PADUCAH GASEOUS DIFFUSION PLANT
CITIZENS ADVISORY BOARD

MINUTES OF THE THURSDAY, JANUARY 16, 2025, CAB BOARD MEETING • 5:30 PM.

Location: Emerging Technology Building, WKCTC, Paducah, Kentucky

Citizens Advisory Board (CAB) Members Present: Don Barger, Gaye Brewer, Ben Stinnett, Rodney Hill, Eric Butterbaugh, Joycelyn Lightfoot, Reese Henderson, Myron Wessel

CAB Members Absent: Gaylon Grubbs, Riley Willett, Clint Combs

U.S. Department of Energy (DOE) and Contractors: DOE: April Ladd, Buz Smith, Mitchell Guthrie; FRNP: Dylan Nichols; EHI Consultants: Hayly Wiggins; Julie Galloway; ETAS: Zachary Boyarski

Liaisons: Environmental Protection Agency: Victor Weeks (TEAMS); Kentucky Dept. of Energy and Environment: Brian Lainhart (TEAMS), Mary Evans, Brandon Marshall, Sonja Smiley (TEAMS)

Attendees: Marshall Jenkins, Darla Bowen, Molly Thompson, Amina Watkins, Robert Hernandez

Facilitator: Eric Roberts, EHI

Approved by Ben Stinnett, Board Chair

Signature on file

Ben Stinnett

Call to Order: 5:30 pm Ben Stinnett, CAB Chair.

Stinnett: Welcome to all attendees. Thank you for being here tonight.

Attendees introduced themselves.

DOE comments provided by April Ladd: I have some project updates to share. We are in continuing resolution through March 14, 2025. We have 212 converters segmented and 206 in storage out of 497. C-400 sampling resumed north of the facility after weather delays. The Environmental Baseline Survey for the first parcel at Paducah has received EPA comments and we are going through those now. DOE submitted a remedial action work plan for the northwest plume on January 14. TSCA (Toxic Substances Control Act) side of EPA tour is scheduled for January 29, 2025.

Additional DOE comments provided by Buz Smith: Working on the land transfer request. We are working on the easements to go along with that transfer. We appreciate our CAB and the future CAB members attending these meetings. We are working on a new CAB orientation tour on March 3, 2025. DOE sponsored Science Bowl is February 7 for high school and February 14 for middle school teams. We have all the local schools represented. This is a great outreach to introduce these students and volunteers to DOE and the contractors. If any CAB members would like to volunteer, please let Buz Smith know at Robert.Smith@pppo.gov.

Liaison Comments: **Victor Weeks:** We are working with DOE and KDEP on the comments from the Environmental Baseline Survey.

Administrative Issues: none

Presentation-Mitchell Guthrie, DOE

2023 Annual Site Environmental Report

Annual Site Environmental Report overview

- Mitchell presented 2023 environmental monitoring results showing continued reduction in site contamination
- Report available through:
  - Energy.gov website https://www.energy.gov/sites/default/files/2025-01/Paducah%20Annual%20Site%20Environmental%20Report%202023.pdf
  - FRNP website https://pubdocs.pad.pppo.gov/?dir=Annual%20Site%20Environmental%20Report%20%28ASER%29/2023%20ASER

    - McCracken County Library
- DOE monitors radiation at **64** locations around site using thermoluminescent dosimeters
- Highest radiation readings detected at DUF6 cylinder yard due to expected uranium neutron activity

Environmental monitoring and radiation levels

- Site radiation exposure comparisons:
    - Natural background radiation: **310 millirem** per year
    - Average American exposure: **620 millirem** per year
    - Single whole body CT scan: **1,000 millirem**
    - DOE annual dose limit to the public **100 millirem** per year
    - Paducah site public exposure: **5.8 millirem** per year
- April confirmed most employee dosimeter readings show zero exposure during regular work
- DOE plans to implement real-time air monitoring system similar to Portsmouth facility

Notice of violations

- Two violations occurred in 2023:
    - Outfall 8: Mercury exceedance from HVAC cooling water
        - Corrected by rerouting cooling water to sanitary sewer
    - Outfall 15: Total suspended solids violation
        - Fixed by removing oil control dam and installing new rock check dam
- April clarified monitoring frequency varies by type:
    - Monthly discharge reports for outfalls
    - Daily visual inspections
    - Annual dosimeter readings

Student ASER program at Paducah Tilghman

- Murray State received a grant which, in part, implements a Student ASER program
- Paducah Tilghman has been selected as the participating school for 2025
- Program goals:
    - Educate students about site environmental programs
    - Develop materials for community discussions
    - Create a simplified ASER summary for a broader audience
- Buz noted program helps connect students with potential future site careers

Question/Comment:	***Answer:***
Brewer: Where is the "person" (comprising the annual dose to the public from the	**Guthrie:** There are multiple pathways a person could be exposed to radiation at the

Paducah Site as reported in the 2023 ASER) located?	Paducah Site; direct radiation, incidental consumption of contaminated water, accidental ingestion of contaminated soils and atmospheric releases. These combine to give us our the maximally exposed individual at the Paducah Site. Our calculations for direct radiation, which accounts for 5.6 millirem of the total 5.8 millirem calculated in the ASER, assumes a member of the public visited accessible areas of the site where potential contamination was highest for 80 hour per year. For incidental consumption of contaminated water, which accounts for .12 millirem of the 5.8 millirem total, the individual is swimming in Little Bayou Creek for 45 days for a minimum of 2.6 hours per day. Accidental ingestion of sediment, which accounts for .10 of the 5.8 millirem) assumes the individual wade across one creek location every other day during hunting season for 104 days and ingests a small amount of sediment each time. Atmospheric release accounts for .003 of the 5.8 millirems, and we use the US EPA CAP 88 computer modeling program, which calculates this total based on site-specific and meteorological data to estimate.
Barger: Members of the public wear dosimeters while visiting the site. Is this because the dose is considered so low that it is unnecessary?	**Smith:** For public tours, we use a tour dosimeter to ensure safety. I work on site and wear a dosimeter every day. Each year I get a readout on my dosimeter, and it is always zero.
Hernadez: What is a millirem?	**Roberts**: A rem is a large dose of radiation, so the millirem (mrem), which is one-thousandth of a rem, is often used for the dosages commonly encountered, such as the amount of radiation received from medical x-rays and background sources.
And what is considered hazardous?	100 mrem per hour is considered a high dose if it is sustained for an extended period of time, for multiple days during a

	year. 100,000 mrem per hour is considered dangerous.
And is this mrem number an improvement from the last ASER?	**Ladd:** The mrem from the site stays relatively stable. As cylinders are processed, it can increase slightly.
Barger: What sort of monitoring is used? Is it daily, weekly, etc.?	**Ladd:** Some environmental monitoring stations are checked daily, weekly, or monthly, depending on the permit requirements from the various state agencies issuing the permits.
Watkins: How are the students chosen to participate in the Student ASER?	**Smith**: Students are asked who is interested from within classes active within the STEM fields.
Barger: Mitchell, as a student from Heath, had you always thought about working at the plant?	**Guthrie:** Yes, as a child driving by, I was always curious about the plant. Then, when I was in college at the UK School of Engineering Paducah Campus, we got to take a tour of the Paducah Site, and it spurred my interest in applying for the Pathways Program and working at the site.
Bowen: The two notices of violations were at monitoring locations eight and fifteen. Was there any connection between these findings there?	**Guthrie:** Outfall 8 was a Mercury exceedance from HVAC cooling water, which was corrected by rerouting cooling water to the sanitary sewer. Outfall 15 was a total suspended solids violation, which was fixed by removing the oil control dam and installing a new rock check dam. The fact they are close to one another is coincidental.
Barger: As we look long term, will these monitoring sites, be forever monitored?	**Ladd:** Eventually, the outfall monitoring stations will be consolidated, and the drainage and runoff will be collected in one place. Our goal is to clean everything up and transfer property.

Roberts: Are there any public comments? <none> If anyone has public comments, you can email Buz Smith within the next week at (270) 441-6821 or zachary.boyarski@pppo.gov and we will add them as attachments to the minutes.

