

Highlights from the Texas Industrial Energy Efficiency Program Newsletter Volume 6, Number 1, December 2024

Greetings, from the Texas Industrial Energy Efficiency Program!

In this issue:

1. Upcoming TIEEP Events – Save These Dates
2. Event Recaps
3. From the Casebook: Are They Still Doing That?

Event Recaps

TIEEP has presented three events since our last (June) Highlights Bulletin:

TIEEP Energy Forum

Date and Time: Thursday, October 10, 2024, 4:00-6:00 pm

Theme: Lowering the Cost of Decarbonization

Venue: Hybrid meeting. In-person at University of St. Thomas, 3800 Montrose Blvd. Houston, TX 77006. Virtual via ZOOM.

Upcoming TIEEP Events

Save These Dates!

Please check “Upcoming Events” on the TIEEP [webpage](#) for updates as they become available.

STS AIChE Monthly Dinner Meeting

Thursday, January 9, 2024, 5:00-8:30 pm

Workshop: Process Integration: In the Room Where It Happened

Keynote: The Future of Energy Through 2050

Venue: In-person and virtual. [Register here](#)

TIEEP Water Forum

Thursday, March 6, 2024, 4:00-6:00 pm

Theme: The Nexus of Water and Energy

Venue: University of Houston, followed by the STS Dinner meeting
PDH certificates available.

TIEEP Spring Energy Forum

Thursday, May 1, 2025, 4:00-6:00 pm

Theme: tba

Venue: University of Houston, followed by the STS Dinner meeting
PDH certificates available.

Energy Transition Webinar Series

Tuesdays at noon, January – April 2025

Theme: hydrogen, circular economy, and carbon management

Venue: Register at [ETI Webinar Upcoming Webinars - University of Houston](#)

Energy Day

Date and Time: Saturday, October 19, 2024, 11:00 am-3:00 pm

Theme: K-12 STEM Outreach

Venue: Downtown Houston.

TIEEP & TIEEN had an activity for students on industrial energy use and efficiency (distillation), in the UH Energy tent in the festival. The estimated attendance at the tent was 1,000. Over 200 watched the two



minute demonstration on purifying water using distillation at the TIEEP/TIEEN table. Energy Day was the headline item in UH Energy's October 2024

Connections Newsletter: [UH Energy Highlights STEM Education at 2024 Energy Day - University of Houston.](#)



Texas Energy Summit

TIEEN Panel Discussion

Date: November 21, 2024,

Theme: *Industrial Energy Efficiency*

Venue: The Capitol, Austin, TX

Many thanks to members of the TIEEP Advisory Council for facilitating the panelists: Alan Rossiter, Amy Bartlett, Jim Risko, and moderated by Gary Gildert.

Additional details of all of these events, including recordings and pdfs for the Water Forum and the Energy Forum are available in TIEEP's [online archive](#).

From the Casebook: Are They Still Doing That?

Art Krugler, Brad Buecker, and Alan Rossiter

In the February 2019 Energy Saver column, we asked readers if they had examples on the column's theme, "Why Continue To Do That?" In this newsletter, we would like to pass on two of the responses.

Art Krugler shared an experience from 1951, early in his career. He was a new chemical plant engineer, and relief supervisor on the graveyard shift. His plant included a large tunnel dryer, 80 feet long, which dried an extruded organic sulfur compound. Air entered through side blast gates, circulated over steam coils, and exhausted with evaporated water from the organic compound.

The dryer was a bottleneck in the process, and there was an urgent need to increase throughput by 25%. To meet this need, the company was planning to extend the dryer by 40 feet. This, in turn, required moving grinding, sifting and bagging facilities 40 or 50 feet, as well as extending the plant building and relocating several other major items of equipment. The direct cost of the proposed modifications ran to millions of dollars, quite apart from the added cost of the production losses during implementation.

During one of his night shifts, under orders to keep production at maximum, Art opened two partially closed blast gates, and he was surprised to find the product was wetter. After quickly closing the gates, he then spent the rest of the shift closing all the rest, stepwise, except #1. By the end of the shift, the production rate had increased by 30%! Closing the gates eliminated most of the air from the dryer. Without the air, more of the heat from the steam coils

was available to evaporate moisture from the product. Furthermore, removing the air increased the heat transfer coefficient, which improved the drying rate.

Like many energy-saving initiatives, Art's modification provided numerous additional benefits. In this case, it increased capacity, and eliminated the cost of the revamp project. It also provided immediate benefits, whereas there would have been a 4 month lead time for the revamp. Sadly, though, there was not one pat on the back from management, let alone a reward – though Art comments that it would have been fun to listen to discussion in the morning after his shift!

The second example is from fellow Chemical Processing contributor, Brad Buecker. Several years ago, he and a colleague were called in to investigate an air-cooled heat exchanger (ACHE) that was not meeting startup performance guarantees at a power plant in the Los Angeles area. The ACHE was part of a closed-loop water cooling system for air compressor intercoolers, and the water temperature entering the ACHE could reach 120°F. The main run of the cooling system utilized ductile iron pipe, with carbon steel for the branch lines.

The engineers on site opened some fittings on the ACHE, and found black deposits. They assumed that the deposits were iron, and they contacted chemical cleaning firms for bids on iron removal from the system. However, Brad and his colleague asked them to wait until they could come out and inspect as well. After they arrived, one of the engineers brought in a chunk of the material from a witches' hat strainer on the main circulating line. The deposit was black, but it appeared to be organic in nature, not iron. This was confirmed by dropping the deposit into a cup of the gasoline, where it immediately dissolved. This probably saved \$500,000 to \$1,000,000, by avoiding a chemical cleaning that would not have worked with reagents selected for iron.

So, where did the organics come? The company's standard materials guidelines called for mastic coated, cement-lined ductile iron. Once the plant came up to full power, and the closed-loop cooling water reached maximum temperature, the heat disintegrated the mastic material, which then quickly fouled constricted spots in the system, most notably the ACHE heat exchanger elbows.

The company did, and still does, maintain an accurate list of lessons learned from projects, and this was one at the very top. They were scheduled to install the same piping on another plant in the Los Angeles area, where construction had just started, but were able to make corrections before any pipe had been laid. Well-established chemistry is available to protect iron and steel piping in both closed and open cooling water systems, without resorting to coated materials.

1. Alan Rossiter, "Why Continue to Do That?" Chemical Processing, Vol. 81, No. 2, p. 12, February 2019.

In Closing...

Thank you for taking the time to read along with us. We hope you found the information useful, and that you'll join us at our upcoming events.

If you would like to ensure that you receive all program updates and notices of upcoming events, please subscribe on our [webpage](#). The subscribe button is at the bottom right-hand corner.

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