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

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

Agenda – January 20, 2016 (cont'd)

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

Agenda – January 21, 2016

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

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)

'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)

'TVA should consider the impact its decisions have on lower income residents. Economic development is important to employ lower income residents.' (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

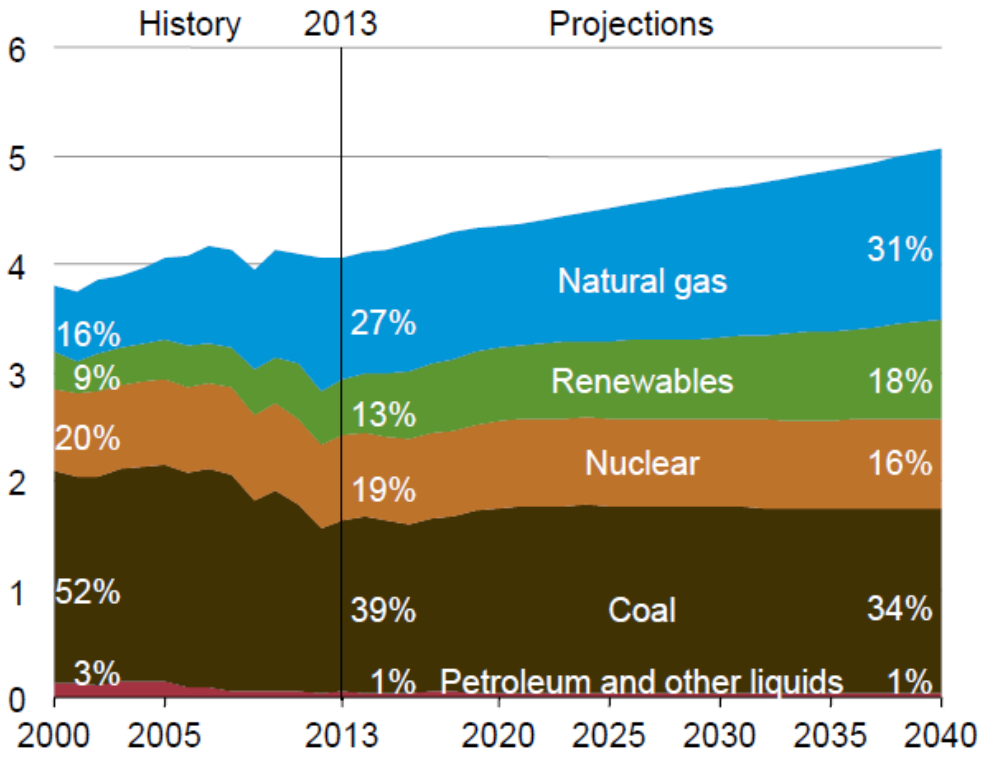
- Environmental Regulations
  - Coal Combustion Residuals
  - Clean Power Plan
- Distributed Energy Resources and the Evolving Utility Marketplace
- Economic Development
- Updates on various TVA Projects

TVA Update

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

National Direction of Energy

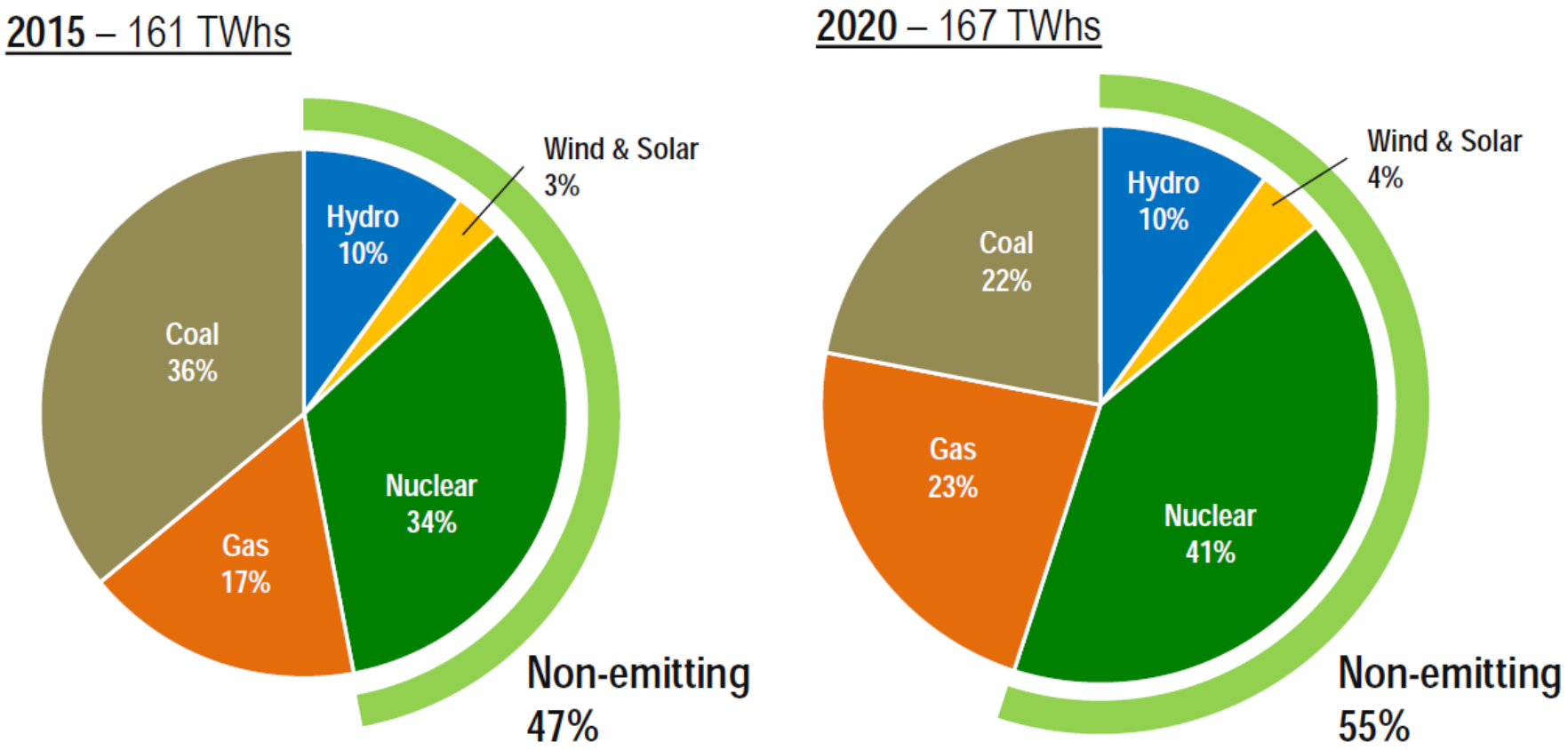
- Coal decreasing
  - 52% in 2000 down to 39% in 2013
- Increase of Natural gas and Renewables
  - Natural gas 16% in 2000, up to 27% in 2013
  - Renewables 9% in 2000, up to 13% in 2013



Electricity generation by fuel
(trillion kilowatthours)

