

Environmental NEWS

Spring 2013

*New 6,000 square-foot VOAS Laboratory;
see page 3 for expanded capabilities*

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Lancaster Laboratories
Environmental

What's in a Name?

Viewpoints



by J. Wilson Hershey, Ph.D., Chairman of the Board

In Shakespeare's play, Juliet asks Romeo "What's in a name? That which we call a rose by any other name would smell as sweet?" Names are an important part of our identity as individuals or as a company. My wife has researched the history of our two families, tracing them back nearly 500 years to particular towns in Europe. Names and brands are particularly useful in the business world.

During the last 18 months, each of our Eurofins US environmental labs has changed their name to include Eurofins' name. We have also retained the labs previous name (when allowed by the former owner) as a symbol that the laboratory remains the same as it was from a client perspective.

Effective July 1, Lancaster's Environmental Group will add environmental to its name and be known as Eurofins Lancaster Laboratories Environmental, LLC, as part of the transition of our Environmental and Bio/Pharmaceutical divisions into separate legal entities. Our Environmental Company will be jointly owned by Eurofins Lancaster Laboratories, Inc., which owns our Bio/Pharm Company, and by Eurofins Environmental Testing US Holdings,

Inc., which owns Eurofins Air Toxics, Eurofins Eaton Analytical and Eurofins Frontier Global Sciences.

There are no other significant changes in management or workforce anticipated and no significant changes in policies and procedures. All existing environmental employees will become part of this new company, which will be headed by Vice President Duane Luckenbill, who has been with us for 24 years (see sidebar), and The Executive Leadership Team will remain the same. I will continue as Chairman of the Board of each individual lab as well as Eurofins Environmental Testing US Holdings, Inc.

Further, we will work with your contracts and accounts payable departments to reassign contracts to the new entity and to provide all the necessary details. Most of all, though our Environmental Division will change its name and become a separate company for legal requirements, from a day-to-day standpoint, we'll be operating as we've done previously.

Enough about names. What is really important is the quality and service level that each lab can provide, and I invite you to read the rest of this newsletter, which has been expanded to 12 pages and now covers news from all Eurofins US environmental laboratories.

Contact us

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717-656-2300, ext. 1835
slwike@lancasterlabs.com

Luckenbill promoted to VP



Duane Luckenbill has been promoted to Vice President of Eurofins Lancaster Laboratories US Environmental. In his new role, Duane will lead the management of the Environmental Group's day-to-day operations at the Lancaster, PA, site and will also collaborate with other Eurofins US environmental companies to expand national testing capabilities and grow market share in the US.

Luckenbill oversees all aspects of financial, personnel, and operations management of all technical areas, Environmental Quality and Compliance, Computer Application/Development, and Environmental Support Services while continually focusing on client satisfaction, safety, and quality systems administration.

Luckenbill began his career with Lancaster Laboratories in 1989 as a chemist in the GC/MS Volatiles Group.

Expanded new laboratory increases efficiency of Volatile Organics Analysis

Analysts performing testing for volatile organic compounds in environmental samples started the new year by moving into a new laboratory space. Located on the first floor of the Eurofins Lancaster Laboratories Environmental south campus, the new facility was designed to increase productivity and use space more efficiently. The redesign was so successful that there is room for expansion even though the total square footage used for testing and sample preparation has been reduced.

Prior to the relocation, there were multiple areas on the north campus where personnel and instruments dedicated to volatile organics testing were located. Those resources were physically divided by the type of sample submitted and testing technology used. Samples for gas chromatography (GC) testing went to a laboratory on the first floor; air samples for volatiles testing went to a laboratory on the second floor; and samples needing gas chromatography/mass spectrometer (GC/MS) testing went to yet another area. The move consolidated all the analysts and their equipment into one efficient space. Twenty-two GC/MS units and 10 GCs dedicated to water and solid testing were installed. Instruments configured to analyze air samples, including three GC/MS and two GC units were also relocated to the new space. An additional instrument was purchased to round out these testing capabilities. In addition to the various chromatographs used for testing, the analysts share the auxiliary pieces of equipment needed to support volatile organic testing, such as refrigerated storage, balances, sample preparation benches and exhaust hoods. A service corridor adjacent to the instrument room contains many of these items, streamlining the sample flow. Even the laboratory benches are designed for efficiency. Each instrument is installed on a modular bench which allows them to be isolated when service or maintenance is required.



Kerri Legerlotz, a Senior Chemist in the GC/MS Volatiles Department, analyzes water samples by method 8260C.

