

A Stevens Publication

Environmental

P R O T E C T I O N

MANAGEMENT AND PROBLEM-SOLVING FOR ENVIRONMENTAL PROFESSIONALS

APRIL 1998



Spill response

Stay on top of
laws and training

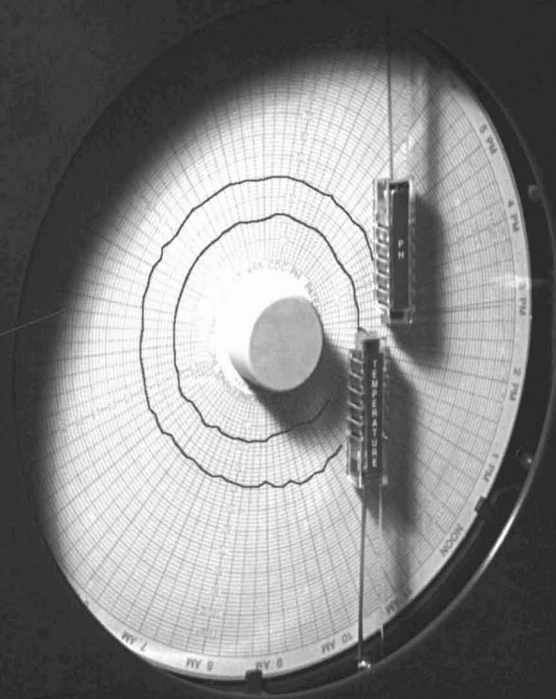
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| 801 <input type="checkbox"/> Vacuum Filter | 806 <input type="checkbox"/> Wet Air Oxidation System | 811 <input type="checkbox"/> Sludge Dryer |
| 802 <input type="checkbox"/> Screw Press | 807 <input type="checkbox"/> Fluid Bed Incinerator | 812 <input type="checkbox"/> Biosolids Treatment System |
| 803 <input type="checkbox"/> Filter Press | 808 <input type="checkbox"/> Bulk Bags | 813 <input type="checkbox"/> Flocculant |
| 804 <input type="checkbox"/> Centrifuge | 809 <input type="checkbox"/> Odor Control | 814 <input type="checkbox"/> Land Application Vehicles |

B. What is your reason for purchasing the selected product(s)/services? (Select one)

- | | | |
|--|--|---|
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| 816 <input type="checkbox"/> Plant Upgrade | 819 <input type="checkbox"/> \$100,001-\$200,000 | 825 <input type="checkbox"/> 7-9 months |
| 817 <input type="checkbox"/> Replacement/Maintenance | 820 <input type="checkbox"/> \$50,001-\$100,000 | 826 <input type="checkbox"/> 10-12 months |
| | 821 <input type="checkbox"/> \$10,001-\$50,000 | 827 <input type="checkbox"/> over 12 months |
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| 4 | 40 | 76 | 112 | 148 | 184 | 220 | 256 | 292 | 328 | 364 | 400 | 436 | 472 | 508 | 544 | 581 |
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| 15 | 51 | 87 | 123 | 159 | 195 | 231 | 267 | 303 | 339 | 375 | 411 | 447 | 483 | 519 | 556 | 592 |
| 16 | 52 | 88 | 124 | 160 | 196 | 232 | 268 | 304 | 340 | 376 | 412 | 448 | 484 | 520 | 557 | 593 |
| 17 | 53 | 89 | 125 | 161 | 197 | 233 | 269 | 305 | 341 | 377 | 413 | 449 | 485 | 521 | 558 | 594 |
| 18 | 54 | 90 | 126 | 162 | 198 | 234 | 270 | 306 | 342 | 378 | 414 | 450 | 486 | 522 | 559 | 595 |
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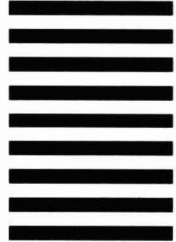
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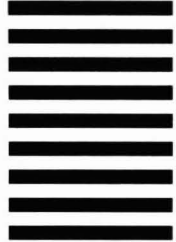
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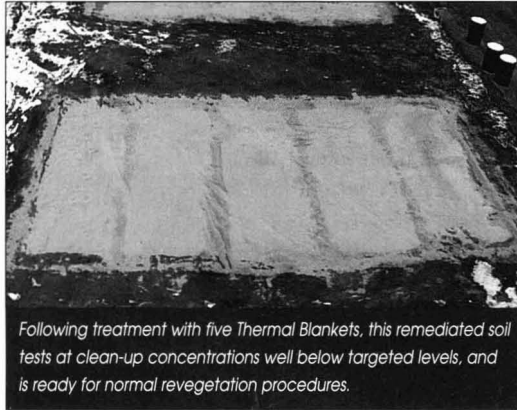


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In Situ Thermal Desorption technology remediates most shallow and deeper contamination problems without excavation or shutdown of normal operations. On site experience indicates this is a fast, safe, cost-effective and predictable solution. And it works on a variety of volatile and semi-volatile organic compounds.

The technology

This patented technology is based on Shell Oil's two decades of work with thermal processes for enhanced oil recovery. In Situ Thermal Desorption uses very high temperatures applied through Thermal Blankets for shallow contamination



Following treatment with five Thermal Blankets, this remediated soil tests at clean-up concentrations well below targeted levels, and is ready for normal revegetation procedures.

and Thermal Wells for deeper zones to remediate soil.

Thermal Blankets

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are destroyed in the ground. Extracted vapors receive final "scrubbing" in the Vapor Treatment System. As a result, carbon dioxide and water are the primary air emissions.

Thermal Wells

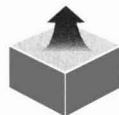
Thermal Wells allow for treatment at greater vertical depths for contaminated soils. A vacuum is used to draw the vapors out of the ground through the wells. Most contaminants are destroyed in the ground. Remaining vapors are processed through the Vapor Treatment System. Wells can be drilled directly into the contaminated zone,

either vertically or horizontally. They may reach horizontally under operating facilities, roadways and through concrete and other obstacles.

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A site analysis can be performed by the professionals at TerraTherm as part of developing a customized remediation solution.

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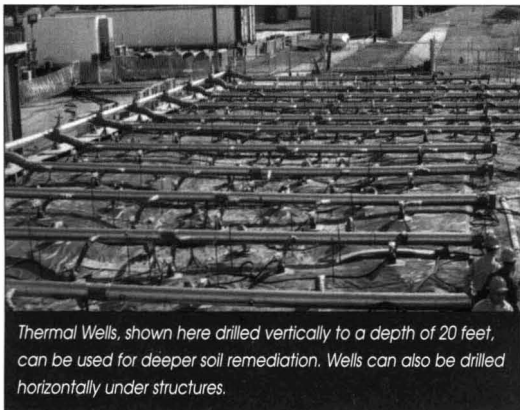


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Thermal Wells, shown here drilled vertically to a depth of 20 feet, can be used for deeper soil remediation. Wells can also be drilled horizontally under structures.

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Contents

ENVIRONMENTAL PROTECTION • APRIL 1998 • VOLUME 9, NUMBER 4

IN EVERY ISSUE

- 6 From the editor
- 8 Newswire
- 12 Tech spotlight:
Spill cleanup
- 32 New products
- 36 Product literature
- 36 Classified advertising/
Professional directory
- 42 Protection
perspectives
- 42 Advertiser Index



ABOUT THE COVER

The Oil Pollution Act of 1990 (OPA) requires tank vessels, offshore facilities and certain onshore facilities to have response plans to aid them in handling discharges involving oil or hazardous substances. As shown on our cover, workers with spill clean-up responsibilities often use sorbents and deploy boom to control pollutants.

Two of this month's features, "A guide to spill response training" (page 18), and "Reporting a spill" (page 22), will help you stay on top of the latest requirements under OPA and other major environmental laws pertaining to spill response duties.

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FEATURES

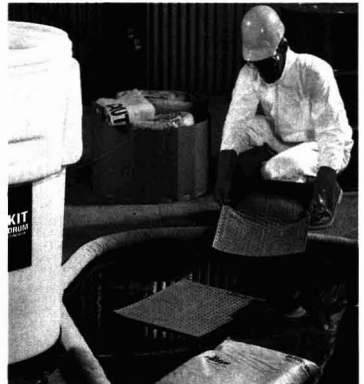
- 15 Is ignorance bliss?**
A federal appeals court nullifies wetlands convictions and mandates that the government must prove defendants knew physical characteristics that identify property as a wetland
By Ragna Henrichs, JD
- 18 A guide to oil spill response training**
Preparation can keep your employees from slipping up when they have to respond to a major oil spill
By Craig Kartye
- 22 Reporting a spill**
Untangle the overlapping spill reporting requirements and stay in compliance when an accident release occurs
By Matt Sankey

DEPARTMENTS

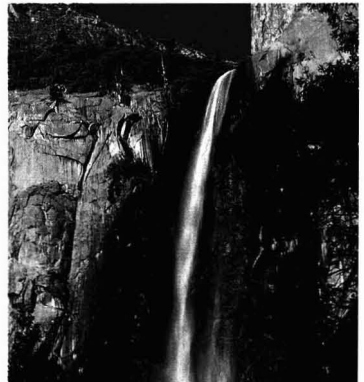
- 10 Commentary**
New air regulations—Now what?
EPA and certain industries continue the battle over the new stricter standards for ozone and particulate matter
By David Schell
- 26 Legal watch**
Getting stung: Lawsuits against environmental consultants
Meeting recognized professional standards and carrying adequate liability insurance can help environmental professionals protect themselves
By John J. Zodrow, JD
- 28 Hazwaste software guide**



Page 18



Page 22



Page 42

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Putting a price tag on nature

How do you calculate the worth of an otter? Unfortunately, certain government officials have far more experience than they would like in assigning a monetary value to otters, water fowl and other natural objects that have been injured or destroyed by oil spills.

Most people know that the 1989 Exxon Valdez spill, which released about 11 million gallons of oil off the Alaskan coast, cost Exxon Corp. a lot of money to clean up. What many may not realize is that Exxon's bills didn't end with the clean-up costs of \$2.8 billion and the third party claims that totaled approximately \$5 billion. Besides these hefty expenses, Exxon also had to pay more than \$900 million to compensate governmental agencies for damaging Alaska's wildlife and other natural resources.

The Exxon Valdez incident gave impetus for the passage of the Oil Pollution Act of 1990 (OPA), which makes responsible parties for vessels and facilities liable for the results of oil spills without regard to fault and subject only to certain limited defenses.

When an oil spill occurs, a responsible party is obligated to pay all costs incurred by governmental agencies in removing the oil. Additionally, OPA makes the responsible party liable to compensate the United States, individual states, Indian tribes and foreign governments for any destruction of natural resources, which include land, fish, wildlife, biota, air, water, ground water, drinking water supplies and other resources. Government bodies serve as the trustees of natural resources to whom a responsible party is liable if that respective agency's natural resource is damaged. The designated trustees are responsible for assessing damages to their natural resources and determining the assessment costs.

For more information about natural resource damage assessments, contact Doug Helton, the spill coordinator at the National Oceanic and Atmospheric Administration (NOAA) Damage Assessment Center, at (206) 526-4563.

Recent developments in this area include a November decision rendered by the U.S. Court of Appeals for the District of Columbia in the case *General Electric Co. vs. U.S. Commerce Department* (CA DC, No. 96-1096, 11/18/97). The appellate court largely upheld NOAA's rules that implemented OPA's natural resource damages (NRD) provisions. Of greatest significance is the court's conclusion that a natural resource trustee can select its assessment methods on a case-by-case basis. The court affirmed NOAA's decision in its rules to give governmental trustees in any NRD lawsuit a rebuttable presumption that an assessment prepared under the rules is accurate.

Some industry petitioners in the case weren't happy about the court's upholding of trustee's use of contingent valuation of natural resources. Phil Cooney, an attorney with the American Petroleum Institute, characterized it as "a fancy term for a public opinion poll" on the value of nature, and a "surplus, punitive, speculative element of liability."

