BY TONY NOCITO

On-Site Abat

An entrepreneur says his on-site process for handling abestos-containing materials offers an improved methodology.

America's building and development boom generated millions of tons of construction and demolition (C&D) debris - 170 million tons just in 2003, according to Environmental Protection Agency (EPA) estimates.

The building materials industry has historically consumed large quantities of asbestos. Asbestos use in the U.S. peaked in 1973, when 719,000 tons were used in the making of a range of products. Asbestos was ubiquitous, found in 3,000 to 5,000 applications.

But after it was shown to be carcinogenic, asbestos was banned as a building material in the late 1970s. The asbestos abatement industry was born, driven by Congressional mandates that strictly govern the handling and disposal of asbestos containing material (ACM).

RULES AND REGULATIONS

Congress passed the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) in 1980, and then revised it in 1986 as the Superfund Amendment and Reauthorization Act (SARA).

Under this legislation, owners of sites containing ACM that is removed and shipped to a landfill for storage become a "potentially responsible party" (PRP), subject to "strict, joint and several" liabilities that can result in incalculable future cleanup costs.

CERCLA and SARA mandate that liability can be imposed on PRPs regardless of whether they were negligent, environmentally compliant or participated in or benefitted from handling ACM.

The effect of the new liability laws refocused attention on a related cleanup problem - the glut of industrial and commercial sites with toxic contaminants that may qualify as Superfund or Brownfield sites, where generators and transporters of hazardous wastes are subject to future liability.

The EPA identifies hundreds of possible Superfund sites and an estimated 450,000 Brownfield sites. If cleaned up, they will create staggering amounts of toxic materials to be landfilled.

MEASURING THE SCOPE

The exact extent of ACM contained in landfills throughout the United States and elsewhere is unknown, but the quantities are considerable.

The 14 states in the Northeast and Mid-Atlantic regions alone may produce as much as 300 million pounds of ACM waste annually.

That ticking sound emanating from landfills containing ACM is a liability time bomb. ACM waste - ruled by a host of transport and abatement regulations - is hugely problematic, and presents unique challenges for transfer stations and landfill owners and operators.

Since the law is retroactive, generators, transfer stations, and landfill owners and operators with prior involvement in handling ACM are liable for remediation costs at sites where ACM was, or may be, released into the environment, or remains to be cleaned up.

A 2008 study commissioned by the American Insurance Association pegged outlays for asbestos claims at $54 billion, but actuarial consulting firms forecast cumulative costs four to six times higher than that figure.

Modern landfills are installed with filtering systems and barriers, which theoretically preclude leakage. Older landfills are less secure. According to a 1987 EPA report,

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"all landfills eventually fail."

Estimates on the existing number of active U.S. landfills vary, ranging from 1,500 to 3,000. The numberofdiscontinuedmunicipal sites is believed to exceed 10,000.

But with open space at a premium and opposition from "not in my back yard" (NIMBY) community activists, alternatives to landfilling have become increasingly important, whether for non-hazardous or hazardous materials.

Asbestos is extremely resilient. Thermal and non-thermal asbestos-destroying technologies have been field-tested and proven to work, although sometimes with complications.

PROBLEM SOLVING

Today, as in years past, the asbestos abatement industry's modus operandi is to warehouse ACM in landfills.

ACM is double bagged in six-millimeter-thick plastic, then loaded and enclosed for transport, and finally deposited into a landfill for storage, where it is covered with a six-inch layer of non-asbestos material by heavy construction equipment.

But further liability problems can occur when bags break and asbestos fibers become airborne or migrate into the water table.

As a construction executive in New York City during the 1980s, I had encountered my share of ACM and the troubles it caused, such as precluding Superfund appropriations.

It struck me there really was no solution to the asbestos disposal

and liability problems, since at best it was only stored and never destroyed. It was a situation that invited abuse in the form of perpetual liability and incalculable future costs for the unfortunate parties who own the ACM.

So I set out to find a cure. It took me 23 years and nearly $15 million dollars in research and development to arrive at the commercial launch of the Abcov Method.

As I write this, to my knowledge the Abcov Method is the only EPA-approved, non-thermal, chemical-physical asbestos destruction technology system on the market today.

We've successfully treated and destroyed most matrices of ACM waste related to building, utility and nuclear industries. We destroy asbestos once and for all, right on the spot, using a process that's easy to operate.

The process seems to have succeeded where some noteworthy predecessors have failed. Corporate giant W.R. Grace poured its considerable resources into developing an in situ process to destroy white asbestos, only to give up, unable to satisfy government National Environmental Standards for Hazardous Air Pollutants (NESHAP) 61.155 standards pertaining to converting ACM into an asbestos free material.

TRIAL AND ERROR

Most EPA hazardous waste inspectors focus on large waste generators, so waste reduction and asbestos destruction eliminate exposure to future liabilities, with the added advantages of reducing your carbon footprint and practicing environmental sustainability.

My efforts toward developing an environmentally safe asbestos destruction method began in the laboratories of Battelle Memorial Institute and Georgia Institute of Technology. After subsequent field testing, prototype systems were installed at the former Griffiss Air Force Base in Rome, N.Y., in 1993 and at Maryland's Aberdeen Proving Grounds in 1996.

But the systems were not ready for prime time, so I continued to refine the equipment and chemical formulas while gaining experience treating different ACM wastes.

Utility ACM (underground and generating stations) differs from building ACM. I contracted with New York's Consolidated Edison to determine that the Abcov process could successfully treat ACM utility waste. Upgrades were made on the system while concluding contracts with the U.S Department of Defense and in other projects out in the field.

Thermal and non-thermal abatement methods have surfaced while I have been developing Abcov, but proposed vitrification solutions and other high-heat systems have proven too costly or complicated, produce system "off gases," or are plagued with permit and NIMBY issues.

Reducing, reusing and recycling ACM into a non-hazardous material benefits those with liability hanging over their heads and brings added value to transfer stations and landfills that store asbestos on their sites, especially if they wish to maximize land usage. C&DR

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WHERE IT'S AT

The United States Environmental Protection Agency (EPA), on its Web site, www.epa.gov, provides a number of answers to its own question, "Where can asbestos be found?"

Among the products and applications listed by EPA, several of them are possibilities to be found at an interior renovation or demolition site, including:

- asbestos-cement corrugated sheet
- asbestos-cement flat sheet
- asbestos-cement pipe
- asbestos-cement shingles
- roof coatings
- flooring felt
- pipeline wrap
- roofing felt
- vinyl/asbestos floor tile
- millboard
- rollboard.

The agency notes "most of these are materials used in heat and acoustic insulation, fire proofing, and roofing and flooring." - *Brian Taylor*

IN-PLACE ADVANTAGES

Abcov's proprietary process improves on "bag, tag and bury" abatement procedures in more ways than one:

Abcov systems are fully portable;
Systems are scalable to meet customers' needs; and
Material can be destroyed on site, eliminating neighborhood objections to transporting ACM.

Abcov's environmental benefits include:

Reduces the volume of ACM material as much as 60 percent and peripheral waste by 80 to 90 percent;
Reuses homogenous end product, which can be recycled as landfill cover, roadbed material, used as an additive to concrete, or to sand roads in winter;
Recycles all plastics for additional savings;
Treats and stabilizes secondary hazardous wastes, RCRA metals and radioactive metals; and
Conforms with NESHAP 61.155.