6 Monitoring, Assessment, and Performance Measures

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Attachment 6 is mandatory. Describe the performance measures that will be used to quantify and verify project performance. Provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified in the Proposal. Indicate where the data will be collected and the types of analyses to be used. Include a discussion of how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

This attachment presents the planned project monitoring, assessment, and performance measures that will demonstrate that the Proposal will meet its intended goals, achieve measurable outcomes, and provide value to the State of California. The purpose of Attachment 6 is to provide a preview of the information that would go into a monitoring plan.

6.1 Hi-Desert Water District Wastewater Treatment and Water Reclamation Project

Describe the performance measures that will be used to quantify and verify project performance. Provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified in the Proposal. Indicate where the data will be collected and the types of analyses to be used. Include a discussion of how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

The Hi-Desert Water District (HDWD) will monitor construction bids, expenditures, and contractor progress. Water influent to the wastewater plant will be metered. Effluent quality and quantity will be measured at the treatment plant. Percolation of recharge water to groundwater will be monitored at a multi-level monitoring well adjacent to the percolation ponds. HDWD has adopted and Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program (MMRP).[21] Groundwater quality will be measured adjacent to the percolation ponds monthly, consistent with the MMRP.

Groundwater monitoring: A minimum of three monitoring wells will be constructed around the percolation ponds in an array that provides determination of the hydraulic gradient of the effluent that is percolating into the groundwater basin. Typical sampling will eventually be quarterly or semi-annually but will be more frequent, weekly or monthly, at start-up to establish a baseline.

Influent monitoring: At a minimum, average daily flow and pH, TSS BOD, plus possible other constituents will be monitored daily.

[21] Posted at http://www.hdwd.com/Portals/0/HDWD/Documents/WastewaterProject/HI-076%20MMRP.pdf

Effluent monitoring: Weekly sampling will include TSS, BOD, TDS, TSS, pH, total nitrogen, nitrate, and nitrite. VOC will be sampled semi-annually. All of the testing and sampling will be more frequent at project start-up until the baseline is established and the system settings are refined.

The project is consistent with the Colorado River Region Basin Plan.

Performance measures and their indicators for this project are tabulated in Table 6-1 below.

Table 6-1 Project Performance Measures, HDWD Wastewater Treatment Plant

Objectives and Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1) Construct a wastewater collection system to reduce the quantity of leachate from septic tank systems flowing into aquifers used for the District's potable water supply	Provide wastewater collection and treatment system that will allow terminating use of septic systems	Number of connections to wastewater collection system	Number of connections to wastewater collection system	Number of connections to wastewater collection system	5,500 connections
2) Treat wastewater to a level such that percolated effluent will not degrade groundwater quality	Treat wastewater to nitrate (and other constituent) concentrations less than ambient quality	Nitrate (and other constituents) reduced to less than those in native groundwater	Direct comparison of treated effluent to native groundwater quality	Weekly sampling of effluent concentrations of nitrate (and TSS, BOD, TDS, TSS, pH, total nitrogen, nitrate) at wastewater treatment plant before discharge to percolation ponds; Semi-annual VOC sampling	Effluent nitrate concentrations of 10 mg/l or less; other constituents to less than ambient quality
3) Provide the core infrastructure for expansion of the collection, treatment and disposal system as needed either to further protect groundwater, or to accommodate growth in the District's service area	Construction of Phase 1 of the project	This objective and outcome will be met by the construction of the project	This objective and outcome will be met by the construction of the project	This objective and outcome will be met by the construction of the project	Constructed Phase 1 project

Objectives and Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
4) Maximize the total water supply available to the District	Recharge all treated wastewater by percolation to groundwater basin	All treated effluent percolated in recharge basins	Construct percolation basins and recharge piping; Discharge treated effluent to percolation basins		All treated effluent percolated in recharge basins
5) Minimize any adverse economic and environmental impacts on the community	Construct project to prevent RWQCB-imposed moratorium on new septic systems; Reasonable rates and charges; Environmental mitigations implemented	Project constructed on schedule dictated by SWRCB, avoiding moratorium on new septic systems and other punitive actions; Mitigation measures implemented; Grant funds received from several sources	Moratorium on new septic systems and other punitive SWRCB actions avoided	All mitigation measures implemented; Grant funds received from several sources, keeping rates and charges reasonable	Phase 1 completed by June 2016; All phases complete by 2018
6) Provide sufficient treatment capacity to ensure continuous compliance with anticipated regulatory requirements for an average annual wastewater flow of 1.25 mgd	Design and construct 1.25 mgd Phase 1 treatment plant to meet anticipated regulatory requirements	This objective and outcome will be met by the construction of the project	Project constructed and treatment process effective	Project constructed; Effluent water quality monitoring	Phase 1 completed by June 2016; Effluent testing results within regulatory requirements
7) Provide for future expansion of the plant to an annual average flow capacity of 6 mgd	Preliminary design with accommodation for future expansion; Purchase land adequate for treatment plant expansion	Completed preliminary design report with consideration for full build-out; Land purchases	Build-out expansion considered in preliminary design report	Completion of preliminary design report; Land of adequate size purchases	Preliminary design report complete; Land of adequate size purchased

Additional monitoring requirements specified by the Colorado River Basin Regional Water Quality Control Board are in draft form[22].

