



Disappearing Reservoirs!

Recently much has been written and spoken in the news about surface water reservoirs in the Southeast and West being at dangerously low levels.

In a number of cases, water levels have dropped to below the raw water intake cribs, rendering the cribs unusable. In these circumstances, the municipalities and water purveyors have had to severely limit or stop using their raw water intake pumps. Recently, in just such a case, Engineered Fluid, Inc., became involved in a project for floating a set of

vertical turbine pumps onto Lake Cumberland in Kentucky. The objective was to regain reliable access to the remaining water in the reservoir.

The pumps were set onto a barge and the pump controls were in an EFI pre-fabricated, factory-built electrical apparatus building. This building was built at the EFI plant in Centralia, Illinois and shipped to the jobsite complete, to be placed on a concrete foundation on the bank of the reservoir.



Lake Cumberland, Kentucky, showing the much lowered lake level. The floating pump barge is seen tethered with water lines and electrical lines from shore to the barge.



EFI built building shell ready for installation of the power distribution panel, automatic transfer switch and the four variable frequency motor drives.



Pump controls and distribution panel being installed.

APPLICATION

The application was to provide new raw water supply from a floating barge on Lake Cumberland in Kentucky. The design requirement for the pumps was 5200 GPM at 416 feet TDH. The water level on the lake can vary up to 40' during the year. The pumps were shipped loose and installed on a barge, by the installing contractor.

BACKGROUND

The project need was driven by a critical water shortage due to low water levels at the raw water supply. This work was performed under an emergency procurement negotiated directly between the Owner, Engineer, and EFI.

The EFI controls building and pumps were pre-purchased by the Owner direct from EFI to save time. While the equipment procurement negotiations were ongoing, the site construction was in design and was bid separately.

Because of the water emergency, there was \$5000 per day liquidated damages on the contract if EFI delivery was later than September 26, 2007.

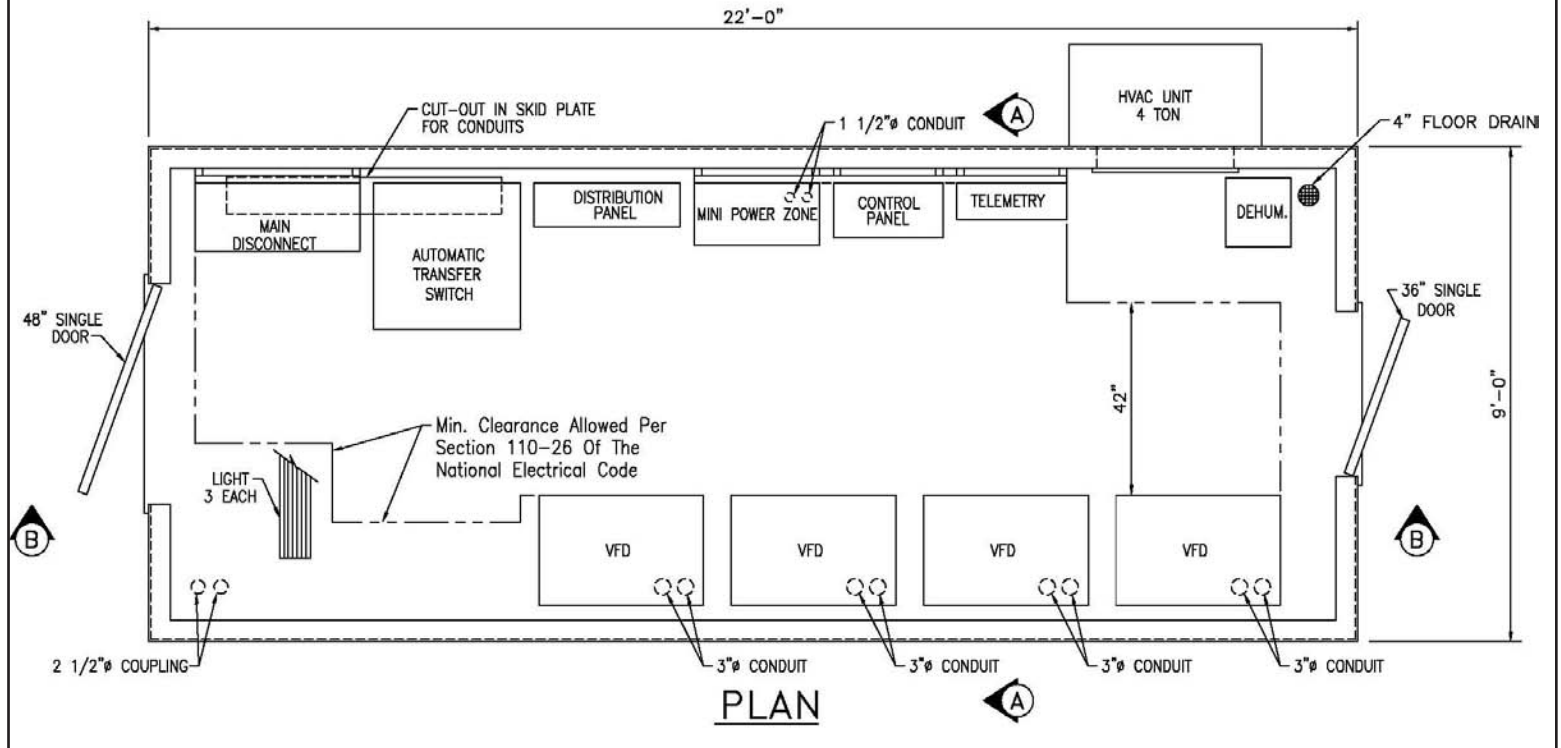


Pump controls and power distribution equipment nearing completion.



Packaged control and starter building setting behind the concrete valve vault and structure.

EFI CONTROLS BUILDING



SCOPE

EFI designed, manufactured and delivered a controls building, complete with a 1200 amp main disconnect, automatic transfer switch, distribution panel, four (4) 250 HP VFD's with Mirus Harmonic Mitigation, an Allen-Bradley 5/05 Series PLC for pump control and sequencing, a complete building HVAC System with 4 tons of cooling. The building was complete, requiring only setting, anchoring and the electrical and instrumentation connections at the site.

Order Date: 6-4-07
 Ship Date: 9-24-07
 Start-up Date: 11-30-07

Clinton County,
 Kentucky



Floating pump barge on Lake Cumberland in Kentucky.