



# Regional Energy Resource Council

---

January 20-21, 2016  
Memphis, Tennessee



*welcome*

# Term 2 RERC Members

**Lance Brown**

Partnership for Affordable Clean Energy

**Anne Davis**

Southern Environmental Law Center

**Wayne Davis**

University of Tennessee

**John Evans**

State of North Carolina

**Catherine Glover**

Chamber of Commerce and Industry

**Rodney Goodman**

Habitat for Humanity

**Wes Kelley**

Columbia (TN) Power & Water Systems

**Pedro Mago**

Mississippi State University

**Peter J. Mattheis**

Tennessee Valley Industrial Committee

**Robert Martineau, Jr.**

State of Tennessee

**Alice Perry**

State of Mississippi

**Goodrich “Dus” Rogers\***

Jackson County (AL) Economic  
Development Authority

**Joe Satterfield**

Blue Ridge Electric Members Cooperative  
(ret'd)

**Jack Simmons**

Tennessee Valley Public Power  
Association

**Stephen Smith**

Southern Alliance for Clean Energy

**John Warren**

Commonwealth of Virginia

**Lloyd Webb**

Olin Chlor Alkali

**Susan R. Williams**

SRW & Associates

\* RERC Chair

# Safety Moment



## Building Emergency Plan



# Today's Meeting

---

# Meeting Purpose

- **Welcome New Term and FACA/RERC Orientation**
- **TVA Update and Policy Update**
- **Information and Advice on Coal Combustion Residuals Impoundment Closure Alternatives**
- **Public Input Listening Session**
- **Field Trip: Tour Allen Fossil Plant/impoundments**

# Agenda – January 20, 2016

<b>10:00</b>	<b>Welcome and Introductions</b>	Dus Rogers, Chairman Joe Hoagland/ DFO Council Members
	<b>Safety Moment</b>	Jo Anne Lavender, Facilitator
<b>10:15</b>	<b>Meeting Purpose</b>	Hoagland
<b>10:20</b>	<b>Overview of Agenda</b>	Lavender
<b>10:25</b>	<b>FACA / RERC Orientation</b>	Kelly Love, OGC
<b>10:30</b>	<b>RERC and TVA Update</b>	Hoagland
<b>10:45</b>	<i>Break</i>	
<b>11:00</b>	<b>Policy Update</b>	Brenda Brickhouse
<b>11:45</b>	<i>Lunch</i>	
<b>1:00</b>	<b>Introduction of Advice Topic</b>	Lavender

# Agenda – January 20, 2016 (cont'd)

<b>1:10</b>	<b>Orientation – Coal Combustion Residuals (CCR)</b>	Scott Turnbow
<b>1:45</b>	<b>Modeling Impoundment Closure Options: Electric Power Research Institute (EPRI)</b>	Bruce Hensel
<b>2:30</b>	<i>Break</i>	
<b>2:45</b>	<b>Overview: CCR Impoundment Closure Draft EIS</b>	Amy Henry
<b>3:05</b>	<b>Preliminary Discussion</b>	Council, Lavender
<b>3:30 – 4:30</b>	<b>Public Listening Session</b>	Lavender facilitate
<b>4:30</b>	<b>Wrap Up, Overview of Evening and Day 2</b>	Rogers/ Hoagland/ Lavender
<b>5:30</b>	<b>Reception and Dinner</b> <i>Special Recognition of Clifford Stockton</i>	



# Agenda – January 21, 2016

<b>7:30</b>	<i>Breakfast</i>	
<b>8:30</b>	<b>Allen Fossil Plant Field Trip</b>	Council
<b>11:30</b>	<i>Lunch</i>	
<b>12:30</b>	<b>Welcome, Review of Day 1</b>	Hoagland/ Lavender
<b>12:45</b>	<b>CCR Impoundment Closure Draft EIS</b>	Henry
<b>1:15</b>	<b>CCR Discussion and Advice to TVA</b>	Council / Lavender facilitate
<b>2:15</b>	<i>Break</i>	
<b>2:30</b>	<b>CCR Discussion and Advice to TVA (cont.)</b>	Council / Lavender facilitate
<b>3:30</b>	<b>Summary, RERC Next Steps</b>	Lavender/ Rogers / Hoagland
<b>3:45</b>	<b>Adjourn</b>	



The Federal Advisory Committee Act  
and  
The Regional Energy Resource Council

---

FACA Briefing—Second Term

Kelly Love, Attorney

Office of General Counsel

# TVA's Regional Energy Resource Council

- Created by TVA “to provide advice on its energy resource activities and the priorities among competing objectives and values”
- TVA's energy resource activities include:
  - > Constructing and operating various supply-side resources, including fossil-fueled power plants, nuclear plants, hydroelectric dams, and renewable resources
  - > The development and management of demand-side resources, including energy efficiency
  - > The design, construction, and operation of power delivery systems
  - > The integration of all of these energy resources into plans for meeting future demands for electricity in the TVA region

# Key Provisions of RERC Charter

- Council provides advice only
  - > Advice reported to the TVA Board's External Relations Committee
- Term of Council is two years
  - > Second term expires July 31, 2017
- Approximately two meetings per year
- Designated Federal Officer (DFO): Joe Hoagland, Vice President, Stakeholder Relations
- Balanced Membership

# RERC Meeting Protocols

## Agenda

- ◆ Agenda prepared and approved by the Designated Federal Officer (DFO) in consultation with Council Chair
- ◆ Agenda distributed to Council and published in the Federal Register prior to each meeting
- ◆ Topics may be submitted to the DFO by any member of the Council, or non-members, including members of the public

## Meeting Minutes

- ◆ DFO will ensure that minutes are prepared for each meeting, approved by the Chair, and made available to Council members

## Voting

- ◆ Any member of the Council may make a motion for a vote
- ◆ Recommendations to TVA Board shall require an affirmative vote of at least a simple majority of the total Council members present on that date
- ◆ Council members may include minority or dissenting views

## Discussion

- ◆ DFO (or his designee) will facilitate and ensure good order during all open discussions
- ◆ Only one speaker or attendee is permitted to comment at a time
- ◆ To be recognized by the Chair (or meeting facilitator) in order to provide comment, please turn your name card on its side



# DFO Briefing

---

Joe Hoagland, Designated Federal Officer

# Term 1 RERC (2013-2015) Recap

## Topics Covered

- ◆ Introduction to TVA
- ◆ TVA's 2015 Integrated Resource Plan
  - *Strategies and Scenarios*
  - *Evaluation Criteria*
  - *Public Comments*
- ◆ The Cost of Electricity
- ◆ Reliability of the Grid
- ◆ Environmental Stewardship
- ◆ Changing Utility Market Place
- ◆ Updates on TVA Projects
  - Allen Environmental Assessment



## Common Themes

- ◆ Competitive Rates
- ◆ Declining Demand
- ◆ Balanced Portfolio
- ◆ Environmental Regulation
- ◆ Multi-Directional Grid and Supply/Demand Balance
- ◆ Cleaner Portfolio

# Term 1 RERC Advice

*'While never sacrificing reliability and safety, the Council recognizes and endorses TVA's focus on financial discipline, and providing for affordable costs based on efficient consumption of electricity.'* (RERC, January 2014)

*'TVA should consider the impact its decisions have on lower income residents. Economic development is important to employ lower income residents.'* (RERC, February 2015)

*'As the marketplace shifts to increasing load side resources and end use customer interactions, collaboration between TVA, Local Power Companies, and other stakeholders will become increasingly important. Efforts should focus on continued education and engagement.'* (RERC, February 2015)

*'The RERC recommends that the TVA Board approve the 2015 IRP, and use the IRP as a guide to deliver reliable, low-cost power to electric customers in the Tennessee Valley.'* (RERC, June 2015)



# Term 2 RERC (2015-2017) Preview

## Term 2 Proposed Topics

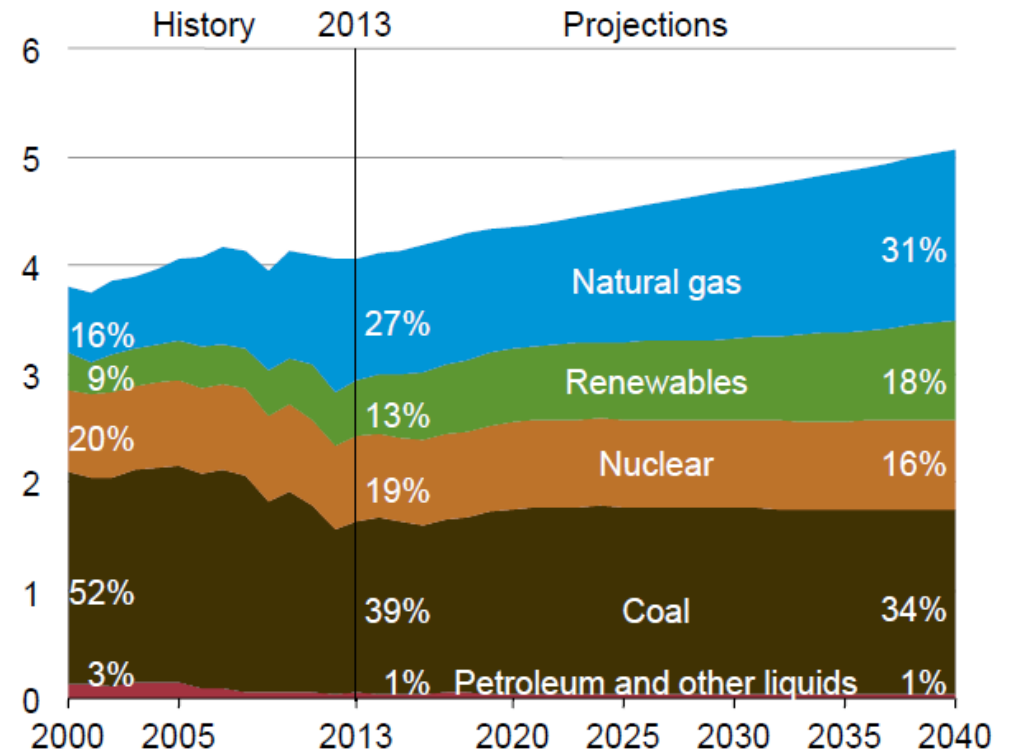
- Environmental Regulations
  - Coal Combustion Residuals
  - Clean Power Plan
- Distributed Energy Resources and the Evolving Utility Marketplace
- Economic Development
- Updates on various TVA Projects

# TVA Update

- Renewables Program Update
- Watts Bar Unit 2
- Recent water management and flood mitigation
- Raccoon Mountain
- eScore

# National Direction of Energy

- Coal decreasing
  - 52% in 2000 down to 39% in 2013
- Increase of Natural gas and Renewables
  - Natural gas 16% in 2000, up to 27% in 2013
  - Renewables 9% in 2000, up to 13% in 2013

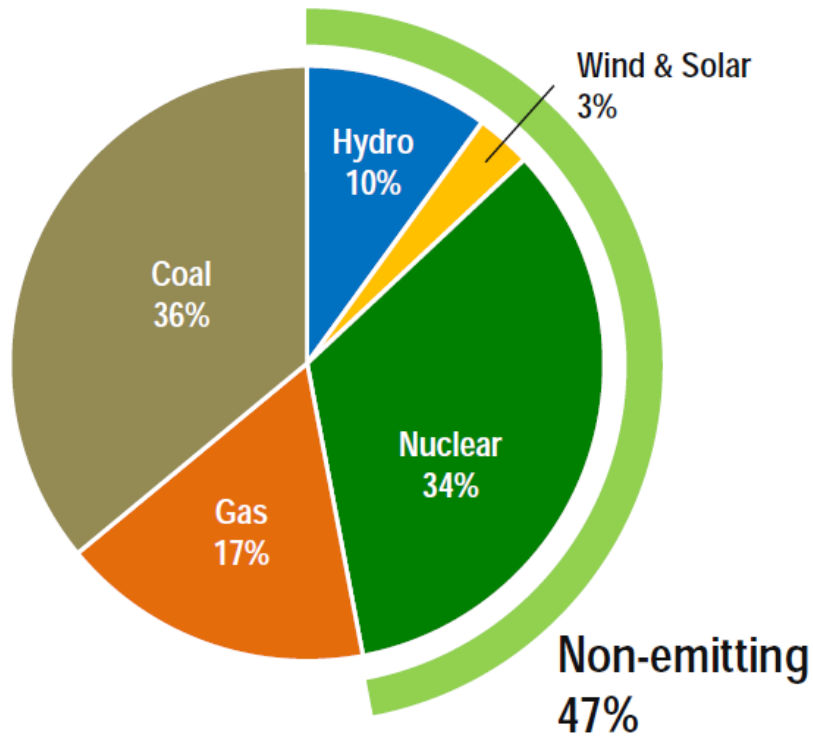


Electricity generation by fuel  
(trillion kilowatthours)

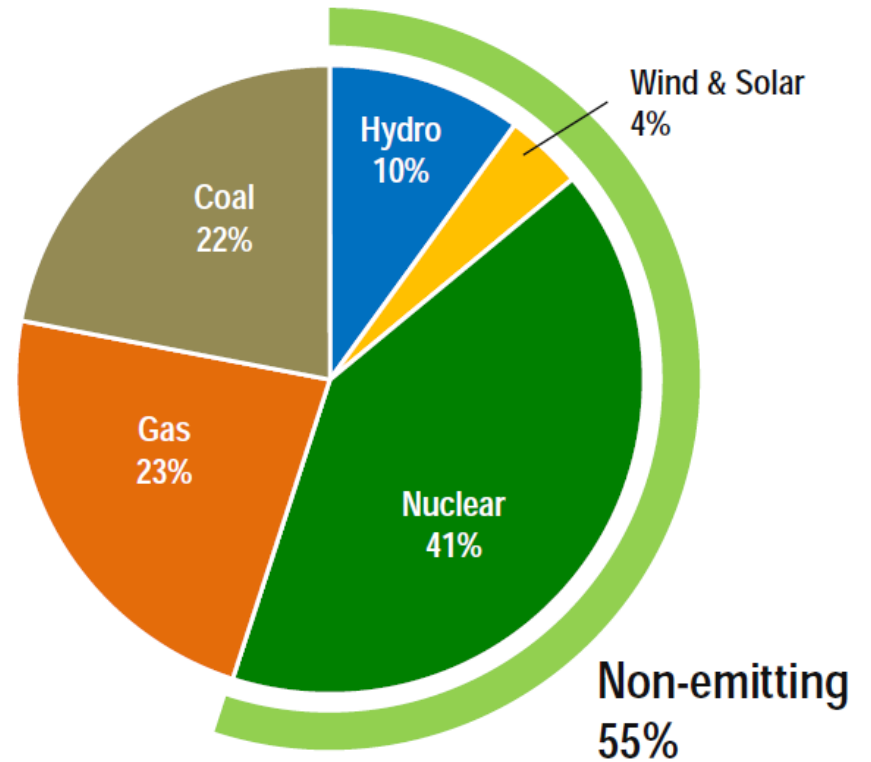
Source: EIA, [http://www.eia.gov/forecasts/aeo/pdf/0383\(2015\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf)

# TVA's Capacity and Energy

2015 – 161 TWhs



2020 – 167 TWhs

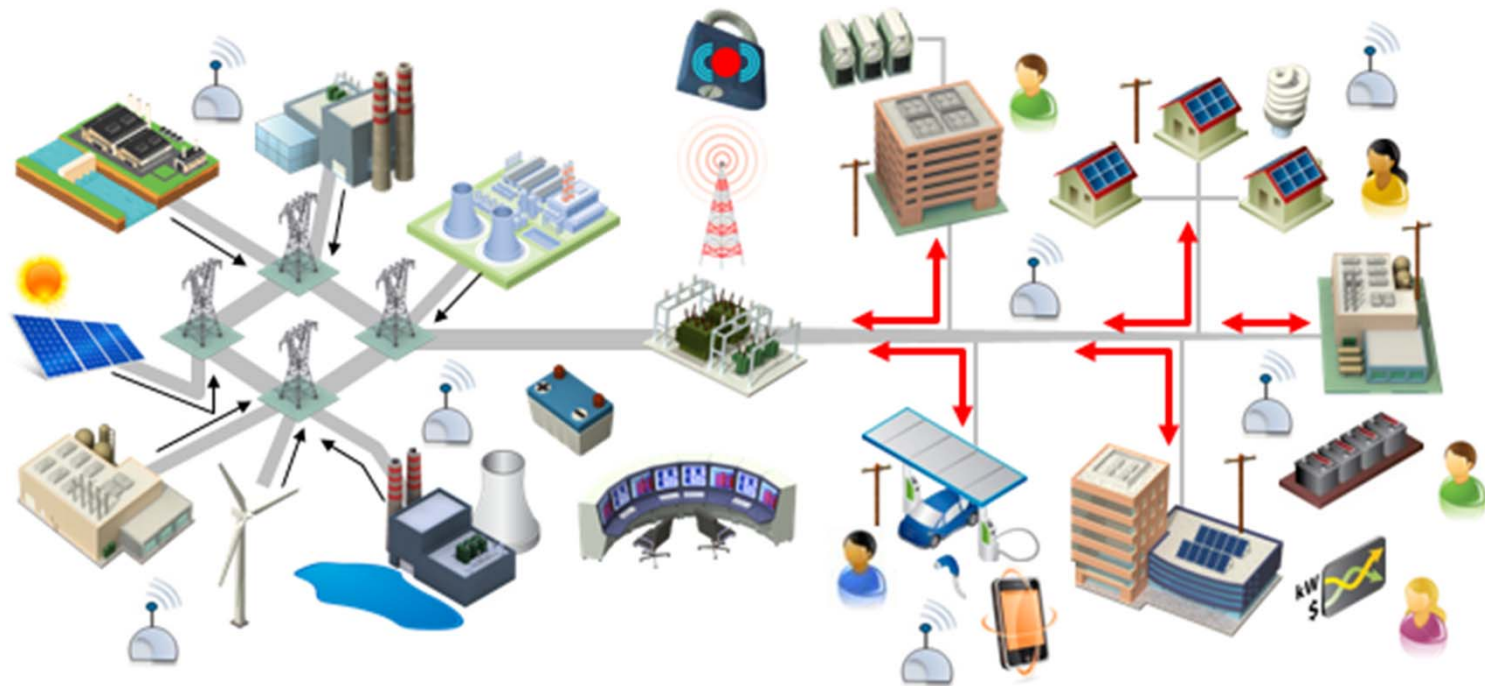


# TVA Future – Continued Cleaner Energy



TVA is projected to reduce CO<sub>2</sub> emissions 40% below 2005 levels by 2020

# The Evolving Utility Paradigm



Power System that is Highly **Flexible, Resilient** and **Connected** and Optimizes Energy Resources

BREAK TIME





# Policy Update

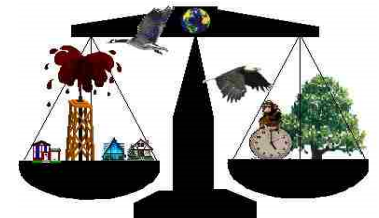
---

Brenda Brickhouse, Vice President  
Environment and Energy Policy



# Key expectations regarding environmental policy and requirements

- Rulemaking activities expected to increase
  - Outgoing administration pushing measures through approval processes
  - States working to implement or adopt federal requirements.
- Many environmental laws require periodic reviews
  - Expect increased stringency and longer term uncertainty
- Federal, state and local regulatory programs increasingly use enforcement tools in matters of regulatory controversy
  - Citizen suits are frequently challenging recently finalized rules and agency actions



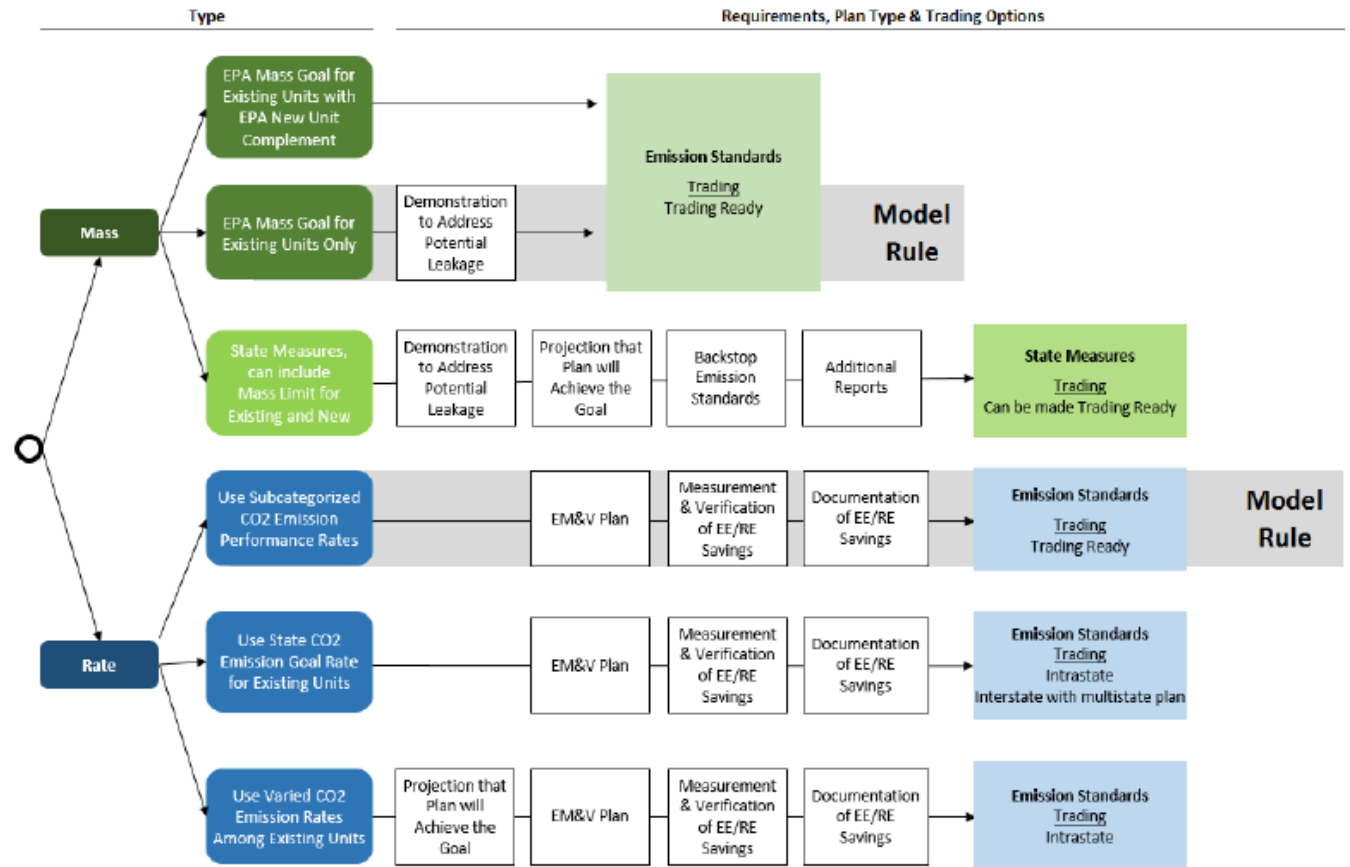
# Recent actions and planning implications

- **Recent actions**
  - Air – Ozone Standard, Cross State Air Pollution Rule
  - Carbon – Clean Power Plan
  - Water – Cooling Water Intakes, Waters of the US, Effluent Limitation Guidelines
  - Waste – Coal Combustion Residuals
- **Key Fleet Planning Impacts:**
  - Ozone Standard More Stringent but Less Impactful
  - Clean Power Plan Multifaceted
  - Effluent Limitation Guidelines Challenging and Costly
  - CCR Management Direction Established



# Clean Power Plan State Plan Decision Tree

- This chart shows some of the compliance pathways available to states under the final Clean Power Plan. Ultimately, it is up to the states to choose how they will meet the requirements of the rule.
- EPA's illustrative analysis shows that nationwide, in 2030, a **mass-based approach is less-expensive** than a rate-based approach (\$5.1 billion versus \$8.4 billion).
- Under a mass-based plan, states that anticipate continuing or expanding investments in energy efficiency have unlimited flexibility to leverage those investments to meet their CPP targets. EE programs and projects do not need to be approved as part of a mass-based state plan, and EM&V will not be required.
- For states currently implementing mass-based trading programs, the "state measures" approach offers a ready path forward.
- Demand-side energy efficiency is an important, proven strategy that states are already widely using and that can substantially and cost-effectively lower CO2 emissions from the power sector.



# Observations on initial state Clean Power Plan decisions

<b>MASS (tons)</b>
Allocation Assumptions Critical
Incremental nuclear not as big of compliance tool
New Natural Gas Plants do not supply much compliance margin
States comfortable with cap and trade rules based on tons of pollutants
Federal Plan likely to be mass

<b>RATE (lbs/MWh)</b>
Fewer assumptions in analyses
Incremental nuclear provides large volumes of Emission Reduction Credits
Energy Efficiency and Renewables have commensurate impact on compliance
Rate-based state plans could be complex
Can better accommodate growth

# TVA and the Clean Power Plan

## State Plans enable tailoring compliance to our state/system realities

- Political pressures could hamper compliance planning
- Long range impacts still hard to quantify until state plans solidify

## Fair allocation of compliance burden or compliance credit

- Applicable in Kentucky, Alabama, and Mississippi
- Plant retirements and acquisitions could confound assumptions

## Trading enables system compliance

- Preserve our ratepayers investments for their benefit
- Maintain low rates and reliable electric service

- Electric system reliability Impacts unknown until state plans formulated
- Integrated Resource Plan (IRP) sets us up well
- Additional decisions in the long term with time to adapt
- Flexibility and reliability of the TVA fleet provides significant resiliency and sustainability



# TVA Coal Combustion Residuals Management

- TVA is continuing to modernize our ash management and convert to dry storage
- EPA's final "nonhazardous" waste rule governs ash ponds, landfills, groundwater monitoring, etc.
- *TVA's program, including closing impoundments, facilitating compliance with these rules*



# Questions?



Break for Lunch





# Introduce Advice Topic

---

Jo Anne Lavender

# RERC Advice Topic

## Coal Combustion Residuals (CCR) Impoundment Closure Alternatives

- CCR Overview
- EPRI: Modeling CCR Impoundment Closure Options
- CCR Impoundment Closure Draft EIS
- Allen Fossil Plant Tour

# RERC Advice Questions

1. What do you think about TVA seeking public comment on these closure alternatives including holding meetings in communities near coal-fired plants?
2. TVA has evaluated multiple criteria (listed below) in the Draft EIS. Is there anything important that we missed?
  - Volume of CCR materials
  - Mode and duration of transport (borrow/fill) activities
  - Schedule of closure (milestones of CCR Rule)
  - Impoundment Stability (static, seismic)
  - Risk to human health & safety (workers, motorists)
  - Effects to adjacent environmental resources (wetlands, groundwater, surface water, air, biota, historic resources)
  - Environmental Justice
  - Cost
3. From your perspective, what are the pros and cons for the closure in place alternative, and for the closure by removal alternative?



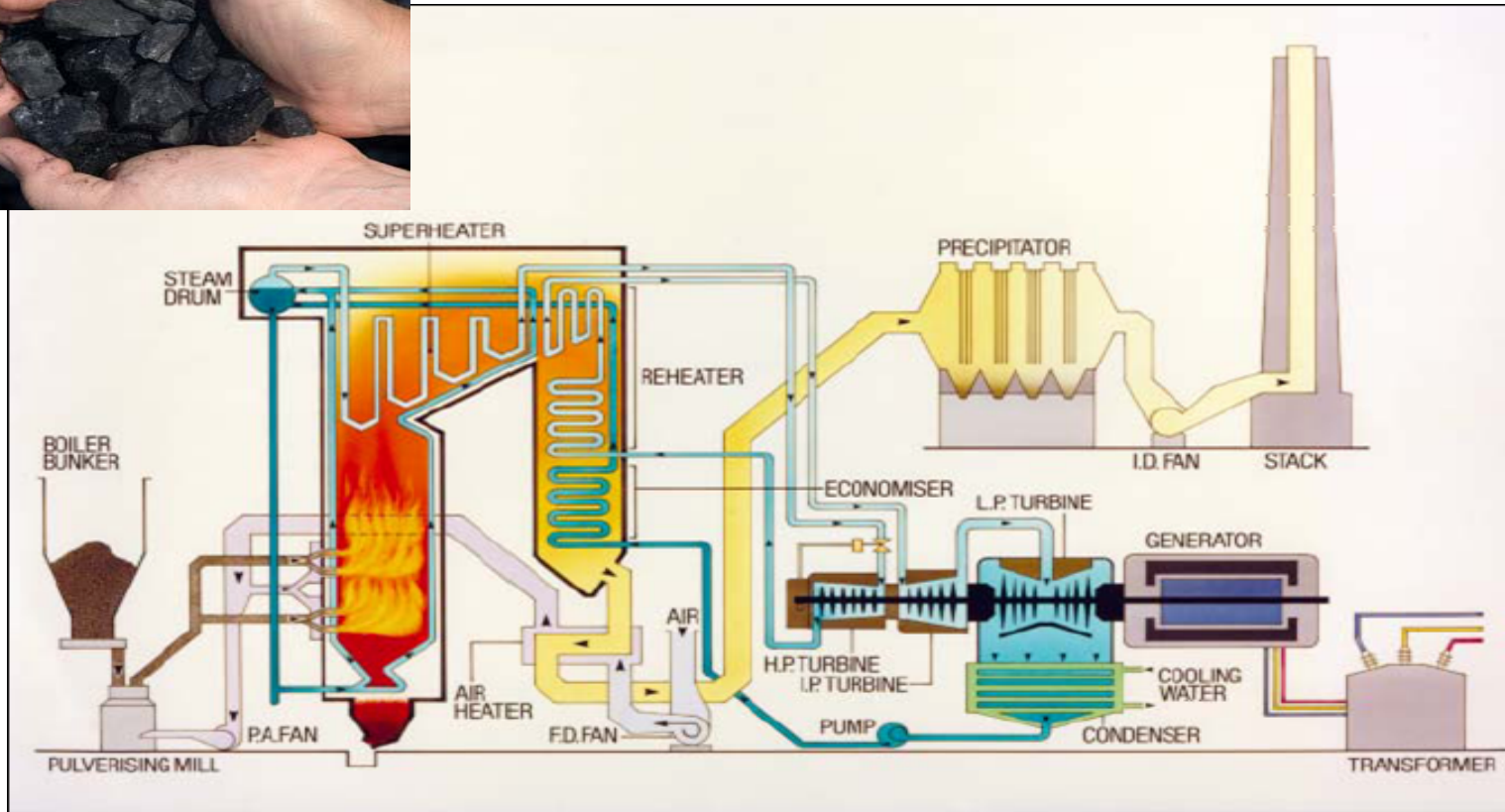
# Overview

# Coal Combustion Residuals

---

Scott Turnbow, General Manager  
Strategy and Engineering  
Civil Projects & CCP Management

# CCR Overview



# CCR Overview

## Wet Process



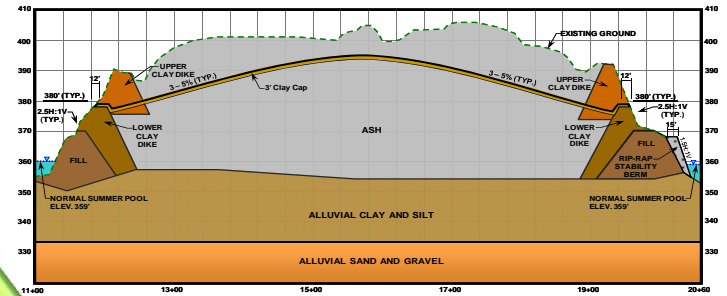
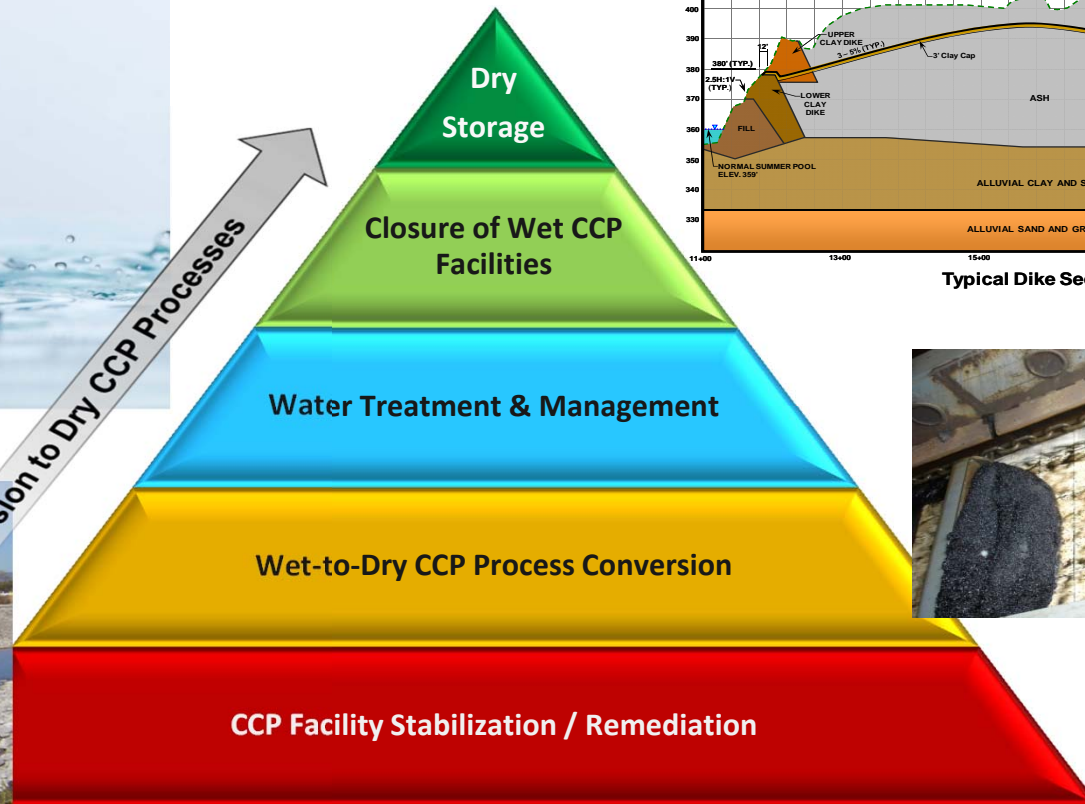
## Dry Process



