

Avogadro Advisor:

Avogadro Environmental Celebrating 15 Years

Editor:

Hannah Azzalina

INSIDE THIS ISSUE:

Financial
Cutbacks and
Furloughs
Plagues PADEP 2

Food for
Thought: The
Carbon Footprint
of the
Cheeseburger 3

Employee of the
Quarter 3

Your Greenhouse 4
Gas Emissions
Management
Program is
Suddenly
Everybody's
Business

EPA Issues Final 5
Rule for NESHAP
for Reciprocating
Internal
Combustion
Engines

Important Dates 7

The President's Perspective

Author: George Wagner, President of Avogadro Environmental Corporation

In 1971, Richard Nixon, without the permission of Congress, removed the United States government from the gold standard, allowing for the printing of money. In my opinion, this was a key turning point that has contributed to the deteriorating financial condition of our great nation. On August 6, 2007, American Home Mortgage, one of America's largest mortgage providers, filed for bankruptcy. In August 2007, other key financial institutions, such as Lehman Brothers and Bear Sterns, failed. In September, 2008, the Bush Administration asked for \$700 billion to bailout the large financial banks and institutions, including Fannie Mae, Freddie Mac and one of the world's largest insurance companies, AIG. The term bailout became a common term as the auto industry also held out their hands for help.

On November 4, 2008, Barack Obama was elected president of the United States with the campaign slogan "Change We Can Believe In". Obama announced an \$800 billion stimulus plan centered on massive infrastructure projects aimed at easing the record unemployment rate. This was in addition to the already \$7.8 trillion debt.

It has taken ninety-four years since the 1913 creation of the Federal Reserve to put \$825 billion dollars into circulation. However, since 2007, the year the subprime mortgage mess rocked the world, the Federal Reserve has essentially doubled the currency supply to about \$1,700 billion dollars.

So, what is the point of reiterating the financial mess the United States is experiencing? What will be the repercussions of this mess? My point, this money must come from somewhere: The American tax payer. Our entire population has been saddled with an additional layer of burden. In the coming years, we will likely

be experiencing a higher cost of living and without a doubt, substantially higher taxes. You, and I, and every tax payer in the United States will have to work harder and smarter to earn a living and to provide for our families. We will have to become more creative, innovative and focused to maintain our current standard of living.

It is ironic that in 1995, when I initially formed Avogadro Environmental, the US economy had reached a milestone. For the first time in many decades, the Clinton administration was able to balance the budget, eliminating the federal deficit.

How times have changed!

And times have changed in many ways. In the early years, Avogadro was just a few passionate individuals working almost around the clock, 7 days a week, to meet our customer's needs and expectations. Because of the substantial financial commitment that was required to get the company in play and our constant commitment to our customers, we were certainly very passionate about the growth and success of the company. Now I still see a high level of passion and commitment from nearly all of our staff, which has increased significantly throughout the years. By monitoring our performance through the customer eyes, it is revealed that we, as a company, have maintained that high level of commitment and passion.

All businesses large and small experience periods of fluctuations in business volume. This creates the challenge to balance these peaks and valleys to keep not only the customers happy, but our loyal staff as well. The ability to balance the fluctuations in sales volume is even more challenging in poor economic times.

In January 2009, the US, and even the world economy, was looking very bleak. Hence, Avogadro implemented a Sustainability Plan to define a three tiered approach to help ensure our survival. Fortunately, our staff and team

Continued on page 2

Continued from page 1

recognized the importance of this critical situation and worked together to actually increase our sales by approximately 15%, while maintaining our costs. This effort demonstrated that we can align as a team organized to meet defined goals.

Our philosophy of growth has always been to take care of our staff, so that they in turn will take care of our clients. This approach has not changed since the initial years of Avogadro and it seems to be a good philosophy that has resulted in providing a consistent quality of service, nearly every time. In order to grow, we have consistently reinvested profits back into the company for additional equipment, instrumentation, hiring and training additional staff to meet the needs of our expanding customer base.

Yes, times have certainly changed in the last 15 years. However, we still need clean air and water and to preserve and protect the environment, and as a nation, we will always Yes, times have certainly changed in the last 15 years. However, we still need clean air and water and to preserve and protect the environment. As a nation, we will always need clean air and water. As a company, Avogadro has made a commitment to the preservation of our environment and natural resources part of our mission statement.

