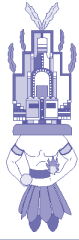


# The



# Newsletter

## PRESCOTT TAKES THE BIG CHINO WATER RANCH PROJECT TO THE NEXT STEP

By **JIM HOLT**, *Senior Project Manager, City of Prescott;*  
**DAN MEYER, P.E.**, *Project Director* and  
**LISA JACKSON, P.E.**, *Project Manager, Black & Veatch*

**I**N JULY 2006, THE PRESCOTT CITY COUNCIL VOTED TO PROCEED WITH THE BIG CHINO WATER RANCH WATER (BCWR) PROJECT FINAL DESIGN, the biggest water infrastructure project undertaken by the City of Prescott to date. The need for this project was recognized in 1999, when the Arizona Department of Water Resources (ADWR) declared that the Prescott Active Management Area (AMA) was no longer in safe-yield. This triggered full implementation of the Assured Water Supply Rules requiring that only renewable or imported water supplies from outside the Prescott AMA could be used for new growth within the AMA. When completed in 2009, the BCWR Project will provide the water needed to assist the AMA in achieving safe-yield.

### PRESCOTT AND PRESCOTT VALLEY IN PARTNERSHIP BOUGHT THE RANCH

In December 2004, the City of Prescott, in partnership with the Town of Prescott Valley, purchased a portion of the JWK Ranch northwest of Paulden in the Big Chino subbasin, outside the Prescott AMA. The property, since renamed the Big Chino Water Ranch, is the proposed source of groundwater to be imported to Prescott and Prescott Valley via BCWR Water Delivery Project facilities.

The BCWR Project facilities are shown in Figure 1 (see page 46) and include a well field and storage reservoirs at the BCWR, as well as pipelines, pump stations, reservoirs, and other infrastructure for conveying the water from the BCWR to Prescott and Prescott Valley. The design of these facilities is being funded by Prescott and Prescott Valley and will be completed in April 2007. Construction is scheduled to begin in June or July 2007, and the system is planned to be operational by July 2009.



### NEW WATER DELIVERY SYSTEM EXTENDS OVER 40 MILES

The BCWR well fields will supply water to two storage reservoirs located at the BCWR. Water from these reservoirs will flow by gravity to the Highway 89 Pump Station, which will pump it uphill to two 5 MG reservoirs at the Chino Valley Water Production Facility (WPF). These reservoirs

will also receive water from Prescott's Chino Valley wells, some of which will be treated at the Chino Valley WPF Arsenic Treatment Facility.

The Chino Valley WPF Pump Station will pump water from the Chino Valley WPF to the new Intermediate Reservoirs/Pump Station Facility and Prescott Valley's new regional water transmission pipeline.

## NEW PIPELINES – A MAJOR COMPONENT OF THE BCWR SYSTEM

New BCWR pipelines include approximately 23 miles of 36-inch pipe from BCWR reservoirs to the Highway 89 pumping station and seven miles of 30-inch pipe from the Highway 89 pumping station to the Chino Valley WPF. In addition, a 48-inch pipeline is planned between the existing City of Prescott water transmission mains near Pioneer Parkway and the proposed Intermediate Reservoir/Pump Station Facility.

Trenchless construction methods will be used where the pipeline alignment crosses jurisdictional waters (washes), the Burlington Northern Santa Fe Railroad right-of-way, Highway 89, and at other locations where required by site conditions.

## A NEW PUMP STATION DELIVERS WATER FROM THE RANCH

The Highway 89 Pump Station, which will be located north of Road 6 North between Old Highway 89 and Highway 89 on undeveloped land owned by the City of Prescott, is the first pump station in the BCWR Project. It will have an initial capacity of 12 MGD and a buildout capacity of 17 MGD.

## NEW CHINO VALLEY WPF PUMP STATION ADDS SERVICE

The Chino Valley WPF Reservoir/Pump Station will be located east of Highway 89, and north of Center Street, in the Town of Chino Valley, and is actually two pump stations in one. It will replace the existing Chino Valley WPF Pump Station and provide service to Prescott and Prescott Valley. The Prescott system pumps providing water to the Intermediate Reservoirs/Pump Station facility will have an initial capacity of 11 MGD and

a buildout capacity of 23 MGD. The pumps providing water to Prescott Valley will have a capacity of 9 MGD.

Another new 5 MG Reservoir will be installed east of the existing 5 MG Reservoir at the Chino Valley WPF. The new reservoir will be an above-grade welded steel tank to match the existing 5 MG Reservoir. The new reservoir provides additional storage capacity and adds to the water system reliability.