# CCR Overview



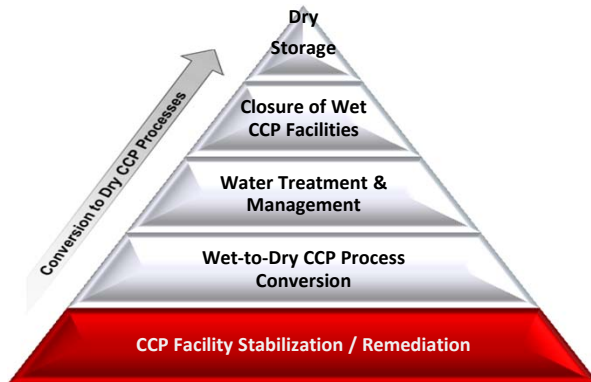
Conversion to Dry CCP Processes



Typical Dike Section



# Initial Programmatic Approach



*Construction of Improvements at Bull Run*



## Phase 1 – Facility Review

- Records Review/Staff Interviews
- Site Condition Review
- Recommendations for Future Analysis, Studies, and Program Improvements
- Final Report Issued June 24, 2009



## Phase 2 – Engineering Assessments

- Geotechnical Explorations
- Hydrologic and Hydraulic Analysis
- Dam Safety Hazard Classifications
- Piping/Spillway Inventories



## Phase 3 – Remediation Design and Construction

- Structural Deficiencies
- Improve Freeboard (Storage)
- Risk Reduction (Spillways, Hazards Classification)

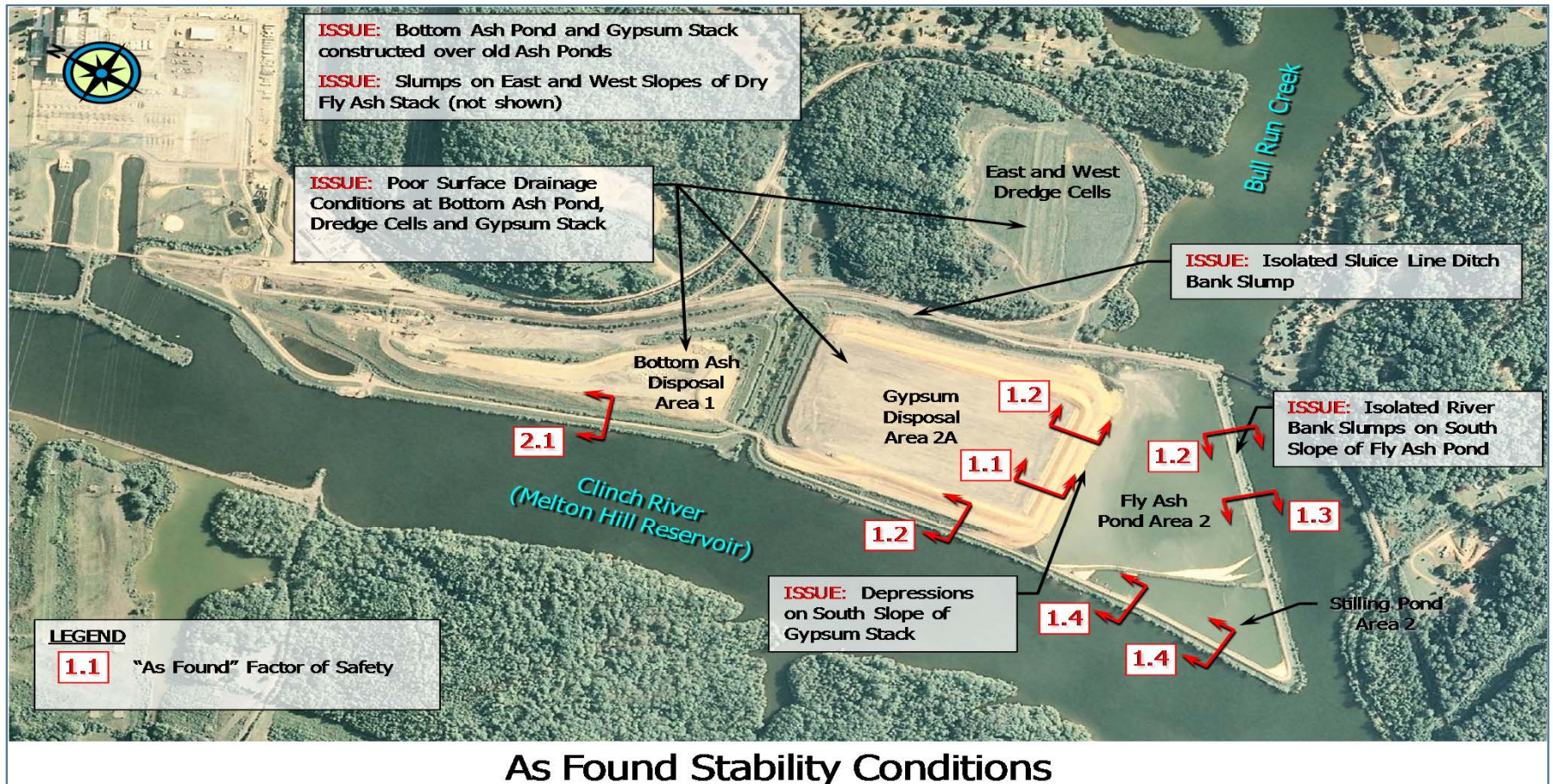


## Phase 4 – Programmatic Improvements

- Dam Safety Inspection Training
- Programmatic Documents



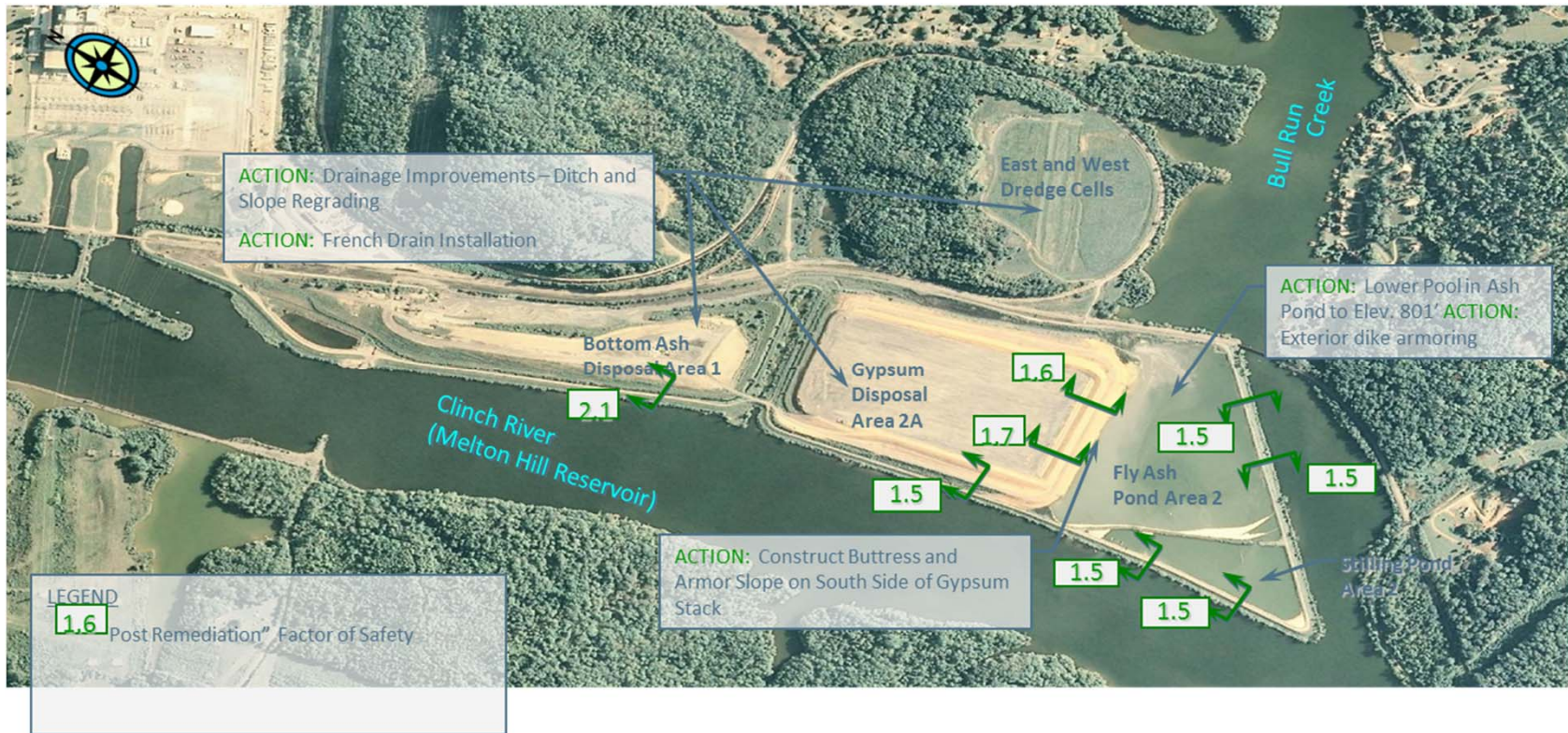
# Bull Run: Phase 2 Assessment



# Bull Run: Gypsum Stack Toe (before)



# Bull Run: Phase 3 Remediation



## Bull Run: Gypsum Stack Toe (after)



# Instrumentation Monitoring

## Advanced Technology Impoundment

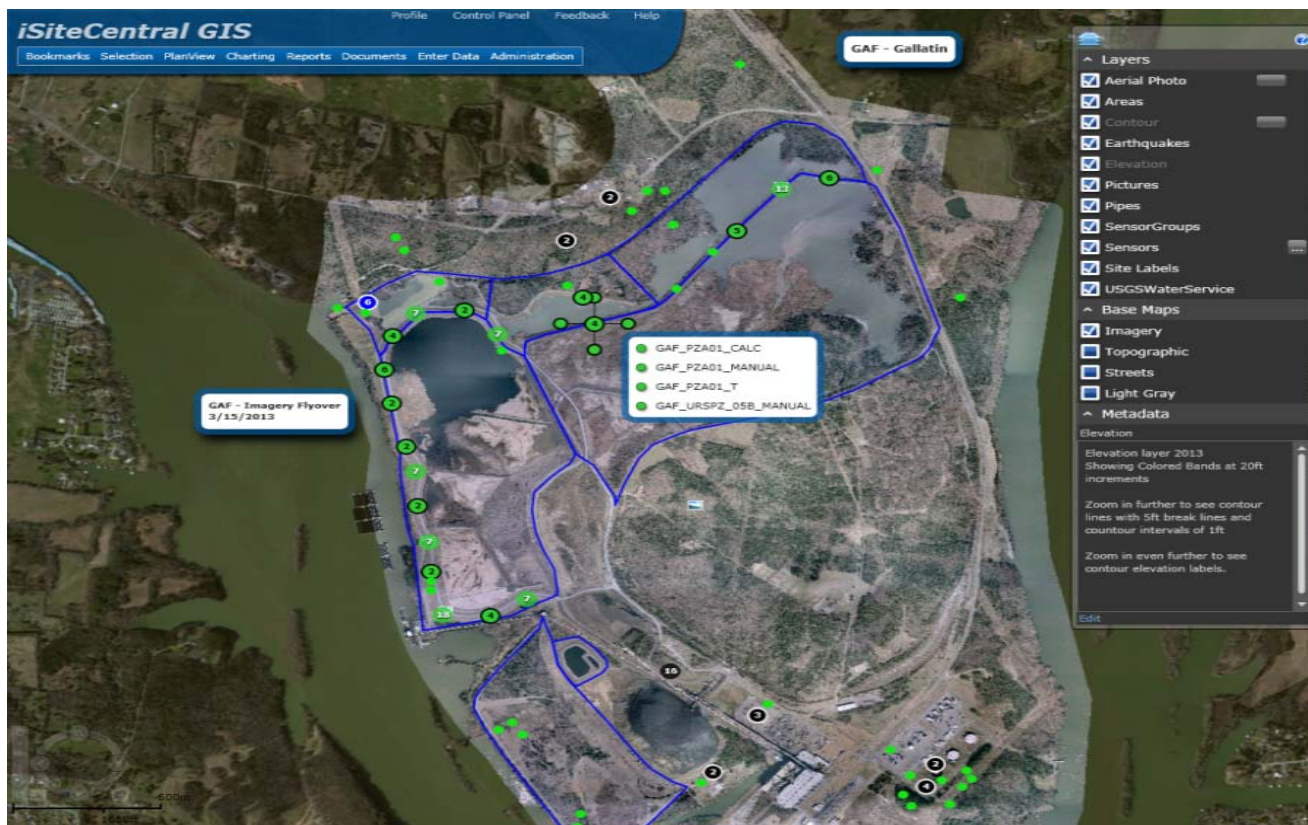
### Monitoring

- Monitors in real time, the health and stability of all TVA CCP facilities.
- The ATIM center provides multiple screens and computers for simultaneous analysis and risk management of CCP facilities.
- The ATIM center provides a location for emergency preparedness and monitoring off CCP facilities.



# Instrumentation Monitoring

## Advanced Technology Impoundment Monitoring



# Instrumentation Monitoring

## Advanced Technology Impoundment Monitoring

### Instrumentation Automation

- 307 piezometers
- 82 slope inclinometers
- 10 weather stations
- 8 River Level Gauges
- 13 Pond Level Gauges

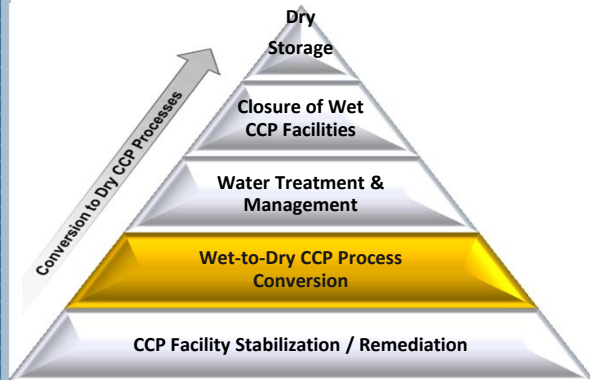
### Manual Instrumentation – Quality Control

- 707 Piezometers
- Variable Monitoring for  
QC of Automated  
Instrumentation.