Stinnett adjourned the meeting at 6:50 pm.

Support Services
EHI Consultants, Inc.
Emerging Technology Center
4810 Alben Barkley Dr.
Paducah, KY 42001
Phone 270.554.3004
www.energy.gov/pppo/pgdp-cab
info@pgdpcab.org

January 16, 2025

January 2025 Citizens Advisory Board Meeting Agenda

5:30 pm
Call to order, introductions

DOE Comments

Federal Coordinator Comments

Liaison Comments

Administrative Issues

Presentations

2023 Annual Site Environmental Report

Final Comments

Adjourn

Portsmouth Paducah
Project Office

2023 Annual Site Environmental Report

Citizens Advisory Board Meeting
January 2025
Mitchell Guthrie

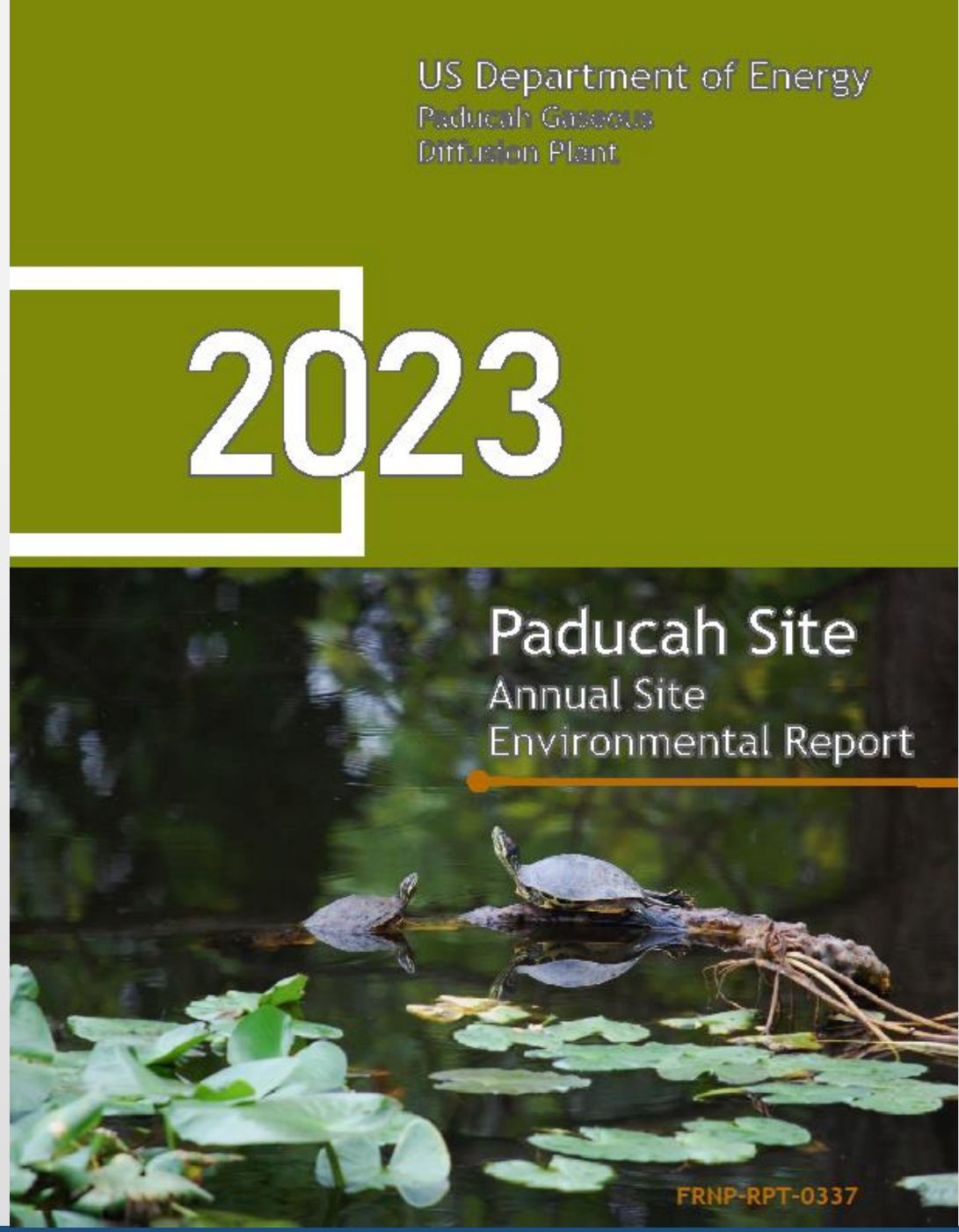
U.S. Department of ENERGY | Office of Environmental Management

Annual Site Environmental Report

- In accordance with DOE Order, Environment, Safety and Health Reporting, DOE prepares an Annual Site Environmental Report (ASER), which offers a detailed overview of environmental activities at the Paducah Site.

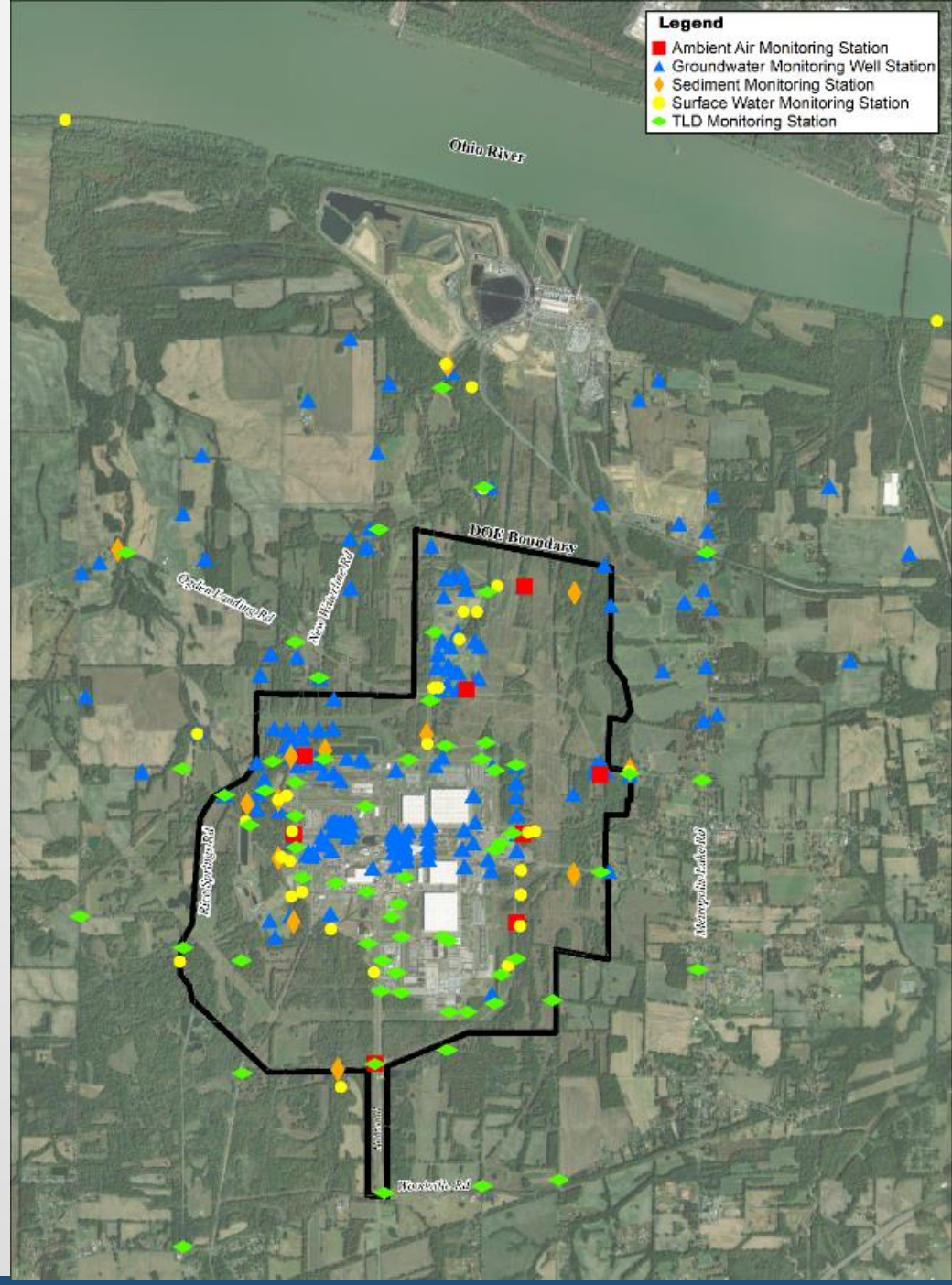
ASER Stakeholder Outreach

- The ASER is a key component of DOE's effort to keep the public informed about environmental conditions at the Paducah Site.