Avogadro Environmental Mission Statement

- Providing accurate scientific data to enable the preservation of our environment and natural resources
- Identifying the most cost effective and innovative solutions to meet our customers needs
- Fostering an atmosphere of continuous learning and profitable growth
- Helping those less fortunate

Financial Cutbacks & Furloughs Plague PADEP & DCNR

Author: Hannah Azzalina

In our present economy budget cuts are inevitable in every sector of business. So it comes as no surprise that the 2009-2010 General Fund Budget brought budget cuts to the Pennsylvania Department of Environmental Protection (DEP) and the Department of Conservation and Natural Resources (DCNR). What is surprising is how severely these budget cuts will affect these agencies.

The DEP budget was cut by 26.7 percent this year, which is a \$58 million reduction in funds. Likewise, there was an 18.5 percent reduction for the DCNR, reducing their funds by \$21 million. These financial cutbacks will result in a collective 147 employee layoff for the departments. Additionally, another 186 full time vacant positions will be eliminated. When summing up these alarming numbers, these departments are facing an overall reduction of 333 positions.

Unfortunately these budget cuts are also affecting the DCNR seasonal workers who tend to the Pennsylvania state parks. A total of 1,131 seasonal workers at DCNR had their positions eliminated or hours reduced in State Park and Forestry operations. Over the last year 240 of these seasonal positions were actually eliminated. An astonishing 891 seasonal workers had their hours reduced.



Consequently, these cutbacks and eliminations are going to affect DEP's and DCNR's services to the public. The state has already announced that there will be permit review delays; this of course is in addition to their already large backlog of permit reviews. 2010 funding for Consumer Energy Programs and Black Fly Spraying Reduction will be eliminated. It is foreseen that Black Fly Spraying will be terminated by July 2010. Expect reductions on the local side of the government as well. Planning and technical services for local governments, conservation districts and counties will be also reduced. Additionally 36 Pennsylvania counties will lose their West Nile Virus grants. It is anticipated that limited West Nile virus coverage will be provided by DEP staff in these affected counties.

Unfortunately, these government cutbacks are beginning to be a popular trend in Pennsylvania. DEP has lost 612, or 19 percent, of their authorized positions since the 2002-2003 budget. DEP, once staffed at 3,211, now has 2,599 remaining positions. DCNR endured a 7 percent reduction in positions since the 2002-2003 budget, losing 95 of its full time positions. We can only hope that the 2010-2011 budget will ensure secure positions for the remaining DEP and DCNR staff members.

Food for Thought: The Carbon Footprint of a Cheeseburger...

Author: Margret Butler

We've all heard and understand the need to reduce the amount of carbon dioxide into the atmosphere. Much of the news centers around emissions released into the atmosphere by vehicles and industry.

What many people may not understand is the amount of carbon dioxide your favorite foods or products produce to make it on to our table. The cheeseburger is a dietary favorite among American's. The average person eats three cheeseburgers a week. What is the carbon footprint (or impact) a cheeseburger has on the world's resources? Let's find out:

- Growing and milling the wheat for the bun.
- Growing the tomatoes, lettuce, onions, and cucumbers.
- Pickling the cucumbers to make pickles.
- Growing feed for the beef cattle and hogs.

- Feeding the cows that provide the milk for the cheese.
- Preparing and freezing the meat.
- Storing and transporting the ingredients of the cheeseburger.
- Cooking the cheeseburger.
- Running the restaurant where you buy the cheeseburger.

According to Swedish researchers, the carbon footprint of a single cheeseburger is about eight pounds of carbon dioxide.

Over the course of a year in the U.S., enough cheeseburgers are consumed to leave a carbon footprint at least as big as all the SUVs now on the road.



Did you Know?
The average American eats three bacon cheeseburgers a week.

Employee of the Quarter



Paul was Avogadro's February employee of the month. Throughout the first quarter, Paul has implemented the individual scorecard system that the field techs are using. This was an extensive project that required spreadsheet design, imports to be designed for filemakerpro and the follow through to make sure the files and imports were working correctly. He also implemented a new procedure to computerize all equipment maintenance and repairs to systemize this maintenance issue.

Congratulation, Paul!

Paul Bunn
Project Manager

Your Greenhouse Gas Emissions Management Program is Suddenly Everybody's Business

Author: William Barnes, PE, CPEA

For the many industrial facilities that elected to refrain from the business of voluntary disclosure of GHG emissions and/or footprint associated with your activities, the GHG Mandatory Reporting Rule (MRR) issued by EPA last fall has managed to pull about 10,000 of you into the world of GHG emissions monitoring and reporting. They've even promised to work here in 2010 on many of the industrial sectors that were benched in order to get the 1st edition of the rule out. This is likely to bring thousands more to the mandated inventory and reporting of your GHG emissions.

Consider that over 180 institutional investors managing more than \$13 trillion in assets have reached out to Congress to help create a stable environment for long term investing through a cap and trade program. Consider that the US Government has already committed \$117 billion in stimulus funding to energy efficiency and GHG reduction technologies.