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

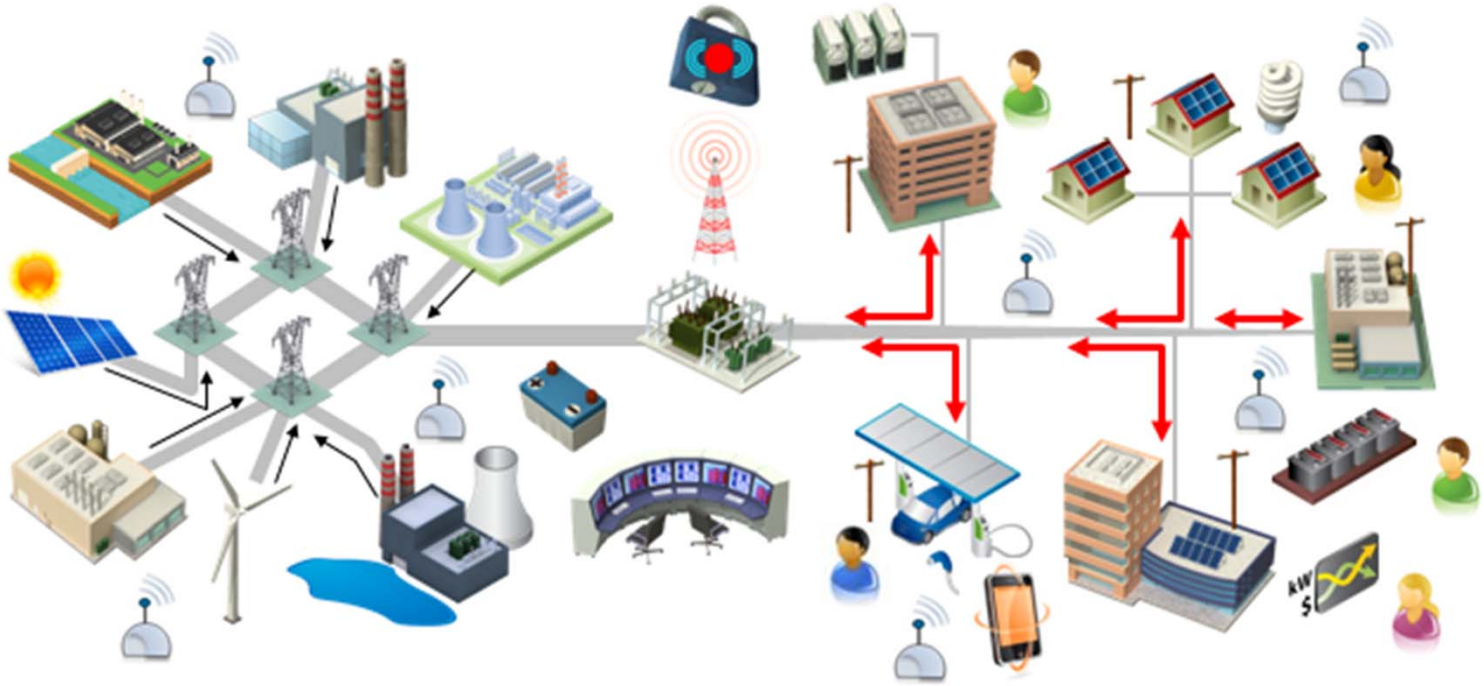
TVA's Capacity and Energy



TVA Future – Continued Cleaner Energy

TVA is projected to reduce CO_2 emissions 40% below 2005 levels by 2020

The Evolving Utility Paradigm



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

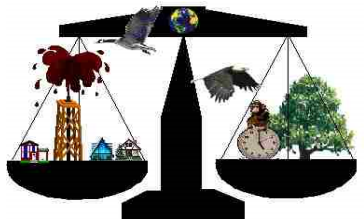

BREAK TIME

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

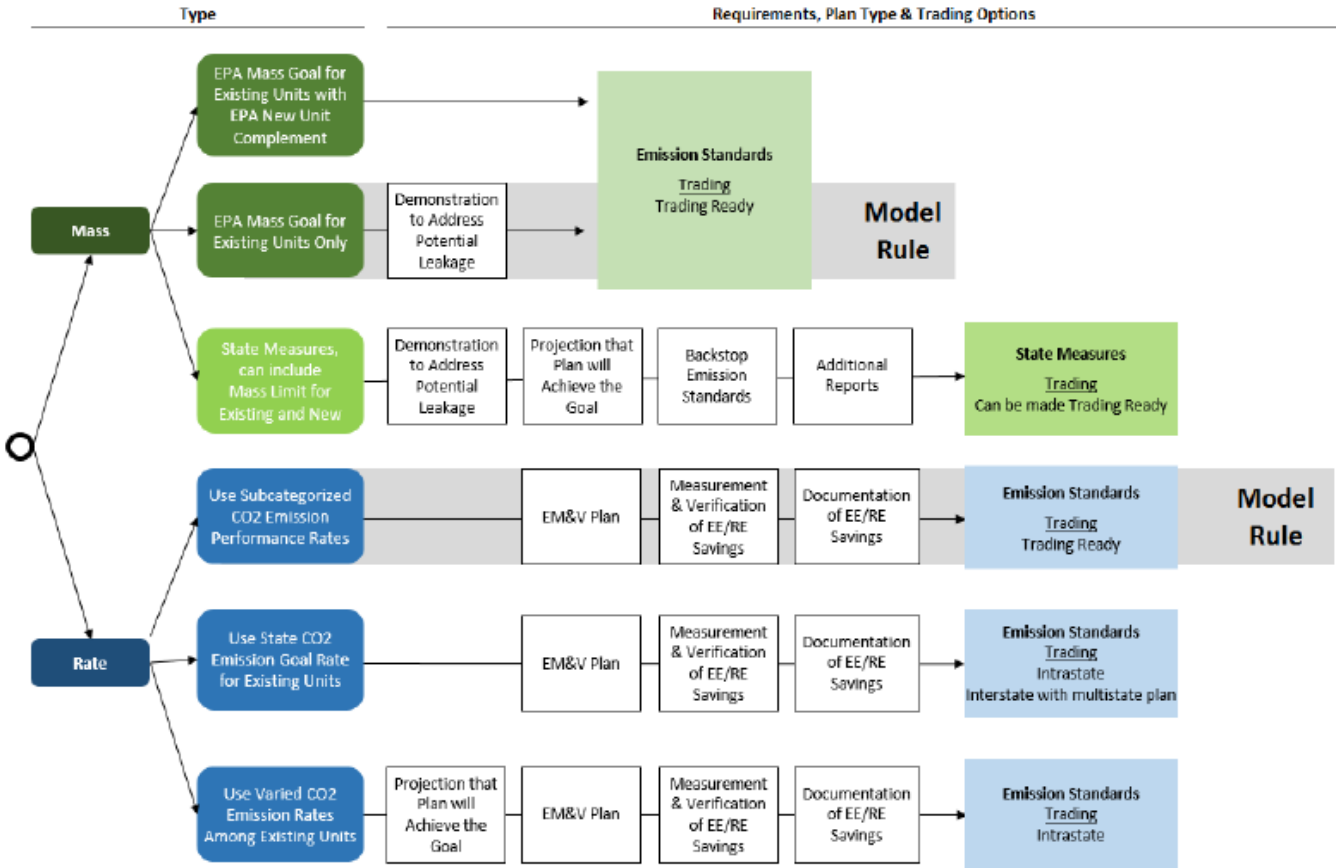
- **Recent actions**
  - Air – Ozone Standard, Cross State Air Pollution Rule
  - Carbon – Clean Power Plan
  - Water – Cooling Water Intakes, Waters of the US, Effluent Limitation Guidelines
  - Waste – Coal Combustion Residuals

- **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

EPA United States Environmental Protection Agency

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 CO_2 emissions from the power sector.



Observations on initial state Clean Power Plan decisions

MASS (tons)
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

RATE (lbs/MWh)
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

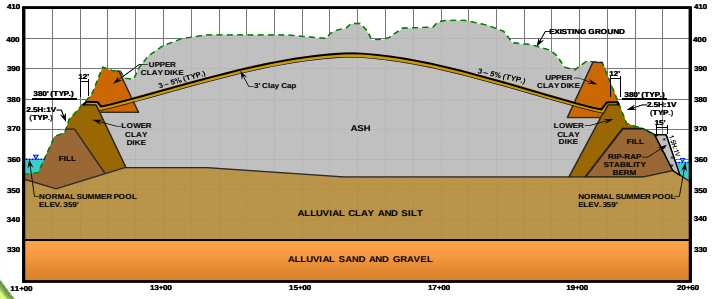
CCR Overview

CCR Overview

Wet Process

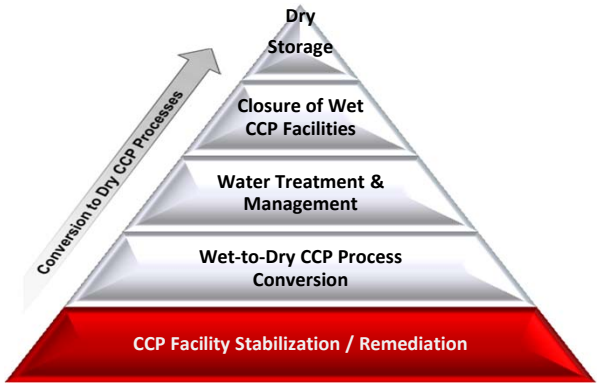
Dry Process

CCR Overview



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

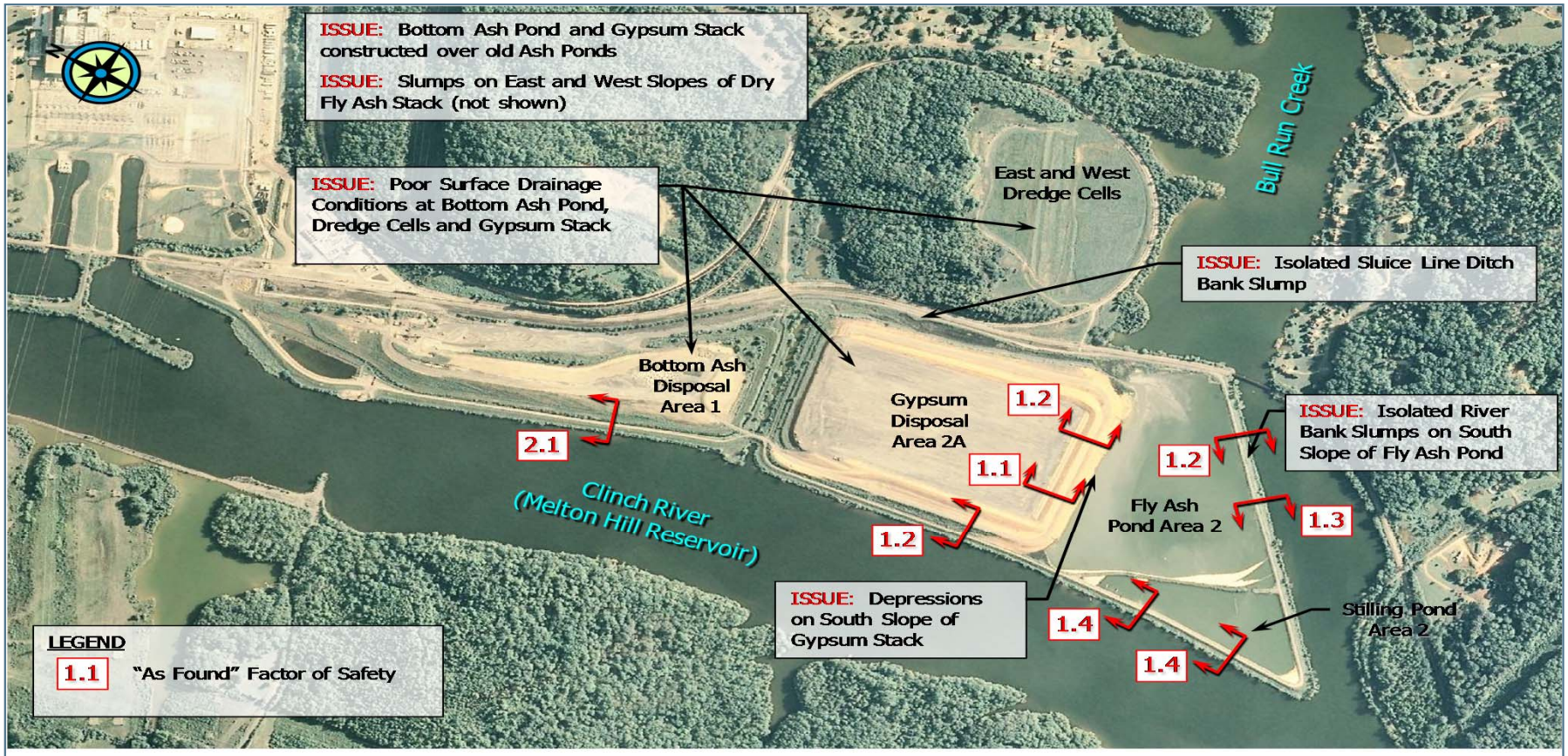
Phase 3 – Remediation Design and Construction

