

Minutes/Notes of 6<sup>th</sup> Meeting of the **EARTH** Group at ASC  
Wednesday, January 19, 2008  
Noon, Student Life Center, SUB  
<http://www.adams.edu/sustainability> (our website)  
<http://ascearth.wordpress.com/> (blog – add a comment!)

**Present:** Katie Silva, Linda Relyea, Dan Carver, Marc Eaton, Kenny Babcock, Jared Beeton, Mick Daniel, Chris Bullard, Christine Preiss, Kristin Young-Jaramillo, Kyli Kehler, Patrick Price, Kathleen Wilson, Robert Warden, Rich McGee, Larry Sveum, Christy Miller, Laura Moore, Katie Hagaman, Maria Mondragon-Valdez, and Marty Jones.

**Next meeting: Tuesday, February 5, at noon in the Student Life Center of the SUB. Regular meetings will be held the first Tuesday of each month this semester.**

Marty started the meeting with an announcement of events to be held at ASC on Jan. 30 and 31 in conjunction with “Focus the Nation” (<http://www.focusthenation.org/>). A tentative agenda is attached as the last page of these notes. Dr. Mari Centeno (HGP), Dr. Stephanie Gonzales (Sociology), and Ms. Mary Hoffman (Community Partnerships) are largely responsible for ASC’s participation in this nationwide teach-in regarding global climate change. They were kind enough to ask for EARTH’s involvement/sponsorship and we are glad to be a part of the events. Our group will plan to have a table with information and a sign-up sheet at noon, then at 1 pm, Marty will make a brief presentation about EARTH. **If anyone is willing to staff the table at noon, please contact Marty (mbjones@adams.edu).**

Several ideas for our “Grand Opening” events for Earth Day (April 22) (EARTH Week at ASC – April 14-19) were mentioned. Tracy Doyle is on the board of the Alamosa Live Music Association (ALMA) and will serve as a liaison between EARTH and ALMA in an effort to jointly sponsor a concert that week. Mary Carhartt has volunteered to conduct a demonstration of solar cooking. Marty has signed up ASC to host a webcast of “Chill Out” from the National Wildlife Federation’s Campus Ecology program (<http://www.nwf.org/campusecology/>) on April 16, 2008 (. Mick Daniel and the Outdoor Program will be screening the Telluride Film Festival on April 18, 2008, and he has graciously agreed to allow EARTH co-sponsor the film. Julie Waechter will contact our newest Board of Trustees member, Mr. Bruce Oreck, founder of the Zero Carbon Initiative (<http://www.zcinitiative.com>) to request that he give a presentation regarding green/sustainable construction. Maria Mondragon-Valdez, SLV Solar Coordinator, suggested that we join forces to host the Solar Expo during that same time. Additional recommendations included an EARTH garage sale (Reduce, Reuse, Recycle) as a fundraiser that week, an “All Species Day” parade, “Bicycling for Batteries” (generating electricity to charge batteries by riding a stationary bike) and a cleanup of the Rio Grande through the campus/city. Each task force was asked to discuss ideas for activities that would encourage maximum participation by students during EARTH Week. Marty will also check with the US Forest Service and BLM to inquire about potential collaboration with those organizations for EARTH Week activities. Mick suggested that we consider using the SUB for activities on Saturday, given the unsettled weather possible in April.

**We need volunteers to serve as a Coordinating Committee for these EARTH week activities. If you are willing to serve, please contact Marty. We’ll try to put together this committee by the next meeting on Feb. 5.**

Individual task forces reported on their meetings/activities. Christy Miller reported that the **Energy Task Force** has passed along information from a study of the energy efficiency of the large buildings on campus to Facilities Services. She also sent an article from Chemical and Engineering News (C&EN) from October 8, 2007 regarding energy usage by ventilation hoods to faculty in Porter Hall and the Art Building with a request to keep hood sashes down when not in use. The article is attached to these notes. [Note: This article prompted a letter to the editor in the most recent C&EN (Jan 14, 2008)– the letter is at the end of the article]. The task force is also researching a method to be able to turn off computers in the open-access computer labs (except for the 24/7 lab in the SUB) when the labs are closed. Robert Warden asked about methods to improve the energy efficiency of the dorms.