Pooling the human resources used for volatile organics testing has proved to be beneficial as well. “Having all the analysts and auditors together in one area provides more flexibility,” says Rick Karam, Manager of GC/MS testing. “By cross training, we can move people as the workload shifts, and there’s better communication between them because they’re all together.”

Despite the scope of the consolidation, the entire laboratory move was accomplished without impacting sample flow. Contamination of samples, leading to false positive results for volatile organics analysis, can be a problem if the laboratory environment is not carefully controlled. Like the areas they replaced, the new laboratories employ positive pressure air handling equipment to prevent sample contamination caused by chemicals used in adjacent laboratories. Since it’s across the street, the new location also has the added benefit of being farther away

from the extraction laboratories, which can be a source of volatile organic contamination. The entire move was detailed in a change plan aimed at controlling all the variables involved. Quality Assurance personnel were involved in reviewing the plan, as well as the results generated by testing the air and water in the new laboratory. Each instrument was decommissioned prior to moving and then requalified once installed on its new bench. “Our clients would never know that we moved the lab. There was no disruption of service because of the redundancy of instruments available,” Karam stated. He added that the efficiency gained with the new laboratory resulted in additional space reserved for future growth.

For more information about volatile organic testing, contact Environmental Business Development at 717-656-2300.

Why it's easier to work with us

Data Packages & Electronic Data Deliverables now available on LLabWeb.com

We continually aim to improve our online data access tool, LLabWeb, to provide a timely, user-friendly way to access project data. This includes providing a secure window to extensive, live project information such as submitted samples, chains of custody, sample receipts, document logs, final reports and invoices.

And now LLabWeb offers electronic data deliverables and data packages directly through our online portal, as well as a unique search and filter feature for ease of navigating through project information.

Due to extremely large file size and confidential nature of its contents, data packages were previously burned to CD and mailed to the client, which typically takes up to two or three business days. Now, data packages are available for download through LLabWeb, saving the client valuable time. Like data packages, EDDs are also now available online. We customize the data in the client's preferred format then upload the report to LLabWeb for easy, secure, real-time access.

The screenshot displays the LLabWeb.com user interface. At the top, there is a navigation bar with links for Home, Groups, Samples, Analyses-Simple, Analyses-Detail, Contacts, and Cost Summary. A search and filter section includes dropdown menus for Account (Lancaster Laboratories (#00649)), Project (ALL), and Submittal Date Between (3/19/2013). Below this is a table with columns for Documents, Client, Project, Group #, Sample Range, Submittal Date, Reporting Date, PO #, Quote #, Release #, and SDG. The table contains 13 rows of data, including entries for DI Water Sampling, Leachate Blanks, Biweekly and Monthly Storage Blanks, and Preservation Blank. A 'Data Packages' label with an arrow points to the first three rows of the table.

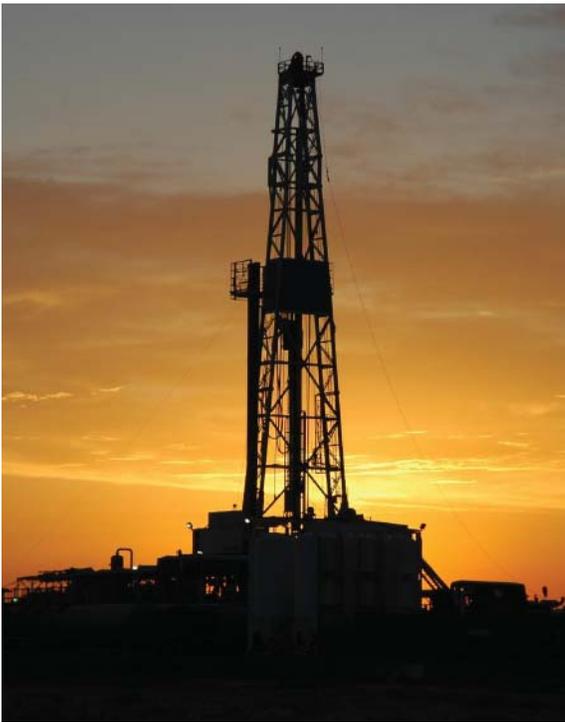
View timely analytical data through Eurofins Lancaster Laboratories' secure online portal, LLabWeb.com.

LLabWeb also has a new search and filter feature that allows users to search for their data by sample number or submittal group number from any page in the site. Whether on the home page or viewing an analysis report, users can quickly find information about current or past projects by entering one or more sample numbers or group numbers to find project information.

Enabling clients to access data packages and EDDs through LLabWeb provides the most efficient and confidential way to access data. And the new search feature makes the process even easier and more convenient for

users. To access LLabWeb, clients log onto the site and request an account. Their client service representative will activate the account and manage the permissions for the users. Once the account is established, clients will be able to manage their own profiles (including passwords) and access data through a secure web-based interface. Data will be available as soon as it is approved by the analyst.

For more information about LLabWeb, contact your client service representative at 717-656-2300.



Shale oil & gas capabilities expand to meet sample pickup and regulatory demands

legally defensible data support are paramount to meeting regulatory criteria and protecting customers. Irrefutably, Eurofins Lancaster Laboratories Environmental is the largest single-site environmental lab in the US and essentially in Marcellus Shale's backyard. And the Lab's expanded courier service enables extended services to those clients drilling the Utica shale regions.

Dissolved gas analysis, in particular methane, has become a regulatory driven critical indicator in the shale gas industry. More than 850 technical and support staff members working 24/7 with three shifts of operation allow Eurofins Lancaster Laboratories Environmental to deliver accelerated 24-hour turnaround time analysis of dissolved gases, includ-

ing methane, as well as provide results, reports and electronic data deliverables within the 24-hour time frame.

Eurofins Lancaster Laboratories Environmental's team of experts has also participated in several studies, both client driven and on its own efforts, to evaluate the variability of methane analytical results due to various collection techniques and analytical methods. In addition, the Lab has implemented SW846 8321 for glycol analysis using LC/MS/MS, looked at the analysis of gas condensate samples for salinity determination and has studied glycols and other "contaminants" in cement and well construction materials for various clients. With 50 years of environmental testing experience, Eurofins Lancaster Laboratories Environmental offers a comprehensive scope of analytical testing services and technical expertise to serve the most challenging and timely needs of the shale gas industry.

Christine Jampo, Environmental Senior Account Manager

Eurofins Lancaster Laboratories Environmental services continue to evolve for shale gas clients as their needs and drilling locations expand. Courier services from western Pennsylvania, eastern Ohio and West Virginia are now part of the value added services for clients who have sample analyses with short holding times. Courier service includes pick-up of samples and expeditiously transporting them to Lancaster for analysis within the required holding time.

As the exploration and development of natural gas wells has progressed, Eurofins Lancaster Laboratories Environmental has expanded services to meet client's needs. With the national upsurge in shale oil and gas exploration and development, in particular the Marcellus and Utica shale, the Lab has expanded capabilities and services to meet both regulatory and client requirements. Regulations in Pennsylvania, Ohio and West Virginia require all water sources that have the potential to be utilized by humans or domestic animals, and located within a range specified by each state in relation to the proposed well pad, be analyzed for parameters specified by each state prior to the commencement of drilling. Pre-drill survey evaluations, emergency response, 24/7 analytical testing, rush turnaround and

Disaster emergency testing support at your fingertips

When an untimely disaster strikes--whether human error or Mother Nature doling out a wicked punch--Eurofins Lancaster Laboratories' Emergency Response can solve your most daunting environmental testing challenges 24/7.

By dialing 717-556-7300, you'll immediately get an expert disaster response team who can deliver sample containers, emergency TAT lab testing, online reports and electronic data deliverables backed by an unmatched breadth of capabilities, three-shift capacity, and regulatory compliance.

For soil, water and air--in collaboration with West Coast sister lab Eurofins Air Toxics--contact the industry's first choice in environmental testing support of stray gas, petroleum spill, pipeline leak, or natural disaster concerns. Just a phone call away, let Eurofins Lancaster Laboratories Environmental eliminate your disaster testing worries.

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Call us 24/7 for your emergency environmental concerns.

Eurofins Air Toxics & Eurofins Frontier Global team to support US-based Consumer Product Testing clients

by Stephany I. Mason, Ph.D., Vice President, VOC Materials Testing, Eurofins Air Toxics

The acquisition in 2012 of Eurofins Air Toxics Laboratory (EATL) and Eurofins Frontier Global Sciences (EFGS) opened the door to the development of a US-based division for Eurofins' Consumer Product Testing (CPT). The USCPT will complement Eurofins' CPT testing in China and the EU. The development of the USCPT is a natural offshoot from EATL's and EFGS' current markets and testing focus. EFGS is an advanced research and analytical laboratory specializing in lead and other heavy metal analyses. The EATL test lab is well equipped, with 23 GC/MS, nine GC, two HPLC instruments, and a spectrophotometer, performing a wide variety of analyses, including volatiles, semi-volatiles, pesticides and PCBs. The development of USCPT will begin with accredited tests for lead and other heavy metals in substrates and surface coatings, phthalate content, and formaldehyde content and off-gassing. These tests will meet the CPSC and CA Prop 65 requirements for toys, textiles, and other consumer products. EATL and EFGS will work in collaboration with Eurofins Consumer Product Testing – China, to build and grow this business in the US.