Due to the huge amounts of money at stake when large releases of oil wreak devastation on ecosystems, the debate about what constitutes a fair procedure for assessing such damages is certain to continue.



Angela Neville

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Editor-in-Chief

Environmental PROTECTION

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News at a glance

Compiled by Kristie Guillotte

Environmental issues top agenda for congressional elections

EAST BRUNSWICK, N.J.—Environmental legislation, particularly air and water quality, is expected to be a big issue in this year's U.S. Congressional elections.

Ira Whitman, PhD, PE, president and consultant of the Whitman Companies, found that in the past members of the U.S. House and Senate had strong motivation to address environmental issues during years in which they seek reelection.

"Yet, because this type of legislation creates such controversy, there will be a tendency to move slowly and very cautiously, even though some reauthorization measures are long overdue," Whitman said.

"Key among these are the reauthorization for both the Superfund Act and the Clean Water Act."

Also up for review are the U.S. Environmental Protection Agency's new air quality regulations, with Congress and the executive branch each attempting to exercise more authority over air pollution control requirements.

Global warming and the agreement reached at the world conference to reduce emissions of waste and industrial gases should generate considerable debate during the coming year in the Senate, which must ratify the pact.

Paying for environmental crimes

TAMPA, Fla.—The first environmental restitution fund was established in Florida. Charles R. Wilson, U.S. Attorney for the middle district of Florida, developed the fund because of the harm environmental crimes have on both the public health and the environment and the difficulty involved in identifying victims.

"When environmental crimes are not reported in a timely manner, specific victims are even less likely to be identified and compensated," Wilson said. "Nonetheless, defendants in these cases should be required to make restitution for the environmental damage caused by their actions."

The fund will ensure that full restitution or remediation is made in environmental cases. It will accept segregated restitution payments from defendants and use each payment in a timely and effective manner.

Other uses will include projects to

restore polluted areas and to mitigate the effects of pollution.

The Jacksonville Community Foundation, the University of Florida College of Law and the environmental studies program at the University of South Florida are administering the fund.

National river cleanup week reschedules

KNOXVILLE, Tenn.—The seventh annual National River Cleanup Week, originally scheduled for May 16-23, 1998, has been rescheduled. The new dates are May 9-16, 1998.

The week is sponsored by America Outdoors and is intended to demonstrate the importance of clean waterways and to encourage people to preserve streams, rivers and lakes.

During 1997, 38,265 volunteers participated in over 501 cleanups of shorelines and rivers. Since its inception in 1992, over 215,000 volunteers have participated in 3,156 cleanups covering 55,306 miles of U.S. waterways.

Anyone interested in organizing a cleanup effort in their area can call American Outdoors for a registration form at (423) 558-3595 or register online at www.americaoutdoors.org.

How much waste does the workplace generate?

WASHINGTON, D.C.—When the light, computer, telephone, fax machine and other office equipment are on for thousands of employees in one building almost 12 hours a day, how much energy is being used and what quantity of waste is being generated? Tools are now becoming available to measure what's known as a building's ecological footprint.

Architect Hal Levin is developing the Systematic Evaluation and Assessment of Building Environmental Performance (SEABEP) program. The program maps the building's ecological footprint in global warming, acid rain, smog, toxic release, water pollution, resource depletion and solid waste.

This is done by purchasing information on construction materials, energy use, cleaning supplies and computers.

"The profile often produces surprising results," said Levin. "The energy people use getting to and from work, for instance, is often more than they use in an office building doing the actual work."

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New air regulations— now what?

EPA and certain industries continue the battle over new, stricter standards for ozone and particulate matter

By Dave Schell

In July 1997, U.S. Environmental Protection Agency introduced new regulations calling for more stringent emission controls on ozone and particulate matter. These new standards have attracted the attention of several diversified organizations that oppose all or part of the regulations. When the regulations were first released to the public, two sides were immediately created and legal battles began. One side focused on the extreme results of the regulations, like elimination of backyard barbecue parties, restriction of automobile use and increased utility bills. While EPA has estimated compliance costs to incorporate the new regulations at over \$6 billion, industry groups have estimated costs at over \$20 billion. This side is predicting economic doom if the new standards are enacted.

The other side cites statistics on asthma in children, increased mortality rates for premature infants and greater health costs for the elderly population—all due to unclean air. Critics argue that this side is trying to gain support for the standards regardless of compliance costs. EPA's official position is that the new standards are necessary and backed by sound scientific evidence that will show dramatic decreases in hospital costs and medical emergencies and increased overall health.

Overview of new standards

The previous allowable emission levels for ozone were not to exceed 0.12 parts per million (ppm) per hour more than once per year, averaged over 3 consecutive years. The new regulations called for a more complicated measurement. To comply with the new standard, the 3-year average of the fourth highest daily maximum 8-hour average of emissions over each year must not exceed 0.8 ppm.

Particulate matter measurement was also easier to understand before the revisions. Particulate matter that is 10 microns or less in diameter (PM-10) was measured two different ways. The average annual emissions were not to exceed 50 micrograms

per cubic meter ($\mu\text{g}/\text{m}^3$) averaged over 3 consecutive years. A daily maximum of PM-10 was not to exceed $150 \mu\text{g}/\text{m}^3$ more than once per year, averaged over 3 years. The updated regulations kept the annual emissions at $50 \mu\text{g}/\text{m}^3$, and revised the 24-hour maximum by using the 99th percentile of the distribution of the daily measurements instead of using one daily measurement in a year over a 3-year period.

EPA has also added measurements for particulate matter less than 2.5 microns in diameter (PM-2.5). The annual standard calls for a 3-year average of the annual arith-

**Other groups
strongly supported
the proposed rules
because they believe
the stricter standards
will give American
citizens more
protection against
a wide variety
of health problems.**

metic mean of the 24-hour concentrations from single or multiple population-oriented monitors to not exceed $15 \mu\text{g}/\text{m}^3$. The 24-hour standard is measured by using the 98th percentile of the distribution of the 24-hour concentrations for a period of 1 year, averaged over 3 years not to exceed $65 \mu\text{g}/\text{m}^3$ at each monitor within the measured area.

How it all started

The latest round of Clean Air Act regulations have been intermingled with legal issues from the beginning. In 1991, the American Lung Association initiated the regulatory process by suing EPA for its fail-

ure to review the adequacy of the ozone standard. The last time EPA reviewed the standard was in 1979, when it actually weakened the standard. EPA answered the lawsuit with an announcement that it had completed the review and decided not to revise the standard that existed at that time. The American Lung Association filed another suit against EPA to challenge their decision on not revising the standard because the data used was not current.

In 1993, the American Lung Association once again sued EPA to require the agency to review the adequacy of the current air-quality standard for particulate matter. EPA answered by announcing it would not revise the standard for PM-10, but would establish a new standard for PM-2.5.

After several court battles, delays and research, EPA announced the stricter Clean Air Act standards in July 1997. During the comment periods, several industry groups, organizations and U.S. representatives expressed displeasure with the proposed regulations, citing the lack of scientific evidence for the stricter guidelines and the extreme estimated costs for implementation of the regulation.

On the flip side, other groups that included the American Lung Association, the Sierra Club, the Natural Resources Defense Council, the Clean Air Network and the Natural Resources Council of Maine strongly supported the proposed rules because they believe the stricter standards will give American citizens more protection against a wide variety of health problems.

The battle continues

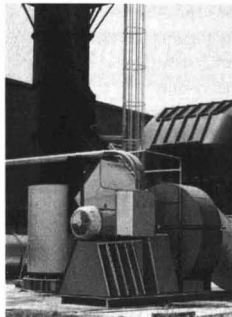
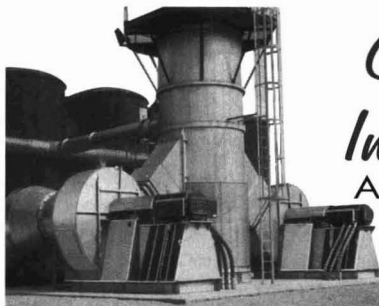
More than 500 organizations and associations have voiced concern over EPA's newest regulations, including The National League of Cities and National Governors Association. Industry groups have taken the lead with strong actions against EPA. Thirty-eight industry groups including the American Trucking Association, American Petroleum Institute, Chemical Manufacturers Association, American Farm Bureau Federation, National Mining Association, National Paint

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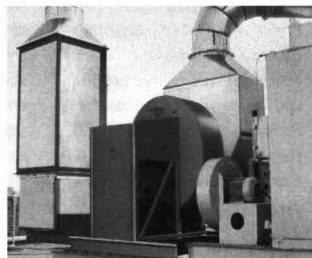
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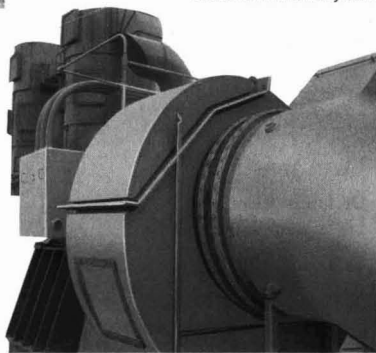
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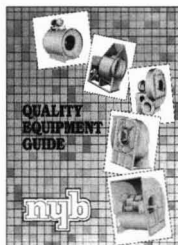
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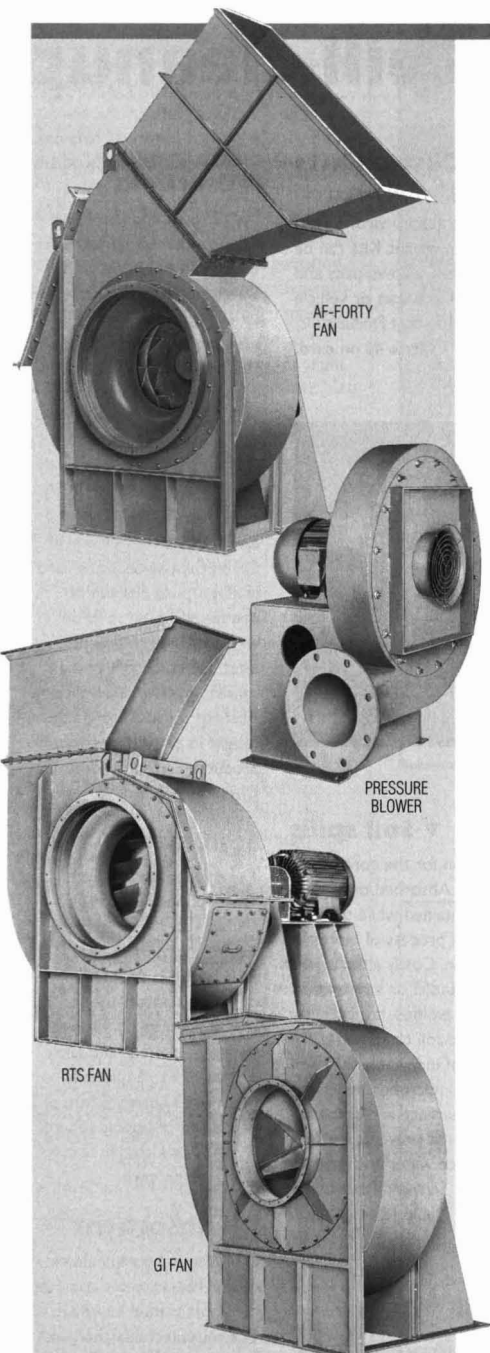
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▼ Soil spills

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Oil absorbent

Oil-Klean is a compound of natural fibers treated to be oil hungry and water repellent. The chips, in conjunction with containment or absorbent booms, can be vacuumed with the spilled product. Oil-Klean is easy to dispose of because it will not release the absorbed product. The natural fibers biodegrade at approximately the same rate as petroleum products in a landfill. *Wesorb Corp.*

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Continued from page 10.

and Coatings Association, National Association of Manufacturers, Non-Ferrous Founders Society and the U.S. Chamber of Commerce have been fighting EPA by filing court petitions that focus on the process used to develop the new regulations.