The Recycling Task Force will continue to attend campus sporting events to collect recyclable cans and plastic bottles. They’re also investigating acquisition of additional recycling bins.

Linda Relyea of the **Communication/Publicity/Education Task Force** told us that ASC is considering advertising in FIVE Magazine (<http://www.readfive.com/>), a publication from Albuquerque that emphasizes environment, ecotourism, healthy lifestyles, culture, and image. Because of the slant of the magazine, our ad would highlight sustainability initiatives at ASC. **If you have ideas for the advertisement, please send them to Linda (7827, [lsrelyea@adams.edu](mailto:lsrelyea@adams.edu)) by the end of the month.**

Our President, Dr. David Svaldi, is making a concerted effort to convince the Board of Trustees that ASC should sign the American College and University Presidents Climate Commitment (<http://www.presidentsclimatecommitment.org/html/commitment.php>). I think there's a very good chance that Dr. Svaldi's will soon appear as a signatory of the commitment!

One last note – we're making at least a bit of a splash on campus. Since our last meeting, I've had calls from the Provost's Office and the Library inquiring about recycling of paper and cardboard. Several boxes of white office paper have been taken from Richardson and the Library to the Alamosa Recycling Center in the last couple of weeks. That's a good thing, folks! **According to Karla Hardesty (Office of Enrollment Management), there are two work-study positions available this semester for EARTH activities. If you're interested in hauling recyclable materials, creating posters, etc., and are eligible for work-study, please contact Karla at 8124 ([karla\\_hardesty@adams.edu](mailto:karla_hardesty@adams.edu)) or Phil Schroeder (Director of Financial Aid) at 7833 ([pschroeder@adams.edu](mailto:pschroeder@adams.edu)).**

Thanks for all of your work for EARTH!

**The next meeting of the EARTH group at ASC will be on Tuesday, February 5, at noon in the Student Life Center of the SUB. Come ready to flesh out our ideas and volunteer for EARTH Week activities.**

Submitted by Marty Jones, 1/19/08

## **Focus the Nation Agenda**

### **Jan. 30<sup>th</sup> (Business 142)**

6pm-8pm "The 2% Solution" Webcast

Local Foods by SODEXCO, Sponsored by ASC Community Partnerships

### **Jan 31<sup>st</sup> Carson Hall**

8:30am Welcome Adams State College President Svaldi; Erin Minks, John Salazar's Representative

9:00am Environment and International Security----Dr. Mari Centeno, Assistant Professor of Government

10am Overview of Local Environmental Issues: Choices that will impact Us Locally ----Christine Canaly, SLV Ecosystem Council

11am Citizens for SLV Water --Ceal Smith, Alamosa Riverkeepers --Cindy Medina, Rio Grande Headwaters, ---Nancy Butler, Rio Grande Water Conservation District---, San Luis Valley Water Conservancy District--- Mike Gibson (panel discussion leader)

Noon---Lunch and Booths showcasing environmental initiatives

1pm ----Dr. Marty Jones---ASC EARTH group, Citizens of the World—ASC Student Group

1:30pm Solar Energy and Solar Job Grow Potential----Dr. Maria Valdez (USDA)

2pm Natural Gas Drilling in the Baca and Rio Grande County--- Mr. Nick Chambers

2:30pm EPA San Luis Valley Sustainability Project---Marie Zanowick

3:00pm SEED Park---Mr. Roger Doane

3:30pm Environmental Racism---Dr. Stephanie Gonzales, Assistant Professor of Sociology

4:30pm---Wrap Up/How to get involved

## Close Your Hood!

### Easy ways to save on energy costs include installing fewer fume hoods and vigilantly closing sashes

#### [Bethany Halford](#)

**YOU MIGHT** not realize it, but the fume hood whirring away in the corner of your lab is sucking up a lot more than chemical vapors. Fume hoods are serious energy hogs, and their operating costs take a big bite out of budgets.

