



Engineers Training 3-Day Outline (Preliminary)

- 1. Introduction**
 - a. Summary of 2 ½ Days
 - b. Who is Water Energy Distributors, INC?
 - c. Menu of Geothermal Design Activities
- 2. Design of Standing Column Well Earth Coupling**
 - a. Importance of Loads and Load profiles, COP's and EER's
 - b. Geology & Design Effects
 - c. Standing Column Well (SCW) Installation & Component Overview
 - d. Empirical Heat Transfer Results
 - e. Design Mathematics/Models overview
 - f. Effects of Bleed –Theory
 - g. Support & Integration Mathematics/Models-overview
 - h. Pumping Selections-Pump Curves and Efficiencies
 - i. VFD Packages and Controls
 - j. BAQNet/LON/MPC Interface with Heat Pumps and Well Controls
 - k. Erosion, Corrosion, and Electrolysis
 - l. In-Building Schematics-Manifolds, Risers, Back Pressure, Bleed
 - m. Flat Plate Heat Exchangers-when? Effects and Controls
- 3. Examples of Installations**
 - a. Hastings School-old conventional SCW
 - b. Army War College-Multiple Buildings, Village
 - c. Trinity Church-Dedicated Wells/Heat Pump Pairs
 - d. Canadian Research
 - e. Blackstone-Effects Short Circuiting
 - f. New York City-Urban Management
 - g. Merrimack County Nursing Home-Large Building
 - h. Haverhill Library-Site Visit, Water-to-Water & Water-to-Air
- 4. Documentation**
 - a. Well Drawing Examples-Template Package
 - b. Well Specifications Examples-Template Package
 - c. GHP Specification Examples-Template Package
 - d. Operations Sequences-Typical Open, SCW, FPHX
- 5. Installing SCW Systems**
 - a. Submittal Logs & Tracking
 - b. Well Bid Evaluation-“Apples to Apples”
 - c. Control Integration and Verification CXM, DXM, Who controls what?
 - d. Checking for Grounding, Electrolysis, & Corrosion
 - e. Trip to Haverhill Public Library (125 Tons. 14 Years old)
- 6. Design of Software & Math**
 - a. Kelvin Line Math-Worksheet
 - b. Designing with Climasize®
 - c. Designing with EQuest© & Geo Enhancement®
 - d. Questions until you're done!