EPA has been targeted by eight eastern states that have filed petitions to reduce the transport of ground-level ozone pollution. The petitions asks EPA to decide that utilities and other sources of nitrogen oxides (NO_x) emissions from other states contribute to the ozone problems in the eight petitioning states. The states that have filed petitions are: Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island and Vermont. All petitions target midwestern states, and some also name sources in the south, southeast and northeast. An agreement between the eight petitioning states and EPA has resulted in a decision to have EPA take actions to establish emission limitations and compliance schedules pertaining to ozone transport for these eight states.

Representatives Ron Klink (D-PA), Rick Boucher (D-VA) and Fred Upton (R-MI) have introduced H.R. 1984, proposed legislation that calls for a 4-year moratorium on the establishment of new standards for ozone and particulate matter under the Clean Air Act, pending further implementation of the Clean Air Act amendments of 1990, and additional review and air quality monitoring under that act. Currently, H.R. 1984 has 198 co-sponsors (D-55, R-143). Senator John Chafee (R-RI) has also openly criticized EPA by asking it to take a more cautious approach to regulating to prevent "a revolt against the Clean Air Act."

Several organizations are stating that EPA has failed to comply with the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996, which requires the agency to consider the impact that new rules will have on small businesses. Another charge being made point against EPA is the accusation that the new standards are based on inadequate scientific evidence. The critics cite EPA's own scientific advisers' doubts on the benefits of new regulations.

Another point of concern is the fact that the 1990 Clean Air Act standards have not yet been fully implemented, and EPA is already raising the bar by introducing stricter standards that are even tougher to implement than the original standards. Because EPA has been consistently releasing evidence that indicates air quality has been improving over the past several years, stronger standards may not be necessary.

One of the industry groups suing EPA, the American Trucking Association, has

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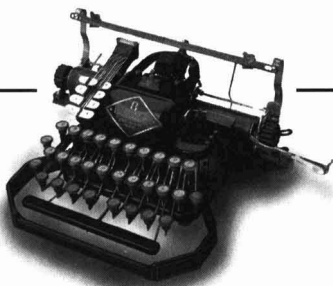
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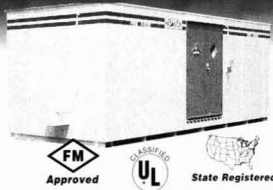
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written to EPA Administrator Carol Browner citing massive changes in the trucking industry that include switching to cleaner burning diesel fuel and cleaner engine standards. The changes have resulted in reduced truck smoke levels of 83 percent since 1990.

What's next?

Contact your state regulatory agency or regional EPA office to see what your company needs to do about the new standards regarding ozone and particulate matter. If your company is part of an organization that is fighting the standards through litigation, stay informed on the reasons why the organization is taking the stance it has chosen and what measures are being taken.

The legal battles will drag on for several years and cost millions of dollars. Whatever the outcome of these lawsuits may bring, the new standards have once again hurt the relationship between EPA and industry. While the 1990 Clean Air Act standards have been reported to consistently improve the ambient air quality in the United States, has EPA gone too far by adopting new standards that may potentially cripple many small businesses, increase the cost of gasoline and utilities and outlaw those Saturday barbecue parties? Or has the almighty dollar come before human welfare?

Unfortunately, we may never know which side is right. The courts have defined what must take place through the entire process of writing the new standards. From the initial court decision to force EPA to review the standards, to the latest cases against EPA to withdraw the standards, it seems that environmental progress is no longer defined by doing what is necessary, but instead is determined by who has the deepest pocket and the best lawyers. **EP**

Dave Schell is the environmental specialist for Wilton Armature, a non-ferrous foundry in Mount Joy, Pa. His first book, A Green Plan for Industry: 16 Steps to Environmental Excellence, is due out this month.

For more information, circle 50 on card.

More information

- *Regulating Smog and Particle Air Pollution—An Integrated Approach* (publication EPA-456/F-97-003)
- *Final Revisions to the Ozone and Particulate Matter Air Quality Standards* (publications EPA-456/F97-004)
- *H.R. 1984—Honorable Ron Klink, Congress of the United States, (202) 225-2565*

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A federal
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Is ignorance that the government must prove defendants knew physical characteristics that identify property as a wetland

bliss?

By Ragna Henrichs, JD

Environmental regulators have long brandished the sword of criminal enforcement as their ultimate weapon to ensure compliance. Federal environmental statutes contain tough criminal sanctions that can be employed against both individual and corporate offenders. Although criminal penalties, which include both monetary fines and jail time, have been strategically employed by regulators on an increasingly frequent basis, there has been only spotty use of the criminal justice system for enforcement of wetlands infractions. Recently, the Fourth Circuit Court of Appeals issued a decision likely to make use of the criminal sanction even more difficult in wetlands cases. Although Fourth Circuit decisions are binding only on the federal district trial

the government must prove) to establish criminal liability for a "knowing" violation. Generally, knowledge of the law is not required. In fact, it has often been said that ignorance of the law is no excuse. Hence, it is not necessary to know that specified conduct violates the law in order for that conduct to be criminal. Ignorance of pertinent facts, however, is recognized as an excuse. What facts, then, must be known by the violator to make his or her actions criminal? The Fourth Circuit addressed this question and provided a very specific answer.

Violating the Clean Water Act

In the case of *United States v. Wilson*, Federal Reporter 3rd (4th Circuit, December 23, 1997), the government brought

courts located in Maryland, Virginia, West Virginia and North and South Carolina, this decision has broader significance because it is one of the few appellate cases that has applied the criminal Clean Water Act provisions in a wetlands prosecution.

What Is a criminal act?

An act becomes criminal only if it is inflicted with some level of intentional conduct. The applicable statute will define the level of intent required—commonly, however, the act must be committed "willfully" or "knowingly." A "knowing" infraction involves a lesser degree of intent than "willful" conduct. The Fourth Circuit discussed what knowledge a perpetrator must have (or

felony charges against three parties for knowingly discharging fill material and excavated dirt into wetlands without a permit issued by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. The defendants included James Wilson, the chief executive officer and chairman of the board of Interstate General, another defendant. Mr. Wilson, a land developer with 30 years of experience, was responsible for various decisions related to the alleged wetlands activities.

The second defendant was Interstate General, a publicly traded land development company responsible for development of a 9,100-acre planned community that lies between the Potomac River and the Chesapeake Bay in Charles County,

Maryland. Interstate General had some 340 employees, 2,000 shareholders, and over \$100 million in assets. The third defendant was St. Charles Associates, a limited partnership that was the owner of the land being developed within the planned community.

All three defendants were convicted of felonies after a seven-week jury trial. Mr. Wilson was sentenced to imprisonment for 21 months and one year of supervised release in addition to a \$1 million fine. Interstate General and St. Charles were placed on probation for five years and fined \$3 million. The defendants were also ordered to carry out a wetlands

restoration and mitigation plan proposed by the government.

The defendants appealed their convictions on various grounds and won a new trial. One of the successful grounds in the appeal challenged the trial court's interpretation of the level of knowledge required to sustain the conviction. Although the government had established that the area in question was wet and even that the defendants' consultant had concluded the parcels were wetlands and had recommended obtaining the necessary permits, the defendants contended that the status of the property that had been filled was unclear. Defen-

dants argued that the USACE was inconsistent in regulation of the area as wetlands and further pointed to an internal USACE memorandum that itself expressed doubt about the wetlands status of the parcels. Finally, defendants also introduced evidence to show their belief that they had legally drained the area prior to adding any fill.

Conditions of a "knowing" violation

It was in this context that the court specified the proof necessary to establish a knowing wetlands violation. At issue was what the government must prove to prevail in its case. In particular, when prosecutors allege a "knowing" violation, what specific knowledge must be shown? If there is a dispute over whether the property involved actually constitutes a wetland, can a knowing, that is, a criminal, violation be established? Based upon the court's instructions, to obtain a criminal conviction the government must prove that the defendant had knowledge

If there is a dispute over whether the property involved actually constitutes a wetland, can a knowing, that is, a criminal violation be established?

of the facts of each of the six following conditions:

1. The defendant knew he was discharging a substance. Accidental discharges would not be subject to felony prosecution.
2. The defendant correctly identified the substance he was discharging, i.e. that it was a "pollutant" or was "dredged or fill material." Criminal prosecution is not proper if the defendant has mistaken the substance discharged for one that could legally be discharged.
3. The defendant knew the method or instrumentality used to discharge the pollutants.
4. The defendant knew the physical characteristics of the property into which the discharge was made that identify it as a

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wetland. For example, the defendant knew of the presence of water or water-loving vegetation.

One of the successful grounds in the appeal challenged the trial court's interpretation of the level of knowledge required to sustain the conviction.

5. The defendant was aware of facts establishing a link between the wetland and "waters of the United States."

6. The defendant knew he did not have a permit. The defendant need not know, however, that a permit is either available or required.

Note that all of the above elements involve knowledge of facts; that is, that a discharge was made, how it was made, what was discharged, the nature of the area where it was discharged and the lack of a permit. The court specifically declined to require the government to prove that the defendant knew that the acts were illegal. Hence, the court did not interfere with the adage "ignorance of the law is no excuse." At the same time, this court firmly established that ignorance of the critical facts necessary to establish the offense will be a fine excuse. Since the government bears the burden of proof beyond a reasonable doubt in a criminal case, the stringent proof required by the *Wilson* case is sure to be a factor in the government's decision of whether to prosecute civilly or criminally.

Making a wetlands determination

Items 4 and 5 of the above elements of proof call for the government to prove knowledge of the physical characteristics that would establish status of the property as a wetland. Given the factual intricacies involved in making a wetlands determination, these elements may erect significant hurdles for prosecutors. Scientific evaluations regarding the presence of wetlands vegetation, hydric soils and wetland hydrology are involved in determining whether property constitutes a wetland. Facts that meet the eye may not be determinative. For example, lands that flood on occasion may not be wetlands. Alternatively, wetlands may appear to be dry for extended periods of time. Further, complex science and opinion may also be involved in determining whether the wetland, once established, has the necessary linkage to "waters of

the United States." Under the Fourth Circuit's standard, the government must not only prove that such linkage exists,

but also that the defendant knew facts that would establish the linkage.

Even before the *Wilson* case, criminal

prosecution was hardly the preferred method of enforcement for wetland violations. Rather, the overwhelming majority of wetlands violations have been resolved at the administrative level. In the future, where enforcement is referred for court action, *Wilson* will discourage criminal prosecution for all but the most egregious and obvious of cases. Perhaps that is as it should be. **EP**

Ragna Henrichs, JD, practices environmental law and is a partner in the law firm of Porter & Hedges, LLP, in Houston, Texas.

