



Go Nuke!

A newsletter from the North American Young Generation in Nuclear

Winter 2010

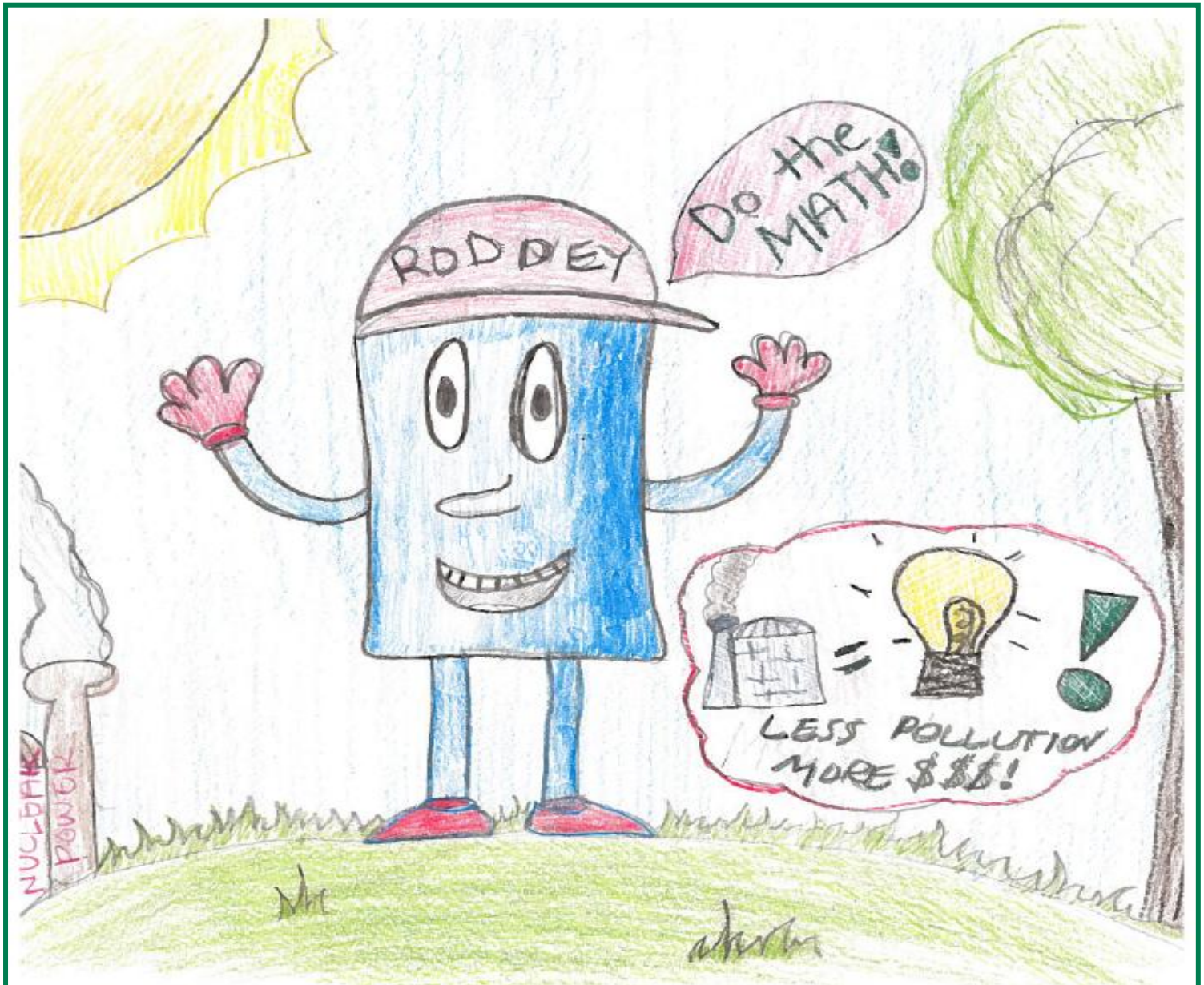
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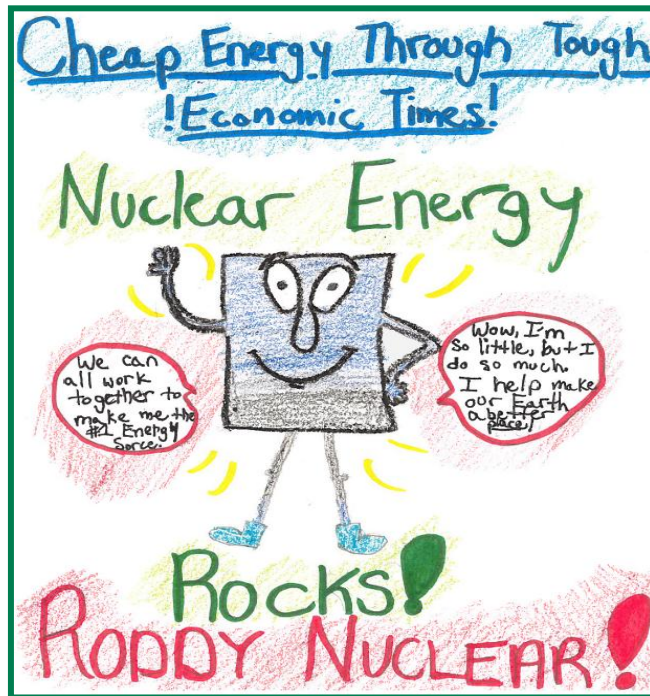
