



May 25, 2023

**Chair**

Don Barger

**Vice-Chair**

Fran Johnson

**Board Members**

Phillip Brown  
Eric Butterbaugh  
Victoria Caldwell  
Hannah Chretien  
William Robert Clark  
Clint Combs  
Bill Murphy  
Blake Summarell  
Myron Wessell  
Riley Willett  
Elizabeth Wilson

April Ladd  
*DOE DDFO*

Buz Smith  
*DOE Federal Coordinator*

**Board Liaisons**

Brian Begley  
*Division of Waste Management*

Victor Weeks  
*Environmental Protection Agency*

Mike Hardin  
*Fish and Wildlife Resources*

Stephanie Brock  
*Radiation Control Branch*

**Support Services**

EHI Consultants, Inc.  
Emerging Technology Center  
5100 Alben Barkley Dr.  
Paducah, KY 42001  
Phone 270.554.3004  
[www.energy.gov/pppo/pgdp-cab](http://www.energy.gov/pppo/pgdp-cab)  
[info@pgdpcab.org](mailto:info@pgdpcab.org)

## May 2023 Citizens Advisory Board Meeting Agenda

**5:30 pm**

Call to order, introductions  
Review of agenda

**DOE Comments**

**Federal Coordinator Comments**

**Liaison Comments**

**Administrative Issues**

Spring 2023 EM SSAB Chairs Meeting Recap  
○ EM SSAB Chairs Meeting Recommendation

**Presentations**

PFAS

**Public Comments**

**Final Comments**

**Adjourn**



# PADUCAH GASEOUS DIFFUSION PLANT

## CITIZENS ADVISORY BOARD

MINUTES OF THE THURSDAY, MAY 25, 2023, CAB BOARD MEETING • 5:30 PM.

**Location:** Emerging Technology Building, WKCTC, Paducah, Kentucky

**Citizens Advisory Board (CAB) Members Present** Fran Johnson, Clint Combs (TEAMS), Billy Bob Clark, Victoria Caldwell, Elizabeth Wilson (TEAMS), Myron Wessel, Riley Willett (TEAMS), William Murphy

**CAB Members Absent:** Don Barger, Phil Brown, Eric Butterbaugh, Hannah Chretien, Blake Summarell

**U.S. Department of Energy (DOE) and Contractors:** Buz Smith, April Ladd, Rich Bonczek (TEAMS), Hayly Wiggins, EHI Consultants (EHI)

**Liaisons:** Brian Begley (TEAMS), Division of Waste Management; Christopher Travis (TEAMS), Commonwealth of Kentucky Energy and Environment Cabinet; Brian Lainhart (TEAMS), Victor Weeks (TEAMS), Environmental Protection Agency

**Attendees:** Jessica Vasseur, Bruce Ford, Four Rivers Nuclear Partnership; Mary Evans, KYDEP; Gaye Brewer, Gaylon Grubbs, Andrew Paul, Rodney Hill

**Facilitator:** Eric Roberts, EHI

Approved by Fran Johnson, Board Vice-Chair

Signature on file

Fran Johnson, vic

**Call to Order:** 5:30 pm Fran Johnson, CAB Vice-chair.

**Johnson:**

Welcome to the May Board Meeting. We appreciate your attendance this evening.

Public comments will be accepted via email prior to and after the meeting. Comments received by no later than 5:00 pm CST on Monday, May 15, 2023, will be read aloud during the virtual meeting, per the Federal Notice. Comments will also be accepted after the meeting, by no later than 5:00 pm CST on Friday, May 26, 2023. Please submit comments to [eric@pgdpcab.org](mailto:eric@pgdpcab.org). Please put "Public Comment" in the subject line.

Attendees introduced themselves.

**Review of Agenda:** We will move the vote on the National SSAB Chairs Recommendation to the top of the agenda.

**Roberts:** You have a National Recommendation from the National Chairs Meeting of the Site Specific Advisory Board (SSAB) before you. It was written by a committee of representatives from the eight sites represented by the SSAB, and each of the sites will vote yes or no on this recommendation. Essentially, the recommendation states that when the National SSAB sends a national recommendation to DOE, DOE should follow up with the National SSAB to give progress on that recommendation.

**Johnson:** Is there any discussion on the recommendation?

**Murphy:** This is only for the National Chairs SSAB recommendations, not intended for our local CAB recommendations, correct?

**Roberts:** Yes, that is correct.

**Murphy:** I move that we accept this recommendation.

**Caldwell:** I second.

**Johnson:** All in favor of approving this recommendation signify by saying "Aye." Any opposition?

*All present both in person and virtually voted Aye, motion passed unanimously.  
8-0-0*

**DOE comments provided by April Ladd:** We had a great ECA (Energy Communities Alliance) Conference in Paducah last week. We had many parties in attendance that were interested in reusing the Paducah site after the cleanup is completed. On-site, in the C-333 building, the transite panel removal has been completed and is ready to ship off. Removing those panels allows access to equipment behind. For R-114, we are on track for our one million pounds per calendar year removal goal, which should be completed in mid-November. The Emergency Operations Center is in the finishing stage and almost ready to move that team into the new building. Switchyard dismantlement has begun. Anything of value from the switchyard removal will be given to PACRO for them to sell or reuse. We heard in the ECA meeting that the transition towers would be useful for any potential reindustrialization, so we are reevaluating whether we should remove those towers now. TVA will be replacing some of the towers with more effective pole-style towers.

**Murphy:** I saw on the news that there are agreements at some sites for Small Modular Reactors at the Portsmouth site. Is this something that we could attract in Paducah?

**Ladd:** Yes, I believe so. The footprint for one of those small reactors is 11 acres, and during the ECA meeting, the folks that went on to tour our site were able to see the potential for using Paducah's site for these types of small reactors. These types of reuse opportunities bring new tax revenue, schools, jobs, and funding to the local communities, like Portsmouth, that embrace these new technologies. Technology and safety have improved dramatically, and Paducah is a prime location for future development.

**Murphy:** In Portsmouth, is this built as a merchant site?

**Ladd:** Yes, the land is given to the companies for their use.

**Smith:** During the meeting, they mentioned that heat is one of the byproducts from these small reactors. They want to collaborate with other industries that require heat so they can move that heat down the chain for someone else to use instead of wasting it by trying to cool it down.

**Roberts:** The plan in Portsmouth is to have several plants working together. The small nuclear reactors byproduct of heat moves down to another industry that needs heat of, say, 1500 degrees, and their leftover heat of 1000 degrees move down to another industry and so on. This has been ten to twelve years in the making.

**Murphy:** I heard on NPR today that Kentucky had its first Nuclear Committee Meeting. Is there anyone from this area on that committee?

**Johnson:** State Senator Danny Carroll and Corey Hicks with Four Rivers Nuclear Partnership are on that committee. One of the discussions during the ECA Forum was that we have this site in Paducah, but our state government has no Nuclear Commission, so they quickly formed one and had their first meeting last week. There is also no nuclear engineering program in the state of Kentucky.

**Murphy:** Most Nuclear Engineering programs ended in the 1990s when no more nuclear power plants were being built.

**Federal Coordinator Comments provided by Buz Smith:** We have six new CAB members, and four have completed orientation and tours. The last two will be completed in the next week or two. We also had two full bus loads take tours at the site from the ECA meeting consisting of DOE personnel, communities that have their own former sites, and representatives of industries looking for locations for future projects.

**Liaison Comments provided by Brian Begley Division of Waste Management.** DOE: Kentucky has an intern starting next week. On May 5, KY submitted comments to the D1 C-400 Remedial Investigation/Feasibility Study, and then we approved the D1 Remedial Action Completion Report on the SMU 211A, which is the one using enhanced bioremediation. We approved that completion report on May 9.

**Murphy:** Where will the intern be located, and what is her discipline?

**Belgey:** She will be in Frankfort, and she is interested in geology. I hope to get her to a CAB meeting this summer. I met her at a talk I gave at my alma mater, Hanover College.

**Liaison Comments provided by Victor Weeks of Environmental Protection Agency:** We also commented on the RIFS report for C-400 and are working with DOE and KADA to resolve those comments.

**Roberts:** We would like to present the Groundwater Video that DOE has been working on. <https://youtu.be/ooIxVCTIrig>

**Smith:** This great video explains the groundwater situation to the layperson. Jessica Vassuer and her team did a great job on it.

**Hill:** The original wells were farther out from the site. Now that the plume has shrunk. Are those outer wells still used?

**Ladd:** They are still there.

**April Ladd, Deputy Designated Federal Officer, DOE**  
 Per- and polyfluoroalkyl (PFAS) Update

<b>Question/Comment:</b>	<b>Answer:</b>
<p><b>Brewer:</b> What contaminant levels did you find at the Fire Fighter training area?</p> <p><b>Caldwell:</b> It sounds like the bottled water companies have been able to eliminate the PFAS. Is that a giant carbon filter or something? So if my Britta filter is taking out these PFAS chemicals, why can't Paducah Water use the same method?</p> <p><b>Smith:</b> Rich, do the filters used in home refrigerators filter these chemicals out?</p> <p><b>Caldwell:</b> Once all these home filters are used, they get thrown out and back into the landfill. Isn't that a problem for redistribution?</p> <p><b>Murphy:</b> Have these chemicals been classified as known or suspected human carcinogens?</p> <p><b>Johnson:</b> Is this something affecting other communities, or is this specific to the Paducah Site?</p>	<p><b>Ladd:</b> I don't recall the exact number, but it does exceed the draft maximum contaminant levels.</p> <p><b>Ladd:</b> I would say they use a carbon filtration system. Paducah Water has posted on its website that if you are uncomfortable with these levels, install a carbon filter in your home.</p> <p><b>Bonczek:</b> I would have to look that up, but I would imagine it does.</p> <p><b>Ladd:</b> Keurig coffee machines have a filter as well.</p> <p><b>Ladd:</b> Not if it is a good landfill. Landfills can be safe.</p> <p><b>Bonczek:</b> That is still being debated. Internationally, they are listed as potential carcinogens. The EPA is investigating the cancer-causing properties. If you want to see the information at a complex level, the ITRC information is very good.  <a href="https://itrcweb.org/teams/active/pfas">https://itrcweb.org/teams/active/pfas</a></p> <p><b>Begley:</b> The levels at the fire training area in the top 50 feet of ground surface, it was approximately 133,000 ppt and the sample from the area 65 feet below ground surface was 143,000 ppt. This is total PFAS.</p> <p><b>Smith:</b> PFAS is found in every community. It is in Teflon pans, Scotch guard fabric, etc.</p> <p><b>Ladd:</b> It is in the Ohio River, Paducah Power's water source.</p>

<p><b>Clark:</b> Past generations began using Teflon in the 1940s, right?</p> <p><b>Wessel:</b> The companies that make Teflon changed their recipes at one point, so they knew this was coming.</p> <p><b>Caldwell:</b> My hippie friends have told me not to use non-stick pans for years.</p> <p><b>Brewer:</b> So, where are you in terms of sampling and testing for PFAS?</p>	<p><b>Ladd:</b> We are in the early stages of finding out the issues from PFAS usage and how to eliminate it from the water. I am sure there will be more to the story.</p> <p><b>Bonczek:</b> In March of 2023, we began testing groundwater wells, leachate on the landfills, surface water at the outfalls, water coming in and out of our pump and treats, water at various caps at the plant, the wastewater that is produced from the pump and treat plant as well as the water coming into the pump and treat plant and water from the sewage treatment plant. We have completed 25% of all sampling and will be 100% complete this year. The report is due to DOE at the start of the 2024 calendar year. I expect higher PFAS concentration at the C-400 area, unless the amounts we can detect are masked by the known TCE contamination there.</p> <p><b>Ladd:</b> The sampling technique is difficult for PFAS. The technicians cannot wear any deodorant or anything with an odor. To pull water from the well, we typically use Teflon-coated piping, which cannot be used for this type of sampling. So we have to change sampling procedures to prevent cross-contamination of the samples.</p>
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**Johnson:** Don Barger, CAB Chair, and I met with EM-2, Jeff Avery, and he told us that after the success of the National Chairs meeting in Washington this Spring, they plan to include Washington, DC, in the regular rotation of the National Chairs meetings, in the future. He also shared that DOE values CAB's community input throughout the EM sites.

Don Barger and I participated in a Budget Exercise during the National Chairs Meeting, which was fascinating. We will try to work that into the next CAB work plan for next year.

**Smith:** DOE is helping to find future industrial uses for the sites, not just clean up and get out.

**Johnson:** Eric Roberts is an excellent facilitator at these National Meetings, and we are lucky to have him here in Paducah.

**Johnson:** I attended the ECA (Energy Communities Alliance) meeting here in Paducah. It was an impressive meeting with over 200 attendees from around the world. It was startling to note that Kentucky does not have a nuclear engineering program, nor did we have a Nuclear Commission in state government. The latter has been immediately addressed, and we hope the former will be addressed quickly as well. The sites that are getting new industries on their cleaned-up sites have been working toward bringing industry to their sites for years, and Paducah is moving in that direction. Paducah Chamber of Commerce received a \$2 million grant from DOE to identify potential reindustrialization possibilities for the site. Due to its experienced workforce and infrastructure, Paducah is an ideal location for future nuclear energy production.

There was also a discussion on the SRMs (Small Nuclear reactors). Two of the byproducts of nuclear energy are thermal energy and hydrogen, which can be utilized for other industries. The two major challenges to overcome are the high-level waste storage issue and the capital costs. Portsmouth has successfully brought new industries to its area, and we can learn from their process how best to proceed in the coming years.

**Smith:** One of the biggest hurdles to companies who want to operate at former sites is the community attitude. Instead of the "Not in my backyard" attitude found in many communities, Paducah is an "In my backyard" community.

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Johnson adjourned the meeting at 7:11 pm.





## ENVIRONMENTAL MANAGEMENT SITE-SPECIFIC ADVISORY BOARD

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Hanford Idaho Nevada Northern New Mexico  
Oak Ridge Paducah Portsmouth Savannah River

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*INSERT DATE*

Mr. William “Ike” White  
Senior Advisor  
U.S. Department of Energy (DOE) Office of Environmental Management (EM)  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Mr. White:

### BACKGROUND

According to the EM SSAB charter (Section 3), the EM SSAB provides EM senior management “with advice and recommendations concerning issues affecting the EM program.” The EM SSAB has made at least 10 recommendations to DOE since 2018, often at the request of DOE. The recommendation process includes three parts: (1) the EM SSAB recommendation, (2) the DOE response to the recommendation, and (3) the final policy action or implementation of the recommendation by DOE. While parts (1) and (2) are well recognized (e.g., in public postings on the EM SSAB website and responses distributed to local Boards), it is part (3), implementation, that makes EM SSAB recommendations meaningful and the recommendation process an effective use of time and other resources, those of both EM SSAB members and DOE.

It is important to review the implementation of recommendations for several reasons:

1. Ensuring accountability: Recommendation implementation reviews help ensure that DOE is held accountable for the advice it requests and/or receives from its volunteer Board members. By examining whether recommendations have been implemented as written, EM SSAB can assess how its efforts are valued and identify areas where further deliberations and recommendations are needed.
2. Improving effectiveness: Recommendation reviews provide an opportunity to assess whether recommended activities are working as intended and identify areas for improvement. By examining the results of recommendation implementation, EM SSAB and DOE can make adjustments to recommended activities to ensure they achieve their intended goals.
3. Enhancing transparency: Reviews of recommendation implementation increase transparency by providing a clear understanding of how recommendations are being implemented

and the outcomes they are producing. This transparency is critical for building trust in DOE and ensuring that the public has confidence in DOE and its clean-up activities.

4. Promoting learning: Recommendation implementation reviews provide an opportunity for EM SSAB and DOE to learn from their experiences and identify best practices for making and implementing recommendations. By sharing these best practices, EM SSAB and DOE can promote more effective and efficient recommendation making and implementation in the future.

## RECOMMENDATION

The EM SSAB recommends:

1. DOE provide clear and publicly accessible information regarding implementation of EM SSAB Chairs recommendations for the last five years. In addition to a clear statement about implementation status (e.g., "Implementation of the recommendation is complete (or "ongoing", "suspended", or "discontinued"), the information should include an explanation of any deviations from the DOE response to the recommendation.
2. DOE report to the EM SSAB at least annually a summary of the status of all EM SSAB Chairs recommendation items and any recommendation action item completed during the reporting period.

## Who We Are

*The EM SSAB is the DOE-EM's most effective vehicle for fostering two-way communication between DOE-EM and the communities it serves. The EM program is the world's largest environmental cleanup program, and the EM SSAB its only citizen advisory board. For more than 20 years, the volunteer citizens of the EM SSAB have partnered with EM officials at both the local and national levels to ensure that the public has a meaningful voice in cleanup decisions.*

*Public participation is required/recommended as part of a number of environmental regulations. It is also good business practice, resulting in better decisions that often result in improved cleanup. Over the past two decades, EM SSAB members have volunteered over 48,000 hours of their time and submitted to EM officials over 1500 recommendations, 88% of which have been fully or partially implemented, resulting in improved cleanup decisions.*

*The EM SSAB comprises approximately 200 people from communities in Georgia, Idaho, Kentucky, Nevada, New Mexico, Ohio, Oregon, South Carolina, Tennessee and Washington. The Board is cumulatively representative of a stakeholder population totaling millions of people who are affected by generator sites, transportation routes and disposal sites. As we move forward, the EM SSAB welcomes the opportunity to highlight the value of this unique volunteer board and discuss its priorities during the months and years ahead.*

Susan Coleman, Chair  
Hanford Advisory Board

Teri Ehresman, Chair  
Idaho Cleanup Project CAB

Anthony Graham, Chair  
Nevada SSAB

Cherylin Atcitty, Chair  
Northern New Mexico CAB

Leon Shields, Chair  
Oak Ridge SSAB

Don Barger, Chair  
Paducah CAB

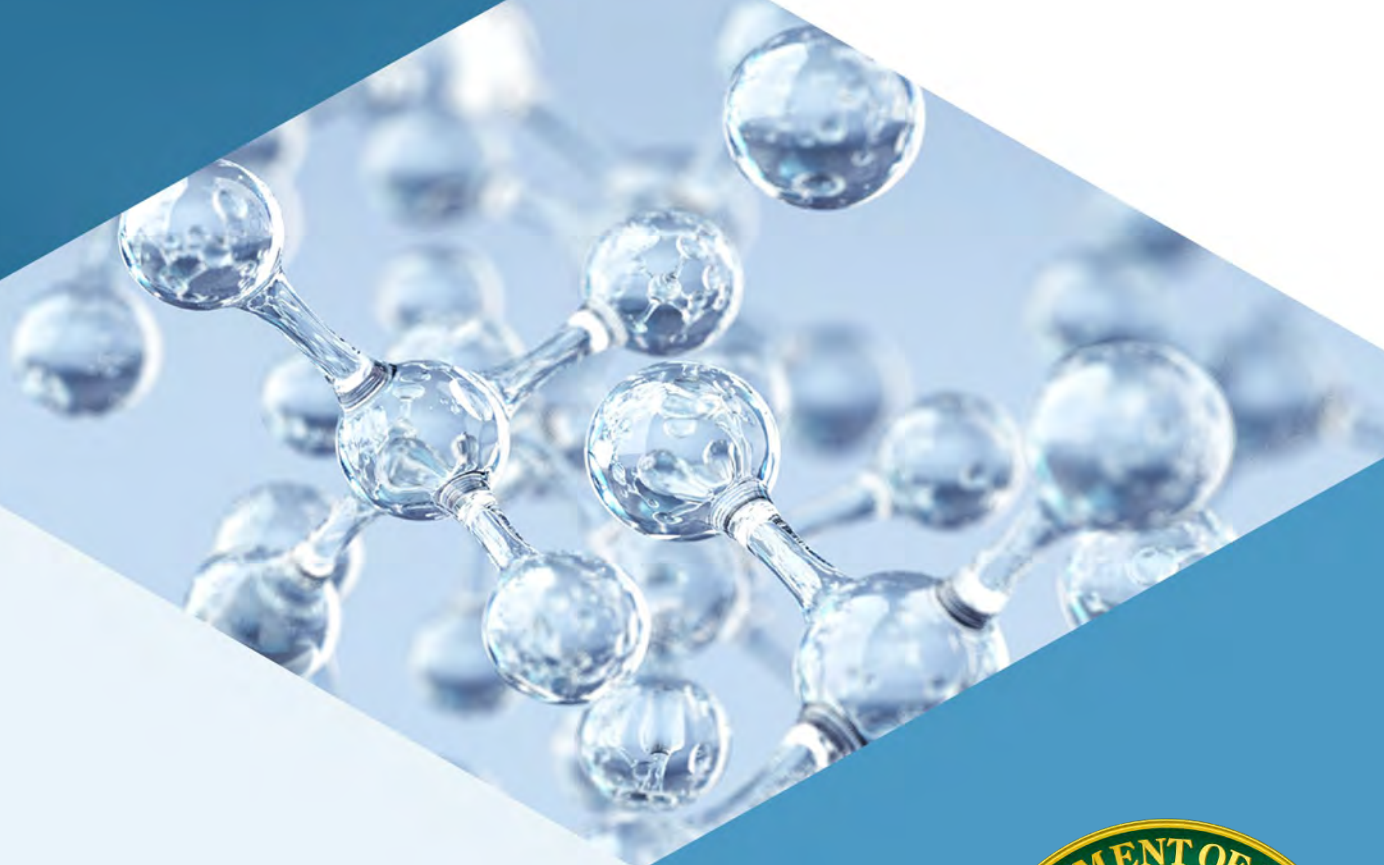
Jody Crabtree, Chair  
Portsmouth SSAB

Gregg Murray, Chair  
Savannah River Site CAB

cc: Kelly Snyder, Designated Federal Officer, EM-4.32

# Paducah Site Groundwater Documentary 2023

<https://youtu.be/oolxVCTIrig>



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# Per- and polyfluoroalkyl substances (PFAS) Update

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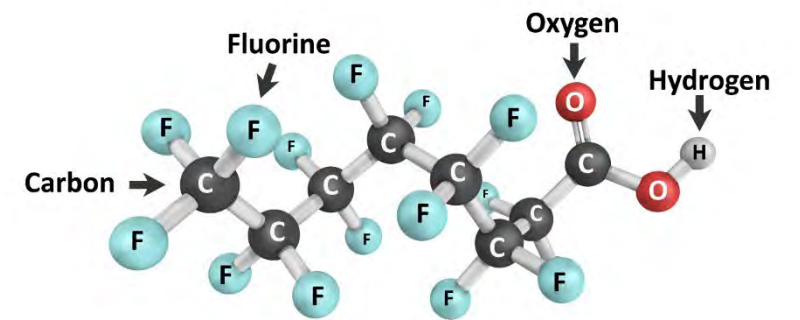
US Department of Energy (DOE)





# Background: What are PFAS?

- Group of thousands of man-made chemicals
- First manufactured in the 1940s
- Known as “forever chemicals”
- Contamination in land, air, water, plants, and animals
- Two most studied PFAS- perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS)
- Aqueous film-forming foam (AFFF) is the most widely studied cause of PFAS release into the environment



*PFOA Molecule*



# Background: Common Industrial Uses of PFAS



Industry	Use and Examples
<b>Firefighting/ Safety</b>	AFFF, firefighting equipment, and protective clothing
<b>Metal Plating</b>	Wetting agent, mist suppression for harmful vapors
<b>Building and Construction</b>	Fabrics, roofing membranes, metals, stone, tiles, concrete, adhesives, seals caulks, additives in paints, varnishes, dyes, stains, sealants, surface treatment agent, and laminates
<b>Energy</b>	Fluoropolymer films that cover solar panel collectors, electrolyte fuel cells, polytetrafluoroethylene (PTFE) expansion joint materials for power plants
<b>Herbicides and Pesticides</b>	Plant growth regulators and herbicides, ant and termite baits, and mosquito repellent
<b>Aviation/ Automotive</b>	Mechanical components, wiring and cable, fuel delivery tubing, seals, bearings, gaskets, and lubricants



# Background: Uranium Separation and PFAS

PFAS were first produced on an industrial scale for use in uranium separation activities during the Manhattan Project.

- 1938 - Teflon® (PTFE) discovered by DuPont scientists
- Development of atomic bomb involved enrichment of Uranium-235 using gaseous uranium hexafluoride (highly corrosive)
- Teflon® and other liquid fluorocarbons found to be highly resistant to corrosion
- First (classified) industrial use of PFAS
- Declassified after the war, and widespread commercial use began in 1949





# Background: PFAS Impacts

## Health Impacts



- Recent studies estimate that over 98% of the US population has PFAS in their blood<sup>1</sup>
- May lead to increased cholesterol levels, changes in liver enzymes, small decreases in infant birth weights, decreased vaccine response in children, increased risk of high blood pressure or preeclampsia in pregnant women, increased risk of kidney or testicular cancer<sup>2</sup>

1. Centers for Disease Control and Prevention's National Health and Nutrition Examination Survey (NHANES).

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4483690/>

2. Agency for Toxic Substances and Disease Registry (ATSDR). [Potential health effects of PFAS chemicals | ATSDR \(cdc.gov\)](#)

# Background: PFAS Impacts



## Environmental Impacts

- Do not break down easily in the environment
- Accumulate over time
- Highly mobile in groundwater
- Can be released into the air as vapors or fine particles
- PFAS bioaccumulate in fish and other wildlife

[https://www.cdc.gov/biomonitoring/PFAS\\_FactSheet.html#:~:text=Many%20PFAS%2C%20including%20perfluorooctane%20sulfonic,bioaccumulate\)%20in%20fish%20and%20wildlife.](https://www.cdc.gov/biomonitoring/PFAS_FactSheet.html#:~:text=Many%20PFAS%2C%20including%20perfluorooctane%20sulfonic,bioaccumulate)%20in%20fish%20and%20wildlife.)

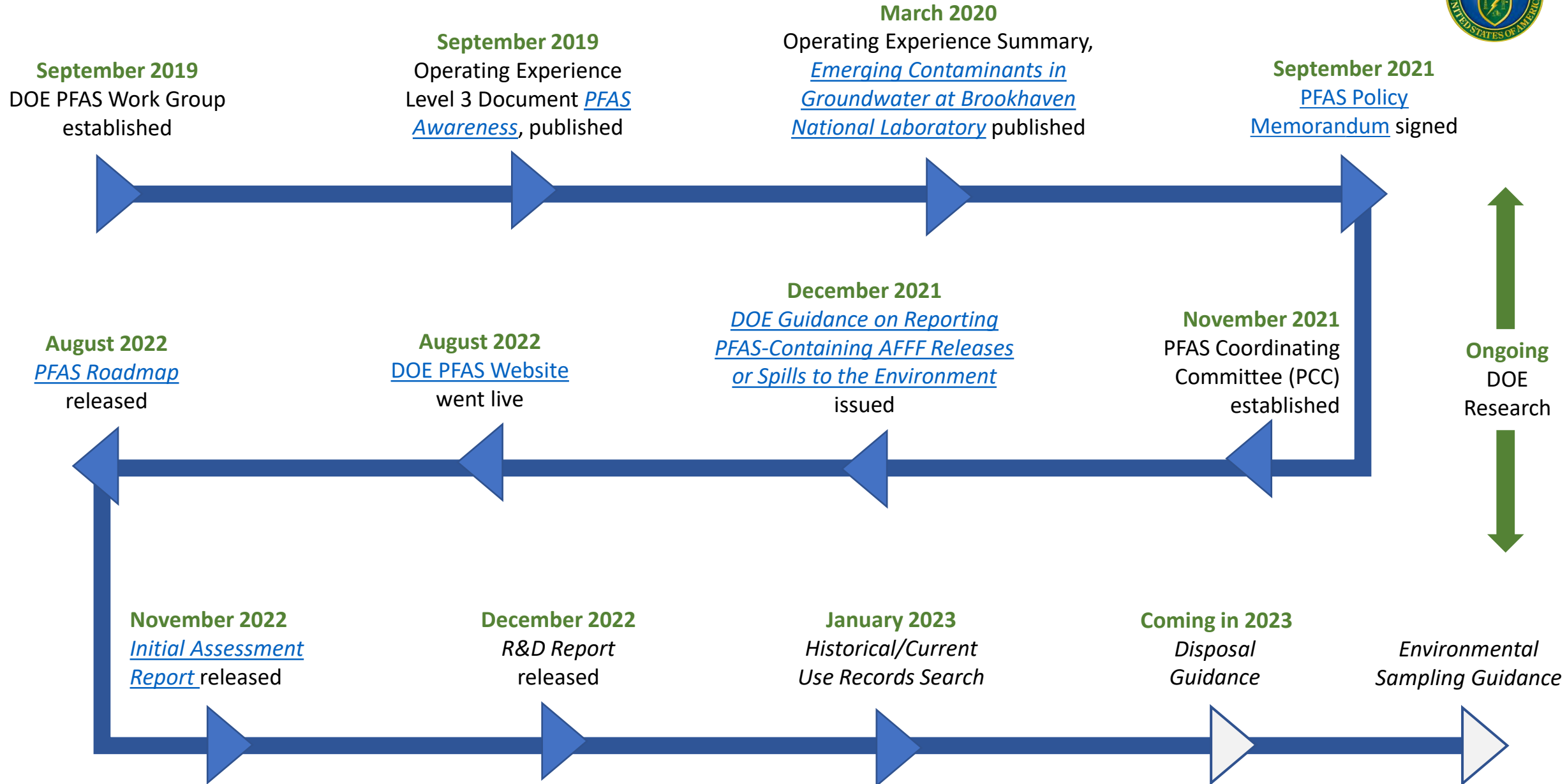


# Current Federal Regulations and Policies

- Rulemakings in progress
  - Resource Conservation and Recovery Act (RCRA)
  - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
  - Safe Drinking Water Act (SDWA)
- EPA Health Advisory Levels
- EPA Regional Screening Levels
- Fifth Unregulated Contaminant Monitoring Rule
- National Pollution Discharge Elimination System (NPDES) Permitting



# DOE Actions: Timeline





# PPPO PFAS Roadmap Actions Status

## GOALS



### UNDERSTAND

Gather and analyze PFAS data to fill knowledge gaps and inform site-specific risk management.



### MANAGE & PROTECT

Take steps to protect DOE workers, the public and the environment.



### ADVANCE SOLUTIONS

Expand the body of knowledge and develop technological solutions to address PFAS issues.



### COMMUNICATE & COLLABORATE

Continue to engage with regulatory partners and stakeholders to share information and gather feedback on our approaches.

## ACTIONS

Historical and current uses search

Drinking water sampling

Site field assessments

Plan for alternative drinking water

Use, reporting, PPE requirements

Management and disposal

Site EMS updates

Interagency engagement

Informational materials

Stakeholder communication

Public communication channel

MET

ADDRESSING

PLANNING

# Key Takeaways

## Paducah Site

- Treated on-site potable water sourced from the Ohio River; potable water has been sampled for PFAS.
- Bottled water is provided for drinking water and is PFAS free.
- PFAS have been detected in groundwater beneath the former fire training area. PFAS may have been used in other site operations.
- In agreement with EPA and KY environmental sampling of groundwater, surface water, and leachate is ongoing.
- Groundwater is not in use and agreements are in place to provide replacement water and prevent use of off-site groundwater by the public, due to the presence of non-PFAS contaminants.
- Disposal of PFAS containing waste is performed in compliance with DOE EM policy.



## Paducah Gaseous Diffusion Plant

Office of Environmental Management  
*McCracken County, KY*



# Summary of Onsite Potable Water Sampling

Analyte	Paducah Potable Water Result Range (ppt)	Ohio River Water Range (ppt)	EPA Draft MCLs (ppt)
PFOS	4.37 to 7.52	4.54 to 7.73	4
PFOA	3.85 to 4.66	3.71 to 4.6	4

*ppt - parts per trillion MCL - maximum contaminant level*

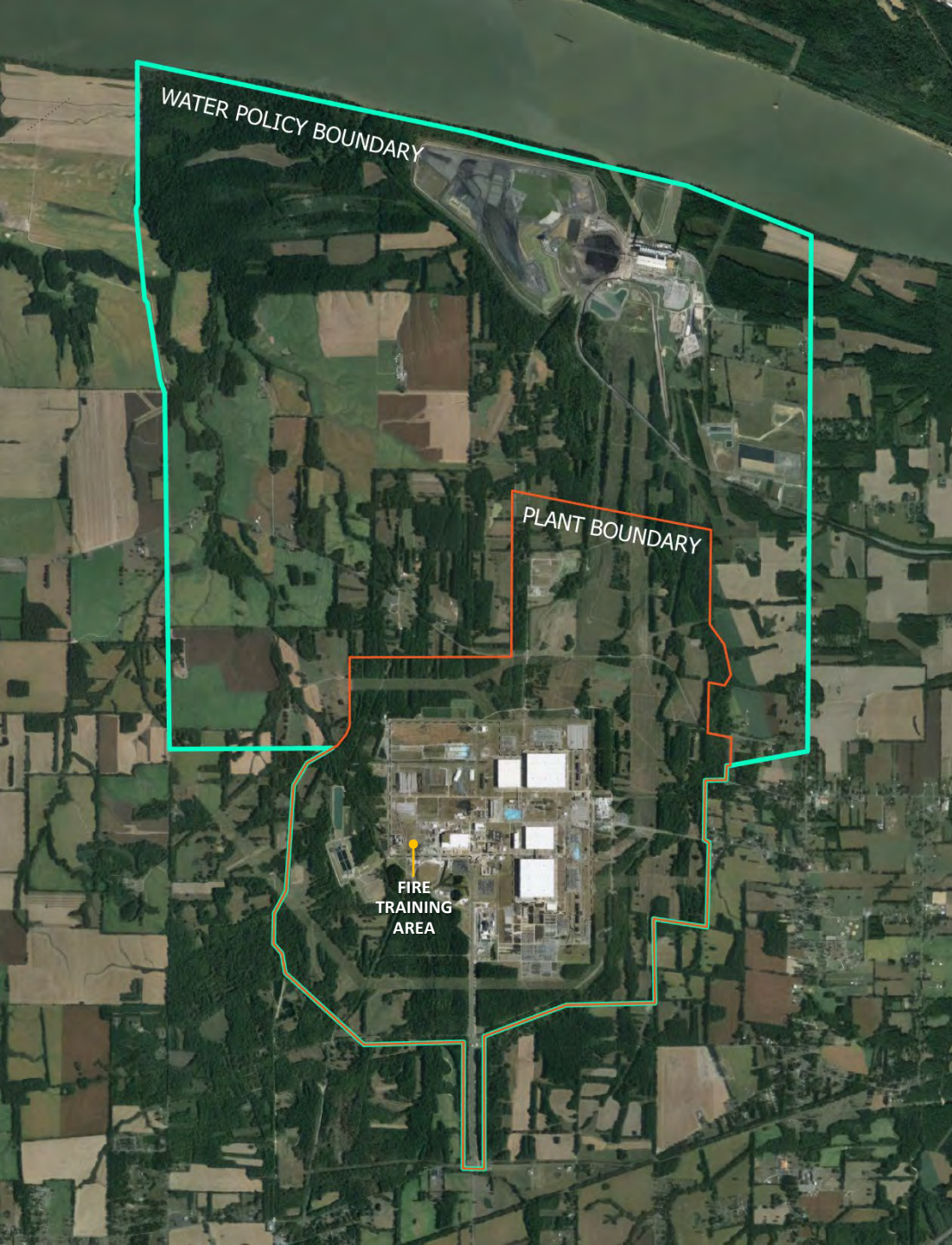
- PFAS results, using an EPA-approved method, for potable water are greater than some EPA draft MCLs.
- PFAS present appear to be sourced from Ohio River.
- Bottled water has been provided for drinking water to site personnel through a commercial vendor since 2015.
- PFAS results for this bottled water performed in January 2022 by the vendor, using an EPA-approved method, were all non-detect.







# Paducah Next Steps



- Evaluate options for providing PFAS-free potable water
- Continue environmental sampling project to identify additional PFAS source areas (e.g., burial grounds, spill areas, landfills)
  - Known source area – Fire training area
  - Work with EPA and KY to address source areas
- Continue compliance with DOE requirements for disposal of PFAS containing waste
- Continue compliance with DOE requirements for procurement of PFAS containing materials
- Continue public outreach and stakeholder interaction



# PFAS Resources

## U.S. Environmental Protection Agency

- <https://www.epa.gov/pfas>

## U.S. Department of Energy

- <https://www.energy.gov/pfas>

## Interstate Technology Regulatory Council (ITRC)

- <https://itrcweb.org/teams/active/pfas>

## Agency for Toxic Substances and Disease Registry

- <https://www.atsdr.cdc.gov/pfas/index.html>

## Kentucky Energy and Environment Cabinet

- <https://eec.ky.gov/Environmental-Protection/Water/Protection/Pages/PFAS.aspx>



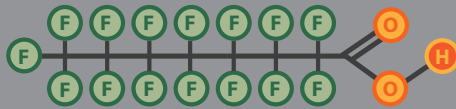
# PFAS WHAT YOU NEED TO KNOW

## WHAT ARE PFAS CHEMICALS?

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS and GenX chemicals. Since the 1940s, PFAS have been manufactured and used in a variety of industries around the globe, including in the United States. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both are very persistent in the environment and in the human body. Exposure to certain PFAS can lead to adverse human health effects.

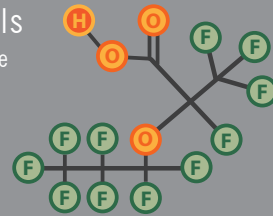
### PFOA & PFOS

U.S. manufacturers voluntarily phased out PFOA and PFOS, two specific PFAS chemicals.



### GenX Chemicals

GenX chemicals are a replacement for PFOA.



## WHAT EPA IS DOING

Some of the agency's work includes: development of additional toxicity values, analytical methods for additional PFAS and non-drinking water media as well as treatment options for PFAS in drinking water. EPA is also hosting a National Leadership Summit on PFAS in May 2018.



Established methods to measure 14 PFAS compounds in drinking water

Identified five treatment processes for PFOA and PFOS

Identified all PFAS chemicals that are legally available for production and use

Provided national monitoring data for 6 PFAS in drinking water



Issued drinking water health advisories (70 parts per trillion) for PFOA and PFOS in 2016



Provided support for 10 states with site-specific PFAS challenges and problems:

NC (Cape Fear River), MI, DE, WV, CO, NY (Hoosick Falls), OH, NH, VT and NJ



Updated website to include tools and information so that states, tribes and local communities can understand, assess and address PFAS incidents and emergencies



## HOW ARE WE EXPOSED TO PFAS?

PFAS include a large number of important chemicals that can be used in some food packaging and can make things grease- and stain-resistant. They are also used in firefighting foams and in a wide range of manufacturing practices. Unfortunately, some of these substances don't break down over time. That means they build up in the environment and in our bodies.

Drinking water can be a source of exposure in communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, for example,

- an industrial facility where PFAS were produced or used to manufacture other products, or
- locations where firefighting foam was used such as oil refineries, airfields or other training facilities for firefighters

If you are concerned about the possibility of PFAS in your drinking water, contact your local water supplier and ask for more information about PFAS.



STAIN/GREASE  
REPELLENT



FIREFIGHTING  
FOAMS



INDUSTRIAL  
USES

## HEALTH EFFECTS

There is evidence that exposure to PFAS can lead to adverse health outcomes in humans. If humans or animals ingest PFAS (by eating or drinking food or water than contain PFAS), the PFAS are absorbed and can accumulate in the body. PFAS stay in the human body for long periods of time. In some cases, the level of PFAS in the body can increase to the point where people can suffer from adverse health effects.

Studies indicate that high concentrations of PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animal studies. The most consistent findings from human studies are increased cholesterol levels among exposed populations, with more limited findings related to:

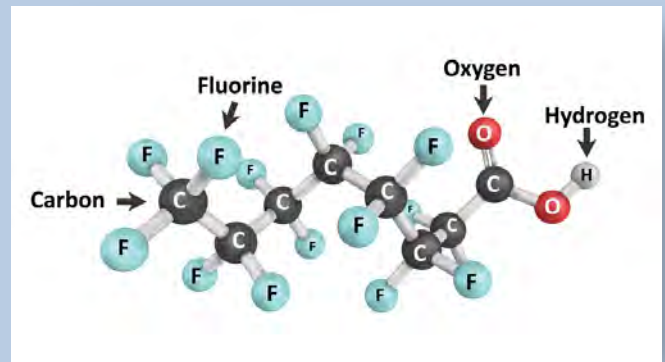
- infant birth weights
- adverse effects on the immune system
- cancer (for PFOA)
- thyroid hormone effects (for PFOS)

# Per- and Polyfluoroalkyl Substances (PFAS)



## What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of more than 9,000 human-made chemicals used since the 1940s in many industrial processes and in a wide range of commercial and household products. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are two of the most closely studied PFAS. Many PFAS break down very slowly, giving them the nickname, “forever chemicals”.



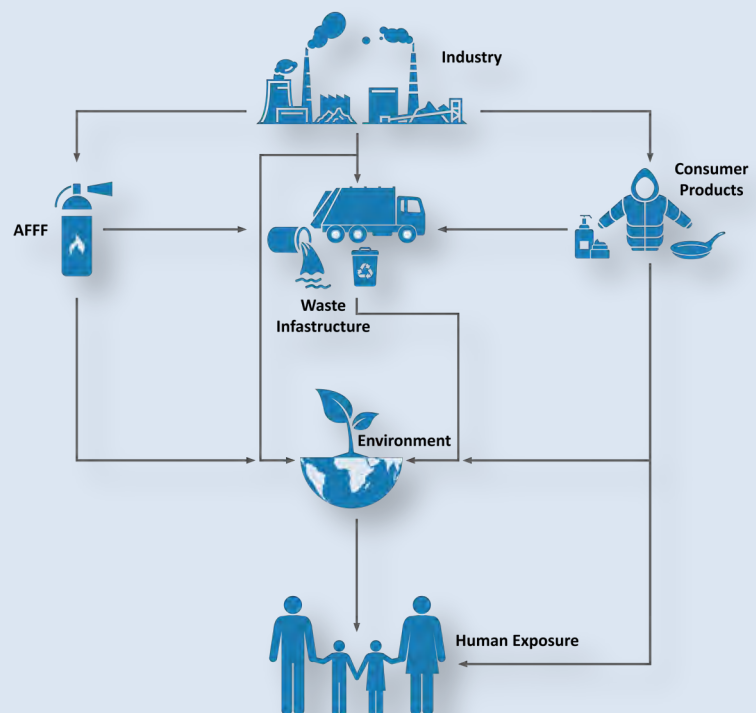
*PFOA Molecule*



## How are we exposed to PFAS?

PFAS are often found in products such as stain-resistant carpeting, water-resistant clothing, cookware, personal care products, food packaging, and firefighting foams.

## PFAS Exposure Pathways



Environmental releases of PFAS from manufacturing and processing, along with their widespread use, have resulted in the presence of PFAS in soil, sediment, drinking water, surface water, groundwater, and in animal and plant life. Due to their chemical structure, PFAS stay in the environment a very long time and do not break down into less harmful compounds. As a result, PFAS build up in humans, plants, and animals.

A federal health agency, the Agency for Toxic Substances and Disease Registry (ATSDR), labeled PFAS a public health concern. Growing concern resulting from health studies and from widespread presence of PFAS in the environment has led the federal Environmental Protection Agency to act to protect human health and the environment.

# DOE PFAS Mission Statement

*Protect human health and the environment by assessing and addressing PFAS at DOE sites while deploying the Department's scientific expertise to solve PFAS challenges*



## What is DOE doing?

Work at Department of Energy (DOE) begins with a commitment to human health and the environment. The Department's approach to addressing PFAS includes developing an understanding of PFAS uses; safeguarding health of employees at DOE sites, the public and the environment; using DOE National Laboratories and other partners to develop solutions to challenges PFAS cause; and engaging with regulators, Tribes, stakeholders, and the public as we progress.



DOE's approach to addressing PFAS is detailed in the ***PFAS Strategic Roadmap: DOE Commitments to Action 2022-2025***

### PFAS Strategic Roadmap: DOE Commitments to Action 2022-2025



### Initial Assessment of Per- and Polyfluoroalkyl Substances at Department of Energy Sites



In November 2022, DOE released the ***Initial Assessment of Per- and Polyfluoroalkyl Substances at Department of Energy Sites***

The report summarizes DOE's knowledge to date of known historical or current PFAS uses, PFAS detections in drinking water and the environment, and regulatory and stakeholder interactions at DOE program sites. The initial assessment will be used to inform next steps in addressing PFAS at DOE sites and to support further coordination with other federal agencies on PFAS solutions. DOE HQ is supporting its sites by providing information on PFAS disposal, records searches, and environmental sampling.

*DOE is committed to collaboration and will continue to engage with federal and state regulators, local communities, and interested Tribes regarding its activities related to PFAS at its sites.*

For more information, visit <https://www.energy.gov/pfas>











U.S. DEPARTMENT OF  
**ENERGY**

# PFAS ACTION PLAN: COMMITMENTS MADE, RESULTS DELIVERED

JANUARY 2021

Addressing PFAS has been an active and ongoing priority for EPA. Over the past two years, EPA has delivered results for every key commitment made under the PFAS Action Plan.

Commitments Made...		Results Delivered...
Expand toxicity information for PFAS		Issued final PFBS assessment and revised GenX assessment in preparation for peer review. Conducted testing on another 120+ PFAS. Initiated assessments on five other PFAS.
Develop new tools to characterize PFAS in the environment		Published new validated test methods to accurately test for and measure 29 PFAS chemicals.
Evaluate cleanup approaches		<ul style="list-style-type: none"> <li>• Issued Advance Notice of Proposed Rulemaking for consideration of additional authorities for addressing PFAS in the environment.</li> <li>• Issued interim guidance on disposal and destruction of PFAS and PFAS-containing materials.</li> <li>• Assessed viability of multiple thermal and non-thermal destruction technologies.</li> </ul>
Develop guidance to facilitate cleanup of contaminated groundwater		Developed interim guidance to facilitate cleanup of contaminated groundwater.
Use enforcement tools to address PFAS exposure in the environment and assist states in enforcement activities		EPA has continued to address PFAS using a variety of enforcement tools, bringing PFAS actions to a total of 16. Enforcement work continues to ensure public health and environmental protections.
Use legal tools such as those in TSCA to prevent future PFAS contamination		Finalized a Significant New Use Rule requiring anyone who wishes to manufacture, import or use such products in the United States to notify EPA before doing so.
Address PFAS in drinking water using regulatory and other tools		Issued final determination to regulate PFOA and PFOS in drinking water and proposed to require monitoring for 29 PFAS in drinking water.
Develop new tools and materials to communicate about PFAS		<ul style="list-style-type: none"> <li>• Provided technical assistance and support to more than 30 states.</li> <li>• Conducted PFAS risk communication training, coordinated across the federal government, participated in conferences and meetings and worked to develop documents to explain key aspects about PFAS chemicals.</li> </ul>

This is a snapshot of key accomplishments under the PFAS Action Plan. For additional information: [www.epa.gov/pfas](http://www.epa.gov/pfas).

# PFAS Information Site EPA

[Per- and Polyfluoroalkyl Substances \(PFAS\) | US EPA](#)





# PADUCAH GASEOUS DIFFUSION PLANT CITIZENS ADVISORY BOARD

4810 Alben Barkley Drive • Paducah, Kentucky 42001 • (270) 554-3004 • [info@pgdpcab.org](mailto:info@pgdpcab.org) • [www.energy.gov/pppo/pgdp-cab](http://www.energy.gov/pppo/pgdp-cab)

## Paducah Gaseous Diffusion Plant Citizens Advisory Board Executive Committee Meeting Summary

May 8, 2023

*The Citizens Advisory Board (CAB) Executive Committee met at the West Kentucky Community and Technical College in Paducah, Kentucky, on Monday, May 8, 2023, at 2:30 pm.*

**Board Members present in person:** Bill Murphy, Fran Johnson, Clint Combs, Fran Johnson, Myron Wessell (TEAMS), Riley Willet, and Don Barger

**U.S. Department of Energy (DOE) and related employees:** Robert Smith, DOE; April Ladd, DOE (TEAMS); Zach Boyarski (TEAMS); Eric Roberts, Hayly Wiggins, EHI.

**Roberts** Reviewed the presentation "Paducah Site Historical Impact."

**Smith** said that from time to time, DOE has a request to give a history of the site presentation to civic groups in the area. This presentation has been created for members of the CAB to present at these types of events. It's designed to be segmented by the presenter based on the time allotted. It includes our links and even a link to apply for CAB membership. **Ladd** stated that the R-114 slide needs to be updated. **Barger** said that the notes for the presentation, it lists the website to apply for CAB membership, but it is not shown on the screen. **Smith** agreed that it needed to be changed.

**Roberts** shared that the six new CAB Board members are on track to all have completed new CAB orientation and tours before the start of their terms. They are already engaged and interested in the information that we have provided them.

**Roberts** shared that the April CAB Educational Session was packed full of information. It was April Ladd's first CAB meeting as DDFO, and she presented the State of the Site and Budget presentations as well.

**Barger:** April did a great job with the presentations. I find it can be challenging to help the incoming CAB members learn what they need to and continue to keep current board members engaged in the ongoing conversations that they have participated in over their terms.

**Johnson** asked if the CAB could use the Budget Exercise from the Spring Chairs meeting at a future CAB meeting. **Roberts** said they would try to include it in the next year's CAB meetings, depending on the parties' availability.

**Roberts** thanked everyone for welcoming and encouraging the incoming CAB members at the April CAB meeting.

**Barger** offered that Buz and the team are doing a great job finding new CAB members with various backgrounds. Other sites' Boards have mentioned that they have difficulty finding people who want to serve on their boards, and we do not have that problem.

**Roberts** said that it is an excellent opportunity for these new members to impact our board, but it is also a great opportunity for our board to impact these new CAB members.

**Roberts** said that the May CAB would be a full Board meeting and be in room 216 instead of 109. Due to the ECA Conference in Paducah on May 18, we have moved the CAB meeting to May 25. Fran Johnson will be acting as chair for this meeting.

**Roberts** shared the upcoming CAB meeting schedule. May will be PFAS, June is C-333 Material Sizing Area/Deactivation Update, July is Duf 6 Update, August is an Educational Session and is planning for 2024, and September is a Board Meeting with Election of Officers and Ratifying the Work Plan for 2024.

**Smith** shared that R-114 shipments are continuing. We have shipped 3.8 million pounds out of the total of 8.5 million pounds we have on site. DUF-6 has shipped out another 60 cylinders. We have a lot of tours this month between public tours and the ECA conference tours.

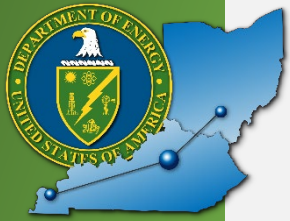
**Roberts** adjourned the meeting at 3: 45 pm.



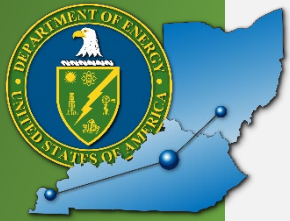
# Paducah Site Historical Impact

Portsmouth/Paducah Project Office





- On February 27, 1942, the U.S. Army Corps of Engineers acquired 16,100 acres of land in McCracken County for the construction of a \$30,000,000 munitions plant.



- Construction of Kentucky Ordinance Works (KOW) began in April of 1942 and by December 1942, KOW began operations and employed nearly 1,200 workers.
- KOW closed in 1946 and sold a portion of the KOW land back to its original owners, but retained 4,000 acres.



# The Need for Uranium

- On October 18, 1950, Atomic Energy Commission approved the Paducah for construction of a uranium enrichment facility

WKYB, 800, In Daytime . . . WKYC, 93.3 FM, Day and Night

# The Paducah Sun-Democrat

Paducah, Ky., Friday Evening, December 15, 1950 \*\*\* 4 Editions Daily—2 Sunday

TODAY'S TEMPERATURES  
 Downtown: High 45, Low 24  
 Airport: High 42, Low 21  
 Year ago: High 40, Low 21  
 River, Lake Stages  
 Stage at 7 a. m.: 36.1 feet, rise of 0.8 foot in 24 hours.  
 Kentucky Lake level 353.9 feet.  
 Sun And Moon  
 Sun sets today 4:20 p. m.; rises tomorrow 7:12 a. m.; moon sets 11:40 p. m.

## AEC To Build A-Plant At KOW Site

### Building Force Of 10,000 May Be Required

**Cost Set At \$500,000,000; 1,600 Permanent Jobs Expected**

The Atomic Energy Commission officially announced today that it will build a huge new plant at Kentucky Ordnance Works near Paducah.

The House appropriations committee disclosed at about the same time that the project is expected to cost \$500,000,000. The committee has been considering funds for a \$1,050,000,000 expansion program for atomic production facilities, of which the Paducah plant will be a part.

The AEC said the Kentucky site will cover about 5,000 acres, "a considerable part of which will be obtained through purchase," around the present Kentucky Ordnance Works, 16 miles west of Paducah.

First official announcement of the plant came from Congressman Noble J. Gregory late Thursday. He informed The Sun-Democrat that he had been given a release on the story by AEC.

Congressman Gregory's only comment was: "I don't believe the project will be big enough to upset the economy of Paducah and western Kentucky."

WASHINGTON, D. C., Dec. 15—The Atomic Energy Commission is



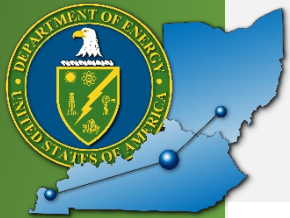
IT IS PRESUMED THAT Paducah's atomic bomb plant will look something like this big factory at Oak Ridge, "home of the atomic bomb." The building pictured here may be K-25, the largest gaseous diffusion plant at Oak Ridge. The sides of U-shaped K-25 are 2,450 feet long.

400 feet wide and 60 feet high. About 4,000 persons work there now. Note that there are few windows in the giant building except at the top. (AP Photo)

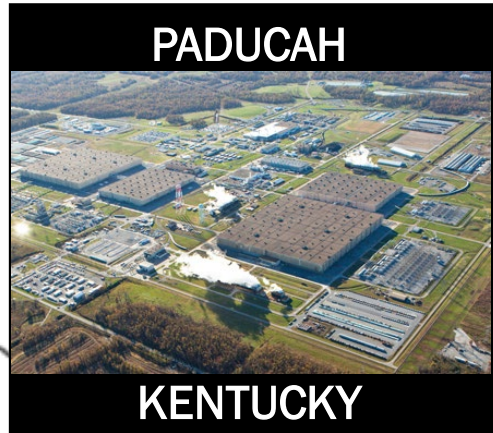
## Many See Business Boom, Others Fearful City To Become Prime Military Target As Atomic Plant Story Brings Mixed Reaction

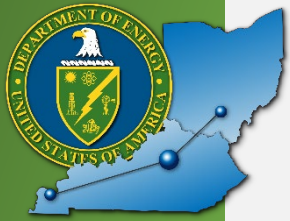
### Plant's Power To Come From TVA, New Firm

WASHINGTON, D. C., Dec. 15—The Atomic Energy Commission is



# DOE Uranium Enrichment Facilities



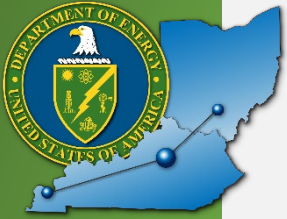


## Uranium Enrichment Plant Construction

- Plant construction began January 2, 1951. The first phase of construction was completed in 1952. The second phase of construction was completed in 1956.
- Uranium enrichment began in the fall of 1952.



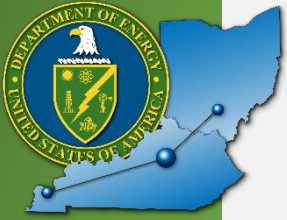




# Uranium Enrichment Plant Construction

- The total cost was \$800 million roughly \$6 billion in today's dollars.
- More than 29,000 workers were employed to build the Paducah Gaseous Diffusion Plant as well as the TVA and Joppa Steam plants to supply power.

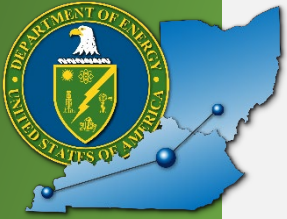




## Paducah Gaseous Diffusion Plant – Site Amenities

- The PGDP is like a city including:
- Fire department/emergency squad
- Police force/security department
- Water/sewage treatment facilities
- A steam plant to provide heat throughout the complex
- A medical facility staffed by a doctor, physicians assistant, and nurses

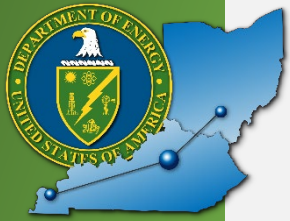




# Paducah Gaseous Diffusion Plant – Machine Shop

- The PGDP had a state of the art machine shop producing parts and repairing the one of kind type machinery.
- The unique enrichment components were often designed, built and tested on site.
- The quality work resulted in several research patents and led to many projects from other government agencies in a program known as “Work for Others”.
- Projects were done for NASA, National Labs and defense

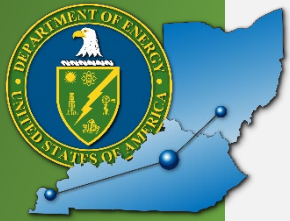




# Paducah Gaseous Diffusion Plant – Process Buildings

- Four process very large process buildings, two cover 25 acres each and two cover 12 acres each..
- Each process building contained two floors.
- .For comparison, the Empire State Building could fit diagonally within the larger process buildings.

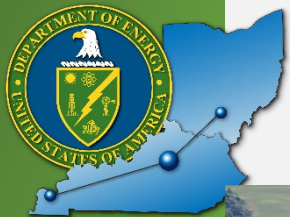




# Paducah Gaseous Diffusion Plant – Switchyards & Water

- The PGDP had massive electricity and water needs
- Four massive switchyards, relay stations and switch houses controlled and distributed power to the process buildings and other plant locations
- Each process building had its own switchyard
- When operational the plant was TVA's fourth largest customer. Nashville was their third.
- Today, all four switchyards at the site have been deactivated
- Water treatment plant capable of supplying up to 32 million gallons of water per day for process cooling and sanitary needs. Water needs today are only 1.5 million gallons per day.





# Uranium Enrichment Timeline

## COLD WAR

1954-1989

- Nuclear Defense & Utility Needs

## POST COLD WAR

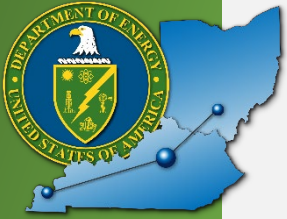
1989-2001

- Military, domestic and international nuclear reactors and nuclear fuel to power naval vessels

## CLEANUP

1989-Current

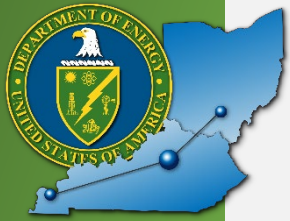
- Plant was leased to USEC (United States Energy Corporation)
- Plant ceased production in 2013
  - Environmental Cleanup
  - Decontamination & Remediation
  - Reuse



## Off-Site Contamination Discovered

- Like many plants operating over 60 years, plant operations resulted in soil, groundwater, and surface water contamination.
- In 1988, TCE (trichloroethylene), a common cleaning solvent was discovered contaminating in some neighbor's residential wells.
- In 1994, the site was listed as a superfund site and begin cleanup under CERCLA.



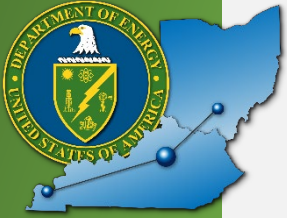


# Environmental Cleanup Begins

- Municipal water lines extended into affected homes.
- DOE established the Environmental Management program in 1989 to address the issues caused by the production to address cleanup at various DOE sites to address cleanup at various DOE sites.
- In 1998, DOE entered into an FFA (Federal Facilities Agreement) with EPA and Kentucky



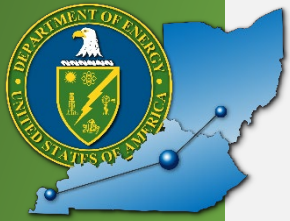




# Paducah Cleanup Accomplishments

- Mitigated exposure to residents by providing municipal drinking water.
- Reduced migration of off-site groundwater contamination using pump and treat systems.
- Treated more than 3 billion gallons of contaminated water; removed more than 7,000 gallons of TCE from groundwater and source areas.
- Removed 33,000 tons of contaminated scrap metal.

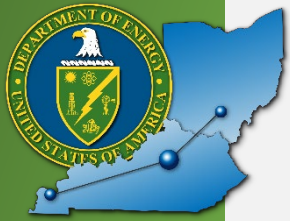




## Paducah Cleanup Accomplishments

- Removed more than 1 million cubic feet of contaminated soils/sediment from on-site plant ditches.
- Repackaged and removed 420,000 ft<sup>3</sup> drummed waste.

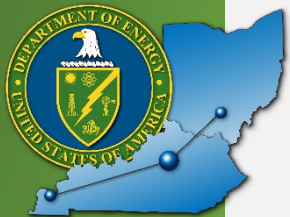




# Paducah Cleanup Accomplishments



- Removed ~73,000 cubic feet of contaminated soils from site operations and investigated more than 180 potential areas totaling more than 200 acres.
- Removed 31 contaminated, inactive facilities totaling nearly a half-million square feet.



## Uranium Enrichment Operations Cease

- In 2013, uranium enrichment ceased and the plant was returned to DOE in 2014 to prepare the site for future demolition.

The masthead for "The Paducah Sun" features the title in a large, bold, black serif font. A yellow sun with a black silhouette of industrial buildings is positioned behind the word "Paducah". Below the title, the text "SATURDAY, May 25, 2013" is on the left, "www.paducahsun.com" is in the center, and "Vol. 117 No. 145" is on the right.


# The Paducah Sun


## Atomic era ending




Sun Files  
The United States Enrichment Corp., sitting 15 miles west of Paducah, employs about 1,100 people enriching uranium at the Paducah Gaseous Diffusion Plant. The company announced Friday it will gradually lay off its work force after contracts expire with the U.S. Department of Energy on Friday.

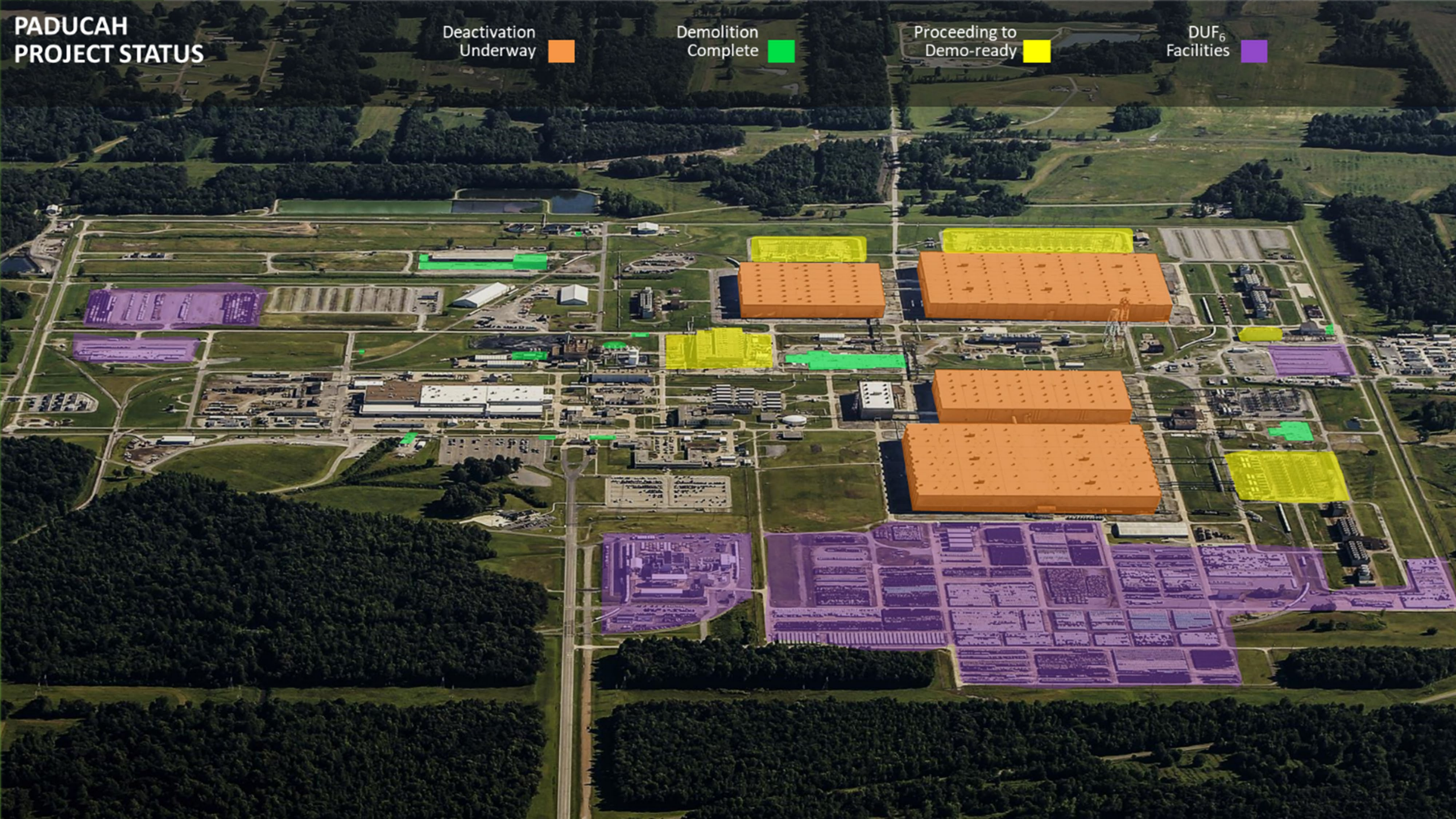
# PADUCAH PROJECT STATUS

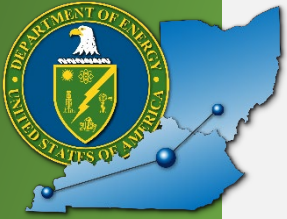
Deactivation  
Underway 

Demolition  
Complete 

Proceeding to  
Demo-ready 

DUF<sub>6</sub>  
Facilities 





# Site Optimization – Accomplishments

- Electricity
  - Deactivated all four switchyards
- Water
  - Removed Recirculating Cooling Water system from service
  - Reduced water need to ~1.5M gallons/day from the designed ~30M gallons/day
- Steam
  - Reduced natural gas consumption by 91%
  - 3 of 5 package boilers removed from service; 2 in service
  - Removed all steam hot water heaters from service
  - ~5,600 ft (86%) of steam piping taken out of service
- Plant Air
  - Replaced air actuated CAAS horns with electronic horns
  - ~9,000 ft of air piping have been taken off service



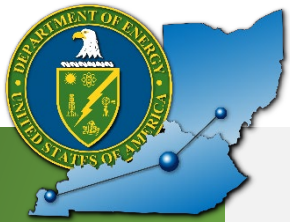


## C-400 City Block

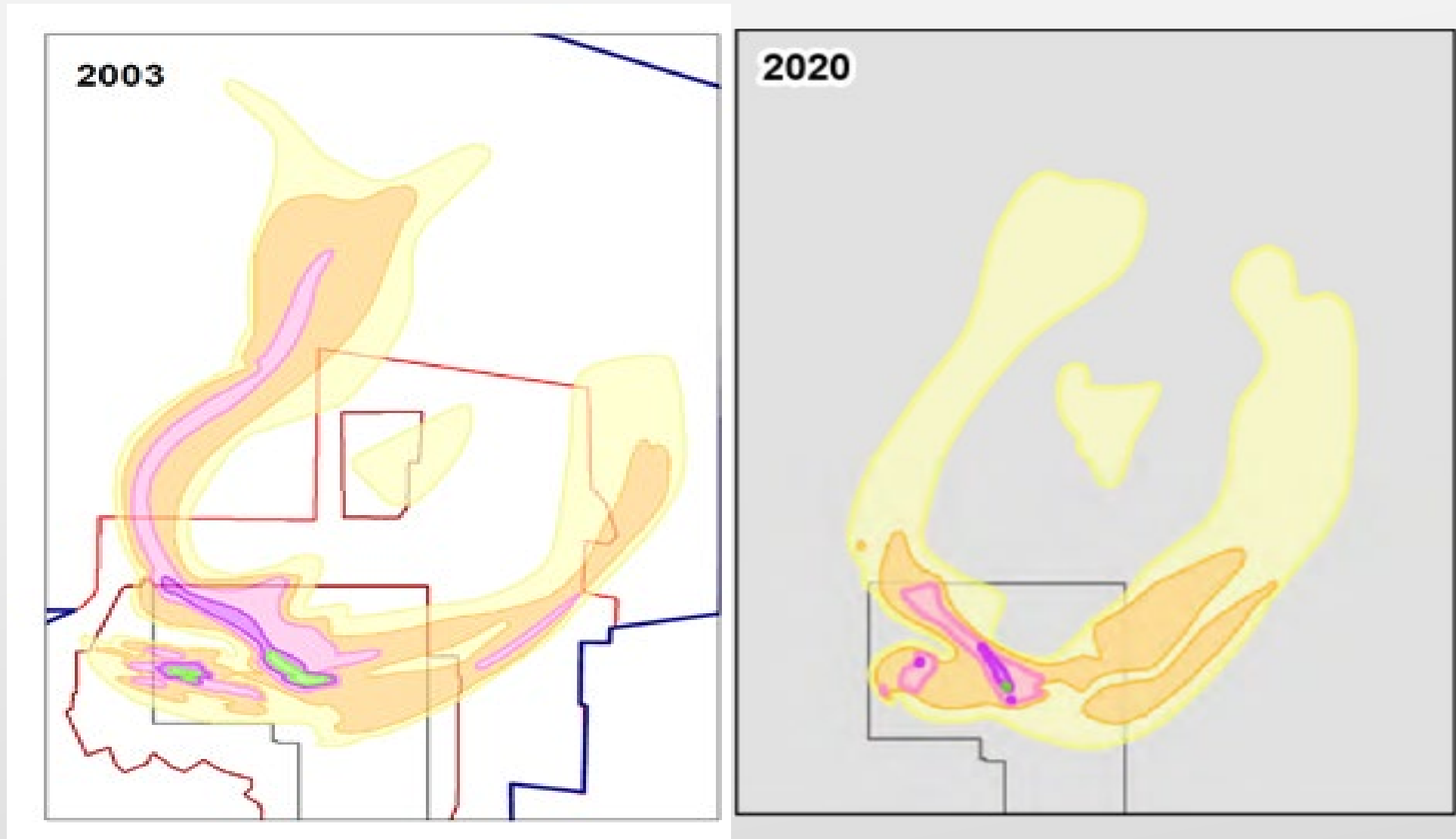
### Final Action for C-400 Complex

- Aerial footprint of ~350,000 ft<sup>2</sup> (8 acres)
- Address all contaminants (e.g. TCE, Rad, PCBs, metals)
- Complete Deactivation
- Complete Building Demolition and determine remediation strategy of all affected media

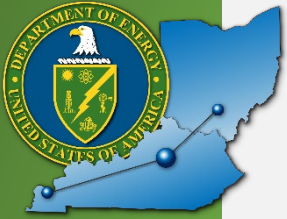




# C-400 Remedial Investigation/Feasibility Study (RI/FS)



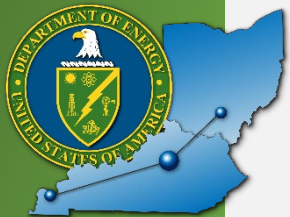




# C-333 Process Building



- First site process building to start deactivation
- Removed all R-114 refrigerant from building (~2M lbs)
- Converted high pressure fire water system to dry hybrid to eliminate heating requirement
- Material Sizing Area (MSA) construction in progress
- Transite panels removed from 40 of 60 cell housings (66%)



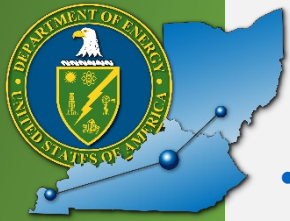
# R-114 Disposition Project



 = 33,000 LBS OF R-114

[31 TRUCKS EQUAL APPROXIMATELY 1 MILLION POUNDS]

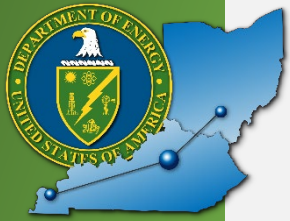
**\*Highlighted truck = 1 million lbs. of R-114 dispositioned  
(counting each column top to bottom then left to right)\***



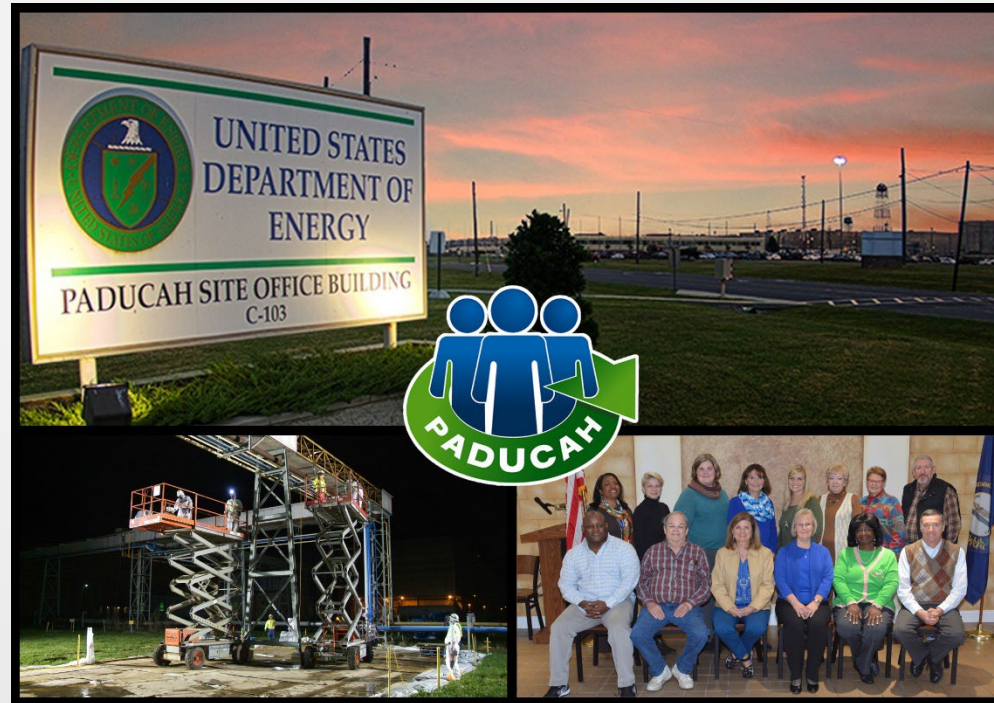
# Economic Impact

- For over 70 years, the site has been an economic driver for the community.
- During operations an average of 1,700 people were employed at the site.
- Today DOE and its contractors continue to employ approximately 1,400 people and is among western Kentucky's largest employers.
- Throughout the over 60 years of operations, the plant pumped more than \$5 billion into the regional economy.
- Cleanup projects will continue, creating jobs for the next generation of employees and opportunities for local workforce development.

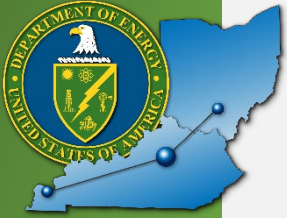




# Citizens Advisory Board



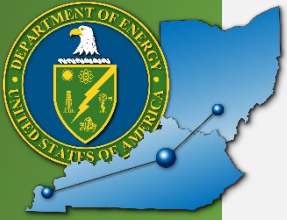
- The Paducah Gaseous Diffusion Plant (PGDP) Citizens Advisory Board (CAB) is a Federal Advisory Committee Act board.
- The CAB is comprised of up to 15 individuals from the Western Kentucky and Southern Illinois areas. The members, who can serve up to three consecutive two-year terms, represent business, academia, labor, local government, environmentalist, special interest groups, and the general public.



# Citizens Advisory Board

- Federally Chartered Board
- Scope
  - Provide advice and recommendations concerning: clean-up standards and environmental restoration; waste management and disposition; excess facilities; future land use and long term stewardship; risk assessment and management; and clean-up science and technology activities.
- Meetings
  - The board meets monthly to hear presentations by persons working on relevant environmental management topics.

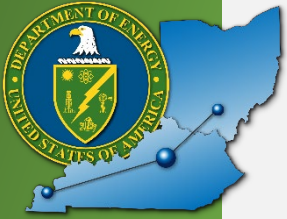




# Community Involvement

- DOE offers multiple tours of the former Paducah Gaseous Diffusion Plant to the public throughout the spring and summer.
- The tours provide an on-site view of the formerly operating uranium enrichment facilities and a unique opportunity to learn about the plant history and its current activities.
- The tours are free of charge and on a first-come, first-served basis.
- Additional information on tours can be found by visiting <https://www.fourriversnuclearpartnership.com/tours>





## Additional Resources

- Paducah Virtual Museum:  
<https://www.pgdpvirtualmuseum.org/>
- Building on a Legacy: Honoring Black History at the Paducah Gaseous Diffusion Plant:  
<https://www.youtube.com/watch?v=YnPaAWgp7jU>
- Paducah Site 101: <https://www.youtube.com/watch?v=ePA2wfvV-jY>
- The History of the Paducah Gaseous Diffusion Plant (PGDP):  
<https://www.youtube.com/watch?v=ZSbxv1v03sA>





April 20, 2023

**Chair**

Don Barger

**Vice-Chair**

Fran Johnson

**Board Members**

Phillip Brown  
Eric Butterbaugh  
Victoria Caldwell  
Hannah Chretien  
William Robert Clark  
Clint Combs  
Bill Murphy  
Blake Summarell  
Myron Wessell  
Riley Willett  
Elizabeth Wilson

April Ladd  
*DOE DDFO*

Buz Smith  
*DOE Federal Coordinator*

**Board Liaisons**

Brian Begley  
*Division of Waste  
Management*

Victor Weeks  
*Environmental Protection Agency*

Mike Hardin  
*Fish and Wildlife Resources*

Stephanie Brock  
*Radiation Control Branch*

**Support Services**

EHI Consultants, Inc.  
Emerging Technology Center  
5100 Alben Barkley Dr.  
Paducah, KY 42001  
Phone 270.554.3004  
[www.energy.gov/pppo/pgdp-cab](http://www.energy.gov/pppo/pgdp-cab)  
[info@pgdpcab.org](mailto:info@pgdpcab.org)

## April 2023 Citizens Advisory Board Meeting Agenda

**5:30 pm**

Call to order, introductions  
Review of agenda

**DOE Comments**

**Federal Coordinator Comments**

**Liaison Comments**

**Administrative Issues**

**Presentations**

Science Bowl Video  
April Ladd introduction/Budget Update/IPL

**Public Comments**

**Final Comments**

**Adjourn**



**ENVIRONMENTAL MANAGEMENT SITE-SPECIFIC ADVISORY BOARD  
AT PADUCAH**

**Proposed Incoming Member**

**Cheryl Brewer (McCracken County).** Ms. Brewer retired in 2018 after serving 19 years at the Kentucky Department for Environmental Protection. She graduated from Murray State University with a Bachelor of Science Degree in Biology. Ms. Brewer grew up close to the Paducah plant site and spent nearly 20 years as a state regulator helping to ensure safe cleanup and remains interested in the progress of the cleanup. She feels it is essential for community members to be involved in cleanup and future site use decisions.

**Kimberly Davis (McCracken County).** Ms. Davis has owned Uniform Headquarters for more than 28 years. She is a member of the Uniform Retailers Association and was its treasurer from 2005 – 2007. Ms. Davis strongly advocates for small businesses and serving others, especially our healthcare workers. She volunteers her time with CASA (Court Appointed Special Advocate) in the McCracken County court system. Ms. Davis is interested in the public health and safety of the communities surrounding the Paducah site and the business impact as the cleanup continues.

**Gaylon Grubbs (McCracken County).** Mr. Grubbs retired, in 2021, from the Paxton Media Group, working at the local television station, WPSD, for over 20 years as a camera and studio operator. He earned his Bachelor of Science degree from Mid-Continent University in May 2001. Mr. Grubbs is interested in the possible reuse of reclaimed property from the Paducah Gaseous Diffusion Plant cleanup and the minority opportunities and impacts this cleanup provides.

**Reese Henderson (Carlisle County).** Mr. Henderson is a University of Kentucky College of Engineering, Paducah Campus student. He is a 2022 graduate of Calloway County High School and served as Student Class Vice President in his junior and senior years. Mr. Henderson was active in Calloway County athletics, playing football and running track & field. He was a member of Future Business Leaders of America, Kentucky state champion in impromptu speaking, Leadership Tomorrow, and Murray Rotary's Student of the Month. A current member of AIChE, Chemical Engineering Club, at UK's College of, Mr. Henderson is interested in the educational and business opportunities as the cleanup continues at the Paducah site.

**Rodney Hill (McCracken County).** Mr. Hill is the pastor at Fairview Baptist Church in La Center, Kentucky. Mr. Hill graduated from Louisiana Tech University with a Bachelor of Science degree. He has served on the Ballard County Chamber of Commerce since 2012 and is the vice-president of the Board of Directors of the Ballard County Economic & Industrial Board. Mr. Hill is interested in the civic and minority ramifications of the closing and cleanup of the Paducah site.

**Andrew Paul (McCracken County).** Mr. Paul is a student at West Kentucky Community and Technical College and the University of Kentucky College of Engineering studying Aerospace Engineering. He has been on the Dean's list of both colleges since beginning his academic

career. Mr. Paul is the University of Kentucky Career Services Officer and works as a peer tutor for WKCTC. He serves as vice-president of the American Institute of Aeronautics and Astronautics, UK Chapter. Mr. Paul is interested in the environmental impact and economic development issues resulting from the Paducah Gaseous Diffusion Plant (PGDP) cleanup.

**Benjamin Stinnett (Calloway County).** Mr. Stinnett is a Recruitment and Career Services Officer with the University of Kentucky Paducah Campus. He holds a Bachelor of Science in Occupational Safety and Health and a Master of Science in Human Development and Leadership from Murray State University. He is also a Working Genius Assessment (created by Table Group) Certified Facilitator. He serves on the McCracken County Work Ready Certification Narrative Committee and is active on the Advisory Board of Alpha Sigma Phi. Mr. Stinnett is keenly aware of the driving economic impact of the PDGP and is interested in the current and future employment opportunities available to engineering graduates in the area.

### **Current Members**

**Don P. Barger (McCracken County).** Don P. Barger (McCracken County). Mr. Barger retired in 2002 after 32 years with Mason Public Schools in Mason, Michigan. His retirement years have allowed him to experience new vocational and volunteer opportunities. In his retirement, Mr. Barger has baked for Kirchoff's Bakery and provided pastoral services to Presbyterian churches seeking assistance with pulpit supply. He has been a board member of Market House Theatre and Paducah Cooperative Ministry, where he served both groups as chair/president. He has a Bachelor of Arts in Elementary Education and a Master of Arts in Education Administration, both from Michigan State University. Mr. Barger is interested in educational and environmental issues. He currently serves as the chair of the EM SSAB at Paducah. He is a resident of West Paducah, Kentucky, and was appointed to the board in March 2019.

**Phillip G. Brown (Carlisle County).** Mr. Brown retired in November 2018 after working at the PGDP for over 50 years. While at the plant, he worked in various technical and managerial capacities in the Laboratory and Operations Divisions. From 2009 through November 2018, he served as a consultant and technical adviser to DOE, working for various companies, and lastly, Professional Project Services, Inc. (known as Pro2Serve). From 1968 to 2009, he worked for Union Carbide, then the U.S. Enrichment Corporation. Mr. Brown has a Bachelor of Science in Chemistry from Murray State University. As a lifelong resident of Western Kentucky, he is interested in utilizing his experience at the Paducah plant to seek unique economic opportunities in creating long-lasting jobs for the area and, at the same time, help to ensure the environmental goals of plant cleanup are met. Mr. Brown is a Bardwell, Kentucky, resident and an active member of Kirbyton Baptist Church. He has participated in the World Changer Program along with his family in repairing and building new homes for the needy. Mr. Brown was appointed to the board in March 2019.

**Eric Butterbaugh (McCracken County).** Mr. Butterbaugh currently works remotely from his home in Paducah as a Senior Business Data Analyst for Breville, an international small kitchen appliances company. He was born and raised in McCracken County and returned after receiving his Bachelor of Science in Economics from the University of Kentucky (UK) in Lexington, Kentucky. He also earned his Master of Business Administration from Murray State University. Mr. Butterbaugh is a 2nd Degree Knight for the Knights of Columbus and is a member of the Housing Corporation Board for the Epsilon Omicron Chapter of Beta Theta Pi in the UK. He and his family also attend St. Thomas More Catholic Church. Mr. Butterbaugh is concerned about the environmental impacts and economic development issues resulting from the Paducah Gaseous Diffusion Plant (PGDP) closure.

**Victoria E. Caldwell (McCracken County).** Ms. Caldwell is a freelance marketing communications and design professional. Previously, she has been the marketing communications manager for the National Quilt Museum. She has also been an art director with Horizon Media Group and has over 16 years of professional experience in her field. She is a life-long resident of Paducah, Kentucky, and a graduate of Heath High School. Ms. Caldwell holds a Master of Arts in Integrated Marketing Communication from Marist College and a Bachelor of Fine Arts in Visual Communication from Washington University in St. Louis. She is a member of the Paducah Rotary Club and attends the United Church of Paducah. She is a member of the Paducah Fiber Artists, expressing her creativity through knitting and quilting. Ms. Caldwell is concerned with the site's impact on future job security and the quality of life for young professionals in the community. Ms. Caldwell was appointed to the board in April 2015.

**William Robert Clark (McCracken County).** Mr. Clark is a United Steel Workers Union member and has been chosen as its representative to the EM SSAB at Paducah. Mr. Clark is an operator with Four Rivers Nuclear Partnership. Mr. Clark is also a Health and Safety Officer with the United Steel Workers Local 550. His responsibilities include teaching Hazwoper, OSHA, and RCRA waste classes. He is also a former pipefitter and is still a member of the Plumbers and Steamfitters Local Union 184. Mr. Clark is a high school graduate and a resident of Paducah, KY.

**Hannah Chretien (Ballard County).** Mrs. Chretien is an economic developer and chamber of commerce director. She works with entrepreneurs, small businesses, and executives to determine expansion/relocation strategies to prosper in Ballard County and the West Kentucky region. After working with business leaders from various countries and backgrounds, Hannah believes every business is vital to a healthy community, regardless of industry or size. Hannah has supported the creation and growth of small businesses for four years and has successfully aided in the expansion and start-up of over 20 companies and projects in that time. Hannah holds two BA's in Economics and International Relations from Maryville College and an AS in Chemistry from Chattanooga State Community College.

**Clinton F. Combs (McCracken County).** Mr. Combs is an insurance agent with Peel & Holland Insurance in Benton, Kentucky. He is the manager of the Public Entity Division. Mr. Combs holds a Bachelor of Science in Occupational Safety and Health and a Master of Science in Economic Development, both from Murray State University. He is the founder and president

of the Murray State Young Alumni Council, a member of Leadership Paducah, and a director for the Market House Theatre. Mr. Combs is interested in seeing a thoughtful and deliberate approach to economic development as the PGDP goes through remediation. He is concerned about how the eventual cleanup and closure of the facility could impact the greater business community and wants to ensure the site remains a strong driving force in the regional economy. Mr. Combs, a resident of Paducah, Kentucky, was appointed to the board in February 2020.

**Frances L. Johnson (Graves County).** Ms. Johnson has retired as Vice President of Governmental Affairs for the Paducah Area Chamber of Commerce and as the Executive Director of the West Kentucky Regional Chamber Alliance, an alliance of Chambers in 14 counties in western Kentucky from Fulton County to Christian County. She serves on the Board of Trustees of Temple Israel and is the Board's Past President. In addition, Ms. Johnson serves on the Board of Directors of LivWell Community Health Services and is the Board Secretary. She also serves as a mentor to young professional women through the Women's Mentoring Network. She is a graduate of the US Chamber of Commerce Institute of Organizational Management at the University of Notre Dame. Her post-secondary education is in journalism with a public relations emphasis. Ms. Johnson is interested in the current and future job opportunities for area residents and their children provided by the continuing cleanup of the site and by its future development. She is a resident of Mayfield, Kentucky, and was appointed to the board in August 2018.

**William E. Murphy (McCracken County).** Dr. Murphy is a professor emeritus of Mechanical Engineering (ME), having retired from the UK Engineering Extended Campus in Paducah in 2015. He oversaw its early development as director of the Extended Campus from 1998 to 2012. He received his Bachelor of Science in ME from UK and his Master of Science and Ph.D. degrees from Purdue University, also in ME. He was on the ME faculty at Texas A&M University for six years before going to UK. He has held various positions with the Accreditation Board for Engineering and Technology, Inc. He has served on the board of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, where he is still active. He is or has been active in several other organizations, including the American Society of Mechanical Engineers, American Society for Engineering Education, Kentucky Recycling Association, and American Society of Agricultural Engineers. Locally, he is involved with United Way of Paducah/McCracken County, the Business/Education Partnership Committee of the Paducah Area Chamber of Commerce, Paducah Kiwanis Club, the parish council of St. Thomas More Catholic Church, and chairs the board of the St. Nicholas Family Clinic Foundation. He is a licensed professional engineer in Kentucky. Dr. Murphy is interested in the safe development of the PGDP site as an economic engine for the region. He resides in Paducah, Kentucky, and was appointed to the board in April 2015.

**Blake R. Summarell (McCracken County).** Mr. Summarell is a financial advisor for Edward Jones Investments in Paducah, Kentucky. He holds a Bachelor of Business Administration from UK and holds the Certified Financial Planner™ certification. Mr. Summarell is a Paducah Area Chamber of Commerce member and serves on their membership and marketing committee. He is a board member of the Mercy Health Foundation. Mr. Summarell was born and raised in Paducah and is interested in public health and the

economic development impacts of the PGDP site. He was appointed to the board in October 2019.

**Myron Wessel (Massac County).** Mr. Wessel is a senior process engineer at the Honeywell facility in Metropolis. Myron is a lifelong resident of Metropolis. After getting a Chemical Engineering degree from Purdue, he started my professional career at the Honeywell facility when it was still Allied Signal. Now Myron is back at the Metropolis site to help get the facility back in running. Myron's work experience includes time at Calvert City and Wickliffe plants. Myron has always thought that this area has been so lucky to have such a versatile chemical and mechanical industry. Since being a third-generation employee at the Honeywell plant, Mr. Wessel would like to see what we can do for the future of the PGDP site and area industry.

**Riley B. Willett (Graves County).** Mrs. Willett is the Public Health Director at the Graves County Health Department. She started at the health department as a Health Educator in January 2016 and was hired as the new Director in August 2021. Mrs. Willett obtained a Bachelor of Arts in Integrated Studies in 2015 from Murray State University and a Master of Business Administration in 2017 from the University of the Cumberlands. She also holds her Realtor License for the state of Kentucky and has been a realtor since 2015. Mrs. Willett is a board member of the Graves County Agency for Substance Abuse Policy and Prevention, a graduate of the Kentucky Public Health Leadership Institute class of 2017, and a graduate of the Mayfield Graves County Leadership class of 2018. Mrs. Willett strives to prevent, promote, and protect the health of Mayfield and Graves County.

**Elizabeth M. Wilson (Marshall County).** Ms. Wilson is the Loan Servicing Relief Specialist with Paducah Bank. Ms. Wilson holds a Bachelor of Science in Business and a Master of Science in Organizational Communication with a focus in Public Affairs, both from Murray State University. Ms. Wilson is interested in seeing a thoughtful and deliberate approach to community impact, and economic development as the Paducah Gaseous Diffusion Plant goes through remediation. Ms. Wilson is interested in community-level education, informing the community both on the impact EM is making towards remediation and awareness of what the end-of-state vision will have on the community's economic growth. She wants to ensure that the community, through educational outreach programs, open dialogue, and community engagement, will be informed and engaged in the changes that the cleanup will bring to the region. Ms. Wilson is a resident of Calvert City, Kentucky.

## ENVIRONMENTAL MANAGEMENT SITE-SPECIFIC ADVISORY BOARD

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Hanford Idaho Nevada Northern New Mexico  
Oak Ridge Paducah Portsmouth Savannah River

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*INSERT DATE*

Mr. William “Ike” White  
Senior Advisor  
U.S. Department of Energy (DOE) Office of Environmental Management (EM)  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Mr. White:

### BACKGROUND

According to the EM SSAB charter (Section 3), the EM SSAB provides EM senior management “with advice and recommendations concerning issues affecting the EM program.” The EM SSAB has made at least 10 recommendations to DOE since 2018, often at the request of DOE. The recommendation process includes three parts: (1) the EM SSAB recommendation, (2) the DOE response to the recommendation, and (3) the final policy action or implementation of the recommendation by DOE. While parts (1) and (2) are well recognized (e.g., in public postings on the EM SSAB website and responses distributed to local Boards), it is part (3), implementation, that makes EM SSAB recommendations meaningful and the recommendation process an effective use of time and other resources, those of both EM SSAB members and DOE.

It is important to review the implementation of recommendations for several reasons:

1. Ensuring accountability: Recommendation implementation reviews help ensure that DOE is held accountable for the advice it requests and/or receives from its volunteer Board members. By examining whether recommendations have been implemented as written, EM SSAB can assess how its efforts are valued and identify areas where further deliberations and recommendations are needed.
2. Improving effectiveness: Recommendation reviews provide an opportunity to assess whether recommended activities are working as intended and identify areas for improvement. By examining the results of recommendation implementation, EM SSAB and DOE can make adjustments to recommended activities to ensure they achieve their intended goals.
3. Enhancing transparency: Reviews of recommendation implementation increase transparency by providing a clear understanding of how recommendations are being implemented

and the outcomes they are producing. This transparency is critical for building trust in DOE and ensuring that the public has confidence in DOE and its clean-up activities.

4. Promoting learning: Recommendation implementation reviews provide an opportunity for EM SSAB and DOE to learn from their experiences and identify best practices for making and implementing recommendations. By sharing these best practices, EM SSAB and DOE can promote more effective and efficient recommendation making and implementation in the future.

## RECOMMENDATION

The EM SSAB recommends:

1. DOE provide clear and publicly accessible information regarding implementation of EM SSAB Chairs recommendations for the last five years. In addition to a clear statement about implementation status (e.g., "Implementation of the recommendation is complete (or "ongoing", "suspended", or "discontinued"), the information should include an explanation of any deviations from the DOE response to the recommendation.
2. DOE report to the EM SSAB at least annually a summary of the status of all EM SSAB Chairs recommendation items and any recommendation action item completed during the reporting period.

## Who We Are

*The EM SSAB is the DOE-EM's most effective vehicle for fostering two-way communication between DOE-EM and the communities it serves. The EM program is the world's largest environmental cleanup program, and the EM SSAB its only citizen advisory board. For more than 20 years, the volunteer citizens of the EM SSAB have partnered with EM officials at both the local and national levels to ensure that the public has a meaningful voice in cleanup decisions.*

*Public participation is required/recommended as part of a number of environmental regulations. It is also good business practice, resulting in better decisions that often result in improved cleanup. Over the past two decades, EM SSAB members have volunteered over 48,000 hours of their time and submitted to EM officials over 1500 recommendations, 88% of which have been fully or partially implemented, resulting in improved cleanup decisions.*

*The EM SSAB comprises approximately 200 people from communities in Georgia, Idaho, Kentucky, Nevada, New Mexico, Ohio, Oregon, South Carolina, Tennessee and Washington. The Board is cumulatively representative of a stakeholder population totaling millions of people who are affected by generator sites, transportation routes and disposal sites. As we move forward, the EM SSAB welcomes the opportunity to highlight the value of this unique volunteer board and discuss its priorities during the months and years ahead.*

Susan Coleman, Chair  
Hanford Advisory Board

Teri Ehresman, Chair  
Idaho Cleanup Project CAB

Anthony Graham, Chair  
Nevada SSAB

Cherylin Atcitty, Chair  
Northern New Mexico CAB

Leon Shields, Chair  
Oak Ridge SSAB

Don Barger, Chair  
Paducah CAB

Jody Crabtree, Chair  
Portsmouth SSAB

Gregg Murray, Chair  
Savannah River Site CAB

cc: Kelly Snyder, Designated Federal Officer, EM-4.32



# DOE Paducah Budget 101

**April Ladd**

**DDFO, Paducah Site Lead**

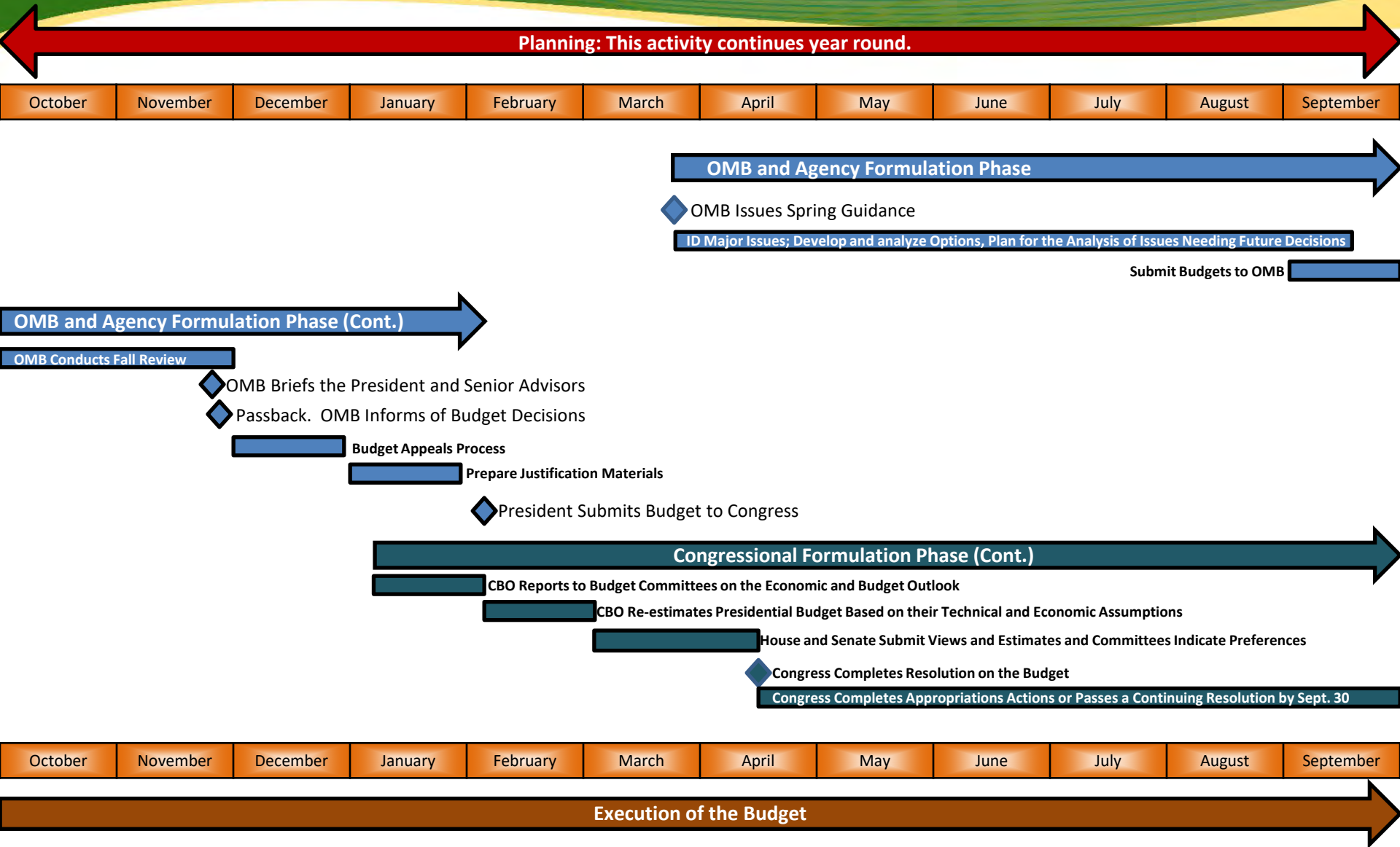
**4/20/2023**

**Paducah CAB**

# Quick Facts

- The federal government operates on a fiscal year (FY), which begins on October 1 and ends on the following September 30. For example, FY 2023 began October 1, 2022, and ends September 30, 2023.
- The U.S. federal budget is created annually through an intricate process that typically takes up to ten or more months to complete.
- To complete the annual budget by October 1, the start of the new fiscal year, the process must begin 18 months beforehand.

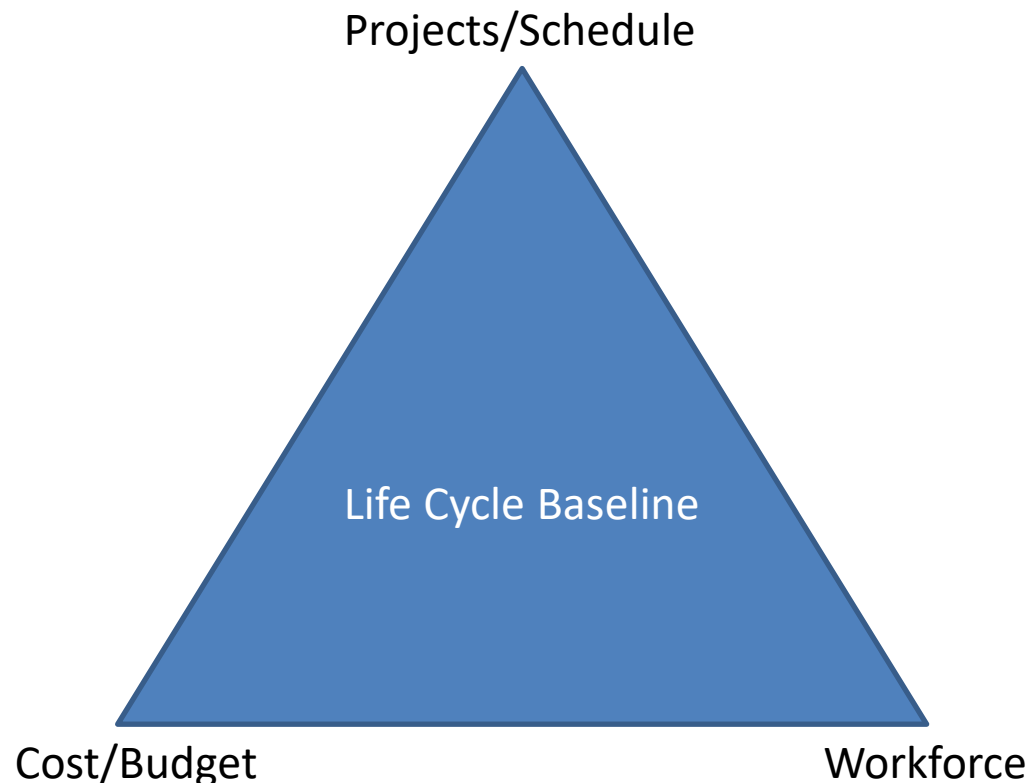
# Budget and Planning Timeline



\*OMB's Agency Formulation, Budget Allocations are Embargoed and **NOT** Releasable Outside of the Administration

## How does DOE/Site Field Office know what to ask for?

- Project Life Cycle Baseline—defines cost, schedule, performance, and scope commitments for delivering successful completion.



# Budget Development Process

- In or around January of each year, the project field offices receive guidance for budget development for the FY beginning 18 months in the future from the Secretary of Energy.
- In February and March, the site develops the Integrated Priority List (IPL), determining which activities should be submitted in the budget request to DOE HQ.

# Integrated Priority List

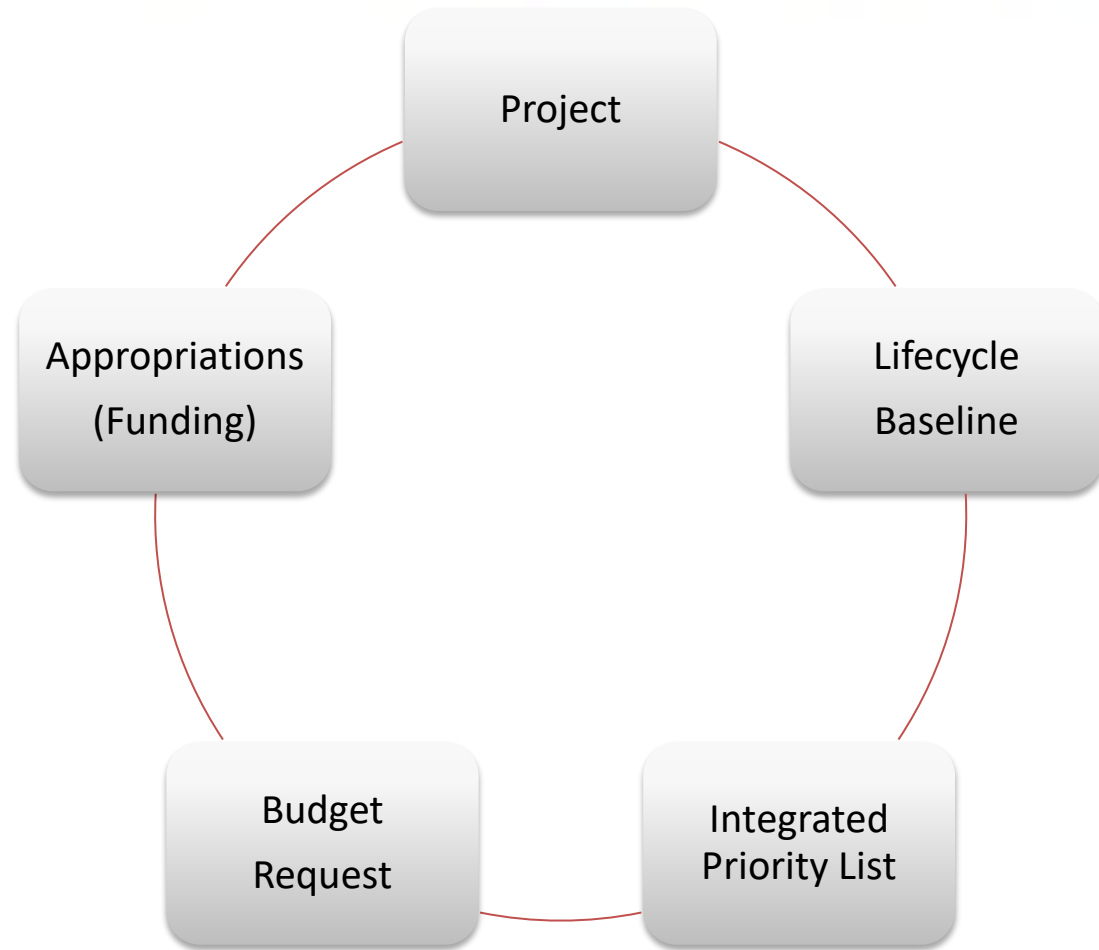
- IPL ranks Environmental Management (EM) projects for budget purposes.
- Utilizes the life cycle baseline as a starting point.
- Uses Risk Value Management and other factors to achieve the rank ordering projects for funding purposes.
- This IPL clarifies what will and will not be funded.
- Allows for sequencing based on a sound business analysis.

# Site Budget Development

- In March and April, the IPL and the life cycle baseline are used to develop the site budget request.
- The request is forwarded to headquarters where, from May to Sept/Oct, it is compiled with other DOE EM sites requests, aligned to match EM goals, and ultimately included in the complete Department of Energy Budget Request submitted to OMB.
- From October to January, OMB develops the president's formal budget request, which is submitted to Congress in February.

# The Budget Development Process

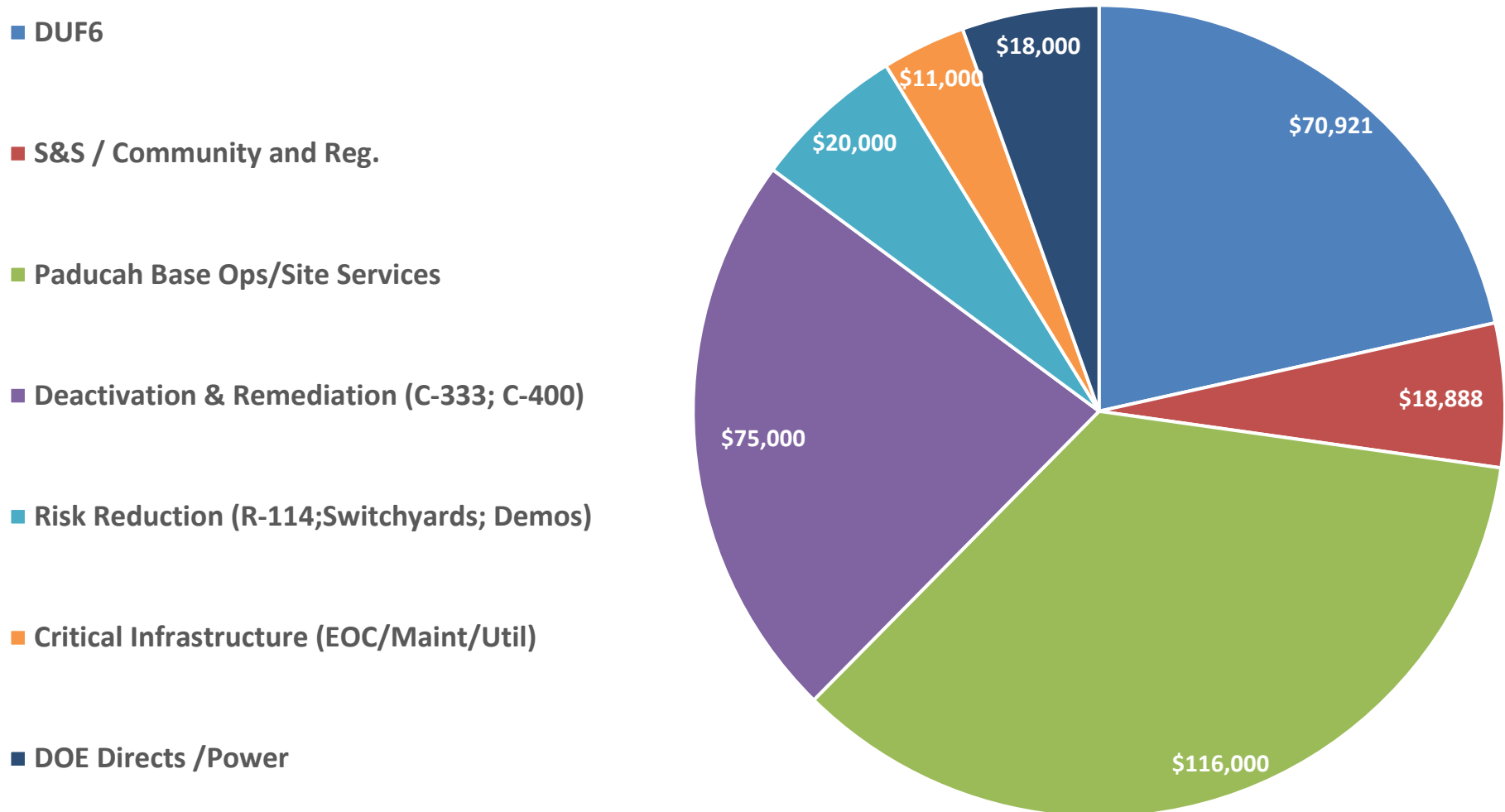
The baseline development process is ongoing throughout the life of the projects.





# Paducah FY23 Enacted Budget

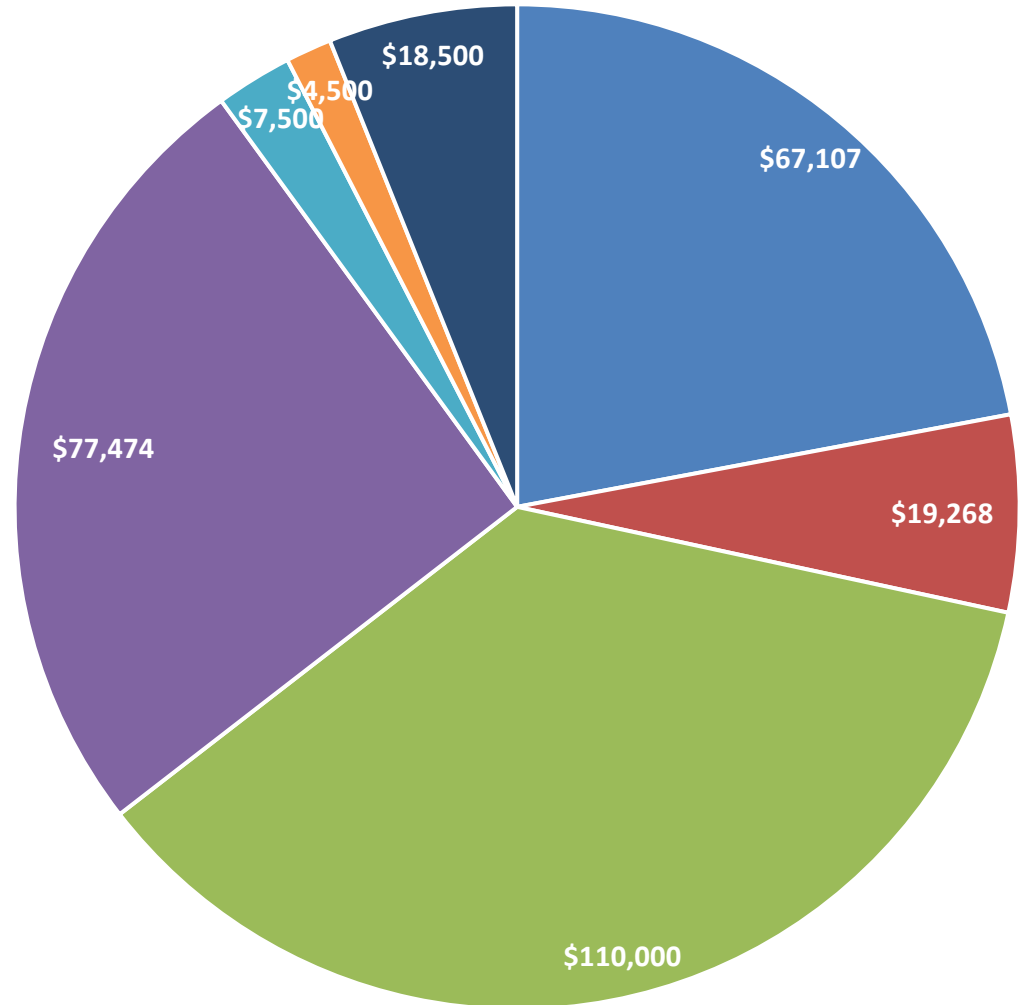
Paducah FY 2023 Budget  
Total = \$329,809M

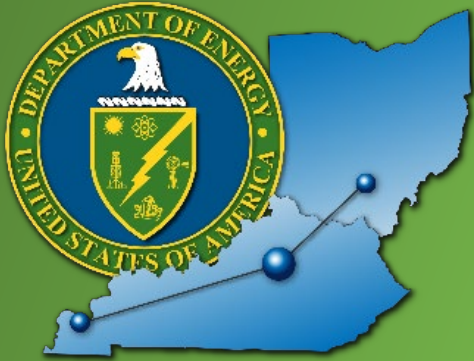


# Paducah FY24 Requested Budget

Paducah FY 2024 Requested Budget  
Total = \$304,309M

- DUF6
- S&S / Community and Reg.
- Paducah Base Ops/Site Services
- Deactivation & Remediation (C-333; C-400)
- Risk Reduction (R-114; Switchyards; Demos)
- Critical Infrastructure (EOC/Maint/Util)
- DOE Directs /Power





# PADUCAH SITE UPDATE

**April Ladd, DDFO, Paducah Site Lead,  
Portsmouth Paducah Project Office  
CAB Board Meeting • April 2023**



## **Health advisory: Employee information about per- and polyfluorinated alkyl substances (PFAS) at the Paducah Site**

The U.S. Environmental Protection Agency (U.S. EPA) periodically issues guidance on chemicals, chemical compounds and other contaminants in drinking water systems. In June 2022, EPA published interim health advisory levels for certain man-made per- and polyfluoroalkyl substances known as PFAS. Subsequently, in March 2023 EPA recently proposed national primary drinking water regulations (NPDWR) for six PFAS in drinking water, including perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS).