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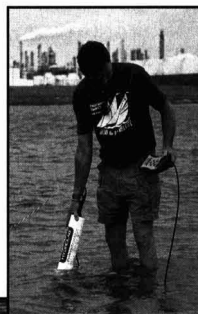
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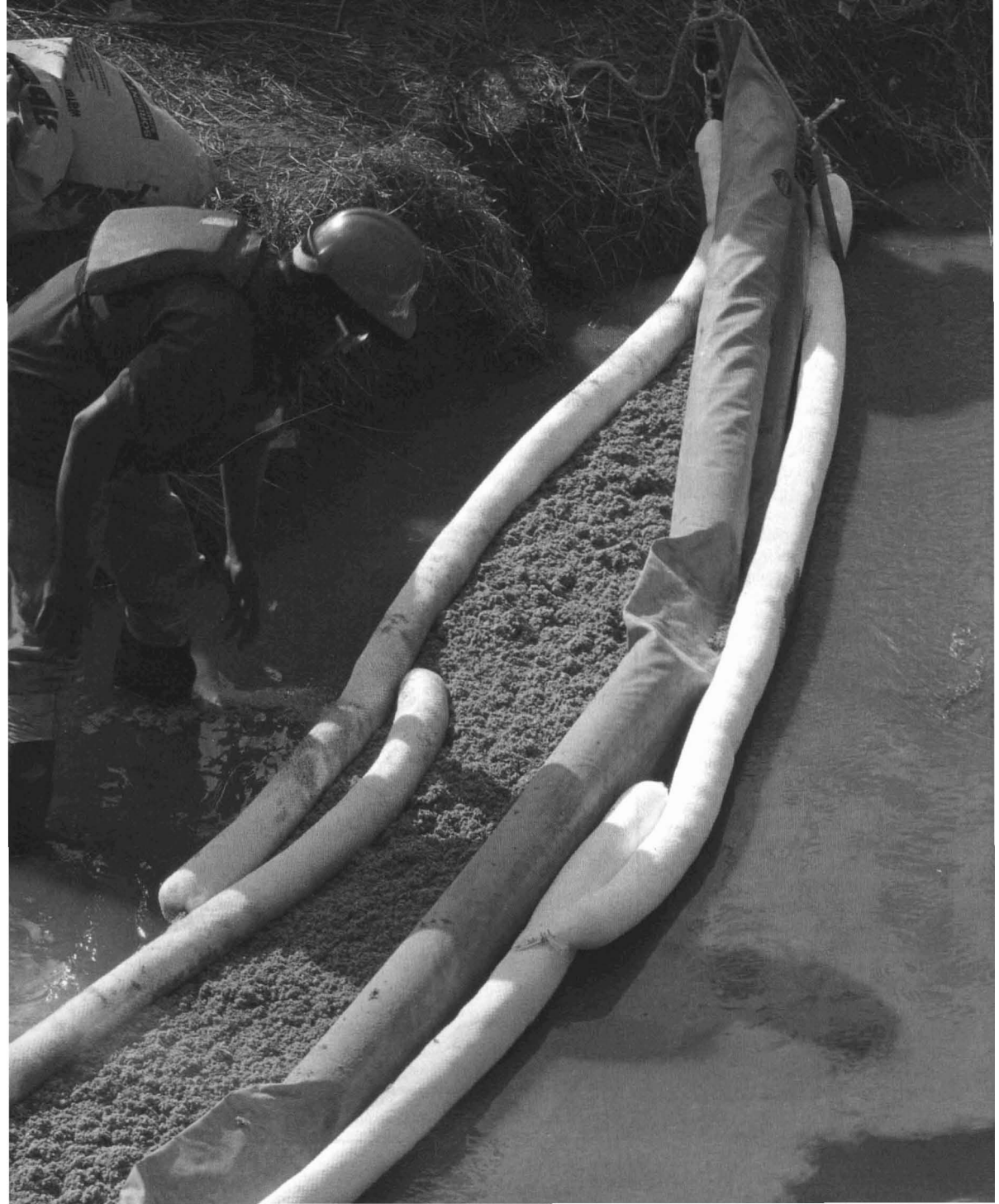
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A guide to spill



response training

Preparation can keep your employees from slipping up when they have to respond to a major oil spill

Both the Oil Pollution Act of 1990, and 40 *Code of Federal Regulations (CFR)* 112.21, require facilities that store or handle large volumes of petroleum products to develop a facility response training and drill and exercise program. Additionally, the Occupational Safety and Health Administration (OSHA) recognizes oil as a hazardous substance and consequently requires specific levels of training for personnel responding to a hazardous materials spill.

According to 40 *CFR* 112.21, facility personnel responsible for oil spill response must be trained in the "operation and maintenance of equipment to prevent discharges of oil, in the procedures to respond to discharges of oil, and in the applicable oil spill control and response laws, rules and regulations. All training shall be functional in nature according to job tasks for both supervisory and non-supervisory operational personnel."

40 *CFR* 112.21 (b) recommends that this training program be based on the Training Elements for Oil Spill Response Training Reference, developed by the U.S. Coast Guard (USCG), U.S. Environmental Protection Agency, Mineral Management Service (MMS) and the Research and Special Programs Administration (RSPA). As noted in the reference, the training elements are intended to be a foundation upon which individual organizations may build training programs to suit their needs.

Under 40 *CFR* 112, facilities are also required to develop a "program of facility response drills and exercises, including evaluation procedures." The regulation suggests this program be based on the National Preparedness for Response Exercise Program (PREP). PREP represents the minimum guidelines for ensuring adequate response preparedness.

The OSHA also requires specific levels of training for persons engaged in hazardous materials emergency and post-emergency response clean-up activities. In 29 *CFR* 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) training requirements are task

specific—the amount of training required is primarily dependent on the roles and responsibilities of an individual during an emergency response and/or post-emergency response cleanup.

The Texas A&M University Center for Marine Training and Safety of the Texas Engineering Extension Service (TEEX) has become heavily involved in the development and implementation of training and drill and exercise programs. During the development of these programs, both PREP and the Training Reference are used as guidelines to assist in achieving and maintaining compliance, as well as ensuring preparedness and competency within a response organization. Programs developed by TEEX also ensure compliance with the emergency response portion of the HAZWOPER regulation.

Putting the program to work

Initially, an evaluation of each specific facility within an organization is conducted to help determine specific training needs and requirements. The evaluations give TEEX an opportunity to become familiar with each facility, its standard operating procedures and personnel. To ensure an adequate and thorough evaluation, a facility evaluation outline/checklist is developed that highlights important factors influencing a final training and drill/exercise program (Figure 1). The outline covers standard operating procedures (SOPs), spill prevention control and counter-measures (SPCC) responsibilities and facility response plan (FRP) evaluations and other important conditions at the facility.

The information gathered from this evaluation allows the development of a program that focuses on the weaknesses of each facility, while reinforcing their individual strengths. It also allows an opportunity to develop unique lesson plans for each facility. Individual classes are customized to individual facilities. Classes focus on facility-specific tactics and strate-

gies that may be employed during an oil spill response. This gives each team an opportunity to apply the theory learned in the classroom to operating environments they would realistically be working in.

With the information gathered during the initial evaluation and guidance from the PREP and Training Reference, a training, drill and exercise program is developed. An example of a typical program schedule is summarized in Figure 2.

Drills and exercises are designed to test the ability and preparedness of facilities, their equipment and those personnel specifically identified as emergency incident responders. Drills and exercises should also test the integrity and applicability of facilities' response plans.

A training program is designed to ensure that an individual or team is fully capable of performing their duties. A training program does not test a particular team's ability to respond, but rather teaches the team to respond efficiently and effectively. The program should ensure that response personnel are fully capable and competent to perform their duties during an emergency response incident, and continually test and evaluate those abilities.

Recognizing that most facilities within an organization are different, unique lesson plans for each facility are developed. Ideally, these unique lesson plans, within each course, address the different operating procedures, response team members' capabilities and internal and external concerns of each facility. The program often combines a training session with an announced drill or exercise, giving the participants an opportunity to reinforce those topics covered in a classroom environment with real-time hands-on application. This approach tests the integrity, condition and applicability of equipment and other resources the facilities may intend on using during an actual event, while fulfilling the regulatory requirements.

A typical program may be broken down into individual courses, each addressing specific personnel and objectives, while satisfying regulatory requirements. Individual courses may include 24-hour HAZ-

By Craig Kartye

WOPER technician-level training, 8-hour HAZWOPER refresher, spill response and spill management.

Twenty-four-hour HAZWOPER technician-level training course

Individuals responding to releases or potential releases to stop or control the release are required to have at least 24 hours of training in specific competencies (29 CFR 1910.120). This three-day course is designed to provide baseline training to employees who have never had HAZWOPER training or have missed their annual refresher and are expected to take

an active role in responding to an oil spill.

It is worth noting that this HAZWOPER class instructs responders on proper procedures and protocols to respond to an incident safely. It covers topics ranging from personal protective equipment, decontamination, hazard and risk assessment and toxicology and chemistry of hazardous materials. It does not go into detail regarding other response techniques such as containment and recovery techniques.

It is usually best to require all emergency response personnel, including supervisory personnel, receive this training, including those who may have already been trained to

the 24-hour level. This rationale is based on the fact that the TEEEX course specifically emphasizes oil spill related issues. As a result, the course is quite often significantly different from previous HAZWOPER training, which often focuses on types of personal protective equipment, general decontamination procedures, basic toxicological behavior and terminology. This training does not discuss oil spill specific applications of these topics. The 24-hour HAZWOPER technician-level course specifically addresses these topics from an oil spill response perspective. Because all personnel receive the same basic training, a safer response and improved decision-making ability, based on knowledge of operating strengths and limitations, is encouraged.

FIGURE 2
Training and drill/exercise program schedule

DESCRIPTION	FREQUENCY (YEARLY)
Qualified Individual	4/facility
Spill Management Team training	1/facility
Spill Management Team tabletop exercise/emergency procedures drill	1/facility
Spill Management Team tabletop exercise	1/facility
8 hour Spill Response Team training	1/facility
Spill Response Team training/equipment deployment exercise	1/facility
Spill Response Team exercise (equipment deployment or emergency procedures drill)	1/facility
24 hour HAZWOPER Technician	1/facility
8 hour HAZWOPER Technician refresher	1/facility

Eight-hour HAZWOPER operations refresher course

Personnel trained to the 24-hour technician level must complete 8 hours of annual refresher training (29 CFR 1910.120). This training addresses the same safety issues associated with a hazardous materials release, as well as more site-specific safety issues.

All individuals who are likely to witness or discover a hazardous materials spill must be trained to initiate an emergency response.

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FIGURE 1 Facility evaluation outline

I. Facility Evaluation

- a. equipment available
- b. equipment condition
- c. equipment readiness
- d. equipment preventative maintenance schedule
- e. drainage patterns
- f. secondary containment
- g. secondary control measures
- h. substations within facilities responsibilities
- i. overall terrain
- j. potential internal impacts
- k. potential external impacts

II. Operating Procedures Evaluation

- a. SOP-transfers
- b. SOP-storage
- c. SOP-inspections
- d. documentation of procedures

III. Personnel Evaluation

- a. job functions/organizational structure/responsibilities
 1. during normal business day
 2. during an oil spill
 3. SPCC/prevention responsibilities
- b. training required based on job description
- c. training actually received
- d. documentation of training
- e. training for new employees and contract personnel

IV. SPCC/FRP Evaluation

- a. review prevention program
- b. review checklists in plan
- c. review possible scenarios and mitigation actions

There are no hourly limits required to achieve this level of training, called the awareness level. The first portion of this 8-hour course provides personnel with this minimal amount of training. As with all HAZWOPER certifications, it is the responsibility of the employer to ensure that employees have the specific competencies required to recognize an emergency, initiate a response and protect themselves. Ultimately, all operational personnel who may witness or discover a spill receive this training.

Spill response team training

Proficiency and competency, in reference to response capabilities, are two terms used throughout the regulations. It is the responsibility of an employer to ensure response personnel are capable of fulfilling their duties. Multiple Spill Response Team (SRT) training courses and exercises for each facility are conducted annually. These courses address facility specific issues and operating

environments such as: proper deployment of containment boom, use of boom, applicable recovery systems and techniques, specific environmental, recreational and commercial concerns and response to spills on land and small waterways.

These courses address oil spill response issues from an operational aspect. They focus on tactical theory and hands-on practical experience with the equipment available at each facility. As a result, quite often an equipment deployment exercise to maintain compliance is incorporated into a course.


Response personnel, supervisory personnel and spill management personnel all attend these courses. This ensures that everyone involved in a response, regardless of their actual role, are knowledgeable in field response operations, equipment deployment tactics and associated limitations.

Spill management team training

The spill management team (SMT) is the group of personnel responsible for the overall response effort. Under current regulations, it is the employer's responsibility to ensure personnel in specific roles have been trained, are capable of performing and understanding the responsibilities associated with that role. The SMT training course developed by TEEX addresses specific personnel roles and their responsibilities within the Incident Command System (ICS). It also addresses management issues associated with oil spill response. Emphasis is placed on facility specific issues.