### Notification Alerts – Automated Email



# CCR Dewatering Facilities



## DFA Conversion

- Completed KIF & BRF
- PAF U3 in Planning

## Gypsum Dewater

- Completed KIF & BRF
- PAF U3 in Planning

## Bottom Ash Dewatering

- Completed Bull Run
- In Design/Planning:
  - Kingston
  - Gallatin
  - Shawnee
  - Cumberland
  - Paradise



# CCR Landfills - New



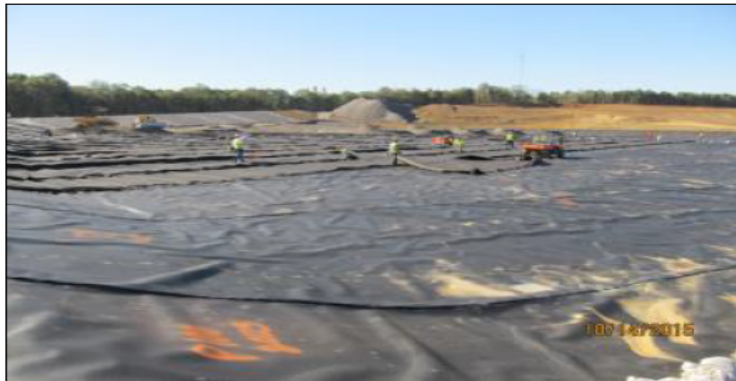
# CCR Landfills – New Gallatin Construction



Haul Road paving



50% of Liner installed



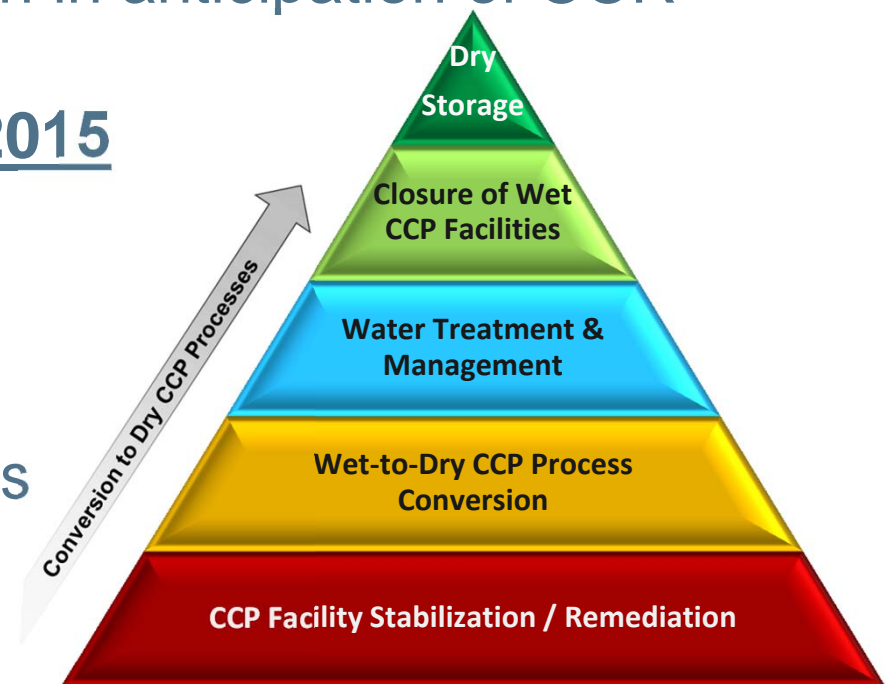
Installation of Geocomposite



Placing Protective Cover

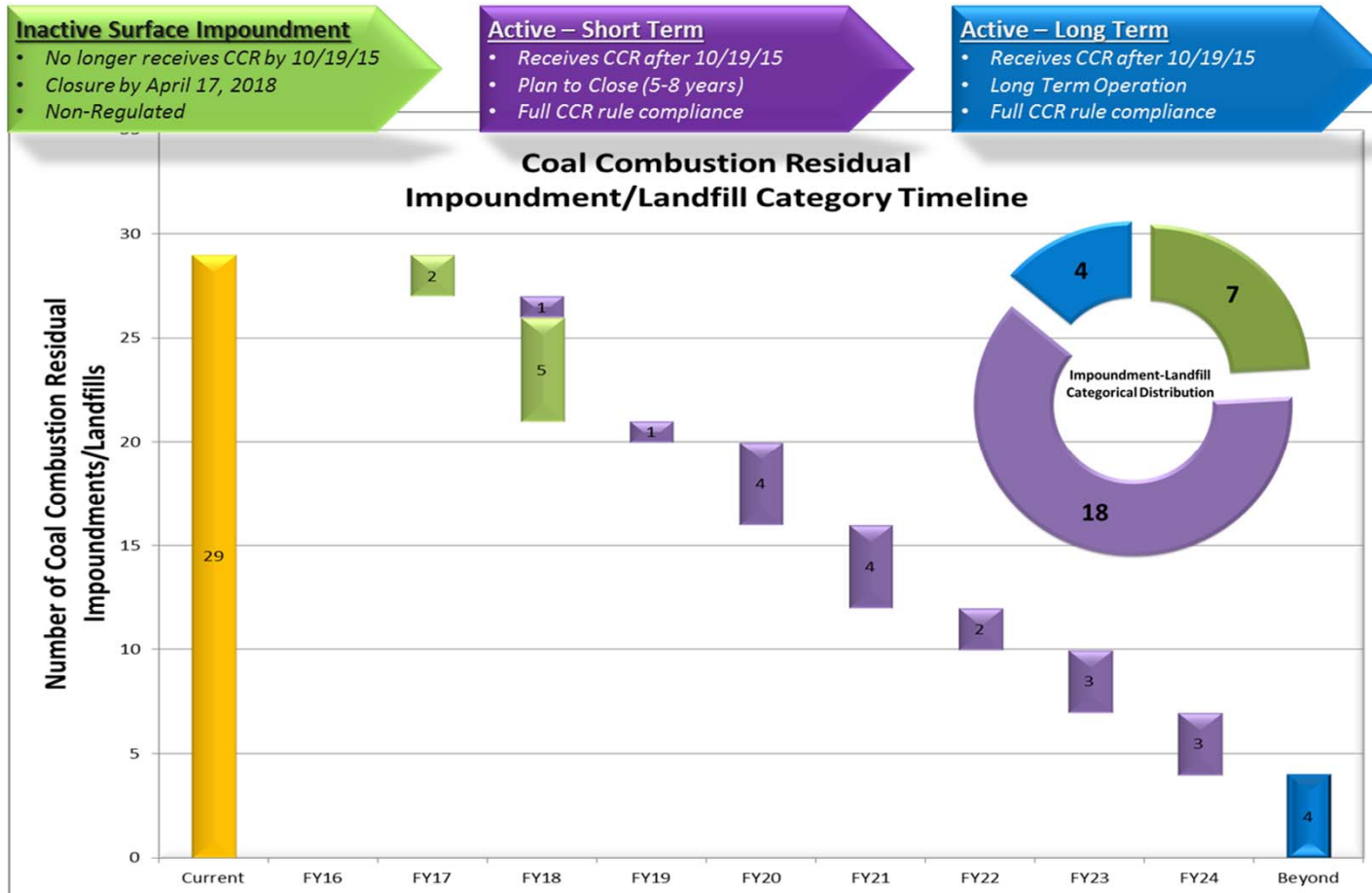
# CCR Rule Overview

- TVA commits to convert to dry CCR process (2009)
- Establishes technical approach in anticipation of CCR Rule (2009-2015)
- Rule Effective: **October 19, 2015**
- Rule is “**Self-Implementing**”
  - State does not enforce
  - EPA does not enforce
  - Enforced: “Citizen” lawsuits
- **Subtitle-D Non-Hazardous**



# Strategic Field Work Closure Timeline

## CCR Rule Categorical Distribution



# Allen Fossil Plant CCR Rule Applicability

## Inactive Surface Impoundment

- No longer receives CCR by 10/19/15
- Closure by April 17, 2018
- Non-Regulated

## Active – Short Term

- Receives CCR after 10/19/15
- Plan to Close (5-8 years)
- Full CCR rule compliance

## Active – Long Term

- Receives CCR after 10/19/15
- Long Term Operation
- Full CCR rule compliance



# Bull Run Fossil Plant

## CCR Rule Applicability

### Inactive Surface Impoundment

- No longer receives CCR by 10/19/15
- Closure by April 17, 2018
- Non-Regulated

### Active – Short Term

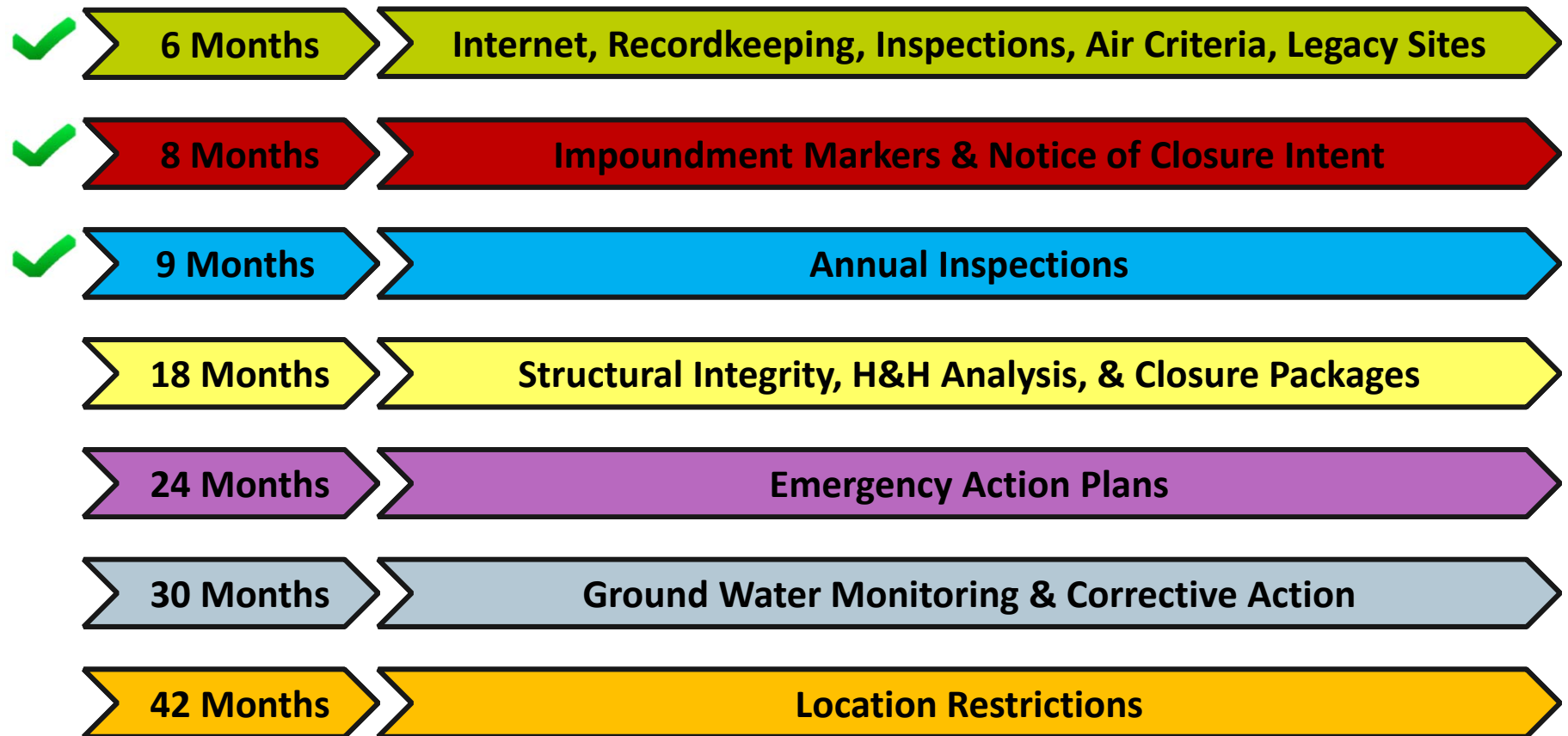
- Receives CCR after 10/19/15
- Plan to Close (5-8 years)
- Full CCR rule compliance

### Active – Long Term

- Receives CCR after 10/19/15
- Long Term Operation
- Full CCR rule compliance

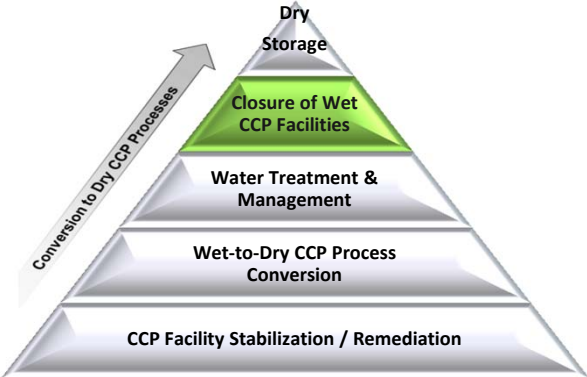


# CCR Rule: Implementation Timeline



# CCR Closed Sites

## Widows Creek Gypsum Stack





# Questions?

# Relative Impact Framework Closure in Place vs Excavate & Redispose

**Bruce Hensel**  
Senior Technical Leader

**TVA Regional Energy Resource Council  
Meeting**  
January 20, 2016



# Agenda

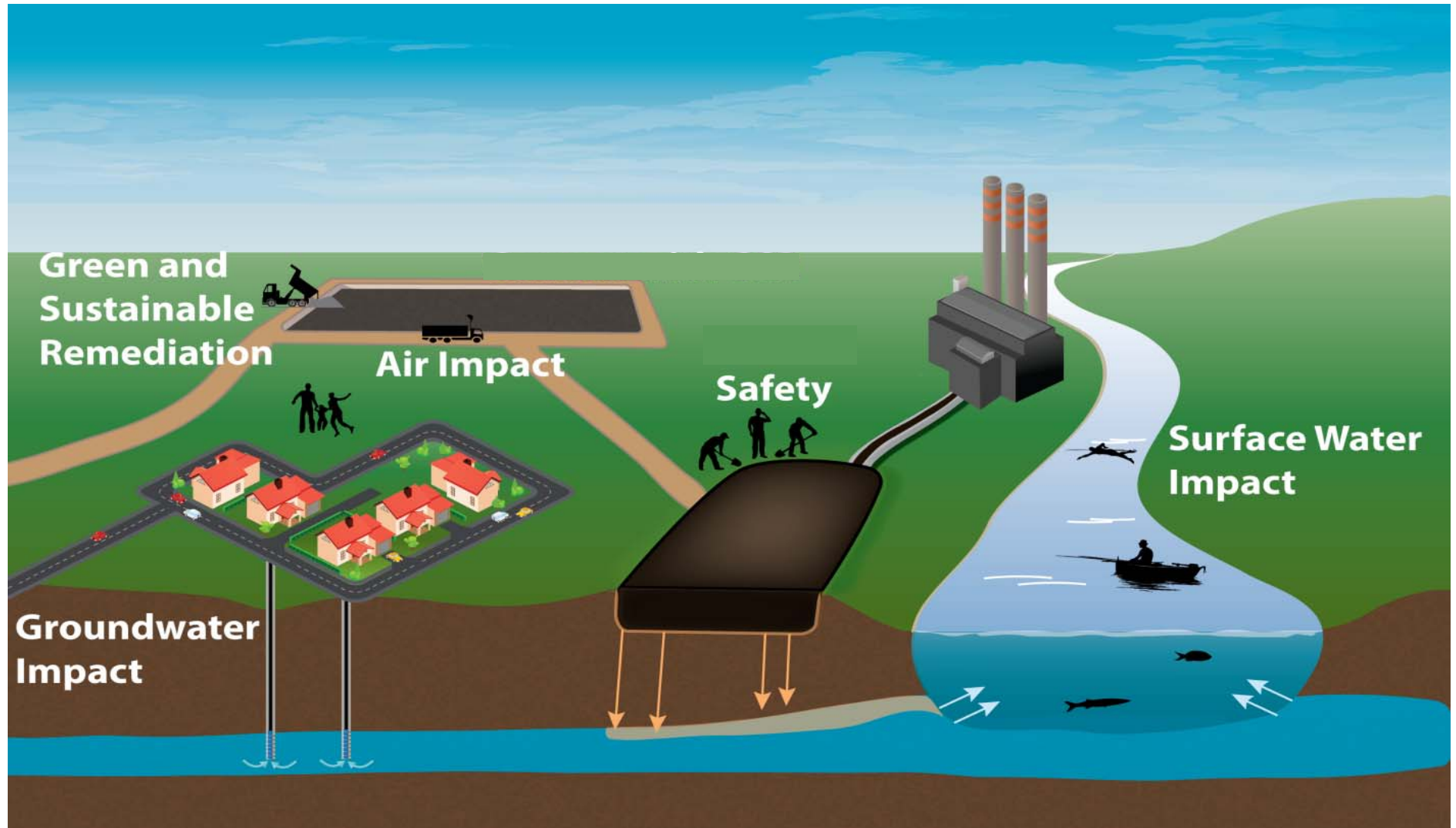


Background

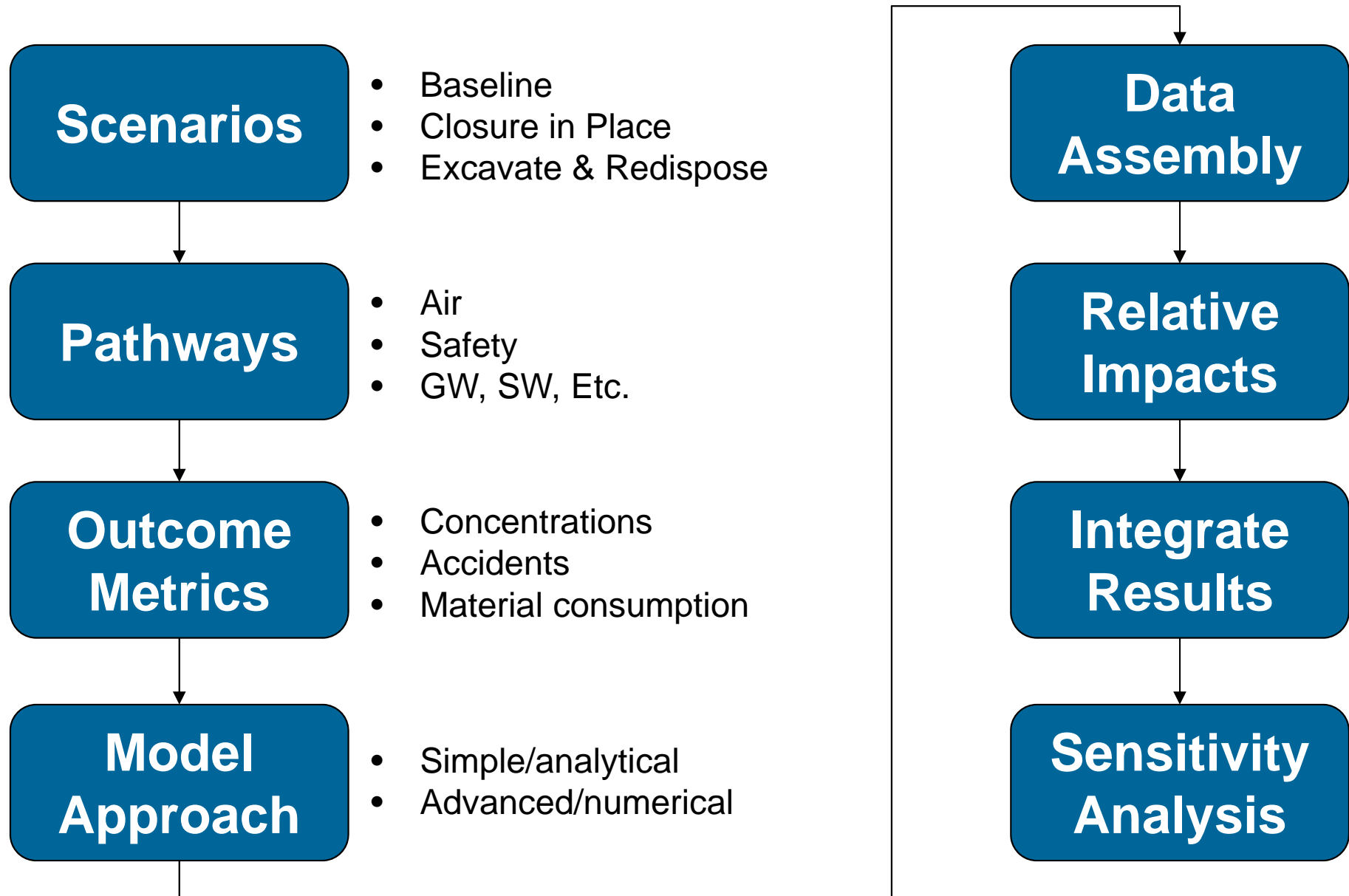
Relative  
Impact  
Framework  
Overview /  
Examples