Interim health advisories are non-regulatory limits that evaluate lifetime exposure levels in which some adverse health effects may occur, but that additional research is required. The proposed NPDWR will be enforceable standards when finalized.

Widespread usage of PFAS products by consumers, governments, and commercial entities have resulted in the low-level presence of PFAS in soil, surface water, groundwater, plants and animals across the globe. The most widely studied PFAS release mechanism into the environment is from discharge of aqueous film-forming foam from fire-suppression and fire training activities.

Recent sampling of finished water from the C-611 water treatment plant at the U.S. Department of Energy's (DOE) Paducah Site shows that this potable water has detectable levels of several PFAS with concentrations that are above the interim health advisory levels and slightly above the proposed NPDWRs. These results are comparable to finished water samples from Paducah Water, which were reported by the Kentucky Department for Environmental Protection Division of Water in 2019. The sample results are also similar to PFAS concentrations in Ohio River water collected at mile marker 943.9 (near Paducah, Kentucky and Metropolis, Illinois) by the Ohio River Valley Water Sanitation Commission in 2021.

The DOE Paducah site has provided bottled water for drinking water to site personnel through a commercial vendor since 2015. PFAS results for this bottled water performed in January 2022 by the vendor were all non-detect.

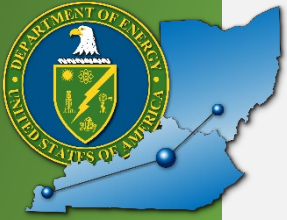
DOE, led by the Office of Environmental, Health, Safety and Security, is actively working to assess and understand PFAS presence at DOE sites, and to take any further necessary actions. DOE's Portsmouth Paducah Project Office has notified the U.S. EPA and the Kentucky Department of Environmental Protection of the sample results and will continue to work closely with them as PFAS/PFOS research continues to develop.

More information on PFAS is available on the following sites:

[PFAS: Per- and Polyfluoroalkyl Substances \(DOE\)](#)

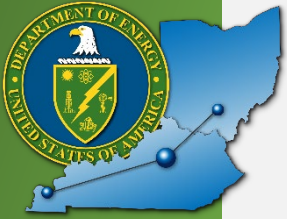
[PFAS Explained \(EPA\)](#)

Please send any questions on this health advisory to [PFASInfo@hq.doe.gov](mailto:PFASInfo@hq.doe.gov).



# Background

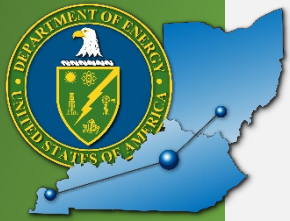
- U.S. Department of Energy
  - Acting Paducah Site Lead
  - Federal Project Director (General Engineer)
    - Project and Contract Management
    - Environmental, Safety, Health, Quality and Compliance
  - Facility Representative (General Engineer)
- Pro2Seve/PRC
  - Senior Environmental Scientist/Certified Project Manager
    - DOE Site Office
- United States Enrichment Corporation (2010-2012)
  - System Engineer
- PRS/RSI/BJC
  - Environmental Restoration Site Superintendent
  - Environmental Restoration Field Engineer
    - DOE Remediation Contractor

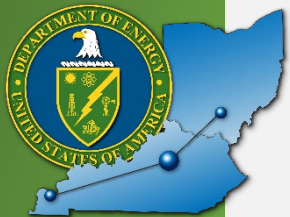


# C-333 Deactivation

- In 2014, Paducah began the deactivation and demolition journey.
- Paducah will complete the construction of the Material Sizing Area in 2023.
- Bundle size reduction equipment has been installed and will supplement support in the material sizing area efforts.
- In August, the site plans to segment its first converter to reduce the first bundle.





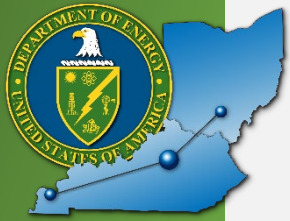


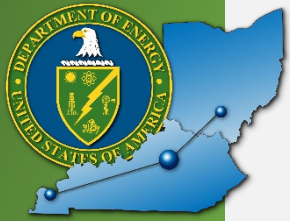
# C-400 Demolition & Remedial Action

- The C-400 Remedial Investigation/ Feasibility Study (RI/FS) report was submitted to EPA and KY on January 5, 2023, as scheduled.
- Held C-400 Complex Proposed Plan Scoping Kickoff meeting with DOE on January 18, 2023.
- Final concurrence of the RI/FS and proposed plan for public comment is scheduled for later this year which will lead to a final Record of Decision in 2024.





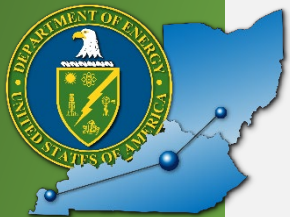




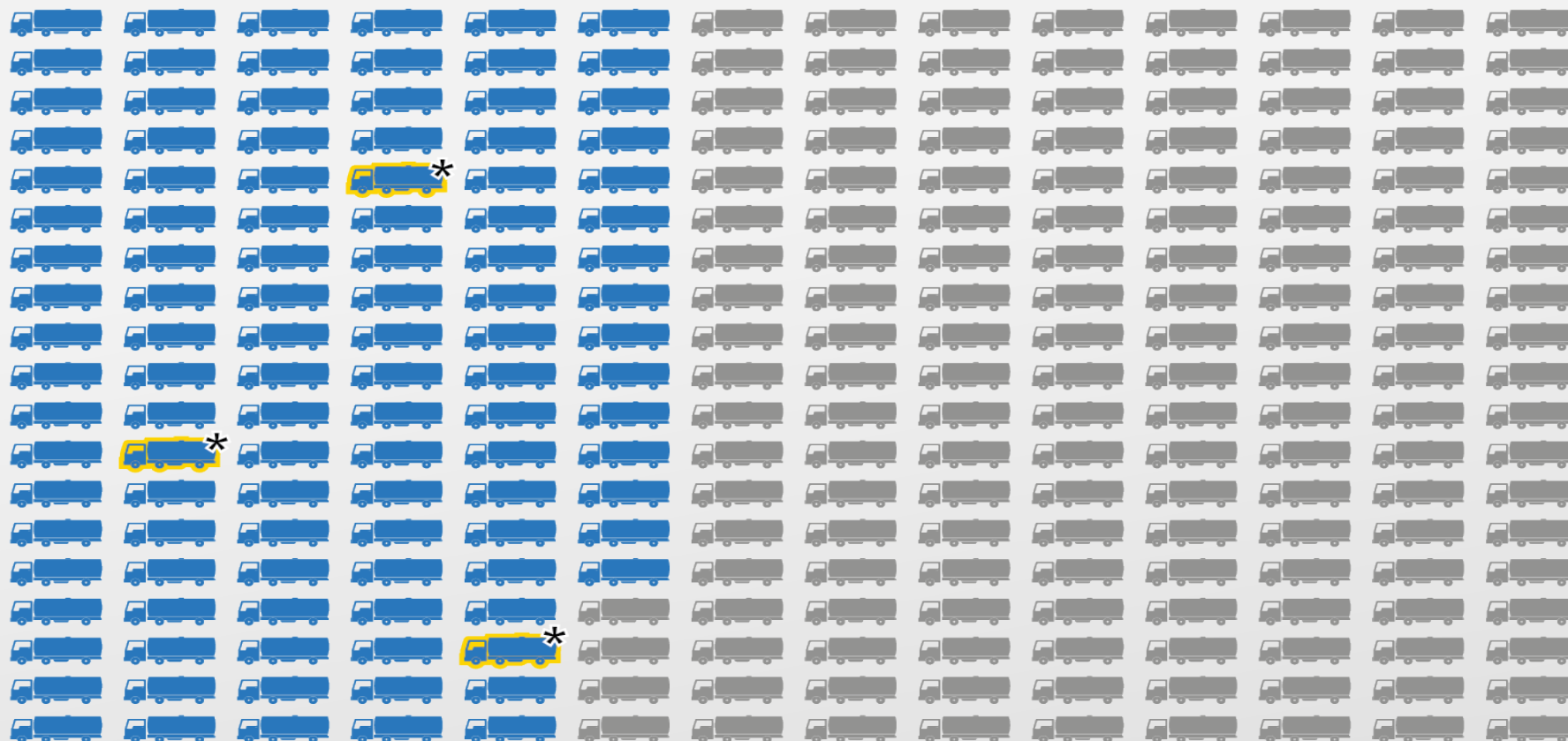
# R-114 Disposition Project

- A priority project at Paducah is the removal of R-114, one of the highest environmental hazards currently at the site.
- R-114 is a refrigerant more commonly known as Freon and was used to support uranium enrichment operations. Paducah has one of the largest supplies of R-114 in the US.
- Since a multi year removal campaign began in 2020, the Paducah Site has shipped about 44.5% of the inventory off site.
- This year, Paducah is set to complete one of EM-1's calendar year priorities by dispositioning an additional 1 million pounds.
- Thus far in fiscal year 2023, FRNP has shipped 483,400 pounds of R-114. The remaining R-114 inventory stands at 4.9M pounds.





# R-114 Disposition Project



 = 33,000 LBS OF R-114

[31 TRUCKS EQUAL APPROXIMATELY 1 MILLION POUNDS]

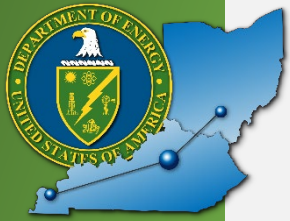
\*Highlighted truck = 1 million lbs. of R-114 dispositioned  
(counting each column top to bottom then left to right)\*



# C-105 Emergency Operations Center

- Construction of the new Emergency Operations Center is progressing.
- Walls and outside trim installations are complete as well as the composite roof placement.
- Focus is on interior finishing next.
- This project is expected to be complete by late Spring 2023.

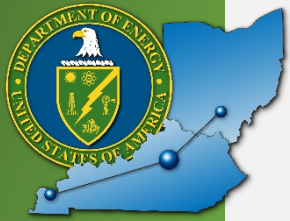




## C-209 Protective Force Building

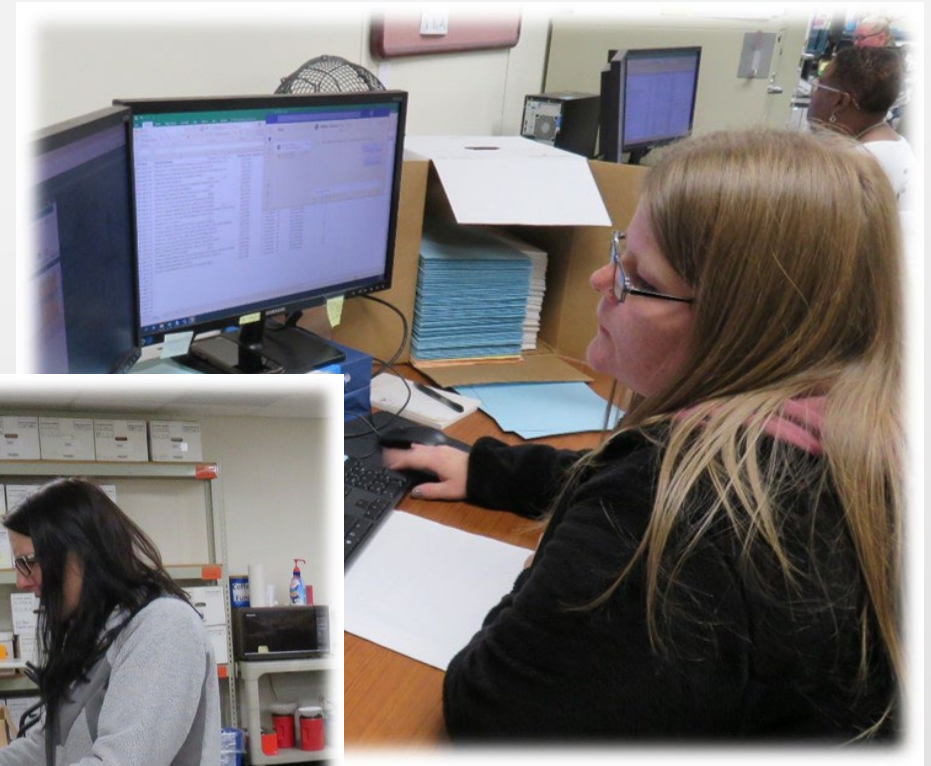
The foundation work for the C-209 Protective Force Building Construction is complete as well as the sewer drain and the waste and vent rough-in under slab utility branch work.

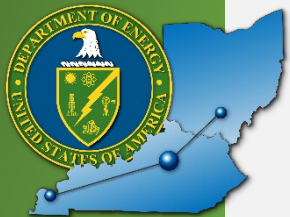




# Historical Records Processing

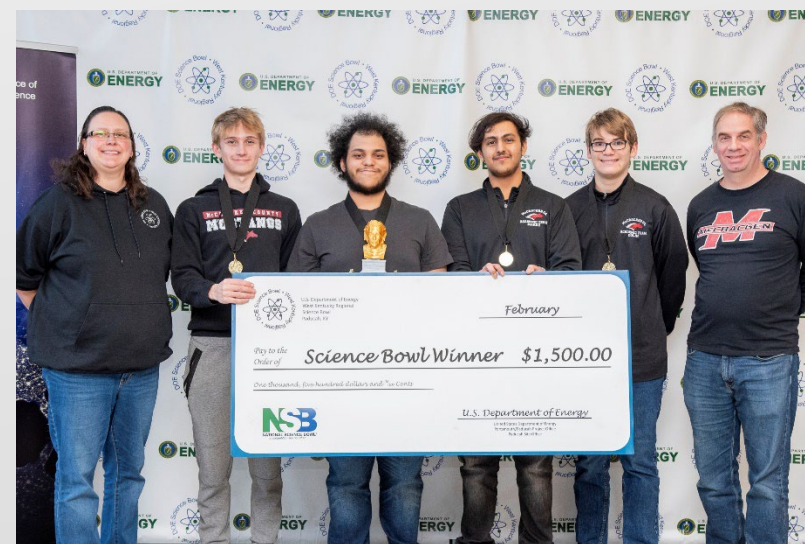
- Completed the base scope of work for the Historical Records Processing Project.
- Reviewed, digitized and/or processed 613 cubic feet of hardcopy records and loaded to the Electronic Records Management System (ERMS).
- Digitized and/or reviewed for classification 58,000 aperture cards and digitized and/or reviewed 669 videos.
- Loading of the aperture cards and videos to ERMS is will be completed in Option 1.





# Community Outreach

- DOE West Kentucky Regional Science Bowl
  - 2023 was first in-person DOE West Kentucky Science Bowl since 2020.
  - A combined 30 teams from 23 different schools (middle school and high school) competed.
  - Also in attendance were 76 volunteers from DOE, site contractors, subcontractors, community partners and vendors.
- PPO Manager Joel Bradburne will be the featured guest at the Paducah Power In Partnership Breakfast on May 11, 2023.





