

Atlanta Environmental Management, Inc.

Newsletter



Solid Waste Definition Revised to Encourage Recycling

U.S. EPA, Washington, D.C.
(Oct. 7, 2008)

A final rule under the Resource Conservation and Recovery Act streamlines the regulation of hazardous secondary materials when they are recycled by reclamation. EPA's regulation maintains strong protection of human health and the environment by limiting the streamlined requirements to specific, legitimate recycling activities.

Entities potentially affected by this final rule include approximately 5,600 facilities in 280 industries in 21 economic sectors that generate or recycle hazardous secondary materials that are currently regulated as RCRA Subtitle C hazardous wastes (e.g., secondary materials, such as industrial co-products, by-products, residues, and unreacted feedstocks).

This rule establishes two self-implementing exclusions from the definition of solid waste for certain hazardous secondary materials that are legitimately recycled. One exclusion streamlines management requirements for hazardous secondary materials that are legitimately reclaimed under the control of the generator. The other exclusion streamlines requirements for hazardous secondary materials that are transferred for legitimate reclamation, provided certain conditions are met. The rule also contains a procedure for applying for a non-waste determination on a case-by-case basis. Finally, the rule includes provisions for assessing the "legitimacy" of hazardous secondary material recycling practices under the new exclusions.

The rule also contains a provision for determining which recycling activities are legitimate under the new exclusions and non-waste determinations.

These exclusions are not available for materials that are considered inherently waste-like or that are used in a manner constituting disposal or that are burned for energy recovery.

With regard to recycling, the existing definition classifies some materials, but not others, as wastes when they are recycled. This final rule is intended to modify the existing definition to exclude some additional hazardous secondary materials that are recycled from being regulated as solid (and therefore hazardous) wastes. The rule also contains provisions for assessing the "legitimacy" of hazardous secondary material recycling practices under the new exclusions.

Additional information about this final rule is available on line at <http://www.epa.gov/epawaste/hazard/dsw/index.htm>

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EPA Seeks Additional Review, Extends Effective Date of Oil SPCC Requirements

On April 1, 2009, EPA published a final rule to further delay the effective date of the December 5, 2008, amendments to the SPCC Regulations, in accordance with the memorandum from the Office of Management and Budget entitled "Implementation of Memorandum Concerning Regulatory Review" (M-09-08, January 21, 2009). The amendments will now become effective on January 14, 2010. Additionally, EPA is requesting public comment on whether a further delay of the effective date may be warranted.

It is important to note that this rule does not change the compliance dates by which owners or operators of facilities must prepare or amend their SPCC Plans and implement those Plans in accordance with the 2002 SPCC Rule.

However, EPA intends to address these dates in a separate notice. Until that time, the current compliance date for the SPCC rule is July 1, 2009, for all facilities other than farms. Farms must prepare or amend and implement an SPCC Plan when EPA establishes by rule a compliance date for farms.

The December 5, 2008, amendments to the SPCC Rule clarified regulatory requirements, tailored requirements to particular industry sectors, and streamlined certain requirements for facility owners or operators subject to the rule. With these changes, EPA expects to encourage greater compliance with the SPCC regulations, thus resulting in increased protection of human health and the environment.

The amendments did not remove any regulatory requirement for owners or operators of facilities in operation before August 16, 2002, to develop, implement, and maintain an SPCC Plan in accordance with the SPCC Regulations then in effect. Such facilities are still required to maintain their plans during the interim until the applicable date for revising and implementing their plans under the new amendments.

Additional information about the 2008 amendments to the SPCC Rule is available at the following URL: www.epa.gov/emergencies/content/spcc

Emerging Technology: Use of Bacteria to “Breathe” Toxic Metals

Researchers are studying some common soil bacteria that “inhale” toxic metals and “exhale” them in a non-toxic form. The bacteria might one day be used to clean up toxic chemicals left over from nuclear weapons production decades ago.

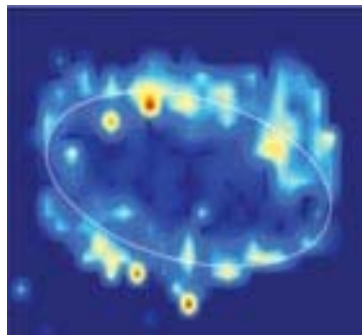
Using a unique combination of microscopes, researchers at Ohio State University and their colleagues were able to glimpse how the *Shewanella oneidensis* bacterium breaks down metal to chemically extract oxygen.

The study, published on line the week of March 16 in the journal *Applied and Environmental Microbiology*, provides the first evidence that *Shewanella* maneuvers proteins within the bacterial cell into its outer membrane to contact metal directly.

The proteins then bond with metal oxides, which the bacteria utilize the same way we do oxygen.

