

**PROJECT #2 - ASSISTANCE FOR REPUBLICAN IRRIGATION DISTRICTS – 2003
MAINTENANCE OF IDLE DELIVERY SYSTEMS**

(3/8/04)

Background

Declining inflows throughout the Republican Basin have significantly reduced storage supplies for Reclamation Irrigation Districts in Southwest Nebraska. This area has suffered effects of the current drought since 2000. 2002 was the first year that H & RW Irrigation District project lands did not receive water due to supply shortages. In 2003, H & RW again elected not to deliver the small amount of water available. Also in 2003, the Frenchman-Cambridge system did not deliver water to project landowners in the Meeker-Driftwood Unit, and the Red Willow Unit (includes Red Willow and Bartley Canals) for the first time since the District began delivering water.

Natural flows in the Frenchman Creek and storage water from Enders Dam and Reservoir provides the water supply for project lands of the Frenchman Valley Irrigation District and the H & RW Irrigation District.

Natural flows in the Republican River and Red Willow Creek and storage water from Trenton Dam and Swanson Lake, Red Willow Dam and Hugh Butler Lake, and Medicine Creek Dam and Harry Strunk Lake provide the water supply for the Frenchman-Cambridge Irrigation District.

Natural flows in the Republican River and storage water from Harlan County Dam and Lake provide water supplies for both the Bostwick Irrigation District in Nebraska and the Kansas Bostwick Irrigation District No. 2.

Declining inflows to these reservoirs have drastically reduced these Districts' water supplies. 2003 saw record low water deliveries for these Districts. Water delivery projections for 2004 are 1 inch for Frenchman Valley and H & RW project lands, 4 inches for 3 of Frenchman Cambridge ID's 4 canal systems, and 1.5 inches per acre for the Bostwick Irrigation District in Nebraska project lands.

Statement of Need

Not operating a canal system for an irrigation season presents unusual maintenance challenges.

Canal systems that do not operate or have limited operation seasons still require maintenance in order to keep these systems in shape for future operations. Even though Districts may not be delivering water through these canal systems, the Districts must maintain these systems. This type of maintenance includes weed control (spraying, burning, mowing), canal reshaping, sediment removal, rodent control, painting, and operating turnouts, check structures, and gates.

Many Irrigation District's are faced with decisions of reducing operating costs during times of little or no water supply. The seemingly easiest way to cut District costs is to lay off employees when canal systems are not in operation. This causes a delayed effect on district costs and operations by falling behind on maintenance and the loss of experience equipment operators and ditchriders. When water supplies do return, the maintenance workload is much greater on abandoned canal systems and new employees must be trained in canal operations and maintenance activities. District delivery efficiencies will be lower with inexperienced ditchriders and with canals in poor condition.

Benefits to Nebraska

By providing delivery system maintenance assistance during non-operating or extremely low water supply years, these Districts can continue to keep canal systems in operation condition, which will allow these systems to return to operations without future major maintenance problems. This will also assist Districts in retaining experienced staff and continue to meet target system delivery efficiencies when full water supplies return.

This assistance may also provide the District with some incentives for leaving minimal storage water in the reservoirs for future years. Saving the minimal storage water for future years would result in higher reservoir levels, which would provide fish and wildlife and recreation benefits to the reservoir areas.

Budget

Idle delivery system maintenance estimates were based on a cost per mile, with the cost dependent on the initial capacity of the canal or lateral.

Frenchman Valley Irrigation District 21 miles of canal, 27 miles of laterals	\$ 16,000
H & RW Irrigation District 27 miles of canal, 44 miles of laterals	\$ 21,000
Frenchman-Cambridge Irrigation District 107 miles of canal	\$ 45,000
Bostwick Irrigation District in Nebraska 117 miles of canal, 90 miles of laterals	\$ 68,000
	=====
TOTAL	\$ 150,000

**PROJECT #2 - ASSISTANCE FOR REPUBLICAN IRRIGATION DISTRICTS – 2004
INCREASED RESERVOIR STORAGE CARRYOVER**

(3/30/04)

Background

Declining inflows throughout the Republican Basin have significantly reduced storage supplies for Reclamation Irrigation Districts in Southwest Nebraska. This area has suffered effects of the current drought since 2000. 2002 was the first year that H & RW Irrigation District project lands did not receive water due to supply shortages. In 2003, H & RW again elected not to deliver the small amount of water available. Also in 2003, the Frenchman-Cambridge system did not deliver water to project landowners in the Meeker-Driftwood Unit, and the Red Willow Unit (includes Red Willow and Bartley Canals) for the first time since the District began delivering water.

