



Energy Technology Engineering Center

Area IV, Santa Susana Field Laboratory

CleanUpdate

APRIL 2024



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on graduate
biology fellow
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Welcome to the New DOE *CleanUpdate*!

Welcome to the U.S. Department of Energy (DOE) *CleanUpdate* – a fresh, new take on DOE’s newsletter aimed at providing local communities and stakeholders updates on activities going on in Area IV at the Santa Susana Field Laboratory (SSFL).

SSFL is a 2,850-acre site located in eastern Ventura County, adjacent to Los Angeles County. The former rocket engine testing and nuclear research site has four distinct operational areas with two adjacent undeveloped properties.

The Energy Technology Engineering Center (ETEC) is a 90-acre portion of land located in Area IV, the 290-acre part of SSFL that DOE leased from Boeing and is responsible for cleaning up. There were once more than 270 structures in Area IV, but as of October 2021, all have been demolished and removed. Since 2022, DOE has been focused on soil and groundwater remediation.

So, what will happen next?

Ongoing groundwater interim measures are underway that have reduced volatile organic compound-impacted groundwater concentrations from 10,000 parts per billion (ppb) in 2017 to less than 500 ppb. Additionally, more than 24,000 gallons of

contaminated groundwater have been extracted from the Former Sodium Disposal Facility. The extracted groundwater was tested and properly disposed of offsite. Plans to automate pumping to continue groundwater remediation are also in the works. Check out the next newsletter for more details.

DOE is currently working with the California Department of Toxic Substances Control to finalize groundwater and soil remediation plans that prioritize public health and safety and preserve cultural and environmental resources.

In this issue of *CleanUpdate*, meet the DOE ETEC team, read about a research project regarding wildlife at the site, and see what other activities and news are coming up for DOE’s portion of SSFL.

View past issues of *CleanUpdate* and read about other community updates on [DOE’s website](#).





Meet the Team

A Message from the Director



You may have noticed a bunch of fresh faces in this edition of CleanUpdate, including yours truly. So, I would like to use this note to introduce you to members of the U.S. Department of Energy (DOE) team here at Santa Susana Field Laboratory (SSFL).

Before I do that, I want to express my gratitude to all the stakeholders, many who have been active at this site much longer than our new team. I commend your devotion to ensuring that this remediation meets the highest standards. Public safety, the protection of human health, and the environment is DOE's foremost priority to complete our cleanup at SSFL. I am committed to this priority and assure you I will not compromise when it comes to health and safety.

Now let me introduce myself. I'm Dr. Josh Mengers, the Energy Technology Engineering Center (ETEC) site manager and project director for DOE's cleanup at SSFL. After I earned an engineering degree from Johns Hopkins University, I joined the U.S. Army and served as a captain in the Corps of Engineers. I then went to graduate school at the University of Notre Dame, where I earned a Ph.D. in aerospace and mechanical engineering. I joined DOE in 2012 because of my passion for our environment. I spent my first years with DOE in Washington, D.C., working on renewable power projects in the Geothermal Technologies Office to further enhance our ability to access Earth's heat as a reliable carbon-free energy source.

I moved to Southern California with my family in 2019 to join the DOE's ETEC team at SSFL. While we are new transplants to the area, Simi Valley truly is home to the Mengers family. We are active members of our local church, and our kids go to public schools and play on community sports teams right alongside many of your children.

A lot has changed since we arrived, and not just the faces of our team. The world went through a pandemic, DOE demolished and removed our final 18 buildings at SSFL, and the State of California published their Programmatic Environmental Impact Report, just to name a few.

As the federal project director, I work with our team to help DOE achieve the goal of restoring this beautiful site to a safe, open space for the local tribes, nature, and the community to enjoy.

Below you will find notes from the rest of the ETEC site team who have similar connections to our community. With this great team, I am excited to work together with our community to continue our progress at SSFL. We are your neighbors, so please reach out to us if you have any questions, comments, or concerns. We're here to help.

Pamela Hartman

Deputy Director



Pamela joined DOE ETEC in July 2023. Prior to joining the team, she was a lead geologist with CDM Smith for 15 years, 10 of which were spent performing work at SSFL. She has a bachelor's degree in environmental science from Lehigh University, a master's degree in geology from Washington State University, and is a licensed Professional Geologist in both California and Oregon.

Rose joined DOE ETEC in October 2022. Prior to joining ETEC, Rose worked in the U.S. Environmental Protection Agency's Region 9 Enforcement Division. She has master's degrees in environmental science and public administration.