February 16, 2023

**Chair**

Don Barger

**Vice-Chair**

Fran Johnson

**Board Members**

Phillip Brown  
Eric Butterbaugh  
Victoria Caldwell  
Hannah Chretien  
William Robert Clark  
Clint Combs  
Bill Murphy  
Blake Summarell  
Myron Wessell  
Riley Willett  
Elizabeth Wilson

Jennifer Woodard  
*DOE DDFO*

Buz Smith  
*DOE Federal Coordinator*

**Board Liaisons**

Brian Begley  
*Division of Waste  
Management*

Victor Weeks  
*Environmental Protection Agency*

Mike Hardin  
*Fish and Wildlife Resources*

Stephanie Brock  
*Radiation Control Branch*

**Support Services**

EHI Consultants, Inc.  
Emerging Technology Center  
5100 Alben Barkley Dr.  
Paducah, KY 42001  
Phone 270.554.3004

[www.energy.gov/pppo/pgdp-cab](http://www.energy.gov/pppo/pgdp-cab)  
[info@pgdpcab.org](mailto:info@pgdpcab.org)

## February 2023 Citizens Advisory Board Meeting Agenda

**5:30 pm**

Call to order, introductions  
Review of agenda

**DOE Comments**

**Federal Coordinator Comments**

**Liaison Comments**

**Administrative Issues**

**Presentations**

Ground Water Video  
Infrastructure Project Discussion

**Public Comments**

**Final Comments**

**Adjourn**





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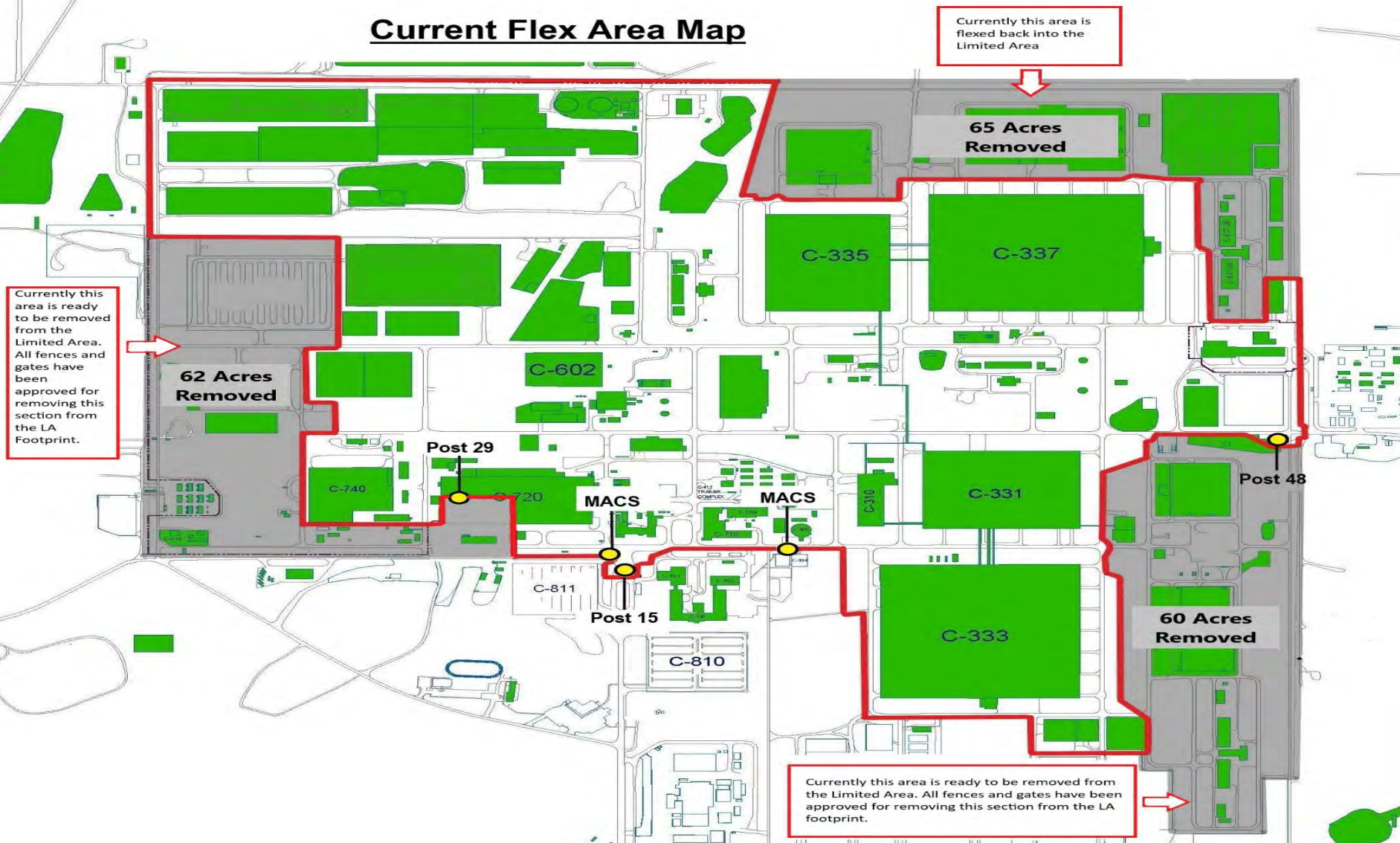
# Citizens Advisory Board Infrastructure Projects

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**Buz Smith, SSAB Federal Coordinator**  
**U.S. Department of Energy**  
**February 16, 2023**



## Current Flex Area Map



# Upgrade Street Lighting To LED







# Electric Vehicle Charging Stations



C-103 Department of Energy



Near C-752-B Fuel Station



DUF6 Location

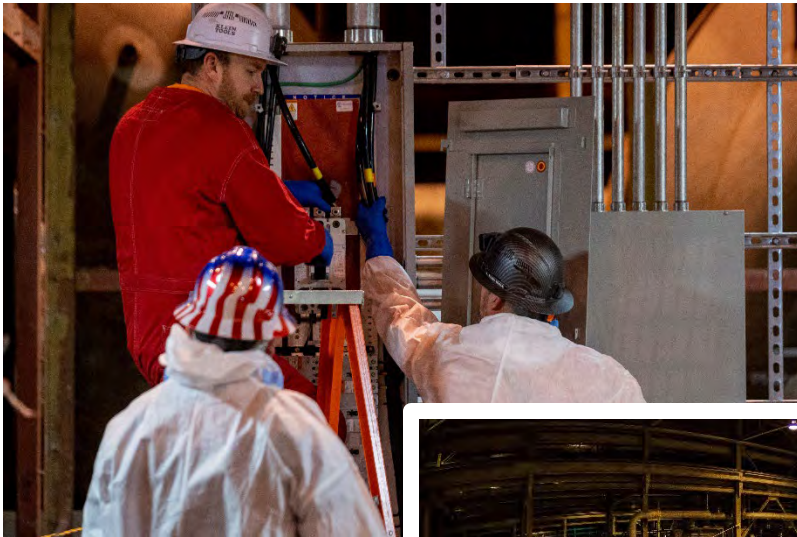




# Emergency Operations Center Construction



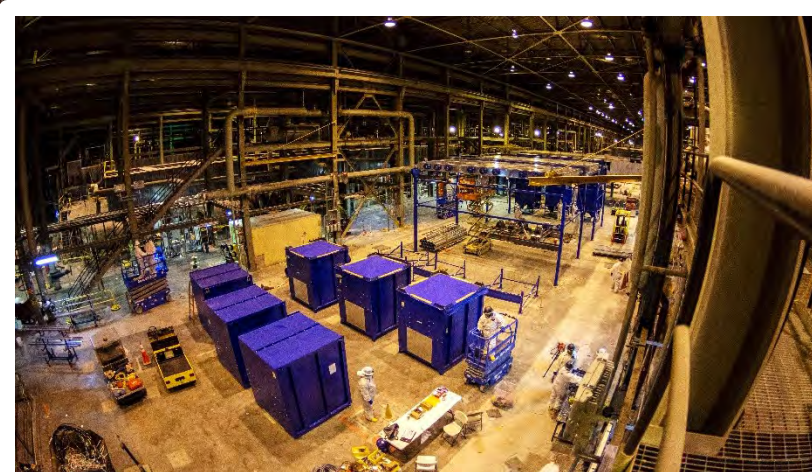
# Material Sizing Area (MSA) Infrastructure



MSA electrical  
install

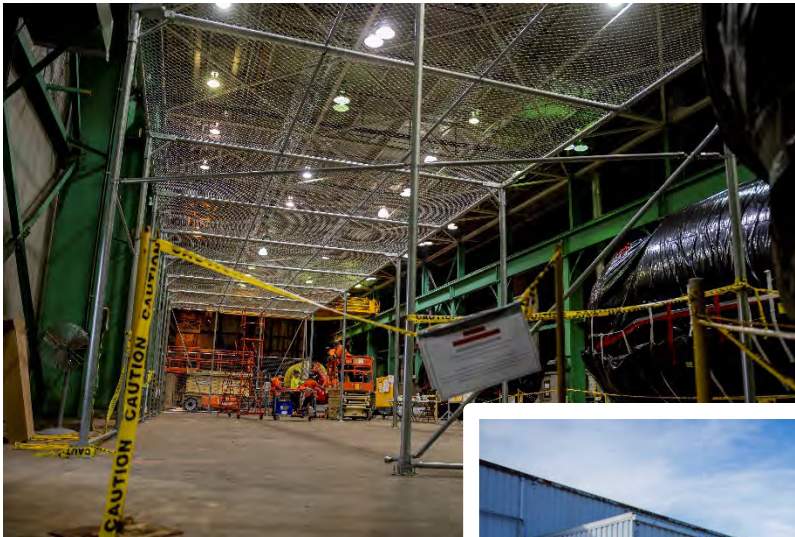


Compressed air  
piping for dust  
collection system

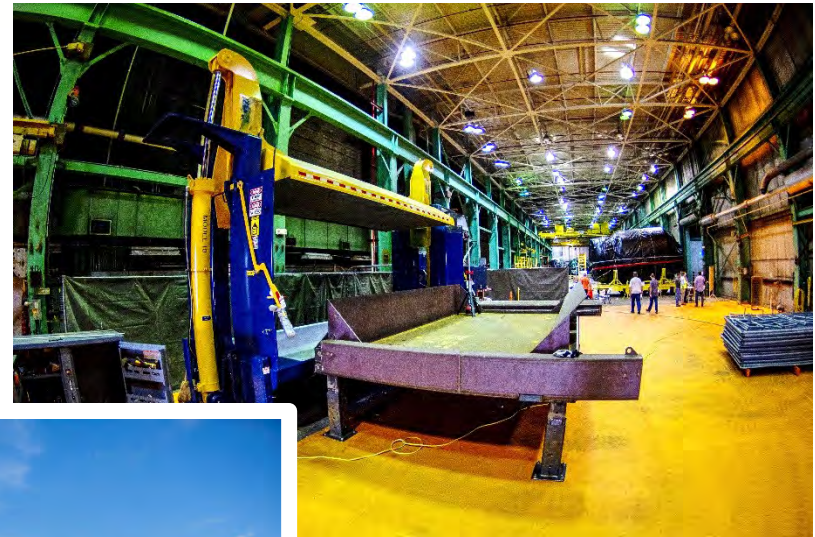


C-333 Unit 6 Cell 2 MSA footprint

# Bundle Size Reduction



Bundle storage cage construction



Bundle size reduction compactor and table



Size reduced surrogate bundle

# Large Item Neutron Assay System (LINAS)

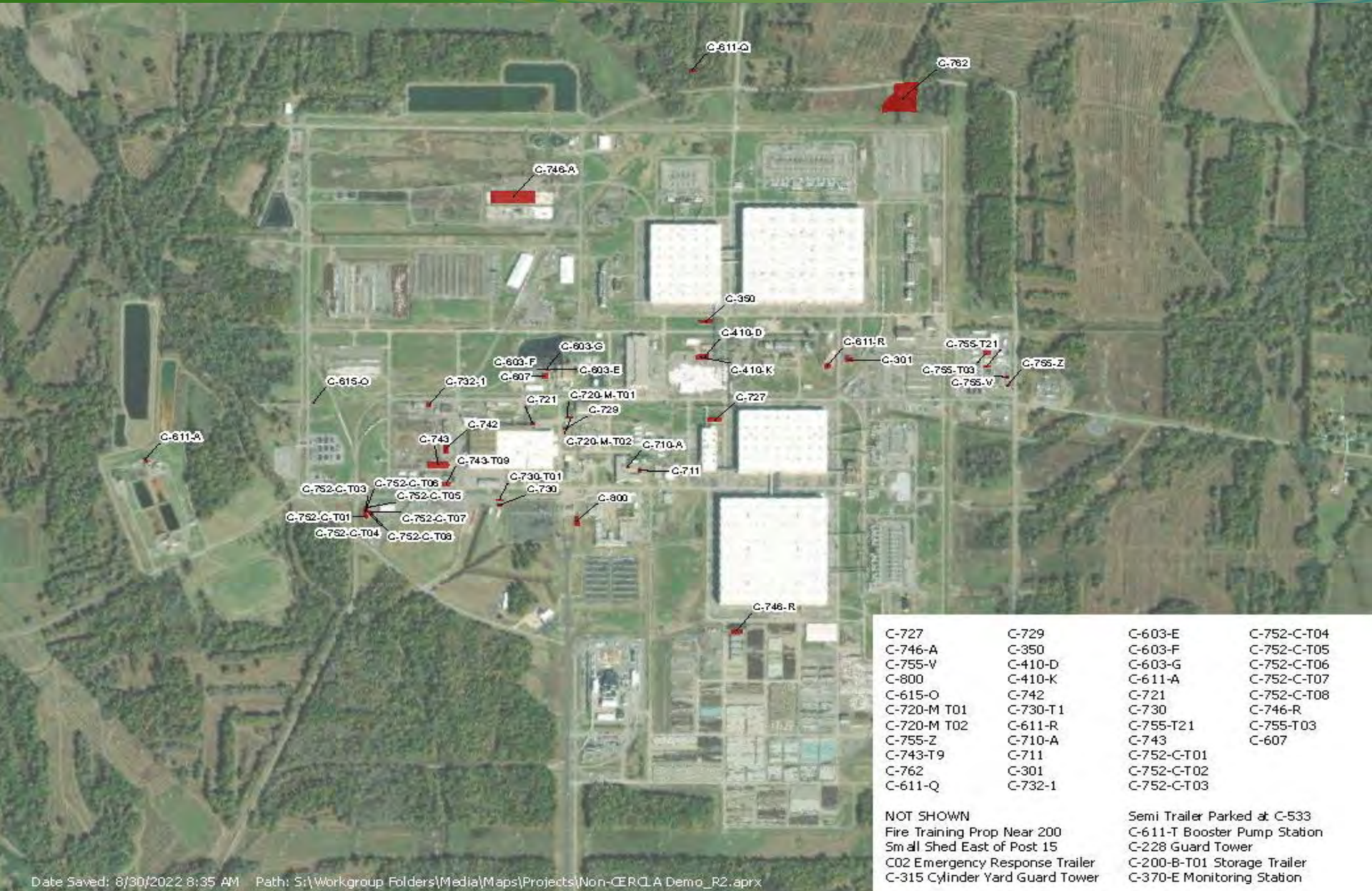


LINAS pre-engineered metal building

LINAS chamber







- |             |          |             |             |
|-------------|----------|-------------|-------------|
| C-727       | C-729    | C-603-E     | C-752-C-T04 |
| C-746-A     | C-350    | C-603-F     | C-752-C-T05 |
| C-755-V     | C-410-D  | C-603-G     | C-752-C-T06 |
| C-800       | C-410-K  | C-611-A     | C-752-C-T07 |
| C-615-O     | C-742    | C-721       | C-752-C-T08 |
| C-720-M T01 | C-730-T1 | C-730       | C-746-R     |
| C-720-M T02 | C-611-R  | C-755-T21   | C-755-T03   |
| C-710-A     | C-742    | C-743       | C-607       |
| C-711       | C-711    | C-752-C-T01 |             |
| C-762       | C-301    | C-752-C-T02 |             |
| C-611-Q     | C-732-1  | C-752-C-T03 |             |

NOT SHOWN  
 Fire Training Prop Near 200  
 Small Shed East of Post 15  
 CO2 Emergency Response Trailer  
 C-315 Cylinder Yard Guard Tower

Semi Trailer Parked at C-533  
 C-611-T Booster Pump Station  
 C-228 Guard Tower  
 C-200-B-T01 Storage Trailer  
 C-370-E Monitoring Station



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**Thank You**

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**Questions**



# PADUCAH GASEOUS DIFFUSION PLANT

## CITIZENS ADVISORY BOARD

SUMMARY OF THE THURSDAY, FEBRUARY 16, 2023, CAB EDUCATIONAL SESSION • 5:30 P.M.

**Location:** Emerging Technology Building, WKCTC, Paducah, Kentucky

**Citizens Advisory Board (CAB) Members Present:** Don Barger, Fran Johnson, Victoria Caldwell, Clint Combs, William Murphy, William Robert Clark, Myron Wessel, Hannah Chretien, Riley Willett (TEAMS)

**CAB Members Absent:** Blake Summarell, Elizabeth Wilson, Phil Brown, Eric Butterbaugh

**U.S. Department of Energy (DOE) and Contractors:** Buz Smith, Hayly Wiggins, EHI Consultants (EHI)

**Liaisons:** Brian Begley, Kentucky Division of Waste Management (TEAMS), Brian Lainhart (TEAMS), Christopher Travis, Commonwealth of Kentucky Energy and Environment Cabinet (TEAMS), Victor Weeks (TEAMS), Steve Christmas (TEAMS)

**Attendees:** Zachary Boyarski, ETAS

**Facilitator:** Eric Roberts, EHI

Approved by Don Barger, Board Chair

Signature on file

Don Barger

**Call to Order:**

**Roberts:**

Welcome and introductions.

*Chartered as an EM Site Specific Advisory Board under the Federal Advisory Committee Act*



Attendees introduced themselves.

Roberts reminded CAB members that the Paducah Bulletin is sent by email and requested they check their SPAM folder to ensure they receive it.

Roberts shared the following videos.

[EM Site-Specific Advisory Board | Department of Energy](#)

[Year in Review | Department of Energy](#)

<b>Question/Comment:</b>	<b>Answer:</b>
<b>Barger:</b> The Year in Review video makes Paducah a low priority. Also, the fonts should be more consistent in the on-screen texts.	<b>Smith:</b> You are right. Sites with more local concerns do appear to get more time in the video.
<b>Chretien:</b> Who is the intended audience for these videos? Depending on the answer, they don't make much sense to the average person.	<b>Roberts:</b> These are mainly used for opportunities when DOE can speak to Chambers of Commerce or State Congresspersons. I do not believe the average person will be viewing it.

**Buz Smith-DOE Federal Coordinator**  
 Presentation-Infrastructure Projects

<b>Question/Comment:</b>	<b>Answer:</b>
<b>Murphy:</b> Can you recycle the fencing that you are removing?	<b>Smith:</b> We will work with PACRO to give them the fencing for sale or recycling.
<b>Barger:</b> I have noticed less of a glow coming from the area of the plant at night.	<b>Smith:</b> The LED lights direct light down instead of up like the high-pressure sodium lights we are replacing.
<b>Barger:</b> What happens to the shredded paper? Does it get recycled?	<b>Smith:</b> I believe it is recycled.
<b>Caldwell:</b> What is the Protective Force?	<b>Smith:</b> Police on the site. The protective Force Building is an enduring building, designed to last for many years of service.
<b>Murphy:</b> Is that a running track?	<b>Smith:</b> Yes, it is. The members of the protective force have physical fitness requirements they must meet, so the track is there for their use.

<p><b>Roberts:</b> Is the plan to replace the DOE contractor fleet of vehicles with these electric vehicles?</p> <p><b>Barger:</b> Will employees be able to use the charging stations for personal vehicles?</p> <p><b>Barger:</b> Where is the R-114 being sent?</p> <p><b>Barger:</b> Is the Emergency Operations Center simply a high-tech command center?</p> <p><b>Johnson:</b> How much has been invested in buildings and processes since the cleanup began?</p>	<p><b>Smith:</b> Yes, some of them; we won't replace all gas vehicles now.</p> <p><b>Smith:</b> Not at this time. Employees are asking for that, so I hope we can in the future.</p> <p><b>Smith:</b> It is being sent to Veolia in Port Arthur, Texas, for incineration.</p> <p><b>Smith:</b> That is correct.</p> <p><b>Roberts:</b> We can work on finding out for you.</p>
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**Smith:** I also want to provide an update on the recommendations that the CAB submitted to DOE. We showed the EM-101 video at the Science Bowl, which was very well received. We are in talks with McCracken County Library to launch a Virtual Library display. We have also spoken with Maiden Alley Cinema to show the Building a Legacy video. They would like to, but the length of the film is a problem. We have offered to edit it down for time, but they not committed to show it at this time.

Energy Communities Alliance will hold the ECA Nuclear Development Forum in Paducah May 17 – 19. I will attend an organizational meeting next week and have more details for the CAB after that.

**Roberts:** Thank you for your attendance and attention.

Meeting adjourned at 6:45 p.m.