Observations

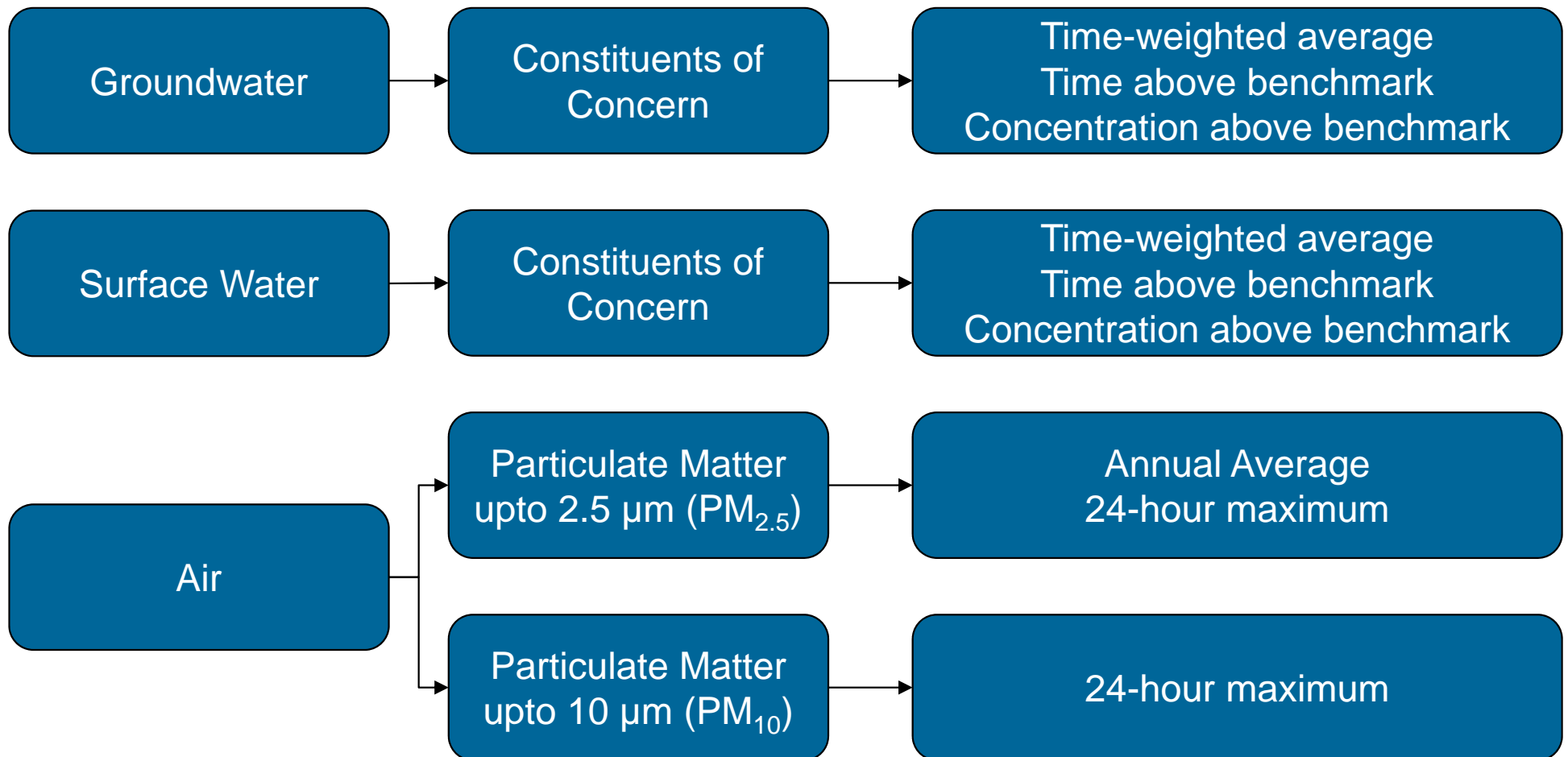
# Relative Impact of Closure Alternatives Based on Multiple Exposure Pathways



