Background
Located in Spring Township, Berks County, the Borough of Sinking Spring Wastewater Treatment Facility is owned and operated by the Borough of Sinking Spring. The plant serves portions of South Heidelberg, Lower Heidelberg, and Spring Townships in addition to the Borough of Sinking Spring by way of a network of nearly seventeen miles of sanitary sewer collection and conveyance system – also owned by the Borough.

Constructed in 1964, the original plant had a hydraulic capacity of 0.35 million gallons per day (MGD), and was built on a site acquired in the early 1960's with the specific purpose of constructing a wastewater treatment facility. A major expansion and upgrade to 1.0 MGD was completed in 1996 that consisted of physical and biological treatment, coupled with aerobic digestion and reed bed type sludge drying beds.

Challenges
To resolve projected hydraulic overload issues as well as meeting recently imposed discharge standards for Total Phosphorous, the Borough was seeking a cost-effective solution for upgrading the facility to maintain regulatory compliance.

The Solution
Serving as the appointed wastewater engineer for Sinking Spring since the early 1960’s ARRO provided design, bidding and construction management services for the latest upgrade and minor expansion project. This included construction of a new headworks building with fine screen, new raw sewage pumps, construction of a new third final clarifier including associated pumping and piping, and additional reed beds. Further, the sodium hypochlorite, return activated sludge, chlorination and chemical addition facilities were retrofitted. The project also resulted in a rerate of the design organic capacity of the existing oxidation ditches.

The WWTP utilizes physical, chemical, and biological unit processes to treat influent wastewater and achieve the desired effluent quality. Plant processes includes screening, pumping, grit removal, biological treatment using Ovivo Carrousel oxidation ditches (two trains), chemical phosphorus removal and final clarification. After chlorination and dechlorination, effluent is discharged into the Cacoosing Creek, a tributary of the Schuylkill River (part of the Delaware River basin). Waste activated sludge is digested using bioaugmentation in four digesters operated in series.
Digested sludge is then applied to drying beds using reeds to remove additional water and continue the stabilization process.

To fund the nearly $4 million project, ARRO also assisted the Borough in applying for project financing, which was successfully obtained through a combination low-interest loans from Pennvest, and $100,000 of federal stimulus money.

The Results
The upgraded facility has a re-rated design hydraulic capacity of 1.65 Million gallon per Day (MGD), an organic capacity of 2,500 lbs. of BOD5/day and will meet the recently imposed Total Phosphorus limit, as well as to accommodate capacity needs for the foreseeable future.

In Their Own Words
“It’s a great, great project. We’re getting people to work, and right now we need every job we can get. … when it’s done we’ll have an asset, a world-class building that will be here for probably 40 years to provide for the safety of those who live in the community and for the health of nearby rivers and streams.”

JOHN HANGER
SECRETARY - PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION