

THE EVOLUTION OF LDARtools:

Combining industry knowledge with leading technological innovation aimed at facilitating LDAR programs across the United States and globally, LDARtools offers the hardware, equipment, proprietary software and innovative business methods that make them an invaluable asset to the LDAR community.

Fugitive Emissions Journal had the distinct pleasure of meeting with Kevin Moses, Director of Operations at LDARtools, at the company's base of operations in Dickinson, Texas, USA. Seated in comfort on their ranch-inspired patio on a sunny May afternoon, we discussed LDARtools' commitment to their customers – and the LDAR community as a whole – in providing practical LDAR solutions that improve efficiency and accountability for its users, the company's plans for continued global expansion, as well as their latest innovative solutions.

By Melanie Gogan, Editor

Originally a service provider by the name of Environmental Analytics, LDARtools was conceived through the insight and experience of its technicians, working with Flame Ionization Detector (FID) technology to measure the concentration of organic species in a gas stream. Working predominantly with large companies in the oil & gas (O&G) and chemical industries, where Leak Detection and Repair (LDAR) programs and Method 21 requirements are a constant reality, LDARtools, in its earlier incarnation as a service provider, established connections in the industry that have helped to mold them into the company they are today.

Reflecting on his earlier days as a Monitoring Technician, and later a Manager of Advanced Maintenance at Environmental Analytics, Moses explains, "We were using FID detectors with something similar to a grocery

store inventory gun, which ran a program similar to DOS. We couldn't do much but take a reading, move to the next component, take another reading and so on."

Recognizing a need in the industry for a more reliable device, Moses and his colleague, Jeremy Bollinger (now Director of Product Development at LDARtools) began to envision an FID analyzer that would be more practical in the field. They began asking their clients, "What do you want to see in a machine?" According to Moses, it was this informal survey and the resulting input they garnered from industry insiders, that provided significant insight into what was lacking in the current technology. As a result, they endeavored to build a device that would reflect the latest advancements in the industry — namely, one that enabled Bluetooth capabilities. This feature alone would transform



the manual operation of FID monitoring into an automatic function, making the process more practical and inherently more flexible. This was not an easy task however; the engineering involved would need to pass the necessary certifications required for use in potentially explosive environments.

The birth of LDARtools

Through continued perseverance, a device that could provide automated and accurate calibration readings could now be realized. Moses says, "Our first certified production run of our FECrystal wireless adapter was approved by FM (the independent testing arm of international insurance carrier, FMGlobal) in 2007. That was basically the birth of LDARtools. Once we had a Bluetooth signal, we could talk to the TVA (Toxic Vapor Analyzer). Now we could document the calibration in an automated fashion, which was huge, because calibration is a big problem."

A leading industry tool used in LDAR monitoring today, Moses and his team went on to engineer the phx21 FID analyzer, thanks in large part to the collaboration of their customers — who they now consider friends. "What we heard most is they wanted us to make it thin," says Moses. LDARtools released the phx21 in 2009. A compact device with Bluetooth capabilities, the phx21 was capable of performing automated, accurate readings and boasted a compact, user-friendly design. The company went on to sell Environmental Analytics in 2011. "All of a sudden we weren't the competitors any more, we were the vendors and partner, and we started selling machines like crazy," says Moses.

Helping meet compliance regulations: the phx advantage

Checking for leaks on valves and connectors in refineries and plants marks a typical day for a monitoring technician, which can include up to three or four hundred inspections daily. LDARtools' phx21 analyzer is a wirelessly controlled Battery-Operated Flame Ionization Detector (BOFID) designed to optimize the ease at which technicians can perform Method 21 inspections. With a test-retest reliability of 2 percent (10 percent throughout the day due to expected drift), the device offers high accuracy, which is critical in the assessment of leak rates of Volatile Organic Compounds (VOCs) in a facility. Moses explains, "When you have a product leak — especially when it's a light material — it might not be dripping; you might not see it; but you're just losing product right into the air."

With big names like ExxonMobil and Dow Chemical on their client list, there is no question that LDARtools is leading the industry with their innovations. "We are being used all around the world; basically any company that utilizes volatile chemicals and cares about the environment stands to gain from our technology," Moses asserts. Made and shipped directly out of their headquarters in Dickinson, Texas, the phx21 is currently being used throughout the USA, Mexico, Canada, Taiwan, China, Belgium and Saudi Arabia. He adds, "We expect South America to do a lot in the next couple of years as well."



Kevin Moses and Bronson Pate, Global Environmental Consulting Manager at A.W. Chesterton, celebrate an annual Fall Feast at LDARtools headquarters

LDARtools at a glance:

2006 Environmental Analytics develops their first FECrystal - TVA wireless LDAR connection.	2007 LDARtools becomes the official Research Division of Environmental Analytics. FECrystal receives Class 1 Division 2 certification. DOW begins using LDARtools software.	2008 LDARtools moves to a 2000 sq. ft. facility. The phx21 analyzer makes its debut at ISA in San Antonio.	2009 The phx21 receives Class 1 Division 1 certification.	2010 ExxonMobile purchases phx21s. Office space doubles. Pantech Industrial Innovation Corp of Taiwan becomes a distributor.	2011 DOW Chemical specifies LDARtools in bids. Environmental Analytics is sold; LDARtools becomes an official company. A new phx21 regulator is introduced to compensate for extreme cold temperatures.	2012 LDARtools moves to Dickinson, Texas location – the "Chateau." A patent is issued for FEScout software with encrypted GPS capabilities, for precise location tracking.
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When asked about their sales infrastructure, Moses responds, “Our best sales people are the contractors. They want reliable equipment and good software to run their programs. We’re providing that.”