The creation of USCPT utilizes EATL's and EFGS' current staff and equipment, with minimal initial investment in labor or materials. The USCPT market is also complementary to EATL's VOC emissions work as both are focused on the chemical impact of products and materials, adding content capabilities to emissions capabilities. As a result of the growth of the green building and safer product industries, many manufacturers interested in both chemical content and emissions data for the same products. It should be noted that the CPT industry is largely regulation driven with continual testing requirements. As regulations do not tend to go away, but rather become enhanced, the potential growth for this

consumer product market is potentially very large. The EATL/EFGS collaboration would have the benefit of being the only CPT test lab located on the West Coast.

Eurofins Consumer Product Testing – China has identified clients ready to start testing with EATL/EFGS once all

of the accreditations are in place. This includes ISO 17025 accreditation and CPSC approval for lead, heavy metals per ASTM F963-11, and phthalates, and ISO 17025 accreditation for formaldehyde content and emissions testing. These accreditations are planned to be in place in Q2 2013.

New Service Center in Seattle-Tacoma Area supports sample pickup needs

Eurofins recently opened a new Service Center in Bothell, WA, to serve clients in the Seattle-Tacoma area. Located at the site of Eurofins Frontier Global Sciences, the new SeaTac Service Center (STSC) offers sample pickup and drop off, as well as sample kits and supplies for both its Lancaster Laboratories location and Eaton Analytical drinking water laboratory.

This Service Center is stocked with sample containers, labels, chain-of-custody forms and custom sample kits for all sampling needs. Project managers will process sample container orders in preparation for delivery to the desired site or for pick up at the Bothell location. Then, a courier, trained in sample handling and chain-of-custody procedures, will pick up the samples for overnight delivery to the laboratory in Lancaster, Pennsylvania, or Monrovia, California, at no cost to the client.

Staff can pick up pre-packed, chilled sample containers, or can also pack samples on ice in coolers for shipping. The Pearce County Cooperative, an association of drinking water agencies, selected Eaton for their UCMR3 program, based on the ease of sample drop off at the Service Center. All seven of the participating utilities are utilizing this service. Bellevue, WA, is also enjoying the convenience of the Service Center already for its UCMR3 testing.



Regular courier service is available anywhere within the area shown on the map below between 9 a.m. and 3 p.m. Special pickups can also be arranged outside the standard pickup area, or regular pickup hours, for an additional fee based on time and mileage. Contact Vince Yu at 425-419-7406 to schedule a pickup for your next project.

SeaTac Service Center (STSC):
Eurofins Frontier Global Sciences, Inc.
11720 North Creek
Parkway North
Suite 400
Bothell, WA 98011

Eurofins Air Toxics earns ISO accreditation for new environmental chamber VOC emissions testing

by Stephany I. Mason, Ph.D., Vice President, VOC Materials Testing, Eurofins Air Toxics

Eurofins Air Toxics (EATL) has successfully achieved ISO 17025 accreditation for its new environmental chamber testing facility in Folsom, California. Last year, Eurofins acquired Air Toxics, the largest air testing laboratory in the world, to provide a broader range of services to customers. Achieving accreditation strengthens Eurofins' market position as a worldwide leader in providing environmental chamber testing services. Environmental chamber volatile organic compound (VOC) emissions testing will support Eurofins Product Testing NA, a new division of EATL. The new Product Testing Division leverages EATL's existing expertise in chemical analysis using gas chromatography/mass spectrometry (GC/MS), high pressure liquid chromatography (HPLC), and UV/VIS spectrophotometry to the assessment of VOC content and emissions of building and consumer products and materials. Since 1989, Eurofins has been a European leader in providing chemical testing services for manufacturers. By combining this experience with established analytical capabilities, new emissions testing facilities and quality service, Eurofins Global Product Testing will be a strong partner for customers.

