

Operator Training 10 Years Later... Are We There Yet?

by Marcel Moreau and Ben Thomas

And They Should Know!

Ben and Marcel share a longstanding interest in UST operator training. Marcel gave his first operator training class in 1993 in West Virginia and presented many more operator training classes across the US throughout the 1990s. He can be reached at marcelmoreau@juno.com. Ben taught the nation's first state-approved Class A/B operator course in Oregon in 2003. Since then, nearly all of Ben's days have focused on providing Class A, B, and C UST operator training. He can be reached at ben@usttraining.com.

A Glance Back...2010

In June, 2010, we published an article in *LUSTLine* (Bulletin #65) about operator training called *Operator Training Has Left the Station: So Where Are the State Programs Headed?* You can find the original article in the *LUSTLine* archive on the NEIWPCC website: http://neiwpcc.org/wp-content/uploads/2020/07/lustline_65.pdf

At the time we wrote the article, some states had already established their training programs, but most were still working toward the August 8, 2012 deadline established in the 2005 Energy Policy Act (EPA) for the implementation of operator training. In the article we outlined four approaches that states were taking to implement operator training.

We focused on how states were implementing Class A/B training because that is where states had the biggest role to play, inasmuch as the EPA Act allows Class C operators to be trained by Class A/B operators. In addition, we were very interested in how operator training might improve compliance with the UST rule, given that the duties of the typical Class A/B operator were closely linked to UST operational compliance. The four basic approaches that states were taking to implement Class A/B operator training that we described in 2010 are summarized in Table 1. See our original 2010 article for a more detailed description of how various states were implementing these approaches.

As far as we can tell today, about two-thirds of states and territories have the operator fund the training, while in about one-third of states and territories the implementing agency funds the operator training. Online training is the most popular method of providing the training, with about two-thirds of states and territories offering or approving

State funded, Internet Based	State funded, Classroom Based
The implementing agency provides an online program to train operators at no cost to the operator.	The implementing agency provides live classroom training (either by state personnel or private contractors) at no cost to the operator.
Operator Funded, Market Based	Operator Funded, Examination Only
The implementing agency approves training provided by private entities. The training can be live classroom or online. Approved training providers also administer exams they have created and provide successful trainees with a certificate. The operator bears the cost of taking the course.	The implementing agency specifies an exam that must be passed to show that a person is a competent UST operator. The operator pays the exam provider to take the exam. The implementing agency plays no role in providing or approving training.
Table 1. Summary of the four basic approaches to operator training that states were taking in 2010. These four approaches are still useful in describing how states are implementing operator training today.	

online only, and another fifth of states and territories offering or approving both online and classroom training. Only a few states and territories have gone with the exam only or the classroom only approaches to operator training.

A question we asked in 2010 that remains relevant today is how to measure the success of the operator training program. Here's what we wrote in 2010:

"All too often, regulators measure success by the mere fact that a required program exists. While the existence of a program is no doubt a significant achievement, the purpose of the EPA Act was not to increase bureaucracy. So how will the states measure the success of their UST operator training programs? Will it be measured by the number of certificates issued? By the number of people who take the various courses? By the increase in

reports of suspected or confirmed releases? By increases in the rates of significant operational compliance?"

What made the most sense to us in 2010 was that because the goal of operator training was to increase compliance with UST requirements, the rate of significant operational compliance (SOC) as measured by implementing agencies during facility inspections would be a reasonable way to measure the effectiveness of operator training. USEPA began reporting rates of SOC in the USEPA semiannual report of UST compliance measures in 2002. For a description of the SOC measures, go to: <https://www.epa.gov/ust/significant-operational-compliance-soc-performance-measures>.

In 2010, we looked at this SOC parameter for California and Oregon, two states that already had operator training rules in place for five and six years respectively. We found that there was a clear improving trend in Oregon's

SOC but not California's. We were heartened by the Oregon trend and disappointed by the California trend. But we recognized that California's UST rules were much more complex than Oregon's, so improving SOC in California might be more of a challenge than in Oregon. Clearly, just two states was too small a sample to draw any firm conclusions about the effectiveness of operator training.

Measuring Effectiveness...2018

We took a nationwide look at state-level SOC data during a workshop at the 2018 UST National Conference in Louisville, KY. With a roomful of attendees, we reviewed state-level SOC numbers as reported in USEPA's semiannual report of UST performance measures for the period of 2008 to 2018. We graphed the percentage of facilities in compliance with combined release prevention and release detection components of SOC. The plots also indicated the year of the state's operator training deadline, so any trends from before and after the deadline could be visually discerned.

