WEST STANISLAUS IRRIGATION DISTRICT

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Subject: Summary of water conservation efforts by West Stanislaus Irrigation District.

West Stanislaus Irrigation District (WSID) has performed a variety of water conservation efforts over the years. The majority of the effort focused on Main Canal SCADA and automation and best management practices on the farm level. The following is a list of conservation efforts WSID continues to either directly implement or promote to its customers:

In May of 2017, the District sent out a notice informing growers that the Irrigation and Training Research Center will be selecting irrigation systems to evaluate and to possibly make recommendations to growers for improvements to their systems to improve distribution uniformity. Thirteen growers within the District requested their systems to be evaluated, however none were selected for evaluation.

Throughout the year, there were numerous outreach activity to growers by the Westside San Joaquin River Watershed Coalition to educate growers on potential best management practices growers could implement to eliminate pesticide and sediment discharge from the farm.

Since 2009, WSID has been investigating and implementing water and energy conservation projects. These projects were phased starting in 2010 with the majority of the projects complete and ready for operation in 2013 and 2014. A significant portion of conservation projects included automation of the Main Canal. Efforts were expended integrating SCADA/automation into all six of the District's pumping plants. This effort greatly improved accurate and reliable water supply service to District customers by automatically maintaining a constant water surface elevation over a wide range of demand. In 2012, the headworks of two laterals were automated which proved to provide increased reliable water service to growers and reduce operational spill from the end of laterals. Since it was a success at these two sites, headworks at the remaining laterals were automated in 2013. As part of the lateral headworks automation, flow measurement improvements were made at all sites. The true benefit of this overall Main Canal Automation project was not seen until 2014 as all phases came together for operation. The overall benefit of this project was improvement of operational efficiency calculated using total water delivered compared to total water diverted. Operational efficiency was improved from 79.9% in 2009 to 87% in 2017. 2009 was used as the baseline because implementation of this project was phased starting in 2010. Implementation of this project resulted in water conservation in the amount of 4,881 AF in 2017. Additional conservation will be seen in future years as refinements are made to control algorithms thereby improving automation operation.

Other component of water conservation improvements made and remained in operation in 2017 was Phase I and Phase II of the Main Canal Modernization Project. This project replaced four pumping plants with two new pumping and replaced roughly 9,400 ft. of open concrete lined canal

with a 96 inch reinforced concrete pipeline. This increased water service reliability to growers while greatly improving river diversions to more accurately meet demand. This project also eliminated seepage and evaporation loss in the portion of Main Canal converted to pipeline and is calculated to have conserved roughly 124 AF and 43 AF, respectively, during 2017.

Other water and energy conservation projects where implemented on the District's distribution system. One of the projects included collection of operational spill from the end of two distribution laterals and conveyed using gravity to another distribution lateral for beneficial use. Water collected and put to beneficial use is metered and totaled 970 AF during 2017.

The table below summarizes water conservation as a result of District implemented projects.

2017 WSID Water Conservation Summary

Projects	**Conservation, AF**
Main Canal Automation	4,881
Phase I & II Main Canal Modernization	167
Lateral Spill Collection	970
Total:	***6,018***

Note. Data is compared with baseline data of 2009.