

	<h1 style="margin: 0;">THE AMERICAN SOCIETY OF</h1> <h2 style="margin: 0;">OF</h2> <h3 style="margin: 0;">Central Oklahoma Section Newsletter</h3> <p style="margin: 0;">Volume 17, Number 3, October 15, 2015</p>	<p>The Section is located at: Oklahoma Engineering Center, 220 Northeast 28th Street, Oklahoma City, OK 73105</p> <p>The Central Oklahoma Section Newsletter is nominally published nine times per year to convey monthly meeting dates, meeting topics, section activities, and/or other ASME information to its membership.</p>
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PROGRAM: "Overview of Corken Regenerative Turbine & Vane Pumps"

SPEAKER: Curtis M. Vickery, Ph.D., P.E., Sr. Engineer, Corken, Inc.

DATE: Thursday, Oct. 22, 2015

LOCATION: Okla. Engineering Center
220 NE 28th St, Room 145, OKC, OK



Regenerative Turbine pumps are unlike standard centrifugal pumps nor are they positive displacement pumps. Rather, they are characterized by liquid flow through a pump inlet nozzle to a pump chamber passageway where liquid flows on either side of a rotating impeller. Fluid is constantly recirculated between the vanes/teeth of the impeller and the pump chamber walls as the impeller rotates. The fluid makes at least one complete revolution about the pump chamber circumference before exiting the pump outlet nozzle. As differential (outlet-to-inlet) pump pressure increases, drive horsepower increases while flow rate capacity decreases.

Vane pumps are positive displacement pumps characterized by a rotor turning in a cam/liner machined eccentrically in relation to the rotor. Liquid trapped between the cam and rotor is moved by vanes that move radially to maintain constant contact with the obround cam surface. These vanes divide the circumference into sections. Pumped volume per revolution is defined by the pump chamber volume, between adjacent vanes, that is isolated from both inlet and outlet.

This presentation provides illustrations to help explain each of these concepts and highlight Corken regenerative turbine and vane pump applications.

Please join us on October 22 for this meeting. Attendees will receive 1-PDH Continuing Education credit!

<p>Time: 5:30PM Meet & Register at the Okla. Engr. Center 6:30-6:45PM: Introductions and Section Business</p>	<p>6:00 – 6:30PM: Meal 6:45 – 8:00PM: Program by Curtis Vickery</p>
<p>Cost for Meal: \$10.00 for Sr. Members, \$5.00 for Student Members. Please place your reservation with John McCachern (Ph: 405-954-1062 (leave message); e-mail: McCachernj2@asme.org) by 5:00PM on Tuesday, October 20. PLEASE furnish the name of each person attending and their affiliation (ASME, etc). If a student, please indicate school/university. If a P.E. please indicate if a PDH certificate is desired.</p>	

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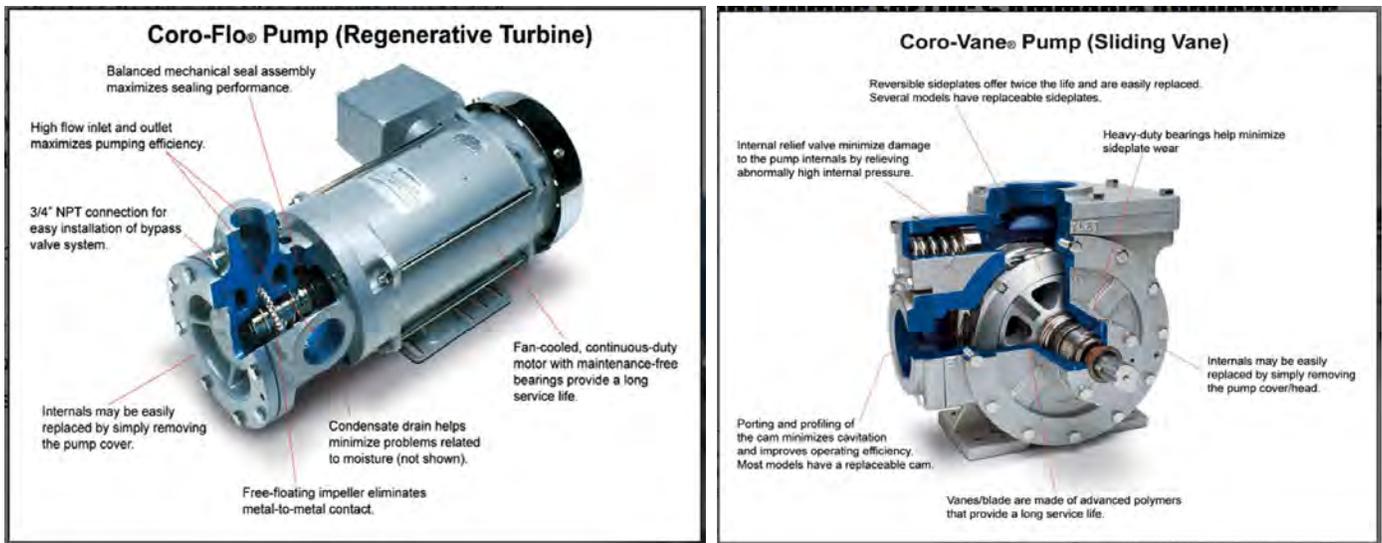