EATL's environmental emissions test chambers are non-contaminating, non-absorptive enclosures made of polished stainless steel with defined volumes and controlled air flow rate, temperature and humidity. The amount of a material loaded in the chamber relative to the chamber volume, the loading factor, is optimized to produce a value close to the ratio found in typical buildings. Thus, the chambers are designed to mimic a typical indoor environment, such that the results obtained from chamber testing can be extrapolated to real buildings.

Environmental chamber testing has been used since the mid-1980s to assess the contribution of chemicals to indoor air from products and materials used to create, finish, and furnish the built environment. The confluence of consumer complaints about odors and

irritation from carpet, carpet cushion and furniture and the increase in "Sick Building Syndrome" from occupants of newly constructed buildings led to the development of chamber testing to identify and isolate chemical sources to the indoor air. The objective of environmental chamber testing is to determine the mass of identified VOCs emitted per

unit area/mass/volume of product per unit time prepared specimens of building materials and products. This is known as the specific emission rate (SER) or emission factor (EF). Clean air is input into the chamber and picks up chemical emissions from the product undergoing testing. These emissions are captured in sorbent media samples on the outlet of the chamber. Since the chamber is fully mixed, the VOC concentrations measured at the exhaust are representative of the concentrations in the chamber. Chamber testing is performed following the guidance and requirements of ASTM and ISO standards.

The new Product Testing division at EATL (Eurofins Product Testing NA) will service North American product manufacturers that need a qualified laboratory to detect and measure the chemical characteristics of their products. The new chambers facilities enable manufacturers to measure and understand the chemical emissions and properties of their products. Clients can leverage the test data and reporting to comply with European and North American product emission regulations, Indoor Air Quality criteria of "green" building programs (LEED, CHPS), and 3rd party Certification programs. Clients will be able to use these services to detect and measure compounds that may impact human health through exposure, and/



or negatively impact the environment. Eurofins Product Testing NA has the testing and analytical capabilities to provide solutions for manufacturers that need to address a range of market requirements, including Transparency of Chemicals of Concern, "Red Lists" of chemicals, or regulations related to chemical content of products (CPSC, State of California), as well as understanding the impact on emissions of new products, changes to manufacturing processes, and for qualifying raw material suppliers.

The start-up of Eurofins Product Testing NA adds a new location to Eurofins' world-wide VOC emissions testing capacities, with several hundred test chambers located in four countries on three continents. This allows fast and targeted testing services for most VOC requirements that customers will face in their markets. The VOC team in the USA includes Dr. Stephany I. Mason, VP - VOC Materials Testing, and Michael Crook, Bus. Dev. Dir. - VOC Materials Testing, both of whom are very experienced with VOC testing and represent both US related VOC testing services and European VOC tests, as well as any tests needed from the Eurofins VOC testing labs in Denmark, China or Japan.

For more information, contact Michael Crook at 916-850-9839 or MCrook@Airtoxics.com.

Eurofins Eaton Analytical Leads the Way in Unregulated Contaminant Testing

by Andy Eaton, Ph.D., Technical Director/
Vice President, Eurofins Eaton Analytical

Under the requirements of the Safe Drinking Water Act, the USEPA requires all drinking water systems serving greater than 10,000 people to conduct monitoring for a series of emerging contaminants that EPA is considering for future regulation. Monitoring for a new set of contaminants (up to 30) occurs approximately every five years. 2013 marks the start of the third round of this monitoring (UCMR3).

The Eurofins' drinking water laboratory, Eurofins Eaton Analytical (EEA), has been a leader in serving utilities for this monitoring program ever since the first round, in 2001. In each round, EEA has not only supported as many as 30% of the nation's drinking water systems for UCMR monitoring, but has also served as an EPA contractor, providing analytical testing for a significant fraction of the 800 small systems required to also monitor under the UCMR programs. EEA is already performing UCMR3 testing for more than 200 public water supplies located across the country.

The current UCMR3 regulation requires systems to collect samples at both the entry point to the distribution system and also at the maximum residence point, in order to evaluate both the presence of contaminants and their potential formation in during transport.

To ensure that we can appropriately support our clients for this program, EEA has invested heavily in instrumentation and training for both its clients and staff. UCMR3 seminars for utilities were conducted in various parts of the country and, in conjunction with American Water College and via YouTube, EEA also offers online training with a series of videos on proper sample collection techniques. EEA



Ali Haghani, LC-MS-MS supervisor, performs UCMR method 537 testing for perfluorinated compounds at the Eurofins Eaton Analytical Lab in Monrovia, CA.

worked with both USEPA representatives and AWWA in offering both seminars and webinar training for UCMR3. EEA staff have presented on UCMR3 at national and local conferences to increase awareness of the importance of this regulation and the need for appropriate communication to customers as results become available.

