



*When it comes to testing water treatment discharge, outsourcing options offer flexibility and reliability.*

**By Henry Vere**

Testy over tests? There are plenty of options when it comes to testing wastewater, treated wastewater, or drinking water, and often outsourcing can be a boon to a busy facility. Operators may have labs onsite or may opt to have samples sent out to independent labs or have a laboratory handle all aspects of testing and hiring employees to handle the testing and other functions at a water or wastewater plant. As the options grow, along with the number of state and federal regulations, here is what a few of those supplying these critical services have to say.

### **Keeping Up With Regulations in the Garden State**

Harvey Klein is the laboratory manager for Garden State Laboratories Inc., an independent bacteriological and chemical testing laboratory in New Jersey that specializes in testing for wastewater and drinking-water companies. The lab has been involved with testing since 1943. The biggest changes have come, according to Klein, in the area of federal and state permits.

Much of the wastewater testing is performed pursuant to those permits, including the employment of federally approved methods for carrying out those tests, cited in 40-CFR136. In March 2007, the EPA updated its latest set of approved methods for 40-CFR136 as well as for drinking water, which is a different section.

“Over the years the government agencies have been certifying labs,” says Klein. “Many states certify labs for wastewater analysis; some do not. New Jersey does require it; the EPA does not require the laboratory be certified but requires that it follow the approved methods in 40-CFR136.

“Our laboratory is also certified through the National Environmental Laboratory Accreditation [NELAC], which is a recognition program among some of the states.

“Most small systems do not have their own laboratories. The size or volume of the discharge can have an impact on what tests are required. But even the smallest package plants have to do some testing, and in general they’ll either use an outside laboratory or a lab based upon whoever is running the plant,” Klein says.

Tests such as those for pH or chlorine can usually be done easily and quickly by an operator as can a test for biochemical oxygen demand (BOD), total suspended solids (TSS), or chemical oxygen demand (COD). The standard in the industry is to measure the oxygen used by the microorganisms (BOD), over a period of five days.

“These tests might be run by the operators themselves, or they may choose to send them to an outside lab,” adds Klein. “Everyone’s different. The constant challenge for us is keeping up with all the additional state and federal regulations. It’s required for the privilege of discharging to ensure that it’s not going to have a negative outcome on the environment.

“Plants take constant supervision and maintenance, unlike 50 years ago when they were fairly rudimentary; now they are sophisticated with the need for constant care, control, and monitoring of the influent and effluent to ensure proper functioning. It’s no longer a simple task but a major engineering challenge.”

### **Worldwide Company With Important Niche in North America**

SGS Group is an international testing corporation, which owns a few North American testing labs, including labs in Ontario, North Carolina, and Alaska. SGS manages some water treatment plants in locations throughout the world—it is one of the largest global environmental laboratory systems—but it is trying to have a larger presence with environmental testing in North America.

According to David Meyer, vice president for environmental services—North America with SGS, “If you have a water treatment plant, some internal testing may be done, but typically the testing needed for compliance is easily done by a third party such as an independent laboratory for analysis.

“We do water testing all over the place and do work for municipalities. But their tests are run on a daily, routine basis and typically they’ll handle it; we carry out quarterly testing for compliance. If a new method comes out for testing, we set ourselves up to perform that,” says Meyer. “But we are certainly capable of doing any or all of the testing needing to be done. We market some of those tests, but not a lot of them.

“Typically the type of water testing we do is groundwater, monitoring well water or surface water, and any tests along those lines. We also do a fair amount of the wastewater testing for the cruise line industry.”

Meyer admits with cruise line—industry wastewater testing the biggest challenge comes with logistics. A ship coming into ports around the world is under regulations in different countries as well. The principal thing with a lot of these water tests is they have a short holding time.

“Someone must go to the ship with a sample kit with bottles, make the sample, and then find a laboratory in the area which can both do the proper test and which does in fact have the proper certification,” says Meyer. “They also must be able to do all this in the right amount of time. Reports must be submitted—normally within 10 working days—to the global compliance group for the cruise ship industry.

“Since we’re a global company, as a rule we can get all this done with a simple phone call; however, we do manage that business out of a call center in Charleston, West Virginia. The analyses aren’t that complicated, as they are regulatory-driven, but it is the logistics that drives all this with perhaps some impetus from past incidents that have occurred in the industry.”

SGS handles “gray” and “black” water from the cruise industry, though at this point there are not real regulations for ballast water. “But ballast water is becoming a bigger issue all the time,” says Meyer. “This is not just in the cruise line industry but for tankers and things like that. For example, water taken on in Africa as ballast may easily impact the water and ecosystem in California or Alaska, where it may be discharged later.

