



Albany Law upgrades to achieve New York State Compliance Cooling Tower.

chemenergy.org



Albany Law seeks out
Chemenergy for NYS
Compliance package.

Albany Law has been coming to Chemenergy for years for Cooling Tower services and cooling water system solutions. Chemenergy had previously treated the cooling tower manually with chemical applications of Oxidizing Biocides and proprietary system cleaners to prevent Microbiological contamination and halt organism growth.

When New York state finalized its Legionella law in accordance with Cooling Tower operation and treatment methods, Albany Law came to Chemenergy for professional assistance.

Its Evapco cooling tower was fitted with a factory Pulse Pure controlled by a conductivity and bleed controller supplied by Evapco. The cooling tower was not New York state compliant with the Evapco Pulse Pure accessory and was using cooling tower blowdown (water bleed) excessively. Wasting water and increasing Albany Law's cost of operation.



Not Chemical Treatment

Not NYS Compliant

Higher cost

Excessive water use

Does not treat for
scale & Corrosion

Scale found inside Evapco pulse pure line



Albany Law needed a solution to reduce operating costs, reduce water usage, effectively protect their cooling tower from scale and corrosion and also comply with New York State law.

Albany law's Evapco tower was currently being run without a chemical treatment plan in place, utilizing just the Pulse Pure add-on Evapco supplied with the tower and Manual periodic chemical application via Chemenergy in the form of Bromines and proprietary system cleaners.

Albany Law's 216.4 Ton cooling water system was utilizing the Pulse Pure controller which reads Conductivity and bleeds the system when the Conductivity reading is higher then the Set point set by the controller operator. The Evapco controller was set extremely low for Conductivity at 809 umhos. This was discharging water from the system at high amounts, at approximately 1.79 gpm or 107.40 gph. The Pulse Pure system operates by discharging excessive amounts of water with low conductivity settings. Essentially adding fresh Make-up water into the system at the building owner's expense, diluting down the tower basin water.

These electronic devices are marketed as a total corrosion, scale, and microbiological growth prevention tool that replaces chemical water treatment via a certified service technician. The problem is that this does not protect the cooling tower from scale or corrosion or microbiological growth. The system simply uses excessive amounts of water to give the illusion the water is fresh. When in reality it is just adding new, costly water into the system to dilute the systems water to appear free from scale, corrosion and microbial contaminants.

The Concept

The concept of the Evapco Pulse Pure is simple. If they add enough fresh water into the cooling tower fast enough, not allowing your open-recirculating cooling tower to actually recirculate the water (which is what these cooling towers are designed to do, to save money, water and resources) then you have the illusion the cooling tower is operating correctly.

This is a far cry from operating a cooling tower water system in a healthy, sustainable, cost-efficient way. Bleeding water excessively like the Pulse Pure does may indeed help slightly with keeping microbial growth down, but anyone can bleed a cooling tower all day and pay extremely high water costs. Purchasing a pulse Pure is not a ROI. You will spend more money over the course of the cooling towers operation on water, up to 10x more in water bill totals annually, then if you hired Chemenergy, a trained, certified water treatment company to oversee the system and provide monthly or weekly servicing.

The Evapco Pulse pure does not treat for scale or corrosion. As evident in the pictures seen below.

Scale & Corrosion

When Chemenergy removed the Evapco Pulse Pure system piping to install Chemenergy's New York State compliant water treatment program, Scale build-up was found inside of the piping. Indicating the system was precipitating calcium carbonate and forming scale shells within the system. If the Evapco system piping looks like this, chances are high the entire cooling system is in a similar chemistry state, reducing efficiency and increasing repair costs and general maintenance.

The Cooling tower fills showed signs of Algae growth and deposits when utilizing the Evapco Pulse Pure.



Evapco Tower information

BTU	43,280 BTU
TONNAGE	216.4 Tons
CONDUCTIVITY SETPOINT	809 umhos

Make-Up water Analysis

PH	7.91
ORP	212
CONDUCTIVITY	225.50 umhos
CL	50 ppm
P ALKALINITY	10 ppm
M ALKALINITY	50 ppm
TOTAL HARDNESS	60 ppm
Cu	0.012 mg/l
Fe	0.03 mg/l



Water Usage with Evapco Pulse Pure

Taking a look at the tower information and water analysis on the left, we can begin to form an idea of the water usage with the Evapco Pulse Pure system with no chemical treatment provided by Chemenergy.