The effectiveness of the course and the ability of personnel are tested through incorporation of tabletop exercises and emergency procedures drills. Again, this also facilitates regulatory compliance.

The successful development and implementation of a training, drill and exercise program requires the integration of several factors: a thorough evaluation, guidance from the PREP and training reference, and in-depth critiques of each training drill or exercise. This approach also ensures that each course, drill or exercise conducted is customized to meet the needs of each facility.

Although the program is structured, it should have a degree of inherent flexibility. This is essential for any training, drill and exercise program. A good program must be able to adapt to the changing needs of a dynamic organization. 

Craig Kartye is an instructor at the Texas A&M University Center for Marine Training and Safety of the Texas Engineering Extension Service in Galveston, Texas.

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Reporting a SPILL

By Matt Sankey

*Untangle the overlapping spill reporting requirements
and stay in compliance when an accidental release occurs*

Knowing which regulatory agency to report a hazardous substance release can be confusing due to overlapping requirements. Typically, numerous agencies may have to be notified when a hazardous leak occurs. Release reporting requirements can be summarized at the federal level according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Emergency Planning and Community Right-to-Know Act (EPCRA), the Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Toxic Substances Control Act (TSCA), the Hazardous Materials Transportation (HMTA) and the Occupational Safety and Health Administration (OSHA).

According to the National Response Center (NRC), 27,427 spills were reported in 1997. No one wants a spill to occur, but statistics show that you're a prime candidate if your facility stores, handles or transports liquids. The worst time to prepare for a spill is after it occurs (see Table 1).

Spill reporting can be confusing. Many regulations overlap, which means that for one hazardous spill or leak, you may have to file reports with two, three or more national, regional and/or local agencies.

Non-compliance penalties can be severe, resulting in civil or even criminal charges and fines of up to \$25,000 to \$75,000 per day, per violation.

CERCLA

The regulations under CERCLA, which is commonly called Superfund, apply to releases from a facility or from vessels into waters under U.S. jurisdiction. CERCLA

defines a facility broadly, including not only buildings and structures but any motor vehicle, rolling stock or airplane. This statute's definition of a release is straightforward. A CERCLA release is any action—spilling, leaking, injecting or discharging—that results in a hazardous substance entering the environment in a reportable quantity (RQ), which varies for each hazardous substance. Releases that meet or exceed the RQ must be reported to the NRC by the person in charge of the facility. See the most recently updated version of 40 *Code of Federal Regulations (CFR)* 302.4 for the listing of designated hazardous substances and their corresponding RQs.

EPCRA

Spills that impact the environment outside your facility are reportable under EPCRA. EPCRA also defines a release as any action—spilling, leaking, injecting or discharging—that results in a hazardous substance entering the environment. You must report an EPCRA release immediately to the NRC, your local emergency planning committee and your state emergency response commission. You are also required to submit a follow-up emergency notice as soon as practicable after the initial notice of the release. See 40 *CFR* 355 for the list of EPCRA's extremely hazardous substances and corresponding RQs.

RCRA

RCRA release reporting requirements apply to treatment, storage and disposal (TSD) facilities, generators and hazardous waste transporters. RCRA release reporting requirements vary according to whether

one owns or operates a hazardous waste generator, transporter or TSD facility.

All RCRA hazardous wastes are also classified as hazardous substances under CERCLA (See 40 *CFR* 302.4 for listings and RQs). Therefore, a release of a RCRA hazardous waste can be reportable under CERCLA and EPCRA and should follow their notification requirements. RCRA release reporting requirements also involve notifying the U.S. Environmental Protection Agency regional office and filing a written follow-up report.

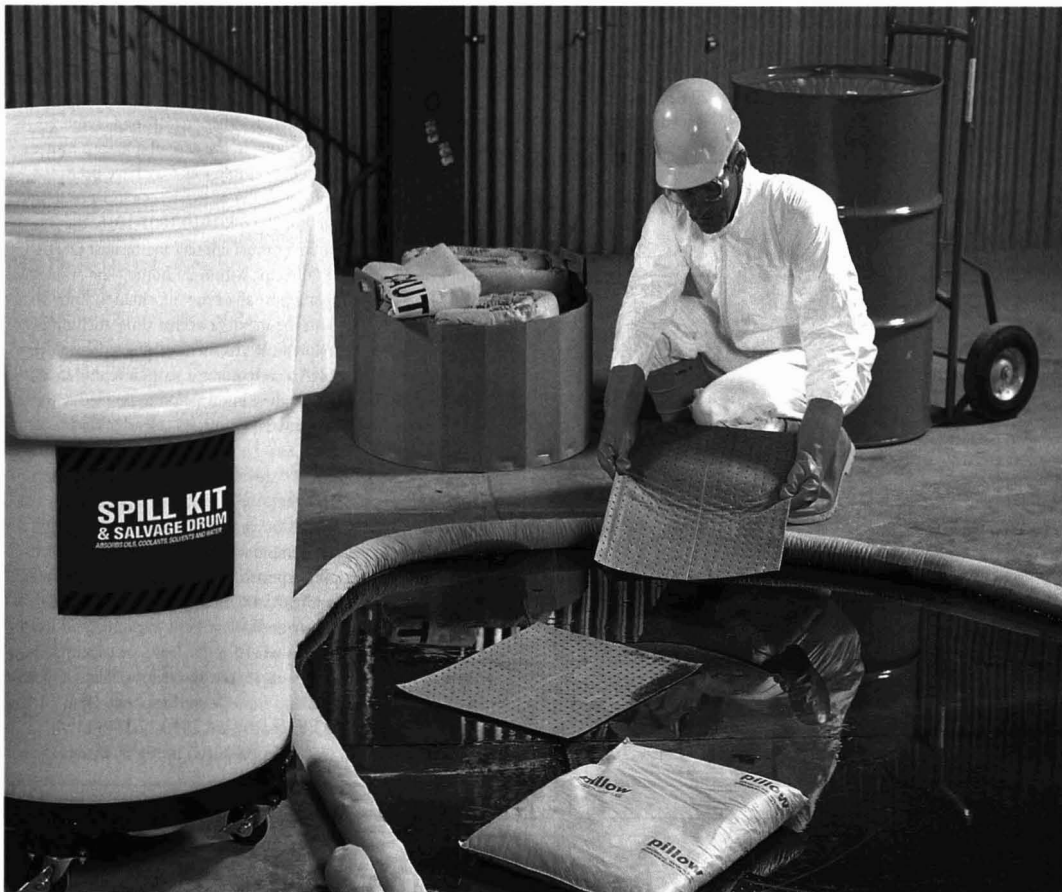
Hazardous waste generators and TSD facilities are also required to have a contingency plan that includes release reporting steps and telephone numbers of the agencies that should be contacted [40 *CFR* 265 Subparts C & D].

CWA

When either oil or certain hazardous substances are discharged in sufficient amounts from a vessel or an onshore or offshore facility into any body of water, CWA requires immediate reporting by the person in charge of the vessel or facility. CWA-designated hazardous substances are listed in 40 *CFR* 116.4A. A release of any of these hazardous substances is reportable if the discharge exceeds the officially-designated "reportable quantity" of the substance, the list of which can be found at 40 *CFR* 117.3.

An oil spill is reportable when sufficient amount of oil has been released to:

- Violate applicable water quality standards;
- Cause a film, sheen or discoloration of the surface of the water or adjoining shoreline; or
- Cause a sludge or an emulsion to be



The worst time to prepare for a spill is after it occurs. Plan ahead by researching your reporting requirements and ensuring that you have sufficient cleanup materials on hand.

deposited beneath the surface of the water or upon adjoining shorelines.

All releases of hazardous substances that are reportable under CWA are also reportable under CERCLA, with the sole exception of oil spills. One call to the NRC can satisfy reporting requirements for both. Since the lists of designated hazardous substances for CERCLA and CWA are not identical, it is important to bear in mind each statute's distinct notification requirements.

TSCA

The following spills of polychlorinated biphenyls (PCBs) are reportable under TSCA:

- A spill that contains 50 parts per million (ppm) or more by concentration of PCBs and has contaminated surface or drinking water, sewers, grazing lands or vegetable gardens;
- All other spills exceeding 10 pounds of PCBs by weight, regardless of contamination.

TSCA reports must be made to the EPA regional office within 24 hours of discovery. TSCA reporting duties concerning PCB releases are in addition to any CERCLA and CWA reporting duties that may be triggered by a PCB spill.

Section 8(e) of TSCA also has reporting requirements for manufacturers, processors and distributors of chemical substances that are found to "present a substantial risk of injury to health or the environment." Although this includes instances where widespread environmental contamination by a chemical is discovered, Section 8(e) reporting is not required when the responsible parties can presume that EPA is already aware of the spill incident based on reports of the release disseminated by various news media. In an emergency case, an oral report should be made immediately to the EPA regional office, and if EPA cannot be reached, to the NRC. In non-emergencies, the report must be made within 30 days. However, unlike PCB reporting under TSCA, Section 8(e) reporting is not mandated if a report has already been made under CERCLA, the CWA, or another environmental reporting statute. For assistance,

TSCA provides the "TSCA Section 8(e) Reporting Guide," which outlines the typical situations that may require reporting.

HMTA

The U.S. Department of Transportation (DOT) regulations governing the transport of hazardous materials contain strict incident reporting requirements. The DOT definition of "hazardous materials" broadly includes various substances recognized as hazardous by DOT, RCRA hazardous wastes and other materials designated as hazardous under 49 CFR 172.101. DOT requires reports when, as a direct result of hazardous materials:

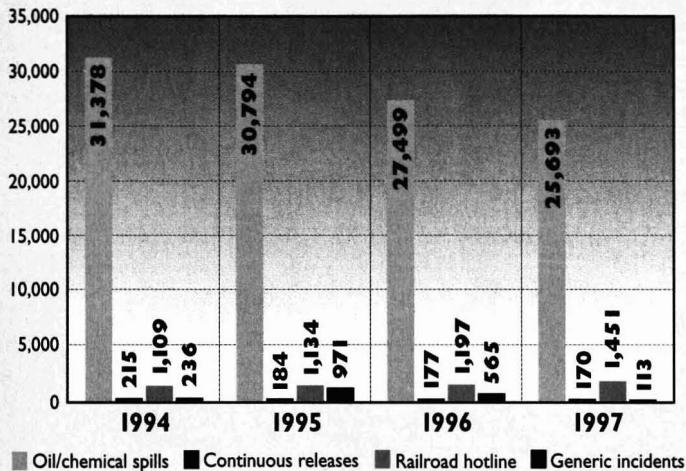
- A person is killed;
- A person receives injuries requiring hospitalization;
- Estimated carrier or other property damage exceeds \$50,000;
- An evacuation of the general public occurs lasting one or more hours;
- One or more major transportation arteries or facilities are closed or shut down for one hour or more; or
- The operational flight pattern or routine of an aircraft is altered [49 CFR 171.15 (b)(1)(i-vi)].

Each report must be made directly to DOT and contain certain specified information. The regulations also require a more detailed written report to be submitted to DOT within 30 days of the incident.

OSHA
Some of the OSHA safety standards governing toxic and hazardous substances found at 29 CFR 1910.1000-1052 contain release reporting requirements. Unfortunately, there

is no general listing of substances for which reports of spills to OSHA are required. The specific safety standard for each substance must be consulted to determine if reporting is mandated. Where reporting is required, as, for example, in the case of a release into an area where employees may have been exposed to any of the 13 carcinogens designated in 29 CFR 1910.1003-1016, the employer must contact the nearest OSHA area director within 24 hours. The employer must report all of the information known about the incident at that time, including any medical treatment of affected employees. OSHA also requires a written report containing specified information to be filed with the same official within 15 calendar days.

