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# CSEA NEWS & VIEWS

The Official Newsletter for the California Society of Environmental Analysts

## WELCOME!

Welcome to the inaugural edition of the California Society of Environmental Analysts newsletter!

As written by Louis Sullivan, "form follows function" applies to many things, including the California Society of Environmental Analysts. Not unlike architecture, the building of a society requires first, a real need, then someone motivated to kick off the idea (thanks Carolyn!), and a group to assemble the pieces.

As we assemble the pieces and bring the society to life, we realize that our society exists and continues due to its members and for as long as it is valuable to its members. The CSEA Board of Directors encourages each of you to participate actively. Become a member! Share ideas and thoughts. Ask questions - none is too small or too dumb. All of us, every member, has asked a thousand questions in and around the laboratory, and if smart, will ask a thousand more.

Read on to learn more about our organization's history and mission, meet some key members of our analyst community, and gain some practical guidance for analysts.

## THE CSEA STORY

### Written by Carolyn Ruttan, CSEA President

I have the honor of being the President of the California Society of Environmental Analysts. I live in very rural Lake County, California (<100,000 population), and yet because we are spread out, we have 90 Public Water Systems and umpteen NPDES discharge permittees. And all these water and wastewater systems are regulated, so they need regular, frequent, environmental monitoring. Who was doing the testing in Lake County that has no public health lab? There was no one until I proposed to my nonprofit Board of Directors "let's open up an environmental lab." That was August 2018. Being a degreed scientist and having worked in an academic research lab, and knowing a little bit about water quality analysis during my tenure for county government (Water Resources), I was optimistic. But being a retired individual, before entering a new profession, I needed to do a ton of research because I needed to do this right... the first time.

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INSIDE THIS ISSUE:

## THE CSEA MISSION

Share ideas, experience, and resources to advance professional development for lab analysts so that they can provide the analysis and interpretation of environmental data of the highest quality.

## THE CSEA VISION

- Commit to continuous enhancement of the validity of environmental data
- Promote the integrity and ethics of the profession from collection and analysis to interpretation and reporting of environmental data
- Strengthen customer trust in analytical data
- Develop mutually beneficial relationships among professionals through networking
- Provide a forum for the exchange of information representing lab analysts' interests
- Raise public awareness of the profession
- Enhance communication between the lab analysts' profession and policy-makers
- Represent the California lab analyst at the national level with subjects such as accreditation
- Increase the resources available to improve a lab's efficiency, ability, and cost effectiveness
- Act as a liason between regulatory agencies and membership
- Provide mentoring to members
- Evaluate new analytical methods and procedures

*Connect with the CSEA Community!*

https://www.calanalysts.org

# THE CSEA STORY, CONTINUED

Not only was my nonprofit extremely supportive both with finances and time, my new professional colleagues were extremely supportive. I was able to visit labs far afield, from tiny (one-person) to very large, and see environmental analysis in action. I went to my prospective clients and they were urging me to open a lab. The first place I looked, for knowledge and some level of expertise, was to professional organizations, but I found nothing specific for lab analysts. Thankfully, I did find CWEA (California Water Environment Association) an organization whose mission is to inform and educate the wastewater treatment industry. Most municipal wastewater plants of large capacity have in-house laboratories and CWEA's Lab Committee is an active part of that association. I began attending every event put on by the Committee including a workshop and a series of five trainings on TNI 2016 for lab analysts.

Just as I was entering the profession, the state's accreditation system for environmental laboratories was being turned upside down. The current system was broken and the suggestion from California ELAP (Environmental Laboratory Accreditation Program) was to adopt a well-known, national system, TNI 2016. The CWEA trainings, conversations with workshop presenters and fellow lab analysts shaped by appreciation of this little known profession I was about to join. At the same time, I was stunningly aware of a gaping hole in knowledge, information, and ideas-transfer among members of the profession. There was no communication platform for the profession, no way to share tips of the profession, no place to get advice or keep up-to-date, no way to share auditing experiences, no place to exchange views or thrash out ideas, no way to showcase this rather unknown profession.

> *"Just as I was entering the profession, the state's accreditation system for environmental labs was being turned upside down [...] At the same time, I was stunningly aware of a gaping hole in knowledge transfer."*
>
> -Carolyn Ruttan, CSEA President

I was grateful, from my one-person lab perspective, to have been able to attend the TNI 2016 workshop in February 2019, but how many labs in California didn't? At the time, I didn't know the history of the accreditation system in California, but I thought it was strange for California to have to reach out to Illinois, Kansas, and Florida to get a TNI 2016 perspective on lab activities. This is when I was introduced to the Florida Society of Environmental Analysts by their President, Robin Cook, and realized the common platform I was searching for existed in another state - it was a professional society for environmental analysts! And it was clear that I needed to create the California Society of Environmental Analysts (CSEA) for all environmental professionals engaged in any part of the collection, analysis, and interpretation of environmental data.

The next part was easy since I have formed two active nonprofit organizations in California. CSEA is a 501(c)3 with federal and state tax exempt status. We are a membership driven society with an amazing Board of Directors all seeing our profession from a little different perspective.