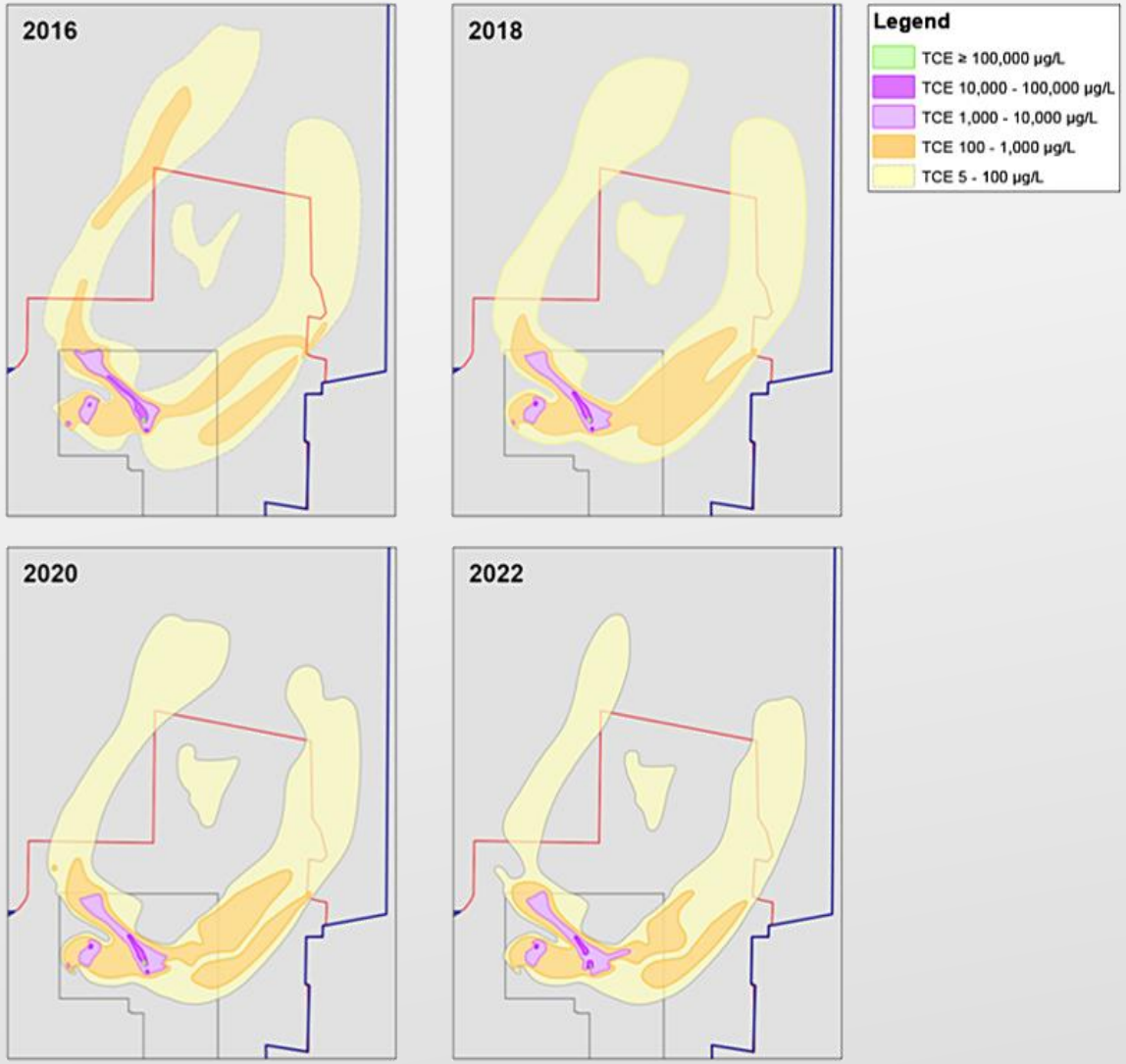


ASER Stakeholder Outreach

- In 2023, more than 2,000 samples of air, sediment, and water were collected and analyzed:
  - Air: 497
  - Sediment: 34
  - Surface Water: 688
  - Groundwater: 855



2023 Major Sampling Efforts - Groundwater

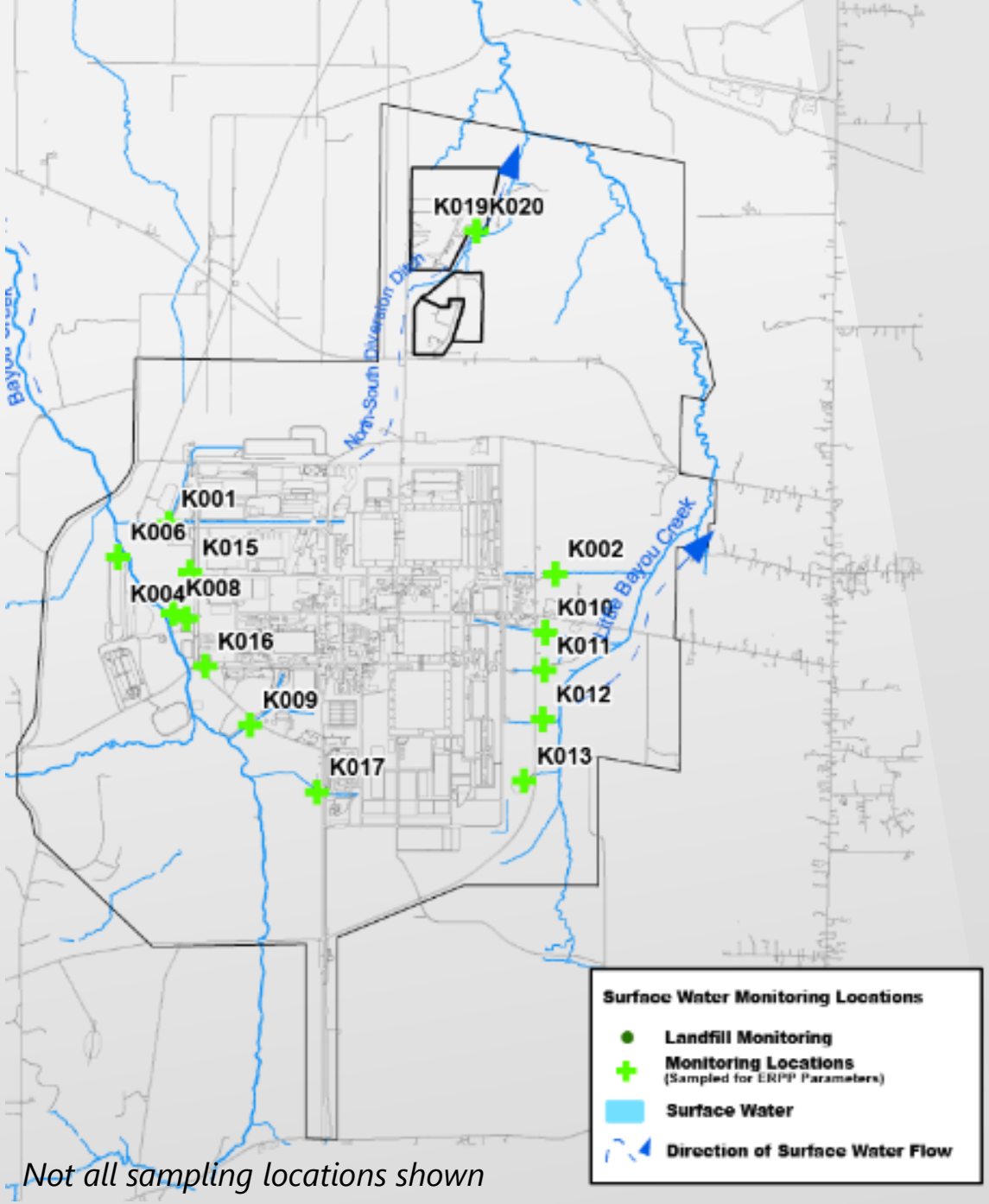


- Concentrations of primary contaminants detected in the groundwater plumes at the Paducah Site were stable or decreasing in 2023.
  - Note: plume maps are updated every two years

2023 Major Sampling Efforts – Water Quality

- Monitoring for water quality was performed at locations where water flows into the Bayou and Little Bayou creeks.