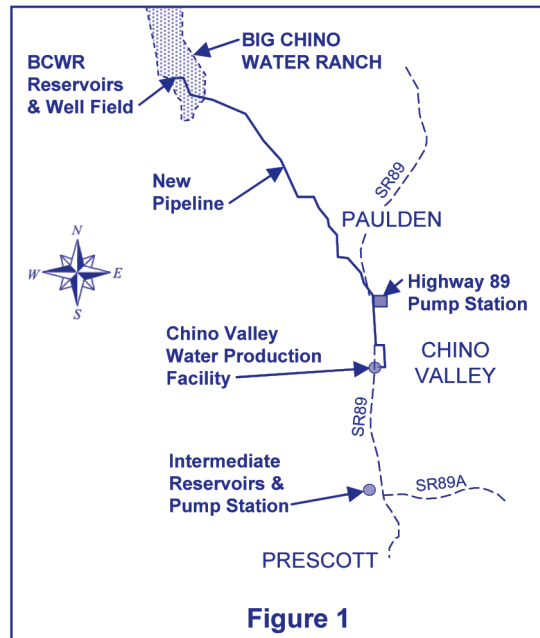
Electrical power will be provided by a new APS substation located at the Chino Valley WPF. The project also includes new onsite standby generators that will supply power to the pump station in case of a power system failure.

## INCREASED PIPELINE CAPACITY AND REDUCED TRANSMISSION PRESSURE

The Intermediate Reservoirs/Pump Station Facility is located near the northwest corner of Willow Creek Road and Pioneer Parkway in Yavapai County on privately owned, undeveloped land. The reservoirs and pump station will help

reduce the operating pressure in Prescott's 36-inch and 18-inch transmission mains from Chino Valley and increase the transmission capacity. The reservoirs also serve as distribution storage for Prescott's water system. The pump station will have an initial capacity of 18 MGD and a buildout capacity of 31 MGD. Initially, two new 3 MG above-grade, welded steel reservoirs will be installed at the site with space for a future 3 MG reservoir.

Electrical power for the new pump station will be provided by expanding the north side of the existing APS Antelope substation. The pump station will also have onsite, standby generators to supply power in case of a power system failure.



## THE MONITORING AND CONTROL SYSTEM WILL KEEP THE BCWR SYSTEM OPERATING AS PLANNED

A new instrumentation and control system will monitor and control the BCWR reservoirs, wells, and pump stations. The supervisory control and data acquisition (SCADA) system will feature programmable logic controllers and computer-based workstations. Communications between outlying sites will be through spread spectrum unlicensed 900 MHz Ethernet radios supplemented by a microwave point-to-point radio link for

communications with the BCWR reservoirs and wells. The system will be monitored from computer-based workstations located in the Chino Valley WPF Pump Station and the Prescott Sundog Ranch Water Division offices. The workstations will provide alarms, equipment status, and process variable information for the entire system. In addition, the Chino Valley WPF Pump Station can be monitored from the Prescott Valley SCADA system.

## **BCWR PROJECT ONLY ONE COMPONENT OF THE CITY'S BCWR PLAN**

In addition to the BCWR Project, a Big Chino Hydrology Study and three-dimensional finite-difference modular groundwater flow model (MODFLOW) was completed for the Upper Big Chino Subbasin. This simulates an 11.5- by 19.3-mile area and serves as a predictive model of the Big Chino subbasin hydrology.

The project also includes a groundwater-level monitoring plan that Prescott in coordination with numerous stakeholders

including State agencies will use to measure groundwater levels prior to the start of BCWR pumping and assess groundwater level changes over time. The monitoring plan includes eight wells, six of which will be equipped with continuous monitoring devices. In addition, 35 Upper Big Chino wells will be monitored by ADWR as part of the program. If Big Chino monitoring identifies any indications of measurable impact to groundwater levels in the Big Chino subbasin, a mitigation plan will be developed.

## **THE BCWR PROJECT WILL HELP ACHIEVE SAFE-YIELD IN THE PRESCOTT AMA**

Groundwater from the BCWR project significantly enhances Prescott's and Prescott Valley's water portfolios. Their proportionate share of safe-yield is achievable through careful management of all available water resources including groundwater, reclaimed water, and recharge. When constructed, the BCWR project will provide the needed water to assist the AMA in achieving safe-yield.