Mass Balance

The Tower is running a Conductivity at a set point of 809 umhos, which puts the Cycles of Concentration at 3.9 cycles.

Utilizing the systems Tonnage, we can calculate the following information about the Cooling water system:

- Recirculation Rate: 649.20 gpm
- F Factor: Estimated to be 0.8 (Industry Standard)
- Delta T: Estimated to be 10 F°
- Evaporation Rate: 5.19 gpm
- Blowdown Rate: 1.79 gpm
- Makeup Rate: 6.98 gpm

With the Evapco tower running the Pulse-Pure water system, the water usage is estimated to be about 6.98 gpm. Equal to 418.8 gallons per hour. This means 418.8 gallons of fresh water are added to the system every hour it is in use.

% Load, Daily Run Times

Assuming the tower is running at max tonnage and is running 16 hours a day total, 6,700.80 gallons are used daily to provide comfort cooling to this Law school and campus education center. Resulting in 2,358,681.50 million gallons of water needed and sourced per year and paid for to the cities municipal water supplier.

Water Usage with Chemenergy system and Service Technicians

Using the same Mass Balance calculations from the other page, we can see the savings and water usage with cost-effective Chemical treatment programs from Chemenergy Water treatment, Inc.

Max Conductivity Allowance

With Chemenergy Water Treatment, Inc. servicing your cooling water systems for your building and facilities, you will increase your max allowable conductivity range because of advanced chemical formulations. Our chemicals are designed to allow max solubility of Calcium Hardness, Total Alkalinity and Silica, increasing your Cycles of Concentration and reducing water usage per minute, hour and annually.

When you increase the allowance of these readings in your water chemistry, your conductivity will also achieve a higher set point. Please note, the following calculations are based off of 42 years of industry experience, chemical engineering and formulations, and proprietary product formulations. Attempting to increase amounts of hardness, alkalinity, etc. without Chemenergy’s chemical servicing will result in devastating cooling tower repairs, and total system failures due to corrosion, scale and microbiological contamination. Also attempting to hold the water in the system for longer periods of time without water treatment will result in system failures and efficiency losses that are dangerous.

% Load, Daily Run Times

Assuming the tower is running at max tonnage and is running 16 hours a day total, 5,433.60 gallons are used daily to provide comfort cooling to this Law school and campus education center. Resulting in 1,912,627.20 million gallons of water needed and sourced per year and paid for to the cities municipal water supplier. Chemenergy’s system would effectively save this building 446,054.30 gallons of water annually.



A large industrial water treatment facility with a worker in the foreground. The worker is wearing a blue shirt, black pants, and a grey cap, and is using a blue tool to work on a pipe. The facility features large metal tanks and complex piping systems. A teal text box is overlaid on the image.

Chemenergy installed a
cost-effective,
sustainable, New York
State compliance system.

chemenergy.org

[read more](#) 



446,054.30 gallons annually
saved with Chemenergy

Concluding thoughts and
Albany Law's New water
treatment servicing plan.

The only way to effectively treat a cooling tower system and prevent Scale, Corrosion, fouling and microbiological contamination, while ensuring sustainability and a ROI for a building, is through a Chemenergy water treatment program. Our programs will include Corrosion Inhibition, Scale Inhibition, Chemical Bromine and cleaner applications to prevent Algae, Legionella testing, Legionella cleanings to ensure a low CFU count compliant with New York State, and Equipment that complies with NYS Law for cooling towers.

The Evapco Pulse Pure device is not recognized by New York State law as effective in the prevention and elimination of Legionella growth in cooling water systems. Now that Albany Law came to Chemenergy, they are New York state compliance with all equipment and water treatment application techniques.

The cooling water system will now run efficiently due to reduced scale formation, increased water savings annually, and more effective, high-quality chemical treatment applications from a trained, certified water treatment company.

Cooling Water Capabilities

- > New York State Compliant Equipment Installs
- > Water Treatment servicing programs
- > Corrosion Inhibition
- > Scale Inhibition
- > Fouling Inhibition
- > Microbiological Growth Prevention
- > Legionella Testing
- > Legionella Prevention & Treatment
- > Cooling tower cleanings and system flushes
- > Cooling tower parts & repairs
- > Building Compliance

chemenergy.org