ADDITIONAL OCTOBER MEETING INFORMATION

The Corken Pump and Machinery Company was founded in 1924 by Otto K. and Charles Corken. The liquefied petroleum gas (LPG) market was entered in 1945 followed by the first Corken LPG compressor in 1947. In 1952 Corken launched their first regenerative turbine truck pump. Soon afterward Corken vane pumps were introduced. Today Corken supports a number of vane and regenerative turbine pump lines for both LPG and Industrial markets.

Curtis M. Vickery is a Sr. Engineer with Corken responsible for pump design, new pump product developments, and continuing quality assurance. He is a long-standing member of our ASME Central Oklahoma Section, serving as newsletter editor for many years.

Vickery holds a B.S. degree in Mechanical Engineering (1981), an M.S. degree in Electrical Engineering (1983), and a Ph.D. degree in Mechanical Engineering (1992), all from OSU-Stillwater. His work experience includes stints at Sandia National Laboratories in Albuquerque, NM, Purolator Products. of Fayetteville, NC, Halliburton Energy Services of Duncan, OK, Arvin-Meritor of Chickasha, OK, Cameron Compression of Oklahoma City, and Corken Inc. of Oklahoma City. He and wife Rena reside in Edmond, OK.



NEWS ITEMS OF INTEREST

NSPE Warns: Proposed Model Code Could Increase Litigation Against PEs

(courtesy <http://www.nspe.org/resources/licensure/nspe-protects-your-pe-license>, 9/16/2015)

An effort by the World Federation of Engineering Organizations (WFEO) to address climate change and infrastructure resiliency could create negative consequences for professional engineers, says NSPE.

NSPE believes that the WFEO's Model Code of Practice document is, at its core, a thoughtful document on an important issue: how to address the increasing challenges posed by climate change to infrastructure resiliency. However, the standards and provisions within the draft document could establish a new standard of care for professional engineers that far exceeds the existing duties and responsibilities of the professional engineer.

The Society is urging the American Association of Engineering Societies' representative to the WFEO to recommend that the document be modified to address the provisions that will expose professional engineers to potential increased claims and litigation.

EDITOR'S NOTE: This is not good. Will climate change politics eventually place engineers at risk in their duties?

Bill Schweber ponders the mess Volkswagen has got themselves in and considers the risk you will not be able to trust the data from a trillion sensors. He praises the age-old wisdom of the crosscheck and approaching a result from two or more different directions.

(courtesy EETimes-Europe Publication: http://www.electronics-eetimes.com/en/volkswagen-has-given-engineering-a-black-eye.html?cmp_id=7&news_id=222926249&vID=13&page=0, by Bill Schweber, October 05, 2015)

You are undoubtedly aware of the absolute mess that Volkswagen is in, because they deceitfully and deliberately deployed software that switched between various diesel engine- and exhaust-control management algorithms when the car was on the road versus when it was undergoing formal evaluations on the test bed. The apparent intention was unwind the trade-off between meeting lower emission mandates but at the cost of lower mileage in the tests, yet also do well in mileage results on the road.

Sad to say, many engineers were undoubtedly involved, and that's the kind of ethics black eye that our profession does not need.

I was, however, intrigued by how this scheme was discovered. As noted in an article in *The Wall Street Journal*, "VW Emissions Problem Was Exposed by West Virginia University Researchers," some students and a professor were working on a small grant-funded project to review some diesel-emissions data and they did something basic and obvious: they bought a real car and borrowed some others, hooked up their sensors and instrumentation directly to the tailpipe, and took emissions data from actual on-the-road driving. When their results differed significantly from the official data, they checked again, and that's how the deceit began to unravel.