Within the laboratory, EEA invested more than \$1M in new instrumentation (LC-MS-MS, GC-MS, and ion chromatography systems) to ensure redundancy for every UCMR3 method. Most of the analytical methods in UCMR3 are brand new methods so there are a very limited number of labs that have experience with them. EEA was the first lab to receive EPA approval for all of the methods. Testing includes volatile organics (EPA 524.3), 1,4-dioxane (EPA 522), perfluorinated compounds (EPA 537), chlorate (EPA 300.1), metals (EPA 200.8), hexavalent chromium (EPA 218.7) and hormones (EPA 539).

UCMR3 is unique in that EPA requires reporting to very low levels (in some cases sub part per trillion) for all of the compounds being measured. This is already resulting in much greater frequencies of detection than was seen in UCMR1 or UCMR2. Some compounds such as chlorate, strontium, molybdenum, vanadium, chromium, and hexavalent chromium are being detected in 30-95% of systems. 1,4-dioxane, used as a solvent stabilizer, is also being seen frequently, sometimes at levels exceeding some current state action levels. This high frequency of detection will require utilities to pay careful attention to proactively communicating with their customers.

EEA's broad experience working with utilities across the country for UCMR3 will assist customers in developing appropriate communications strategies.

For more information, contact Andy Eaton at AndyEaton@eurofinsUS.com or 626-386-1125.

Dioxin Testing expands to Foods and Feeds

When Eurofins Lancaster Laboratories Environmental's Specialty Services Group was established five years ago, the intended focus of their work was to develop non-routine test methods for environmental samples. By capitalizing on their experience with organic extractions and GC/MS analysis, the group has been successful in solving analytical challenges for complex tests, such as dioxin and related compounds. Because there are few domestic laboratories with this capability, Eurofins Lancaster Laboratories Environmental fields frequent requests to perform similar testing in matrices other than environmental samples, including foods and feeds. Using established test procedures, their expertise with column chromatography clean-up techniques and high resolution gas chromatograph/high resolution mass spectrometry (HRGC/HRMS), the group has developed methods to meet the demand for dioxin testing in food and feed samples.

The generic term "dioxin" includes a range of halogenated organic compounds known to persist in the environment and bioaccumulate in humans, with the primary exposure route being consumption of contaminated foods. Many of the requests for dioxin testing in foods and feeds are driven by requirements set for manufacturers wishing to sell their products in the European Union, where comprehensive regulations limit the concentration of dioxin and dioxin-like polychlorinated biphenyls (dl-PCB's). To account for the varying toxicity of each compound, the World Health Organization (WHO) developed Toxic Equivalency Factors (TEF) that are used to calculate Toxicity Equivalents (TEQ). This system is used to report toxicity-weighted masses of mixtures of dioxins.

During method development for new matrices, analysts in Lancaster are fortunate to have access to world-renowned experts in dioxin testing. The Eurofins facility in Hamburg is a state-of-the-art laboratory with years of experience in dioxin testing. "Interactions with our German colleagues proved very use-



Analyst Deb Zimmerman and her team perform column chromatography for dioxin testing.

ful in establishing this capability," states Chuck Neslund, manager of the Specialty Services Group. He noted that while some clients do send their samples directly to the Hamburg facility, the cost and time involved in shipping samples abroad made it logical to establish a domestic service as well. "We already had the instruments available, but we had to develop extraction and clean-up methods capable of detecting the low concentrations required," he adds. The sample extraction for dioxin and furans is based upon USEPA method 1613, while the dl-PCB extraction is drawn from USEPA method 1668. Extractions for food and feed samples are performed in a separate space using dedicated glassware because they generally contain very low concentration of the target compounds in comparison to environmental samples. Chemists also learned that sample size is a key to successful analysis because the results are reported as a TEQ, and the initial sample weight impacts the calculation. Using a small sample is desirable to minimize the amount of non-target material introduced into the instrument, but the sample weight must be sufficient to allow quantitation at the ultra-trace

levels required by the EU. The sample solution resulting from the extraction is subjected to column fractionation to remove co-extracted compounds that may interfere with the chromatography. To ensure that the target compounds are efficiently extracted and eluted through the analytical scheme, recovery studies are performed using representative sample matrices. Finally, analysis is achieved using HRGC/HRMS.

