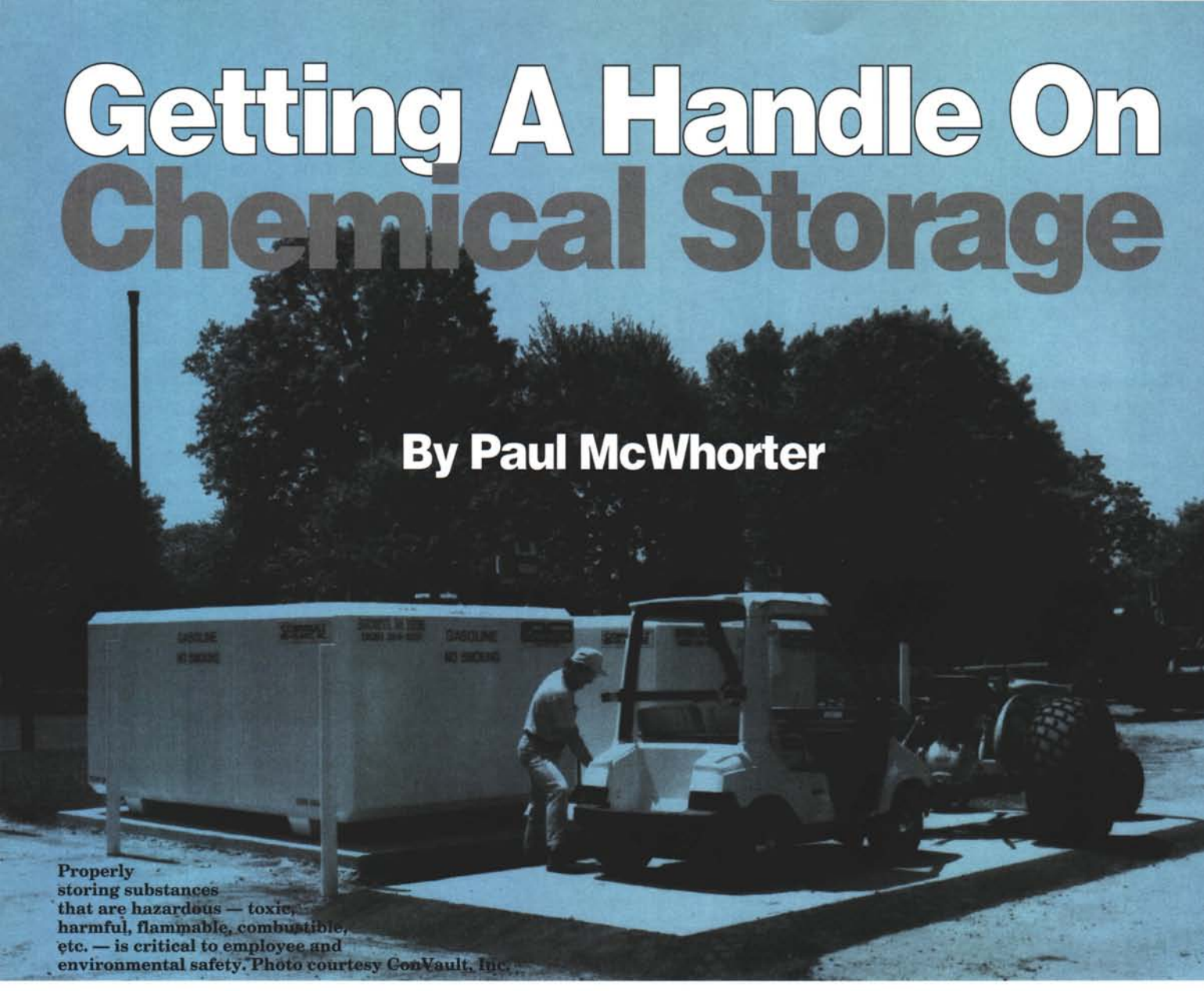
Getting A Handle On Chemical Storage

By Paul McWhorter



Properly storing substances that are hazardous — toxic, harmful, flammable, combustible, etc. — is critical to employee and environmental safety. Photo courtesy ConVault, Inc.

Hazardous chemicals pose a time-honored challenge to mankind — how to safely deal with vital, yet potentially dangerous tools. To complicate matters, as we've learned to harness hazardous chemicals, our ongoing use of them requires outside monitoring to insure that use reflects adherence to their original purpose, while avoiding damage to mankind and the environment.

This particular development—the need to monitor—has created sometimes conflicting laws, as well as overlapping jurisdictional disputes. In the dichotomy of regulation, normally the federal government establishes general standards, which states and local governments must document as having met. These local entities then frequently apply a "stricter" interpretation of the overall guideline to ensure that local, geographical, population base, climatic, and additional pertinent factors anticipate proper safeguards.