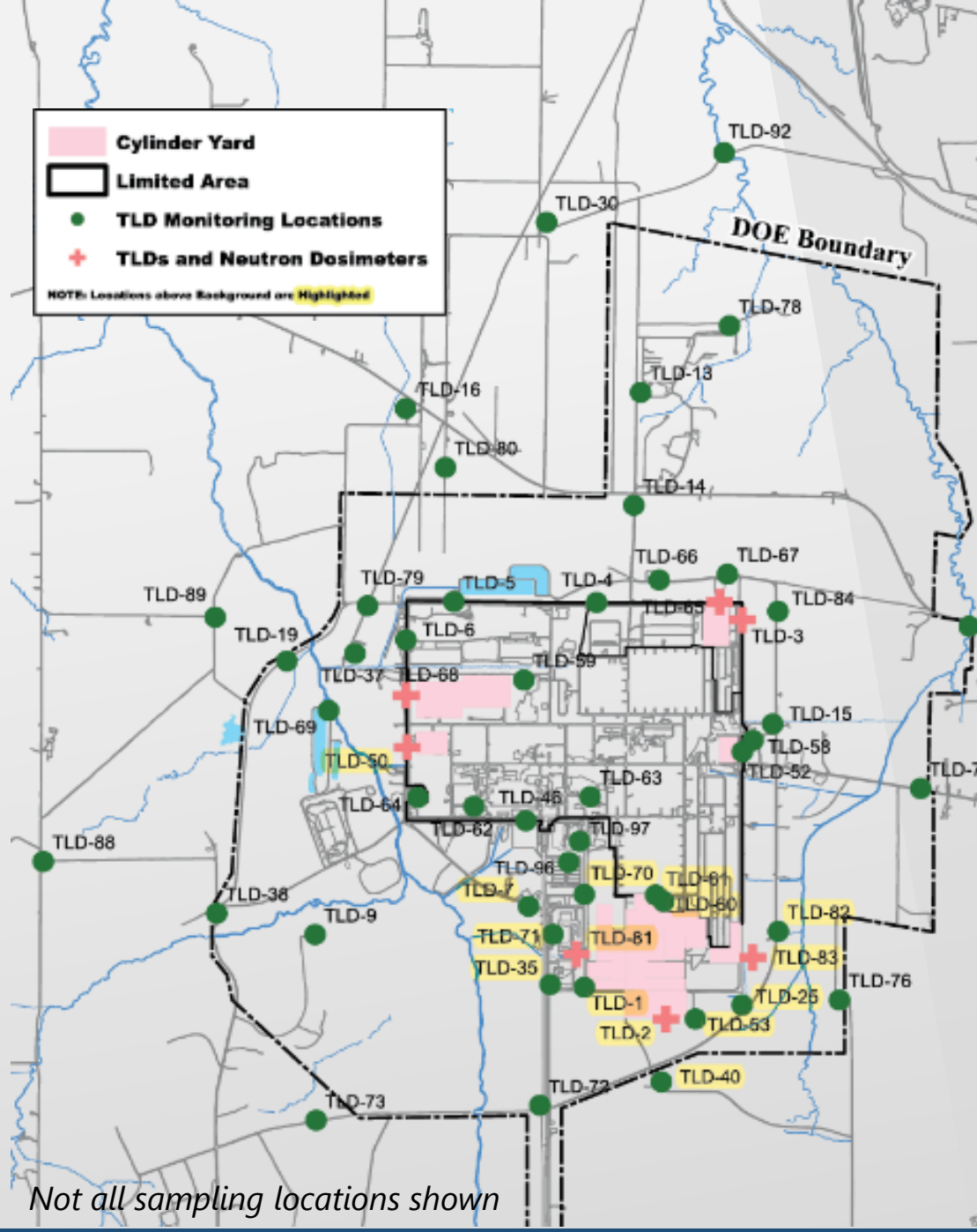
- 252 surface water samples were analyzed for multiple parameters as part of KPDES Permit monitoring during 2023.



Not all sampling locations shown

2023 Major Sampling Efforts - RAD

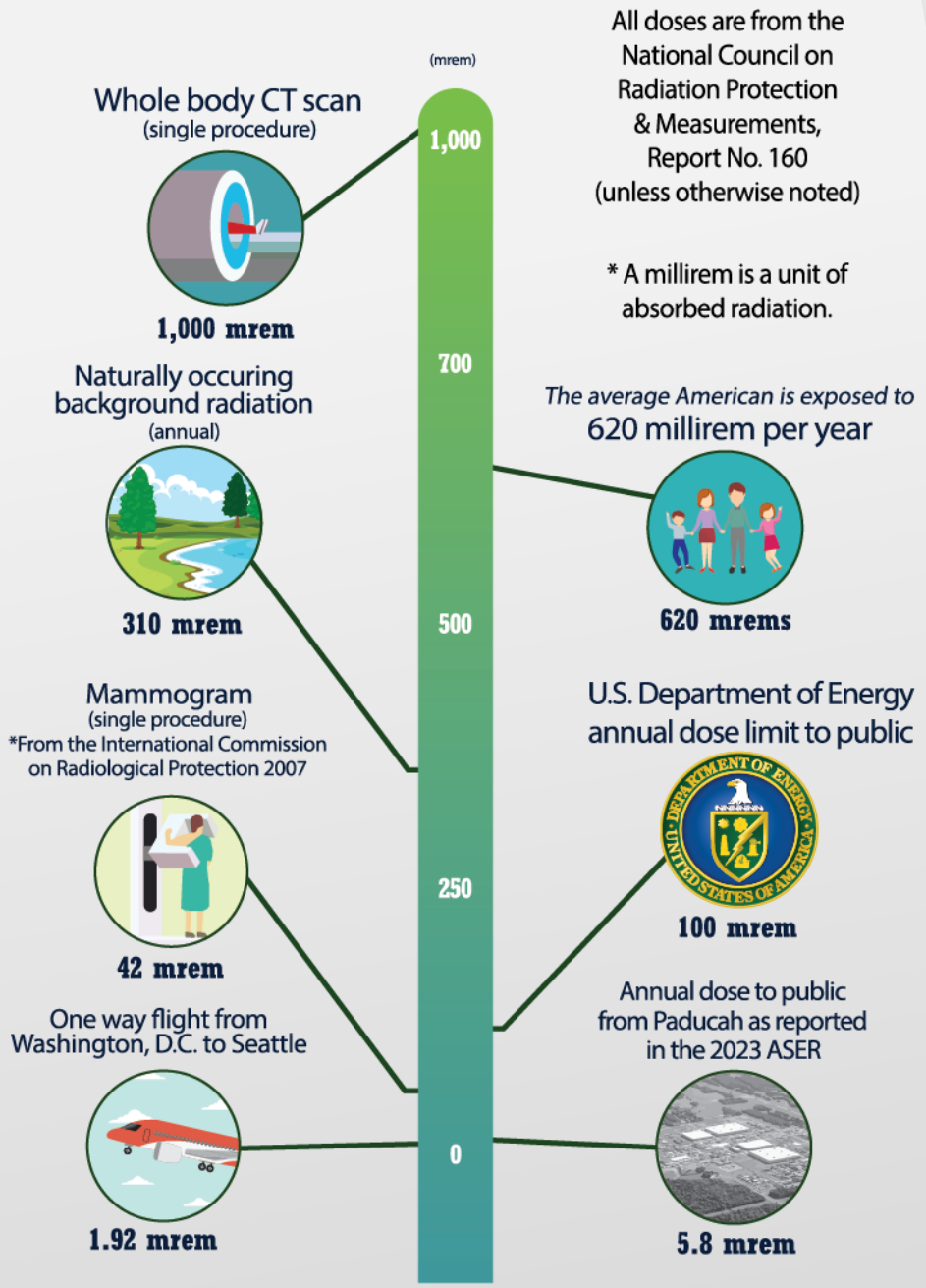
- External radiation was measured continuously at 64 locations.
- Ambient air was sampled at nine locations (eight on-site and one background location located off-site) and analyzed for radionuclides.



