



State Water Resources Control Board



Division of Water Rights

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Linda S. Adams
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MEMORANDUM

September 24, 2009

TO: Delta File

FROM:

Mark Stretars, Chief
Compliance Unit
DIVISION OF WATER RIGHTS

SUBJECT: DELTA FIELD INVESTIGATION OF ROBERTS ISLAND -- SAN JOAQUIN COUNTY

On July 30, 2009, Staff of the Division of Water Rights (Division) visited Roberts Island to meet with Woods Irrigation Company (WIC) personnel and tour WIC's diversion system and service area.

The lands within Roberts Island, as a whole, drain from the southerly end of the Island, northerly toward the northern/northwestern end of the Island. The elevation change of the farmed lands within the Island ranges from about +10 feet at the southerly end to about -10 feet at the northwesterly end of the Island. Within WIC, which is located on what is considered Middle Roberts Island, the farm Land elevation ranges from about +5 feet in elevation near WIC's points of diversion on Middle River to about -5 feet at the drain water discharge point located on the San Joaquin river across from Rough and Ready Island (See attached map).

Documents submitted by WIC, indicate that WIC incorporated in 1911 to provide water to the lands within the Woods and Wilhoit/Douglas Tract land ownerships and claimed rights to divert up to a rate of 77.66 cubic feet per second (cfs) to serve 7766 acres of land. The Point of diversion on Middle River was originally a flood gate that was placed through the levee that was opened to divert water into the island on the rising tide. The flood gate was later updated to a siphon pipe system and more recently replaced by two banks of electric pumps. The water diverted from Middle River is discharged into two canals, the first providing water to the more easterly portions of WIC's service area (hereafter designated East Main Canal) and the second slightly larger canal (hereafter designated West Main Canal), providing water to the more westerly portions of WIC's service area. In addition, a third smaller pump, located on the northwest side of Stark Road, just north of Howard Road provides water to a very limited number of parcels further west of the West Main Canal.

California Environmental Protection Agency

On August 4, 2009, a second meeting and tour of Lower Robert's Island was conducted with counsel for parties living and farming on Lower Roberts Island. After the meeting, Division staff returned to WIC's points of diversion on Middle River and made an estimate of the amount of water being diverted into WIC's two main canals. The third smaller diversion system was not in use during either inspection visit. The flow estimates of the two main canals were made at about 1 p.m. and the location for the estimates was the Howard Road bridges at the point where they cross over the canals. This location is approximately 1000 feet down canal from the head works of the canals and no diversions were observed occurring from the canal between the head works and the point of measurement. Both canals use box culverts to pass water under the highway. The dimensions of the box culvert for the East Main Canal were approximately 6 feet by 6 feet with a water depth of 5 feet. Using a Price AA current meter, readings of the flow (velocity in feet per second) through the culvert were noted and the average velocity was determined to be 0.8 feet per second. Using the equation $Q \text{ (rate)} = A \text{ (area)} \times V \text{ (velocity)}$, the rate of diversion from the pump supplying the East Main Canal, as measured at the Howard Road crossing, was determined to be approximately 24 cfs.

The box culvert on the West Main Canal was measured and found to be approximately 6 feet deep by 8 feet wide with a water depth of about 5 feet (the bottom of the culvert had debris). Again, using the Price AA current meter, readings of the velocity of the flow through the culvert were noted and the average velocity was determined to be 1.65 feet per second. Again using the equation $Q \text{ (rate)} = A \text{ (area)} \times V \text{ (velocity)}$, the rate of diversion from the pump into the West Main Canal, as measured at the Howard Road crossing, was determined to be approximately 66 cfs.

Totaling the diversions being made to both canals indicates that, on this date at this time, WIC was diverting at a rate of approximately 90 cfs, or approximately 12 cfs in excess of their claimed rights. This calculations does not take into account any affect from tides nor does it consider any diversions to riparian parcels within WIC's service area for which WIC may be providing riparian water to a riparian parcel. However the burden falls upon WIC to substantiate that sufficient riparian acreage exists and is being irrigated to offset the 12 cfs of potential excess unauthorized diversion. Based on a duty of 1 cfs to 100 acres, defined in statements made in the original notice of appropriation, WIC needs to identify at least 1,200 acres of land within WIC that has remained riparian to Middle River.

Woods Irrigation Company East Main Canal
Looking southerly and upstream at Howard Road





Woods Irrigation Company East Main Canal
Looking southerly across Howard Road



Woods Irrigation Company West Main Canal at Howard Road
Looking southerly and upstream toward the Point of Diversion



Woods Irrigation Company West Main Canal
Looking northerly and down stream from Howard Road