Rose Galer

Project Manager



Meet the ETEC Site Team

Melissa Simon

Community Outreach



Melissa joined DOE ETEC in December 2023. Before joining the team, she was a senior editor/writer for the Diversity Program Consortium, a grant-funded program at UCLA. Prior to that, Melissa worked for the Simi Valley Acorn newspaper for seven years. She has a bachelor's degree in journalism and a master's degree in publishing.

Debbie joined DOE ETEC in March 2008. Before joining the team, she was an executive assistant at Garrett Aviation for 10 years, and at 4/Flight Industries for 10 years.

Debbie Kramer

Executive Assistant





Getting the “Scoop on the Scat”

Research Fellow Alex Walters investigates whether animals are affected by past activities at SSFL

By Melissa Simon

SIMI VALLEY, Calif. – Did historical research activities at the U.S. Department of Energy’s (DOE’s) [Energy Technology Engineering Center](#) (ETEC) at the Santa Susana Field Laboratory (SSFL) impact the animals that called it home?

That’s one of the questions Alex Walters, an earth scientist working for the [Pacific Northwest National Laboratory](#) (PNNL), hopes to find out as part of his research fellowship with ETEC.

SSFL is a nearly 2,850-acre site located in eastern Ventura County, California, adjacent to Los Angeles County. It was previously used as a rocket engine testing and nuclear research facility. ETEC is located on about 90 acres in the 290-acre Area IV, which is leased and managed by DOE’s Office of Environmental Management (EM).

Walters began his fellowship in October 2023 to work on a biological conservation project as part of the [Environmental Management Minority Serving Institutions Partnership Program](#) (EM MSIPP). The program provides science and engineering students and graduates with an opportunity for training and mentorship through an [Oak Ridge Institute for Science and Education fellowship](#) in targeted technical areas of interests and needs of the EM workforce.

In January, Walters visited SSFL to gather further insight on mammal species inhabiting wildlife corridors within the ETEC site by collecting scat from targeted species for laboratory analysis to assess potential uptake of contaminants.

Walters said the January visit was a “reconnaissance trip to get the scoop on the scat,” with the goal of answering two questions: What scat is found at SSFL, and is there enough at each site to collect for sampling?

Joined by Dr. Tara Schoenwetter, a senior ecologist with Leidos, Walters spent the week surveying areas of interest both onsite and offsite, collecting and documenting anything related to scat.

“I was pleasantly surprised with finds during our surveying efforts,” Walters said. “Also, Dr. Schoenwetter and I got the distinct privilege of being visited by a pocket gopher and seeing a bobcat.”

Schoenwetter, who has worked at SSFL since 2011 and developed a list of projects over the years aimed at better understanding the ecological community, said Walters’ project will help provide insight on the movement of specific chemicals through wildlife species. *(cont’d next pg)*



Alex Walters (far right) is an earth scientist working for PNNL, who visited SSFL in January 2024 to gather further insight on mammal species that utilize wildlife corridors within the ETEC site by collecting scat as part of his research project. Also pictured (from left) are Tara Schoenwetter, senior ecologist; Pamela Hartman, ETEC deputy field program director; Beth Lisann, ETEC site liaison; and Josh Mengers, ETEC federal project director.

“Scoop on the Scat” (cont’d)

“Alex’s research will help us understand the health of the wildlife population, and better understand wildlife movement across Area IV and the Northern Buffer Zone, since the entire SSFL is known to be an important wildlife corridor,” Schoenwetter said.

Dr. Josh Mengers, EM’s federal project director for ETEC, said Walters’ research is an important part of biological preservation as EM works toward completing cleanup at SSFL.

“I couldn’t be happier with Alex’s research. His work will help us to understand if any contamination at ETEC is affecting the local wildlife,” said Mengers, who is also Walters’ DOE mentor for the project. “Alex is a sharp and motivated new graduate, and EM is lucky to have bright folks like him participating in the EM MSIPP graduate fellowship program.”

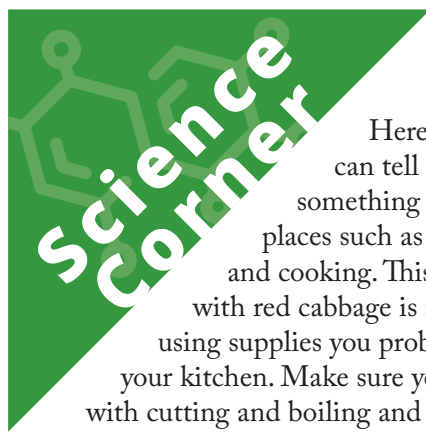
Schoenwetter echoed Mengers, adding that it’s “been an absolute pleasure working with Alex. He is a wonderful asset to our team, and I am excited to learn about our findings.”