The process is called respiration, and it is how living organisms make energy, explained Brian Lower, Assistant Professor in the School of Environment and Natural Resources at Ohio State. We use the oxygen that we breathe to release energy from our food. But, in nature, bacteria do not always have access to oxygen.

In this atomic force microscope image, the color red indicates where a *Shewanella oneidensis* bacterium is expressing



the protein OmcA in order to “breathe” the metallic mineral

hematite. An oval marks the approximate location of the bacterium.

“Whether the bacteria are buried in the soil or underwater, they can rely on metals to get the energy they need,” Lower said. “It’s an ancient form of respiration.” “This is fascinating from an evolutionary standpoint, but we’re also interested in how we can use the bacteria to remediate nasty compounds such as uranium, technetium, and chromium.”

The last two are byproducts of plutonium. The United States Department of Energy is sponsoring the work in order to uncover new methods for treating waste from nuclear weapons production in the 1960s and 1970s.

Shewanella is naturally present in soil, and it can in fact be found at nuclear waste sites such as the Hanford site in the state of Washington, Lower explained.

With better knowledge of the bacterium’s abilities, scientists might one day engineer a *Shewanella* that would remediate such waste more efficiently.

“For instance, if you could enhance this bacterium’s ability to reduce uranium by having it make more of these key proteins, that could perhaps be one way to cleanup these sites that are contaminated,” he said.

The danger at such waste sites is that the toxic metals are soluble, and so they can leak into the local water supply. But these bacteria naturally convert the metals into an insoluble form. Though the metals would remain in place, they would be stable solids instead of unstable liquids.

Additional information about this study is available on line at <http://researchnews.osu.edu/archive/bactmetal.htm>

EPA Proposes First National Reporting on Greenhouse Gas Emissions

On March 10, 2009, the U.S. Environmental Protection Agency (EPA) proposed the first comprehensive national system for reporting emissions of carbon dioxide and other greenhouse gases produced by major sources in the United States.

“Our efforts to confront climate change must be guided by the best possible information,” said EPA Administrator Lisa P. Jackson. “Through this new reporting, we will have comprehensive and accurate data about the production of greenhouse gases. This is a critical step toward helping us better protect our health and environment—all without placing an onerous burden on our nation’s small businesses.”

Greenhouse gases (GHGs), like carbon dioxide, are produced by the burning of fossil fuels and through industrial and

biological processes. Approximately 13,000 facilities, accounting for approximately 85 to 90 percent of greenhouse gases emitted in the United States, would be covered under the proposal.

Facilities and Businesses Covered by the Draft Rule

The Draft Rule covers the following three categories of facilities and businesses:

- Most suppliers of fossil fuels or industrial GHGs and manufacturers of vehicles or engines.
- Facilities with certain categories of GHG emission sources, such as electrical generation, manufacturing of chemicals, cement, aluminum, and certain electronics.
- Facilities that emit 25,000 metric tons or more of carbon dioxide equivalent (CO₂e) per

year from either stationary fuel combustion or a wide variety of source categories including food processing, industrial landfills, iron and steel production, and pulp and paper manufacturing.

As a general rule, these three general categories would be required to monitor GHGs that they emit and to report to EPA on an annual basis.

Monitoring and Reporting

The Draft Rule provides for direct or indirect GHG emissions monitoring, depending on the monitoring system in place at the facility.

Penalties

Violations of the Draft Rule are subject to the penalty and enforcement provisions of the Clean Air Act.

The first annual report would be submitted to EPA in 2011 for the calendar year 2010, except for vehicle and engine manufacturers, which would begin reporting for model year 2011.

EPA estimates that the expected cost for the private sector to comply with the reporting requirements would be \$160 million for the first year.

The proposed rule will be open for public comment for 60 days after publication in the Federal Register. Two public hearings will be held during the comment period.

- April 6–7: Arlington, VA
- April 16: Sacramento, CA

Additional information about this rule is available on line at <http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>

Emerging Technology: Yellowstone Alga Found to Detoxify Arsenic

BOZEMAN
(March 10, 2009)

Arsenic may be tough, but scientists have found a Yellowstone National Park alga that's tougher.

The alga—a simple one-celled algae called *Cyanidioschyzon*—thrives in extremely toxic conditions and chemically modifies arsenic that occurs naturally around hot springs, said Tim McDermott, Professor in the Department of Land Resources and Environmental Sciences at Montana State University.

Cyanidioschyzon could some day help reclaim arsenic-laden mine waste and aid in everything from space exploration to creating safer foods and herbicides, the scientists said.

The alga and how it detoxifies arsenic are described in a paper posted the week of March 9 in the online edition of *Proceedings of the National Academy of Sciences*, or *PNAS*. Principal investigators are McDermott, Barry Rosen of Florida International University, and X. Chris Le of the University of Alberta, Canada. Among the six co-authors is Corinne

Lehr, who formerly worked with McDermott as a post-doctoral scientist at MSU and is now a faculty member at California Polytechnic State University.