We found that many states had considerable variation in their SOC numbers over time, with the percentage of facilities in SOC increasing in some years and decreasing in others. Some states showed significant improvement in SOC over time while others did not. The presentation slides which include the graphs for each state are available at: <https://neiwpc.org/wp-content/uploads/2018/10/Thomas-1.pdf>.

'Tis a Puzzlement

We couldn't identify specific factors responsible for this variability in state and territory SOC numbers. Our "best guesses" for factors that might be behind the variability include:

- Some states and territories had operator training deadlines well after the federal deadline of August 8, 2012, so there was little time to show training effects on SOC numbers.
- We didn't know the rate of compliance with operator training for each state or territory. Theoretically, the lower the percentage of trained operators, the less the effect of the training on the SOC number.
- During our study period, some states adopted stricter rules,

making it harder for a facility to achieve SOC. Although there is a nationally defined SOC, some states have more stringent regulations than USEPA and base their SOC on these more stringent requirements.

- There could be variability in how states and territories interpret the SOC measures.
- Not all operator training is equally effective in communicating the regulatory requirements.
- Some states and territories offer a single method of instruction (e.g., state-funded online or state-funded classroom). Not all learners learn the same way, so a single approach to instruction may not meet the needs of all students.
- Becoming trained may not translate into operators changing their behavior in the desired direction (e.g., operator comments Ben has received range from "At least now when I go to jail I'll know why," to "Now I look at and respond to ATG alarms when I used to ignore them."

From our armchair perspective, it sure seems like SOC numbers should provide some indication of the effects of operator training on regulatory compliance. But the substantial variability in many state's SOC data from year to year likely indicates that there is a lack of consistency in how the data are gathered. In addition, we were not able to effectively isolate certain variables like

new, stricter rules that could influence SOC numbers. Understanding SOC trends over time likely requires much more in-depth study of state programs than we can undertake.

Aha, the Technical Compliance Rate

We considered carrying the Louisville study forward two years to 2020 for this article, but we were foiled by the 2015 UST rule changes. These changes introduced new responsibilities for owners and operators, which then required changes in the criteria for SOC. The new criteria for compliance were given a new name: Technical Compliance Rate (TCR). Some states began reporting the TCR rather than the SOC in 2018, so the pre- and post-2018 compliance rates are not comparable. We decided that looking for longer term trends in SOC beyond 2018 as we did for our Louisville methodology was not feasible.

How About the Folks with Their Boots on the Ground?

If the hard SOC numbers don't provide convincing support for the benefits of operator training, how does operator training appear to the folks who are working with it on a frequent basis? We decided to circulate two brief surveys to see what the two populations most affected by operator training, regulators and the owner/operators (O/O) themselves, thought about the program.

We surveyed regulators via the ASTSWMO emailing list to get some anecdotal data on whether state personnel felt that operator training was

Our Online "SurveyMonkey"

The ASTWMO survey:

- Sent out to about 110 addresses representing all 50 states and US territories.
- Requested the respondent's state, but did not identify the respondent by name.
- Received 27 responses from 23 different states and territories. One respondent did not identify their state, and we received two responses from three of the states.
- Not every respondent answered every question.

Ben's newsletter mailing list survey:

- Sent out to more than 9,000 individuals representing primarily UST O/Os, and to a lesser degree inspectors and technicians. Only UST O/Os were asked to complete the survey.
- Respondents were asked about number of UST facilities for which they were responsible.
- Respondent or respondent's company were not identified by name.
- Not every respondent answered every question.
- Received 83 responses.

No regulator skipped this question, and many cited more than one item that they thought was the worst thing about operator training. No dominant issues emerged.

- Three (11%) regulatory respondents cited high turnover among operators as a training challenge.
- Three (11%) felt that refresher training was needed because the O/Os training faded with time.
- Three (11%) thought there was too much information being presented in the training.
- Another 3 (11%) respondents felt operators did not take operator training seriously enough.
- We categorized 13 (56%) of the responses as “other.” With issues ranging from the burden of administering the program to the boring content of the training.

What the O/Os Said

Sixty-two O/Os responded to what was the worst thing about operator training; 21 skipped the question.