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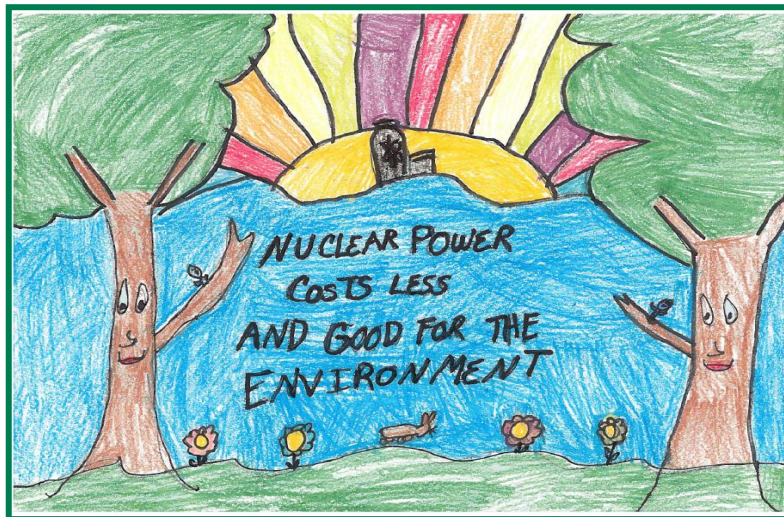
2009 11th Annual Drawing Contest Winners 1st Place - Rachel Switzer, Entergy Echelon NA-YGN Chapter



2009 11th Annual Drawing Contest Winners
2nd Place - Ashley Szramowski, Westinghouse NA-YGN Chapter



2009 11th Annual Drawing Contest Winners
3rd Place – Lena Grogan, Westinghouse NA-YGN Chapter



Our first place winner will receive nuclear books, a science kit, a NA-YGN t-shirt, an honorary membership, and award certificate. The second and third place will receive a science kit, a NA-YGN t-shirt, an honorary membership, and award certificate. All three schools libraries will receive a collection of books and reference materials on nuclear science and technology. The student's name will be inside the book to honor them for earning the books for their school.

The drawing contest entries were voted on at the American Nuclear Society Winter meeting in November 2009. NA-YGN would like to thank all of the members who participated in this event to make it successful. NA-YGN members spoke to more than 4,000 4th and 5th graders at 50 schools and over 2,000 drawings were submitted.

Thank you to all of the chapters who participated in this public outreach event to educate students and teachers about nuclear science and technology. In addition, a special thank you should be given to the Educational Outreach co-chairs, Morgan Davis and Natalie Zaczek, both members of the Exelon NA-YGN Midwest Chapter, for coordinating this year's contest.

President's Corner

By Mike Kurzeja



“Run silent. Run deep,” has been the mantra for the United States Navy’s submariners from nearly the beginning of their existence. Submarines have been used throughout history to attack enemy vessels, but have only been effective when they were able to avoid enemy detection. Why is this important you may ask? It is from this culture that our civilian nuclear industry developed. Many of the operators of civilian nuclear reactors come from the nuclear Navy. The result was a “Run silent. Run deep” culture that permeated our nuclear industry for decades.

Twelve days after The China Syndrome was released in movie theaters in the United States, Three Mile Island Unit 2 had an accident that partially melted the core making it seem like Hollywood was an accurate source for information on the dangers of nuclear power plants.

In the days and weeks that followed the accident, the operator of TMI2 (Metropolitan Edison) starved the public of information. Today, evidence reveals that Metropolitan Edison knew of the severity of the accident and chose not to provide full disclosure to the public. Both Pennsylvania state officials and the NRC offered statements intended to reassure, but at the same time closed schools, told people to stay indoors, and advised pregnant women and small children to evacuate the area surrounding the plant. With elected officials and Metropolitan Edison’s information in question, the situation was ripe for widespread public confusion and distrust.

The media swarmed into Middletown, PA, seeking quotes, human-interest stories, and expert opinions. In this environment of chaos and fear, we heard the loudest voices. Those who had long opposed nuclear industry now had their “told you so” moment and happily supplied the media with contradictory and conflicting opinions. These opinions, taken as fact by some, created an atmosphere of suspicion of the nuclear industry and put the authorities on the defensive. When the dust settled and the facts and extent of the accident became known, the mistrust remained.

As our generation grows older, those who remember the TMI accident will be outnumbered by those who read about it in books. However, the confusion and mistrust of our industry remain. It is in our hands to continue to increase the awareness for nuclear technology: everything from talking with public officials, to going to local schools; from a conversation with friends at the dinner table to explaining our jobs to our parents is beneficial. Every conversation we have on nuclear has an impact.

In 1979, the industry allowed Hollywood and an inexperienced media to tell our story. Three decades later our industry has a different story to tell. Today, the nuclear industry represents clean, safe, and reliable power. We generate 19% of all of the electricity and 70% of the non-CO2 emitting energy in the United States. Our industry has made safety paramount. With capacity factors over 90%, we represent one of the most reliable forms on energy on the planet.

We know this technology. We know how it can help people. The facts are on our side. We just need to tell more people about it. Our generation cannot allow “Run silent. Run deep” to be the norm.

Reacting to the Public Reaction to Reactors

By Brent Williams, NA-YGN Past President and Douglas Neil, Bruce Power

The Sierra Club of Canada recently released its report, “Tritium on Tap,” which reported that the Canadian standard of 7000 Bq/l of tritium in water is higher than in California (14 Bq/l) or Europe (100 Bq/l). It also reported that the water supply in the city of Ottawa (near a nuclear reactor) has 9 Bq/l, which is more than the 1.2 Bq/l in Thunder Bay (not near a nuclear reactor).

The related news story in the Edmonton Journal on November 20, 2009 included this quote from a Sierra Club official: “[Tritium] is a carcinogen and causes birth defects.” Based on this concern, the Sierra Club believes Canadians are in real danger, and we should be very upset that the Canadian Tritium standard is so high and that the tritium levels are higher near a reactor.

Why did all you Radiation Protection types just spray your coffee out your nose?

If you were to drink a 250ml glass of water at 7000 Bq of Tritium per litre, you would receive an additional dose of approximately 0.003 mrem, or about 1/3 the dose you would receive from Potassium 40 (K_{40}) while eating an average banana. If we extrapolate the amount of water the average person drinks in a year, we can figure out that our friends in Ottawa are getting an annual additional dose of less than three bananas (or 0.01 mrem).

The Health Physics Society (HPS) reports that the average person in Canada or the US receives about 360 mrem from all sources per year.

Determining the danger of radiation dose is extremely hard. Both the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the National Research Council of the National Academies Biological Effects of Ionizing Radiation (BEIR) have researched the risk of radiation exposure to people.

In North America, the incidence of fatal cancer from all causes is about 2500 per 10,000 people. According to the studies by UNSCEAR and BEIR if 10,000 people received an additional dose of 1,000 mrem, there might be 8 additional fatal cancers. In Ottawa where the metropolitan population is approximately 1.5 million, the tritium in the water (0.01 mrem additional annual dose) might add 0.012 additional fatal cancers per year to the 375,000 already expected from smoking and other causes.

