

Colorado Lining International Inc.

Helping to preserve vital natural resources with specialty environmental lining systems

Produced by Shaun Emery and Written by Matt Dodge

With California in the midst of the worst drought in 500 years, cities and towns across the state are desperate to conserve potable water. Higher-than-average temperatures have decimated the snowpack in the mountains — one of the critical factors for replenishing California's water reservoirs — and led the state to impose the first mandatory water restrictions in its history, mandating that municipalities reduce water usage by 25 percent over a nine month period with the aim of saving 1.5 million acre-feet of water.

Dry times in the Golden State spell opportunity for Colorado Lining International Inc., a full-service geosynthetic contractor specializing in the fabrication and installation of specialty environmental lining systems designed to limit the loss of precious groundwater.

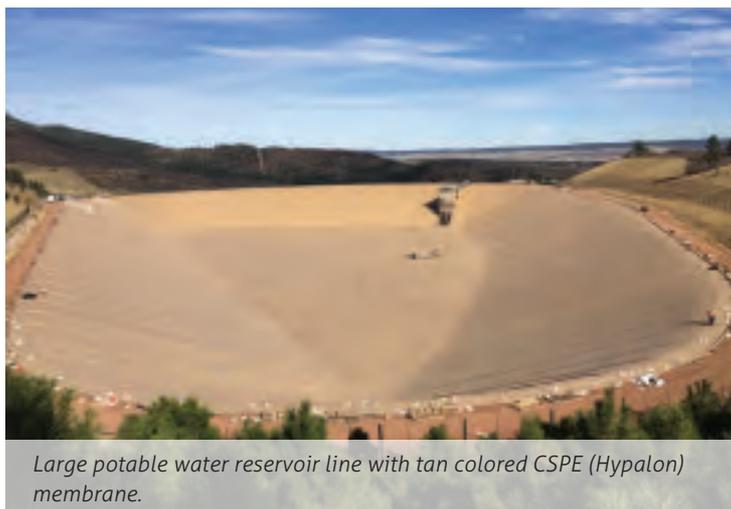
"We protect groundwater resources, whether it's eliminating pollution from contaminated water, preventing evaporation in reservoirs and tanks or preventing water loss from seepage into the ground," says John Heap, president and owner of Colorado Lining.

Based in Parker, Colorado, the company aids in water conservation efforts around the world, as well as environmental lining systems for landfills, oil and gas production pits, evaporation ponds, waste lagoon and floating covers for potable water storage

and methane collection and re-use for the agricultural industry. The recent foray into the California market holds significant growth potential for Colorado Lining, which recently unveiled a new manufacturing facility in Colton, California.

"We have developed a Hydro-Cap™ system for floating covers that utilizes the best practices and techniques we have learned over the past 38 years for building long lasting cover systems that will perform as designed and save valuable water supplies for decades," says Heap. "This system along with our engineered lining systems for water storage provide our customers with the latest in membrane technology built to size for their project."

California is the largest US market for floating covers and our move into the market happens to coincide with many municipal water storage systems in the state begin to age



Large potable water reservoir line with tan colored CSPE (Hypalon) membrane.



out. “A lot of the municipal water storage systems that went in during the 80s and 90s are starting to cycle out because there is only so much time they can be exposed to UV light,” explains Heap.

One of Colorado Lining’s first big jobs in the state will be the replacement of a reservoir lining and cover in Palos Verdes, California, a city in southwestern Los Angeles County. “These are lined water reservoirs with floating covers on top so what you have is a fully-contained system where you can put finished water,” Heap says.

Such projects will likely drive Colorado Lining’s growth in the California market, with the company predicting that new Colton, California facility will add \$15 million to the revenue stream and lead to the hiring of an

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additional 20 to 25 employees while its proximity to The Port of Long Beach will allow the company to better serve customers in the Asian market.

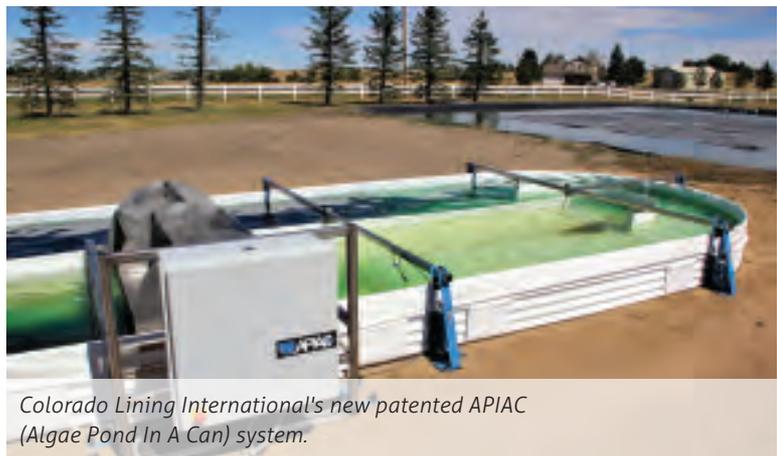
From reservoirs to oil fields

Founded in 1978 by John's father, Robert A. Heap, Colorado Lining has grown to include manufacturing plants in Colorado, Texas, and now, California. In addition to custom fabrication and installation services, Colorado Lining offers expert assistance in material selection, fabrication techniques and installation budgeting to engineers, regulators and contractors.

