

At PPPL THIS WEEK

WEDNESDAY, JAN. 14

Records/Paper Shredding Event
9 a.m. - 4 p.m. ♦ Receiving 3

PPPL Colloquium
4:15 p.m. ♦ MBG Auditorium

Starlight Detectives: How Astronomers, Inventors, and Eccentrics Discovered the Modern Universe

Alan Hirshfeld - University of Massachusetts - Dartmouth

SATURDAY, JAN. 17

Ronald E. Hatcher Science on Saturday Lecture Series
9:30 a.m. ♦ MBG Auditorium

Stellarators: Shedding new light on an old idea

Samuel Lazerson, PPPL

UPCOMING EVENTS

January 24
Ronald E. Hatcher Science on Saturday Lecture Series
9:30 a.m. ♦ MBG Auditorium

Using Physics to Understand the Genome

Mary Jo Ondrechen, Northeastern University

January 31
Ronald E. Hatcher Science on Saturday Lecture Series
9:30 a.m. ♦ MBG Auditorium

The Road to a Sustainable Energy Future

Emily Carter, Princeton University

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Safety First:

Activity Certification Committee ensures NSTX-U will operate safely

By John Greenwald

Like a new passenger jet or power plant, the National Spherical Torus Upgrade (NSTX-U) must be certified safe to operate. At PPPL, the task of evaluating the safety of the \$94 million upgrade belongs to the Activity Certification Committee (ACC), whose work remains ongoing. “This is a critical group,” said Adam Cohen, deputy director for operations at the Laboratory. “When you have a complex activity like the upgrade you need a standing committee to guarantee that it will run safely.”

For nearly two years the ACC has reviewed key components of the upgrade, which is scheduled for completion in March and will make the NSTX-U the most powerful spherical fusion facility on Earth. The group conducts hands-on inspections — or “walkdowns” — of all systems and subsystems and reviews training and pre-operational test procedures. “It’s very vital and reassuring when the ACC says we’re ready to go,” said Mike Williams, director of engineering and infrastructure and associate director of the Laboratory.

The committee’s work augments detailed design reviews and safety checks that engineers and other staffers have undertaken. “Even though the Lab has a lot of processes, we go into the field to give added assurance that the upgrade will be safe,” said Charles Gentile, chair of the ACC, whose members represent the PPPL safety, engineering and research departments and the DOE site office. The committee provides “defense in depth,” he said.

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Guest Corner

Milestones in PPPL’s Environmental Stewardship Programs



By **Robert Sheneman**, head of the Environmental Services Division

There were two important milestones in the Laboratory’s environmental stewardship programs in November and December of 2014: the re-registration of our environmental management system and completion of our annual Site Sustainability Plan.

First, during the week before Thanksgiving, PPPL completed a comprehensive independent audit of our environmental management system. Like many other DOE labs, our environmental management system is registered – or certified – against the international standard known as ISO-14001. ISO-14001 outlines policies, practices and controls that help PPPL to comply with environmental requirements, set performance goals and track our progress against those goals. In order to be registered to the ISO-14001 standard, organizations must submit to regular audits by accredited independent auditors.

The organization issuing our ISO-14001 registration certificate is UL-DQS. UL-DQS is part of the DQS-UL Group, an international assessment and certification organization covering a wide range of management systems ranging from telecommunications to food safety & packaging and aviation/aerospace manufacturing. Accredited ISO auditors must meet certain training, experience and testing qualifications in their specific subject areas.

PPPL’s environmental management system was first registered to ISO-14001 in February 2012, based on an audit in December 2011. In order to maintain our system’s registration, UL-DQS performs an annual surveillance audit and must re-register the system every three years.

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Certification

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For example, the ACC checks to make sure that all procedures are followed, all potential hazards identified and all safety issues addressed. “We get into the weeds,” Gentile said. The group asks about not only what works, he noted, but about what didn’t work at first and how it was fixed.

The ACC is free to recommend changes. Gentile led the group that evaluated the original NSTX, which operated from 1999 to 2011 before work began on the upgrade. When that ACC called for installation of more emergency stop buttons and an additional stairway in the NSTX test cell, both recommendations were rigorously followed.

The current committee is to deliver a report that recommends issuance of a safety certificate that authorizes the NSTX-U to operate and describes the terms under which the facility is to run. This report will go to the PPPL Environment, Safety and Health (ES&H) Executive Board, the Laboratory’s advisory board for ES&H issues, for review. Final approval of the safety certificate and subsequent operations must then come from Cohen, who chairs the executive board, with concurrence from the DOE site office.

The current ACC evaluation is going well, said committee member Jerry Levine, who heads the Environment, Safety, Health & Security Department and will draft the safety certificate for Cohen to approve with site-office concurrence. While the final report may recommend changes, “we haven’t found any showstoppers,” Levine said.

Committees don’t disband once a certificate is issued. They remain on call throughout the life of a facility to evaluate any changes that could affect safety and to recommend any

amendments that may be required. The ES&H Executive Board amended the certificate of the original NSTX several times, on the advice of the committee, after the Laboratory installed new plasma control equipment and modified other parts of the machine.

The painstaking work of such committees makes them invaluable — if largely unsung — contributors to the research at PPPL. Their scrutiny, says Cohen, “underlies the extremely solid design and construction that produces the equipment and results that outsiders to the Laboratory find incredible.”



Members of the Activity Certification Committee. Front row left to right: Anthony Indelicato, Al Von Halle, Jerry Levine and Charles Gentile. Back row left to right: Timothy Stevenson, John Lacenere, Tracy Estes, Larry Dudek and Stefan Gerhardt. Missing are Irving Zatz and Leif Dietrich.

Fischer discusses her career and PPPL in Washington D.C. speech

PPPL’s Chief Financial Officer Kristen Fischer gave a speech entitled, “My daring adventure: An MBA among the PhDs at the Princeton Plasma Physics Laboratory” last month. She was an invited speaker at the annual board meeting of the Rosalind Franklin Society, held at the Pew Charitable Trust in Washington, D.C.

In the speech to the organization, whose members include several Nobel Laureates and which recognizes the contributions of women in the sciences, Fischer said she works “side-by-side with some of the top physicists in the world” at PPPL. She described her journey from being a staff member in the state’s Division of Consumer Affairs to being a fiscal analyst in the New Jersey Office of Legislative Affairs, where she was assigned to evaluate the cost impact of proposed legislation. She rose to become the budget and grants director of the state Attorney General’s Office, overseeing a \$1 billion budget.

Fischer said she took the job at PPPL largely because of its mission. “This is where the best minds are working to solve one of our world’s great challenges – sustainable energy,” she said. She now oversees a staff of nearly 50 people and a Lab budget of \$100 million. Fischer said she is also proud of her role communicating the Lab’s mission to the general public. “Some of my colleagues may speak the foreign language of physics and move in that rarefied world,” she said. “But I still bring my unique talents to the mix.”



Kristen Fischer gives a speech at the Pew Charitable Trust.

Writing contest on live music for PU students

Princeton University Concerts is sponsoring a new “Creative Reactions Contest” in which Princeton University students attend a free concert and write a reflection on the live concert music. The writing can take any form from an essay to blank verse, poetry, or lyrics. The deadline for entering the contest is Jan. 23. Participants will attend one of four classical concerts between Feb. 5 and March 1 and submit their writing by March 23. The winner will receive a \$1,000 prize and up to three participants will receive honorable mentions. More information is available [here](#).

Milestones

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The great news is that PPPL's environmental management system met the requirements for re-registration with no findings. The auditors identified seven areas for improvement, dealing with issues such as how to improve our recycling program, clarify some of the program documents and strengthen our internal auditing process. They also identified nine best practices, such as our internal and external communications efforts, environmental purchasing efforts, training programs and the laboratory management dashboard. During their week-long audit, the two auditors visited almost every part of the Laboratory and interviewed nearly 150 employees and subcontractors. They complimented PPPL on the openness, friendliness and professionalism of our employees, and the Laboratory's commitment to improving its environmental performance.