What started with the GHG MRR (see January 2010 Avogadro Advisor for a detailed article on the rule <http://avogadro.net/newsletter.html#advisor>) has now progressed into an effort of diligently and seriously accounting for and managing the material risk of your activities. You say you don't have significant GHG emissions. What are the material risks of climate change on your operations? Availability of natural resources, sustainability of your suppliers, changes to the business world and marketplace, and other factors still impact your ability to put product to market profitably and suddenly it's your business. Impacts to your business go beyond emissions from your sources.

Some fundamental questions arise from the alleged flawed science (now known as Climate Gate). Significant forces in business, law and in Washington DC are circling the wagons and raising a red flag on EPA's affirmation of the actual threat of GHG emissions as it is based on this science. Using the House of Cards logic they seek to dismantle the entire argument for legislation and regulation of GHG emissions.

Regardless, the Obama administration and USEPA are planning additional federal intervention in the matter and through an arsenal of regulatory programs that will affect your business materially and change the aspects and impacts of your activities, products and services when you consider GHG emissions and climate change affects. So even if you're doing the right things, and you've got an ISO 14001 EMS in place, there are still changes to be made to your internally reality, because it's suddenly everybody's business.

Let's consider four significant policy trends alluded to above and look at them in more detail. You should be aware of these and

ready to respond to a wide array of suddenly interested parties regarding your carbon footprint. In the end they demonstrate the many driving forces for establishing carbon management programs at your company or site and preparing yourself for conversation and disclosure of your carbon emissions footprint.

US Federal Government Commitments

We're with the government and we're here to help. The Obama Administration has proposed increasing the budget at EPA of about \$43.5MM in FY 2011. The GHG MRR will receive \$4.1MM increase so that EPA can obtain quality-assured data and provide guidance to those still in denial of this rulemaking. GHG permitting via Clean Air Act activities will be budgeted (\$30MM) so that states and EPA can incorporate these and other mandated changes into permits for affected sources. EPA requested \$7.5 MM for development of GHG NSPS for several major categories. So it's clear that EPA doesn't intend to sit quietly as Congress debates the finer points of climate change and the impacts of Climate Gate.

Lawmaker and Stakeholder Group Intervention

Always delete old and incriminating emails. Thanks to the climatologists at the Climate Research Unit of East Anglia University and their email arrogance, the entire premise and hard work of the IPCC has been put into question around the globe. Their email references towards fixes for climate change data over the past 150 years (to "hide" and "trick") representing the bulk of the anthropogenic source argument has been enough to arm several significant policy players here in the US. A coalition of 13 House of Representative lawmakers from the southeast have joined 17 southeastern companies and industry associations asking the US Court of Appeals in asserting that the IPCC report was the "subject of systematic manipulations, including collusion to withhold scientific information, deletion of emails and raw data to prevent discovery of key facts, manipulation of data and computer code to create false impressions, and concerted efforts to boycott key journals and excluded disagreement". The coalition of companies and interests group was represented by the Southeastern Legal Foundation (SLF). They are contesting EPA's December promulgation of finding of endangerment regarding CO2. Another legal challenge was filed in January by Massey Energy Co., National Beef Cattlemen's Association and Alpha Natural Resources. However, 16 states have intervened on behalf of EPA in that case and are expected to intervene in this new challenge.

USEPA GHG Program Planning 2010 and beyond

And then came the response from EPA. On February 22, 2010, U.S. EPA Administrator Lisa P. Jackson issued a letter responding to a letter sent to her the evening of February 19 by eight U.S. Senators asking about the agency's plans for 2010.

Continued on page 5

Continued from page 4

In the letter, the administrator outlines several of the decisions she has made for 2010-2011. No facility will be required to address greenhouse gas emissions in Clean Air Act permitting of new construction or modifications before 2011. For the first half of 2011, only facilities that already must apply for Clean Air Act permits as a result of their non-greenhouse gas emissions will need to address their greenhouse gas emissions in their permit applications. EPA is also considering a modification to the rule announced in September requiring large facilities emitting more than 25,000 tons of greenhouse gases a year to obtain permits demonstrating they are using the best practices and technologies to minimize GHG emissions. EPA is considering raising that threshold substantially to reflect input provided during the public comment process. EPA does not intend to subject smaller facilities to Clean Air Act permitting for greenhouse gas emissions any sooner than 2016. See the entire response letter at http://epa.gov/oar/pdfs/LPJ_letter.pdf

Securities Exchange Commission – Marketplace Drivers Leveling the playing field. On January 27th the Security Exchange Commission (SEC) voted to provide public companies with interpretive guidance on existing SEC disclosure requirements as they apply to business or legal developments relating to the issue of climate change. Federal securities laws and SEC regulations require disclosures by public companies for the benefit of investors. The guidance is directed to raise awareness and provide interpretation of the impact on business risk factors, regulatory developments, legal proceedings, and impacts of international accords, physical impacts of climate change and indirect consequences of regulations or changing business

trends. Several leading accounting firms have already released statements of their approaches towards guiding their publicly-held clients including PricewaterhouseCoopers (PWC).