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

Phase 4 – Programmatic Improvements

- Dam Safety Inspection Training
- Programmatic Documents

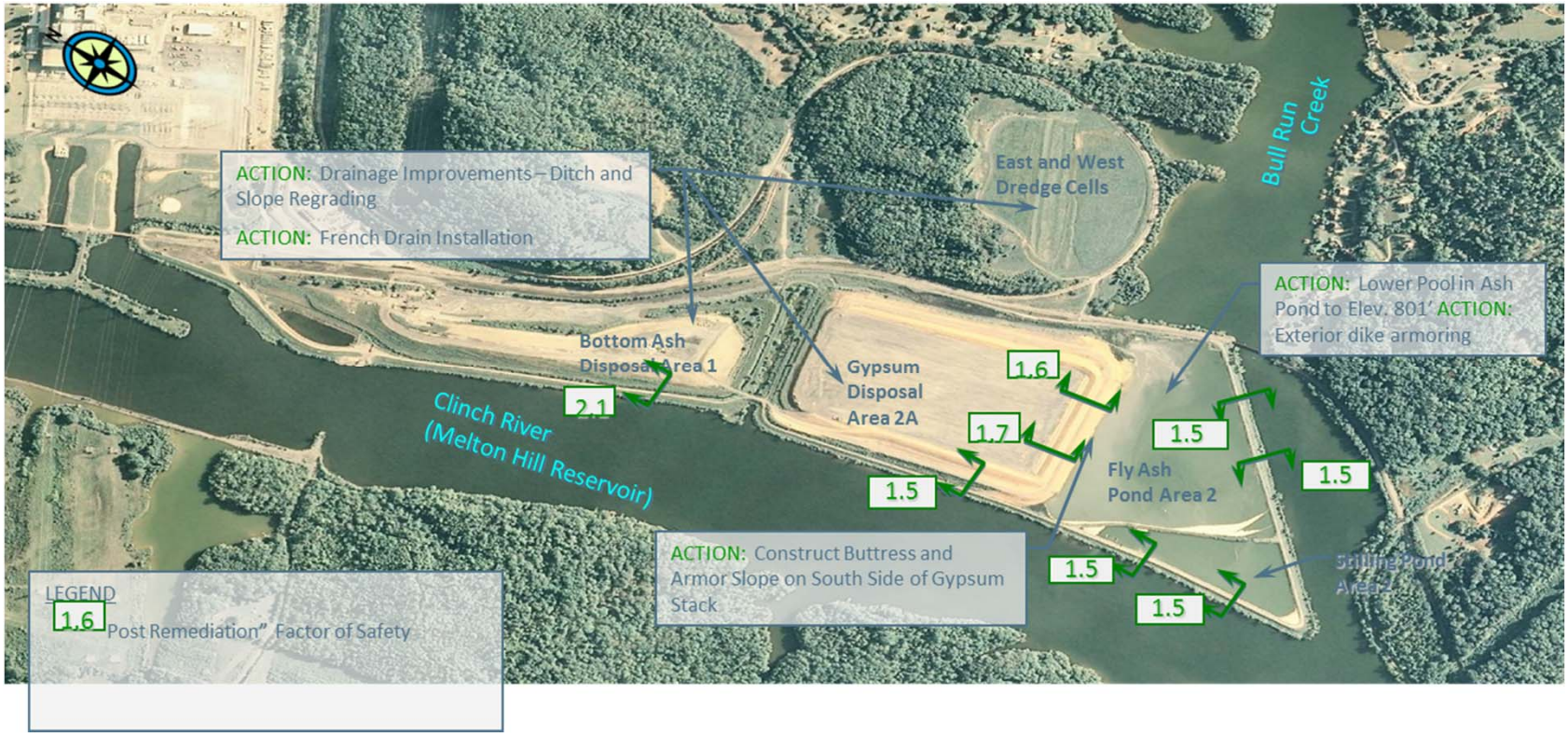
Bull Run: Phase 2 Assessment



As Found Stability Conditions

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

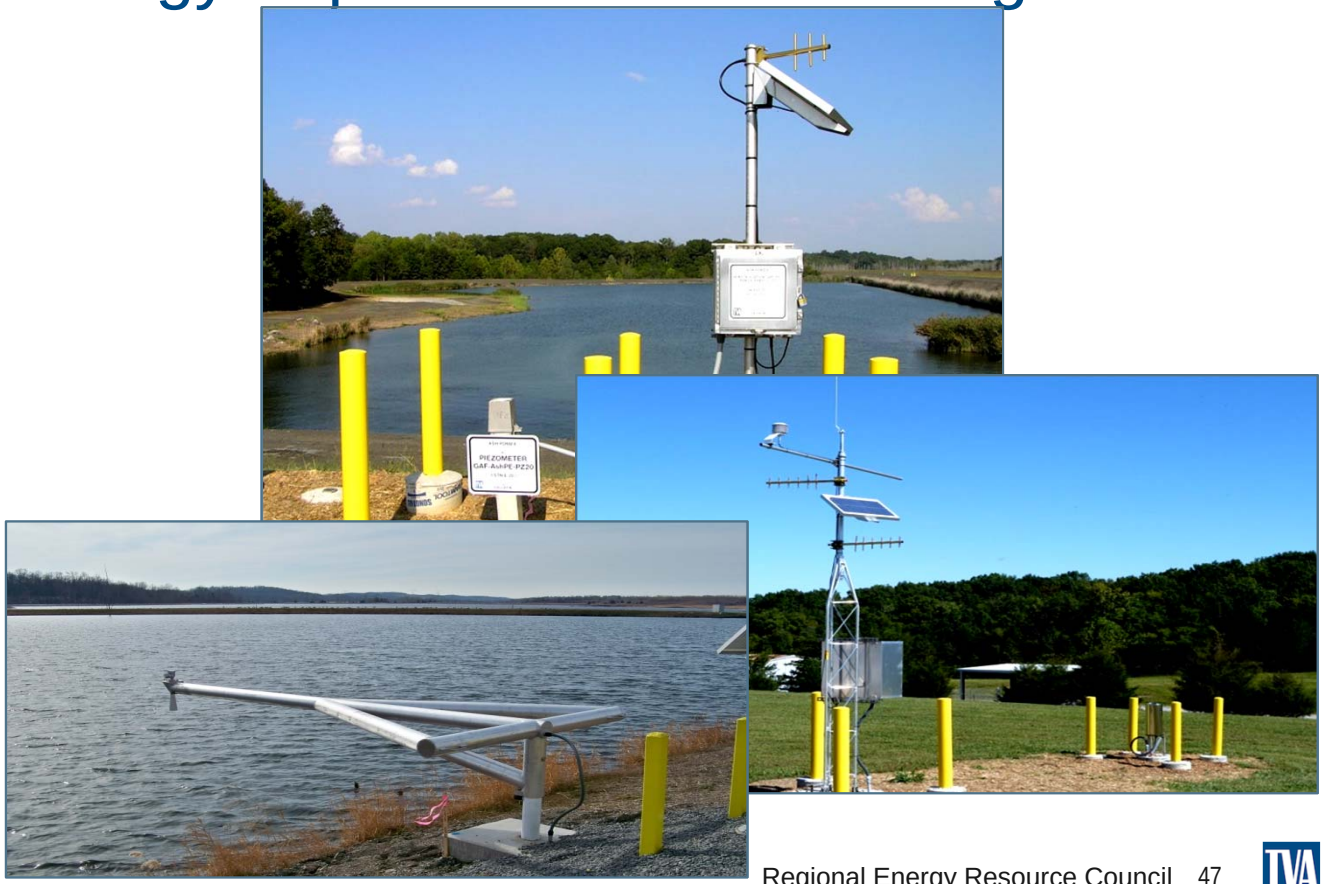
Instrumentation Automation

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

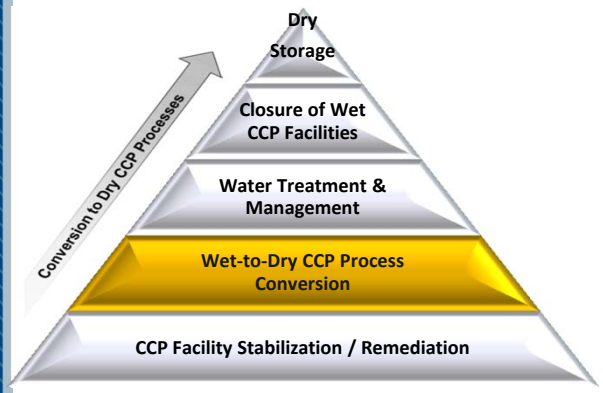
Manual Instrumentation – Quality Control