The average fume hood consumes as much energy as three houses, according to [Dale Sartor](#), an engineer and fume hood expert at [Lawrence Berkeley National Laboratory](#). Operating a fume hood is like opening all the windows in your house and then turning the air-conditioning on full blast, he explains.



Bethany Halford/CEN

**Safety Cost:** Hoods consume energy as they draw away chemical fumes.

All the air the fume hood expels has to be replaced with air from outdoors. "No matter how hot or cold that air is, it has to be heated or air-conditioned, filtered, and then distributed," Sartor says. That's in addition to the energy consumed by the fan that drives the hood. With energy costs on the rise, cost-conscious chemistry departments are looking for ways to make fume hoods more efficient. One of the simplest ways to do that, Sartor says, is by installing smaller hoods or not putting in fume hoods at all. "Typically, if you walk around a laboratory building, a lot of the hoods aren't being utilized. They're being used for storage or they're not actively being used. The problem is that they keep on using energy," Sartor says. Taking unused hoods out of service, sharing hoods, and considering smaller hoods are all measures that can cut down on energy consumption. Of course, it's important to keep in mind that hoods serve a critical safety function, he adds. "Efficiency does not trump safety."

"There's no getting around the problem that the more fume hoods you have, the higher your energy costs will be," says [Gary Spessard](#), a chemistry professor at [St. Olaf College](#) in Northfield, Minn. When the time came to design a new chemistry building at St. Olaf, the original plan included 88 fume hoods. Spessard and his colleagues decided one of the best ways to cut their expenses was to revamp their curriculum so they could cut down on the number of hoods needed. "Over the past few years, we have developed experiments that follow the tenets of green chemistry, and with green chemistry the necessity for hoods is greatly diminished," Spessard says. Most of the hazards in organic chemistry labs are associated with volatile organic chemicals, he points out. "If you eliminate those, then you don't really need to work in a hood." St. Olaf was able to reduce the number of hoods in its new building from 88 to 53, saving the school \$250,000 on the cost of the hoods and installation alone. "That's a big savings up front," Spessard notes. But beyond that, the reduction in the number of hoods will save money on heating and cooling costs in years to come.

A green approach also helped at the University of Oregon, where hood space was once so tight for the undergraduate organic chemistry program that instructors had to run labs late at night and on weekends to accommodate all the students. To solve the problem, the university decided to adopt a greener approach to the traditional organic chemistry laboratory course. Now a class of 44 students uses just six hoods—a big difference from the usual ratio of two students per hood. The laboratory experiments do not require the entire experiment

to be done inside a hood, explains Kathryn Parent, a senior staff associate at the American Chemical Society Green Chemistry Institute who studied the [University of Oregon's](#) adoption of a greener curriculum as part of her master's thesis. She estimates that the University of Oregon saved roughly \$250,000 on hoods and installation and nearly \$87,000 annually in energy costs by adopting its greener curriculum. The hood isn't eliminated entirely, Parent says, but it's used mostly for simple things such as transferring chemicals if they're hazardous or volatile. "Typically, what you're going to see is fewer volatile organic compounds, staying away from halogenated organic compounds like methylene chloride, using air or oxygen rather than a stronger oxidizing agent, doing experiments at ambient temperature or heating with microwave energy, as opposed to refluxing for hours and hours," Parent says.

The drive for fewer fume hoods and greener curricula has been catching the attention of architectural firms. "We're learning more about green chemistry so that when we have clients and they're looking to design a new facility, we can give them all the tools and information that we've acquired, and maybe they'll begin to make that switch," says Erika Morgan, an architect for the sustainable design firm [Perkins & Will](#). "The big thing that surprises people is that it costs less to build an energy-efficient building. People always assume it costs more," adds Gary C. McNay, who designs lab space for colleges and universities for Perkins & Will. When it comes to designing a more energy-efficient lab, the first thing McNay recommends is reducing the number of hoods. A hood is one piece of the mechanical system, but the number and type of fume hood used impacts a number of systems down the line, he says. "If you could reduce the energy usage by 30% in a laboratory building, that means the mechanical system can be 30% smaller, which means the building costs are less and you're using less energy," McNay adds.

