

ENVIRONMENTAL LABS AND TESTING SERVICES

It's easy to take for granted the freshness of the milk we drink at breakfast. Most of us don't give a second thought when we walk on rich Alaska soil or through verdant ecosystems. Aquifers filled with millions of gallons of unpolluted water buried beneath commercial and residential properties are expected. But does the benefit of fresh dairy, clean soil, and potable water come to fruition by happenstance or design in Alaska?

Ensuring Healthy Lab Services and Testing

Patryce McKinney isn't just the chief over a state laboratory; she's also a biologist. McKinney is in charge of the Environmental Health Laboratory (EHL) under the Alaska Department of Environmental Conservation (ADEC) Division of Environmental Health. The lab supports state and national environmental health programs and also certifies and accredits commercial and municipal laboratories that conduct chemical and microbiological sampling of food, soil, and water.

McKinney explains there is a niche market in private lab services and testing in Alaska. Federal regulators scrutinize the process assiduously. ADEC is the state's overseer and complement to ensure compliance of federal laws like the Clean Water Act, Safe Drinking Water Act, and Solid Waste Disposal Act. The US Environmental Protection Agency, US Food and Drug Administration, and the US Department of Agriculture Food Safety and Inspection Service also work with EHL to keep consumables, vegetation, and soils clean and safe.

EHL's purview covers environmental health, so rather than things that come "out of" humans in a public health sense, the laboratory addresses everything that touches or "goes into" humans. McKinney notes there are twenty-six microbiology labs in the state that test drinking water quality. Alaska has five water chemistry labs that test parameters of chemicals like pH, arsenic, nitrates, alkalinity, and ammonia. There are three contaminated-site labs in the state measuring for petroleum and hydrocarbons in the soil, as well as two dairy producers with lab testing for milk.

McKinney enjoys her job and its functionality, thriving on the safety and protection facets of the occupation. She's worked for the state for five years and in the private lab industry for ten years. The EHL is headquartered in Anchorage with fifteen technical staff including microbiologists, chemists, and technicians.

Private Labs Making Measurable Difference

"My focus is to maintain federal dollars and retain employment of trained Alaskans so we can keep labs open and effective in the state," says Charles Homestead, general manager of SGS North America.

Homestead is a chemist overseeing sixty-one environmental science professionals along with three buildings totaling twenty-four thousand square feet of lab and testing facility space in Anchorage. SGS is the largest full-service testing lab in Alaska, opening its doors in 1964. Homestead has been the manager since 1996.

Focusing on a wide variety of organic testing for contaminants at cleanup and remediation sites, spill responses, and inorganic testing for elements like metals, sulfates, nitrates, and water quality, SGS remains busy throughout the year state-wide. The company recently assisted testing during the demobilization in Barrow of a commercial project utilizing its mobile lab that required a C-130 Hercules aircraft and cat trains to transport the temporary testing facility.

Diversity in lab testing is a signature attribute of the company, as it routinely provides drinking water analysis in Anchorage and across the state, including remote sites. SGS performs wastewater analysis, assessing discharge samples for the Municipality of Anchorage and private companies in the city, offshore for petroleum companies' oilrigs, and at remote construction sites ensuring environmental and aquatic life are undamaged.

SGS has offered spill response lab testing and services long before the Exxon Valdez 1989 oil spill in the Prince William Sound. As a result of its experience and longevity, the company was integrally involved in the Valdez spill's cleanup analytics and has since worked on various soil and water

Keeping Alaskans healthy

By Tom Anderson

projects involving diesel, gasoline, heavy metal, and polychlorinated biphenyl spills.

Homestead and his lab team have worked on commercial property assessments and Dalton Highway Haul Road spills to and from the North Slope. SGS has been retained to test vast amounts of samples for the US Department of Defense remediation base sites, which he says will generate over \$1 billion in lab testing on sites spread across the state from Southeast Alaska to Attu Island of the Aleutian Islands. The enormous amount of remediation projects will ensure healthy, robust lab testing services for many of the companies in the industry while protecting Alaska's environment and communities, Homestead says.

Specializing In Mobile Lab Testing Delivery

TestAmerica Laboratories offers the full array of testing of water and soil in Alaska. The company is actually the largest private environmental testing service in the nation with more than eighty locations in the United States.

Troy Engstrom is TestAmerica's lab director for the state, headquartered in Anchorage. A chemist with over twenty years of environmental services experience—ten with TestAmerica—Engstrom is particularly cognizant of the company's comprehensive mobile lab services reputation in rural Alaska.

TestAmerica, similar to SGS, Analytica, and the majority of large and small private Alaska environmental labs, works directly with engineers and environmental consultants who provide samples to be tested. Construction and engineering companies like Western Construction & Equipment, Environmental Resource Management, Ahtna Engineering Services, and Chem-Track Alaska use Test America's services and often need immediate results and testing information. Resource development companies like Shell, Chevron, and BP also utilize the company's lab services. Mobile units are an important part of the analysis and afford expediency, which often matters when dealing with corrosive and harmful elements after a spill or leak.

Engstrom says there is a range of services TestAmerica's environmental labs offer

in the state. On one project, for instance, an abandoned military base requires soil testing, while another site involves landfill and nearby water sources being evaluated. Fuel spills and even naturally occurring dangers, like high arsenic levels in water or mine tailings, all fall within the range of testing protocols and elements.

The process is straightforward. Typically an environmental engineer is hired by a construction or oil company client; water and soil samples are extracted; samples are provided to the lab; thereafter tests are performed and a report is furnished highlighting concentration analytics. Mobile sites offer a lab on-site with a 24-hour turnaround and satellite/Internet assisted communications. This is critical in a state the size of Alaska.

Occasionally TestAmerica assesses biomarkers for salmon, clams, shrimp, marine tissue, and plants, but this is not as routine as soil and water testing, adds Engstrom. Mercury may be a problem with halibut and other bottom feeders, data findings the Alaska seafood industry US Fish and Wildlife Service intermittently request.

Engstrom notes that many of the company's clients are Alaska Native corporation subsidiaries. He appreciates the partnerships. "A lot of TestAmerica's clients are Alaskan Native firms like Brice Environmental Services owned by Calista Corporation, Bethel Services, and Bristol Environmental Remediation Services, all of whom work on many environmental projects in rural Alaska and understand the uniqueness of the industry," Engstrom says. Alaska Native companies are some of the most cautious and aware of the critical need to be safe and responsible when it comes to the land and water throughout the state, he says.

Small, Efficient Labs Matter

Kelley Lovejoy is a chemist with eighteen years of experience in chemistry, fifteen years specifically in environmental laboratories. Lovejoy is the lab director for Alaska Analytical Laboratory (AAL) and was hired by parent company Mappa, Inc. in July 2007 to set up and operate the lab, located nine miles outside of Fairbanks.

AAL is ADEC Certified for Contaminated Sites Analysis (UST-082), providing laboratory analytical testing for soil and water. Lovejoy is proud to be a one-person lab for now, recognizing some testing companies have a collective of staff, because she's hands-on and scrutinizes the entire process assiduously. AAL is currently analyzing for the Alaska Methods: AK101 - Gasoline Range Organics; AK102 - Diesel Range Organics; AK103 - Residual Range Organics; and 8021B - BTEX (Benzene, Toluene, Eth-

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ylbenzene, M&P-Xylene, O-Xylene).

The company's clients include local and out-of-state environmental consultants, construction and engineering companies, realtor and property agencies, and homeowners. She adds that the best part about working in Alaska is how supportive the people are of local businesses like her lab.

As for regional expertise and proximity, "I primarily receive samples from projects that are located in Fairbanks and North Pole," says Lovejoy. "I have received samples from all over Alaska. It depends where our clients have jobs lined up or if people see my lab online and request a sample kit for a fuel spill, like the communities of Skagway and Kotzebue for example."

Lovejoy is unaware of other labs headquartered in Interior Alaska who test soil samples other than AAL. She brought AAL's water analysis service online in 2010. Other environmental labs in Fairbanks she's aware of are Analytica International, Pollen Environmental, and SGS, which has a sample drop-off location.

Got Healthy Milk?

Northern Lights Dairy is a family-owned business that has been operating its dairy business in Delta Junction since 1980 and was started by third-generation Wisconsin

farmer Don Lintelman and his family, who arrived in Alaska in 1969.

No different than testing soils and water, ADEC and federal law require milk be regularly tested to ensure safety for the consumer. Lintelman and his wife and three sons work at the dairy farm, which has 120 cows, 60 of which are milked daily. Upon testing and packaging, the milk is delivered to and sold on Fort Wainwright, Eielson Air Force Base, Fort Greely, and at Carrs-Safeway in Fairbanks. While it varies, the typical cow is milked twice per day and generates approximately seventy pounds of milk. A gallon of milk weighs 8.6 pounds, equating to a little over eight gallons produced per cow per day.

Lintelman explains the milk is pasteurized, which is a heating process that kills harmful bacteria. Milk's lab testing and quality control are mandated by ADEC, the US Food and Drug Administration, and the US Department of Agriculture, with periodic testing performed, including milk samples taken by ADEC monthly and equipment inspection every three months.

State and federal regulations require that raw milk for commercial sale be derived from one or more healthy cows. Screening and testing is performed to assess a somatic cell count, the presence of coliform, wheth-

er or not the alkaline phosphatase enzyme is present—which is supposed to be destroyed at pasteurization—and standard plate counts to determine bacteria levels.

Havemeister Dairy is the other certified Alaska dairy, located in the Mat-Su Borough in Palmer.

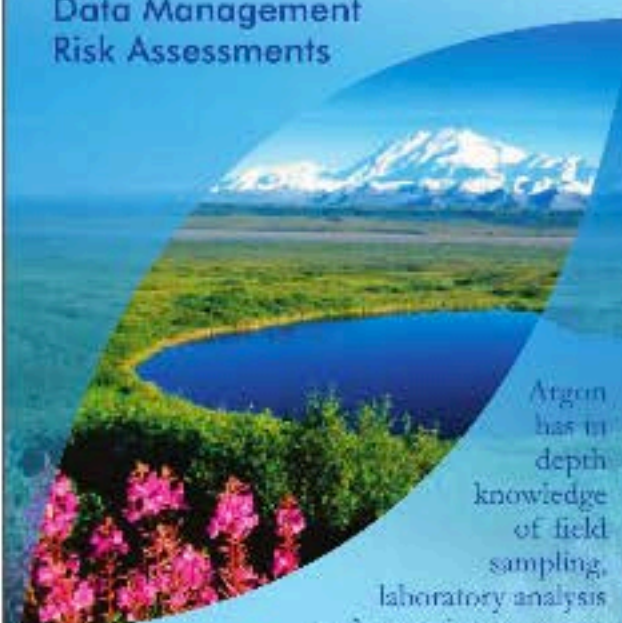
Environmental Labs Protect Alaskans

At the end of the day, everyone benefits from the environmental testing of soil, water, and milk.

The various microbiology labs in Alaska, in conjunction with ADEC and federal oversight, ultimately ensure the state's agriculture, water, and land are neither polluted nor damaged by commercial and residential misuse. Whether eating vegetables from a garden, drilling a well into an underground aquifer for fresh water, or drinking a glass of local milk, Alaskans should remember the men and women in the chemistry and biological fields testing in their laboratories every day to make sure everyone stays healthy and the environment remains protected. ☪

Freelancer Tom Anderson writes from across Alaska.

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