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## ***Al Basrah Oil Terminal Renovation Project Nears Completion***

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The Gulf Region Division's oil sector neared the finish line at the end of July with the final certification of work on the Al Basrah Oil Terminal. The terminal, known as ABOT, is Iraq's primary avenue for crude oil export.

The U.S. Army Corps of Engineers invested \$67.5 million to rehabilitate the export facility 50 km offshore in the Arabian Gulf. Currently, one and a half million barrels of crude oil a day leave Iraq via tankers on-loading at ABOT. That volume is roughly half of the terminal loading capacity of 3 million barrels per day achieved with the upgrade.

Iraq's economy is dominated by crude oil export accounting for 97 percent of the government's revenue. The GRD has been working to improve the country's ability to get its crude oil to world markets through renovation of key components of the oil infrastructure. The \$1.7 billion effort has been funded by the Iraq Relief and Reconstruction Fund, but is only a fraction of the \$8 billion needed, according to a Coalition Provisional Authority estimate.

Prior to renovation ABOT illustrated the condition of the entire Iraqi oil infrastructure. Designed and commissioned by Brown and Root in 1974, the 30-year-old technology was in serious disrepair from decades of under funding, lack of preventive maintenance, and war damage from



Several workers replace cabling on the Al Basrah Oil Terminal. [USACE Photo by Betsy Weiner]

the 1980-88 Iran-Iraq War and the Gulf War.

U.S. Navy Capt. Thomas Brovarone, GRD Oil & Water Sectors director, said the most important improvement at ABOT is the installation of 24 custody transfer meters and associated flow provers that measure how much crude oil is exported from the terminal.

Supplied by a 48" undersea pipeline from the southernmost tip of the Al Faw Peninsula, the terminal has four berths capable of handling very large carrier type vessels and offloading 300,000-400,000 barrels per day on each berth. The terminal was identified in July 2003 as a key facility for immediate repairs by the Minis-



Repair and replacement of oil transfer metering systems on the Al Basrah Oil Terminal platforms A and B were a key part of Phase 2. [USACE Photo by Erich Langer]

try of Oil and the Corp's Task Force-Restore Iraqi Oil. Parsons Iraq Joint Venture was awarded a contract for the work in January 2004.

David Anderson, the Corp's Quality Assurance Representative on the 1.6 kilometer long terminal said, "Before the Corps came on site, Southern Oil Company was using accounting procedures on the tankers and that has a tendency to be less accurate than turbo meters. The turbo metering system is accurate within one hundredths of a percent."

Accurate metering is a requirement for confidence necessary in the world community if Iraq is to seek International Monetary Fund loans for remaining oil infrastructure improvements. The metering was installed in Phase 2 of the project.

Anderson said, "The Corps came out with [construction contractor] AFI and [Parsons Iraq Joint Venture] on Phase 1 to do a refurbishment of the loading arms and the rigging. The functional part of the arms weren't in real good shape." In fact, an April 2003 assessment found the loading arms to be operating at only a quarter

of their design rate and leaking excessively.

As they reworked the loading arms for oil transfer, the Corps, PIJV and AFI also turned toward correcting major safety deficiencies on the terminal. Improvements include fusible loop fire detection, gas detection, emergency shut down systems, nitrogen generation and installation of life rafts, Anderson said.

"Another problem that was discovered on coming to the terminal was that fire fighting capacity was nonexistent. What this project has done is refurbish all the foam systems and recondition the towers... fire fighting capacity will be 120 percent of what it was previously when new," Anderson said.

Workers also repaired four hydraulic transfer bridges, build control rooms meeting international standards for both platforms, and installed new power generation and electrical cabling throughout the terminal.



An AFI subcontractor completes an installation before certification of the custody transfer meters on the Al Basrah Oil Terminal. [ USACE Photo by Lisa Coghlan]

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