One way to judge the success of our environmental management system is the steady improvement in audit results. The graph below shows a strong downward trend in audit findings and a growth in best practices over the past four years. This reflects the everyday commitment of many at PPPL to advancing the Lab's mission of scientific discovery while reducing our environmental footprint. Congratulations to everyone at PPPL!


The second significant milestone was completion of the Laboratory's annual Site Sustainability Plan. This plan is required by DOE orders and presidential executive orders and is a key element in the Department of Energy's sustainability efforts. It outlines our progress in meeting important sustainability goals set for the entire federal government and plans for future actions to further enhance our environmental performance. The federal sustainability goals are wide-ranging, and as a result development of our annual sustainability plan requires help from many PPPL organizations including Environmental Services, Information Technology, Facilities & Site Services, Engineering and Business Operations.

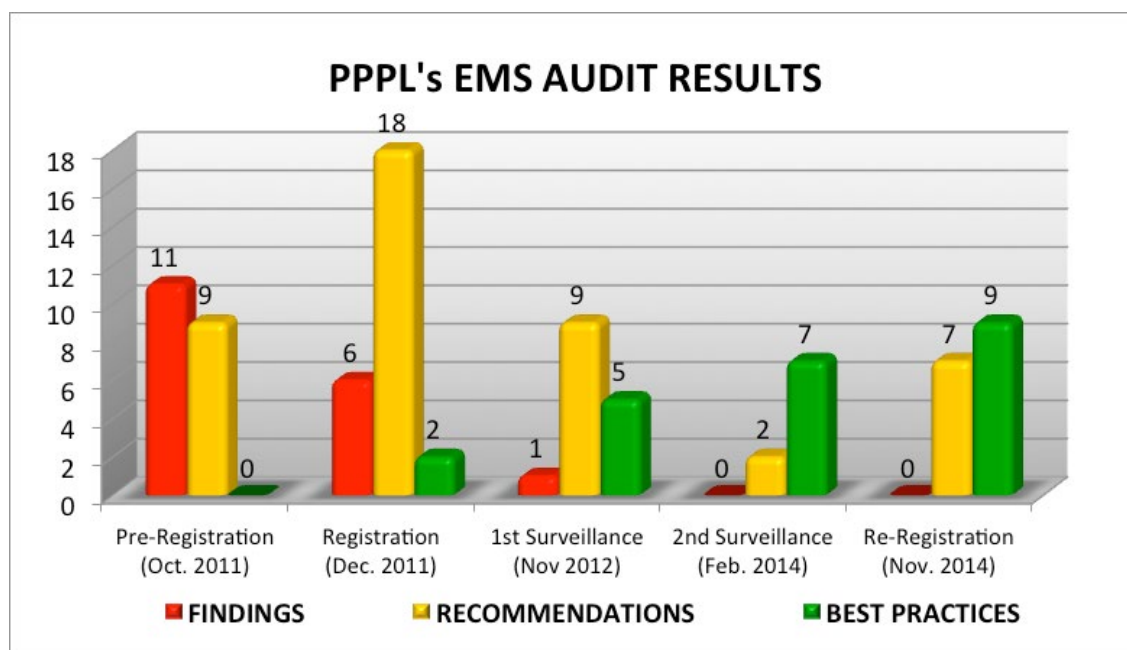
Of the 24 DOE-specific sustainability goals, PPPL has met or exceeded half of the long-term performance targets – many of them set for 2015 or 2020 – and is generally on target to meet all of the other long-term performance targets. Meeting some of the targets will require investments in our aging buildings and infrastructure that are envisioned in the Campus Modernization Plan which was published earlier this year. Others may require some changes in how we do business, such as purchasing more energy-efficient and environmentally-

preferred products. Still others may involve the careful management of business travel and encouraging alternative employee commuting practices.