# DID YOU KNOW?

## COMMON AUDIT FINDINGS

### Written by Rachel Van Exel, CSEA Vice President

By now, I'm sure you're all aware of the new California ELAP regulation and have navigated to the Roadmap to ELAP Accreditation page for information on the new standard and the timeline for implementation. For some of you, this may create a significant impact on your daily activities and you're wondering where to start. Certainly, it makes sense to read the new ELAP regulation and note what modifications you may need to make in your lab. But what changes do you prioritize? You may want to begin by addressing the areas identified during initial accreditation audits as the most commonly deficient.

**Among the numerous resources available** to help your lab prepare for accreditation to the new standard are those specific to common audit findings. For example:

- Article on Top 10 Onsite Assessment Findings by TNI - https://tinyurl.com/yy6pj6fw
- Presentation at the 2007 TNI Conference on Common Assessment Findings https://tinyurl.com/yy4b3we7
- White paper on ISO 17025 Top 10 Deficiencies by A2LA - https://tinyurl.com/y5tutwsf
- Free videos available through the IAS website - https://tinyurl.com/y36co85e
- Free video on top audit findings through the PJLA website - https://tinyurl.com/y4jm5hs9

**We've reviewed these, and audit reports from our own labs, and want to share some highlights with you.**

You might be surprised to learn that in the 2017-2018 assessments, conducted by NV5/Dade Moeller & Associates, of 68 drinking water laboratories, 75% of the findings were associated with technical deficiencies, namely method deviations. Only 25% related to quality assurance requirements.

**Examples of method deviations include:**

- Not verifying weight values via repeated heating and weighing during total solids determination
- Varying a specified reagent, such as not including sodium chloride in reagent recipe for sodium chloride-hydroxylamine hydrochloride used in mercury analysis
- Also for mercury analysis, after adding potassium permanganate to the samples, not waiting the full 15 minutes for color development and persistence will land you an audit deficiency.

Not surprisingly, most findings have an aspect of documentation. For the method deviation examples above, if each of the required actions were performed, but not recorded, they would still warrant audit findings. **Remember, if it isn't documented, it didn't happen!**

Speaking of document control, did you know that spreadsheets must also be controlled? Which ones and how exactly? If you join CSEA as a member, you can check out the CSEA Forum on Audit Findings for more information on this topic.

Remember, audits drive continual improvement. As the saying goes, no one is perfect. Ergo, no lab will ever be perfect. However, as you strive for zero audit findings, here's a tip: if you implement improvements in preparation for an audit, be sure to document them so you can take credit for preventative action.

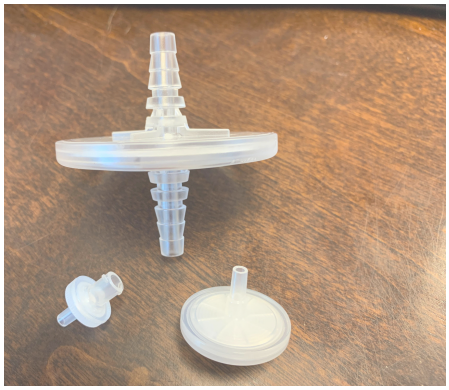
Ultimately, if you want to be certain that your lab is sufficiently capturing "all information necessary for the historical reconstruction of data," join CSEA and participate in the discussions about Lab Accreditation and Audit Findings. We can help each other grow!

# TIPS & TRICKS

Check out this clever incubator hack... a metal book stand to organize your Quanti-trays!

## CHOOSING THE RIGHT SYRINGE FILTER

**Written by Robert Benz, CSEA Board Member**



Syringe filters are a common consumable around many labs. However, they are often a consumable we take for granted and know nothing about. Read on to learn more about some common types. More to come in future newsletters and in the CSEA blog.

### PVDF - Polyvinylidene Fluoride

- **Hydrophobic**
- **Excellent for HPLC and GC sample preparation and clean up for protein-based samples due to broad chemical compatibility, low protein binding and low UV absorbing extractables.**
- **Can be used for filtering alcohols, weak acids, proteins, peptides, and other biomolecules.**
- **Strengths: High flow rates for biological sterilization and clarification**
- **Weaknesses: Strong acids**

### Nylon

- **Hydrophilic**
- **Appropriate for aqueous or mixed organic sample prep and HPLC, GC, or dissolution sample analysis including bases, most HPLC solvents, alcohols, aromatic hydrocarbons, and THF.**
- **Strengths: Excellent flow rates with most sample matrices and extremely low extractables; very good with 10% ethanol solutions**
- **Weaknesses: Not for strong acids, strong bases; high binding capacity for proteins, DNA and RNA (not recommended for serum or protein rich media)**

# MEET THE BOARD

## CSEA VICE PRESIDENT

## Rachel Van Exel

Welcome to CSEA! What brings you here? Me, it probably started in third grade when my teacher taught us all about the ocean ecosystem, took us whale watching, let us sample various tropical fruits (mango was my favorite), and introduced us to Greenpeace. As a result, I just knew I had to help save the earth. In high school, after scuba diving off a catamaran, I decided I wanted to work on a boat, possibly be a marine biologist for Greenpeace. Following college, I started with what was acessible and landed myself a lab analyst position at a local environmental laboratory, Del Mar Analytical (now Eurofins Calscience) in Irvine.