Not all sampling locations shown

2023 Dose Summary

- The calculated radiation dose that could be received by a member of the public from activities at the Paducah Site was 5.8 millirem (mrem), compared to the DOE annual dose limit of 100 mrem.



2023 Environmental Summary

- Notices of Violation were received for KPDES Permit exceedances for total recoverable mercury at Outfall 008 and total suspended solids Outfall 015. Both issues were resolved with no further recurrences.
- Environmental monitoring data collected in 2023 are similar to data collected in previous years and continue to show a reduction in contaminants at the site, demonstrating the effectiveness of the cleanup efforts.

ASER Public Outreach

- The public can access the ASER online by visiting https://www.energy.gov/pppo/articles/paducah-annual-site-environmental-reports or https://www.fourriversnuclearpartnership.com

- The ASER is printed and distributed to community leaders and the McCracken County Library.

Student ASER

- The Student ASER provides non-technical ASER summaries by staff and students from a local high school.
  - Paducah Tilghman High School (PTHS) selected for 2024-25 school year.
- As part of the Murray State University (MSU) grant, MSU will direct the production of the ASER summaries while working closely with PTHS.
- Each ASER summary utilizes information from the publicly available ASER.

Student ASER

- The goals of the Student ASER are to:
  - Educate local high school students about activities and potential career opportunities at the Paducah Site.
  - Develop materials to facilitate conversations concerning environmental remediation and D&D within the community.
  - Summarize ASER in a non-technical manner for a broader audience.
- The Student ASER is distributed to local elected officials, the McCracken County Library, PTHS faculty and students, Office of the MSU President, MSU Office of the Provost and other MSU administrative leaders.

PADUCAH GASEOUS DIFFUSION PLANT
CITIZENS ADVISORY BOARD

MINUTES OF THE THURSDAY, NOVEMBER 21, 2024, CAB BOARD MEETING • 5:30 PM.

Location: Emerging Technology Building, WKCTC, Paducah, Kentucky

Citizens Advisory Board (CAB) Members Present: Don Barger, Gaye Brewer, Ben Stinnett, Rodney Hill, Gaylon Grubbs, Clint Combs, Eric Butterbaugh, Joycelyn Lightfoot

CAB Members Absent: Myron Wessel, Riley Willett, Reese Henderson

U.S. Department of Energy (DOE) and Contractors: DOE: April Ladd, Buz Smith; FRNP: Bruce Ford; EHI Consultants: Hayly Wiggins; ETAS: Zachary Boyarski

Liaisons: Division of Waste Management: Brian Lainhart (TEAMS); Environmental Protection Agency: Victor Weeks (TEAMS); Kentucky Dept. of Energy and Environment: April Webb (TEAMS), Mary Evans, Bart Schaeffer (TEAMS), Sonja Smiley (TEAMS)

Attendees: Marshall Jenkins, Darla Bowen, Molly Thompson

Facilitator: Eric Roberts, EHI

Approved by Ben Stinnett, Board Chair

Signature on file

Ben Stinnett

Roberts:
We have a new public comment policy. Anyone who wants to make a public comment is limited to two minutes of oral comment. If they want to comment in writing, you can email them to zachary.boyarski@pppo.gov through 11/29/2024.

Call to Order: 5:32 pm Ben Stinnett, CAB Chair.

Stinnett: Welcome to all attendees. Thank you for being here tonight. I want to extend a special welcome to Joycelyn Lightfoot who is attending her first meeting as a board member.

Attendees introduced themselves.

DOE comments provided by April Ladd: I have some project updates to share. We have 176 converters segmented and 165 in storage out of 497. The Site Management Plan for fiscal year 2025 was sent out on the 13th, a couple of days before its regulatory due date of the 15th. Then, the Environmental Baseline Survey for the first parcel at Paducah was transmitted through the EPA regulators in Kentucky on November 8th. Today, we hosted a tour for Paducah Tilghman High School students who will be creating the Student Annual Site Environmental Report (ASER): Student Summary.

Additional DOE comments provided by Buz Smith: I want to thank our soon-to-be CAB members for attending tonight's meeting. We are pleased to have you here learning about the CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) process, so you have some good background knowledge.

Liaison Comments: none

Administrative Issues: none

Presentation-Bruce Ford, Environmental Services Director, Four Rivers Nuclear Partnership
CERCLA Federal Facility Agreement Overview

An abbreviated overview of the presentation (a full overview is available here):
CERCLA and Superfund overview

- Congress enacted CERCLA (Comprehensive Environmental Response Compensation and Liability Act) on **December 11, 1980.**
- Law established broad federal authority to respond to hazardous waste releases

- The program created a trust fund (Superfund) for the cleanup of abandoned hazardous waste sites.
- Ford explained CERCLA requires the evaluation of **nine** detailed criteria for cleanup alternatives:
    - **Two** threshold criteria: protection of human health/environment and regulatory compliance.
    - **Five** balancing criteria: effectiveness, implementability, and cost considerations.
    - **Two** modifying criteria: state and community acceptance.

Federal Facility Agreement at Paducah

- The FFA is a tri-party agreement established in **1998** between DOE, EPA Region 4, and Kentucky.
- DOE serves as the lead agency responsible for cleanup.
- EPA provides regulatory oversight with final dispute resolution authority.
- Kentucky ensures compliance with state regulations and RCRA requirements.
- The agreement requires monthly meetings between FFA managers from all three agencies.

Administrative record requirements

- CERCLA mandates the establishment of administrative record for all cleanup decisions.
- Record must contain all documents supporting selection of response actions.
- Documents are available through Environmental Information Center website.
- The public can access full documentation of the decision-making process and rationale.

Public participation process

- A 45-day public comment period is required for proposed cleanup plans.
- Public meetings must be held if requested during the comment period.
- Public comments must be addressed in the final decision documentation.
- CAB provides ongoing community input throughout the process.

Goal to prepare CAB for potential recommendation by **May 2025**

Question/Comment:	***Answer:***
Brewer: A Removal Action is a quicker response type action, right? If you find something that needs immediate action, it is the removal action because it is responsive. **Evans:** Is the public comment period from the very start?	**Ford:** Yes, a Removal Action is a quicker action followed by a longer-term, but more complete, Remedial Action. **Ford:** Yes, once we publish a notice about the final Record of Decision, there are 45 days of public comment period,

	requirements driven by CERCLA and our FFA.
Butterbaugh: What if the budget gets cut?	**Ford**: The federal facility agreement has provisions for potential budget cuts. There are budget letters DOE sends to EPA in Kentucky every year that talk about priorities. The budget for environmental management DOE's cleanup comes from Congress each year which is conveyed to EPA and Kentucky. If there are issues with funding or budget limitations, then we put it in a letter saying there are budget impacts.
Barger: In the section on the administrative record, it says, "The President shall base." How does the President fit into this? He doesn't actually make decisions in this area, does he?	**Ford:** This is verbiage from EPA guidance. The regulations read differently, depending on which agency wrote them. One agency might use the term "Administrator" and another "President." Essentially, it means CERCLA requires the establishment of administrative records (ARs) upon which the Federal Facility Agreement (FFA) Project Managers shall base the selection of a response action.
Stinnett: When you speak about public participation, is that strictly local, regional, or the whole public?	**Ford:** We must publish a notice of any Record of Decision in a local, well-circulated newspaper, such as The Paducah Sun, but anyone can comment on these Record of Decision (RODs) once they are published, whether they are local to the area or not. **Ladd**: Yes, any person or organization can comment on these RODS from anywhere, and we will consider those comments.
Roberts: What is the time frame from scoping to ROD? Several months to years, correct?	**Ford:** We always try to accelerate to the best possible extent.
Evans: Are all projects at the site subject to CERCLA?	**Ford:** No, there are projects going on at the site that are not CERCLA projects, such as the converters being crushed and put into boxes for long-term storage, maintenance

	of roads and buildings, right-sizing the utilities, etc.