- 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

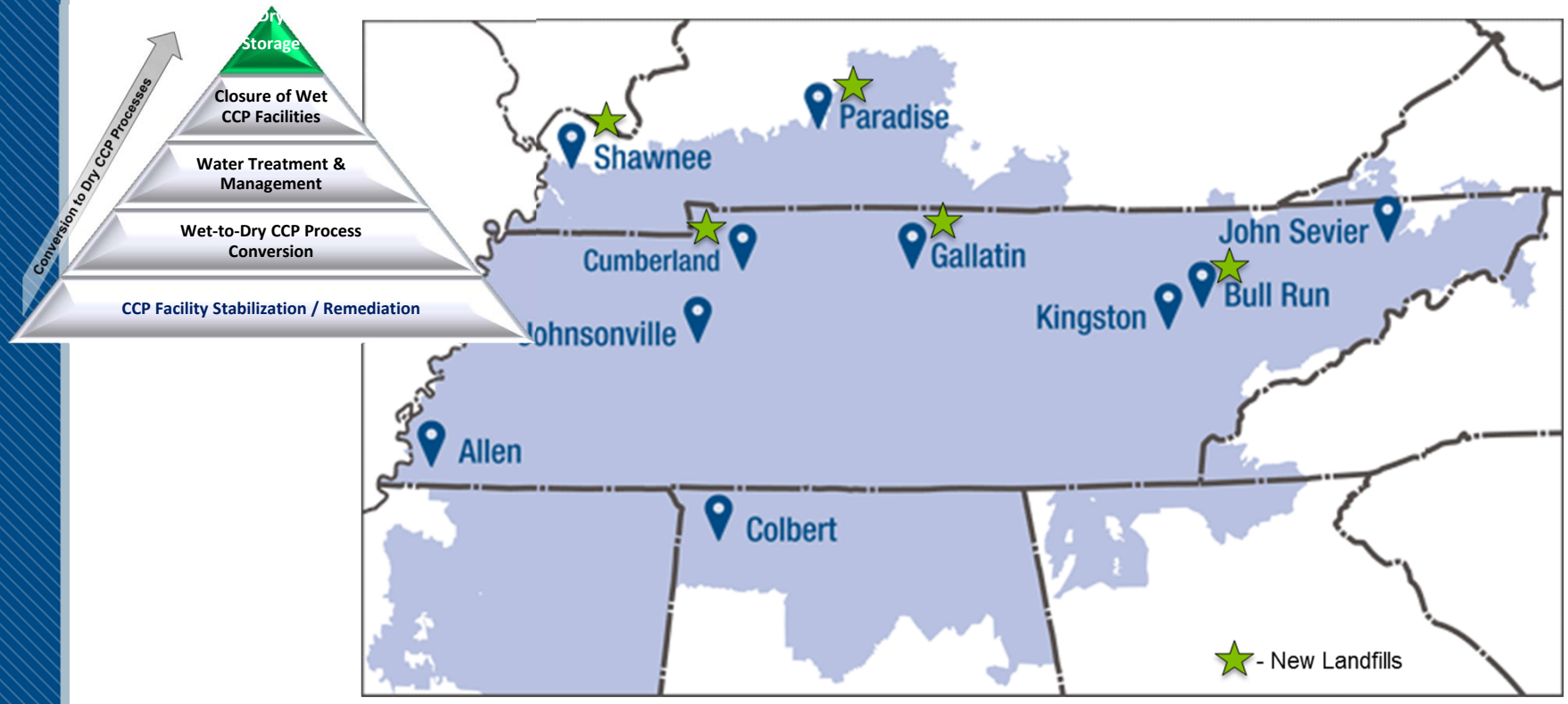
Gypsum Dewater

- Completed KIF & BRF
- PAF U3 in Planning

Bottom Ash Dewatering

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

CCR Landfills - New

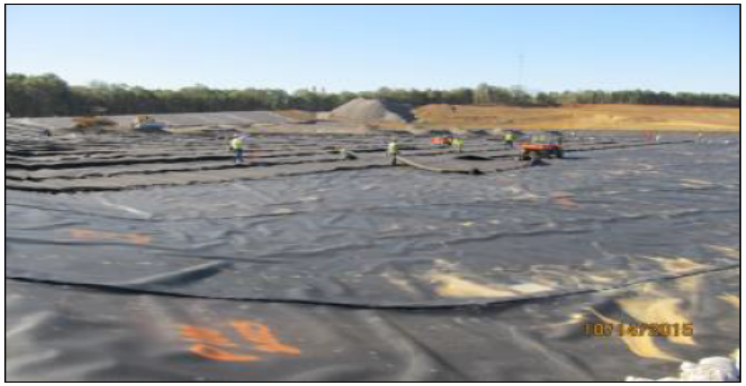


CCR Landfills – New

Gallatin Construction

Haul Road paving

50% of Liner installed

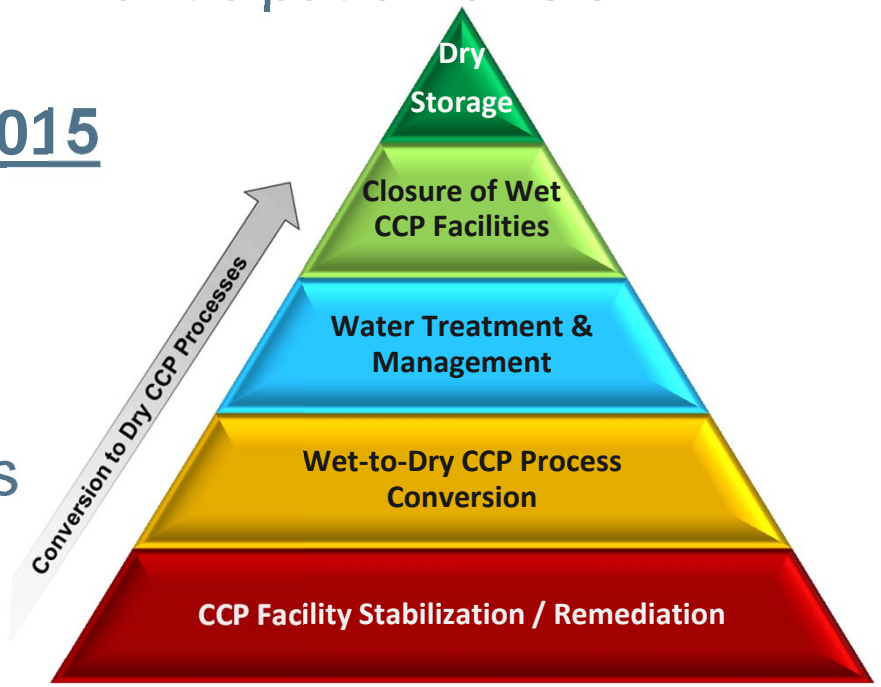


Installation of Geocomposite

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**

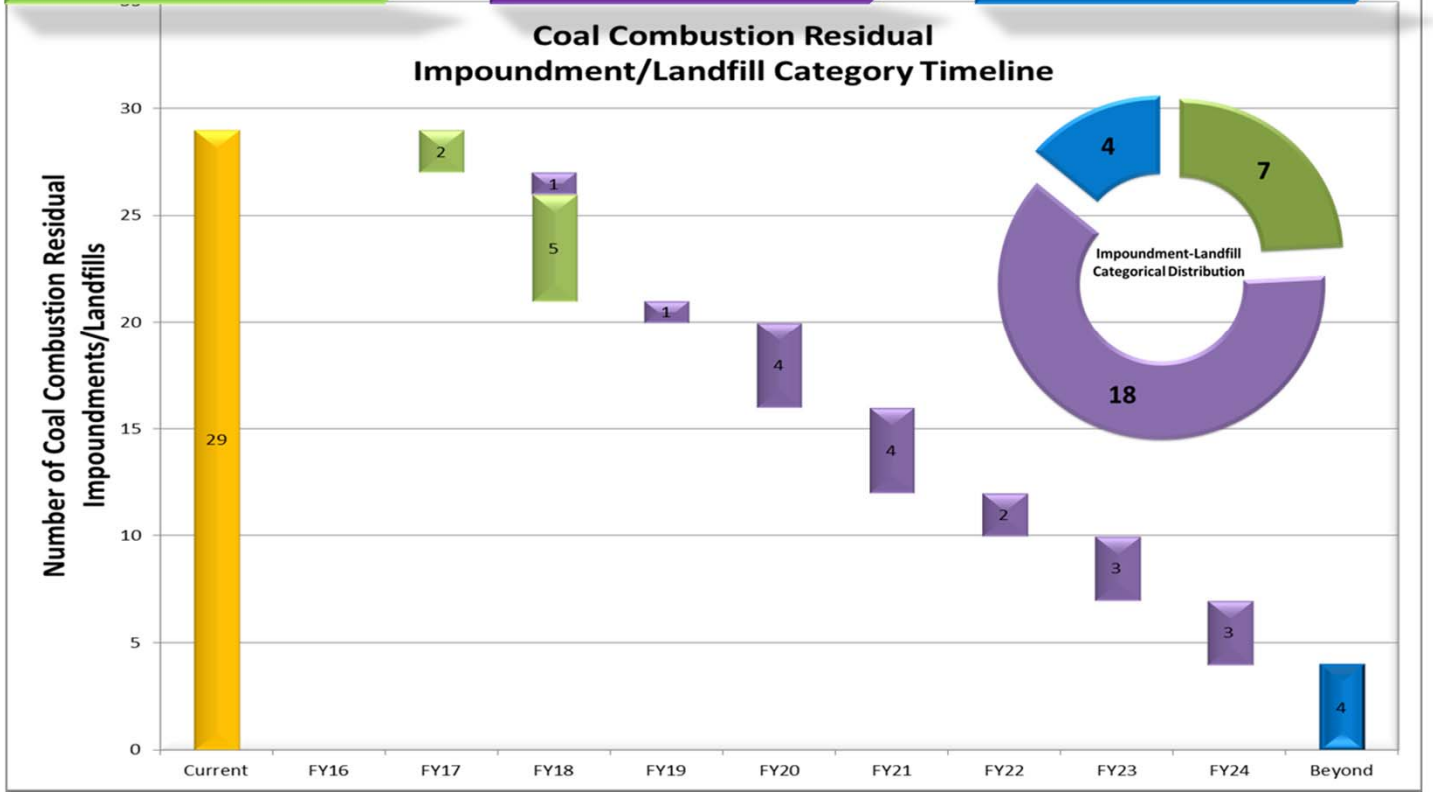


Strategic Field Work Closure Timeline
CCR Rule Categorical Distribution

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*



Allen Fossil Plant
CCR Rule Applicability

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- *No longer receives CCR by 10/19/15*
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Bull Run Fossil Plant

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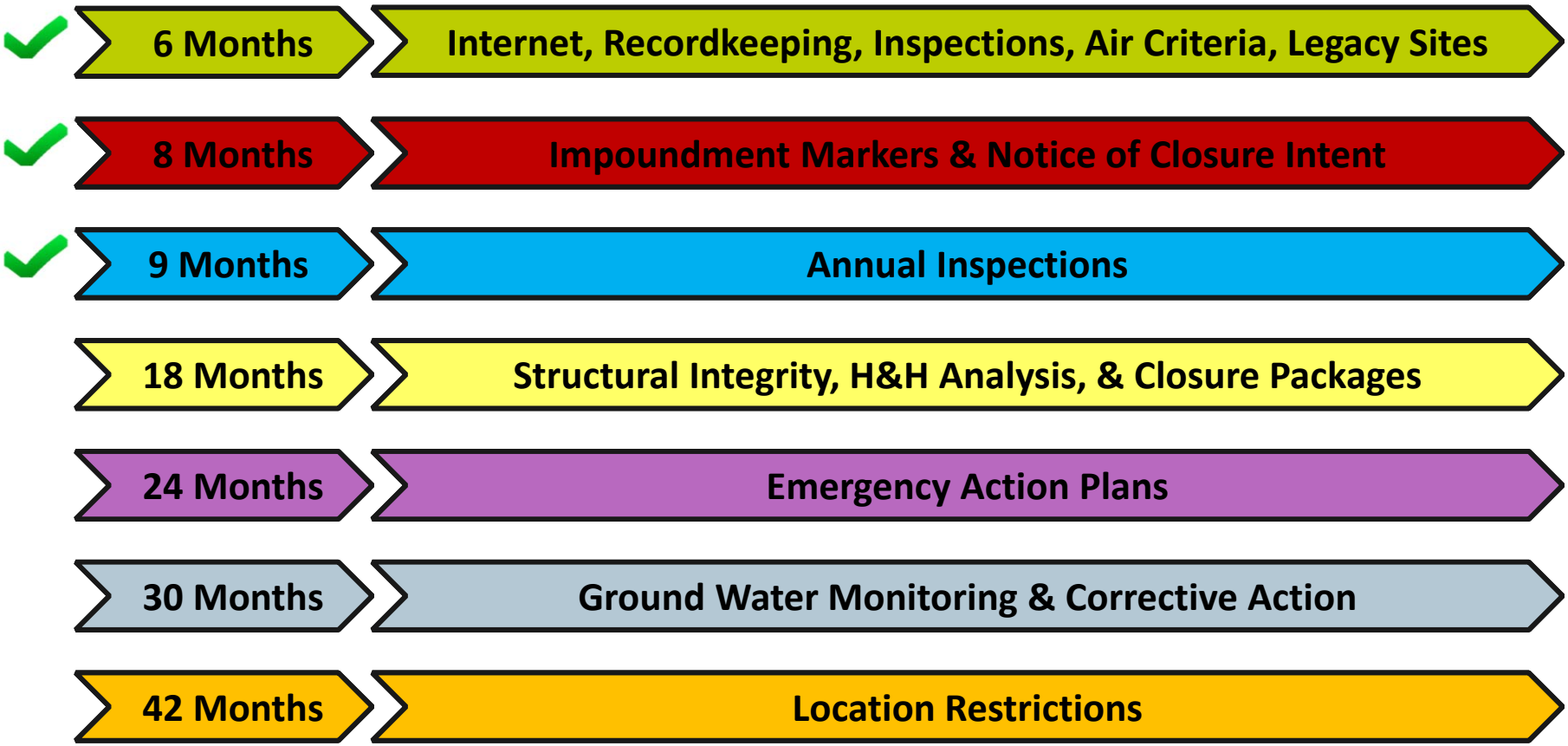
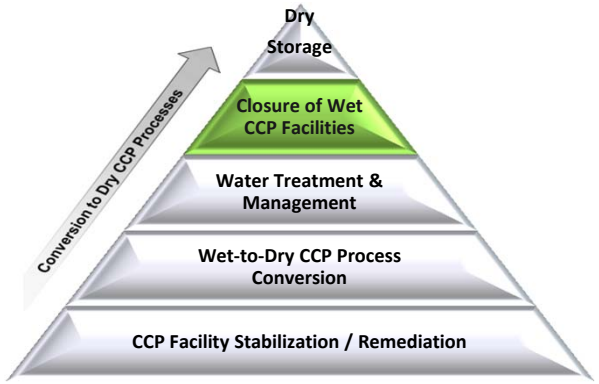
CCR Rule: Implementation Timeline



CCR Closed Sites
Widows Creek Gypsum Stack



Questions?