This winter, Eurofins Lancaster Laboratories Environmental boosted their testing capacity by adding a fourth instrument, which is dedicated for the testing of food and feed samples. All four of the instruments are Thermo DFS units featuring dual columns for confirmation of results. Turnaround time for a typical sample is 10 working days, but analysts are working to further reduce that time.

The American Association for Laboratory Accreditation recently granted ISO 17025 certification to Eurofins Lancaster Laboratories to perform dioxin, furan and dl-PCB testing on food and feed samples. For more information about dioxin testing of food and feed samples, contact Chuck Neslund at 717-656-2300.

Pushing the limits of detection – The NDMA Case Study

USEPA develops, publishes and promulgates an abundance of analytical methods intended to screen environmental samples for contaminants. The methods for organic pollutants are typically characterized by their ability to identify a list of chemically similar compounds at concentrations that can be used to determine health risks and track cleanup progress. Because the methods are intended to be used as a screening tool, they are not necessarily optimized for each of their target compounds, resulting in detection limits that are useful, but could be improved by focusing on individual compounds or classes of compounds. State and federal regulatory agencies wishing to minimize the public exposure to hazardous chemicals sometimes require site cleanup to levels that are below the published detection limits for existing methods. These low level cleanup requirements are the product of risk assessments based on lifetime exposure to the contaminants.

One example of the “cleanup requirement versus detection limit” puzzle can be found in N-Nitrosodimethylamine (NDMA), a semi-volatile compound no longer in production, but known to be a chemical byproduct of rocket fuel. NDMA is completely miscible with water and when released onto soil has the potential to leach into groundwater. NDMA is also a disinfection byproduct and has been detected in more than 25% of public water supplies nationwide. USEPA is considering regulating NDMA (and other nitrosamines) in drinking water. It is also a suspected carcinogen, so when NDMA is identified for remediation at a waste site, the required cleanup level is understandably low. One USEPA superfund site in California set the NDMA cleanup level at 0.7 ng/L (or parts per trillion) for NDMA. This is less than the established method detection limit for published USEPA methods, presenting a challenge to those involved in the site remediation there.

While many commercial laboratories focus on performing regulatory methods as published, chemists at Eurofins Lancaster Laboratories Environmental have the expertise and instrumental resources to solve the analytical problems presented by the need for decreasingly lower detection limits. Using their years of experience with organic analysis, the Specialty Services Group is tasked with optimizing the extraction and chromatography for ultra-trace detection when needed.

In response to a client’s request to improve NDMA detectability, they were successful in modifying EPA method 1625C to accurately identify significantly lower concentrations of the contaminant. Chemists focused on controlling the extraction environment to eliminate analytical artifacts, as well as enhancing the quality control aspects of the method to monitor recovery. During sample extraction, isotopically labeled compounds, including NDMA-d₆, are added as surrogate/internal standards. As directed in the original method, GC/MS is used to analyze the extract, but to enhance the selectivity for NDMA, the instrument is operated using selective ion monitoring. These modifications resulted in a method detection limit of 0.5 ng/L in water samples and 16.7 ng/kg samples.

Interest in NDMA analysis using the



Chad Moline, Senior Chemist, analyzes water samples for N-Nitrosodimethylamine using a Thermo Scientific Trace Ultra GC and DSQ II Mass Spectrometer.

modified method to achieve lower detection limits has been great enough to warrant transferring the responsibility for sample analysis to the Semivolatile Analysis Group, where it is now a standard offering. Rick Karam, manager of the Semivolatile Analysis Group, noted that it’s not unusual for clients to have challenging detection limit requirements for compounds known to be used at specific sites. “If we believe we’ll be successful, we do our best to help them,” he says.

Also, Eurofins Eaton Analytical has been testing drinking waters for NDMA and other nitrosamines, using method 521, a solid phase extraction technique coupled with chemical ionization mass spectrometry, which has a published MDL of 0.3 ng/L, and an RL of 2 ng/L.

For more information on NDMA testing in potentially contaminated sites, contact Environmental Business Development at 717-656-2300. For more information on drinking water analysis of NDMA and other nitrosamines, contact us20_sales@eurofinsus.com.

We believe that our people provide our strength. Their dedication to quality, professional competence and hard work are the key elements in the company's success. In this regular feature, we introduce you to some of the people who have helped make our lab an industry leader.