- Of those who responded, we were surprised that 12 (19%) said there was “nothing” wrong with the training.
- Eleven (18%) O/Os thought the training took too long or covered too much material. We suspect that these O/Os took training that was not site specific.
- We were not surprised that 6 (10%) of O/O respondents did not like to take an exam at the end of the training.
- Four (6%) O/O respondents felt the training was just another bureaucratic requirement that was not relevant to the operators’ core business.
- Three (5%) complained that the training was not site specific.
- Three (5%) did not like the cost.
- Three (5%) thought there should be refresher training.
- We categorized 20 (32%) of the O/O responses as “other” one-off complaints.

If Respondents Had to Do Operator Training Over Again, What Would They Do Differently?

What the Regulators Said

Twenty-six regulators responded to this question while one skipped it. Two strong themes emerged and 2 lesser ones.

- Seven (27%) respondents would require refresher training of some type.
- Six (23%) would provide facility-specific training. A number of states provide facility-specific training by linking online training to information in their UST database. When an operator identifies the facility that he/she is interested in, the program presents only the training modules that apply to the equipment present at that facility (as documented by the facility registration). The operator’s certificate is then tied to that facility.
- Three (11%) respondents would provide more online training, while 2 (8%) would provide more classroom training. Allowing both online and classroom training options is perhaps the ‘best’ route because it allows for multiple learning styles, although this places an additional burden on regulators to develop or approve both online and classroom courses.

What the O/Os Said

Sixty-two O/Os responded to this question; 21 skipped the question. The dominant responses to this question had to do with the method of training.

- Twenty-two (35%) O/Os would do “nothing different,” while 6 (10%) would use a classroom setting. The dominant method of training for our O/O respondents was online training, so this seems to be a reasonably strong endorsement for online training.
- Five (8%) O/Os would prefer to have facility-specific training.
- Three (5%) O/O respondents would like to have refresher training, while 2 (3%) would train additional staff. Though small, these numbers point to the value that some O/Os place on operator training.
- Two (3%) O/O respondents wanted training specific to emergency generator systems. We know of no operator training that specifically targets emergency generator UST systems.

We think the norm of the UST program should be ‘continuous improvement’ rather than accepting the status quo.

We sympathize with operators of emergency generators who must sit through much irrelevant content to obtain their certification.

- We categorized 17 (27%) of the responses as “other.”

Are We There Yet?

We feel obligated to repeat that the survey results presented here are not based on random samples of regulators or O/Os and the results cannot be extrapolated to the entire UST community. That said, the respondents to our survey hint at the following:

- A significant portion of regulators and O/Os see some value in the operator training program.
- Although online training is more prevalent, both online and classroom training techniques have their proponents.
- Many regulators and some O/Os would prefer site-specific training.
- Many regulators and even some O/Os would prefer more refresher training.

So, are we there yet? Stepping back and considering our previous study for the Louisville workshop, the present-day surveys, and our many years of direct contact with thousands of O/Os, we think the operator training program has covered a huge distance since its inception 15 years ago. There is no question the EPA Act of 2005 launched a massive program with significant effects on thousands of regulators and hundreds of thousands of UST O/Os.

It’s a big program, but is operator training beneficial? Both regulators and O/Os see some benefit, and we were a bit surprised to find that in our small survey samples O/Os were a bit more positive about the program than the regulators (see Figures 3 and 4). Surely this speaks well for the value of the program to many O/Os.

But given the seemingly endless variety of UST systems, O/Os, learning

The Type of O/Os Who Responded to Our Survey

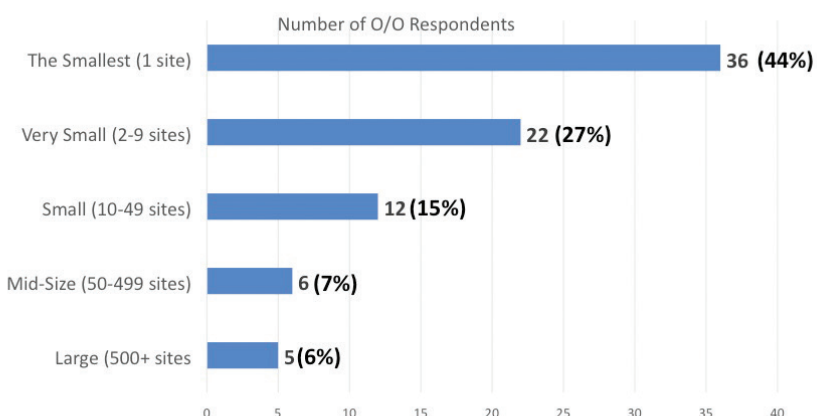


Figure 2: The majority of O/O respondents were small, with 44% running a single store, and another 27% responsible for 2-9 stores.