A wonderful example of how PPPL is raising the bar on sustainable environmental practices is our management of greenhouse gas emissions. Since we began reporting greenhouse gas emissions for fiscal year 2008, the Laboratory has cut its overall greenhouse gas footprint by an astounding 76 percent. Scope 1 are direct emissions from Lab operations, Scope 2 emissions are from our purchased electricity and Scope 3 are indirect emissions from employee commuting, business travel, etc. That means PPPL releases less than one-quarter of the climate-changing greenhouse gases that we released just six years ago!

Much of this progress is due to those folks who operate and maintain our experimental heating and power systems. These systems use a great deal of sulfur hexafluoride (SF₆), which is a very powerful greenhouse gas. Their work both before and during the NSTX upgrade project should allow a return to experimental operations with a dramatically lower environmental footprint. Other areas of great progress include energy use (down over 30 percent), fleet vehicles (down over 50 percent) and solid waste disposal (down over 50 percent). Several categories of greenhouse gases have increased since 2008, including business travel. Despite efforts to increase remote meetings and collaborations, the international nature of our scientific research requires Laboratory staff to travel. In fact, we logged over 3.2 million air miles in fiscal year 2014 on Laboratory business.

Everyone at the Laboratory deserves a great deal of credit for the achievement of these two important milestones. Our ISO-certified environmental management system is the structure that allows us to identify significant environmental aspects of our work, set performance goals and measure progress, minimize our environmental impact and continually improve our performance. The annual Site Sustainability Plan is an important status report against our key environmental performance targets. We've made great progress toward meeting challenging goals set by the federal government, but we still have work to do in some areas. More information about the environmental management system and PPPL's environmental stewardship efforts can be found at the Environmental Services Division website at <https://sites.google.com/a/pppl.gov/environmental-services/>. 



An infusion of holiday spirit at PPPL's annual holiday party

PPPLers kicked off the holidays with the Lab's festive holiday party Dec. 23. Partygoers mingled with coworkers and were treated to heaping plates of holiday fare such as roast pork and turkey with gravy and mashed potatoes, pasta, sausage and peppers, and salads. They topped it off with home-baked goodies donated by coworkers.

The festivities concluded with the annual "World Famous Skit" entitled "The Parade of PPPL Super-Heroes." The skit featured Ray Camp playing Batman, aka PPPL Director Stewart Prager and Michael Gonzalez playing Robin, aka Deputy Director for Operations Adam Cohen, and Erik Gilson impersonating A.J. Stuart Smith.

The show ended with a rousing rendition of the BeeGees "Staying Alive" from "Saturday Night Fever" with Andrew Zwicker, Arturo Dominguez and Gilson performing in white disco suits.



Virginia Finley, Keith Erickson, and Joanne Bianco in their holiday attire.



PPPLers line up for the buffet. From left to right: Lance Smith, Westley Reese, Carl Wotkowiak, and Bob Hitchner.



Michael Kalish and Jean Wernock sport their holiday best after helping themselves to mashed potatoes.



Margaret Kevin-King and guest Jennifer Whiting, Princeton University Building Services associate director, along with PPPL's Teodora Todorova, show off their plates of holiday fare.



Henry Carnevale and fellow PPPLers enjoy the buffet.



John Trafalski gets ready to sample the holiday lunch.



Ray Camp, left, as Batman (aka Stewart Prager), and Michael Gonzalez, right, as Robin (aka Adam Cohen).



Bill Slavin played Director of Communications Kitta MacPherson in the skit.



The skit included a Family Feud game in which members of the "Human Resources Department" competed against the "Facilities Department." From left to right, Michael Gonzalez playing himself, Dana Eckstein playing Jean Wernock, Andrea Moten playing herself, and Gretchen Zimmer playing Paulette Gangemi, Ray Camp playing Prager, Randy Wilson playing Mike Viola, Charlie Gentile playing Bill Gervasi, Andy Carpe playing Dana Eckstein, and Bill Slavin playing John Luckie.



Erik Gilson, Andrew Zwicker, and Arturo Dominguez are "Staying Alive."

Thank you for contributing to the Food Drive

Thank you to everyone who contributed to the University Food Drive last month. PPPL'ers contributed 312 pounds of food and personal hygiene items for the Mercer Street Friends Food Bank in December.



