



LDARtools: Maximizing Customer

Founded with the intention of ensuring consumers continuously benefit from technological innovation, LDARtools facilitates leak detection and repair programs globally and across the United States. Offering hardware, equipment, proprietary software and innovative business methods, combined with extensive experience and insight, the company has positioned itself as an asset to the greater LDAR community.

Fugitive Emissions Journal had the pleasure of speaking with Kevin Moses, Director of Operations at LDARtools, at the company's headquarters in Dickinson, Texas, USA about several of the company's recent, exciting milestones. In January 2019, the company hosted its first annual 'Winterfest,' a two-day training seminar for early adopters. The company celebrated the launch of the new phx42 FID analyzer, which has logged an impressive one million data logs (and counting), and satisfied hundreds of sweet-savvy customers during its seventh Brownie Celebration.

By Stephanie Matas, Editor

Establishing early connections in the industry as a service provider under the name Environmental Analytics, LDARtools has positioned itself as both a leader and technological innovator in the oil & gas (O&G), petrochemical and chemical industries. With over twelve years of technical insight and experience, LDARtools has proven its allegiance to its customers, and the LDAR community, by consistently providing the latest practical solutions to improve accountability and efficiency for its users.

The Evolution of LDARtools

Born out of a demand for a more reliable device for leak detection and repair, the founders of LDARtools envisioned an FID analyzer that would be more practical in the field. Using data collected in informal surveys by industry insiders, the company moved toward building a device that would reflect the latest advancements in the



industry as well as add elements of convenience for the every day technician. The addition of the Bluetooth function has transformed the manual operation of an LDAR instrument into a wireless function, which made the process inherently easier, and allowed for a much faster and more accurate calibration process to be realized.

Innovative Products for the Future

While LDARtools has a number of dynamic products, many of its recent innovations have provided it with the ability to ensure that its users are engaging with the most effective and efficient technologies. This high level of efficiency can be seen with LDARtools' Chateau database management system and the phx42.

Chateau database management system

The Chateau database management system is a comprehensive database which utilizes software designed to provide real-time data, efficiency and convenience. Through the collaborative efforts of the Technical Advisor team participating in weekly engagement sessions and consultations with OGI manufacturers and 'competitors' in the

TIMELINE

2006

- Environmental Analytics develops the first FECrystal, & TVA connection is made

2007

- LDARtools becomes the official Environmental Analytics Research Division
- Receives formal introduction at the ISA Conference
- FECrystal receives Class 1 Division 2 certification
- Hovensa becomes the first LDARtools site to use c2c, Cal & Skiba
- DOW Chemical begins using LDARtools software

2008

- LDARtools moves to a new 2,000 square foot facility
- The phx21 makes its debut at the ISA Conference

2009

- The phx21 receives Class1 Division 1 certification
- DOW20/ARK5 purchase phx21s

Satisfaction through Technological Innovation



hardware system domain, the Chateau database management system was developed. For the first time, the system offered customers a database capable of managing an LDAR program in its entirety; not just its parts. Some important key innovations integrated in the Chateau software system include, but are not limited to; fully customizable picklists, integration of all certifications, cylinders & calibrations, a robust MOC system, sub tag protection, immediate missed monitoring reconciliation protocols, advanced display functions, and leak detections managed independently of PPM attempts.

phx42

The phx42 is the latest FID analyzer designed by LDAR technicians, for LDAR technicians, to perform Method 21 inspections. The unit is entirely controlled by an off-the-shelf wireless Android or WinMobile handheld. Powerful

datalogging software is used to keep an electronic record of all inspections. Automated control of hydrogen pressures, and an expanded range and safety certifications paired with special features, such as pump throttling & deadhead detection, a Method 21 failsafe, and filter detection, have established the phx42 as a hardware that deserves attention in the LDAR community. It's light-weight portability and extended battery life also make life a little easier for the technician.

With big names like Dow Chemical and ExxonMobil on their client list, there is no doubt that LDARtools is leading the way in software product innovation. By the end of 2018, LDARtools boasted deliveries of 165 phx42s with 94% field utilization.