This brings me to my concern, and it is not just related to cars, VW, or similar situations. We have so much sophistication and complexity in our analysis of signals coming from so many sensors and translated into data that it is easy to forget to ask some basic questions: how do we know this answer is correct? Are there any independent crosschecks we can do? Can we first measure something directly and do a basic analysis of the data, using rough calculations and estimates, to see if the numbers are likely correct?

Had a glimmer of this situation several years ago, when I was a judge at a local high-school science fair. Many of the projects were straightforward, such as growing plants under different lights, or building some mechanical devices; you could follow the chain of reasoning, analysis, and results; there was a certain provenance, you might say.

But there were a few projects where the student had gotten access to very sophisticated lab equipment, and was doing gene sequencing or something along those lines. I wondered: did the student have any grasp of what the likely or right answer should be? Did the student blindly accept the number which the very expensive "black box" spits out, and reach conclusions based on those? Perhaps the instrument is way out of calibration, perhaps its algorithms are faulty, or perhaps it is programmed maliciously to generate random numbers around the nominal answers – who would know?

That's why it's always important to figure out a way to check sensor-based data and results as close to the source as possible, before the fancy analysis, the color charts, and the razzle-dazzle has been added. You could be going off in a very wrong direction and not even suspect it.

This is not a new problem nor is it one that only engineers face. In Einstein's Ph.D. dissertation "A New Determination of Molecular Dimensions" (one of five brilliant papers he published in 1905, including the best-known one on special relativity), he does a complex analysis of motion of particles in liquid diffusion, the kinetic theory of liquids, and more. I'll admit I can't follow his analysis, but I do know how the story ends: after all his equations and conclusions, he takes some well-established data from other researchers on diffusion coefficients of various solutions and puts them into his equations.

The result is a value for Avogadro's number – a parameter not immediately related to the paper's subject – which is very close to the value that had been independently determined by many other techniques through the years. In other words, he was able to verify his intense and unique insight using basic data and an accepted chemistry number.

EDITOR'S NOTE: This is a good case study. By coincidence I'm going through this same situation on torque + horsepower data achieved from torque sensors coupled to an associated display instrument. I've struggled to determine if test data we've recorded were credible or not (instrument set-up related). The solution came when I went back and performed some simple, basic tests to demonstrate indisputable theoretical versus measured findings.

Chesapeake Energy Lays Off 562 in OKC; 740 Companywide

(courtesy <http://newsok.com/article/5450195>)

by Adam Wilmoth, Energy Editor, and William Croom, Contributor, 09/29/15)

The yearlong oil price slump claimed hundreds more victims Tuesday when Chesapeake Energy Corp. laid off 740 employees, including 562 in Oklahoma City.

The job cuts translate into about 15-percent of the company's overall workforce and about 19-percent of the workers at its Oklahoma City headquarters.

"The workforce reduction is very painful to me personally and to the leadership team of the entire company, but we have to take the necessary steps to remain a competitive, profitable company," CEO Doug Lawler said Tuesday in an exclusive interview with The Oklahoman. "We will take the necessary actions to protect our company, to protect our shareholders and all stakeholders, including the businesses in the community."

Before Tuesday's cuts, Chesapeake recently laid off another 60 people, Lawler said.

"The commodity price environment is extremely challenging for our entire industry," Lawler said. "Chesapeake today has had to take some steps towards improving our financial position to meet these challenging times. This is something we are not happy about."

Affected employees will receive 13 to 52 weeks of pay, depending on their age, pay level and years of service with the company. They also will receive continuing health insurance and job placement help.

"These are individuals who have contributed substantially to the success of the company, but the current commodity price environment and stability of the company requires we take action," Lawler said.

Because of the layoffs, Chesapeake expects to face a one-time charge of \$55.5 million in the third quarter, including related employer payroll taxes, the company said in a regulatory filing Tuesday.

After Tuesday's cuts, Chesapeake has about 4,000 employees nationwide, including about 2,500 in Oklahoma City.

"This company will be an enduring enterprise," Lawler said. "We are committed to the community, and we are committed to Oklahoma. But we have to react and respond to be as competitive as possible."

Community reaction: The layoffs at one of the city's largest employers likely will be felt throughout the community, said Roy Williams, CEO of the Greater Oklahoma City Chamber.