Ladd: The next step for the CAB is, do you want the next step as an ad hoc subcommittee or continue with the CAB as a whole? We would need several sessions to learn the information and work on a recommendation.

Roberts: To prepare the CAB for a recommendation, we must ensure you are thoroughly educated on all topics related to potential waste disposal. Beginning in January, we have generally mapped out one-hour sessions. Do you want to meet on an ad hoc subcommittee level or with the full CAB in Educational Sessions to learn more about the CERCLA requirements and determine potential waste disposal options?

Stinnett: The subcommittee would do a deeper dive, but the full CAB board would still vote on the recommendation, correct?

Roberts: Yes, the full board votes on any recommendation.

Butterbaugh: Would that be adding two more meetings a month or just two meetings a month?

Roberts: That depends on how much detail the group wants.

Hill: If you say you want to be on a subcommittee, we would commit to attending every meeting, correct? I prefer to attend if I can, but if I cannot, that is okay.

Barger: I would like to ensure I get all the information for any meeting prior to the meeting so I can study and prepare.

Roberts: Hayly will ensure you get information at least one day before the meeting.

Stinnett: Would the group prefer making these full board educational sessions? *The group indicated affirmative.*

Roberts: We will start putting schedules together with April, her team, and the board and try to get some dates for you soon.

Weeks: DOE made some commitments several years ago to create documentation and exhibits to help keep the CAB informed about the potential waste cell process.

Roberts: Are there any public comments? <none> If anyone has public comments, you can email Buz Smith within the next week at (270) 441-6821 or zachary.boyarski@pppo.gov and we will add them as attachments to the minutes.

Roberts: We would like to present Don Barger with the gavel and block he has used for his years as CAB Board Chair. Don has spent 23,000 miles on the road to various

meetings and sites, read documents, and helped with all our meetings and recommendations. Thank you for your years of service to the Citizens Advisory Board.

Barger: Learning about the Paducah Site, its history, and cleanup has been a tremendous opportunity. I thank you for the chance to serve.

Stinnett adjourned the meeting at 7:09 pm.

Appendices to the Minutes for the November 21, 2024, Paducah CAB Meeting

Appendix 1
Detailed Notes from Presentation

CAB Meeting

Date: November 21, 2024
Duration: 1:39:16
Participants: April Ladd, Buz Smith, Eric Roberts, Ben Stinnett, Gaye Brewer, Don Barger, Rodney Hill, Gaylon Grubbs, Joycelyn Lightfoot, Eric Butterbaugh, Clint Combs, Marshall Jenkins, Darla Bowen, Molly Thompson, Zachary Boyarski, Mary Evans, April Webb (TEAMS) Victor Weeks (TEAMS), Sonja A Smiley (TEAMS), Brian Lainhart (TEAMS), Bart Shaeffer (TEAMS), Julie Galloway (TEAMS), Hayly Wiggins

Action Items

- [ ] Hayly Wiggins - **Create PDF binder system for meeting materials** Create a comprehensive PDF binder system to compile and share educational session materials, discussions, and summaries with CAB members
- [ ] Eric Roberts - EHI - **Pull previous DOE commitment list** Pull list of DOE's previous commitments made in response to original CAB comments about waste disposal, as referenced by Victor Weeks
- [ ] Eric Roberts - EHI - **Schedule educational sessions** Coordinate with Buzz and April to set up schedule for waste disposal educational sessions starting in January

Overview

- Team reviewed CERCLA process and environmental regulations to prepare for major 2029 cleanup decisions
- **176** of **497** converters have been segmented, with **165** in storage
- Site Management Plan for fiscal year **25** was submitted on **November 13th**, ahead of the **November 15th** deadline
- Environmental baseline survey for first Paducah parcel transmitted to EPA and Kentucky on **November 8th**
- The board agreed to hold open educational sessions starting January **2024** to prepare for potential waste disposal recommendations by **April/May 2024**

Project status updates

- **176** converters segmented out of **497** total units
- **165** converters are now in storage
- Site management plan for FY **25** submitted **2** days ahead of regulatory deadline
- Environmental baseline survey for first Paducah parcel sent to regulators on **November 8th**
- ACER student tour conducted on **November 21st**

Overview of environmental regulations

- Multiple regulations impact site activities:
    - Atomic Energy Act
    - Clean Water Act
    - Clean Air Act
    - Toxic Substances Control Act (TOSCA)

    - Resource Conservation Recovery Act (RCRA)
- CERCLA (Superfund) was enacted in **December 1980** under President Carter
- Super Fund Amendments and Reauthorization Act (SARA) added in **1986**

CERCLA process and requirements

- Two types of response actions:
    - Remedial actions: Larger, long-term cleanups
    - Removal actions: Shorter-term, urgent responses
- Nine criteria are required for detailed analysis:
    - Threshold criteria: Protection of human health and environmental compliance
    - Balancing criteria: Effectiveness, implementability, and cost
    - Modifying criteria: State and community acceptance
- The public comment period is **45** days
- Record of Decision due within **30** days of public comment period closing
- Fieldwork must start within **15** months of decision and continue without interruption

Federal Facility Agreement roles

- DOE serves as lead agency responsible for cleanup
- EPA provides regulatory oversight with final dispute resolution authority
- Kentucky provides regulatory oversight and RCRA compliance verification
- FFA managers meet monthly:
    - April Ladd (DOE)
    - Victor Weeks (EPA)
    - April Webb (Kentucky)

Public participation in cleanup decisions

- A public comment period is required for **45** days on proposed plans
- Local newspaper notifications required for public notices
- Administrative record maintained and publicly accessible online
- CAB provides ongoing community input throughout the process
- Public meetings held when requested during comment periods
- All documentation available through the Environmental Information Center website EIC

Portsmouth Paducah
Project Office

CERCLA Federal Facility Agreement Overview

Bruce Ford
Environmental Services Director
Four Rivers Nuclear Partnership, LLC
November 21, 2024

U.S. Department of ENERGY | Office of Environmental Management

Many Regulations Impact Paducah Site Activities

- CERCLA
- RCRA
  - Subtitle C
  - Subtitle D
- TSCA
- CAA
- CWA
- AEA

Many Regulations Impact Paducah Site Activities

- CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
- RCRA – Resource Conservation and Recovery Act
  - Subtitle C – Hazardous Waste
  - Subtitle D – Solid Waste
- TSCA – Toxic Substances Control Act
- CAA – Clean Air Act
- CWA – Clean Water Act
- AEA – Atomic Energy Act

What is CERCLA?

- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, was enacted by Congress in December 1980.
- Provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.
- Established prohibitions and requirements concerning closed and abandoned hazardous waste sites.
- Provided for liability of persons responsible for releases of hazardous waste at these sites.
- Established a trust fund to provide for cleanup when no responsible party could be identified.
- Enabled revision of the National Contingency Plan (NCP), which established the National Priorities List (NPL).