Natural flows in the Frenchman Creek and storage water from Enders Dam and Reservoir provides the water supply for project lands of the Frenchman Valley Irrigation District and the H & RW Irrigation District.

Natural flows in the Republican River and Red Willow Creek and storage water from Trenton Dam and Swanson Lake, Red Willow Dam and Hugh Butler Lake, and Medicine Creek Dam and Harry Strunk Lake provide the water supply for the Frenchman-Cambridge Irrigation District.

Natural flows in the Republican River and storage water from Harlan County Dam and Lake provide water supplies for both the Bostwick Irrigation District in Nebraska and the Kansas Bostwick Irrigation District No. 2.

Declining inflows to these reservoirs have drastically reduced these Districts' water supplies. 2003 saw record low water deliveries for these Districts. Water delivery projections for 2004 are 1 inch per acre for Frenchman Valley and H & RW project lands, 4 inches per acre for three of Frenchman Cambridge ID's four canal systems, and 1.5 inches per acre for the Bostwick Irrigation District in Nebraska project lands.

Statement of Need

The recent drought has led to historic low inflows to the Republican Reservoirs, which in turn results in low lake levels. As lake levels drop, fish and wildlife habit also suffers. Lower lake levels can cause problems such as increased noxious weed and invasive species. As water levels recede the bare soil provides optimum growing conditions for Canada thistle. Salt Cedar is a noxious weed that thrives in arid climates and prefers saline rich/nutrient poor soil. Salt Cedar can have severe impacts on ground water levels, surface water flows, and native vegetation. As lake levels drop, new shorelines continue spread farther from existing park facilities. New shorelines are often extremely muddy and choked with vegetation, which reduces opportunities for bank fishing, swimming, dock mooring, etc.

Lower lake levels also caused increased water temperature and lower levels of dissolved oxygen. Swanson Lake (2001) and Harry Strunk Lake (2002) in SW Nebraska have suffered major fish kills due to low lake levels. Some have estimated that 1/2 of the total fish population in Swanson Lake was lost, including many trophy size sport fish. Stocking efforts continue but it will take many years to rebuild the trophy size fishery.

Irrigation Districts in the Republican basin must decide whether or not to take the small amounts of irrigation storage water in the reservoirs and deliver it to the project lands, or to leave the small storage supplies in the reservoirs for future years use.

Benefits to Nebraska

This assistance will provide the Republican Basin Irrigation Districts with an incentive for leaving irrigation storage water in the reservoirs for future years use. Saving the irrigation storage water for future years use will result in higher carryover reservoir levels, which would provide fish and wildlife and recreation benefits to the reservoir areas.

By choosing to leave the storage in the reservoirs, the District's are providing fish and wildlife benefits, as well as increased recreation opportunities. The higher reservoir levels will increase visitation to the parks surrounding these reservoirs. Higher reservoir levels also will keep water temperatures cooler and oxygen levels higher, which will be more beneficial to fish populations. Higher levels also will improve shoreline access for recreation.

Budget

Drought assistance for irrigation storage left in reservoirs was computed on a graduated scale. The first 2500 acre-feet left in a reservoir was computed at a payment of \$10 per acre-foot, the next 2500 acre-feet was computed at \$5 per acre-foot, and anything over 5000 acre-feet was computed at \$2.50 per acre-foot.

The Bureau of Reclamation provided an estimated total irrigation supply in each reservoir as of March, 2004.

Reservoir	04 Estimated Irrig. Storage	Drought Assistance
Enders Reservoir	3,300 AF	\$ 29,000
Swanson Lake	6,600 AF	\$ 41,500
Hugh Butler Lake	5,900 AF	\$ 39,750
Harlan County Lake	6,500 AF	\$ 41,250

	Total	=====
		\$151,500
Drought Assistance by Irrigation District		
Frenchman Valley Irrigation District		\$ 10,000
H & RW Irrigation District		\$ 19,000
Frenchman-Cambridge Irrigation District Swanson, Hugh Butler		\$ 81,250
Bostwick Irrigation District in Nebraska Harlan County (Nebraska's share)		\$ 41,250
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TOTAL		\$ 151,500