“Analytical laboratory testing is our largest activity in the North American market. But the quality of water, and how much of it we have, is going to be a bigger issue with each passing year. We’re trying to position ourselves so we can support any of these efforts as they go on to ensure everyone has clean, safe water.”

### **When Outsourcing Is Done for Specialty Testing**

Jerry Hodges, vice president and chief financial officer of RespirTek Inc., a six-year-old testing lab in Biloxi, MS, sees problems with many professional people in the US as having lost jobs to outsourcing to foreign companies, especially in the IT area. “But what our Web site says to people, even those with their own onsite labs, is: ‘You don’t have to do that anymore. Just call us and we’ll take care of all your testing needs.’

“Our focus was primarily where people used respirometry, a unique science requiring good experience before one can reach a place where they can interpret the results related to respirometry.”

Companies that have purchased respirometers—and subsequently lost the person who was able to interpret those test results—are usually hard-pressed to find an easy replacement, according to Hodges. “Respirometry is such an exclusive type of test that a company will only tend to have one person trained to handle this work. Loss of the worker means loss of this intellectual property as well.”

RespirTek has started to look at product testing for biodegradability. The lab has been approached by a number of manufacturing companies interested in seeing if their waste products may be biodegradable. Consumers are now more interested in purchasing biodegradable products. Hodges has found there are a number of places where testing regulation methodology relates directly to how one is able to determine if a product is biodegradable.

“With all the concern about the environment and pollution heading into the soil and water, manufacturers of these products are becoming more concerned about it,” says Hodges.

“That’s something we’re providing for these organizations, the ability to help them a) get a yes or no answer as to whether or not their waste is biodegradable and b) if it’s not we can look from a research prospective and see which ingredients may be problematic for microbes and the ability to consume the product or not.

“This is actually also a perfect outsourcing fit. A company may not have the capacity or biological know-how to perform such a study or test, so they could easily approach an organization such as ours to accomplish something such as this.”

Hodges feels that though conceivably some OWT lab testing could be outsourced to places as distant as India, he also sees constraints. Some regulations require that no more than 24 hours can have elapsed from the time a sample is pulled to the time a lab receives it. “It would be difficult to outsource something like that to outside the country. But as long as you have FedEx, outsourcing within the US can be easily handled.”

### **Covering Nearly All of the Details**

The Analytica Group has four laboratories in Alaska and three in Colorado. *Analytica* is the Swedish word for chemistry, as the company was originally a Swedish company. What usually happens with most municipality situations Analytica handles is that those agencies will have a lab and they’ll go out with a formal bid looking for someone to manage their onsite laboratory. These typically are consulting companies that have chemists or the type of people able to perform such work and will man the laboratory.

In 48 out of the 50 states, a lab must be certified in order to perform testing of drinking water, according to Kelly Suvada, in marketing and service coordination with Analytica Group. “Wastewater testing isn’t always the same as that for drinking water, but in most states they have some sort of certification process,” says Suvada.

“Therefore most municipalities don’t run all the required tests or are not all certified and it really runs the gamut. We’ve done testing for three or four municipalities just within the last month. One medium-sized municipality may run five certified tests of their own and outsource the rest to us while another doesn’t do any testing at all or does only minimal tests such as pH or conductivity.”

The compliance issue deems it probable that even the largest municipalities in many states will still outsource at least some of their testing. Suvada sees that the biggest challenges for the large water treatment plants is understanding and knowing the chemistry behind some of this testing as well as keeping up with all the regulations—an issue echoed by others in the industry.

“What makes our company exceptional is that we’ve created something called ‘product-based’ solutions. If you are a wastewater treatment plant and have a wastewater permit—doing some testing in your own lab but needing to outsource some others—if you give us that information, our product-based solution for that scenario involves signing up for a program which takes care of all of your testing needs. This program will take care of scheduling and tracking of when certain parameters must be met. This is in effect a turnkey solution for meeting their testing needs.”

Historically, laboratories proceeded test by test. If a metals test was needed, the lab was called, bottle sent out, and sample submitted. Analytica tries to look at the big picture to address even things such as staffing and personnel.

“We challenge water plant operators to think differently about what they expect from a testing lab. We can certainly provide all the certified tests. But we also ask, ‘What else can we do for you? Can we do some of the paper work, scheduling, interfacing with state regulators, or can we package things to meet the regulatory demands of the different water-quality clients out there?’ This is for both wastewater and drinking-water plants. Those two things do in fact have very different needs. In the end it’s all about time.”

Suvada says Analytica likes to use the analogy of doing taxes. If you hate doing taxes or working with numbers, of course it would be a major time and headache saver to have

someone else do them for you. “But on the other hand I also want to know that the person doing them knows everything about them and I can just hand the work to them. It keeps from using up a lot of my time. But in our case it is more than just the testing; it’s all the other stuff as well.”