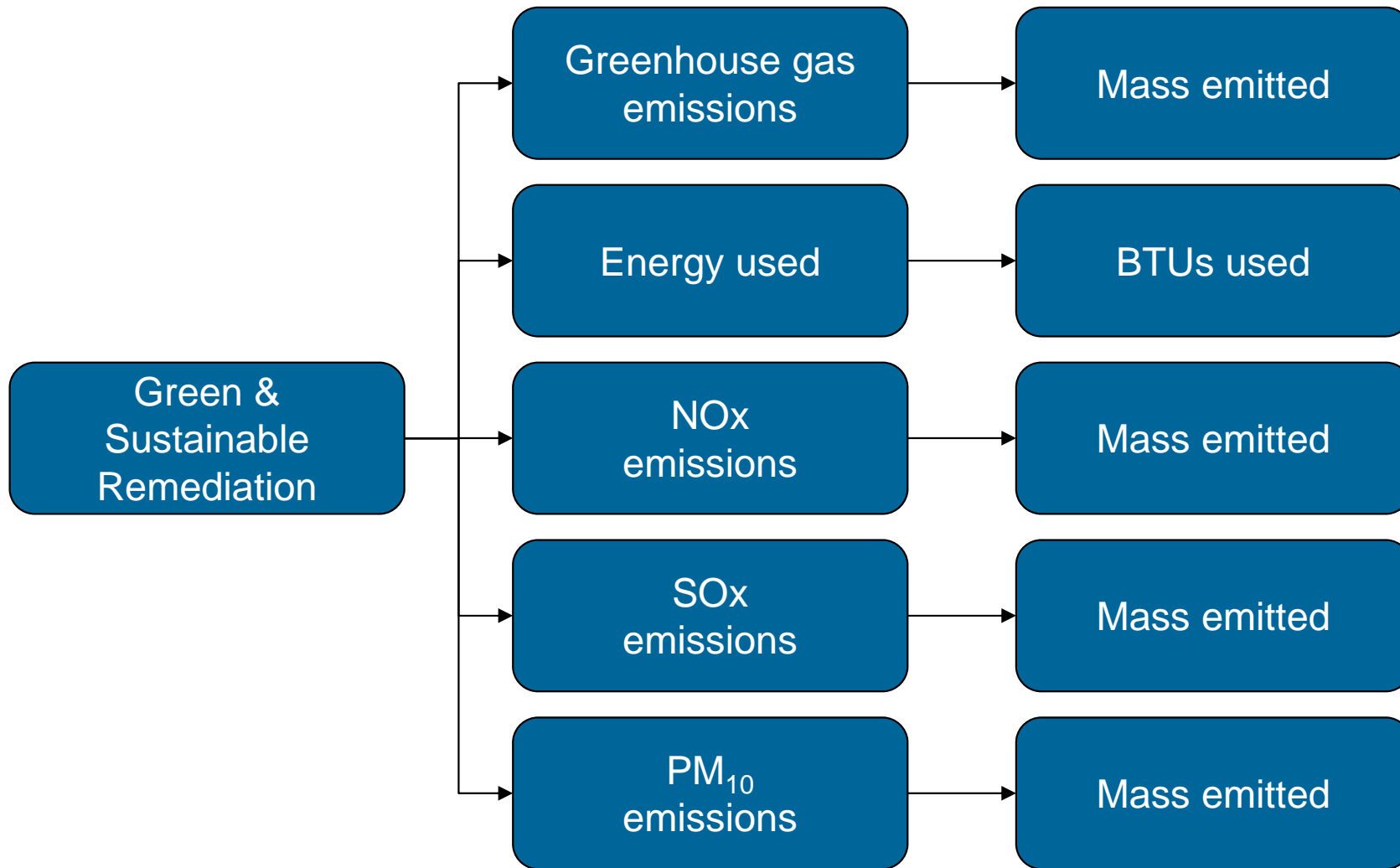
# Approach



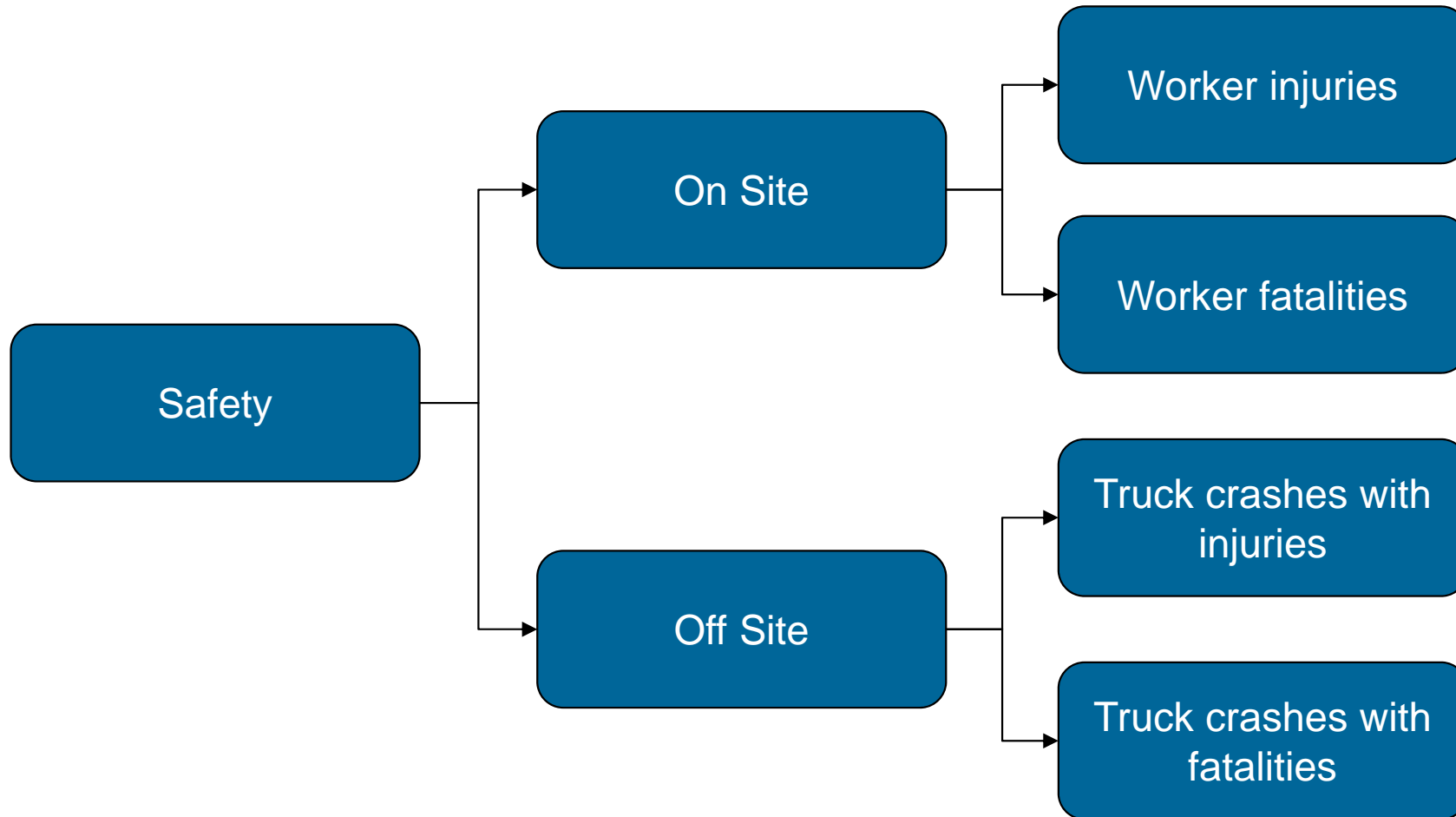
# Pathways, Parameters, & Metrics



# Pathways, Parameters, & Metrics (Continued)

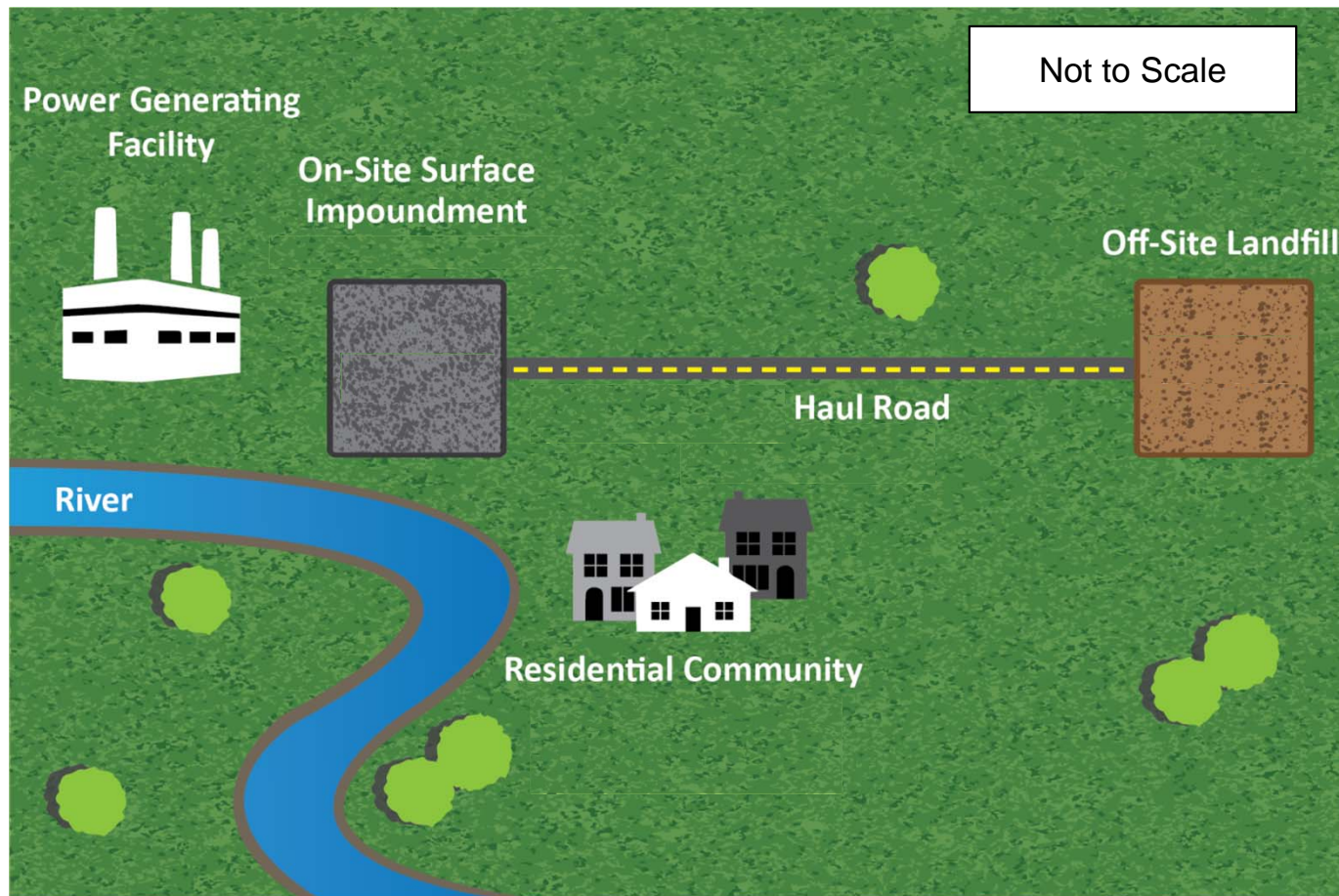


# Pathways & Metrics (Continued)





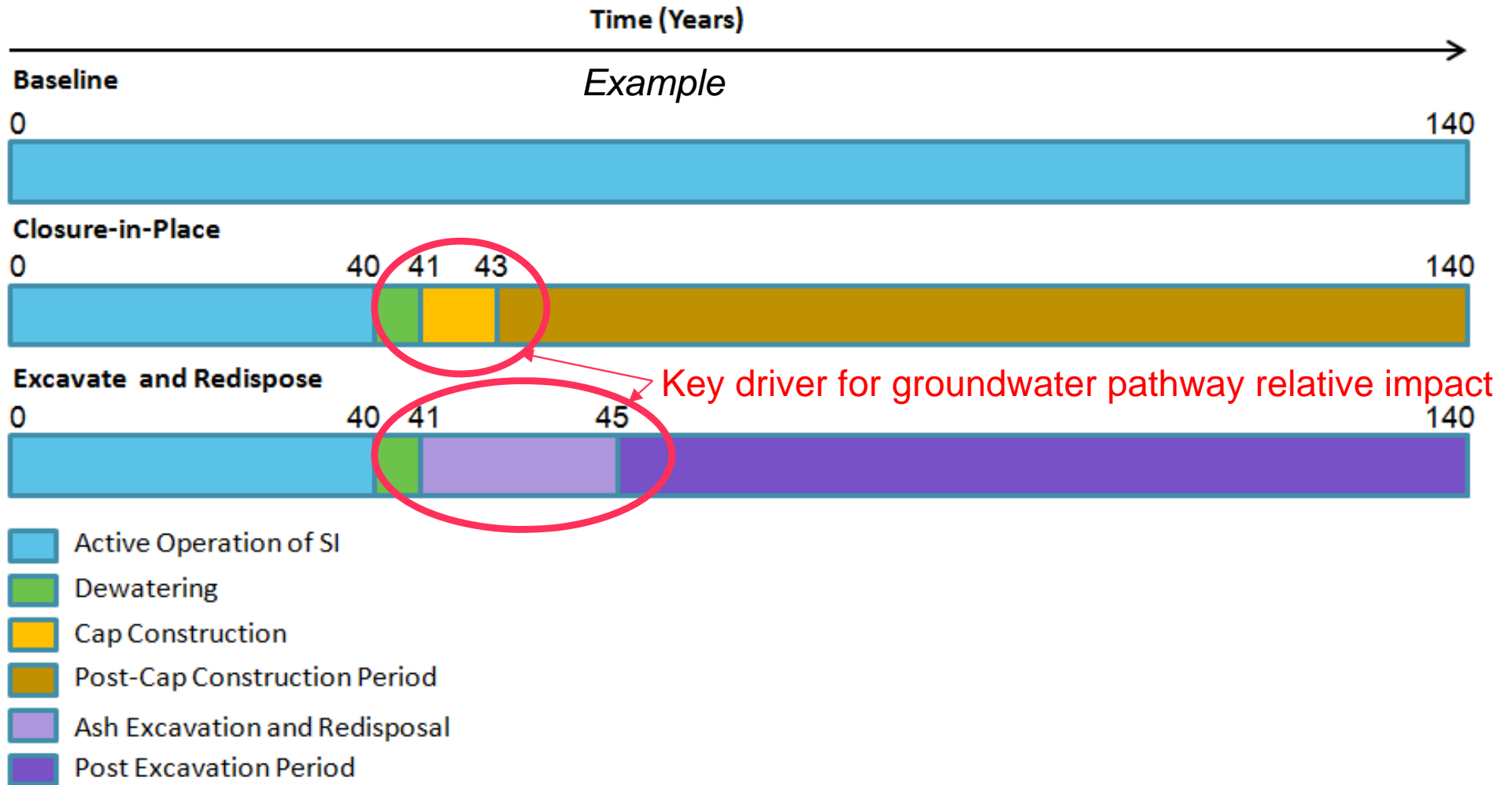
# Example of a Site Scenario



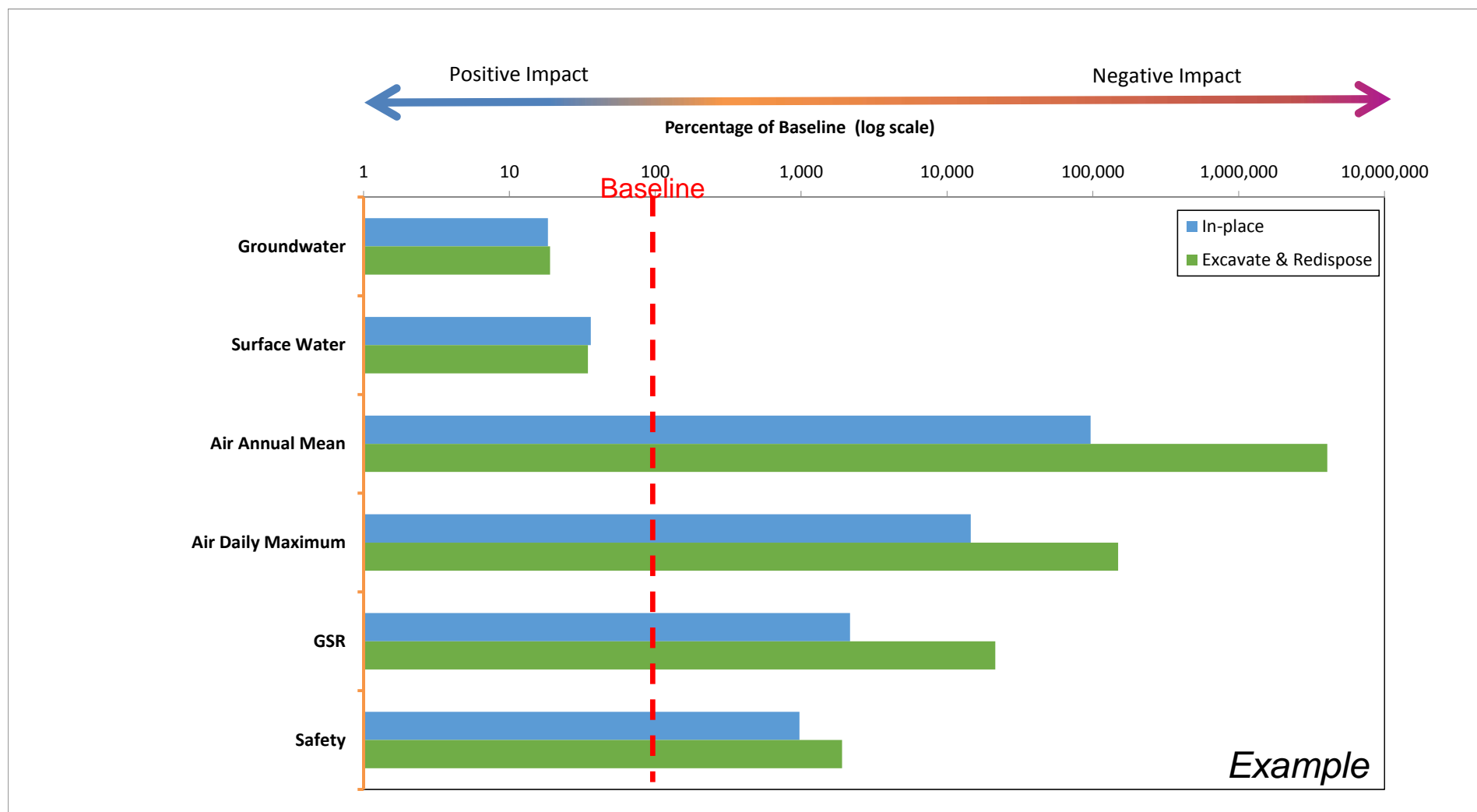
## ■ Other Key Site Data

- Surface impoundment area, volume
- Length of time surface impoundment is in service
- Aquifer dimensions, groundwater flow rate
- River depth, discharge
- Construction equipment, number of workers, distances for material transport

# Time Frames Need to be Calculated



# Example of Integrated Results



- Baseline = Current Conditions
- Positive Impact means calculated result is an improvement compared to current conditions
- Negative Impact means calculated result is a detriment compared to current conditions
- Difference between blue and green bars is the Relative Impact for that pathway

# Groundwater Pathway Analysis

- Key parameters

- Source concentration
- Downward mass flux (infiltration)
- Attenuation factor
- Distance to receptor / monitoring
- Time to excavate impoundment

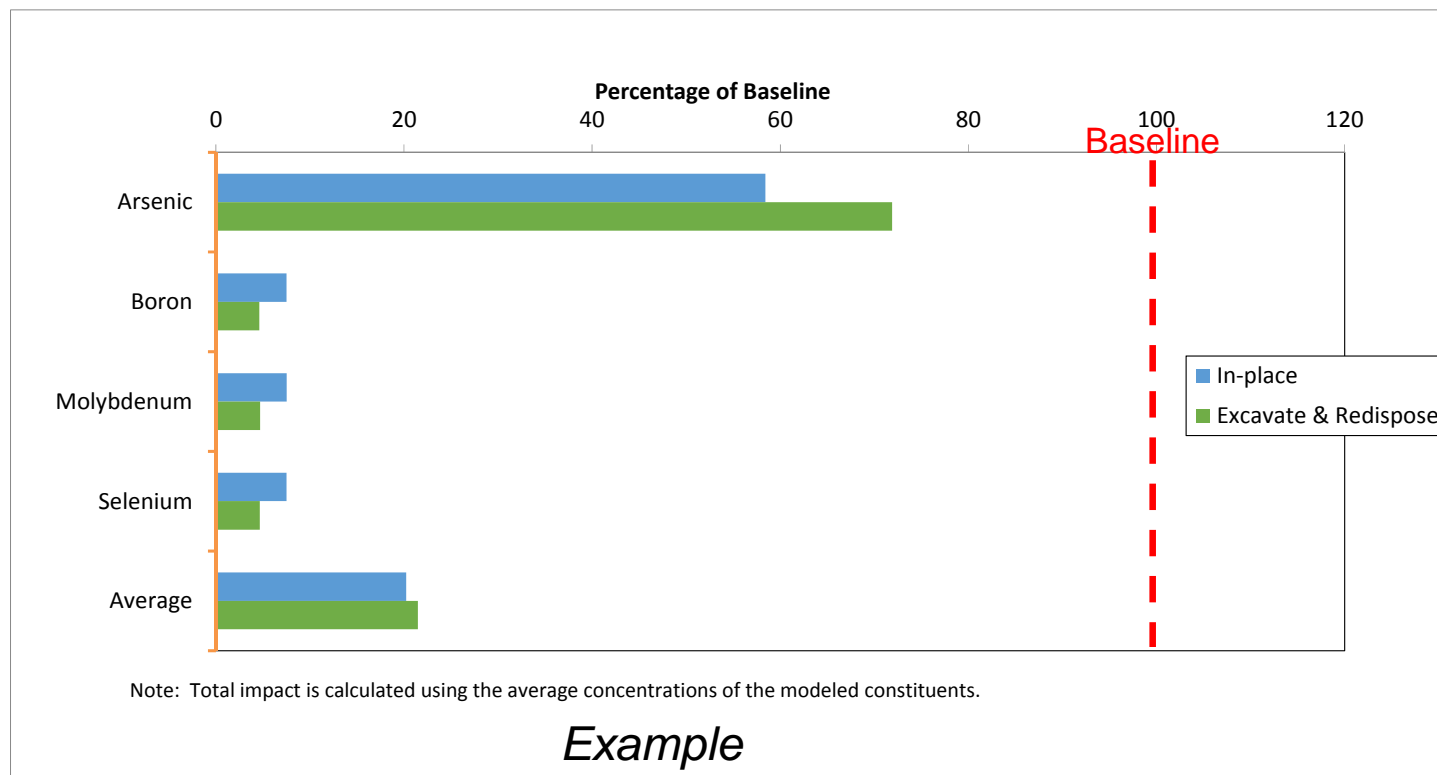
- Analytical or numerical model

- Key alternatives

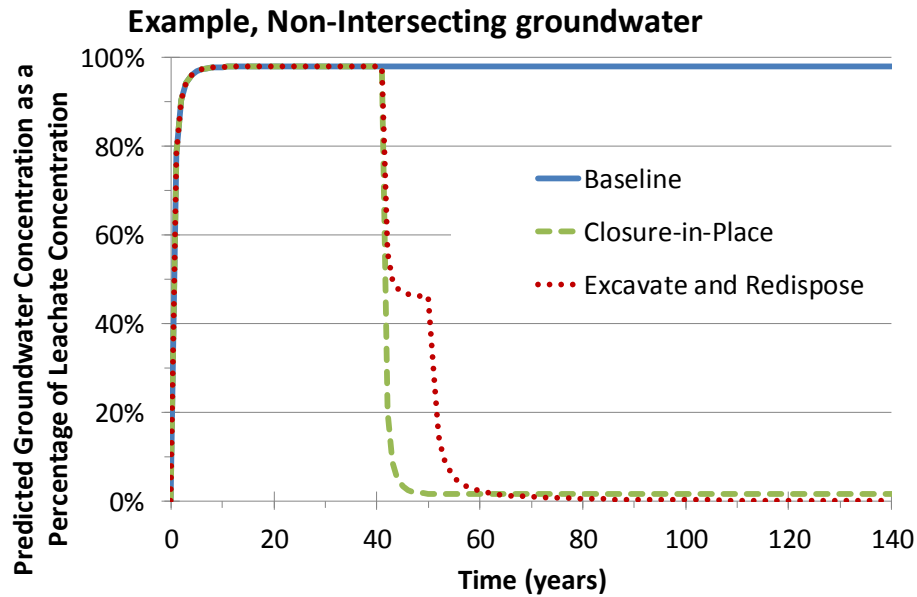
- Constituents potentially released
- Non-intersecting or intersecting groundwater
- Type of cap for close-in-place

- Relative impact drivers:

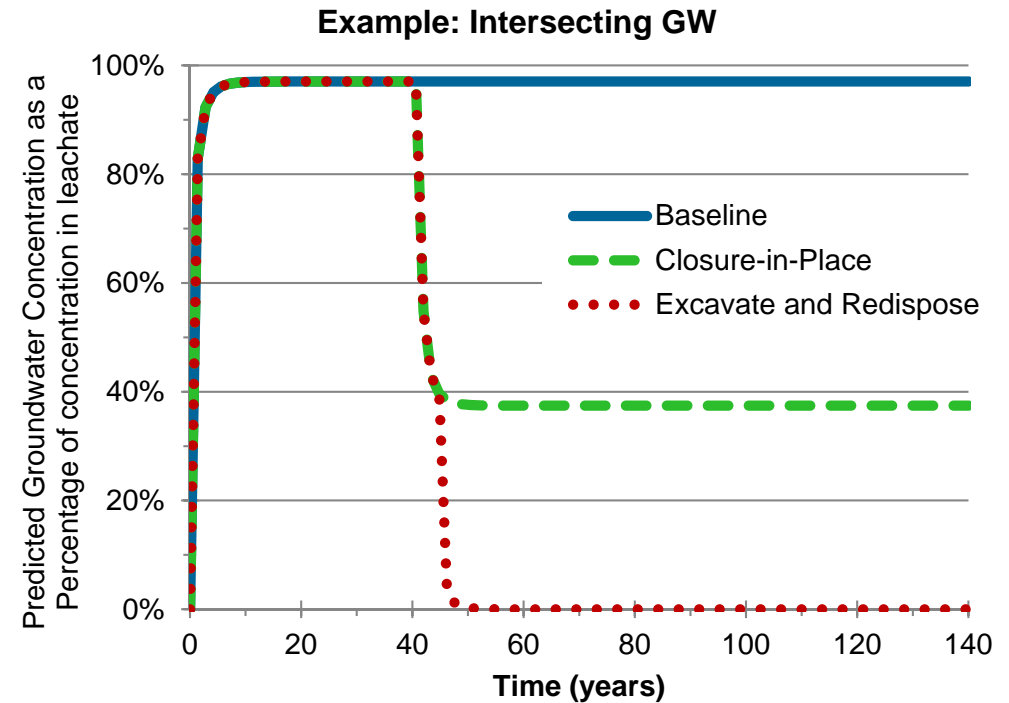
- Impoundment volume / time to excavate
- Engineered or soil cap



