



The Case for Environmental Monitoring Software

Keeping tabs on all fuel equipment across every location is a daunting task, but advanced monitoring software streamlines the process, reduces costs, mitigates risk, and delivers a remarkably high return on investment.



Taking Control of UST Compliance Management Risk

Fuel retailers and petroleum marketers are familiar with the potentially high cost of environmental non-compliance. One undetected leak in an underground storage tank (UST) system can lead to hundreds of thousands of dollars in clean up fees, damage to brand reputation, lost sales during the remediation period, and even diminished real estate value. According to the United States Environmental Protection Agency (EPA), the average cost of cleaning up a UST leak is \$154,000 and if groundwater contamination occurs, this number can quickly increase to well over \$1 million ("Frequent Questions About Underground Storage Tanks," 2023).

Many states still have funds set up to assist smaller operators with these cleanup costs. The Vermont Department of Environmental Conservation, in partnership with the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), conducted a survey of all state financial assurance fund programs and published the data shown in Table 1 ("State Fund," 2019).

However, estimating the potential cost of cleanup is difficult because it depends on several factors, including:

- The type of fuel
- The size of the leak / amount of fuel
- The duration of the leak
- Proximity to drinking water supplies or bodies of water

Finally, should litigation occur, the legal costs involved can significantly increase the total spend.

In addition to navigating the remediation process due to a leaking underground storage tank, complex environmental regulations from a combination of federal, state, and municipal authorities must be followed at each location. The larger an operation, the greater these risks become. The complexity of remaining in compliance increases with each additional site and when locations span multiple states or include disparate fuel equipment, the challenges associated with following all regulations grow exponentially. One of the easiest ways to minimize risk and simplify compliance while keeping a fuel

business scalable is by arming compliance teams with the tools they need to remain constantly aware of every tank, alarm, and site in an operation.

Fuel retailers who are not yet automating the process of monitoring these alarms, risks, and requirements should consider investing in environmental monitoring software. With a return on investment of up to 36 times the monthly subscription costs (according to representative customer studies), this software begins paying for itself on day one (See table 2). Fuel retailers will quickly experience clear benefits across all aspects of their businesses as a result of simplifying compliance, reducing the seriousness and frequency of issues (such as leaks) and delivering a positive customer experience.

Table 2: Actual data showing monthly alarms from a fuel retailer with 150 sites, January to June 2019. Monthly ATG alarm averages were 4,600, with only 700 being "True Positives" or Alarms Needing Action.

Incoming ATG Alarms

(150 Fueling Locations)

 **4,600**
MONTHLY ALARMS

 **700**
ACTIONABLE ALARMS

7 Actionable Alarms


FOR EVERY

39 False Positive Alarms


Table 1: Average UST clean-up costs per state, less liability costs. Source ASTSWMO.

Alabama	\$175,309
Arkansas	\$229,876
California	\$350,000
Colorado	\$250,756
Connecticut	\$207,515
Delaware	\$183,343
Florida	\$240,327
Georgia	\$205,689
Idaho	\$199,118
Illinois	\$133,309
Indiana	\$273,553
Iowa	\$58,925
Kansas	\$109,000
Kentucky	\$144,711
Massachusetts	\$156,004
Mississippi	\$162,164
Missouri	\$96,216
Montana	\$69,961
Nebraska	\$81,678
Nevada	\$120,480*
New Hampshire	\$159,100
New Jersey	\$350,000
New Mexico	\$43,000**
North Carolina	\$173,667
North Dakota	\$62,212
Ohio	\$110,802
Oklahoma	\$128,625
Pennsylvania	\$308,300
Rhode Island	\$250,000
South Carolina	\$16,802
Tennessee	\$104,000
Texas	\$35,300**
Utah	\$177,411
Vermont	\$33,347
Washington	\$99,215
Wisconsin	\$140,000

*biased low
**UST & AST costs averaged

Easing Compliance Vendor Management

Site maintenance is a requirement from the day a facility opens its doors, and managing these needs likely involves multiple vendors storing data on their own systems. This puts a high level of control in the hands of vendors and creates extra work for a retailer's maintenance and environmental teams.