Registration Open for Young Women's STEM Conference

There's still time to register friends and relatives for the Young Women's Science, Mathematics, Technology and Engineering Conference hosted by PPPL on March 19. You can help inspire the next generation's female scientists, engineers, and mathematicians by encouraging young women you know to attend and by registering them now.

The conference for seventh to tenth grade girls at Princeton University's Frick Chemistry Building includes hands-on science activities by women in the STEM fields, tours of Princeton's science laboratories, and lectures by prominent women in the field.

PPPL employees can register at least three young women by filling out the form [here](#). Members of the public can also register at https://pppl.princeton.edu/ywc_information. The deadline is Feb. 13. Please contact Deedee Ortiz, dortiz@pppl.gov with any questions.

COLLOQUIUM



Starlight Detectives: How Astronomers, Inventors, and Eccentrics Discovered the Modern Universe

Alan Hirshfeld

University of Massachusetts - Dartmouth

Wednesday, January 14

4:15 p.m. (Coffee/Tea at 4 p.m.)

M.B.G Auditorium, Lyman Spitzer Building



RONALD E. HATCHER
Science on Saturday Lecture Series



**Stellarators:
Shedding New Light
on an Old Idea**

Samuel Lazerson
PPPL

Saturday, January 17

MBG AUDITORIUM • Doors open at 8:15 a.m.
Lectures begin promptly at 9:30 a.m.

BROCK Café Menu

BREAKFAST 7 a.m. • 10 a.m.
CONTINENTAL BREAKFAST 10 a.m. • 11:30 a.m.
LUNCH 11:30 a.m. • 1:30 p.m.
SNACK SERVICE until 2:30 p.m.

— MARK GAZO, *Chef Manager*

COMMAND PERFORMANCE
CHEF'S FEATURE

	MON. 12 JAN.	TUE. 13 JAN.	WED. 14 JAN.	THU. 15 JAN.	FRI. 16 JAN.
COMMAND PERFORMANCE CHEF'S FEATURE	 Ota-Ya Sushi	 Baked Ziti with Eggplant served with Garlic Bread	 Oriental Stir Fry over Rice	 Carved Glazed Ham with Roasted Sweet Potatoes & Vegetable	 Baked Tilapia with Crab Stuffing and Vegetable
EARLY RISER	Waffles with Chicken Fingers & Maple Syrup	Smothered Hash Browns with 2 Eggs Any Style	Potato Knish with 2 Eggs Any Style	Ham & Cheddar Croissant	Pork Roll, Onion & Cheddar Omelet
COUNTRY KETTLE	Chicken Curry Soup with Coconut & Lime	Black Bean Cilantro	Beef Noodle	Tomato Bisque with Rice	Southwestern Shrimp & Corn Chowder
GRILLE SPECIAL	Rodeo Burger with Onion Rings, BBQ Sauce, Bacon & Cheddar	Apples & Ham Melt on Texas Toast with Sweet Potato Fries	Pastrami & Swiss with Sauerkraut & 1000 Island Dressing on Rye	Homemade Greek-Style Turkey Burger	Philly-Style Garlicky Greens and Egg on French Bread
DELI SPECIAL	Egg Salad with Bacon Wrap	Tailgate Club Sandwich	Turkey Salad with Cranberries & Walnuts on Whole Grain Roll	Chickpea & Tuna Salad Wrap	Miami Chicken
PANINI	Shredded Pork Quesadilla	Creamed Tuna on Toast Points	Pastrami & Cheddar Stromboli	Grilled Vegetables & Hummus Wrap	Prosciutto, Fresh Mozzarella, Tomato & Basil Torpedo

MENU SUBJECT TO CHANGE WITHOUT NOTICE

VEGETARIAN OPTION

CLICK HERE FOR A PRINTABLE WEEKLY MENU

WEEKLY

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DEADLINE for calendar item submissions is noon on WEDNESDAY. Other stories should be submitted no later than noon on TUESDAY.

Comments: commteam@pppl.gov ♦ PPPL WEEKLY is archived on the web at: <http://w3.pppl.gov/communications/weekly/>.