TABLE I
Spill incidents per year from 1994 through 1997



Be prepared

An owner's or operator's responsibility extends beyond just knowing reporting requirements. Preparation is important to spill response. For example, OSHA requires "Suitable quantities of proper absorbent shall be kept available and used in areas where spills, leaks or ruptures may occur," under the Hazardous Waste Operations and Emergency Response (HAZWOPER) [29 CFR 1910.120 (j)(1)(vii)]. Spill kits packaged in highly visible con-

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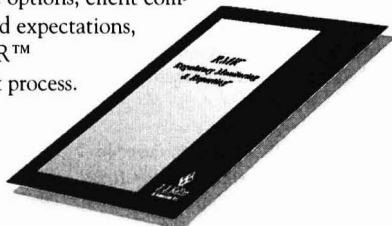
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Getting stung: Lawsuits against consultants

Meeting recognized professional standards and carrying adequate liability insurance can help environmental professionals protect themselves

By John J. Zodrow, JD

Professional liability insurance designed to protect environmental consultants from suits for negligence and malpractice is a recent innovation in the environmental restoration and risk reduction industry. Recently, insurance products have evolved that protect environmental consultants, including Phase I environmental site assessment coverage and underground storage tank (UST) contractor liability coverage.

Insurance coverage is also offered for the potential liabilities of other environmental professionals, including asbestos consultants, soil scientists, hydrogeologists, petroleum engineers, industrial hygienists, health and safety consultants, project managers, risk managers, pollution control inspectors, environmental engineers, soil engineers, analytical laboratory personnel, lead abatement contractors and water testing consultants. Such professionals typically seek to protect themselves through professional errors and omissions insurance policies.

Environmental professionals ordinarily incur liability under three distinctly separate theories of law. First, for improper actions or omissions of the environmental professional that result in damages, the professional may be subject to a negligence-related lawsuit. An example of this is when a consultant's negligence in drilling a borehole for a groundwater monitoring well results in perforation into the aquifer below the contaminated aquifer, causing cross-contamination of the two aquifers. Second, environmental professionals may be subject to misrepresentation lawsuits when their advice (rather than their action) results in harm or damage to others. An example would be when an environmental broker inappropriately recommends or selects a treatment or disposal site that is not permitted to accept the type of waste the broker is contracting to ship. Third, environmental professionals may be subject to liability if they fail to live up to the terms of their contract for services, whether those terms are express or implied. These suits are based on claims of breach of contractual or warranty provisions.

Standards of care

In one recent case, an environmental consultant was liable for producing a faulty environmental report. In *Levy vs. Versar Inc.*, 1993 U.S. Dist. LEXIS 14306 (N.D. Ill. Oct. 8, 1993), the court held that an environmental consultant was in the business of supplying information and may be liable for negligent misrepresentation if a party shows detrimental reliance on that information in deciding to buy property.

William Levy intended to buy a parcel of real property in Chicago, Ill., to be used as a dry cleaning business and conditioned the purchase on a satisfactory environmental inspection of the premises. Levy hired Versar Inc. to prepare a Phase I environmental site assessment report that indicated USTs were present, which contained gasoline, fuel oil and tetrachloroethylene (PCE). Based on the Phase I report, Levy negotiated a new agreement for purchase of the

premises and commissioned Versar to conduct a Phase II environmental site investigation that included sampling. The Phase II report described testing of the storage tanks and their surrounding soil.

After the real estate closing, the soil and groundwater were found to be contaminated with PCE. Levy, alleging that Versar did not test the soil or groundwater of the premises for PCE or recommend doing so, sued for negligent misrepresentation and breach of contract. Levy asserted that Versar breached a duty under the Phase I contract to identify and report on all areas of environmental liability on the property, failed to recommend further testing to determine the extent of environmental hazards on the property and failed to conduct its investigations according to recognized environmental engineering standards.

The court found that the Phase I contract required Versar to research prior uses of the property to identify activities possibly involving hazardous materials and, in the Phase II contract, to test for the integrity of the USTs, sample the surrounding soils and rec-

Environmental consultants take their place with other technical professionals with legal duties and liabilities attendant to the performance of their positions.

ommend further activity. Since Versar was aware the reports would be used in assessing the financial consequences of purchasing the property, the court found that Levy's reliance on Versar's statements in the report was foreseeable.

The *Versar* court was not alone in finding an environmental consultant liable to a property owner on the theory of negligent misrepresentation for failure to discover contamination on the property. The Ohio court recently allowed a lawsuit for negligent misrepresentation against a bank that recommended an asbestos environmental consultant to perform a site assessment in *Lippy vs. Society National Bank*, 100 Ohio App. 3d 37, 651 N.E.2d 1364 (1995).

Stephen Lippy wanted to purchase an abandoned service station and contacted Society National Bank to secure financing. The bank's loan officer conditioned financing on a satisfactory environmental site assessment and recommended that Lippy hire United Asbestos Management Inc. Lippy hired United, which assessed the property without noting any concerns. Society then financed the purchase of the property. Lippy did not know that United's experience was limited to asbestos abatement, and it had no experience in the type of site assessment he needed. When Lippy discovered the property had soil, surface and groundwater contamination that required extensive cleanup, he sued both the

consultant and the lender, claiming Society was negligent in recommending an incompetent environmental consultant.

Lippy asserted that Society, in undertaking to recommend an asbestos consultant to perform a general site environmental site assessment, misrepresented the consultant's qualifications to perform such work. The court declined to decide the issue of whether Lippy justifiably relied upon Society's representations and will allow the lawsuit to proceed to trial.

Other recent judicial decisions also addressed standards of care for consulting environmental professionals. In *Titanium Industries vs. S.E.A. Inc.*, No. 93-CV-00823 (Youngstown/Mahoning Cty. Ohio Ct. Common Pleas, July 6, 1994), reversed on appeal, 94 CA 130 (Ohio, Ct. of Appeals, 7th Appellate District, January 29, 1997), the plaintiff sued a consultant who was retained to perform an environmental site assessment of property for breach of contract, negligence and misrepresentation. Following the purchase, in which Titanium arguably relied upon S.E.A.'s environmental assessment, state regulators discovered the property contained illegal hazardous waste storage areas.

Titanium alleged that S.E.A. erroneously represented facts concerning the environmental condition of the subject property and the compliance record of Youngstown Welding, the property owner. Titanium asserted that S.E.A., since it was retained to perform an environmental assessment, owed a duty to adhere to the requisite standard of care in performing the assessment. Moreover, S.E.A. promised to perform certain reviews under its written contract. Titanium sought recovery for its loss caused by its reliance on S.E.A.'s misrepresentation of the subject site and Youngstown Welding's history of failing to comply with environmental regulations. Specifically, Titanium asserted S.E.A. negligently misrepresented the property as being in "good condition" and the company's hazardous waste management waste practices as being in compliance with the Resource Conservation and Recovery Act (RCRA). Titanium argued that S.E.A. owed a duty to exercise reasonable care in performing the site assessment. Furthermore, S.E.A. owed Titanium a duty to exercise reasonable care in communicating the results of S.E.A.'s environmental site assessment to Titanium.

Titanium asserted that, through its contract, S.E.A. represented that it would obtain and review historical documents to determine the previous uses of the property, conduct a site inspection and issue a report. Further, S.E.A. represented that Titanium would guarantee the property's condition with respect to potential environmental pollution sources that were present on the property the day of the site inspection. According to Titanium, S.E.A. failed to fulfill the terms of the contract and breached its contract. Specifically, S.E.A. failed to identify and disclose a filled lagoon that had been used to collect pickling acid and the presence of USTs on the property. Because of time constraints, S.E.A. failed to file a Freedom of Information Act request for documents to confirm or dispel what they learned from a Youngstown engineer—that there was no on-site disposal of hazardous waste.

The jury agreed and awarded \$2.716 million on the negligent misrepresentation claim and \$250,000 on the breach of contract claim. However, the appeal court set aside the earlier verdict when it found that the trial judge improperly excluded an expert's testimony that "the standard of care was still being defined" at the time of the alleged misconduct.

In *Power Engineering Co. vs. EnviroChem Services, L.C.*, No. 95-CV-1941 (Colo. Dist. Ct. Nov. 1, 1996), appeal pending, No. 96-CA-2050, (Colo. App., filed Nov. 15, 1996), a Colorado court held that an environmental services company that agreed to arrange for the disposal of a generator's hazardous waste was liable under the theories of breach of contract and negligence for injuries resulting from its failure to properly dispose of the waste. The treatment

facility that the broker contracted, Quicksilver Products Inc., lacked the required regulatory permits and technology to treat the waste. In addition, the treatment facility added to the waste and mislabeled the shipment before sending it to the disposal facility. Because of the irregularities, the disposal facility refused to accept the waste. The court ruled that the broker materially breached its contract with the generator by failing to arrange for disposal, and acted negligently in selecting the treatment facility. The broker owed a duty of care to act in a manner consistent with the knowledge and ability of others in the same profession and should have confirmed that the treatment facility had the necessary permits, equipment and technology to receive and treat the waste.

Unquantifiable potential liability

Legal actions against environmental consultants are ordinarily brought on the grounds of negligence, misrepresentation or breach of contract, although a lawsuit against an environmental professional may involve a combination of more than one cause of action. Hence, environmental consultants take their place with architects, accountants, engineers and other technical professionals with legal duties and liabilities attendant to the performance of their profession. However, unlike some professions, environmental professionals may find themselves in the position where they have rendered a relatively small amount of services but incurred potential liability that is unquantifiable. **EP**

John J. Zodrow, JD, practices environmental professional liability litigation for Zodrow et al P.C. in Denver, Colo.

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Bureau of National Affairs Inc. (BNA) 800-372-1033, FAX: 202-785-7182 Circle 56 on card.	SmartCite		*				* * *	Available	Available
Business & Legal Reports Inc. (BLR) 203-245-7448, FAX: 203-245-0483 Circle 57 on card.	Super-Reg Environmental Compliance In Your State		*	*	*	*	*		Available
Canadian Centre for Occupational Health and Safety (CCOHS) 800-668-4284, FAX: 905-572-2206 Circle 58 on card.	CHEM Source HSDB MSDS RTECS	*	*	*	*	*	*	*	Available Available Available Available
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Corbus, a division of CMS Inc. 800-524-7096, FAX: 610-444-6461 Circle 60 on card.	TERMS Software	*	*	*	*		*	Available	Available
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Laidlaw Environmental Services Inc. P.O. Box 11393, 1301 Gervais St., Columbia, SC 29201 Circle 70 on card.	CorpLIX LiteLIX PowerLIX	*	*	*	*	*	* * *	Available Available Available	Available Available Available
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UPDATES
DESCRIPTION

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Monthly	Windows-based CD ROM that finds specific rules that apply to your plant. Access regulatory compliance
Quarterly, monthly newsletter	Environmental compliance software containing the full text of state and federal regulations and simple, non-technical explanations
Quarterly	A collection of 10 chemical information databases, including transport, emergency response and detailed chemical profiles
Quarterly	Hazardous Substances Data Bank (HSDB) that contains detailed chemical profiles on 4,500 chemicals
Quarterly, monthly on Internet	Collection of the 96,000 most up-to-date material safety data sheets from 600 manufacturers and suppliers
Quarterly	Registry of toxic effects of chemical substances (RTECS) database from U.S. NIOSH
	Oil spill trajectories regulation software that includes 2-D hydrodynamic model to calculate water velocities and a particle tracking model to simulate spreading
Biannually	MSDS management and environmental compliance software
Biannually	Audits for compliance with RCRA, HSWA covering generators of NHZW, universal waste handlers, conditionally exempt SQGs, small and large
Available	Facility container and profile tracking and reporting system
Available	Remediation and monitoring data management and reporting system
	Integrated database with AutoCad to quantify, track and manage facility and field survey data of environmental hazards and materials
Quarterly	Nationwide database detailing hazardous waste generation, transportation and disposal records
Periodically	Property-specific environmental records, reports and flood determinations
As developed	Chemical compatibility software
As developed	Various software programs to fill niche needs
Semiannually	Fully integrated client/server-based multimedia product suite for calculating, tracking and reporting emissions from air, water and waste
Available	Tracks and manages hazardous waste manifests
Available	EPA, OSHA and DOT regulations and more than 250 compliance explanations and related documents; Folio® search engine
Available	Contains data on 99 percent of the most commonly used chemicals; notifies user if chemical is on one or more of 19 different chemical lists
Available	Easy access to current DOT hazmat regulations and E-1 Explanations™
Semiannually	Modular Windows-based software for managing environmental, health and safety information
Every 3 to 6 months	Total corporate waste management system for multiple sites
Every 3 to 6 months	Waste data repository and reporting system for small quantity generators
Every 3 to 6 months	Total waste management system for large quantity generators
Quarterly	Regulatory compliance software reporting hazardous material management
Quarterly to annually	Integrated environmental, health and safety information management software that is Web-enabled and has application program interfaces to major enterprise applications such as SAP
Quarterly	Environmental information management system with complete waste management functionality
2 to 3 times annually	Windows environmental data management software application for entities that produce emissions of air pollutants, wastewater effluent loadings and solid and hazardous waste