While an analyst, I educated myself on inorganic analyses (wet chem, IC and various metals instruments) by reading published methods and assisting with some method development - perchlorate for example, was a hot topic in the late 90s. Another hot topic was the new national accreditation opportunity, so the process of going through NELAP accreditation was my introduction to management systems. Though I enjoyed my increasingly complex analyst responsibilities, when I was encouraged to apply for an open project manager position, I gave it a try. As a project manager, I gleaned what knowledge I could from analysts in other lab sections, company lunch and learns, and event clients themselves. The internet wasn't yet a wealth of information, so when I wanted to better understand the technicalities of various sampling methods, I took a course in environmental sampling and analysis from UCI.

Over the years, I discovered that I truly enjoyed working with the LIMS: during the initial LIMS implementation, I'd volunteered to serve as a super user for the inorganic group, configuring analyses and instrument connections with the LIMS. In 2003, I was hired by OCSD to implement a statistical process control module for their LIMS. As a LIMS admin, I still relied on reading publications (i.e. software manuals) and attending in person conferences to learn the latest tips and tricks. Fortunately, the LIMS vendor provided an email discussion list where users across the globe could ask and answer questions about how best to configure the software to meet specific goals and requirements. This became a valued resource and is part of the inspiration for our CSEA member's forum. **Continued on page 8.**

# Q & A CORNER

**We asked Robin Cook, President of the Florida Society of Environmental Analysts (FSEA), to share her thoughts on creating a valuable society.**

**Q:** What did you do to get FSEA up and running and to the active society that it is today?

**A:** FSEA was started in 1979 with a goal of being a lobbying group initially. Our founders wanted to be able to collectively comment on the rule-making happening at the time. In 1979, labs really had no other voice in the process of rule interpretation or standard writing. The scientists in the group wanted to address how the data was being used as well. They wanted to make sure the policies with regard to labs and how the data was being used were based on sound science rather than these things being set without anything other than a literature review. For example, even now there are regulatory limits being set on some analyses and we do not yet have the technology to see that low. That was a bigger problem in 1979. So we have always had the goal to foster communication with labs.

**Q:** What support do you give your members that is most valued?

**A:** We provide an open forum to all of our stakeholders. We have consultants, labs, data users, utilities, municipalities, ABs, students, and any other interested party as part of our group. We are not afraid to ask the tough questions and in fact have been rather critical of our assessors and data users from time to time. However, we also make a point to make them feel very welcome and accepted in the group. Often times, they will reach out to us to help them spread the word when things change. We hold regional workshops throughout the State to address some of the most requested topics. We also provide TNI as well as operator CEU compliant training to our members as well.

**Q:** Because lab analysts are considered essential workers during COVID-19, have your labs instituted COVID-19 plans?

**A:** We have not instituted an organizational plan for COVID-19, but as a large number of our members are with municipalities, they have plans in place. We have adopted some changes in our process, but our hope is these changes are a temporary measure while in the current situation.

# MEET THE BOARD, CONTINUED

Working with the LIMS introduced me to computer programming, something I didn't know I'd love. As the state rolled out the new electronic SMR/DMR requirements (based on the UST EDF, with which I was familiar with from my days at Del Mar Analytical), I happily volunteered to serve on the user group that guided the development of the database tools for importing data to CIWQS.

*"Many times I found myself wanting to ask a sister laboratory for advice [...] I'm so optimistic that the CSEA member's forum will soon meet this need and serve as a valuable resource to us all"*

-Rachel Van Exel,
CSEA Vice President

As much as I loved the LIMS work, 2007 brought a bigger love to my life: my first child. Telecommuting was... and then wasn't an option, so I took a left-turn and took a part-time position in biosolids management for the compliance group. This was my introduction to biosolids management systems, ISO14001, and the National Biosolids Partnership certification. Despite my previous exposure, I had no idea how all-encompassing a management system is until I was responsible for administering it. At times, I reached out to sister agencies for information on how they'd approached a specific requirement of the standard.

In 2017, as the OCSD laboratory prepared itself for NELAP accreditation, I returned to the lab's quality assurance team and began re-immersing myself in the world of laboratory management systems and NELAP/TNI. The past few years have been spent delving into the TNI standard and working with my colleagues in the OCSD laboratory to implement preventative and corrective actions to better ensure the quality of our data. Many times, I have found myself wanting to ask a sister laboratory for advice but didn't have many connections to turn toward. The couple conferences I was fortunate to attend in the past year have helped me make some progress in that regard. In particular, the FSEA presentation at last year's NEMC is what moved me to form CSEA, in hopes that all of us in California (and beyond) have a way to reach out for help or share a cool idea. I'm so optimistic that the CSEA member's forum will soon meet this need and serve as a valuable resource to us all.

**We've created the Getting Started category in the forum for introductions. Please check out this section on the CSEA website, and tell us about yourself. What brings you here? I want to know!**


**Is there something you'd like to see in the next CSEA newsletter? Let us know! info@calanalysts.org**