The Barn Raiser

Mid-South Engineering Company

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Lessons Learned for Moving a Facility or Major Equipment

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I. 15 - 20 year old plant drawings typically have not been maintained "AS CHANGED" through the years

Because Plant Operators typically have not kept their drawing files up-to-date over the years, there are several things that need to be done prior to dismantling of a facility.

A. Update Plant "Process Flow" drawings and P&ID drawings to fully understand the process being relocated.

B. Develop a very meticulous and thorough Equipment List using a logical Equipment Numbering system that can be keyed to all aspects of the project including:

1. Motor and Device List
2. Electrical Drawings
3. Control System Design
4. Equipment Disassembly/ Packaging/ Shipping

C. Develop an accurate existing Motor and Device list.

D. Confirm/Update "Dimensional Control" drawings in place. In a lot of cases, original Manufacturers drawings will not be available and this is the only source of information for the design of foundations, structures, etc., at the new location.

E. Detailed piping schematics are invaluable when reinstalling equipment at the new location. If piping schematics are not available at the plant level, they should be developed in enough detail to reinstall the equipment.

F. Document the existing installation with extensive photographs.

G. Develop an OEM Contact matrix for all major equipment.

II. A used facility, as a whole, may be of great value
but some of it may not be worth relocation.

An evaluation needs to be done, preferably after a preliminary layout has been developed for the new plant location, as to what makes sense to relocate and what should be replaced.

A. Low Pressure Material Handling Ductwork probably should not be relocated. This is a wear item that may or may not be in good condition and even if it is, the disassembly, and shipping cost will probably be greater than the cost of purchasing this material locally. This is especially true since most often; the new plant layout differs from the existing layout because of site considerations.

B. Small piping for water, gas, compressed air, etc., should probably not be relocated.

C. Larger power cables can sometimes be reused depending on age and installation condition but a site inspection is critical.

D. Smaller power wiring and control wiring should not be reused.

E. MCC's should be evaluated for reuse based on existing condition and the new plant site power supply and control system.

"The Barn" built in the 1930's to house Welsh ponies, serves as Mid-South's offices.

Lesson Learned - Continued

F. Motors may not be suitable for reuse depending on local Voltage or Hertz.

III. When evaluating used facilities, major equipment items such as Presses, Forming Lines, Refiners, Dryers, Heat Energy, etc., need to be evaluated by specialists to determine what refurbishment might be required, while the equipment is in transition, to insure a successful start-up.

A. Can the system operate as it was?

B. Does the system need to be upgraded with changes in technology?

C. Is the system obsolete and the latest equipment needs to replace it?

These questions need to be asked, because there typically have been technical changes made since the equipment was first sold, there may be reasonably minor upgrades available that can substantially improve equipment performance, or the changes may have been so great the better choice is the new system.

Concrete Encased Electrodes Mandate

Adapted from Arkansas Dept. of Labor Safety News

Concrete encased electrodes were developed over 60 years ago as a means of grounding ammunition bunkers in the desert of Arizona. A consulting engineer for the U.S. Army, Mr. H.G. Ufer, determined that using steel rebar in the building footing provided the best grounding system available. Today, in honor of Mr. Ufer, this system is still commonly called the UFER Ground, but is technically a concrete encased electrode. For over 25 years, the National Electrical Code (NEC) has suggested concrete encased rebar in footings to be used as one of the preferred grounding electrodes. In the 2005 issue of the NEC, attachment to the footing rebar, if present, became a **mandated requirement** of the grounding electrode system.

The concrete encased electrode, with its proven reliability in difficult soil conditions, continues to be a superior grounding electrode, and the mandated installation is clearly in the interest of public safety. However, because of its location implementation and installation of the code requirement will dramatically change the coordination needed between building trades and inspection services. General contractors, concrete contractors and builders now need to plan and coordinate with electrical contractors to assure the rebar connection is made prior to pouring concrete. To provide public safety as required by the NEC, we must all do our part to assure the installation of the grounding electrode goes as smoothly as possible.

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