Hazardous waste software guide

Threshold Parameters Tracking
 CERCLA database
 Regulation Labeling
 Remediation training
 DOT HM 1st Com. RTK
 Demo
 Network CD-ROM

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Quantum Compliance Systems 313-761-2175, FAX: 313-761-3058 Circle 77 on card.	Facts Software	*	*	*		*	*	*	*	Available Available
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Softshell Inc. FAX: 405-733-2002 Circle 79 on card.	Environmental Site Assessment	*	*					*		Available
Solutions Software Corp. 407-321-7912, FAX: 407-321-3098 Circle 80 on card.	CD-ROM Databases			*	*	*	*	*		Available
Wixel Inc. 303-796-0045, FAX: 303-796-0043 Circle 81 on card.	CorpLinx PowerLinx ServiceTrax	*	*	*	*	*	*	*	*	Available Available Available Available

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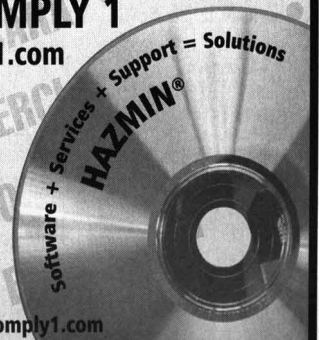
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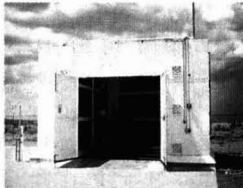
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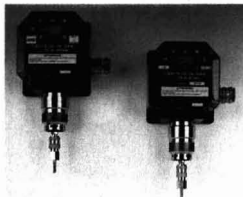
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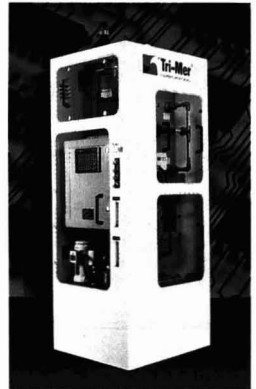
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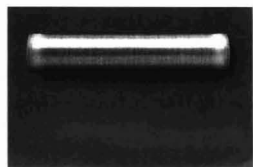
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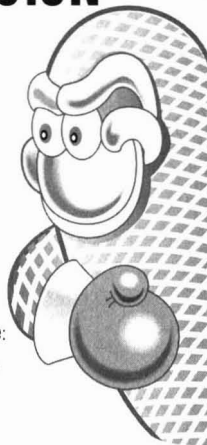
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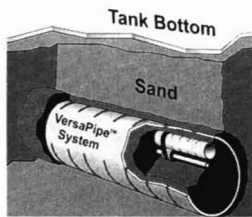
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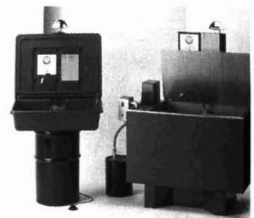
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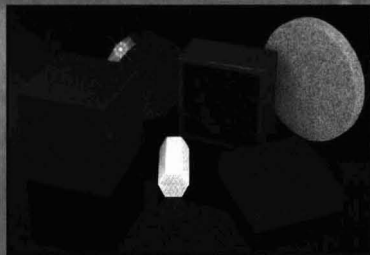
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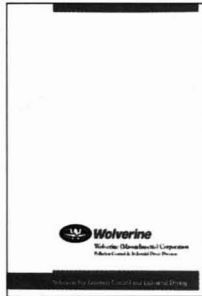


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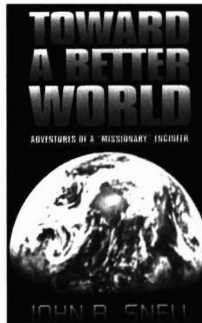


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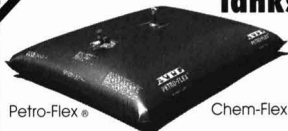
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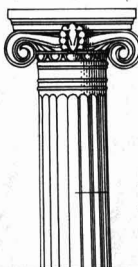
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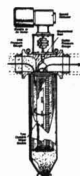
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Leggette, Brashears & Graham Inc. - 126 Monrow Turnpike, Trumbull, CT 06611. (203) 452-3100, FAX: (203) 452-3122.

Professional groundwater and environmental engineering services.

See our ad in Classifieds

Handex Environmental - 106 Thompson Prk Dr, Cranberry Township, PA 16066. (800) 989-8321, FAX: (412) 772-9733, Internet: www.Handex.com.

Full service environment consulting & contracting.

SSG Incorporated - 14K World's Fair Drive, Somerset, NJ 08873. (732) 356-0560, FAX: (732) 356-6440.

e-mail: pstrauss@ssgcorp.com

Cost-effective solutions to environmental problems.

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Drums - Containers

General Container Corp - 54 Veronica Avenue, P O Box 6140, Somerset, NJ 08875-6140. (908) 435-0020, FAX: (908) 435-0040. E-Mail: www.generalcontainer.com.

Your source for steel, polyethylene and stainless steel drums.

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Dust collectors

Automation Products - 3030 Maxroy, Houston, TX 77008, (713) 869-0361, FAX: (713) 869-7332.

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Education

Chadwick University - 2112 11th Ave. South Suite 504, Birmingham, AL 35205-2847. (800) 767-2423 or (205) 252-4480, FAX: (208) 252-4483. E-Mail: www.chad.edu.

Self-paced, accredited, B.S., M.S. and M.B.A. home study programs.

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Columbia Southern University - 27250 Perdido Beach Blvd., Orange Beach, AL 36561. (800) 977-8449, FAX: (334) 981-3815.

Earn your BS, MS, Ph.D. through the freedom of distance education.

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Engineering & environmental services

Buchart Horn Inc. - 445VW W. Philadelphia/P.O. Box 15040, York, PA. 17405. (800) 275-2224, FAX: (717) 852-1401.

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Dames & Moore Group - 911 Wilshire Blvd., Suite 700, Los Angeles, CA 90034. (213) 683-1560, FAX: (213) 628-0015. E-Mail: LAXHK@DAMES.com.

Engineering, environmental, construction management, litigation support services.

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Geomembranes

HPG International Inc. - 200 Cottontail Ln., Somerset, NJ 08873. (800) 344-6080, FAX: (908) 302-4220.

Manufacturers of reinforced and unsupported high quality flexible geomembrane liners.

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Laboratory - Asbestos/lead

International Asbestos Testing Laboratories (IATL) - 16000 Horizon Way, Unit 100, Mt. Laurel, NJ 08054. (609) 231-9449, FAX: (609) 231-9818.

Asbestos and lead analytical services. NVLAP, AIHA, and NY-ELAP accredited.

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Liners - Truck

Packaging Research & Design - P O Box 678, Madison, MS 39130. (800) 833-9364, FAX: (601) 853-1202.

Disposable bag liners for roll-offs, dump trailers & railroad gondola's.

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Maps & aerials

Phase One - 85 Argonaut #190, Aliso Viego, Ca 92656, (714) 457-0097.

See our ad in Classifieds

Protective clothing - Hand protection

Top Hand Glove - 426 Vanderbilt Rd., Asheville, NC 28803, (704) 274-2900, FAX: (704) 274-7577.

See our ad in Classifieds

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ASC Professionals - 15075 E. Eleven Mile Rd., Roseville, MI 48066. (800) 372-4260, FAX: (810) 771-0098.

Safety equipment rental & repair.

See our ad in Classifieds

Safety training & consulting

Environmental & Safety Services Inc. - PO Box 3394, Wilmington, NC, 28406 (910) 763-6999, FAX: (910) 763-8709.

Full service company specializing in OSHA and EPA training and consulting.

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Sludge dewatering services

J.D. Meagher/Allwaste Inc. - PO Box 752, Westborough, MA 01581. (508) 366-6606, FAX: (508) 366-6662.

See our ad in Classifieds

Software

Pardalis Software Inc. - 324 S. Husband, Stillwater, OK 74074. (405) 377-5995, FAX: (405) 372-8934. Internet Address: http://www.fullnet.net/pardalis/.

Affordable regulatory compliance software that also inventories hazardous substance information.

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Phase One - 85 Argonaut #190, Aliso Viego, Ca 92656, (714) 457-0097.

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Tanks

Modutank Inc. - 41-04 35th Avenue, Long Island City, NY 11101. (718) 392-1112, FAX: (718) 786-1008.

Low-Cost bolt-together modular tanks in all capacities, rent or buy.

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Offers a full range of environmental management training and consulting services.

Training manuals - Wholesale

Network Environmental Systems Inc. - 10933 Trade Center Drive #108, Rancho Cordova, CA 95870. (800) 837-2384, FaAX: (818) 853-8626. Internet Address: http://www.nos.hazmat.com.

OSHA - EPA - DOT training manuals for sale.

Water monitoring

Scientific Instruments Inc. - 518 W. Cherry St. Milwaukee, WI 53212. (414) 263-1600, FAX: (414) 263-5506, Internet Address: sii518@aol.com.

Stream gauging/water monitoring.

See our ad in Classifieds

To place your company's listing in Environmental Protection's Referral Directory, contact David Schwartz at: 972-687-6727.

Protection perspectives

Yosemite National Park stretches across almost 1,200 square miles of scenic wild lands set aside in 1890 to preserve a portion of the central Sierra Nevada along eastern California. The park features alpine wilderness, three groves of giant sequoias and the glacially carved Yosemite Valley with impressive waterfalls, cliffs and unusual rock formations like Upper and Lower Yosemite Falls, pictured here.

Visitors enjoy the breathtaking scenery and see firsthand what can be destroyed by spills, illegal dumping and discharges.

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MARK HOWARD, PHOTOGRAPHER, WOODBRIDGE, VA.