"I'm certain this was a very tough decision that the Chesapeake leadership had to make, but with low commodity prices and what's going on in their industry sector, it's not totally surprising they had to do something like this," Williams said. "It's not much consolation for any of the employees directly affected, but the company needs to remain sound. Unfortunately, these actions sometimes have to be taken."

Mayor Mick Cornett said he saw some positives in Chesapeake's continuing with 2,500 employees and the evolving structure of the Oklahoma City economy.

"We have a pretty strong, diversified economy," Cornett said. "There ought to be optimism that most of the people who lost their jobs today should be able to find something else."

'Very bad period': Chesapeake's layoffs on Tuesday may be the most job cuts at one company on one day in Oklahoma City in recent months, but many other local energy companies have cut jobs over the past year. Wall Street analyst Fadel Gheit said layoffs have become part of doing business in many parts of the oil patch.

"The industry is going through a very bad period," said Gheit, an analyst with Oppenheimer in New York. "Nobody knows how long it will last. Management and the board have a fiduciary responsibility to save the ship. Everything is on the table. They have to cut capital spending and reduce costs. A big part of the cost is manpower."

Corporate executives must plan for the industry downturn to continue, Gheit said.

"The industry will have to re-adjust to lower oil prices," he said. "Lower for longer should be the basis for decision-making going forward."

Like most oil and natural gas companies, Chesapeake has slashed its drilling budget and spent most of the past year looking for other ways to reduce costs.

In October 2013, Chesapeake laid off about 900 employees. Chesapeake this year slashed its drilling budget by more than 40 percent and its rig count by 60 percent.

“We have been looking at every part of our business throughout the year. We've made changes at virtually every part of the company,” Lawler said. “It comes down to positioning us for 2016 in anticipation that prices could be very low for a long period of time. The company has to be proactive and respond to that.”

Some of the cost savings have been through asset sales. Chesapeake last year sold \$5.4 billion in assets. In August, it sold oil and natural gas producing assets in western Oklahoma in a deal worth \$840 million. Lawler said the company will continue to consider asset sales if purchase offers are reasonable.

“We are not dependent on asset sales,” Lawler said. “We are not desperate for asset sales. We are doing everything we can to strengthen the financial position of the company.”

Chesapeake is in a strong position to negotiate for fair prices with its asset sales, Gheit said.

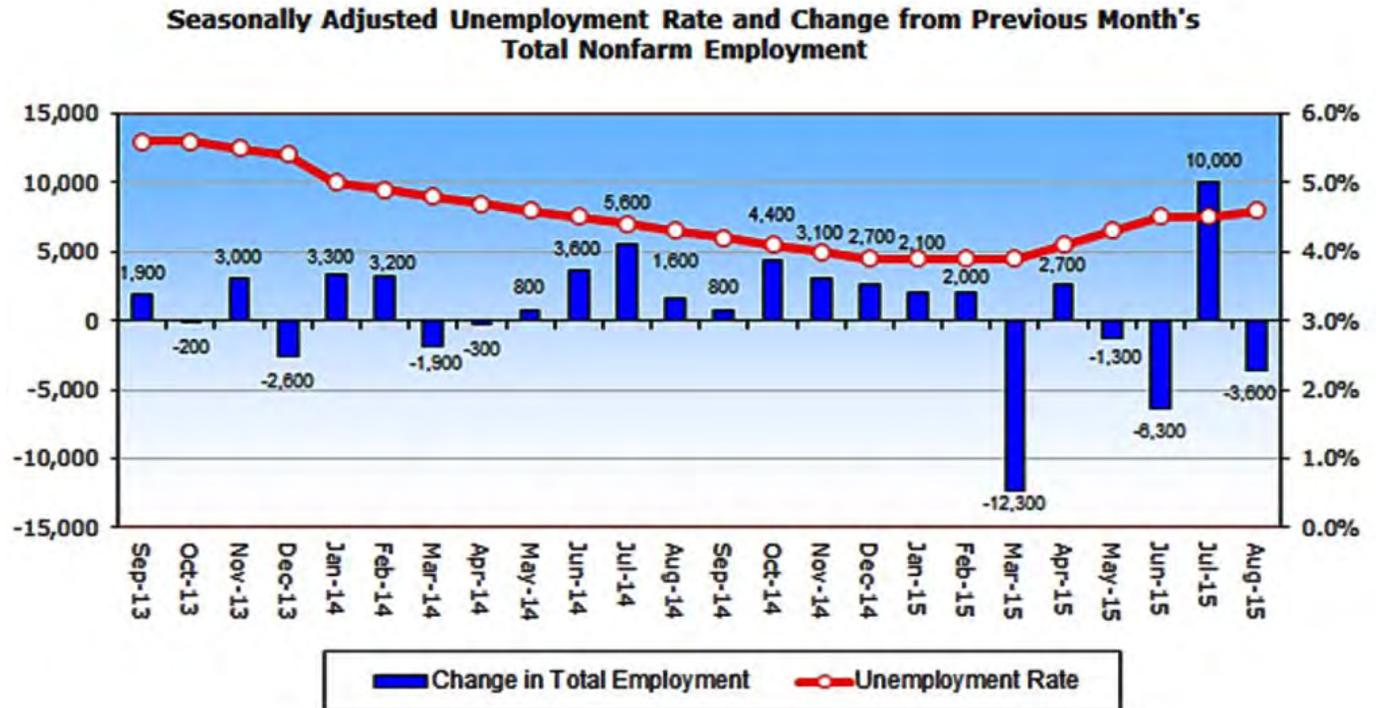
“The good thing is that they have several options,” he said. “They have several businesses and several groups of assets that can be sold for what they consider to be a fair price. Some other companies don't have this option. Chesapeake has at least five different areas they can think of monetizing. Some companies have only one or two.”