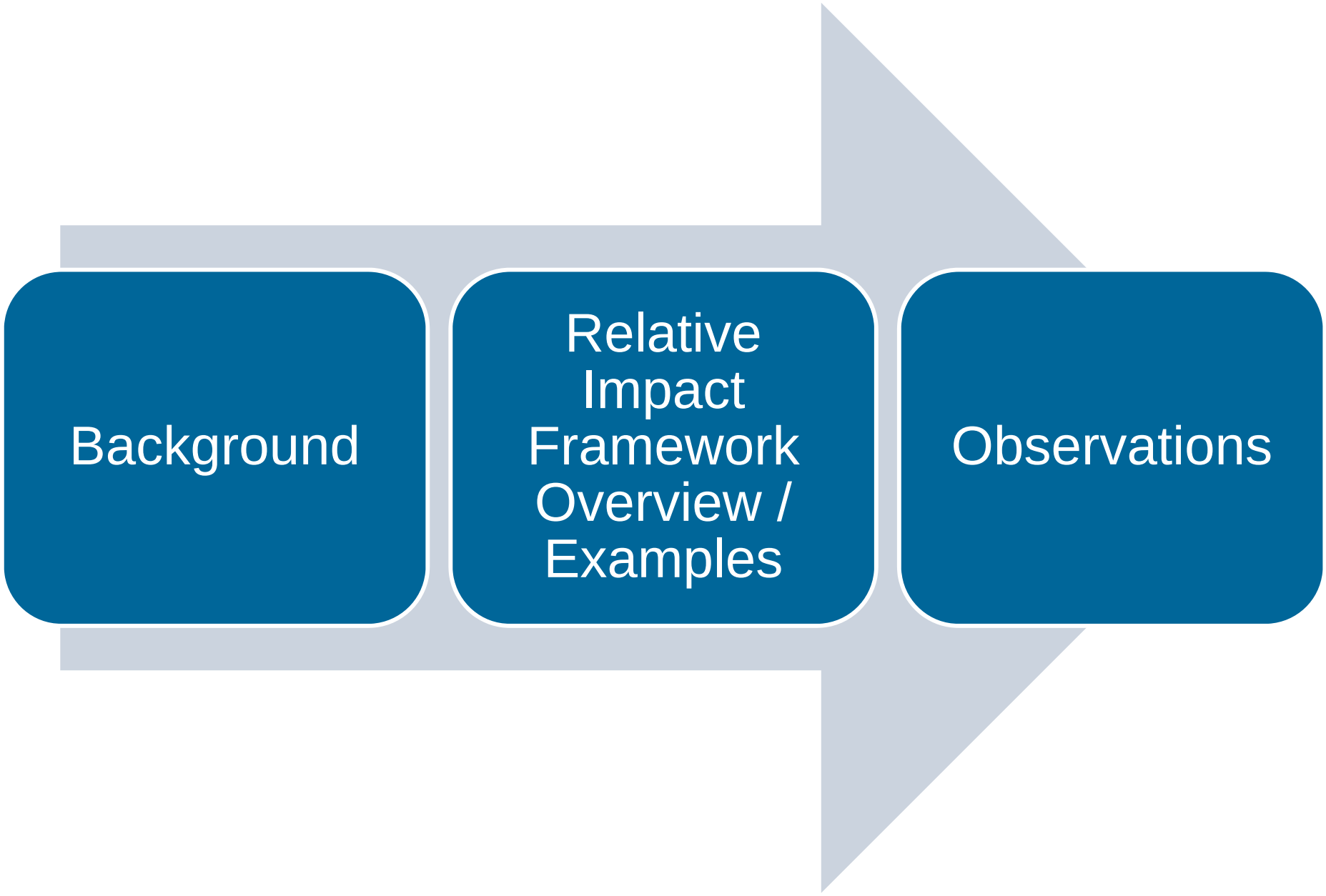
Relative Impact Framework

Closure in Place vs Excavate & Redispose

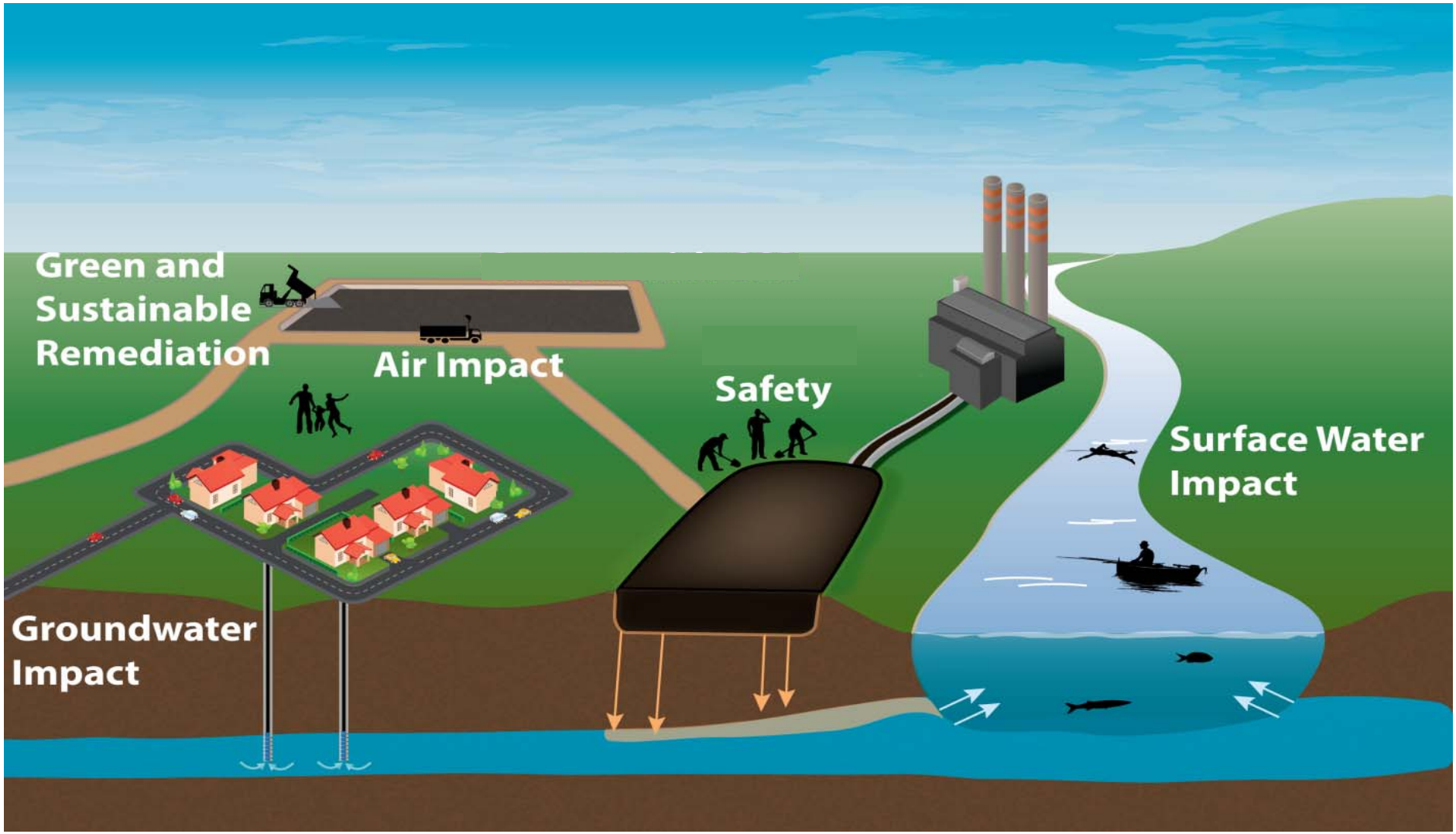
Bruce Hensel
Senior Technical Leader

TVA Regional Energy Resource Council Meeting
January 20, 2016

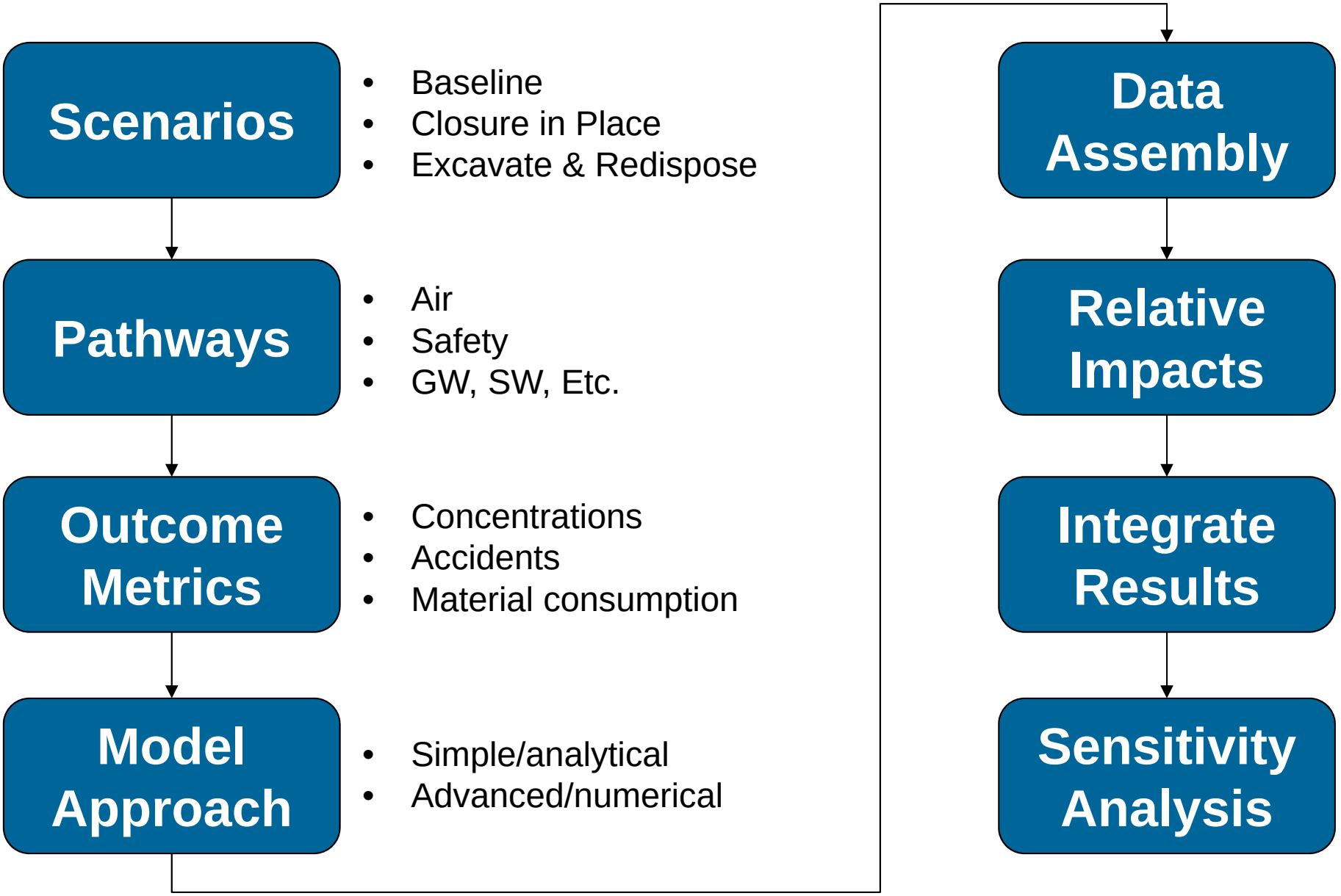
Agenda



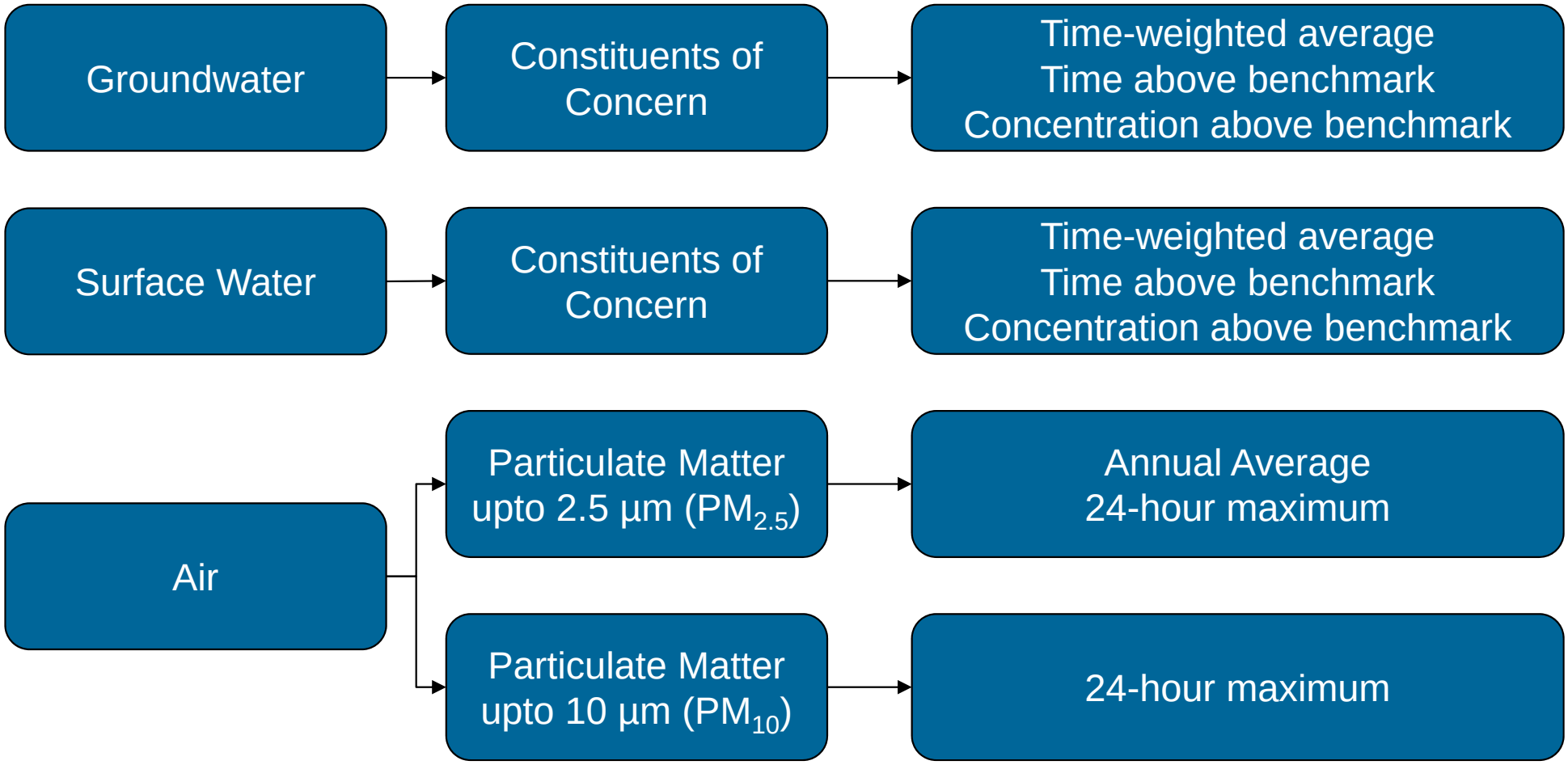
Relative Impact of Closure Alternatives Based on Multiple Exposure Pathways