Contact Mark Howard via e-mail at
markwh727@aol.com



perspectives

Advertiser index

Circle	Advertiser	Page	Circle	Advertiser	Page	Circle	Advertiser	Page
8	AV Systems Inc.	13	56	Bureau of National Affairs Inc.	28	91	Fluid Systems Corp.	33
11	Air & Waste Management Association	16	57	Business & Legal Reports Inc.	28	98	GeoPure Systems & Services Inc.	34
4	Bureau of National Affairs Inc.	7	58	Canadian Centre for Occupational Health & Safety	28	96	Graseby Anderson	34
7	Clements Associates	34	59	Computational Mechanics Inc.	28	104	Kappler	35
19	Environmental Support Solutions	13	60	Corbus	28	85	Lumidor Safety Products	32
17	Flo-Trend Systems	30	61	Dakota Software Corp.	28	92	Monsanto Enviro-Chem Systems	33
10	Global Water	14	62	EarthSoft	28	90	Mother Oil Remediation Products	32
27	Goalline Environmental	35	63	Environmental Data Services	28	99	Parker Hannifan Corp.	34
9	Haz-Stor Co.	14	65	Environmental Software & Systems Inc.	28	102	Royce Instrument Corp.	35
12	HydroLab	17	64	ERIIS	28	83	Safety Storage Inc.	32
21	H.N.U. Systems Inc.	31	66	Essential Technologies Inc.	28	105	Safety-Kleen Corp.	35
5	Infon	9	67	Hazmat Control Systems Inc.	28	87	Sensidyne Inc.	32
15	J.J. Keller & Associates Inc.	24	68	J.J. Keller & Associates Inc.	28	89	Tri-Mer Corp.	32
16	Leap Frog Technologies Inc.	25	69	Knorr Associates Inc.	28	PRODUCT LITERATURE		
22	Logical Technology	31	70	Laidlaw Environmental Services Inc.	28	28	Solinst Canada Ltd.	36
3	Mother Oil Remediation Products	4	72	LFR Technologies LLC	28	113	Victor O. Schinnerer & Co. Inc.	36
6	New York Blower	11	71	Logical Technology Inc.	28	30	Wolverine Corp.	36
1	Omega Engineering Inc.	2	73	Modern Technologies Corp.	28	31	Worldwide Technologies	36
13	Siva	20	74	Pacific Environmental Services Inc.	28	CLASSIFIEDS		
18	Sorbent Products Co.	27	75	Pars Environmental Services	30	107	Automation Products	37
20	Southern Methodist University	30	76	Petroleum Information	30	113	Carolina Global Maps	37
23	Sybron Chemical	33	77	Quantum Compliance Systems	30	106	EnviroData Solutions Inc.	36
17	S.G.S.I.C.S.	25	78	RegScan Inc.	30	108	Frontier Technology	37
2	Terra Therm	3	79	Softshell Inc.	30	111	Heinrich Environmental Inc.	37
14	Turner Designs	33	80	Solutions Software Corp.	30	112	Map Express Inc.	37
14	VISTA Information Solutions Inc.	21	81	Wixel Inc.	30	109	Safety Services of Texas	37
TECH SPOTLIGHT			NEW PRODUCTS			114	Smith Air Sample Supply Co.	38
41	Breg International	12	86	AV Systems Inc.	32	110	Youngstown Barrel & Drum Co.	37
46	Carbtrol Corp.	12	88	Action Instruments	32	118	American Aquatic Testing Inc.	39
45	Chem-Tainer Industries Inc.	12	84	Air Instruments & Measurements Inc.	32	121	ASC Professionals	39
40	Green Stuff Absorbent Products Inc.	12	94	Airflow Systems Inc.	33	119	Bird-X	39
42	New Pig Corp.	12	100	American Safety Products Inc.	34	117	CAE	38
43	Petro-Green Inc.	12	93	Applied Automation Inc.	33	123	CAE	39
44	Serengeti Products Inc.	12	82	BW Technologies	32	115	Gnesys Inc.	38
47	Sorbent Products Co.	12	97	CHEMetrics	34	116	Graseby Anderson	38
48	Thomas Scientific	12	101	Corrocon Inc.	35	120	Graseby Anderson	39
49	Vesorb Corp.	12	95	EarthSoft	33	122	Graseby Anderson	39
1998 HAZARDOUS WASTE SOFTWARE GUIDE			103	Farr Co.	35	HOT SPOTS		
55	A.E.T.S.	28				25	New Environment Inc.	34

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Company _____

Address _____ Home Bus.

City _____ State _____ ZIP _____

Bus. Phone _____ FAX No. _____

YES, I would like to receive/continue to receive Environmental Protection.

NO, I'm not interested at this time.

Signature _____ Date _____

A. Which of the following Sludge Drying and Disposal product(s)/services do you plan to purchase in the next 12 months?(Select all that apply)

- | | | |
|--|---|---|
| 800 <input type="checkbox"/> Belt Filter | 805 <input type="checkbox"/> Sludge Incinerator | 810 <input type="checkbox"/> Sludge Level Meter |
| 801 <input type="checkbox"/> Vacuum Filter | 806 <input type="checkbox"/> Wet Air Oxidation System | 811 <input type="checkbox"/> Sludge Dryer |
| 802 <input type="checkbox"/> Screw Press | 807 <input type="checkbox"/> Fluid Bed Incinerator | 812 <input type="checkbox"/> Biosolids Treatment System |
| 803 <input type="checkbox"/> Filter Press | 808 <input type="checkbox"/> Bulk Bags | 813 <input type="checkbox"/> Flocculant |
| 804 <input type="checkbox"/> Centrifuge | 809 <input type="checkbox"/> Odor Control | 814 <input type="checkbox"/> Land Application Vehicles |

B. What is your reason for purchasing the selected products/services?
(Select one)

- 815 New Construction
816 Plant Upgrade
817 Replacement/Maintenance

C. What is your projected budget for the selected products/services?
(Select one)

- 818 Over \$200,000
819 \$100,001-\$200,000
820 \$50,001-\$100,000
821 \$10,001-\$50,000
822 \$5,000-\$10,000
823 Under \$5,000

D. How immediate is your need for the selected products/services?
(Select one)

- 824 0-6 months
825 7-9 months
826 10-12 months
827 over 12 months

Environmental Protection EH&S PRODUCTS

FREE INFORMATION

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|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 37 | 73 | 109 | 145 | 181 | 217 | 253 | 289 | 325 | 361 | 397 | 433 | 469 | 505 | 541 | 578 |
| 2 | 38 | 74 | 110 | 146 | 182 | 218 | 254 | 290 | 326 | 362 | 398 | 434 | 470 | 506 | 542 | 579 |
| 3 | 39 | 75 | 111 | 147 | 183 | 219 | 255 | 291 | 327 | 363 | 399 | 435 | 471 | 507 | 543 | 580 |
| 4 | 40 | 76 | 112 | 148 | 184 | 220 | 256 | 292 | 328 | 364 | 400 | 436 | 472 | 508 | 544 | 581 |
| 5 | 41 | 77 | 113 | 149 | 185 | 221 | 257 | 293 | 329 | 365 | 401 | 437 | 473 | 509 | 545 | 582 |
| 6 | 42 | 78 | 114 | 150 | 186 | 222 | 258 | 294 | 330 | 366 | 402 | 438 | 474 | 510 | 546 | 583 |
| 7 | 43 | 79 | 115 | 151 | 187 | 223 | 259 | 295 | 331 | 367 | 403 | 439 | 475 | 511 | 547 | 584 |
| 8 | 44 | 80 | 116 | 152 | 188 | 224 | 260 | 296 | 332 | 368 | 404 | 440 | 476 | 512 | 548 | 585 |
| 9 | 45 | 81 | 117 | 153 | 189 | 225 | 261 | 297 | 333 | 369 | 405 | 441 | 477 | 513 | 549 | 586 |
| 10 | 46 | 82 | 118 | 154 | 190 | 226 | 262 | 298 | 334 | 370 | 406 | 442 | 478 | 514 | 550 | 587 |
| 11 | 47 | 83 | 119 | 155 | 191 | 227 | 263 | 299 | 335 | 371 | 407 | 443 | 479 | 515 | 551 | 588 |
| 12 | 48 | 84 | 120 | 156 | 192 | 228 | 264 | 300 | 336 | 372 | 408 | 444 | 480 | 516 | 552 | 589 |
| 13 | 49 | 85 | 121 | 157 | 193 | 229 | 265 | 301 | 337 | 373 | 409 | 445 | 481 | 517 | 553 | 590 |
| 14 | 50 | 86 | 122 | 158 | 194 | 230 | 266 | 302 | 338 | 374 | 410 | 446 | 482 | 518 | 554 | 591 |
| 15 | 51 | 87 | 123 | 159 | 195 | 231 | 267 | 303 | 339 | 375 | 411 | 447 | 483 | 519 | 556 | 592 |
| 16 | 52 | 88 | 124 | 160 | 196 | 232 | 268 | 304 | 340 | 376 | 412 | 448 | 484 | 520 | 557 | 593 |
| 17 | 53 | 89 | 125 | 161 | 197 | 233 | 269 | 305 | 341 | 377 | 413 | 449 | 485 | 521 | 558 | 594 |
| 18 | 54 | 90 | 126 | 162 | 198 | 234 | 270 | 306 | 342 | 378 | 414 | 450 | 486 | 522 | 559 | 595 |
| 19 | 55 | 91 | 127 | 163 | 199 | 235 | 271 | 307 | 343 | 379 | 415 | 451 | 487 | 523 | 560 | 596 |
| 20 | 56 | 92 | 128 | 164 | 200 | 236 | 272 | 308 | 344 | 380 | 416 | 452 | 488 | 524 | 561 | 597 |
| 21 | 57 | 93 | 129 | 165 | 201 | 237 | 273 | 309 | 345 | 381 | 417 | 453 | 489 | 525 | 562 | 598 |
| 22 | 58 | 94 | 130 | 166 | 202 | 238 | 274 | 310 | 346 | 382 | 418 | 454 | 490 | 526 | 563 | 599 |
| 23 | 59 | 95 | 131 | 167 | 203 | 239 | 275 | 311 | 347 | 383 | 419 | 455 | 491 | 527 | 564 | 600 |
| 24 | 60 | 96 | 132 | 168 | 204 | 240 | 276 | 312 | 348 | 384 | 420 | 456 | 492 | 528 | 565 | 601 |
| 25 | 61 | 97 | 133 | 169 | 205 | 241 | 277 | 313 | 349 | 385 | 421 | 457 | 493 | 529 | 566 | 602 |
| 26 | 62 | 98 | 134 | 170 | 206 | 242 | 278 | 314 | 350 | 386 | 422 | 458 | 494 | 530 | 567 | 603 |
| 27 | 63 | 99 | 135 | 171 | 207 | 243 | 279 | 315 | 351 | 387 | 423 | 459 | 495 | 531 | 568 | 604 |
| 28 | 64 | 100 | 136 | 172 | 208 | 244 | 280 | 316 | 352 | 388 | 424 | 460 | 496 | 532 | 569 | 605 |
| 29 | 65 | 101 | 137 | 173 | 209 | 245 | 281 | 317 | 353 | 389 | 425 | 461 | 497 | 533 | 570 | 606 |
| 30 | 66 | 102 | 138 | 174 | 210 | 246 | 282 | 318 | 354 | 390 | 426 | 462 | 498 | 534 | 571 | 607 |
| 31 | 67 | 103 | 139 | 175 | 211 | 247 | 283 | 319 | 355 | 391 | 427 | 463 | 499 | 535 | 572 | 608 |
| 32 | 68 | 104 | 140 | 176 | 212 | 248 | 284 | 320 | 356 | 392 | 428 | 464 | 500 | 536 | 573 | 609 |
| 33 | 69 | 105 | 141 | 177 | 213 | 249 | 285 | 321 | 357 | 393 | 429 | 465 | 501 | 537 | 574 | 610 |
| 34 | 70 | 106 | 142 | 178 | 214 | 250 | 286 | 322 | 358 | 394 | 430 | 466 | 502 | 538 | 575 | 611 |
| 35 | 71 | 107 | 143 | 179 | 215 | 251 | 287 | 323 | 359 | 395 | 431 | 467 | 503 | 539 | 576 | 612 |
| 36 | 72 | 108 | 144 | 180 | 216 | 252 | 288 | 324 | 360 | 396 | 432 | 468 | 504 | 540 | 577 | 613 |

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Company _____

Address _____ Home Bus.

City _____ State _____ ZIP _____

Bus. Phone _____ FAX No. _____

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| 13 | 49 | 85 | 121 | 157 | 193 | 229 | 265 | 301 | 337 | 373 | 409 | 445 | 481 | 517 | 553 | 590 |
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| 27 | 63 | 99 | 135 | 171 | 207 | 243 | 279 | 315 | 351 | 387 | 423 | 459 | 495 | 531 | 568 | 604 |
| 28 | 64 | 100 | 136 | 172 | 208 | 244</ | | | | | | | | | | |

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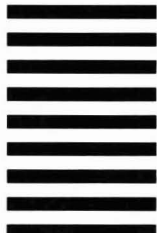
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