In this scenario, retailers are dependent on vendors for data management. Accessing records when requested by an authority having jurisdiction (AHJ) puts the meeting the retailer's needs on the vendor's timetable, and letting a third party handle the retailer's data automatically causes delays and distances them from the information they need.

The most comprehensive environmental monitoring software systems have application programming interfaces (APIs) or data interfaces with major

testing and SIR vendors, and apps to manage monthly walk through inspections. This helps keep a retailer's sites up-to-date, leading to a vast reduction in compliance or permitting-related fines and ensuring the business is empowered to move forward without worry and without being tethered to a specific vendor.

Investing in a management system also effectively turns the tables and puts the retailer in control of the relationship with their vendors. Without reliance on their specific systems to manage data, a vendor's services become a commodity. In addition to no longer worrying about migrating or losing information when switching providers, these vendors must compete on performance which drives down costs and helps pay for the investment in a software platform.

Investing in a management system also effectively turns the tables and puts you in control of your vendor relationships.

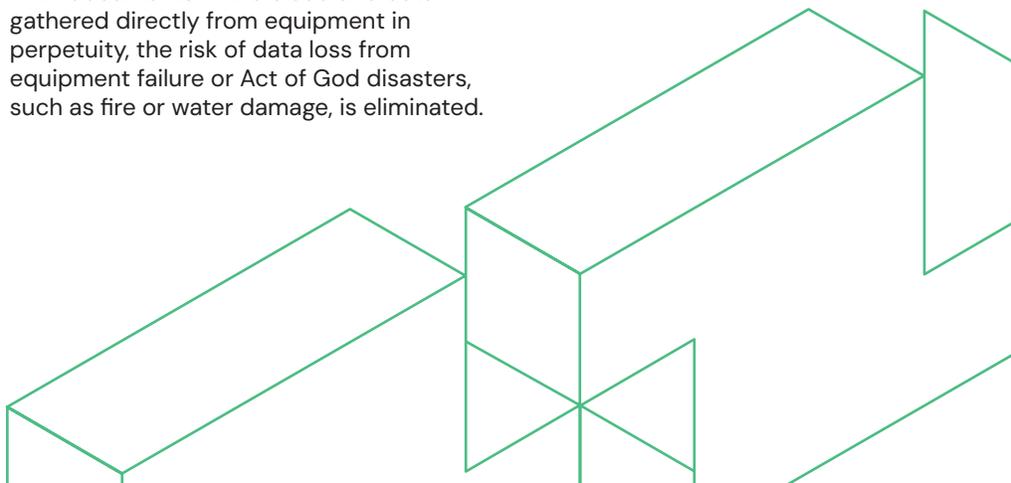
Creating a Single Source of Truth for Fuel Equipment Data

Every operator in the industry is familiar with current methods of document storage. Whether this involves a "compliance binder" at each location in which store-level personnel place all compliance documents or a series of filing cabinets, Excel spreadsheets, and databases, information is not easily accessible. This method of document management also puts the onus on store employees to retrieve the necessary regulatory documents they need. To make matters worse, binders and filing cabinets can be lost in the event of a fire or other disaster, leaving a location—or even an entire region—without the required documentation.

Environmental monitoring software unifies everything on one platform, meaning an operator has a single records retention system for the entire organization that can be accessed by all key personnel. This shared visibility translates into a quick understanding of the equipment installed at a given location and provides the ability

to react appropriately as equipment issues occur and documentation requests are made.

This central "source of truth" is equally critical in the management of regulatory visits, as it ensures all needed documentation is at the fingertips of those responsible for reporting to regulators, greatly reducing preparation time for such inspections and eliminating the perpetual last-minute search for missing paperwork. With documents in the cloud and data gathered directly from equipment in perpetuity, the risk of data loss from equipment failure or Act of God disasters, such as fire or water damage, is eliminated.