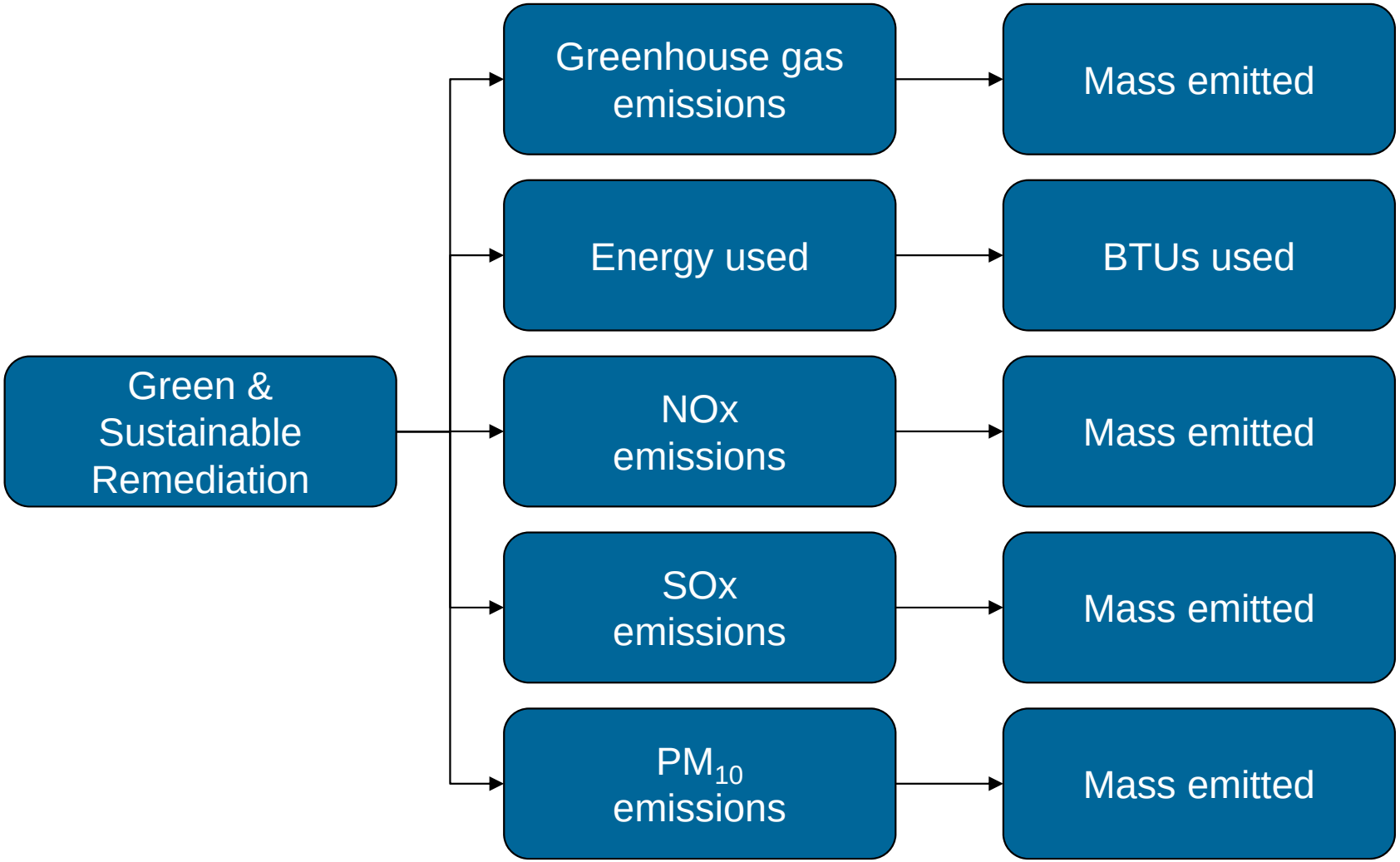
Approach



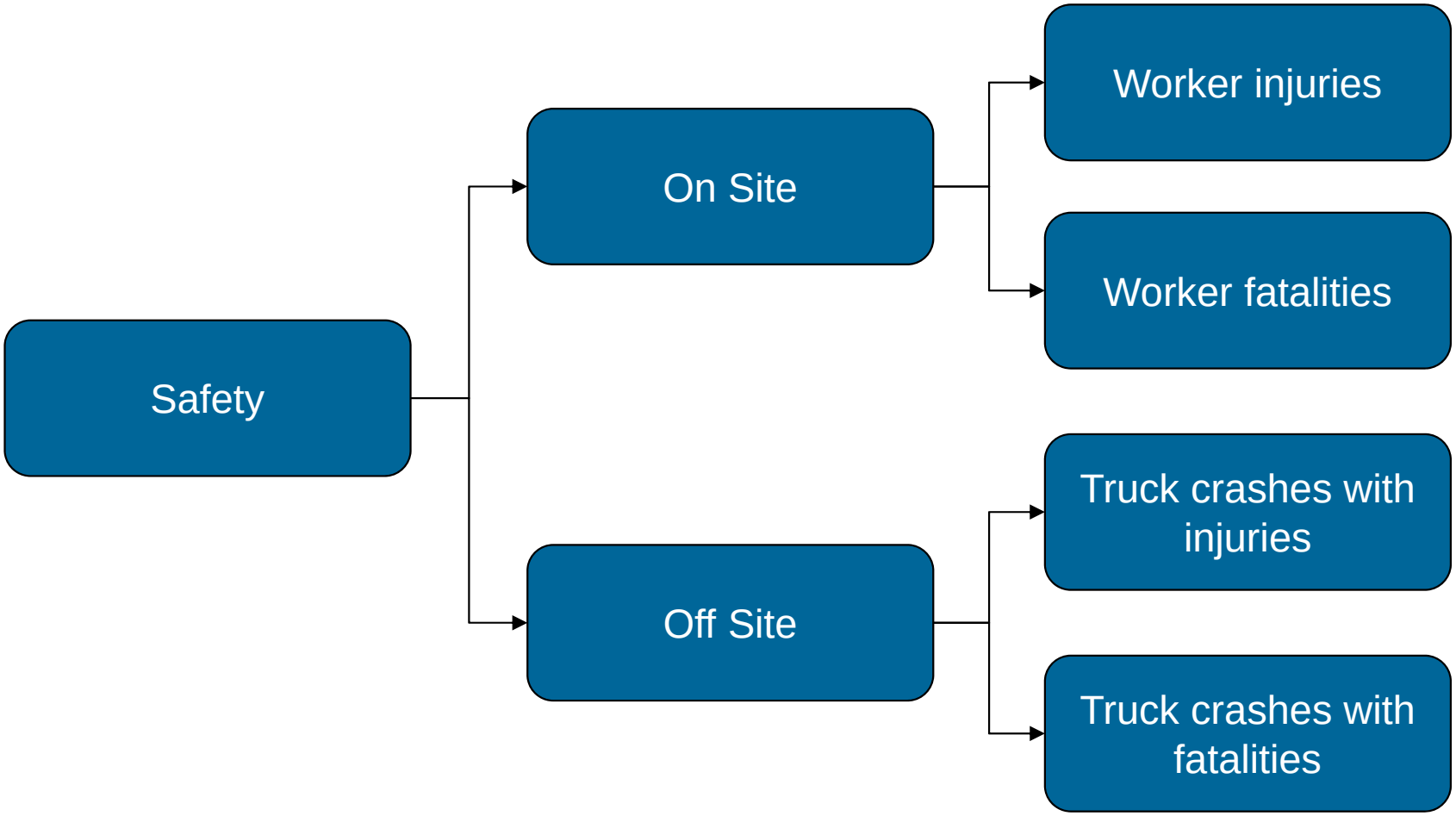
Pathways, Parameters, & Metrics



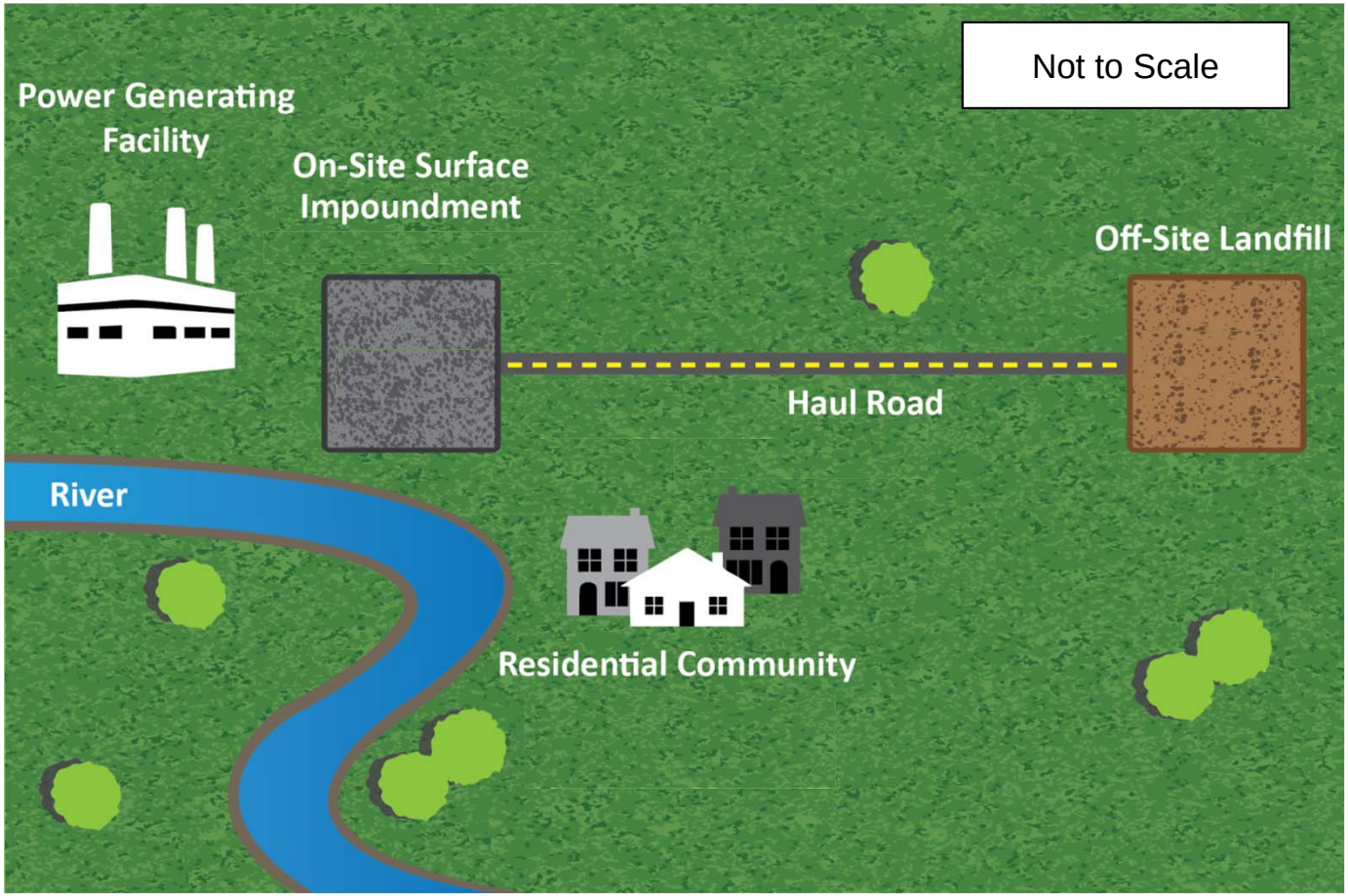
Pathways, Parameters, & Metrics (Continued)



Pathways & Metrics (Continued)

