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WESTLANDS WATER DISTRICT

STATE WATER RESOURCES CONTROL BOARD

In Re Petition For Long-Term Transfer Under Permit 16482 (Application 17512) Of The Department Of Water Resources	Testimony of Tom Glover

I am Tom Glover, appearing today on behalf of Westlands Water District (Westlands or District). I have served as Deputy General Manager – Resources for Westlands since February 1, 2009. In that capacity, I manage Westlands' water and power resources as well as land it owns. I hold a Bachelor of Science degree in Civil Engineering from California State University, Chico. I am a registered Professional Engineer in the State of California with over 27 years of engineering experience serving in State, local government, special districts as well as the private sector. I spent 22 years of my career working for the State of California and served as Deputy Director, State Water Project for the Department of Water Resources.

Based on my knowledge of the District and its operations and my knowledge of the lands that would receive water under this proposed transfer, I conclude that the proposed transfer, if approved by the State Water Board, will provide substantial benefits with no injury to any other user of water and with no adverse effect on fish, wildlife, or other in-stream beneficial uses.

Background

Westlands is a California water district formed in 1952. It now encompasses more than 600,000 acres of farmland in western Fresno and Kings Counties and serves approximately 600

farms that average 900 acres in size. Westlands is one of the most fertile, productive and diversified farming regions in the nation. Its farmers produce more than 60 high quality commercial food and fiber crops sold for the fresh, dry, canned and frozen food markets, both domestic and export. More than 50,000 people live and work in the communities dependent on Westlands' agricultural economy. The communities in and near Westlands' boundaries include Mendota, Huron, Tranquillity, Firebaugh, Three Rocks, Cantua Creek, Helm, San Joaquin, Kerman, Lemoore and Coalinga.

Water Supply

Westlands holds contractual entitlements to receive up to 1,196,948 acre-feet of Central Valley Project (CVP) water per year.[1] The CVP, owned and operated by the United States Bureau of Reclamation, reaches some 400 miles, from the Cascade Mountains near Redding to the Tehachapi Mountains near Bakersfield. The CVP facilities allow Reclamation to store water in reservoirs, convey that previously stored water through and appropriate additional water from the Delta and convey it into the Delta-Mendota Canal and then into San Luis Reservoir. As demands arise, Reclamation releases water from San Luis Reservoir and delivers it to Westlands through the San Luis Canal and the Coalinga Canal. Once Reclamation delivers that water, Westlands conveys it through 1,034 miles of underground pipe and more than 3,300 water meters to its farmers.

Prior to 1990, Westlands received 100 percent of its CVP contractual entitlements every year, except during the 1977-78 drought. Beginning in 1990 and continuing to the present, regulatory actions intended primarily to benefit species protected under the federal Endangered Species Act have substantially impaired the ability of Westlands to receive its full CVP contractual entitlements. Westlands has received 100 percent CVP allocation three times since 1990. The District's average CVP allocation from 1990 to 2010 was only 64 percent.[2]

[1] Within Westlands are Westlands Water District Distribution District Number 1 and Westlands Water District Distribution District Number 2. The Distribution Districts have acquired CVP water service contracts, which entitle them to water from the CVP. For purposes of this testimony, I characterize the entitlements of Westlands and the Distribution Districts as held by Westlands.

[2] The annual allocations to Westlands are available on the United States Bureau of Reclamation's website: www.usbr.gov/mp/cvo/vungvari/water_allocations_historical.pdf.

In part due to these deficiencies in CVP supplies, Westlands and its farmers have undertaken dramatic efforts to maximize irrigation efficiencies and on-farm water use. In 1985, of the lands within Westlands, approximately 63 percent (322,785 acres) was surface irrigated (furrows or border strips), 15 percent (80,696 acres) was irrigated with a combination of sprinklers/furrows, 21 percent (112,975 acres) was irrigated by sprinklers alone, and 1 percent (5,380 acres) was irrigated by drip. Today the land served by surface irrigation has decreased to 11 percent (41,122 acres), the combination sprinkler/furrow irrigation decreased to 11 percent (41,879 acres), the irrigation only by sprinklers decreased to 11 percent (42,354 acres) and the irrigation only by drip has increased to 67 percent (254,750 acres). Currently, Westlands-wide Seasonal Application Efficiency (SAE) averages approximately 83 percent. *See* Exhibit filed with this testimony.

Even with those achievements by Westlands and its farmers, the District must ration water deliveries to its farmers, even in the wettest years. As noted above, Westlands' contractual entitlements allow it to receive up to 1,196,948 acre-feet of CVP water per year. The safe yield available from groundwater pumping is about 200,000 acre-feet. However, Westlands' annual water demand is approximately 1,500,000 acre-feet. Thus, assuming Westlands receives its full contract entitlements, an assumption that is currently accurate in only a small number of years, there remain over 100,000 acre-feet of unmet demand (1,500,000 of demand and no more than 1,396,948 of total supply).