Mitigating Environmental Risk and Remediation Cost

Environmental risks are ever-present. One leak can lead to a flurry of unexpected costs, including site cleanup, equipment repair or replacement, downtime, and litigation. Depending on the severity and duration of the leak and a retailer's ability to effectively provide remediation activity details to the applicable AHJs, significant fines may also be assessed.

With manual processes and systems, it is not uncommon for these leaks to go undetected, and that can quickly become costly. If retailers fail to clean up following a UST release, the EPA may issue a noncompliance with an RCRA § 9003(h) order that can lead to penalties of up to \$37,500 per day of noncompliance ("Leaking UST Cleanup," 2017). By providing intelligent, round-the-clock detection of leaks and system issues, environmental monitoring software enables retailers to

respond quickly while also preventing leaks before they start. This can lead to an 80% reduction in environmental fines and up to a 60% reduction of releases and related remediation costs (based on representative data, see Table 3). Financial officers at most mid to large convenience stores set aside cash reserves in order to mitigate their environmental risk. These reserves—often referred to as "environmental reserves"—often reach into the millions because the cost of remediation is so high. With proactive compliance monitoring, the right environmental platform can reduce these reserves by up to 40%, freeing that cash for other opportunities.

Environmental monitoring software unifies everything on a single platform and can lead to an 80% reduction of environmental fines.

Table 3: Representative results from 70 clients of Titan Cloud Software, market leader in SaaS compliance software, over an eight year period.

Benefits of Compliance

Software Investment	Anticipated Value Based on Historical Data
Compliance Management	<ul style="list-style-type: none"> • 80% reduction of environmental fines • 40% increase in compliance efficiencies via automation • Scalability increase of 45% with ability to manage compliance risk at many more sites per FTE
ATG Polling and Alarm Monitoring	<ul style="list-style-type: none"> • 40% increase in compliance efficiencies via alarm workflow • 40-60% reduction of environmental reserves • 80% reduced environmental risk from alarm related leaks/issues • 20% fewer dispatches for fuel-equipment-related issues and alarms via remote tools • 6-8X reduction of false positive and non-priority ATG alarms
Moving from Internal Platform to Hosted Cloud	<ul style="list-style-type: none"> • Severe reduction or elimination of internal IT programmers, servers, and other infrastructure resources/costs



Using ATGs to Their Fullest Potential

The automated tank gauge (ATG) is a retailer's eyes and ears into what is happening with their most valuable asset: fuel. The ATG is an expensive, complex, and often underused piece of fuel equipment installed at every location and connected to all probes and sensors. For a large operator, these installed sensors can number into the tens of thousands.

An average ATG includes over 300 settings that affect an operator's visibility into day-to-day compliance risk. Historically, this expensive device was primarily used to measure fuel volume and compliance was an afterthought. This attitude compounds an operator's risk because it increases the likelihood of missing something the equipment should have caught and notified the retailer of in advance. For example, technicians or vendors who perform routine site

maintenance may forget to reenable leak detection when completing tank tests. This often goes undiscovered until a compelling event, such as a visible leak or regulatory noncompliance judgment, forces retailers to confront the problem.

The primary reason for managing sensors, such as annular or interstitial, is to allow retailers and operators to detect issues before they escalate and become crises. The right monitoring software enables operators to optimize their ATG settings, establish a baseline from which they can track any changes or deviations that occur, and ensure they will not miss any alarms. The best of these software solutions will notify operators when sensors are disabled, or unauthorized changes are made and provide tools for remotely managing those issues and avoiding unnecessary risk.

Detect issues before they become crises.

Triaging and Responding to ATG Alarms

Alarms will always sound, and compliance teams must remain ready to respond, but monitoring software improves the accuracy and efficiency of these responses. The sheer number of alarms—which can number in the thousands per month at an average convenience store operation—can quickly overwhelm compliance teams. Software allows these alarms to be evaluated remotely, determine if remote resolution is possible, and dispatch only for those alarms where it is truly necessary.