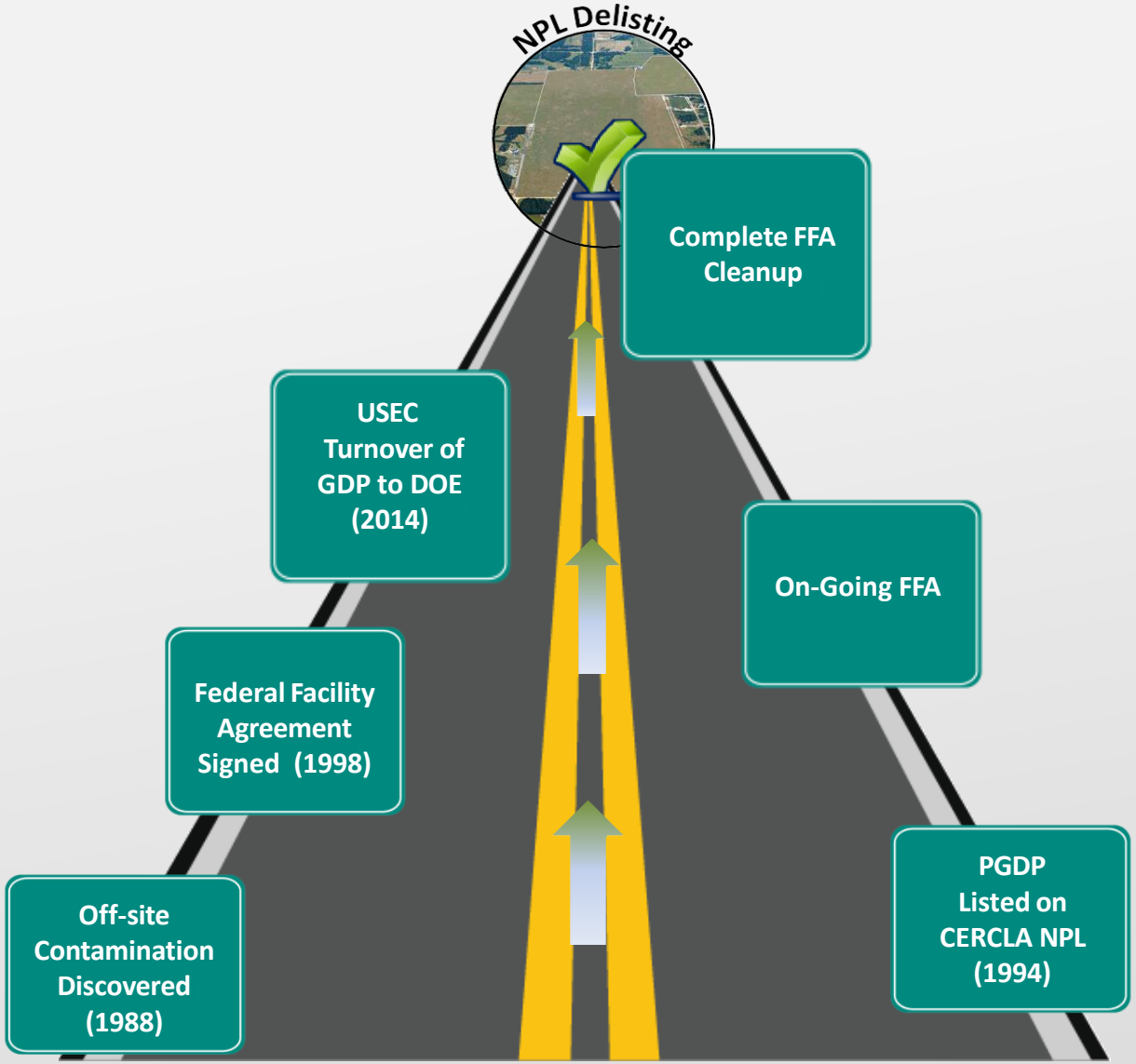
What is CERCLA? (continued)

- Amended by the Superfund Amendments and Reauthorization Act (SARA) in October 1986.
  - Stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites;
  - Required Superfund actions to consider the standards and requirements found in other State and Federal environmental laws and regulations;
  - Provided new enforcement authorities and settlement tools;
  - Increased State involvement in every phase of the Superfund program;
  - Increased the focus on human health problems posed by hazardous waste sites;
  - Encouraged greater citizen participation in making decisions on how sites should be cleaned up; and
  - Increased the size of the trust fund.

Why Do We Have An FFA?

- In 1994, the PGDP was placed on the CERCLA National Priorities List (NPL).
  - Federal Facilities on the NPL are required to enter into Interagency Agreements (FFA) with EPA.
- In 1998, DOE entered into a Federal Facility Agreement (FFA) with EPA and Kentucky.
  - DOE – Lead Agency
  - EPA – Regulatory oversight (e.g., document review and approval), and final dispute resolution authority.
  - Kentucky – Regulatory oversight (e.g., document review and approval) and ensure compliance with the Resource and Conservation and Recovery Act (RCRA) corrective action requirements.

CERCLA and the Paducah Federal Facility Agreement

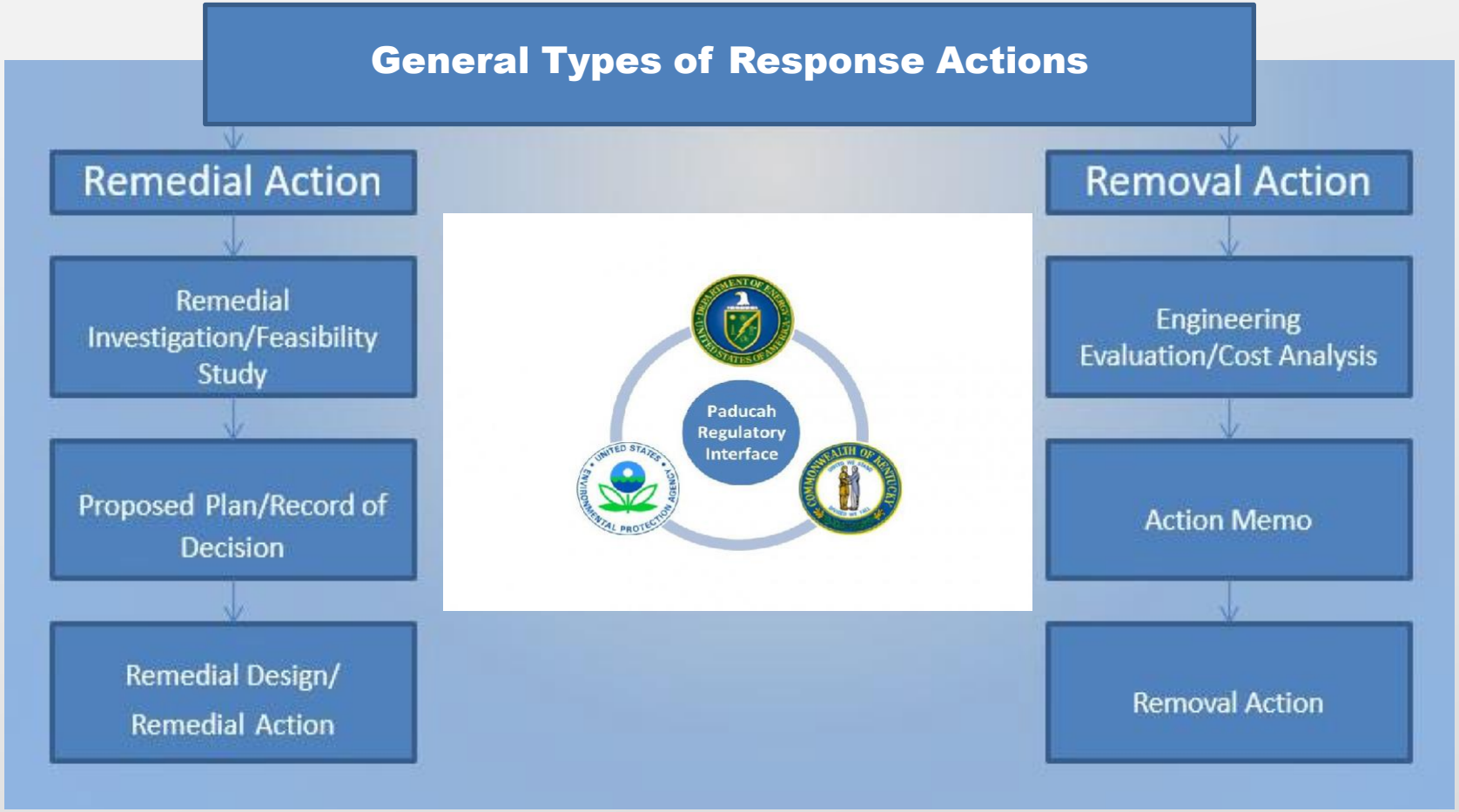


FFA – Applicability & Scope

- The requirements of the FFA/CERCLA are applicable to:
  - Areas with potential or known releases of hazardous substances.
- The scope of CERCLA hazardous substances is very broad and includes, but is not limited to, all RCRA hazardous waste constituents and radionuclides.
- Examples of CERCLA hazardous substances present at the Paducah Site include:
  - Trichloroethylene (TCE);
  - Polychlorinated biphenyls (PCBs);
  - Uranium and Technetium-99 (Tc-99);
  - Heavy Metals (e.g., lead, chromium, mercury); and
  - Asbestos.

