Project Partners

• Green and Sustainable Services, LLC
  – Founded in 2008
  – Identifies technical approaches, processes, and solutions that are environmentally responsible and resource efficient
  – Woman and disadvantage owned small business

• Chem-Aqua, Inc.
  – Founded in 1919
  – Global leader in water treatment solutions
  – Wholly owned subsidiary of NCH Corporation

• Baltimore County Public Schools
  – 26th largest school district in the United States
  – Provides heating and cooling for 107,000 students annually
Project Facts: Water

• Water is a precious natural resource
• Life cannot be sustained without it
• The water used in boilers, cooling towers, and process systems must be treated to prevent waterside problems including
  – Scale
  – Corrosion
  – Microbiological Fouling
Project Challenges

• Obtaining good results from a water treatment program is a complex task when dealing with multiple locations

• To be successful, the program must consider the differences from site to site in
  – Water quality
  – Heating and cooling system design
  – Operating conditions
  – Maintenance practices
Water Treatment Team

• Chem-Aqua and Green and Sustainable Services (GSS) have implemented the HandiChem™ Solid Water Treatment System at Baltimore County Public Schools (BCPS)

• GSS’ role includes
  – Quality control
  – Quality assurance
  – Site assessments and report/test review

• Chem-Aqua’s role includes
  – Primary contractor
  – Chemical and equipment provider
  – Onsite services, tests, and reports
Liquid vs. Solid Water Treatment

- With a traditional liquid water treatment program
  - Chemicals are packaged in 55 gallon drums
  - Splash and spill concerns must be considered
  - Drum disposal concerns must be handled
Liquid vs. Solid Water Treatment

- With the HandiChem™ System
  - Chemicals are packaged as solid concentrates in one-gallon recyclable plastic bottles
  - Solid concentrates are dissolved as needed into a small plastic reservoir (reducing splash and spill concerns versus liquids)
  - Drum disposal concerns are eliminated
HandiChem™ Benefits

- The HandiChem System addresses green building goals and objectives
  - Reduces splash and spill concerns versus liquids
  - Contains lower levels of sodium hydroxide than liquids
  - Eliminates drum handling, storage, and disposal
  - Reduces packaging requirements and disposal
HandiChem™ Benefits

• The HandiChem System helps reduce a building’s overall carbon footprint
• Using a solid water treatment program
  – Is like eliminating the exhaust of 52,000 automobiles annually (replacing all liquid water treatment products with the solid equivalent)
  – Reduces the weight of product shipment
  – Provides fuel savings of 2.5 gallons of diesel fuel (for delivering a 50 pound case of HandiChem solid concentrates versus a 55 gallon drum)
HandiChem™ System at BCPS

- Customized water treatment program for boilers, cooling towers, and closed loop systems
- Scale inhibitors, corrosion inhibitors, and biocides
- Solid product is blended to reduce hazardous chemicals and eliminate water as a transporting agent
- Solid concentrates are dissolved as needed onsite
- Once empty, the one-gallon plastic bottles are rinsed and recycled, which eliminates drum disposal concerns for the school district
HandiChem™ System at BCPS

• Goals and Objectives
  – Protect BCPS’ water systems (avoid scale, corrosion, and microbiological fouling)
  – Reduce fresh water usage and wastewater discharge
  – Provide economic and efficient water treatment
The HandiChem System is a sustainable solution that has helped provide BCPS with economic results:

- Maximized cycles of concentration
- Conserved water by reducing makeup water usage
- Decreased chemical consumption
- Reduced wastewater cost by decreasing the amount of blowdown sent to the municipal sewer system
- Increased energy efficiency
- Reduced shipping costs for product delivery
- Minimized space needed for chemical storage
Safety at BCPS

- With the HandiChem™ System, BCPS maintains neater and cleaner mechanical rooms, which decreases hazards for their onsite employees
  - Reduced splash and spill concerns versus liquids
  - Drum handling, storage, and disposal are eliminated
  - Reduced potential for injury as product loading only requires handling a single 10 to 15 pound container
ROI at BCPS

• The HandiChem™ System was also used at the University of Maryland Medical Center
  – ROI of 993% over two years
  – Payback period of one month

• BCPS expects a favorable ROI for the HandiChem System at their facilities
  – The program must be in place for 12 to 18 months to generate any actual savings
Summary

- BCPS acknowledges Chem-Aqua and GSS have provided a solid water treatment program that is
  - Financially sound
  - Technically advanced
  - Safe and reliable
  - Environmentally sustainable