6.2 Victor Valley Wastewater Reclamation Authority Subregional Reclamation Project

Describe the performance measures that will be used to quantify and verify project performance. Provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified in the Proposal. Indicate where the data will be collected and the types of analyses to be used. Include a discussion of how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the IRWM Plan.

The Victor Valley Wastewater Reclamation Authority (VVWRA) will monitor construction bids, expenditures, and progress. Water influent to the wastewater reclamation plants will be metered. Effluent quality and quantity will be measured at the treatment plants. Percolation of excess effluent not used for recycling will be disposed of in percolation ponds. Groundwater quality will be measured adjacent to the percolation ponds monthly.

Influent monitoring: At a minimum, average daily flow and pH, TSS BOD, plus possible other constituents will be monitored daily.

Effluent monitoring: Weekly sampling will include TSS, BOD, TDS, TSS, pH, total nitrogen, nitrate, and nitrite. VOC will be sampled semi-annually. All of the testing and sampling will be more frequent at project start-up until the baseline is established and the system settings are refined.

The project is consistent with the Colorado River Region Basin Plan.

Performance measures and their indicators for this project are tabulated in Table 6-2 below.

[22] Colorado River Basin RWQCB, July 22, 2009 Draft Order No. R7-2009-0059 Waste Discharge Requirements for Hi-Desert Water District, Owner/Operator Water Reclamation Facility, Town of Yucca Valley San Bernardino

Table 6-2 Project Performance Measures, VVWRA Wastewater Reclamation Project

Objectives and Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1) Construct two wastewater reclamation plants at locations that facilitate an increase in the use of recycled water near end users.	Provide wastewater treatment systems that will be located near areas that use recycled water	Number of connections to end users	Number of connections to end users	Number of connections to end users	Surpass the 0.5% of current recycled water demand.
2) Treat wastewater to a produce effluent meeting the most stringent Tittle 22 Recycled Water criteria.	Treat wastewater to nitrate (and other constituent) concentrations less than ambient quality	Nitrate (and other constituents) reduced to less than those in native groundwater	Direct comparison of treated effluent to native groundwater quality	Weekly sampling of effluent concentrations of nitrate (and TSS, BOD, TDS, TSS, pH, total nitrogen, nitrate) at wastewater treatment plant before discharge to percolation ponds; Semi-annual VOC sampling	Effluent nitrate concentrations of 10 mg/l or less; other constituents to less than ambient quality
3) Provide the core infrastructure for expansion of the collection, treatment and disposal system as needed either to protect groundwater, or to accommodate growth in the VVWRA service area.	Construction of the project	This objective and outcome will be met by the construction of the project	This objective and outcome will be met by the construction of the project	This objective and outcome will be met by the construction of the project	Constructed water reclamation
4) Maximize the total water supply available to the community	Excess treated effluent sent to percolation basins.	Excess treated effluent sent to percolation basins.	Construct percolation basins Discharge excess treated effluent to percolation basins		Excess treated effluent sent to percolation basins.

Objectives and Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
5) Minimize any adverse economic and environmental impacts on the community	Construct project to promote reasonable rates and charges; Environmental mitigations implemented.	Project constructed on schedule, Grant funds received from several sources.		Grant funds received from several sources, keeping rates and charges reasonable.	Construction completed by May 2015.
6) Provide sufficient treatment capacity to ensure continuous compliance with anticipated regulatory requirements for an average annual wastewater flow of 2.0 mgd at two treatment plants	Design and construct two 2.0 mgd treatment plants to meet anticipated regulatory requirements	This objective and outcome will be met by the construction of the project	Project constructed and treatment process effective	Project constructed; Effluent water quality monitoring	Construction completed by May 2015; Effluent testing results within regulatory requirements
7) Provide additional treatment capacity in the upper reaches of the service area to alleviate existing flows in downstream interceptors.	Design and construct expansion of upper reaches. Preliminary design report for project.	This objective and outcome will be met by a complete preliminary design report; construction of the project.	Preliminary design report completed; Project constructed and reaches expanded.	Alleviated flows in the downstream interceptors.	Preliminary design report for reach expansion; construction of expansion.
8) Provide for future expansion of the plant to an annual average flow capacity of 4.0 mgd	Final design with accommodation for future expansion; Purchase land adequate for treatment plant expansion	Completed final design report with consideration for full build-out; Land purchases	Build-out expansion considered in final design report	Completion of final design report; Land of adequate size purchases	Completion of preliminary design report by April 2013; Land of adequate size purchased