So despite throwing around a lot of big numbers, the dose that the Sierra Club is talking about is very, very, very small. Maybe we should all just say “no” to other low level radiation exposures like sweet potatoes, bananas, hugging, and living in Finland.

Well, that was fun! Once we understand the facts, it is easy to make fun of the report and its conclusions like we just did. We have good reason to get frustrated with this kind of misinformation. It spreads fast because it is scary and the public does not know how to evaluate it. However, the rant above is also sarcastic and arrogant, and that is the real problem. Condescension towards people who disagree with us is dangerous. It means we are not focused on exceeding the highest standards of safety, because we believe we are already there, or we do not understand the risks.

Three Mile Island (TMI) terrified tens of thousands of people. At Davis Besse, we nearly did it again. Our industry earned the reputation that has motivated well-meaning people like the Sierra Club, to invest time and effort warning the public about us.

An interesting point was made during the TMI session at the 2009 ANS Winter Meeting. Our next reactor accident will be much more damaging to public opinion than TMI. There will be many more sources of misinformation and confusion if there is a next time, because of blogs, email, cell phones and the internet. It is very hard to build a positive relationship with the media and public during a reactor meltdown. We need to have that trust already in place.

The good news is that we have rebuilt credibility with the public. A Gallup Poll from March 2009 Poll indicates that 59% of all Americans favor nuclear energy. Their primary concerns are financial, used fuel storage, and preventing proliferation. These are real issues that our industry is dealing with and communicating now.

We need to continue to focus on building credibility with transparency. Then we have a chance of the public listening when we say, “We have had a problem; nobody was hurt. We are working on it.”

And we need to watch our attitude.

6 Rules for Delivering the Message **By Rachelle Benson, Public Information Chair**

1. **Emphasize Benefits**. No discussion of safety is meaningful unless benefits are clearly stated.
2. **Emphasize Controls and Solutions**. The assertion that nuclear energy plants are not dangerous may be true, but it is not credible. People do believe that dangers can be controlled, but they want to know how.
3. **Paint a Concrete Picture**. Many people have abstract ideas about nuclear energy technologies and by-products. To counter the science fiction-like imagery and demystify the technology, pictures speak louder than words. Use videos, props, pictures and diagrams and hands-on exhibits. Analogies from everyday life help, too.
4. **Avoid Jargon and Acronyms**. Technical language is sometimes misunderstood. To convey the intended meaning, use simple terms, but without a patronizing tone.
5. **Speak From the Heart, Not Just the Head**. Your compassion and conviction show. An unpolished message delivered by a credible, knowledgeable, caring spokesperson with personal conviction is likely to be more persuasive than a smooth message delivered without personal conviction or regard for the audience’s needs.
6. **Stay On Message**. In communicating about nuclear, it is natural to want to get out all the facts. But that just leaves the audience with information overload. It is best to select 3 or 4 main themes that you want to get across and stay on message.

Nuclear Energy: Just the Facts

Talking to the Public About Nuclear Energy and its Benefits

There are numerous myths about nuclear energy, and sometimes we are challenged by people in our local communities about these myths. Here are talking points and data to help you dispel those myths with facts from NEI.

Myth #1: Nuclear energy plants pose a safety hazard since they emit radiation.

Fact: Nuclear energy plants are a miniscule source of radiation. Because of their advanced design and sophisticated containment structures, U.S. nuclear plants emit a negligible amount of radiation.

- You would have to live near a nuclear power plant for over 2,000 years to get the same amount of radiation exposure that you get from a single diagnostic medical x-ray.
- Even if you lived right next door to a nuclear power plant, you would still receive less radiation each year than you would receive in just one round-trip flight from New York to Los Angeles.
- The average American receives radiation exposure of about 360 mrem annually from all sources, according to the National Council on Radiation Protection and Measurements. More than 80 percent of that comes from nature—from radon in the air, from rocks and soil, and from outer space. The average public exposure from the nuclear fuel cycle is 0.5 mrem per year.

Myth #2: Nuclear energy makes global warming worse.