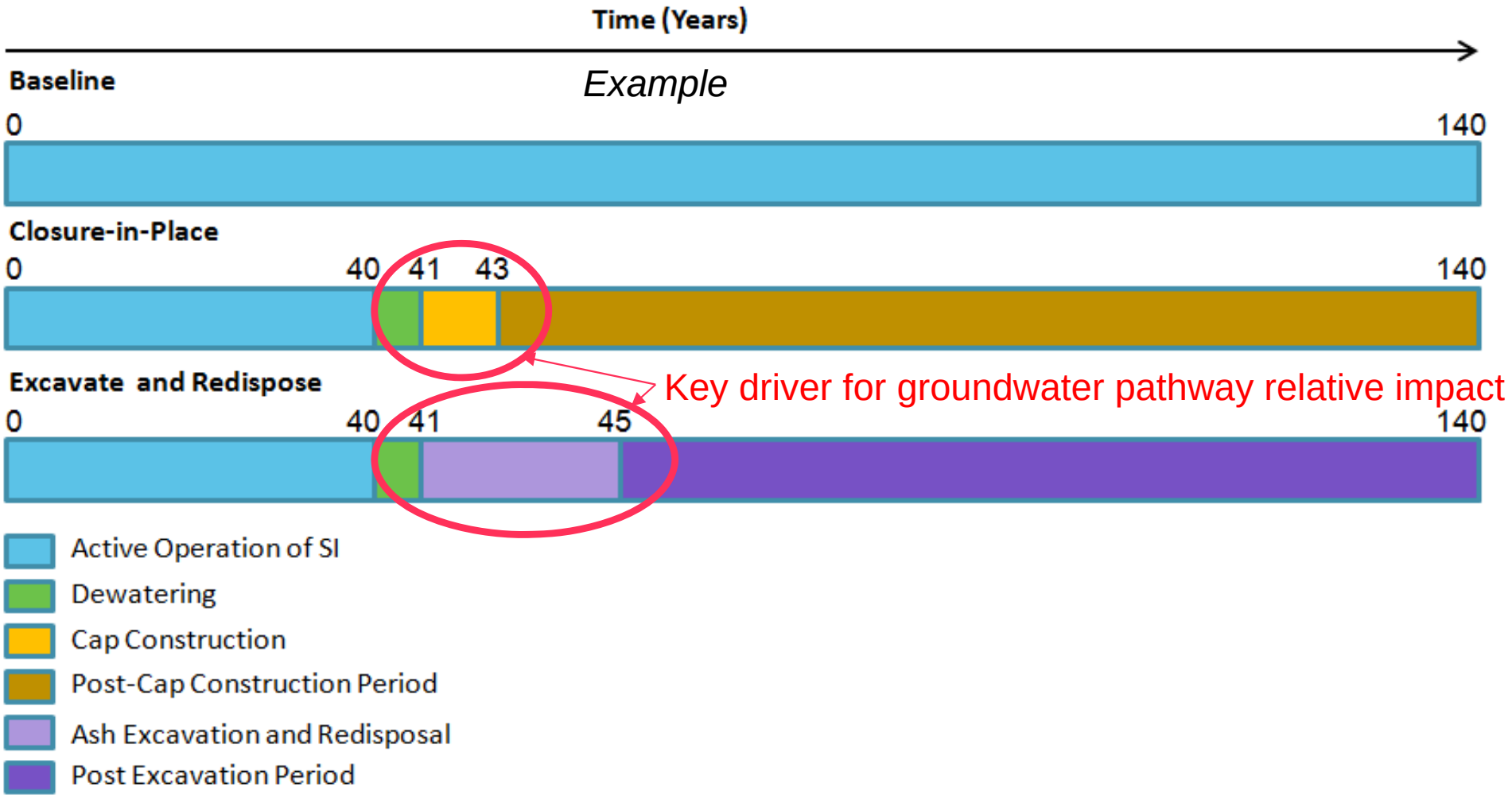


Example of a Site Scenario



- 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



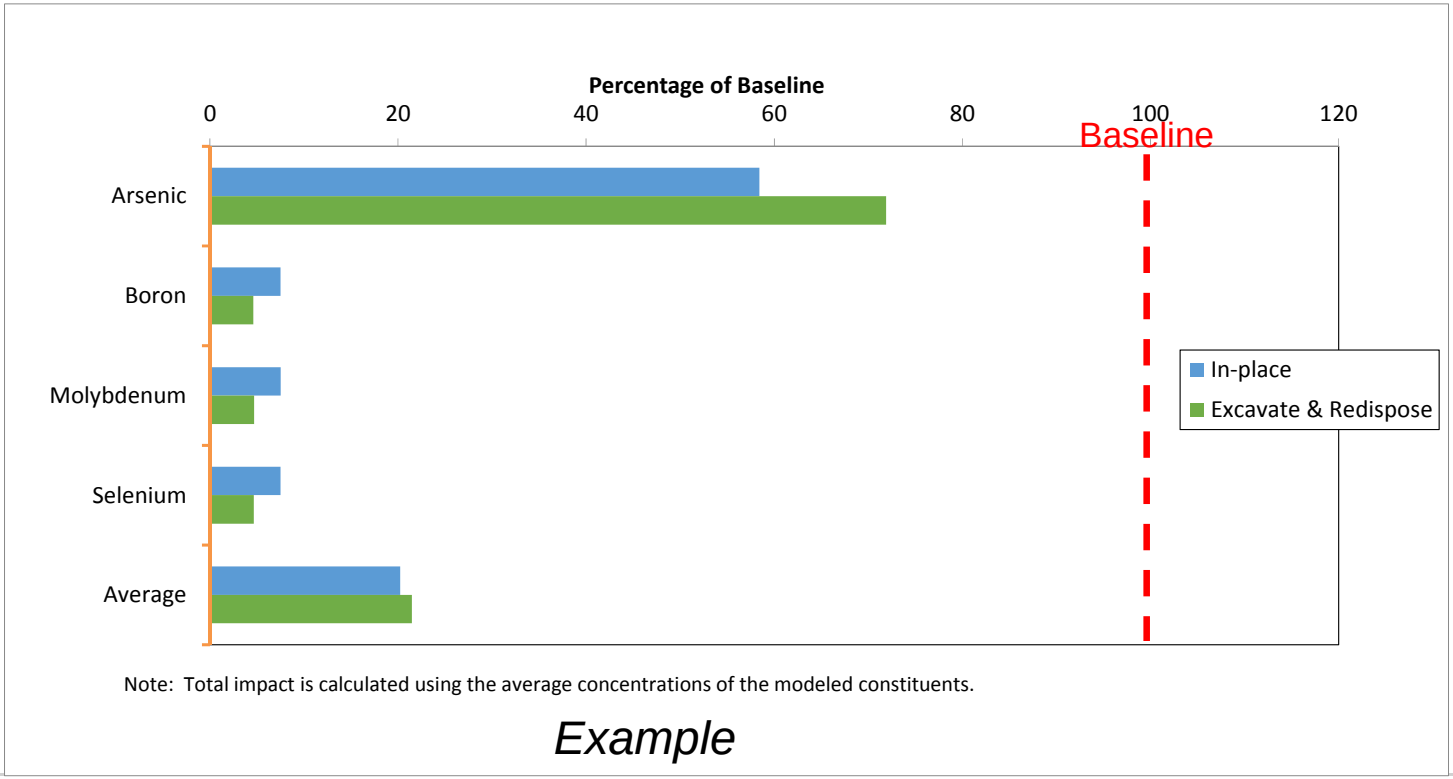
Example of Integrated Results

- 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

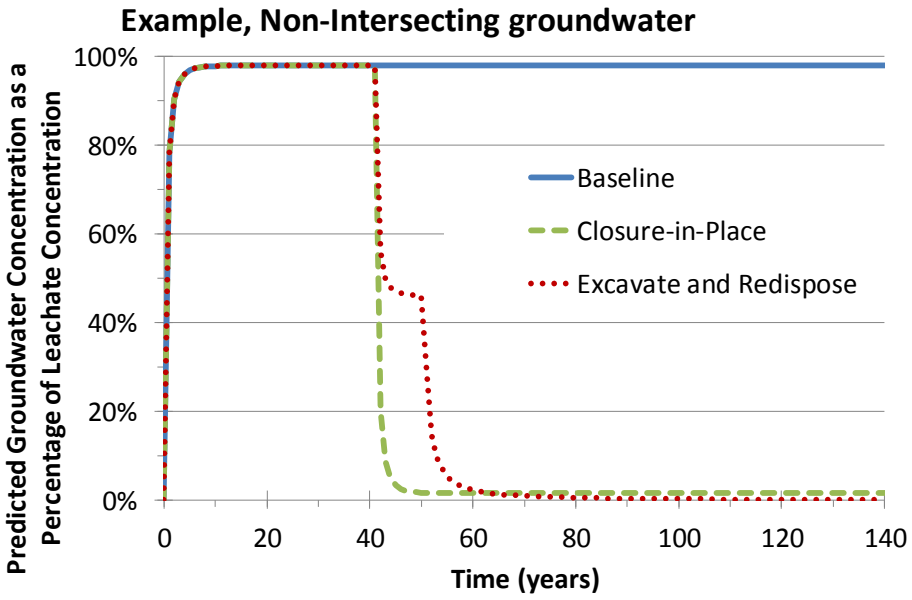
- Key alternatives
  - Constituents potentially released
  - Non-intersecting or intersecting groundwater
  - Type of cap for close-in-place
- Relative impact drivers:
  - Impoundment volume / time to excavate
  - Engineered or soil cap



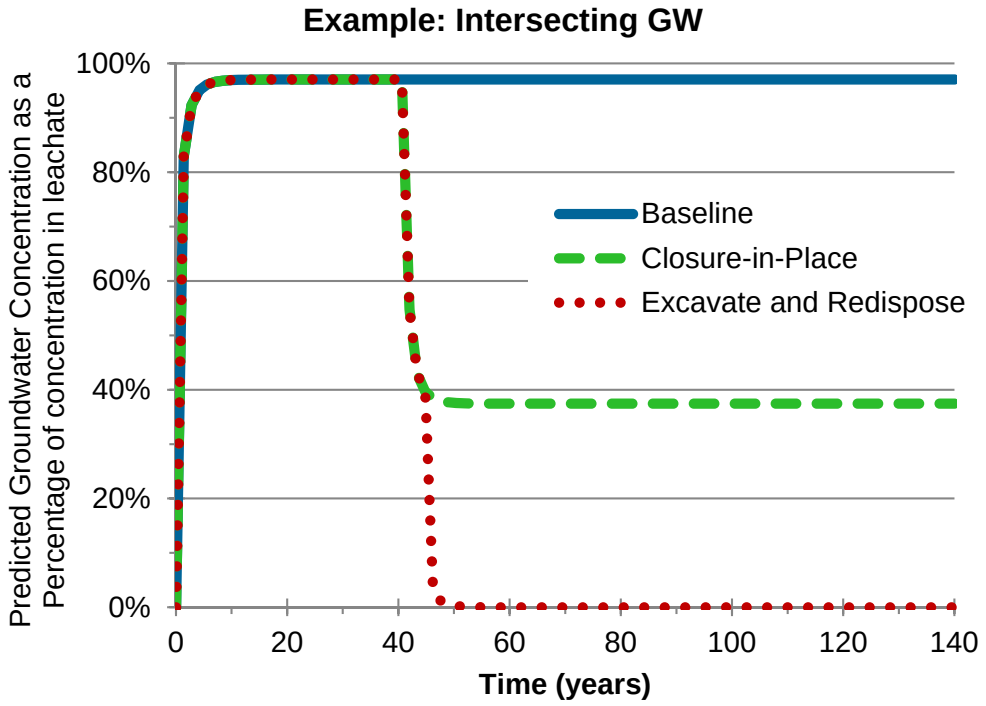
Note: Total impact is calculated using the average concentrations of the modeled constituents.