Of course, if you can't cut down on the number of hoods, a number of interesting technologies are still available to improve energy efficiency of those fewer hoods that do get installed. These include low-flow hoods, which restrict sash openings and improve airflow via the hood's aerodynamics, as well as variable-air-volume hoods, which alter their exhaust power on the basis of how far open the sash is. "Every fume hood manufacturer has some sort of a redesigned product that came into the marketplace within the last three to six years that can operate at a lower flow rate," says Jon Zboralski, director of airflow products at [Hamilton Laboratory Workstations](#), part of [Thermo Fisher Scientific](#). There are a number of things to consider when picking the best fume hood for your lab: number of hoods, new construction versus retrofit, and climate. But ultimately, Zboralski says, you have to do the math to see if energy savings offset the cost of the equipment. For established laboratories that are not contemplating refurbishing any time soon, the easiest way to cut the energy costs of fume hoods is simply to make sure that sashes are closed when not in use. "A lot of times, we go into laboratories and people will not be at the hoods, but all the sashes will be open. That's an incredible waste of energy," McNay says.

That point was recently driven home to chemists at [Massachusetts Institute of Technology](#) by a mechanical engineering undergrad, Steven T. Amanti. His senior thesis, "Potential Energy Savings on the MIT Campus," spotlighted how hoods in the chemistry department were frequently left open when not in use. By Amanti's calculations, the department could save \$350,000 annually in utility costs by simply making sure unused hoods were closed. "I think that the chemistry department was always aware that fume hoods are a large consumer of energy," says Richard J. Wilk, administrative officer for [MIT's chemistry department](#). But, he says, how much energy was lost inadvertently because of hoods being left open came as something of a surprise. "I think with rising energy costs on campus, it really brought the issue to our attention." **THERE'S NOW** a campaign at MIT to get researchers to close their hoods when they go home for the night. The positions of fume hood sashes are recorded by the building ventilation control system, and a monthly report of the average sash position is sent to each research group. "The report makes it easy to spot areas that need improvement," says Jim Doughty, environmental health and safety coordinator for MIT's School of Science. "We're trying to bombard them with this information in as many different venues as we can."

Hood manufacturers are also getting in on the act, introducing measures that restrict a hood's opening or ensure the sash is closed when not in use. Zboralski says one popular trend is to install hoods with combination sashes. These hoods have sashes that can move vertically up and down but also have a panel that slides horizontally. This design, Zboralski explains, gives access to elevated areas inside the hood without having to open the entire sash. There are also some simple fixes, such as latches or stops that ensure a sash can only rise to a specified height. Other solutions, such as motorized sash closers that kick in when the operator steps away from the hood, are more complex. "The widgets are there if somebody wants to pay for them," Zboralski says, but ultimately, you have to be sure the energy savings from those widgets are worth it. No matter what all the

manufacturers do to their hoods to manage airflow, nothing can make the hood safer than just getting the user to put the glass in front of their face. It's such a simple thing."

## **Call To Action**

**I propose** a campaign by which chemists around the world can make a significant impact on saving energy and global warming. The proposal is prompted by the C&EN article, "Close Your Hood!" which states that "the average fume hood consumes as much energy as three houses" ([C&EN, Oct. 8, 2007, page 44](#)).

At a previous employer, I encountered firsthand the axiom "old habits die hard." It was a source of frustration to me that colleagues refused to make a minor change in their work habits and close hood doors when the hood was not in use. I'm suggesting that ACS take the lead in initiating a campaign to make it a habit to close hood doors when they are not in use.

There must be many thousands of hoods in use in this country alone, at industrial facilities, testing labs, educational institutions, and hospitals. How about having C&EN give a rough estimate of the potential energy savings if those hood doors were closed every night? The potential savings in energy costs would be tough for energy consumers to ignore. Come on, ACS: Start the ball rolling!

**Frederick J. Ehrgott**  
**Rensselaer, N.Y.**