As supplies decrease and the unmet demands increase, adverse impacts result. The District is particularly concerned with the impacts to the groundwater basin underlying Westlands. Reduced surface water supply has caused farmers to increase their reliance on groundwater pumping. If increased pumping continues, it could lead to overdraft of the basin which in turn could lead to increased land subsidence. Over the centuries, the ground surface elevation of the west side of the San Joaquin Valley was established by the deposition of sedimentary soils. Much of the space between the soil particles in the sediments is naturally filled with water. When water is removed from the spaces between the soil particles, the silt and clay soils compact into a smaller volume than they previously occupied. Once the water holding

capacity of the underground materials has been reduced, as a result of compaction of the materials, the damage is permanent. This results in subsidence of the ground surface in the area where the water has been extracted.

Subsidence is a part of the history of the San Joaquin Valley. In fact, the CVP and the San Luis Unit were built in part for the purpose of alleviating the risk of overdraft and thereby reducing the threat of subsidence. But as the reliability of CVP deliveries has declined, the potential for severe impacts from subsidence increases. Jointly owned Federal-State water facilities, for example, may be damaged. Groundwater wells may also be destroyed. Subsidence occurs unevenly and creates enormous stresses on well casings, which often extend 1,000 to 2,000 feet below the ground surface. These uneven stresses will sometimes collapse the casing or shear forces will break the casing. Once such a collapse or break occurs, the well must be totally abandoned and a new hole drilled and outfitted. Roads and highways, likewise, are at risk. Other associated, potential impacts from groundwater use are increased energy use. In Westlands, approximately 740-850 kWh of energy is needed to produce an acre-foot of groundwater water.

Restrictions on water deliveries from the CVP have also led to the fallowing of tens of thousands of acres of productive farmlands. As lands are taken out of production, farm worker jobs are lost. Land fallowing also impacts employment in agriculture-related businesses, like packing sheds and processing plants. When land fallowing extends to permanent crops, long-term investments are lost as well. For example, it takes 3 to 6 years for an almond orchard to become fully productive; however, if there is no water to keep the trees alive, the grower's investment in the orchard is lost. Fallowed fields also negatively impact the air quality of the San Joaquin Valley and could potentially impair major transportation routes through the valley, including Interstate 5. Fugitive dust emissions from fallowed fields have contributed to the exceedence of ambient air quality standards for particulate matter.

Westlands has been attempting to obtain water from other sources in order to mitigate against all of these adverse impacts from the limits placed on CVP operations. Water transfers have become an increasingly significant part of both individual water user supplies as well as Westlands supplies. Theoretically, water users south-of-Delta might respond to the reduced CVP

water supply by attempting to purchase supplies, from other water sources, and importing that purchased water to service local needs in the valley. For Westlands, these potential alternate sources would likely include: (1) north-of-Delta CVP supplies in the Sacramento Valley, (2) the CVP Friant Unit area, and (3) south-of-Delta transfer of CVP and/or State Water Project water.

The purchase of water from north-of-Delta is constrained by the availability of pumping capacity through the Delta and availability of the water. The excess pumping capacity needed to convey transfer water at the Federal facilities is very rarely available during the July through September timeframe. There is limited capacity available on the State side when the State Water Project allocation is 40% or more. When pumping capacity is available, demand for available supplies by south-of-Delta water users is very high, and the limited supplies command a purchase price of $250 to $300 per acre-foot plus conveyance and delivery charges, which will increase the purchase price of transfer water to almost $500 per acre-foot.

Water from the CVP Friant Unit, assuming it is available for purchase, will most likely be used to meet SWP shortages in Kern County. Friant Unit users receive a similar CVP water allocation as Westlands and have no surplus or additional supplies to sell, and are looking for additional supplies themselves. Currently, the least constrained method to convey Friant Unit water to the west side is through exchange with a State Water Project contractor and is subject to availability of capacity in the Cross Valley Canal. Further, there are additional administrative, wheeling and exchange fees that drive the cost of the water to a similar price as the north of the Delta water.

Transfers south-of-Delta are constrained because there are limited local supplies and imported water due to the conveyance constraints, discussed above. However, in recent years, transfers of the water that is available south-of-Delta are becoming more important, as evidenced by the proposed transfer.

Drainage Service

The Petition does not encompass all of Westlands and as such my analysis of the potential impacts of the transfer is limited to possible effects of the proposed transfer. All the lands to receive water from the transfer are located in the central and southern portions of Westlands at

least 20 (and up to 40) miles from the San Joaquin River. None of those lands adversely affect water quality in the San Joaquin River, and I am unaware of any data that show irrigation of those lands impacts municipal and industrial beneficial uses of groundwater on the west side.