Bob Mitzel is President of our West Coast sister laboratories, Eurofins Air Toxics, Inc. located in Folsom, CA, and Eurofins Frontier Global Sciences, Inc. located in Bothell, WA. Under his leadership, Eurofins Air Toxics--as the largest air testing lab in the world with nearly 25 years of experience-- brings significant air testing expertise to Eurofins' global portfolio for clients. Eurofins Frontier Global Sciences, an advanced research and analytical laboratory specializing in mercury, trace metals and metals speciation analysis, further broadens Eurofins' US environmental testing footprint and worldwide comprehensive service offerings. At Eurofins Air Toxics, he is responsible for managing 55 staff members at their 33,000-square-foot facility, and he oversees a staff of 35 at Eurofins Frontier Global Sciences at their 18,000-square-foot facility.

What does your current job entail?

My role entails being the Business Unit manager for Eurofins Air Toxics, Eurofins Frontier Global Sciences, and overseeing new lines of business in VOC-Material Testing and Consumer Product Testing groups.

What is the scope of your group?

To provide air testing analysis for environmental and product manufacturing markets and metals and metals speciation analysis.

What process improvements does your group initiate to serve clients better?

Eurofins Air Toxics has been in business for 24 years; it's been the most innovative company in the air testing market. During these years, EATL continues to lead the market in air testing and innovative solutions to client needs. Frontier Global Sciences has been in business for almost 20 years. We're implementing new software changes, automation, and production flow processes to improve production and capacity to continue to provide exceptional customer service.

People are the chemistry



Bob Mitzel

Any high profile project in the market is brought to us first because of our reputation for providing high quality, defensible data.

Why should clients trust us with their projects?

Because we are the leaders in technical expertise both in the air and metals market. Eurofins Air Toxics continues to be the pioneer in new developments in the air testing market. Our clients rely on our R&D expertise to guide them through special projects. With Frontier, the experience our project teams possess allows us to provide our clients the custom planning each project needs to ensure success.

Given all of your responsibilities, how would you describe a typical workday?

My day varies from conference calls to client presentations, to critical business decisions, along with a great deal of travel for client visits, business opportunities, and responsibilities

for both laboratories. In between, I take time to communicate with the team and listen to any concerns they may have and provide support.

How would you characterize your leadership style?

I lead by example. I like to have my team on the same page in terms of business direction. Once a decision is made, I expect it to be followed. Because I have high expectations for my management team, I allow them to lead and provide support so they can succeed.

You've worked in the industry for more than 30 years, what are some changes you've seen?

I've been in the industry for 33 years - with EATL for three and EFGS for almost a year. There has been a great deal of change, not only within the industry and internally but also in the business focus. We are currently developing two new markets with the use of chambers for VOC-Material Testing and using our current technology at the lab to service the Consumer Product Testing market. This is one of the reasons I enjoy working in the environmental industry - it's the constant change that allows us to be innovative.

How does your group's work impact/benefit society?

Our ability to analyze air samples and determine what's in the air ultimately provides important information for our consultants and end users on ways to clean up our environment, which ultimately benefits society. This is the same for metals analysis. Our analytical research and specialized laboratory services detect harmful metals to ensure public safety.

What kind of volunteer activities have you been involved with?

I've been involved with the Boy Scouts and other youth groups.

And when you're not working?

I like to go off-roading with my Jeep, bass fishing in my bass boat, and spending time at my house in the mountains (which, since joining Eurofins, has not happened very often). As surprising as it may seem, I am also addicted to reality shows including Finding Bigfoot, Duck Dynasty, American Idol, and Survivor. I also like to knit but let's just say I haven't made anything I would be proud to showcase--just kidding!!!

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Look for Eurofins' US Environmental Labs at these conferences and industry events:

Event	Date	Location	Attending
TNI Meeting/NEMC	8/5-9	San Antonio, TX	Eurofins' Eaton & Lancaster Laboratories Environmental
NGWA Groundwater in Fractured Rock & Sediments	9/23-24	Burlington, VT	Eurofins Lancaster Laboratories Environmental
Shale Gas Insight	9/25-26	Philadelphia, PA	Eurofins Lancaster Laboratories Environmental
GRA Annual	10/8-9	Sacramento, CA	Eurofins' Eaton & Lancaster Laboratories Environmental
AEHS East Coast Conference	10/21-24	Amherst, MA	Eurofins Lancaster Laboratories Environmental
ASDWA	10/28-31	Long Beach, CA	Eurofins Eaton Analytical
WQTC	11/4-6	Long Beach, CA	Eurofins Eaton Analytical
Shale DUG East	11/13-15	Pittsburgh, PA	Eurofins Lancaster Laboratories Environmental
Greenbuild 2013	11/20-21	Philadelphia, PA	Eurofins Air Toxics

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