A recent study by Verdantix, titled “Best Practices Carbon Management” provides recommendations on the development and implementation of a carbon business transformation plan. The study finds that companies need to change three key processes: energy management, financial planning to include carbon accounting, and facilities management. Many management consultation experts are engaged in delivering new business management concepts that must be supported in part by environmental offices.

Drawing Conclusions

Whether you believe carbon management is your responsibility or not and whether it can affect climate change, it’s no longer just your business. Accountabilities abound around you.

Offering Our Assistance

At Avogadro Environmental, our team of professionals is prepared to assist you in assessing changes to your facility and operations and how you may lower GHG and other emissions, obtain real credit from regulators and in the open market for changes through permit changes, and provide the highest quality of carbon emissions data to base your financial carbon accounting on through our continuous emissions monitoring and source testing services.

For consultation or more information email bbarnes@avogadro.net or look at our GHG Emission Management Services webpage at www.avogadro.net/ghg.html.

EPA Issues Final Rule for NESHAP for Reciprocating Internal Combustion Engines

Author: Heidi Fleming

Revisions to 40 CFR 63, subpart ZZZZ – Effective on May 3, 2010

EPA has finalized national emission standards for hazardous air pollutants (NESHAP) for the following:

1. **Existing** stationary compression ignition (CI) reciprocating Internal combustion engines (RICE) that either
 - are located at **area sources** of hazardous air pollutant emissions or
 - have a site rating of **less than or equal to 500 brake horsepower** and are located at **major sources** of hazardous air pollutant (HAP) emissions
2. **Existing** non-emergency stationary compression ignition (CI) engines **greater than 500 brake horsepower** that are located at **major sources** of hazardous air pol-

lutant (HAP) emissions

3. EPA is also revising the provisions related to startup, shutdown and malfunction for the engines that were regulated previously by NESHAP

A major source of HAP emissions is generally a stationary source that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAPs at a rate of 25 tons or more per year (typically Title V permitted facilities). An area source of HAP emissions is a source that is not a major source, and often can be sites where the engine may be the only significant source of air emissions.

If these regulations apply to sources at your facility, you must comply with the applicable emission limitations and operating limitations no later than **May 3, 2013**. EPA estimates that over 900,000 stationary CI engines will be subject to this rule. Some examples of industries that may fall under this regulation are electric power generation, transmission or distribution; medical and surgical hospitals; natural gas transmission; crude

Continued on page 6

Continued from page 5

petroleum and natural gas production; natural gas liquids producers; and national security. Existing stationary emergency engines at area sources located at residential, commercial or institutional facilities are not included in this rule.

Emission Limits and Additional Requirements

In order to reduce HAP emissions at these regulated facilities, EPA has chosen formaldehyde to serve as a surrogate for HAP emissions. This is because formaldehyde is the HAP present in the highest concentrations in stationary engine emissions. EPA has also demonstrated in previous documents that carbon monoxide (CO) is an appropriate surrogate for formaldehyde; therefore the final rule limits HAP emissions by setting emission limits for CO. The emission limits in the rule are summarized in Table 1 on page 7.

In addition to the above CO reductions, the rule includes some additional requirements as follows:

- Stationary non-emergency CI engines greater than 300 HP with a displacement of less than 30 liters per cylinder will be required to use ultra low sulfur diesel (ULSD).
- In order to reduce metallic HAP emissions, existing stationary non-emergency CI greater than 300 HP located at major and area sources not already equipped with a closed crankcase ventilation systems will either need to install one or install an open crankcase filtration emission control system.
- These new engines categories and the engine categories currently covered under subpart ZZZZ are subject to new startup requirements, which include minimizing the engine's time spent at idle and minimizing the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which the non-startup emission limits will apply.
- Sites with existing stationary emergency RICE must install a non-resettable hour meter on the engine to record hours of operation. These engines have no time limit for use during true emergencies, but are limited to 100 hours per year for maintenance and testing, and are allowed up to 50 hours per year for non-emergency use (counts towards the 100 hours per year limit).
- Different categories of covered engines will be subject to increased management and work practices, as summarized in Table 2 on page 7.