LDARtools developers attempted to hard-code operating parameters for the phx42 as little as possible so that they had more opportunity to learn and change aspects of the units as they were developed and deployed. "One of the things we're working on right now is filter detection. The machines can tell if the proper probe filters are on. With the variation in probes and filter resistance, it's not a simple problem; we've been tweaking their algorithms over the last year and we are just about there. It's really fun to sit down with our team and remotely tweak how the machines are operating in Tianjin, China. We're also rolling firmware out remotely and updating it wirelessly, which is pretty neat," said Moses.

This same principal is being used in other ways such as giving customer's management the opportunity to change features/settings of the automated calibration systems at remote sites.



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| 2010 <ul style="list-style-type: none"> ExxonMobil purchases phx21s Pantech Industrial Innovation Corp. of Taiwan becomes a distributor | 2011 <ul style="list-style-type: none"> DOW Chemical specifies LDARtools products in request for bids LDARtools becomes an official company; Environmental Analytics is sold A new phx21 regulator is introduced to compensate for extreme temperatures | 2012 <ul style="list-style-type: none"> The phx21 performs under the most stringent tests & temperatures in Alaska LDARtools moves to the "Chateau" in Dickinson, Texas The FEScout software patent is issued – encrypted GPS for precise location tracking | 2013 <ul style="list-style-type: none"> Darbonne Services purchases a fleet of phx21s The phx21 is awarded a "Made in Texas" label LDARtools China opens for business The Pump Throttling patent is issued – 'cruise control' feature for the phx21 analyzer to ensure accurate readings |
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“We know where in the world the machines are every time the App is connected to the internet and has seen the Bluetooth ID of a phx42 or phx21. It sends its location and a list of serial numbers back to the cloud. We can see the last time its been accessed, click on a map and through our customer portal, users can pinpoint the location. The accuracy is quite good. We haven’t had a single lost machine since we started deploying 42s,” said Moses.

Mediating Monitoring Challenges

Often with LDAR monitoring, compliance issues are a result of a calibration error. Every machine must be calibrated everyday, from anywhere between two to five different gas concentrations. All this calibration information must be documented properly, gas used must not be expired and it must be the right kind of gas. In addition, drift assessment tests must be passed at the middle and at the end of the day. It is of utmost importance these protocols are followed, “if you don’t catch those failures early on, they keep going, you do not meet compliance standards, and the fines get higher. When you get an audit and the issue happened months or even years ago, it’s a major issue,” said Moses.

To help mediate these discrepancies, LDARtools set out to create the highly flexible and configurable system for its customers. “A lot of the time, the issue really isn’t a technical issue,” commented Moses. “Sometimes it’s simply a technician that wrote in a serial number wrong and now you don’t have the certification document for that serial number, but you can’t just say, ‘Oh well, I must have written the wrong number.’ It doesn’t work like that, it’s not compliant.”

The phx42 allows users to hook up their machines, enter the cylinder formation, track expiration dates of the cylinders, log concentration data etc., then hit start and it will calculate any issues. “At the end of the day, or during

mid-day drifts, you just hook it up to check the gases and then export the results to the LDARtools cloud database for further management,” said Moses.

It’s important to note that the calibration automation is not required, in fact LDARtools has a very ‘a-la-carte’ approach to all parts of the business. Customers all over the world need to run myriad of combinations of both LDARtools products and third party (often competitors) products and LDARtools rises to the challenge.

Real-time Issues, Real-time Response

LDARtools offers practical real-time solutions for their customers and internalizes their feedback. “We brought together a focus group of industry experts, end users and contractors both prior to and during development of the phx21,” commented Moses. “We had a number of meetings and phone conference with these individuals where demos were presented and plans we had to build the system were scrutinized in order to ensure that we were creating the most effective and efficient systems. As they all had a lot of experience with different products, we ended up building a really flexible system, the phx21 that worked great in any domestic program, and has the flexibility needed internationally. Recently we built on that industry knowledge combined with eight years of seeing what went wrong, to build the phx42,” said Moses.