# Example Groundwater Model Results

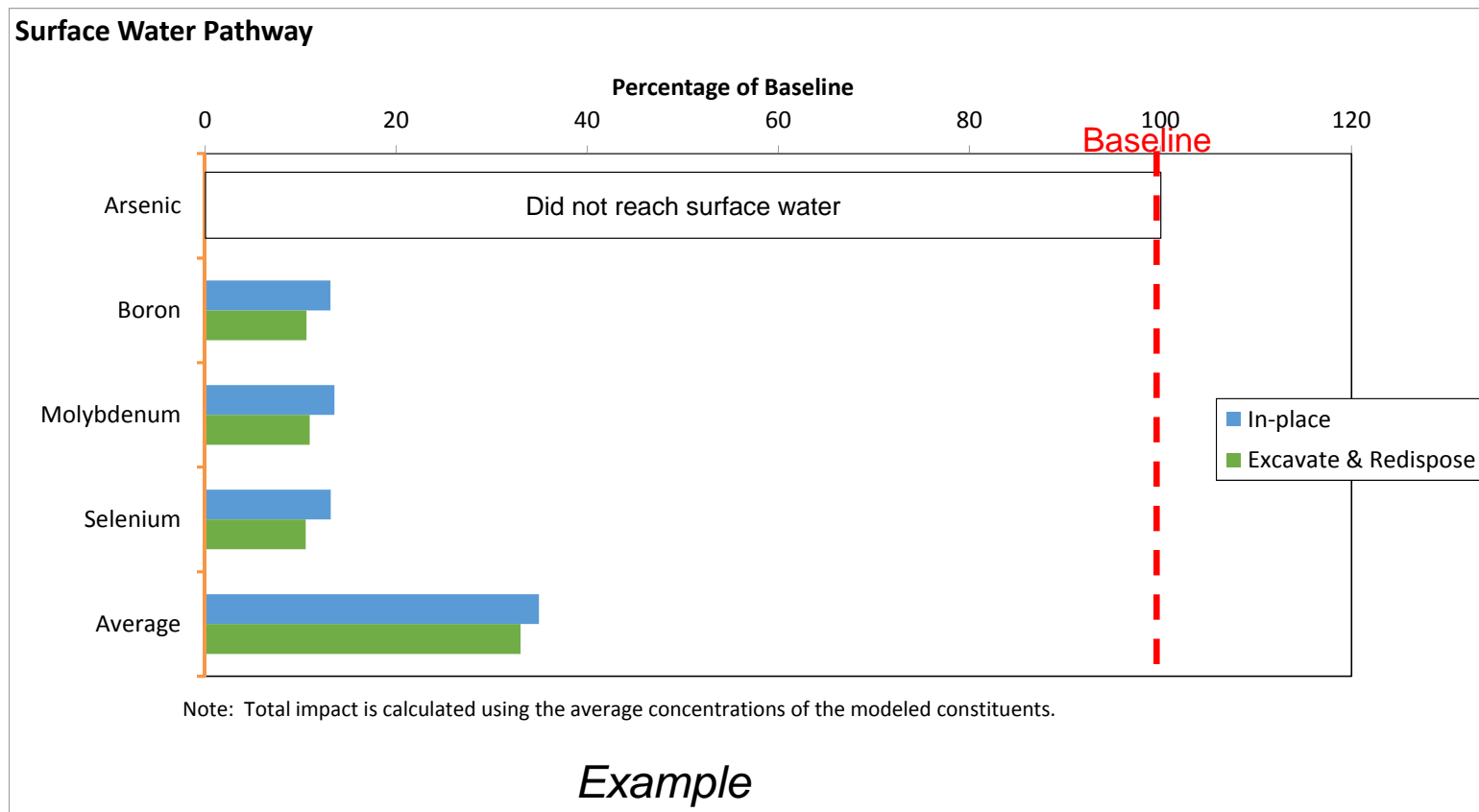


*Examples*



# Surface Water Pathway Analysis

- Key parameters
  - Groundwater flux
  - River discharge
- Calculated using mixing equation or mass-balance approach
- Alternatives
  - Constituents
  - River or lake
- Relative impact drivers:
  - Impoundment volume / time to excavate



# Air Pathway Analysis

## ■ Key parameters

- Impoundment acreage / volume
- Distance to receptor (from landfill, haul road, and impoundment)
- Dust control measures
- Volume / frequency of equipment traffic

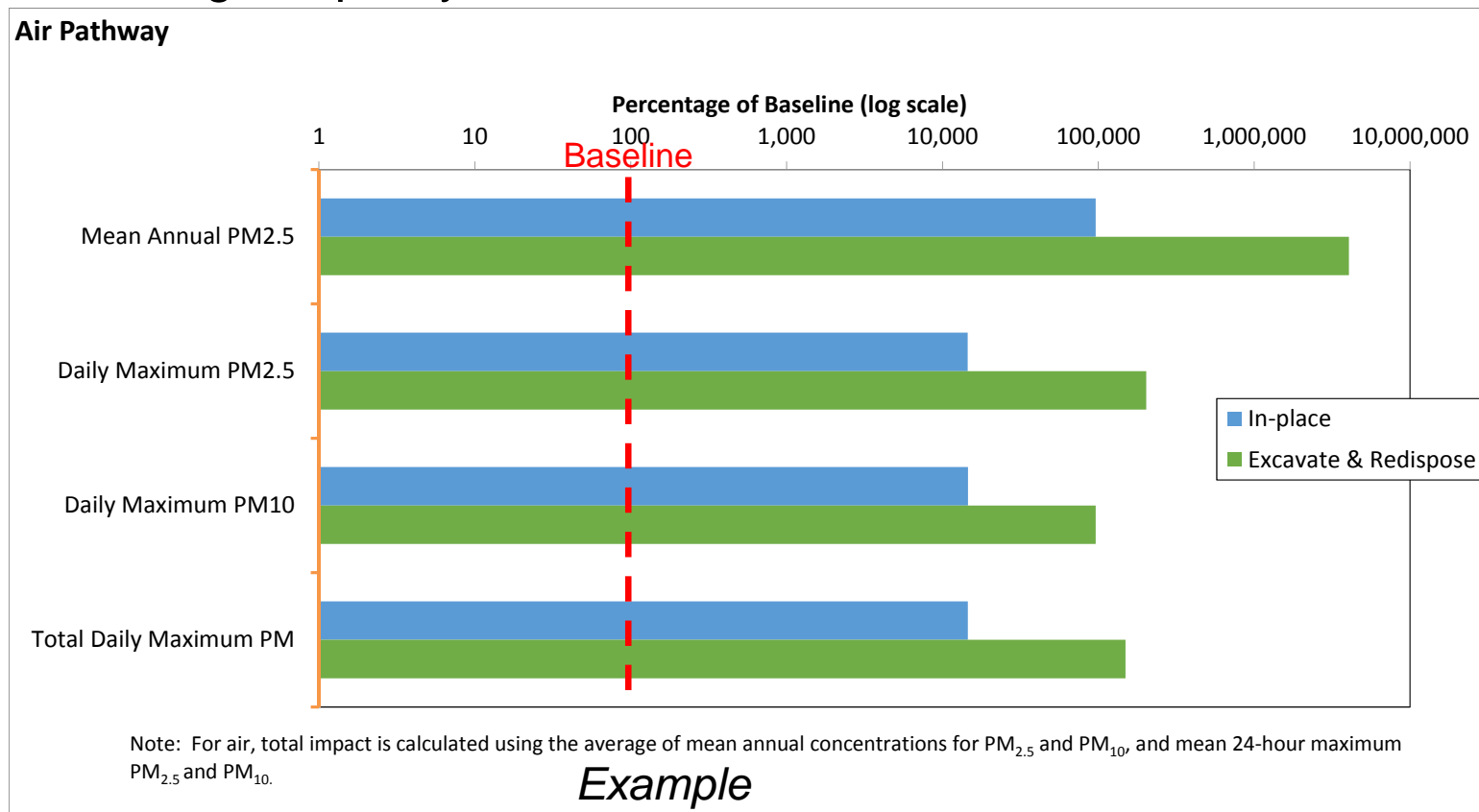
## ■ Alternatives

- Method / route of transportation

## ■ Relative impact drivers

- Trips per day between impoundment and landfill
- Distance to receptor

## ■ Calculated using air quality model



# Green & Sustainable Remediation Pathway Analysis

- Key parameters

- Impoundment acreage / volume
- Distance to landfill
- Impoundment cap, landfill liner materials

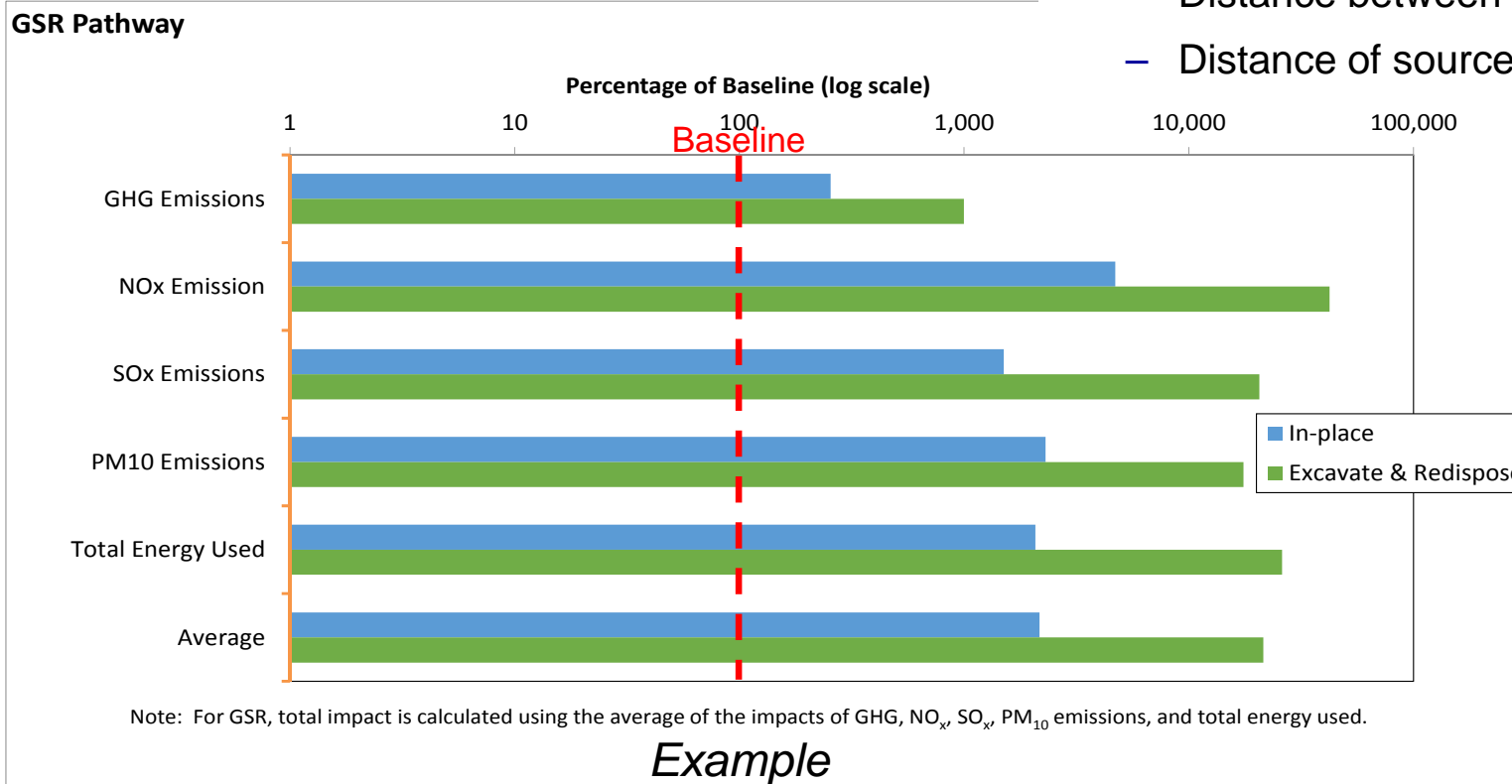
- Moderate modeling effort using SiteWise™

- Alternatives

- Method / route of transportation
- Type of cap
- Type of landfill liner

- Relative impact drivers

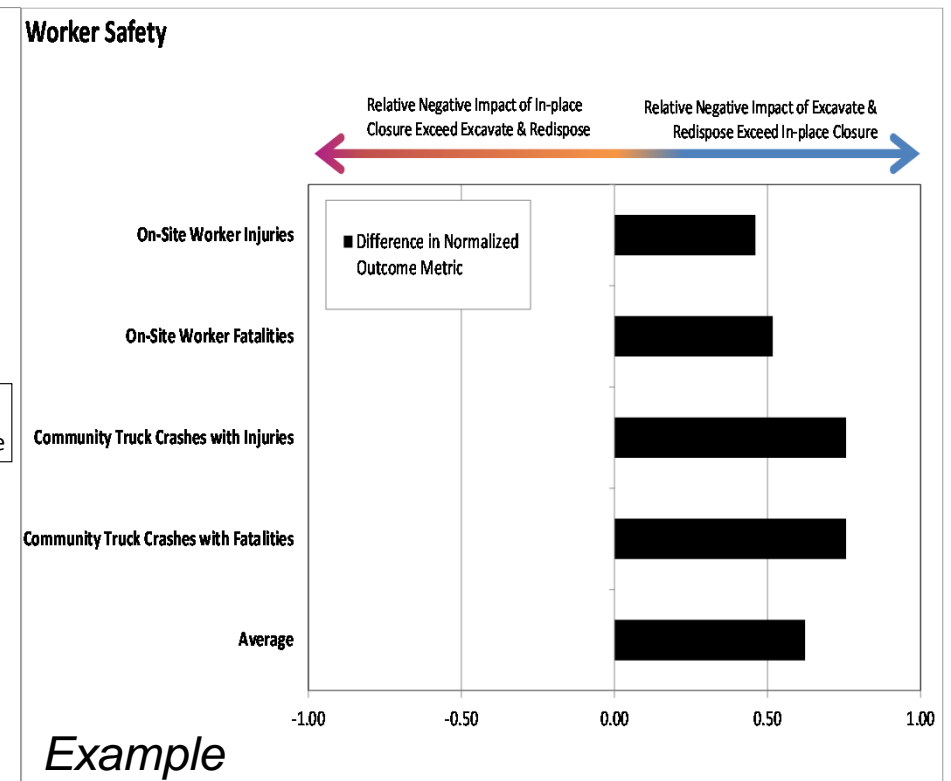
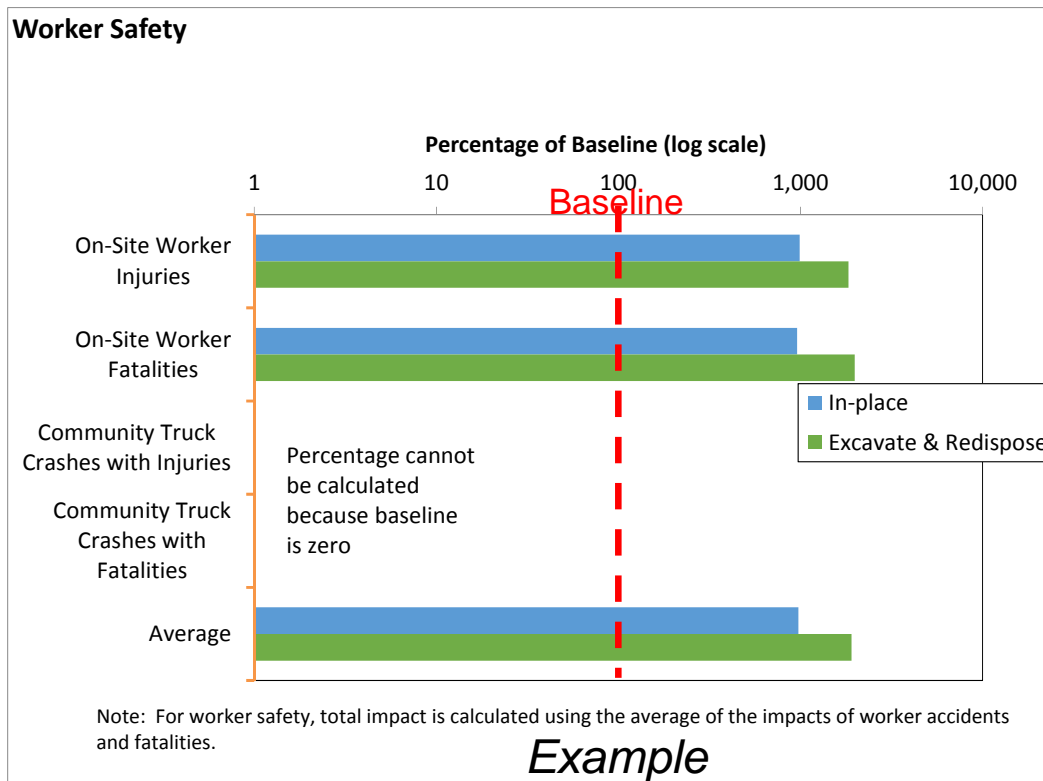
- Impoundment volume
- Distance between impoundment and landfill
- Distance of sourced materials to site