Types Of CERCLA Response Actions

Note: The below removal action steps represent a Non-Time-Critical Removal Action, but a removal action can also consist of Emergency or Time-Critical Removal Actions depending on urgency.



Types Of CERCLA Response Actions

- **Remedial Actions:**
  - Usually, long-term response actions intended to permanently and significantly reduce risk.
  - Can be interim actions but are followed up by final actions.
  - Examples of remedial actions include capping landfills, groundwater treatment systems, excavation/disposal of contaminated soils.
- **Removal Actions:**
  - Usually short-term in duration and lower-cost than remedial actions.
  - Greater sense of urgency to address risk than remedial actions.
  - Not intended to replace nor be inconsistent with the final remedial action.
  - Examples include providing drinking water to residents, cleanout and sealing of sump areas, posting/fencing, demolition of contaminated facilities.
- **Three Types of Removals:**
  - Emergency (immediate threat and planning period < six months)
  - Time-Critical (planning period < six months)
  - Non-Time-Critical (planning period > six months)
  - The FFA specifies certain documentation and scheduling requirements for each particular type of removal action.

CERCLA 9 Criteria for Detailed Analysis of Alternatives

THRESHOLD CRITERIA

Overall protection of Human Health and the Environment

- How alterative provides protection of Human Health and Environment

Compliance with ARARs

- Chemical-specific
- Action-specific
- Location-specific

BALANCING CRITERIA

Long-term effectiveness and permanence

- Magnitude of residual risk
- Adequacy and reliability of controls

Reduction of Toxicity, Mobility, or Volume through treatment

- Treatment process used and materials treated
- Volume of materials destroyed or treated
- Degree of expected reductions
- Degree to which treatment is irreversible
- Type and quantity of residuals remaining

Short-term effectiveness

- Protection of community during remediation
- Protection of workers during remediation
- Environmental impacts
- Time until RA objectives are achieved

Implementability

- Ability to construct and operate technology
- Reliability of technology
- Ease of understanding RA, if necessary
- Ability to monitor effectiveness of remedy
- Ability to coordinate and Obtain Approvals from other agencies
- Availability of services and materials

Cost

- Capital
- Operating and maintenance
- Present worth

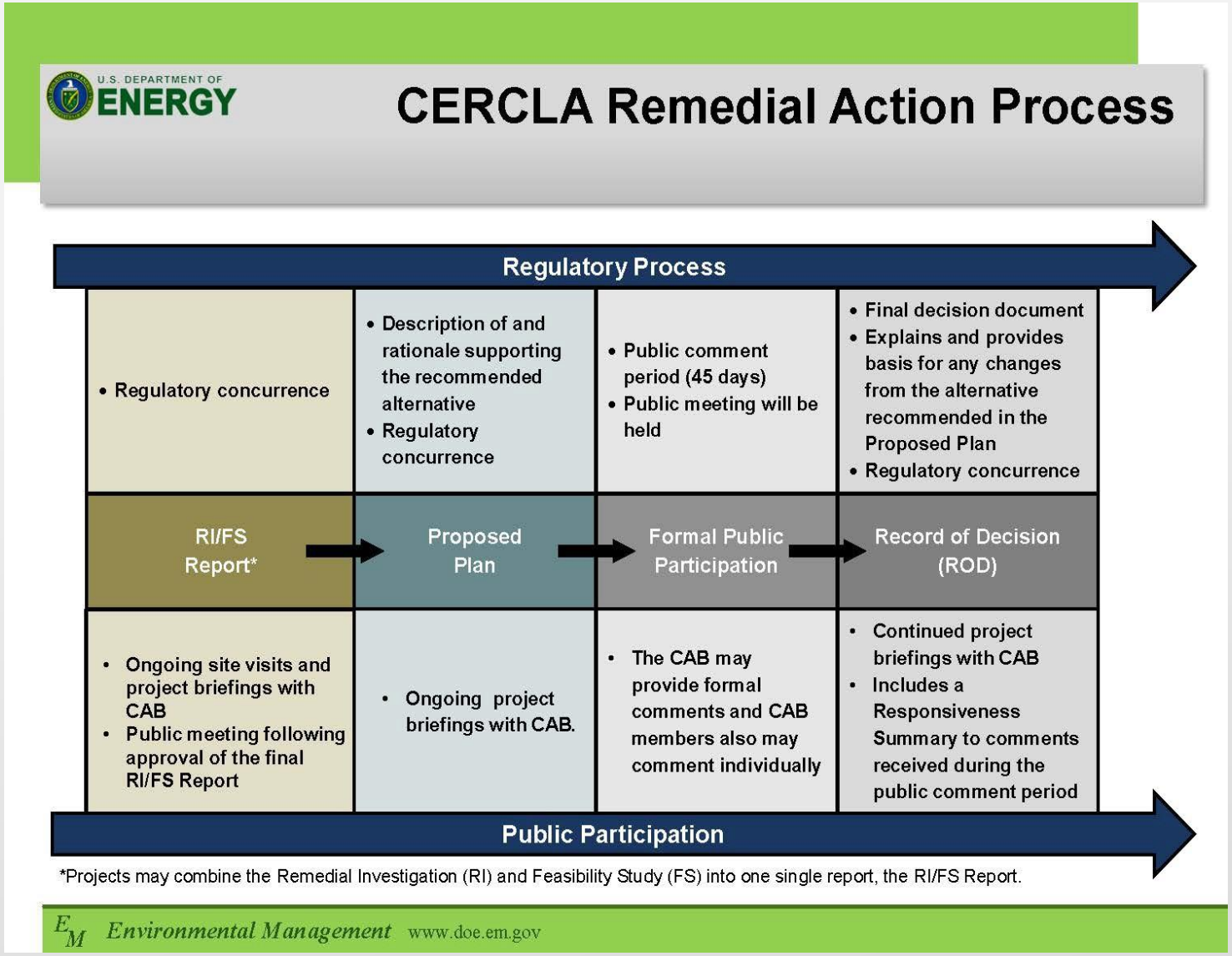
MODIFYING CRITERIA

State Support Agency Acceptance*

Community Acceptance*

* The assessments of these criteria are generally not completed until after public comment on RI/FS report and the proposed plan is received.

CERCLA Remedial Action Process



Key Schedule Requirements

- Public comment periods (30 days under RCRA, but 45 days under CERCLA).
- Consultation with the regulatory agencies is required within 10 days of close of public comment period.
- The Record of Decision (ROD) is due to the regulators within 30 days of close of public comment, provided no significant public comments are received.
- Notice of the final ROD shall be published by DOE, with regulator concurrence, prior to start of work.
- Work must start within 15 months of ROD signature.

Importance of the Administrative Record

- CERCLA requires the establishment of administrative records (ARs) upon which the President shall base the selection of a response action.
- The AR contains those documents which form the basis for selection of a response action. Judicial review of any issue concerning the adequacy of the response action is limited to the AR contents.
- The AR acts as a vehicle for public participation in selecting a response action.

- The AR for the Paducah Site can be found in the Environmental Information Center (EIC) at https://eic.pad.pppo.gov.

FFA Project Managers – Points Of Contact

- FFA requires DOE, EPA, and Kentucky to designate certain individuals as the FFA Project Managers for implementation of the Agreement.
  - DOE – April Ladd
  - EPA – Victor Weeks
  - Kentucky – April Webb