Arsenic is the most common toxic substance in the environment, ranking first on the Superfund list of hazardous substances, the researchers wrote in their paper. McDermott said that arsenic is very common in the hot, acidic waters of Yellowstone and presents real challenges for microorganisms living in these conditions. Indeed, there are challenges for the researchers as well. McDermott said that the acid in the soil and water is strong enough that it sometimes eats holes through his jeans when he kneels to collect samples.

McDermott has worked in Yellowstone for more than a decade and travels year-round to the Norris Geyser Basin to study the microbial mats that grow in acidic springs. Over the years, he noticed thick algae mats that were so lush and green in December that they looked like Astro Turf, McDermott said. By June,

they were practically gone. While investigating the change, McDermott and his collaborators learned about the *Cyanidiales* alga and its ability to reduce arsenic to a less dangerous form.

The *Cyanidioschyzon* algae grow all over Yellowstone, but the researchers concentrated on the Norris Geyser Basin, McDermott said. The alga thrives in water up to 135 degrees Fahrenheit (too hot to shower) with a very acidic pH factor ranging from 0.5 to 3.5. Creeks are considered acidic if their pH factor is less than 7. "These algae live in areas of Yellowstone that are extremely toxic with respect to arsenic," McDermott said. "You couldn't drink these waters even if you changed their pH."

The scientists cloned genes from the alga and then studied the enzymes to figure out how they transformed arsenic. They learned that the alga oxidizes, reduces, and converts arsenic to several forms that are less toxic than the original. Rosen said that one significant

form is a gas that can evaporate, especially at the high temperatures of the Yellowstone springs. That allows life to exist in "really deadly concentrations of arsenic," he said.

"It gives us insight into how life adapts to extreme environments," Rosen added. "If life can grow at high temperatures and high concentrations of heavy metals like arsenic, life might be able to evolve on other planets or moons such as Titan or Enceladus."

McDermott said that the scientists conducted basic research that may have implications some day for acid mine drainage and acid rock drainage remediation efforts.

"Any time you learn anything about eukaryotic algae and their potential application for bioremediation, that's always good," McDermott said.

Additional information about this study is available on line at <http://www.montana.edu/cpa/news/nwview.php?article=6911>

EPA Moves Compliance Date for Aerosol Coatings Final Rule

In the December 24, 2008, Federal Register (Volume 73, Number 248), the U.S. EPA published a final rule revision that withdrew the direct final rule published on November 7, 2008.

The final rule moves the compliance date for aerosol coatings from January 1, 2009, to July 1, 2009, and requires that initial notification reports will be due on the compliance date, as opposed to 90 days in advance of the compliance date. These changes are necessary

to allow EPA time to conduct rulemaking to add compounds (and their associated reactivity factors) that are currently used in aerosol coatings but were not included on the list in Table 2 of the rule as promulgated on March 24, 2008. It also allows regulated entities sufficient time to develop initial notification reports based on the revised tables. Furthermore, making initial notification reports due on the compliance date will result in the

aerosol coatings rule being more consistent with the requirements of other 40 CFR Part 59 rules, thereby increasing clarity and avoiding confusion on the part of regulated entities. Finally, the rule as modified makes no substantive changes to the levels of control afforded by the March 24, 2008, rule.

The entities potentially affected by this proposed rule include manufacturers, processors, distributors, importers of aerosol coatings for sale or

distribution in the United States, and manufacturers, processors, distributors, or importers who supply the entities listed above with aerosol coatings for sale or distribution in interstate commerce in the United States.

For more information regarding the final rule related to aerosols, see the referenced Federal Register publication on the U.S. EPA's website at <http://www.epa.gov/EPA-AIR/2008/December/Day-24/a30699.htm>

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ABOUT US ...

AEM is a small, woman-owned business founded in 1988. Janet Hart, who has been President since 1988, continues to manage day-to-day operations that have led to our significant growth since inception and our continued success in the environmental market. Although company growth is an objective, it is our philosophy that growth is secondary to client service and quality. Put simply, the company's primary loyalty is to its clients, not to the growth of the company, unless growth provides for better client service. Building strong and lasting relationships with our clients is the most important thing that we can do to achieve our goals and ensure our future success.

AEM is committed to providing high-quality, cost-effective environmental services with a primary goal of client satisfaction. One quality that sets AEM apart from the competition is the personalized service and attention given to clients—the direct response to our clients' needs in a timely manner. We continuously work to improve the quality of our services to our clients.

AEM actively supports a number of charities including Doctors Without Borders, the U.S.O., the Antares Orphan Foundation, the Humane Society of the United States, and the Society for the Prevention of Cruelty to Animals.

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