How Regulators Rated Operator Training

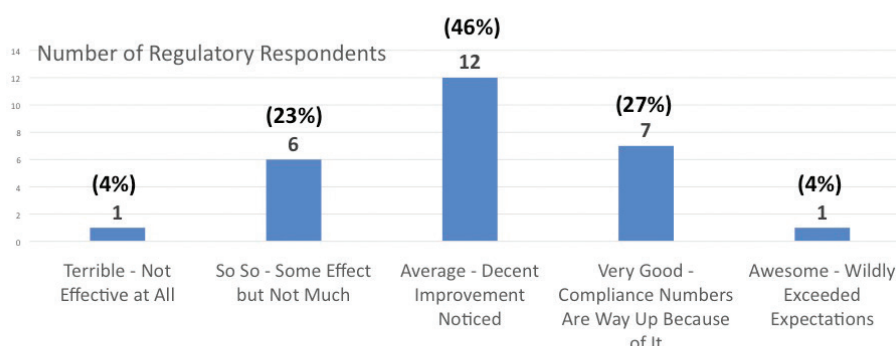


Figure 3: State/Territory UST agencies rated the effectiveness of operator training on a fairly symmetrical bell curve, with 'Average' as their most frequent response and 'Terrible' and 'Awesome' each garnering a single response. On a scale of 1 to 5, the weighted average of the responses was 3.0.

How O/Os Rated Operator Training

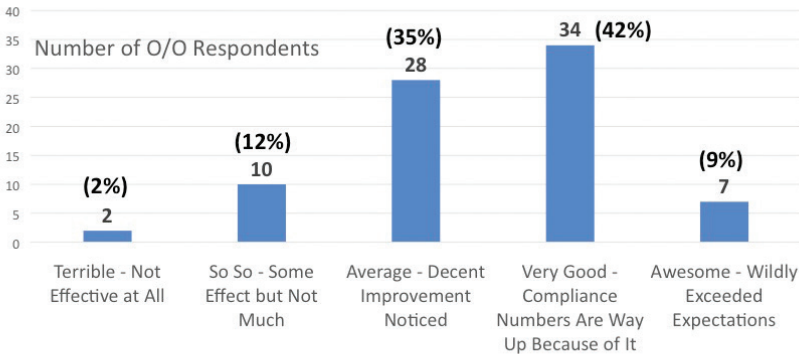


Figure 4: Owner/operators rated the effectiveness of operator training on a curve that leaned slightly toward the higher end of the scale, with the most frequent response being 'Very Good.' There were 2 ratings of 'Terrible' and 7 ratings of 'Awesome.' On a scale of 1 to 5, the weighted average of the responses was 3.4.

techniques, training venues, end-user motivations, enforcement models, state and territory UST regulations, and compliance metrics, it would require a much more sophisticated study than we can provide to quantitatively determine the

effectiveness of operator training in achieving the ultimate goal of the UST program: protecting human health and the environment. But with a nod to Ron Brand, founding father of today's UST program, we think the norm should be

'continuous improvement' rather than accepting the status quo.

Here are some of the challenges that we see and possible approaches to continued improvement:

- **Organize and share reviews.**

There is huge diversity among the people to be trained, from the UST managers of national chains with thousands of facilities to mom and pop operators of single convenience stores. There is likely room for many different successful and effective training strategies from a variety of vendors. But how is a UST O/O to evaluate them? Perhaps an operator training rating website could be created where users could leave comments and ratings to help steer O/Os in search of good training to the better vendors. This would encourage all vendors to up their game to improve their ratings in hopes of attracting more customers.

- **More discussions.** Perhaps there could be a session at an upcoming national conference focused on 'best practices' in operator training, with presenters not only from the regulatory sector but also from O/Os who could talk about what they like and don't like about current approaches to operator training.

- **National Evaluation Protocols.**

Perhaps USEPA could publish a document for operator training similar to the leak detection evaluation protocols that are used to evaluate leak detection methods. The operator training protocol would flesh out the generic guidance for operator training contained in the EPA Act of 2005, providing a description of the minimum content for the various topics that should be present in an operator training course. Vendors could use the document to be sure their courses covered all the bases and implementing agencies could use the protocol in their evaluation of which vendors would be accepted in their jurisdiction.

These are our thoughts. What are yours? ■