

Project: Water Reclamation Pilot Project
Client: City of Phoenix
Location: Phoenix, Arizona
Year: 2002



Recharge Well and Ground Water Monitoring:

Intermountain Environmental was contracted to assist with the installation of a system to monitor ground water level and flow on two recharge wells and two monitoring wells for the North Gateway Water Reclamation Plant Pilot Project in Phoenix, Arizona.



Application Notes:



Recharge Well #1

The North Gateway Water Reclamation Plant (NGWRP) is located on the very northern edge of the City of Phoenix, Arizona. This is a pilot project. The recharge wells were designed and constructed to allow for the collection of site-specific information concerning the recharge potential of the NGWRP site. In addition to the vadose zone recharge wells, two soil borings and two monitor wells were drilled at the site to collect hydro geological data related to the site recharge capabilities. The results of the drilling effort indicated that the potential recharge capacity could range from 350 to 500 gpm. The actual recharge capacity will be validated during the pilot testing of the vadose zone recharge wells.



Training on operation of the control, monitoring, and alarm system.

As this area of Phoenix continues to be developed, water is becoming a big concern. Ground water is being used up quickly and in order to support further growth the city must find a way to recharge the ground water.



Training on the operation of the miniTROLL water level logger at Monitoring Well #1



Recharge well site.

To do this, ground water from the Central Arizona Water Project canal system is being piped into two recharge wells. Damon S. Williams and Associates (DSWA) was contracted to design the system, coordinate the installation, and monitor the process for the long-term. The system was required to monitor the water level in the two recharge wells, monitor the back pressure from the wells, monitor the flow into the wells, and provide alarm capability and remote monitoring via cellular phone telemetry. Additionally two monitoring wells were located in the vicinity of the recharge site. These wells also needed to be monitored to help determine the effects that the recharge well had on the local aquifer.



The monitoring and alarm system consists of a Campbell Scientific CR10X data logger with a COM100 Cellular Phone Package and a COM300 Telephone Modem w/ Voice Synthesis.

Installation and System Design:

Intermountain Environmental put together a monitoring and alarm system using the Campbell Scientific CR10X Data logger. The power of the CR10X allowed it to be connected to all of the different devices without any problems. The sensors that the CR10X monitors, include a Badger Meter Model RTR flow meter with a Model RET display configured for a pulse output, a Rosemount Model 3051T Pressure Transmitter configured for a 4-20 mA output, and a PT1830 Druck PDCR 1830 pressure transducer configured for 100 mV output.

A PS12LA 12VDC 7-amp hour battery that is recharged by a SX10 10-watt solar panel powers the system.

By incorporating a COM100 Cellular Phone Package with a COM300 Telephone Modem that has voice synthesis capability the system can provide both remote access for real-time monitoring, historical data download, and remote alarm capability. PC208W Data logger Support Software is used at the DSWA office to collect data and remotely monitor the system.

Two monitoring wells were instrumented with In-Situ miniTROLL Water Level Loggers. These loggers monitor and record the water level every hour. Data is manually retrieved from these systems using a laptop with WinSitu Software.

Intermountain Environmental personnel spent several days developing the program for the system and a couple of days doing the installation. Additionally, a half-day of training personnel from DSWA was provided.

For Information on this project or these products please contact:

Intermountain Environmental, Inc.
601 W. 1700 S. Logan, UT 84321
Phone # 435-755-0774
www.inmtn.com



The recharge system includes an inline Badger Meter in-line flow meter and a pressure transmitter.