Analytica tries to both meet the demands of the water system operators and address all their compliance testing needs. But in the process they also alleviate a lot of the administrative and regulatory duties so they’re freed up to do what they do best: providing clean and safe drinking water or treated wastewater.

Suvada says at the recent Colorado Rural Water Association Conference, attendees learned that the age of certified operators is such that 80% of their certified operators will be retiring within the next five years. There’s a huge generation gap with who’s going to be manning these water plants in our future.

“Outsourcing most likely will not be able to pick up the slack in that looming issue. Operators are going to go away. We’re working hard within our state to institute training programs to bridge this generation gap. Someone has to be on hand, physically, at these plants. The certification process for work in a drinking-water plant takes, on average, nearly two years.

“We have to be starting now as these will be some very much in-demand jobs before the end of the decade. Because of budgetary constraints, these systems only have so much money for salaries for the operators.”



Photo: RespirTek Inc.

*Operators may use onsite labs or opt to outsource the sample testing.*

Alaska presents a special challenge, as there are facilities scattered all over the state and it’s a huge state whose population isn’t always booming. Native tribal councils and the state come into play too. Colorado, being a green state, has environmental factors that come into play, and because its regulatory atmosphere is more established, it has an easier time, according to Suvada.

“In Alaska it’s taken something such as the Exxon Valdez oil spill to get folks to start wondering, ‘Hey, what are we drinking and what are we doing to our environment?’”

### **In a Challenging State Environment**

Federal Coast Guard regulations and state regulations mandate that specific guidelines be met in order to discharge within Alaskan waters. Admiralty Environmental LLC provides third-party independent project managing and sampling services for the cruise ship industry to meet the regulations.

The whole project runs off a quality assurance/control plan the company developed seven or eight years ago. It has been revised annually and operated under since then. “Individual cruise lines contract us to do independent sampling for them in order to comply with regulations,” says Dave Wetzel from Admiralty.

“We manage their projects, organize sampling schedules, and then go out and take samples, delivering them to the laboratory for analysis. It’s independent of any of their employees, another layer of insurance that they’re really meeting environmental standards and that those employees aren’t doing anything to those samples to skewer the results.”

Admiralty is audited by all the state’s regulatory agencies as well as an independent, quality-assurance auditor hired by the company for the purposes of this project. That independent auditor then reports directly to the regulatory agency as well. “There’s quite a bit of scrutiny,” adds Wetzel. “We’re simply the contractor in the middle performing all the ground work and providing the information for the regulatory program.



Photo: Admiralty Environmental LLC

*Hiring outside firms for testing keeps data results impartial.*

“We’ve developed other consulting projects where we advise them on purchases of equipment and train their environmental officers to run internal tests for their own purposes so they can monitor their systems in between the official test we do for them.

“Several cruise ships now do daily or weekly checks on systems just to see how they’re running. Despite the set system, they wanted to monitor their wastewater treatment arrangement even more closely and not have to wait for lab reports to come back only to discover things were out of line.”

Admiralty also does some small treatment plant operation samples and municipalities. They have technicians who are samplers in addition to doing some degree of consulting on how systems are operating, together with the development of internal testing system to produce their own results for internal purposes.

“Most of the stress is on the operators or permit holders,” adds Wetzel. “All they can really do is contract us to go out, and whatever we observe or record, in effect, analytical results are what they are.

“Any possible stress comes with changes in regulations and adapting our programs to meet those. Our clients are trusting us to set up schedules that help them meet regulations; if we don’t do that, have an omission, or miss a sampling event, the regulatory consequences are all theirs, not ours, so we have to make sure we’re accurate in all we do.

“On the municipal side of things, by hiring an outside firm to do sampling and testing, the motivation to influence the results favorably is eliminated. We keep things impartial. There’s no incentive for us to manipulate results. It helps the whole process for people to use us because of that feature.”

Wetzel sees the growing amount of specialization on the horizon as making it more efficient to outsource wastewater testing and to pay things as you go along, rather than to try to train someone in the same manner. “The choice of whether to replace retiring workers or hire

outside firms to do sampling is a choice municipalities will have to grapple with,” says Wetzel.

Admiralty is also looking into doing assessments of companies for greenhouse gas emissions and carbon balances. Wetzel feels the next wave of environmental regulations will be looking at global warming.

“But in the interim we’re offering more of an environmental partnership with clients instead of just the commodity of providing sampling results. We can help them look at their overall programs, whether plant or cruise ship. We’ll work with them to help meet regulations.

“There are plenty of laboratories out there just doing commodity-type work where samples can be brought in and a piece of paper handed out at the end. What we’re trying to do is blend the consulting world with analytical work, helping clients interpret permits they have to meet and provide certified sampling for them—giving them a comprehensive product.”

*Henry Vere writes about energy, water, and related industries.*

**OW- September/October 2007**