Minimal impact on existing discharge permits

QUESTIONS?