Fact: Nuclear energy is clean. Nuclear energy plants don't burn anything, so they produce no combustion byproducts.

- Nuclear energy is by far the nation's largest source of electricity that does not produce greenhouse gases, providing 73 percent of the electricity, including hydroelectric, wind and solar.
- The use of nuclear power to generate electricity avoided emissions of nearly as much carbon dioxide as is released from all U.S. passenger cars combined. If nuclear power were not used, 134 million of the nation's 136 million passenger cars would have to be eliminated to keep U.S. carbon dioxide emissions from increasing.

- Nuclear energy accounts for 90 percent of all electric utility savings in carbon dioxide emissions since 1973.

Myth #3: There is no solution to the problem of nuclear waste.

Fact: Used fuel continues to be stored safely on nuclear plant sites, but the nuclear industry solved the nuclear waste problem decades ago.

- Used nuclear fuel can be removed from the reactor, reprocessed to separate unused fuel and then used again. The remaining used fuel could then be placed in either interim or long-term storage, such as in the Yucca Mountain repository.
- Used fuel is managed securely in special buildings that house the fuel in steel-lined, concrete pools filled with water. After the used fuel cools, it can be stored on plant property in huge steel or steel-lined concrete containers. This is called dry cask storage.
- All the used nuclear fuel produced by the U.S. nuclear energy industry in 50 years of operation—approximately 60,000 metric tons—would, if stacked end to end, only cover an area the size of a football field to a depth of about 7 yards.

Myth #4: Nuclear energy is expensive.

Fact: Nuclear energy plants operate efficiently, produce electricity cheaply and have a long lifespan.

- Nuclear power has the lowest production cost of the major sources of electricity and nuclear plants are the most efficient on the electricity grid.
- These plants are able to produce electricity with low cost and stable prices because they use an enriched form of uranium for fuel.
- The energy potential of one uranium fuel pellet—the size of the tip of your little finger—is the equivalent of 17,000 cubic feet of natural gas, 1,780 pounds of coal, or 149 gallons of oil.
- The average fuel cost for nuclear plants last year was 0.45 cents/kwh, compared to 1.36 cents/kwh for coal and 3.44 cents/kwh for natural gas.

Nuclear Trade Associations: NEI and CNA

By Christine Csizmadia and Elizabeth McAndrew-Benavides, NEI

What is the difference between a lobby group and a trade association? A lobby group is a special interest organization that only seeks to influence political decisions. A trade association focuses on expanding an industry and benefiting both its members and stakeholders. Trade associations participate in activities such as public outreach and education, regulatory interactions and international and domestic business development, industry standardization and collaboration.

Associations also offer other services, such as producing conferences, promoting networking opportunities, offering classes and developing educational materials. And yes, at times, trade associations lobby issues.

The Nuclear Energy Institute (NEI) is the trade association of the U.S. nuclear energy and technologies industry and participates in both the national and global policy-making process in the United States. One misconception of NEI is that it only employs lobbyists. On the contrary, the majority of NEI employees are engineers, regulatory professionals and project managers. NEI's broad mission is to foster the beneficial uses of nuclear technology in its myriad forms.

The Canadian Nuclear Association (CNA) is NEI's sister organization in Canada. CNA seeks to promote domestic and international acceptance of Canadian nuclear technologies and create a positive public, political, and regulatory environment for advancing the nuclear industry in Canada and in global markets. CNA employs a number of professional communicators and the governing board represents the broad spectrum of nuclear industries in Canada. Its mandate is to provide accurate and timely information to government, to media and to the public on Canada's nuclear industry.

Most importantly, trade associations are member led organizations. Employees from member companies participate on the committees, working groups, task forces and other communities of practice to develop the strategies and policies that NEI advocates. Whether the issue is buried pipe inspections, uranium mining, green jobs or knowledge transfer, NEI and CNA is working with members to advocate policy with decision makers.

Policy Shapers

NEI provides leadership to influence public policy by representing the industry before Congress, the White House and executive branch agencies, federal regulators and state policy forums. Nuclear energy is vital to America's and Canada's energy security and environmental goals. Government policy has an enormous impact on the nuclear energy industry, affecting the competitiveness of current reactors and the financial viability of building new ones.