EDITOR'S NOTE: Last month our newsletter highlighted Qualcomm lay-offs that affected a number of engineers. Chesapeake Energy lay-offs is a similar situation. We urge all ASME-COS member to be considerate of engineers needing employment in this ever-toughening job market.

Oklahoma Unemployment Statistics from the Oklahoma Employment Security Commission

(courtesy http://www.ok.gov/oesc_web/Services/Find_Labor_Market_Statistics/index.html)

These are the latest Oklahoma unemployment statistics that do not include the Chesapeake Energy numbers.



Oklahoma City Joint Professional Networking Event is Upcoming November 12

ASME Central Oklahoma Section members are invited to join others in the first Oklahoma City joint professional networking event hosted by Oklahoma Gas and Electric at Johnny Carino's Restaurant at I-240 and Walker.

OG&E will be giving a presentation and will provide information regarding available opportunities, including internships and entry level opportunities.

Unfortunately registration is limited due to the size of the available meeting room and will be first come first serve.

The presentation will be Thursday, November 12th, and will begin promptly at 5:00PM, doors will open to the meeting room at 4:30PM. Please plan to arrive before 5PM. Appetizers will be served prior to the presentation.

Please register at <https://meetings.vtools.ieee.org/m/36616>

IEEE members are asked to use their IEEE number when registering. Guests from other professional organizations are asked to use their respective organization membership number when registering (OSPE, ASME, OEF, etc).

A list of currently posted jobs at OG&E can always be found publicly at the OG&E website, www.oge.com.

A direct link is provided below to the currently posted career opportunities.

https://oge.silkroad.com/epostings/index.cfm?fuseaction=app.allpositions&company_id=16164&version=1

If you are a member of a company interested in hosting a future networking/recruitment event for the local Oklahoma City professional organizations, please contact me at ryanmusgrove@att.net.

Thanks, Ryan Musgrove, IEEE OKC Section Chair

Chair's Corner

To those who were able to join us for last month's Scott Meacham presentation on *the Innovation to Enterprise [i2E]* task force initiative started by the state of Oklahoma – what an informative meeting. In case you missed it, there will be another chance to see the newly remodeled Oklahoma Engineering Foundation [OEF] offices this month when Curtis Vickery will discuss current Corken pump designs.

All ASME-Central Oklahoma Section members, SWE Section member, AIAA Section members, students, and guests are welcome to join us.

In addition I am asking all Central Oklahoma Section members for a favor. We are currently in the process of updating our online email address roster. **When you send your reservation for this month's meeting (or provide this without RSVP ...)** would you please indicate if you wish to be on the email newsletter mailing list or not. If you wish to be included, please indicate your preference of email (or other means of contact) address. Thanks.

Tom Betzen, Chairperson, ASME Central Oklahoma Section

Future ASME-Central Oklahoma Section Events

Date	Location	Program Topic and Speaker
Thursday Oct. 22, 2015	Okla. Engr. Center 220 NE 28th Street, OKC	Speaker: Curtis M. Vickery, Corken, Inc. Overview of Corken Regenerative Turbine and Vane Pumps

Please visit our Section website:

https://community.asme.org/central_oklahoma_section/default.aspx

IT'S BEEN REVAMPED. Check event updates and other useful information!