Demonstrating Compliance

No Testing Required: For **major sources**, existing stationary non-emergency CI engines less than 100 HP and existing stationary emergency CI engines are required to be operated and maintained according to manufacturer's instructions or the site maintenance plan, and are not required to conduct any

performance testing. For **area sources**, sites with non-emergency CI RICE less than 300 HP are required to develop a maintenance plan in order to demonstrate compliance with management practices, but are not required to conduct any performance testing.

Initial Performance Testing: For **major sources**, sites with existing non-emergency CI RICE that are more than 100 HP and less than 500 HP need to conduct initial performance testing to demonstrate compliance. For **area sources**, sites with existing non-emergency CI RICE that are greater than 300 HP need to conduct initial performance testing to demonstrate compliance.

Initial and Additional: For **major and area sources**, sites with existing non-emergency CI RICE that are more than 500 HP need to conduct initial performance test and must test every 8,760 hours of operation or every 3 years (except for limited use area sources, which is every 5 years), whichever comes first. Sites also must continuously monitor and record catalyst inlet temperature and pressure drop across catalyst must be measured monthly (if relevant).

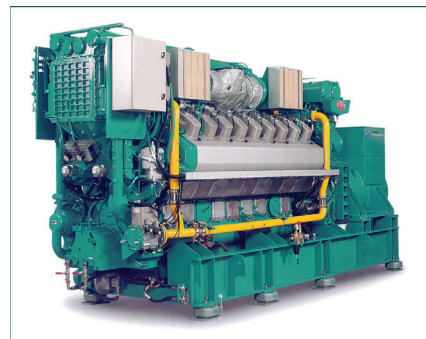
Any initial performance tests or compliance demonstrations are required to be conducted **within 180 days after the compliance date of May 3, 2013**. If the unit had been previously tested within two years and no process or equipment changes have been made, another test should not be needed.

Total Emissions Reductions

EPA estimates that compliance with this rule will result in the reduction of total HAP emissions from stationary RICE by 1,010 tons per year (tpy), reduction of CO emissions by 14,000 tpy, reduction of PM emissions by 2,800 tpy, and reduction of VOC emissions by 27,000 tpy. For more information and to view the complete regulation, please go to: <http://www.epa.gov/airtoxics/rice/ricepg.html>.

Preparing for Compliance

If your facility has another planned testing exercise before 2013, it may save time and money to schedule the testing for this regulation ahead of the deadline. Protocols often need six months or more to get agency approval. State Agencies may also start requiring additional requirements in permit modifications where these covered sources exist. Covered sources are encouraged to contact us with questions on certifying compliance with new requirements of Subpart ZZZZ at consulting@avogadro.net.



AVOGADRO

Environmental Corporation

1350 Sullivan Trail
Suite A

Easton, PA 18040
610-559-8776

www.avogadro.net

newsletter@avogadro.net

IMPORTANT DATES

- April 30:** EEMPR for 1st Quarter due
- April 30:** Title V Annual Compliance Certification due in OH
- May 15:** Annual Air Emission Statements due in NJ
- July 1:** Schedule CGA/RATA for CEMS
- July 1:** EPA Form R Report (and NJ RPPR) due
- July 1:** Annual Air Emission Statements due in IN

Continued from page 6

Table 1: Emission Limitations*

Engine Category	Emission Limits*
Non-Emergency CI Located at Major Sources	
100 HP to 300 HP engines	230 ppmvd CO at 15% O2
300 HP to 500 HP engines	49 ppmvd CO at 15% O2 or 70% reduction in CO emissions
Engines greater than 500 HP	23 ppmvd CO at 15% O2 or 70% reduction in CO emissions
Non-Emergency CI Located at Area Sources	
300 HP to 500 HP engines	49 ppmvd CO at 15% O2 or 70% reduction in CO emissions
Engines greater than 500 HP	23 ppmvd CO at 15% O2 or 70% reduction in CO emissions

*These limits do not include periods of startup.

Table 2: Management & Work Practices

REQUIREMENT	MAJOR SOURCES		AREA SOURCES	
	Stationary emergency <500 HP	Stationary non-emergency <100 HP	Stationary emergency	Stationary non-emergency <300 HP
Change oil and filter every ___ hours of operation or annually, whichever comes first, extensions available if part of oil analysis program.	500	1,000	500	1,000
Inspect air cleaner every ___ hours of operation or annually, whichever comes first.	1,000	1,000	1,000	1,000
Inspect all hoses and belts every ___ hours of operation or annually, whichever comes first, and replace as necessary.	500	500	500	500