Examples of policy issues that NEI is working on include:

- participating in the policymaking process related to a federal repository for used nuclear fuel and defense program waste to be built at Yucca Mountain in Nevada and
- working to ensure nuclear energy gains equal treatment among other sources of emission-free electricity in U.S. and international clean-air initiatives.

Examples of policy issues that CNA is working on include:

- uranium mining, processing and fuel fabrication, medical isotope production and
- encouraging the renewal of Canada's nuclear research infrastructure.

Regulatory Stability

NEI and CNA work to maintain regulatory stability, as well as to achieve a regulatory process that is safety-focused and efficient. Both monitor regulator actions and work with members to provide input back to the regulators on generic issues.

Advocates

Establishing a positive image in the minds of opinion leaders and the public is critical to the success of an industry in a national marketplace. NEI and CNA's programs include:

- advertising targeted towards policymakers, as well as outreach to national media, and the public working with its member companies, universities, community colleges and vocational training schools to establish programs to educate and train tomorrow's leaders in the nuclear industry and
- developing forums where members can interact with other stakeholders
- gathering and disseminating authoritative and timely information about all the aspects of nuclear energy.

NA-YGN Chapter Highlight: Washington, D.C. Chapter

By Christine Csizmadia, D. C. Chapter Lead

The D.C. NA-YGN Chapter has had a busy end of 2009! In October the D.C. Chapter met up for a networking happy hour at the Washington Capitals



vs. San Jose Sharks hockey game. 30 NA-YGN members joined together representing 11 different nuclear companies. “We are fortunate to be

a part of the Nation’s Capital NA-YGN chapter because D.C. hosts so many different nuclear companies. It’s always a unique experience networking with other young professional in the industry and it’s a fun group to connect with,” said Mary Beth Ginder of AREVA’s Maryland office. The NA-YGN connections were not the only victory that night, Capitals won, 4-1.

Also in October, DC Chapter members were responsible for staffing the Career Awareness booth at the Society of Hispanic Engineers (SHPE) Conference. Building off of the success of the



Society of Women Engineers career fair in Long Beach, California, NA-YGN modified its approach to the career awareness to help direct more of

the qualified candidates to visit as many nuclear organizations at the career fair as possible.

During the SHPE conference, DC Chapter NA-YGN members facilitated a Nuclear Industry Bingo to help direct more students to the nuclear focused booths at the career fair. This activity led to over a hundred students participating and visiting the 20 of the nuclear booths. [NA-YGN will continue promoting nuclear careers into 2010. If you are interested in participating or providing sponsorship dollars to cover travel expenses to NA-YGN members to attend, please contact Adam Borcz at borcza@usec.com.] Special thanks to the Nuclear Energy Institute for sponsoring the booth space for

NA-YGN at all of the career awareness events and thank you to USEC for being a sponsor.

The Headquarters for Constellation Energy in Baltimore, MD, hosted their annual Developing Professionals Conference in November. NA-YGNers from all three nuclear sites (Ginna, Nine Mile Point and Calvert Cliffs) attended and networked with every area of the company as well as heard speeches from UniStar President and CEO, George Vanderheyden.



The D.C. NA-YGN Chapter also hosted the Colonel Ripley Memorial Fuel 4 Life Race in November. The success of this event rests on an outstanding D.C. NA-YGNER, Adam Borcz of USEC Inc. Adam’s initiative and motivation made this event an overwhelming community

success with over 400 registered runners and raised over \$9,000! And the D.C. Chapter team, “Fueled by



Atoms” raised \$1,165! “We appreciate the support of the NA-YGN for hosting this great event, and thanks to all of our nuclear sponsors including USEC, Bechtel, ConverDyn, and the Nuclear Energy Institute,” said Borcz. The D.C. NA-YGN Chapter looks forward to the 2nd Annual Colonel Ripley Memorial Fuel 4 Life Race on November 14, 2010!

Also in November, Christine Csizmadia orchestrated and led a nuclear “Capitol Hill Day” event in Washington, DC on Nov. 19, 2009 as part of the recent [American Nuclear Society Young Professionals Congress](#). Through the “Hill Day” event, 85 participants representing 17 states voiced their support for nuclear power in 26 scheduled meetings and 34 drop-by visits with senators and congressmen.