Due to the large number of alarms and the frequent false positives received by an average operator, reducing unneeded alarm-related dispatches is imperative and significantly reduces costs by both decreasing dispatches—especially after hours—and increasing a compliance team's efficiency and productivity.

Automating and reducing these alarm counts also significantly improves scalability by allowing teams to monitor more fueling locations without adding headcount or increasing corporate risk.

The entire ATG alarm reception and response cycle can be further streamlined by adding advanced intelligence to alarm automation. The best compliance solutions not only provide tools for alarm triage and remote parameter configuration but can also help assess and respond automatically and intelligently to these alarms. The right software will read and interpret every alarm that comes in, take site conditions into account (e.g. if refilling the tank is triggering a Priority 1 alarm, the software can reassess and categorize based on configurable parameters), and even dispatch service when necessary.



Maintaining the Customer Experience

It is easy to demonstrate how environmental monitoring software can reduce direct costs by limiting fuel loss and decreasing the likelihood and severity of an environmental issue. It is also easy to understand the value of lost sales at the pump when one or more fueling positions is out of service. But the indirect costs associated with customer loyalty and in-store sales are also significant and directly affected by fuel issues. Consumers are increasingly expecting more from every retail experience and fueling is no exception. Environmental monitoring software that reduces or eliminates downtime helps create the frictionless fueling experience consumers want and companies strive for.

According to the National Association of Convenience Stores' (NACS) "Consumer Behavior at the Pump" report, reduced time at the pump and ease of the process are must-haves, though cost remains a customer's main selection criteria. This at-the-pump experience can be part of what

encourages them to—or discourages them from—visiting the store. Nearly 40 million Americans stop for fuel every day and just under 50% of these customers come in the store. With roughly two thirds of a location's profits coming from in-store sales, retailers cannot afford to lose customers due to a fueling position that has been disabled as a result of a tank shutdown triggered by an ATG alarm, a leaking storage tank, or other issue (NACS, 2019). Uptime keeps customers coming back and increases the odds of them visiting the store.

The environmental team remains critical to operational success, but investing in environmental monitoring helps enhance compliance, risk response, and the overall customer experience. In other words, one piece of software improves just about every aspect of day-to-day business. Fuel retailers who plan for this investment into their budgets demonstrate a focus on the year ahead and invest in long-term growth.



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Summary



The **average cost of cleaning up a UST leak is \$154,000** and, if groundwater contamination occurs, this number can quickly increase **to well over \$1 million**; potential litigation costs only increase these numbers.



Failing to start or complete cleanup following a UST release can lead to an **RCRA § 9003(h) noncompliance order from the EPA**, resulting in penalties of **up to \$37,500 per day** of noncompliance.



Financial officers at most mid to large convenience stores plan against environmental risk by **setting aside cash reserves**. These environmental reserves are often high because remediation costs can be significant. The right environmental platform helps **reduce these reserves by up to 60%** through proactive compliance monitoring.



The **return on investment for reliable environmental software** platform can be up to **36 times its monthly subscription costs**, according to representative customer studies.



Investing in a management system effectively turns the tables and puts the operator in **control of their data, reducing vendor costs**.



As fuel operators expand store count, both by acquisition and organic growth, managing environmental **compliance becomes increasingly complex**. A reliable software platform that automates compliance — and is agnostic to fuel equipment such as ATGs and dispenser brand — **eases scalability without adding head count**.



With roughly two thirds of a location's profits coming from in-store sales, operators simply cannot afford to lose customers due to a disabled fueling position. Uptime **keeps customers coming back** and **increases the odds** of them visiting the store.

References

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As businesses manage against unpredictable demand, increased volatility, and rising costs, leaders across industries are turning to Titan Cloud technology to gain unprecedented connectivity, visibility, and control into their fuel assets and operations.

Learn more at titancloud.com

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