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TIMELINE

2014

- EnRud becomes a distributor
- TEAM Industrial Services standardizes all LDARtools equipment & software
- The 500th phx21 is in operation
- “LTIFramework” software is renamed “Chateau”
- TEAM Industrial Services begins nationwide distribution of LTIDesktop & LTIMobile

2015

- The SpanBoxLite 210 is introduced, offering automatic calibration with improved compliance
- The SpanBox 310 & 220 are introduced, removing the need for manual calibration recording during drift assessments
- Sage Environmental & IPREMS are named the first Technical Advisors for Chateau
- LDARtools becomes a certified Archer 2 & Mesa repair center

2016

- The Shades of LDAR Grey Project is launched
- Chateau is revealed at the 4C Conference in Austin, Texas
- LDARtools Technical Updates project is launched to provide tips on phx21 usage & care
- First Brownie Celebration



With all the log files collected in the phx42, the LDARtools team can see in near real-time how the machines are performing in the field and how they can make tweaks to decrease drift and decrease response times. This is extremely beneficial to end users. "We just recently changed the algorithm to speed up response times by a second. It was of no significant cost to us, or the customer, they just woke up one day and the machine was faster," said Moses. This is a prime example of LDARtools' continuous after-sale customer service.

Customer Service Excellence

Good customer service starts with everyone involved having a keen understanding of the applications they engage with. Every LDARtools customer can login online and see the equipment they have purchased from the company, the sum of all repairs, financials, work orders and even reported issues that may or may not have turned into a work order. They also have the ability to access location and map settings, as well as add additional users for ease of access amongst colleagues.

LDARtools also offers extended warranties on all their products, to further service their customers after the point of sale. "Warranties let us get your machine back out to you faster. That's probably the number one reason people do it, it makes turnaround times much quicker. You don't have to wait to get a purchase order when the repair is complete. It also gives the customers peace of mind, it's a fixed maintenance cost, it's just easier, especially when you are a contractor that bills it on to a facility," commented Moses.

First Annual 'Winterfest'

As systems become more automated, new practices must be learned and adopted. To answer questions their customers might have and ensure product satisfaction, LDARtools hosted its first Winterfest in January of this



year. The event consisted of a two-day training session for product professionals from the contracting and end user organizations that are responsible for training the technicians that use the equipment. The course reviewed all new training material from the past year for the phx42 and collected feedback. There was also hands-on training for all common repair procedures.



Reaching a Million Logs

In May 2018, LDARtools sold their 50th phx42 module, and as of October, reached one million logs in the phx42. The phx42 handheld readings are sent to the LDARtools team using an internet connection and analyzed, "so we can troubleshoot for customers before they even know there's a problem," said Moses. This helps reduce overall equipment downtime. "The goal is that we can catch a problem the day before it actually happens and causes equipment to go down, we can really increase productivity and decrease frustration - that stuff kind of pays for itself," commented Moses.

Who Wants Brownies?

The LDARtools team is proud to announce their seventh Brownie Celebration which took place in 2018. Each Brownie Celebration represents the remarkable feat of having zero phx21 and phx42s in the company's repair center as a result of the experienced Repair technicians clearing the two phx maintenance boards. With the help of Level 1 certified technicians in the field and fast turnarounds, LDARtools was able to keep all 1,400 plus phxs out of the shop and available for monitoring. Throughout the years, over 10,000 brownies have been sent to hundreds of satisfied customers in celebration of this continued success. "We've put tens of thousands of dollars into brownies over the last few years, and customers get really excited about it," said Moses. At the end of the day, satisfied customers are what the LDARtools team strives for, and their Brownie Celebrations help showcase what an excellent job they have done.

"In reality we're here to have a good time and hopefully bring something new and innovative to the table; it looks like that model has worked," said Moses with a smile.

2017

- The phx42, the LDAR Analyzer for Today & Tomorrow, is unveiled
- The first Chateau Training class is held
- The phx42 battery is complete; the phx42 sells out on its first month's production

2018

- The phx42 is revealed at the ISA LDAR – Fugitive Emissions Symposium in Galveston, Texas
- The phx42 is well received at the 4C Conference in San Antonio, Texas
- Recorded one million lines of log entries for the phx42
- Reached 100 Calx.x installs
- Seventh Brownie Celebration

2019

- Conducts first Winterfest – a two-day training course for LDAR technicians & trainers
- 200 phx42s delivered to customers