



Industrial Process and Mechanical Upgrades

Marine Corps Logistics Base, Albany, Georgia

Situation

The Marine Corps Logistics Base (MCLB) in Albany, Georgia, provides worldwide, integrated logistics/supply chain and distribution management, depot-level maintenance, and strategic pre-positioning capability in support of military operating forces.

Project Cost

\$14,200,000

Total Energy/Operational Savings

\$37,036,672

Equipment Installed/Services Provided

- Implemented steam piping changes and installed remotely operable steam on/off regulating valves to isolate space heating loads and process steam loads
- Replaced existing steam turbine-operated feedwater pumps with new electric motor-driven units, and installed boiler blowdown controllers
- Installed three new "digital scroll" compressed-air dryers and water-cooled aftercooler and heat recovery equipment
- Installed 10,000-gal compressed-air receiver and demand controller
- Drilled 670 four-inch-wide wells (approx. 250-300 feet deep) to install geothermal high-density polyethylene (HDPE) pipe loops with a 50-year life
- Installed 250 new geothermal heat pumps and electric water heaters and insulated attics to R-38
- Installed 494 natural gas-fired infrared heaters
- Installed a web-based direct digital control system to monitor and control building HVAC equipment in 39 buildings
- Installed one 60-ton and one 215-ton VAV system with new chillers and controls

Executive Order 13123 mandates that federal facilities reduce their energy consumption 35% from a 1985 baseline amount by 2010. MCLB was investigating potential energy conservation measures (ECMs) that would help the facility achieve its reduction target.

Solution

Under the DOE's Southeast Regional ESPC program, MCLB awarded a contract to Chevron Energy Solutions (Chevron ES) to implement ECMs as part of a bundled Delivery Order project. Chevron ES performed a comprehensive energy analysis that investigated potential ECM options in 12 technology categories within approximately 105 facilities. The audit considered intensity of energy use, facility square footage, and recommendations made by MCLB personnel. Eight ECMs were deemed viable and selected for implementation:

- Steam distribution and maintenance
- Compressed air and heat recovery
- Geothermal heat pumps
- Infrared heat



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Industrial Process and Mechanical Upgrades (continued)

- Lighting upgrades
- HVAC equipment replacement
- HVAC renovation
- Web-based DDC

Extensive improvements were made in the areas of steam distribution and maintenance, compressed air and heat recovery, and geothermal heat pumps.

Benefits

In addition to reducing energy consumption by approximately 167,125 MMBtu, the improvements installed at MCLB are designed to provide several key economic, infrastructure, and comfort benefits:

- Energy savings and maintenance are locked in a long-term agreement. This ensures performance, reliability, and energy savings even if there are cutbacks in base maintenance budgets or personnel reductions.
- Significant improvements in steam and compressed air production and distribution and waste reduction has allowed depot maintenance activity to double production and personnel in response to Operation Iraqi Freedom without increasing the number of boilers or air compressors.
- A 100,000 sq ft headquarters building was renovated, increasing the number of HVAC zones from 9 to 72, which has improved humidity and temperature control and occupant comfort.
- Under the ongoing services program, Chevron ES will routinely inspect installed equipment and perform preventative maintenance, ensuring reliability and long-lasting performance. An annual steam system audit and repair program will keep the distribution system in top condition thus reducing energy loss.
- A new 10,000 gallon compressed air receiver tank with demand controller and state-of-the-art air drying equipment reduces false demand, excessive compressor cycling, and energy per unit of air produced while improving reliability.