However, as part of my testimony, I thought it would be important to provide some background on drainage issues within the District. When Congress authorized the unit of the CVP in which Westlands is located, the San Luis Unit, Congress directed Reclamation to provide drainage service. The purposed "Drainage Collection System" would have provided drainage service to about 250,000 acres on the Westlands' eastern side. Construction of the Drainage Collection System began in 1976 but was never completed. The completed portion of the system served approximately 42,000 acres, known as the Drainage Service Area, and terminated at an area that was known as Kesterson Reservoir. Those portions of the Drainage Collection System, only operated from approximately 1980 to 1986. In 1985, the State Water Resources Control Board adopted Order No. WQ 85-1 and Cleanup and Abatement Order No. 85-l, which ordered stoppage of drain-water delivery and closure of Kesterson Reservoir by June 1986.

To satisfy the State Water Board's orders, Westlands plugged the Drainage Collection System. The plugging project involved installing 100 earthen plugs, seven steel plugs and twelve slide gates on the nine drain-lines. The slide gates were installed on three farms for recycling of subsurface drain water within each farm's tailwater return system. As part of the plugging process, Westlands installed 547 observation wells in and around the plug sites, and 60 float wells at the plug sites to give the water users a visual reference of the depth to shallow groundwater. During 1986, an additional 204 observation wells were installed by Westlands within and around the 42,000 Acre Drainage Service Area. The plugging project was completed in mid May 1986. At that time, drainage flows into the San Luis Drain stopped.

Since that time, lands within Westlands have not discharged drainage water, tailwater, or tile water outside the boundary of Westlands. Indeed, on page 110 of its Decision 1641, the State Water Board found: " Lands within [the District]'s service area do not discharge drainage water, tailwater, or tile water outside the boundary of [the District]." Also, Westlands has permanently retired from irrigated agriculture approximately 40,000 acres and fallowed approximately 48,000

acres of drainage-impacted land and has greatly improved on-farm conservation and source control on irrigated lands within the District, as denoted in the Water Supply Section of my testimony.

Productivity within Westlands

Despite the numerous water supply and drainage challenges facing Westlands, the District and its farmers continue to make a major contribution to the economy of the state and the nation. Four of the five top crop-producing districts in the United States depend upon water from the CVP and Westlands is by far the largest. The overall value of the crops grown in Westlands has totaled $1.4 billion annually in recent years. Those activities in turn have generated an estimated $4.9 billion in new economic activity throughout the region. Businesses of all kinds depend upon the continued success of Westlands.

The benefits from Westlands' productivity extend far beyond the borders of California. In 2010, the 75,000 acres where Westlands farmers grow processing tomatoes and the 68,000 acres devoted to almonds account for a large percentage of the world's total supply of those commodities. The fresh fruits and vegetables that are grown in Westlands help to ensure that American families will continue to enjoy a food supply that is abundant, safe and affordable.

The prosperity that Westlands produces is continuously reinvested, not just in new seed but also in the improvements that enhance our long-term stewardship of the land. In addition to building a distribution system that is entirely underground, our surface water deliveries today are 100 percent metered. Just the investment that Westlands farmers have made in drip irrigation systems represents an expenditure of more than $225,000.000.

The Proposed Transfer

The Petition before the State Water Board involves a "south-of-Delta" transfer – the proposed transfer of water between south-of-Delta water districts for the benefit of common farmers, water that will move south-of-Delta irrespective of whether the State Water Board grants the Petition. For the reasons discussed above, transfer water will be used to help meet demands that would most likely either be met with supplemental supplies, or might go unmet, absent the transfer. The lands on which the transfer water will be applied will produce crops of value,

helping to support local communities and America's and the Worlds' food supply. The transfer water could avoid the need to pump groundwater, thus reducing the risk of land subsidence and the need to use energy to make up for the supply lost. The transfer water could also avoid the need to fallow land, which avoids associated economic and environmental adverse impacts. The benefits of the proposed transfer will be realized without causing any discharge of drainage water, tailwater, or tile water outside the boundary of Westlands. Thus, the proposed transfer will not impact water quality in the San Joaquin River. Finally, I know of no municipal or industrial wells that could be affected by irrigation of the lands that would benefit from the proposed transfer.

Conclusion

The State Water Board's approval of the proposed transfer is in the public interest. The proposed transfer will provide substantial benefits by allowing adequate supplemental supply; thus, avoiding the farmers' need to seek other, expensive supplemental supplies, or, if no such supply is available, to pump groundwater or fallow their lands. The benefits of the transfer will be realized without any impact on any other legal user of water or fish, wildlife, or other in-stream beneficial uses.