Since 1970, the United States Environmental Protection Agency has taken the leadership role in propagating guidelines relative to storing substances that are hazardous—toxic, harmful, flammable, combustible, etc. These guidelines are traditionally presented to the governor of each state, who must respond on a timeline to the EPA with a written plan for the safe protection of his or her constituents. Parallelling these efforts are those registered by National Fire Code authorities, the U.S. Coast Guard (on those sites adjacent to navigable waterways), and OSHA, which protects employees who work in areas potentially exposed to hazardous chemicals.

State governors normally assemble an appropriate state resource group within their jurisdictions comprised of state fire authorities, water resource managers, air quality management district representatives, building code authorities, and third-party verification authorities (such as Underwriters' Laboratories). This group provides a plan for the ongoing monitoring of hazardous chemicals, which includes site installation guidelines and operations procedures, which must be both followed and documented.

The plan is then submitted to the governor's office, which refers it to the state's justice (legal) department to insure that all plans are written to comply with the federal measure. The

reviewed and revised plan is resubmitted to the governor, who then forwards it to the EPA. The agency, in turn, analyzes the plan and returns it to the governor for implementation or revision.

To say the least, the regulatory cycle is complex, particularly for the owner/user of any hazardous chemical container. In addition to the overwhelming amount of federal, state, and local legislation looms the omnipresent liability factor should any catastrophic event (spill, overfill, fire, leak, etc.) occur. Furthermore, the hazardous materials container market is not suited to manufacturers who are short-term players—they produce containers that have been improperly engineered, possibly untested by reputable third parties, and infringe on patents maintained by legitimate container producers.

So how does the end-user know what to buy? The answer is using "common sense" purchasing practices that apply to the balance of a person's business. *Any* capital investment that can impact an owner/operator's current and future *liability* and virtual existence must be approached in a practical manner, with the caveat, "Let the buyer beware," firmly in mind.

Two parallel tracks can be utilized in the screening and purchasing process:

1. Consult owner/operators who are storing chemicals locally.

2. Consult local regulatory offices who will guide you in making safe and permitted selection.

End users with experience and local regulatory officials are usually helpful in advising prospective buyers of drawbacks in certain designs. They can often help answer questions and address criteria regarding:

- Whether or not the container is patented (an indication of both innovation and proper engineering practices).
- Whether the chemical is hazardous in its normal state or generates hazardous vapor (as monitored by agencies such as the California Air Resources Board) which should be recovered during the maintenance of the container.
- Designs with inherent flaws, such as top-heavy units that could topple during seismic activity and seamed units that present a long-term settling effect, potential leakage, and more frequent inspections that unseamed units.
- Tanks that are susceptible to ultraviolet rays and brittling effects caused by exposure to sunlight.

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The final consideration in the decision-making process for hazardous chemical containers concerns manufacturers' warranties and insurability of the container/installation itself. Warranties for tanks that are naked polyethylene, steel, or vaulted (steel or polyethylene tanks within a secondary containment bladder to contain primary vessel leaks and entombed monolithically in a six-inch concrete encasement for maximum protection) range from *no warranty* to 30-year warranties. The product's design usually dictates the warranty factors, as well as the properties of the chemical to be contained.

The rational for warranting a container is based on the longevity of a unit under normal conditions. For example, polyethylene may not corrode when exposed to chemicals, but might very well brittle and crack within two years due to sunlight effects. Therefore, the warranty might be set for 18 months. In addition, proper site preparation is generally a condition of a warranty—improper installation methods will void most warranties. An example of a longer term warranty might include seven years for citric acid, when stored in vaulted chemical container.

Insurance premiums are naturally adjustable to the type of chemical and medium for storage. Therefore, a mild chemical stored in a maximum-designed vault would generate a lower premium than lethal acid stored in a poly tank exposed to direct sunlight. Obtaining insurance coverage can be required by lending institutions that hold a mortgage interest in the owner/operator's property. The trend has been for banking firms to both recognize and enforce substantial insurance coverage for owner/operators who are required or want to store hazardous chemicals on their properties. The ability to maintain and repair a tank that suffers a catastrophic event is another factor in the amount of premium paid by the owner/operator.

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Legislative efforts to improve and refine the regulation of chemical storage are ongoing and move quickly. Buyers must stay abreast of upgrades and changes within the regulatory community. Thankfully, many designs offer the option of retrofitting to comply with new and stricter guidelines by separating the primary vessel from ancillary merchandise such as pumps, vents, etc.

Proper investigation of storing hazardous chemicals is a never-ending process, which ultimately prevents problems and, in the worst case, human and environmental tragedies. Those who recognize the eternal need for monitoring these factors are most productive, anticipate problems before they happen, and in doing so provide the safest working environment for themselves and their employees. Such efforts are generally appreciated and respected by regulators, courts, staff members, and even competitors. ❑

Editor's Note: Paul McWhorter is vice president of ConVault, Inc., headquartered in Denair, CA. ChemVault is a division of the company.