



Case Study Series

Building Operator Certification (BOC) provides training in the energy and resource efficient operation of building systems to qualify facility operations and maintenance staff for certification.

Bayer Corporation – Berlin, Connecticut

Bayer Plastics' Film manufacturing facility, located in the central part of Connecticut, employs about 70 people. The facility manufactures Bayer's Makrofol® and Bayfol® polycarbonate and polycarbonate blend films. These films are used in instrument and control panel displays, nameplates, decals and other applications in the automotive, home appliance, computer, telecom, electrical/electronic, medical and graphic arts industries

Facility Square Footage:	20,000
Attendee Name and Title:	Chris Mozian, Process Control Systems Engineer
BOC Graduate:	Series 1 and Series 2
BOC Sponsor:	Northeast Utilities (Connecticut Light & Power)
Years in Position:	13
Number of Staff:	NA
Resources Affected:	Electricity, natural gas, water

Concerning the impact of the BOC course on his work for Bayer Corporation, Chris Mozian stated that, "We cannot know everything about every trade in the maintenance field. You know your trade, then pick up bits and pieces from others who are experts in their fields. The BOC course allows experts to give an overview of systems and offers an open forum for asking questions, which is great."

Operational Challenges

Compressed Air: *Bayer Plastic's* film manufacturing processes require compressed air, the provision of which consumes electricity. Because some of the equipment requires 150 pounds per square inch (psi), 150 psi was provided throughout the facility, even though most of the equipment could work properly at 90 psi. Not only

was more than one-third of the air compression generally unnecessary, losses due to system leaks were correspondingly elevated. *Bayer's* energy costs were considerably higher than necessary.

Clean rooms are another requirement of processes at *Bayer Plastics*, but dust from unidentified sources was making clean rooms very difficult to maintain. No one knew how to determine the sources and pathways, so personnel were obligated to periodically remove dust. Costs increased as productivity declined.

Comfort maintenance: The main office area had one simple thermostat. It was almost impossible to maintain comfort for all the office workers, which meant that productivity varied. Furthermore, the thermostat required manual adjustment, which was difficult to do consistently on schedule. As a consequence, heating and cooling cost savings from allowing the unoccupied building to get cooler (heating season) or warmer (cooling season) were not all they could be.

Results of BOC Training

Meaningful adjustment: BOC lessons helped Chris Mozian perceive and describe the compressed air situation as no other had. He, his supervisor Mark Marshall and their air compressor vendor worked with *Connecticut Light & Power* to install new compressors to reduce the overall facility air pressure to 90 psi and provide a separate compressor for the equipment requiring 150 psi. The reduced operating pressure required less power and greatly minimized the impact of leaks in the compressed air system. Mark Marshall estimates that the more tailored air compressor system saves *Bayer* \$11,000 per year.

Enhanced perception: The BOC course acquainted Chris with state of the art diagnostic equipment and explained how useful it might be in a specific facility. Chris was then able to inform others about a system to view airflow patterns within a facility, which could reveal the source of dust in clean rooms at *Bayer*.

“Since taking the BOC course, I have been able to save money, save energy, and improve occupant comfort at my facility. For example, I have spotted inefficient filters on new equipment and installed better ones to increase the life of the HVAC units. I have recommended economizers on equipment and we actually use the economizer feature.”

Targeted delivery: The BOC course also inspired Chris to install programmable thermostats in the main office area of the facility. Now four separate zones serve this area, providing more comfort to workers. The programs ensure that target temperatures always adjust at the right times, so that opportunities to save energy are not missed.

Other Observations

Chris felt that the section concerning **infrared scanning equipment** was excellent. Although he already uses infrared scanning technology at *Bayer*, he feels it is important to know about and would be very useful to students who had not used it before.

He emphasized the importance to facility managers of the section concerning **environmental regulations**. Many people are not clear about regulations concerning disposal of fluorescent lamps, batteries and various oils, and it can be very damaging to a company if the disposal is improper. The BOC course explained the regulations and made everyone aware of the importance of knowing and following them.

Chris also noted the increasing concern with adequate **airflow in buildings** and the amount of dust in the indoor air. While he has not yet incorporated new technologies at his facility, he noted that the BOC course made him better prepared to address indoor air quality concerns.

Mark Marshall, noted that, "Chris was very enthusiastic about taking the BOC course. He discussed pertinent information from the course and came away with useful tools. We will probably have other people get involved. Chris got a lot out of it and it's pertinent to what we do."

Mark also commented that, "Our company actually had a directive to be able to save so many dollars per year at this site from **energy use reduction**. The entire corporation is tracking energy consumption and the energy numbers become public within the company. With people looking at the energy numbers, they had better go down."

BOC graduates work in all fields of industry, ranging from municipalities to Fortune 500 companies.

For more information, contact Alan Mulak at 978-486-4484 or amulak@neep.org.

Northeast Energy Efficiency Partnerships, Inc.



A 2002 evaluation found the BOC program saves the average building on an annual basis:

- ✓ 0.5 kilowatt hour per square foot
- ✓ 1.95 million BTU of fossil fuels per 1000 square feet
- ✓ 0.162 gallons of water per square foot