For Walters, he said he’s excited to continue working with mentors like Mengers, Schoenwetter, and Amoret Bunn, an environmental engineer at PNNL, all while immersing himself in “the ecological uniqueness of ETEC.”

“Being able to go out and experience the biological and cultural significance of the site has been invaluable to me,” he said. “Continuing to learn about the different plant and wildlife communities and their ecological importance is exciting to me.”



Pictured is an example of a possible burrow site at SSFL, which could provide insight into mammal species that use wildlife corridors within the EM’s ETEC site. The information collected would be part of a research project by Alex Walters, an earth scientist working for PNNL. Photo courtesy of Alex Walters.



Do you like science experiments?

Here’s a fun at-home experiment for all ages: testing pH using cabbage. The pH scale can tell us how acidic or basic something is. People use pH many places such as pools, aquariums, gardens, and cooking. This simple experiment with red cabbage is a fun way to explore pH using supplies you probably already have in your kitchen. Make sure you get help from an adult with cutting and boiling and get permission on what household ingredients are ok to test.

Materials

- Red cabbage
- Sharp knife
- Cutting board
- Water
- Small saucepan
- Strainer
- Clear cups
- Household ingredients to test (some good examples include vinegar, baking soda, and lemon juice)
- Dropper or spoon
- Notebook and pencil/pen for observations (*cont’d next pg*)



Adding baking soda or vinegar to boiled cabbage water can change the liquid’s pH level and color. Try this experiment at home to see the results for yourself. *Photos courtesy of Josh Mengers.*

Instructions

Make the pH indicator solution:

1. Roughly chop a few leaves of red cabbage into small pieces.
2. In a small saucepan, add the cabbage pieces with enough water to cover them.
3. Bring the water to a boil, reduce heat, and simmer for 10 to 15 minutes.
4. Once the water turns a dark purple color, remove from heat.
5. Use a strainer to separate the cabbage pieces from the liquid.
6. Let the liquid cool and discard the cabbage pieces.
7. You now have a dark purple pH indicator solution.



Adding baking soda or vinegar to boiled cabbage water can change the liquid's pH level and color. Try this experiment at home to see the results for yourself. *Photos courtesy of Josh Mengers.*

Test the pH of Household Ingredients

1. Gather your household ingredients to test.
2. Pour some purple pH indicator solution into clear cups – one per ingredient.
3. Using a spoon or dropper, add a small portion of each ingredient to each cup.
4. Observe any color changes and make notes in your notebook.
5. Repeat steps 3 and 4 for the other household ingredients.
6. Make notes on your observations and clean your work area.

Why it Works

You should have noticed that some items turned the pH indicator solution pink or red, while others turned it blue, green, or yellow. This happens because of a pigment in red cabbage called anthocyanin that changes color depending on the pH of its surroundings. The indicator solution starts out with a neutral pH of about 7, where the anthocyanin appears purple. When the solution is acidic (lower pH), the anthocyanin appears pink or red. But when the solution is basic or alkaline (higher pH), the solution turns blue, green, or even yellow. This is the same pigment that determines the color



of hydrangea flowers. With this knowledge, what did you learn about vinegar and lemon juice? How about baking soda? Let your new knowledge inspire you – test if you can reverse the color change and go from red to blue and then back to red again. Dye some coffee filters or white construction paper with your indicator solution, let it dry, and cut it into test strips to explore the pH of other liquids. Or you can even use the paper in an art project to make a rainbow bouquet of paper flowers. Let your creativity run wild!

Credit: Thomas Dyrehaug - original file available at <https://commons.wikimedia.org/wiki/File:Hydrangea-flower.jpg>



Spotted at SSFL!



A bobcat (*Felis rufus*) was spotted at the Santa Susana Field Laboratory in January 2024. *Photo courtesy of Alex Walters.*



Looking Ahead

Here's what to look for in our next newsletter:

- ^a Recap of Groundwater U – This community education workshop was a joint effort between the California Department of Toxic Substances Control, DOE, Boeing, and NASA to educate the public on groundwater at SSFL.
- Groundwater Interim Measure at the Former Sodium Disposal Facility – As part of ongoing groundwater interim measures, DOE is in the process of automating pumping using a solar-powered system.

For more information, contact Melissa Simon at melissa.simon@emcbc.doe.gov or Josh Mengers at Joshua.mengers@emcbc.doe.gov, or visit the ETEC website at www.etc.energy.gov.