Regional Reports

Regional Reports

Northeast (Regional Lead Erin West, northeast@na-ygn.org)

A regional event is being planned for August in Boston. The Northeast region is home to a new chapter at AREVA –Marlborough. The AREVA Marlborough chapter is new, but already operating like a well-seasoned chapter. They have contacted elected officials, held outreach events, and participated in charity events.

Atlantic (Regional Lead Muhammad Fahmy, atlantic@na-ygn.org)

The recent American Nuclear Society Young Professionals Congress was held in Washington DC in November. See the DC Chapter Highlight for more information on this Region's activities.

Carolinas (Regional Lead Jonny Abendano, carolinas@na-ygn.org)

This past quarter, the Midlands chapter hosted a picnic with ANS and held a paintball event. The Westinghouse, Shaw, AREVA, GE, and Duke chapters recently got together for a monthly after-work networking event.

Southeast (Regional Lead Chris Hearn, southeast@na-ygn.org)

On November 9, 2009, the Eastern Carolina Section of the ANS held a dinner meeting featuring guest speaker Mike Sewell, Progress Energy Federal Regulatory Affairs Analyst, who works out of Washington D.C. His speech focused on the current political climate and what that means for the future of nuclear energy. In short, both political parties acknowledge the need for Nuclear power as part of a balanced energy solution and in order to reduce our carbon footprint. Democrats and Republicans disagree, however, on the use of Carbon Credits and Cap and Trade policies.

The Southeast Region held their first annual regional event December 2nd-3rd. This event was hosted by the INPO chapter in Atlanta, GA. Over 100 NA-YGN members attended, representing 32 sites and 10 different utilities. The conference focused on "Leadership and Excellence in the new Generation" with passionate and excited speakers from the NRC, INPO, Southern Nuclear, Duke Energy and many other notable names around the industry. Chris Hearn, the Southeast Regional Lead, "I want to extend a special thanks on behalf of the Southeast Region to the INPO chapter as well as their executive sponsors for hosting such a powerful event. They set quite a standard for next year and I am excited to see what next year will bring."

Midwest (Regional Lead Sean Tanton, midwest@na-ygn.org)

Congratulations to Exelon West -they reached over 700 students in Illinois and Indiana during their poster contest efforts. Many Midwest chapters wrapped up their year with year-end social events and celebrations.

West (Regional Lead Virginia Cleary, west@na-ygn.org)

Sandia NA-YGN is working with the National Museum of Nuclear Science and History in support of the first ever National Nuclear Science Week. The Energy Northwest Chapter recently supported a successful joint NA-YGN / Women in Nuclear benefit/outreach concert. The DCP YGN chapter sponsored the Salvation Army Angels program that provides gifts to under-privileged local children during the holiday season. They also reviewed their activities and accomplishments of 2009 at an end-of-year celebration.

EVENTS

January 8

Canadian Nuclear Society Papers Due
Montréal, Québec
www.cns-snc.ca/conf2010.html

January 15

Nominations for Open Core Positions Due
williams@na-ygn.org

January 15

End of Year Chapter Reports Due
usa@na-ygn.org

January 21

Webinar: “Speaking Effectively About Nuclear Energy”
<http://www.quia.com/sv/363991.html>

January 25 – 29

1st Annual National Nuclear Science Week
www.nuclearscienceweek.org

January 28

Local Chapter Leads Call
usa@na-ygn.org

February 12

NA-YGN Award Nominations Due
awards@na-ygn.org

February 24 – 26

Canadian Nuclear Association’s Nuclear Industry
Conference and Trade Show
<http://www.cna.ca/conference/cna/en/>

March 18 – 21

National Science Teachers Association Conference
Philadelphia, PA
<http://www.nsta.org/conferences/2010phi/?lid=con>

March 25

Local Chapter Leads Call
usa@na-ygn.org

March 31 – April 4

National Society of Black Engineers Annual
Convention
Toronto, Canada
<http://national.nsbe.org/>

NA-YGN ANNUAL WORKSHOP!!!
SAN FRANCISCO, CA
MAY 16 – 18, 2010



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