“We have a giant poster located in our office of our Technical Adviser Team — which consists of 27 of our customers. They give us free time to consult on our products and the direction we’re headed. Throughout the developmental process, we engage with them a lot. When you build a product that industry experts helped design, it’s really easy to sell it.”

It is no wonder that LDARtools has such a vis-

ible presence on the global LDAR platform. Moreover, its participation in such conferences as Valve World Americas, the International Society of Automation (ISA) and 4C Health/Safety/Environmental, further ensures that LDARtools maintains its finger on the pulse of the industry.

With the collaboration of up to 15 developers, over the span of two-and-a-half years, LDARtools then set out to develop a comprehensive database utilizing software designed to provide real-time data, efficiency and convenience. Through the collaboration of their Technical Advisor team, weekly engagement sessions and webinars, and consultations with infrared camera manufacturers as well as some of their own ‘competitors’ in the hardware system domain, the Chateau database management system was created to offer customers a database capable of managing an LDAR program in its entirety; not just its parts.

In the past year, the company has even started to implement an Optical Gas Imaging (OGI) program specific to O&G, refining and chemical applications. Moses explains, “One of the main challenges of doing an OGI program is not recording leaks or finding leaks, it’s proving to the agency that you performed the inspection, and didn’t find a leak.”

At the end of the day, explains Moses, accountability is key. “People pay huge fines when they get caught not doing something. That goes all the way from calibration to time stamps. If there is something fishy going on, the Environmental Protection Agency (EPA) will find it.”



Jerry Bolinger, Director of Product Development and Kevin Moses, Director of Operations, work to hand-assemble a micro miniature glow plug prototype for phx42

He continues, “It’s really easy to record a video and find a leak. What we care about is that nothing else was leaking, and it’s really hard to prove that. So we built a kind of hierarchical set-up that makes doing the well inspection really easy and keeping records of those inspections effortless.”

Technicians are now able to go out with a camera and a handheld (any android or Windows 10 device), using LDARtools’ Freedom, and the system will advise them of the areas that they need to inspect. An image indicates the point-of-view and distance that is required and the operator simply lines the camera up with what is shown on the handheld. The technician is able to take readings from two angles and record video, and the database — because the times are synched between the devices — is able to put those readings together so that an operator has proof of an inspection. The system can even be customized to accommodate visible light or infrared camera options. Not to mention, the Global Positioning System (GPS) records the inspections from start to finish. In fact, explains Moses, with many locations yet to be mapped on conventional GPS aerial maps, the GPS feature accompanying Freedom/Chateau has helped many technicians actually find the facility they need to inspect. “This was a pleasant surprise,” Moses remarks.

“As odd as it is, we don’t do forecasting or predictions. We do the next thing on the list. Our customers tell us what we need next. Right now it’s the phx42,” explains Moses. Currently in the process of an extensive certi-

fication program that will result in a FID analyzer approved to national and international standards, the phx42 will be more compact than the phx21 and will integrate the combined expertise gained only through working with the phx21 for over eight years.

Also on the horizon, the company plans to put a great deal of additional focus on international ventures. This is a direct response to increasing environmental regulations and the overall growth of the LDAR industry on a global scale. Moses remarks, “China is particularly active in LDAR; Saudi Arabia as well. The Brazilian market is also growing for LDAR, so that will be really great for both the environment and for our industry.”

As far as industry movement in the USA is concerned, while Moses doesn’t predict any major regulatory shifts that would require the use of new leak detection devices in the next five to ten years, he remarks nonetheless on the industry “buzz” that surrounds them. He explains, “People are very excited about more stationary leak detection equipment, like fenceline monitoring, where you have lasers that can run along the downwind side of a plant and see what is leaving the facility.”

For LDARtools, future growth possibilities are endless. Its organic structure allows for flexibility and growth that will continue to reflect the needs of the industries it serves. Commenting on the collaboration with their trusted advisers, Moses concludes, “New leak detection equipment and technology is coming out all the time. At the end of the day, when a product or service is industry-built, it’s really easy to buy.”



The phx21 receives a “Made in Texas” label. LDARtools China opens for business.

The PumpThrottling patent is issued — a “cruise control” feature for the phx21 analyser that helps ensure accurate readings, despite dust and blockages.

LDARtools releases LTI Mobile, a lightning-fast Windows Mobile LDAR application.

EnRud Resources becomes an LDARtools Distributor.

TEAM Industrial Services standardizes on LDARtools equipment and software.

Rex Moses’ development of “LTIFramework” software becomes “Chateau.”

SpanBoxLite 210 is introduced (replacing SpanBox 2), which offers automatic calibration that improved compliance.

SpanBoxLite 310 and 330 are introduced, removing the need for manual calibration recording during calibration confirmation and drift assessments

Sage Environmental and IPREMS are named the first Technical Advisors for Chateau.

LDARtools becomes a certified Archer 2 and Mesa repair center.

The Shades of LDAR Gray Project is launched — an industry collaboration involving over 100 LDAR professionals addressing industry concerns.

Chateau revealed at the 4C Conference in Austin, Texas.

LDARtools participates in the annual 4C Conference.

The phx42, the LDAR Analyzer for Today and Tomorrow, is unveiled.

First Chateau Training Class was held on April 28, 2017.