The company does not make its products from scratch, but rather converts materials produced by other manufacturers into large panels that it welds together and installs. The size of these panels is dependent on the weight of the material being

used; heavier materials are used to make 15,000 to 20,000 square-foot panels, while lighter weight materials can produce covers of up to 40,000 to 50,000 square feet.

Geomembranes and supportive materials fabricated and installed by the company include Reinforced Polythelene, Reinforced



Colorado Lining International's new patented APIAC (Algae Pond In A Can) system.

Polypropylene, PVC, HDPE products, as well as geotextiles, geocells, geocomposites and CSPE-R (formerly known as Hypalon).

On a reservoir project like those taking root in California, Colorado Lining begins by taking CAD drawings of the reservoir. Once translated into a layout, the individual panels are built, numbered and sent to the jobsite. "This sort of modular construction saves time, improves quality, speeds up installation and keeps you out of the wind, rain, dirt and dust," says Heap.

With so much of the work done in advance, installation is a relatively speedy process; the panels are heated and pressed together using fusion welding by an automated machine that drives itself between adjacent panels, sealing panels together as it rolls along. Using this technique, Colorado Lining can typically install as much as 100,000 square feet of reservoir lining per day.

"We're continually trying to find ways to solve problems," says Heap. "Our goal is to get better every day."

Colorado Lining also specializes in large, multilayer containment ponds for the oil and gas industry, completing projects across Utah, Texas, Wyoming, Colorado, and into Pennsylvania. These produced water evaporation ponds are used to store brine water, which rises to the surface when pumping oil and gas.

The four-layer systems use a geosynthetic clay liner at the base, followed by a 60-mil HDPE liner, a geonet drainage layer and a primary liner. "You're building redundancy in design, if you have small leaks in primary, it will hit secondary liner and travel thru your geonet to the sump," Heap says.

A wave of innovation

Colorado lining has partnered with a British company to produce a new lightweight evaporation control cover called the GeoBubble™. This figure-eight bubble cannot be popped and is used as floating cover to prevent evaporation-related water loss from reservoirs. "In the longer term we think we can develop some evaporative control covers that are cheap, lightweight and modular because in a lot of cases you're losing 50 to 60 inches of water due to evaporation. If you're paying for it, pumping it or trucking it out, you really should have a cover," he says.

The company's latest innovation is the APIAC™ (Algae Pond in a Can), a modular systems that allows users to set up their own algae pond in a single day. Developed in partnership with MicroBio Engineering of San Luis Obispo, California, the world's first large-scale algae pond system in a kit format is offered in sizes ranging from 20 cubic meters 101 cubic meters with larger sizes coming in the near future.

The APIAC system can be used to grow algae for nutraceutical and waste water treatment applications, according to Colorado Lining regional manager, Andre Harvey. "Before this innovation people had to engineer ponds top-to-bottom and essentially reinvent the wheel every time. This will take that layer out and often prove to be much more economical than they could do in-house," says Harvey.

The APIAC system can be shipped in oceangoing cargo containers or flatbed trucks and distributed across the globe. "We're continually trying to find innovative ideas to solve problems in the industry or bring new products to market that will change the industry," says Heap.



Installation of a Hydro-Cap system using GeoBubble materials.

As the company continues to expand its manufacturing presence in the western U.S., Heap says Colorado Lining is looking to become a coast-to-coast supplier and distributor. On the international side, the company has recently completed projects at a U.S. Air Force base in Guam, as well as inking a new distribution deal with New Zealand-based Pondco Limited and expanding into Asia.

"The whole planet is going to need a lot of water and our advantage is in the technology and experience that we bring to the table. We are dedicated to finding the best solution for the project and by adding the value of our experience and factory built systems we can solve complicated water storage issues anywhere in world," says Heap.

With a growing market thirsty for advances in water conservation techniques and equipment, experience, innovation and a growing geographical footprint, Colorado Lining International is poised to remain a leader in manufacturing and installation of specialty environmental lining systems. •