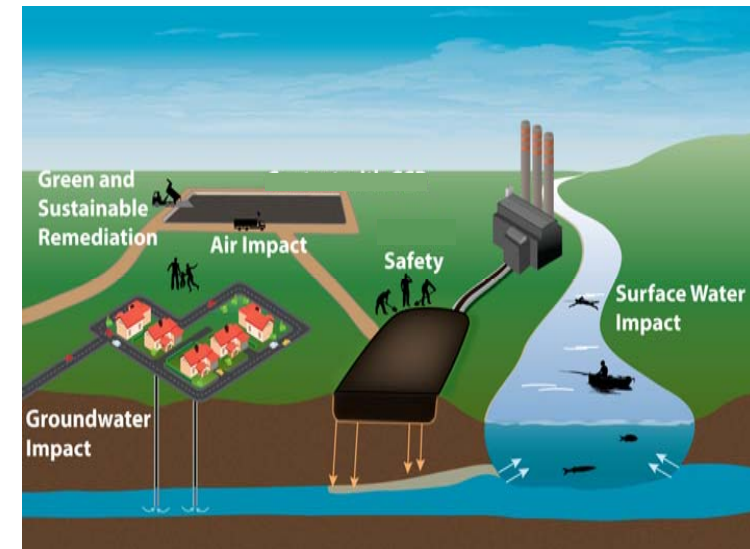
# Safety Pathway Analysis

- Key parameters
  - Impoundment acreage / volume
  - Distance to landfill
  - Distance of sourced material to site
- Moderate modeling effort using SiteWise™
- Alternatives
  - Method / route of transportation
- Relative impact drivers
  - Impoundment volume
  - Distance to landfill and construction material source
  - Trips (total) between impoundment and landfill



# Framework Summary

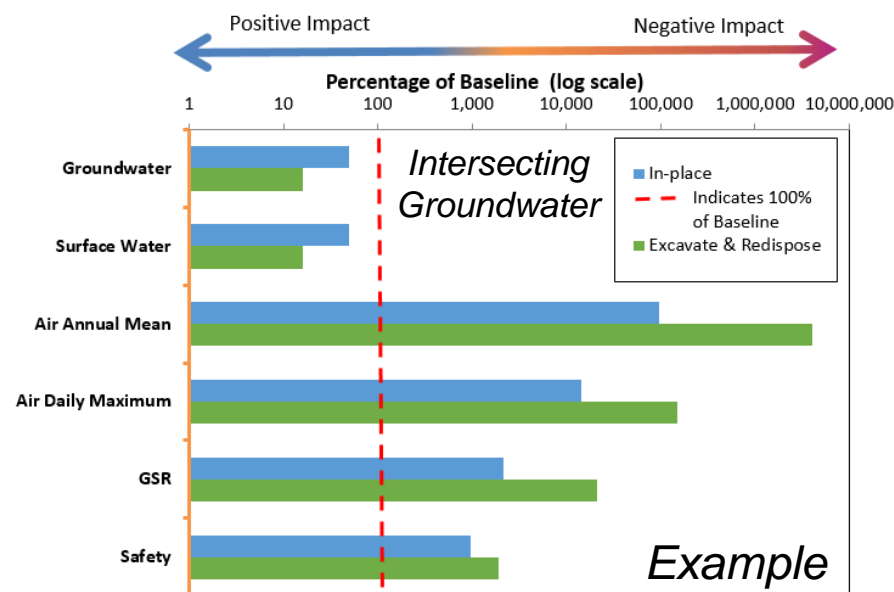
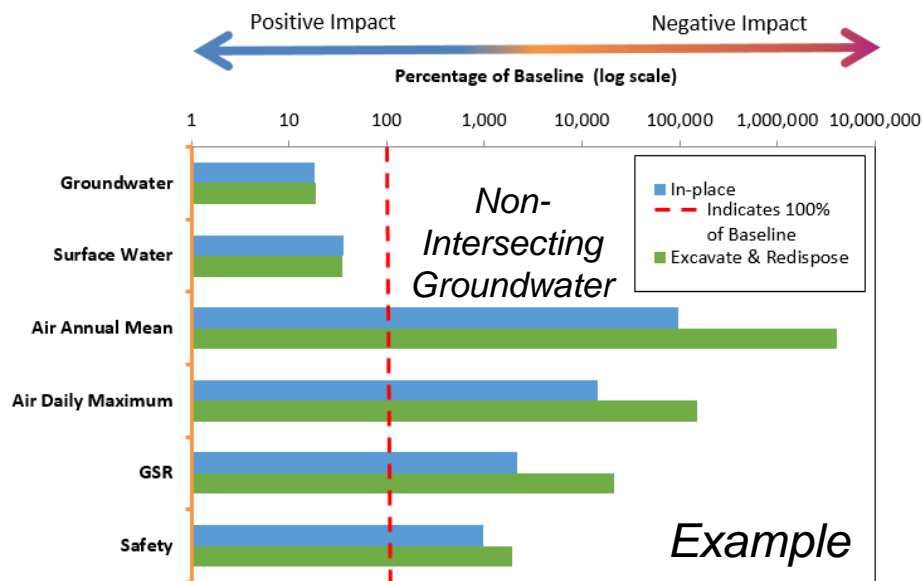
- Evaluates relative impact of Closure In-Place versus Closure by Removal scenarios for multiple local pathways that may be affected. Pathways include:
  - Groundwater and surface water, typically assumed to be impacted
  - Air, green & sustainable remediation, and safety, typically assumed to begin with negligible impacts
- Quantifies relative impacts for use in decision-making, but does not provide an absolute answer
  - Factors outside framework include cost and regulatory direction



# Observations from Framework Testing

## ■ Groundwater and surface water

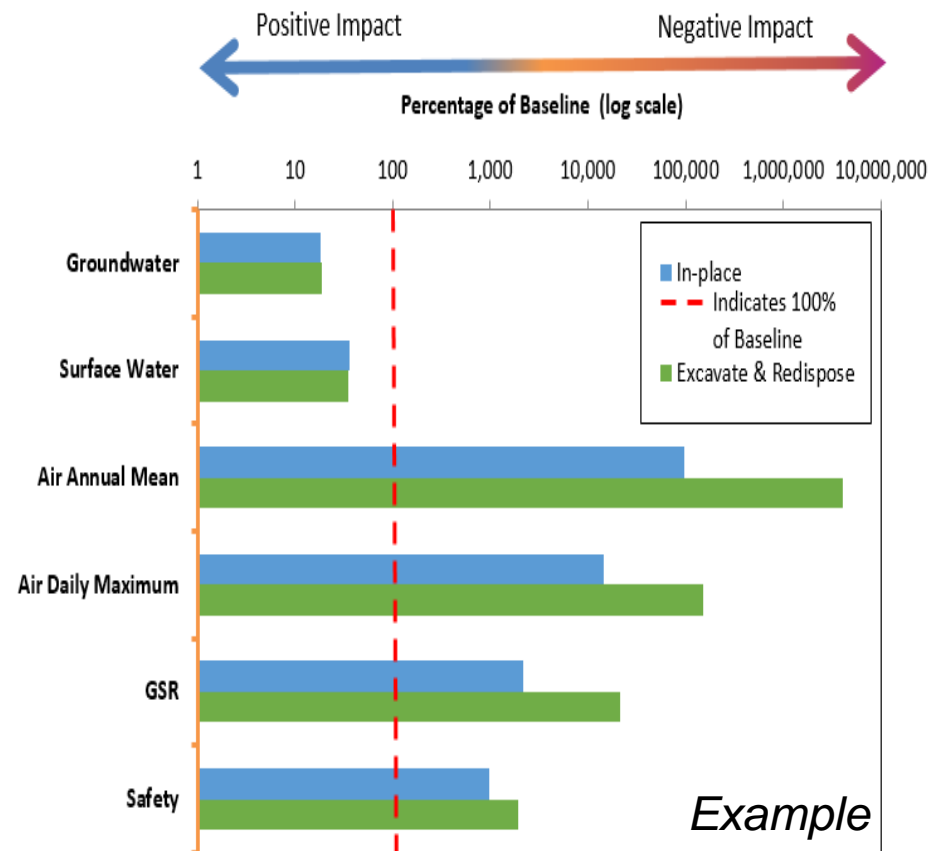
- Closure In-Place and Excavate & Redispose can both provide a benefit relative to an impacted current condition.
- The benefit from Closure In-Place may be reduced if groundwater intersects the CCR in the impoundment after dewatering.
- The type of cap planned for Closure In-Place, and the duration of excavation for the Excavate and Redispose scenario will also effect results for the groundwater and surface water pathways.



# Observations from Framework Testing

## ■ Air, Green & Sustainable Remediation, and Safety

- Closure In-Place and Excavate & Redispose typically result in negative impacts to air quality and green & sustainable remediation, relative to baseline.
- Both scenarios also increase the potential for worker and traffic-related risks including injuries and fatalities.
- Impacts observed during testing to-date have been greater for Excavate & Redispose than for Closure In-Place because E&R:
  - Requires more material handling
  - Results in more truck traffic, and more miles traveled
  - Takes longer time to complete



# Questions?



# Together...Shaping the Future of Electricity

BREAK TIME





# Coal Combustion Residual Impoundment Closure Draft EIS

---

**Amy Henry**

NEPA Program and Valley Projects Manager



# CCR Impoundment Closure Environmental Impact Statement (EIS)

## **Part I: Programmatic review of closure methods**

- Closure-by-Removal
- Closure-in-Place
- No Action

## **Part II: Site-Specific reviews**

At 6 plants, TVA proposes to close 10 ponds by 2018

Allen

Bull Run

Colbert

John Sevier

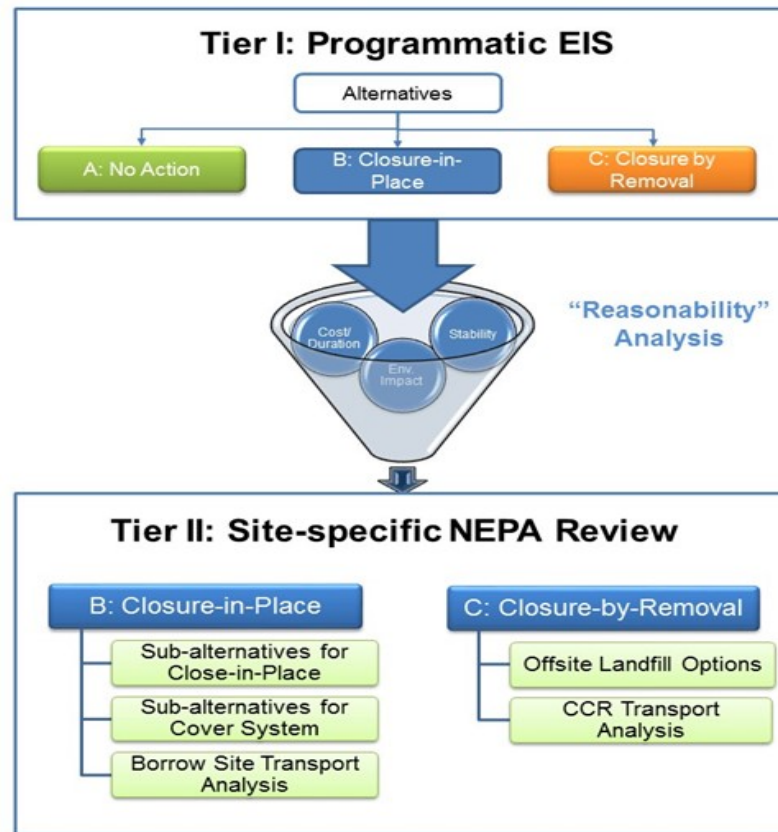
Kingston

Widows Creek

# Evaluation Criteria

- Volume of CCR materials
- Mode and duration of transport (borrow/fill) activities
- Schedule of closure
- Stability (static, seismic)
- Risk to human health & safety (workers, motorists)
- Effects to wetlands and adjacent environmental resources
- Environmental Justice
- Cost

# Screening for Site-Specific Closure Alternatives



# Draft EIS: Preliminary Results

- EPRI model an analytical tool
- Both closure methods protective of environment if done properly
- Depending on CCR volume, close-by-removal results in greater adverse impacts to some resources
- No significant impacts identified in site-specific reviews

# Questions?



# Preliminary Council Discussion

---

BREAK TIME



# Public Comment Period

- **Public participation is appreciated**
- **This is a listening session; responses are typically not provided**







# Wrap-Up Day 1

---



# Regional Energy Resource Council

---

January 20-21, 2016  
Memphis, Tennessee

# Agenda – January 21, 2016

<b>7:30</b>	<i>Breakfast</i>	
<b>8:30</b>	<b>Allen Fossil Plant Field Trip</b>	Council
<b>11:30</b>	<i>Lunch</i>	
<b>12:30</b>	<b>Welcome, Review of Day 1</b>	Hoagland/ Lavender
<b>12:45</b>	<b>CCR Impoundment Closure Draft EIS</b>	Henry
<b>1:15</b>	<b>CCR Discussion and Advice to TVA</b>	Council / Lavender facilitate
<b>2:15</b>	<i>Break</i>	
<b>2:30</b>	<b>CCR Discussion and Advice to TVA (cont.)</b>	Council / Lavender facilitate
<b>3:30</b>	<b>Summary, RERC Next Steps</b>	Lavender/ Rogers / Hoagland
<b>3:45</b>	<b>Adjourn</b>	



# Recap from Day 1

---

Joe Hoagland  
Designated Federal Officer



# Coal Combustion Residual Impoundment Closure Draft EIS

---

**Amy Henry**

NEPA Program and Valley Projects Manager

# Coal Combustion Residual (CCR) Impoundment Closure

TVA CCR impoundments in Kentucky, Tennessee, and Alabama.

2009 - TVA began to convert wet ash impoundments to dry storage.

2015 - EPA CCR Rule established national criteria and schedules for the management and closure of CCR facilities.

Consistent with the CCR Rule, TVA is proposing to close some impoundments rapidly, before April 2018.

TVA must decide how to close its wet CCR impoundments



Bottom ash impoundment  
Bull Run Fossil Plant



West Ash Impoundment  
Allen Fossil Plant

# National Environmental Policy Act (NEPA)

Federal law that requires federal agencies to evaluate the potential environmental impacts of proposed actions, plans, and policies

## Planning Process

- Alternatives
- Public Input

## Analyze Potential Environmental Effects

## Decision-making Tool

- NEPA does not require selection of the alternative with the most favorable environmental impacts
- The environmental review is one factor considered by TVA decision makers

# CCR Impoundment Closure Environmental Impact Statement (EIS)

## **Purpose and Need**

- Address the potential impacts of closing CCR impoundments across the TVA system
- Assist TVA in complying with EPA's CCR Rule

## **Part I: Programmatic review of three alternatives**

## **Part II: Site-specific review of 10 proposed pond closures**



# Evaluation Criteria

- Volume of CCR materials
- Mode and duration of transport (borrow/fill) activities
- Schedule of closure
- Stability (static, seismic)
- Risk to human health & safety (workers, motorists)
- Effects to wetlands and adjacent environmental resources
- Environmental Justice
- Cost

# Draft EIS: Preliminary Results

- Both closure methods protective of environment if done properly
- Depending on CCR volume, close-by-removal results in greater adverse impacts to some resources

Resource	Close-in-Place	Close-by-Removal
Groundwater	↑	↑-↑↑
Transportation	↓	↓-↓↓↓
Public Health & Safety	↓	↓↓-↓↓↓
Cost	\$3.5M - \$150 M	\$15M - \$2.7B

↑ beneficial change, ↓ adverse change

# Public Review of Draft EIS

## Comment period Dec 30 – February 24

How to comment:

- TVA's website <https://www.tva.com/nepa> under "Open for Comment"
- Attend a public open house session:
  - 10 open house meetings in communities near TVA coal plants
  - January 12-February 10
- Email [CCR@tva.gov](mailto:CCR@tva.gov)
- US Mail

Ashley Farless, PE, AICP  
NEPA Project Manager  
Tennessee Valley Authority  
1101 Market Street, BR 4A  
Chattanooga, Tennessee 37402

# EIS Next Steps

- Collect public comments December 30, 2015 – February 24, 2016
- Evaluate and respond to comments in the Final EIS
- Issue Final EIS Spring 2016
- Issue TVA Record of Decision Summer 2016



# Questions?



# Council Discussion and Advice

---

BREAK TIME



# RERC Advice Questions

1. What do you think about TVA seeking public comment on these closure alternatives including holding meetings in communities near coal-fired plants?
2. TVA has evaluated multiple criteria (listed below) in the Draft EIS. Is there anything important that we missed?
  - Volume of CCR materials
  - Mode and duration of transport (borrow/fill) activities
  - Schedule of closure (milestones of CCR Rule)
  - Impoundment Stability (static, seismic)
  - Risk to human health & safety (workers, motorists)
  - Effects to adjacent environmental resources (wetlands, groundwater, surface water, air, biota, historic resources)
  - Environmental Justice
  - Cost
3. From your perspective, what are the pros and cons for the closure in place alternative, and for the closure by removal alternative?





Wrap Up and Adjourn

---



*Thank you and please travel safely!*

---