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The Corps brings water to the mountain

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More than 200,000 Iraqi citizens in the Sinjar Mountain region of northern Iraq have clean drinking water for the first time. The Sinjar Wells project spans 210,000 meters, serving residents in 56 villages. (USACE photo)

NINEWA PROVINCE, Iraq—More than 200,000 Iraqi citizens in the Sinjar Mountain region of northern Iraq have clean drinking water for the first time.

In April, the U.S. Army Corp of Engineers, or USACE, turned the Sinjar Wells project over to the provincial government

in this mountainous region northwest of Mosul, near the Syrian border.

"If not for the Coalition Forces and the Corps of Engineers, these people might have been years or decades away from clean drinking water," said Michael Miller, project engineer in the USACE Mosul Resi-

dent Office. "Today, they enjoy a luxury they've never known. Imagine the health benefits of drinking water from a reliable, safe well system, rather than a possibly contaminated source."

The project spans 56 villages in 13 zones, with each zone connecting specific villages to both the water pipeline network and electrical cables to power the pumps. Generators sit at each site to provide backup power. More than 116 kilometers of water distribution lines were installed; 48 new wells were drilled and another 57 refurbished; 84 new pumps were installed; and 60 water storage tanks of varying sizes were constructed. The \$17 million project was funded through the Iraq Relief and Reconstruction Fund.

Gary Lowe, currently the project manager for the Chamchamal and Fort Suse Prison project in the Sulaymaniyah Province, was project manager for the Sinjar Wells project when it started in December 2006. "Before the contract was awarded, a consulting firm tested the soil for availability of ground water and its suitability for drinking, and marked the locations where the new wells would be drilled," he said. "The contractor followed these studies because the flow of water to the villages was also specified in the contract, as well as the capacity of pumps and sizes of pipes in the networks that serve the villages."

The contract required an end state for each pump to provide 25 to 110 cubic meters of water per hour and for the depth of each well, old or new, to range from 100 to 150 meters. Well output is based on five hours of operation daily.

"There were serious challenges for the Sinjar Wells project from the beginning," Lowe said. "The villages were scattered over a vast area... Since there was no skilled workforce the contractor had to hire skilled labor from other areas and at the same time try to satisfy locals by providing them with other work opportunities."

Lowe said that most of the engineers and technical staff for the project came from Mosul and daily transportation to the



Shown stockpiled before the project started in December 2006, more than 116 kilometers of water distribution pipe were installed in the Sinjar Wells project that completed last month. The water pipeline extends around the entire foothills of the Sinjar Mountain region, northwest of Mosul, Iraq. (USACE photo by Lana Aziz)

work sites was extremely difficult, as well as moving machinery and equipment. "The Mosul-Sinjar road passes through the town of Tal Afar, which has been a center of insurgent activity from the start of work until almost the last days before the project was completed," he added.

The contractor overcame the commute problem by providing a temporary man camp in Sinjar where the engineers spent most of their weekday nights, allowing them to visit the different zones daily to ensure the work was properly performed.

Miller said he has not been able to meet and talk with the local citizens since the project was completed, "...but, the contract engineers and quality assurance representatives have relayed to us the appreciation expressed by the people. Villagers from areas bordering our construction zones have come to the workers and told them how wonderful the job is."

Although the contractor trained water department personnel to operate pumps and generators as construction was com-



The buildings in the photo are (from bottom to top) a new ground storage tank that was still under construction when this photo was taken; new pump house, new control room, old pump house, and the operator's building. The large, orange structure is the existing elevated storage tank. This project makes drinking water available to residents for the first time. The \$17 million IRRF Sinjar Wells project included 48 new and 57 refurbished wells, 116 kilometers of water distribution lines, and construction of 60 water storage tanks of varying sizes. (USACE photo by Lana Aziz)

pleted in each zone, Miller said the remaining challenge to the Sinjar Wells project will be the Iraqi government's maintenance of the water network. "Each generator needs fuel and the poor security situation and politics sometimes makes this difficult. They need operators and guards at each of the well sites...and the local government is currently meeting that requirement," he said. "But, the future security and economic situation in this region is precarious. It would be a shame to see their water supply suffer because of neglect."

Since 2004, the USACE Gulf Region North district has completed 270 public works and water projects in its seven northern provinces of Iraq. Of those projects, 115 were completed in the Ninewa Province, which includes the Sinjar region.

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