Example

Example Groundwater Model Results

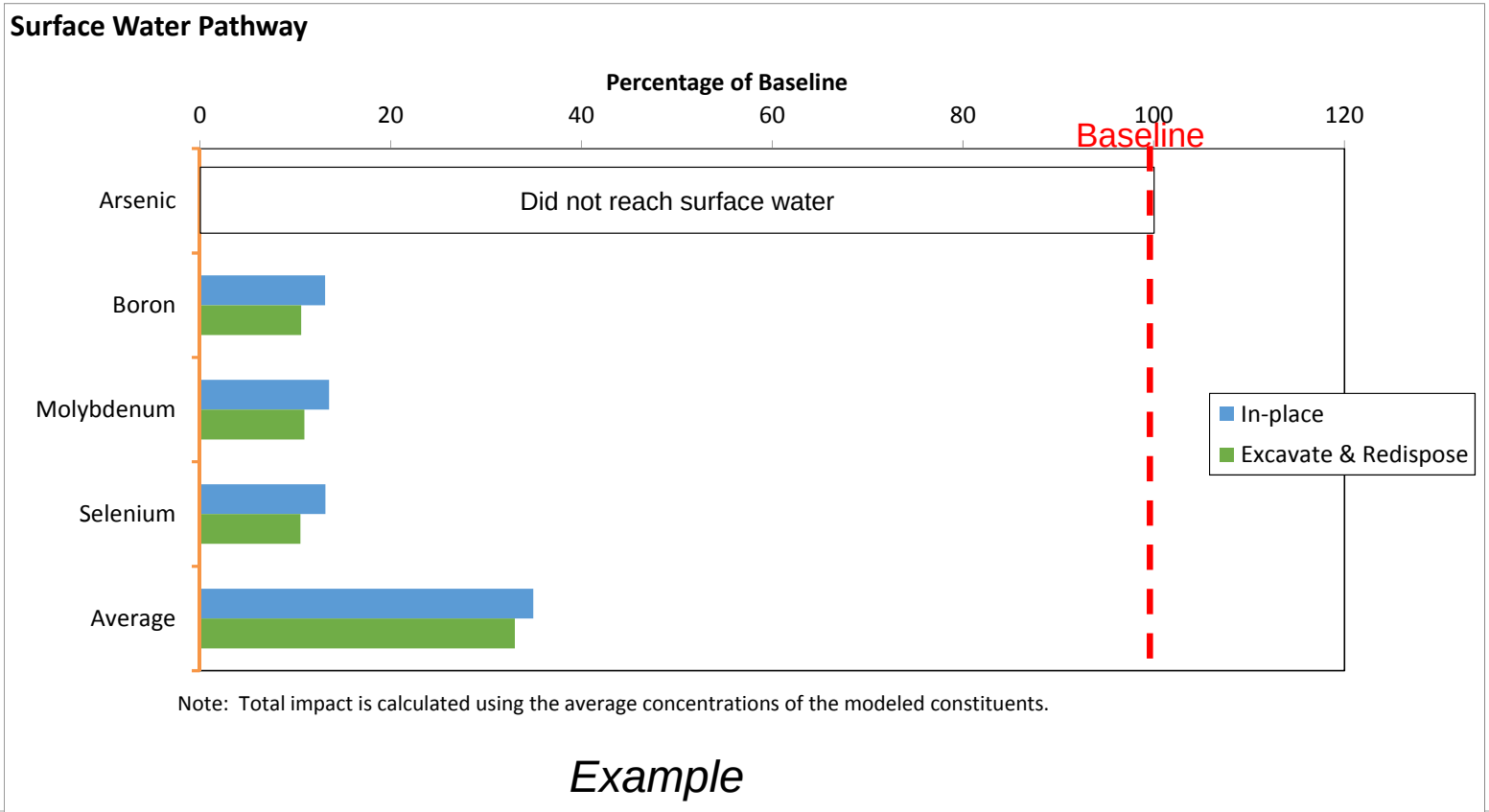


Examples



Surface Water Pathway Analysis

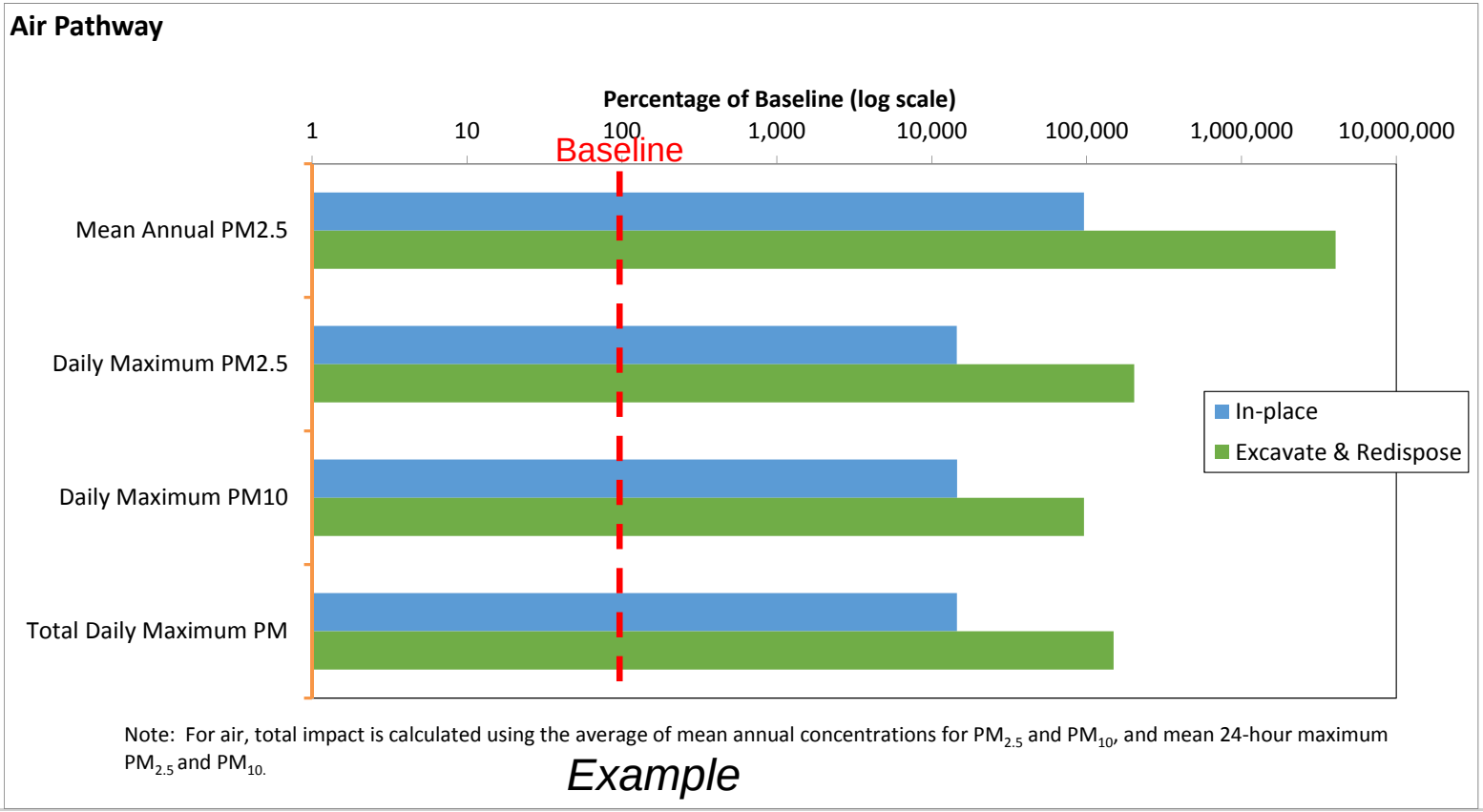
- Key parameters
  - Groundwater flux
  - River discharge
- Calculated using mixing equation or mass-balance approach
- Alternatives
  - Constituents
  - River or lake
- Relative impact drivers:
  - Impoundment volume / time to excavate



Example

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
- Calculated using air quality model
- Alternatives
  - Method / route of transportation
- Relative impact drivers
  - Trips per day between impoundment and landfill
  - Distance to receptor

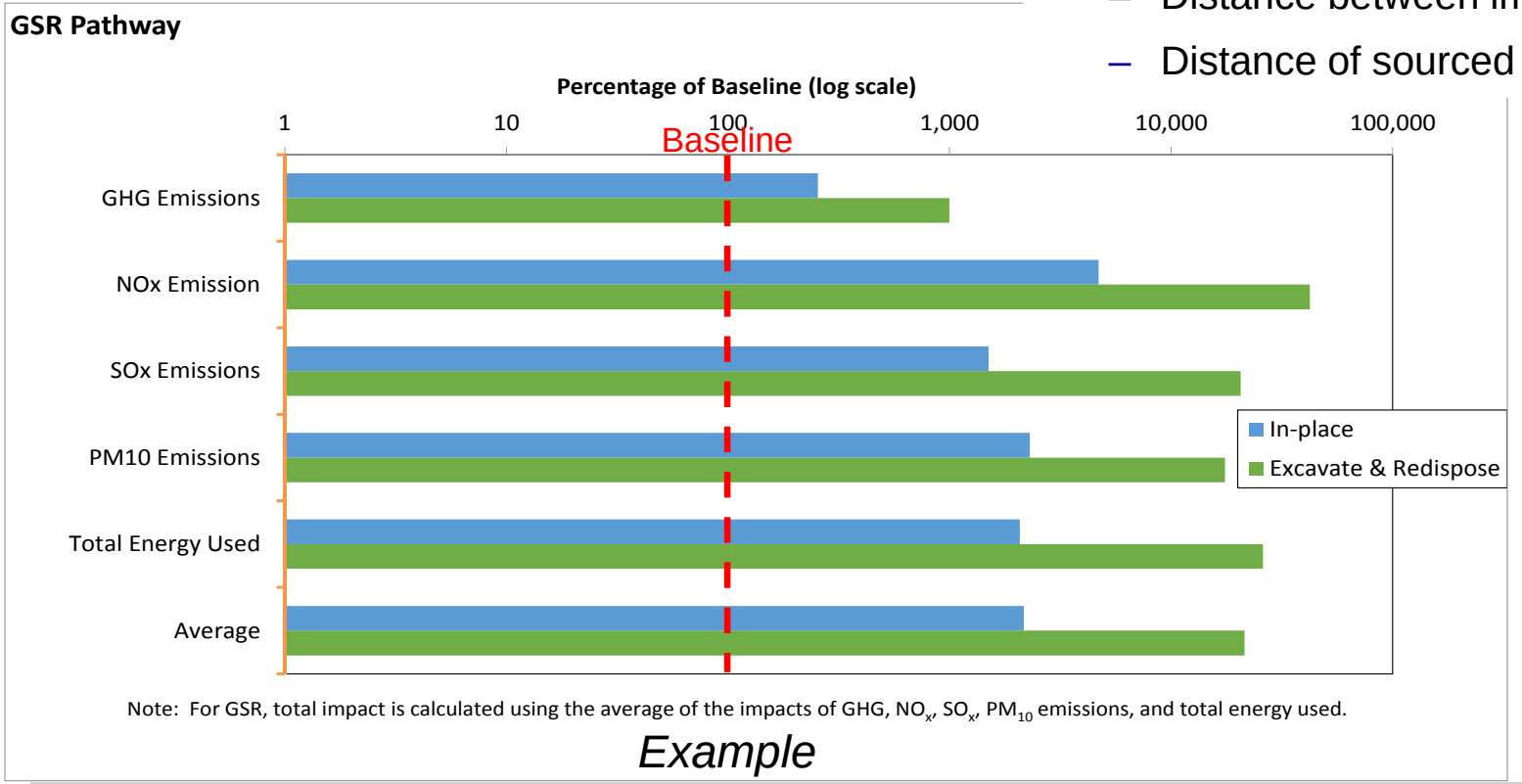


Example

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



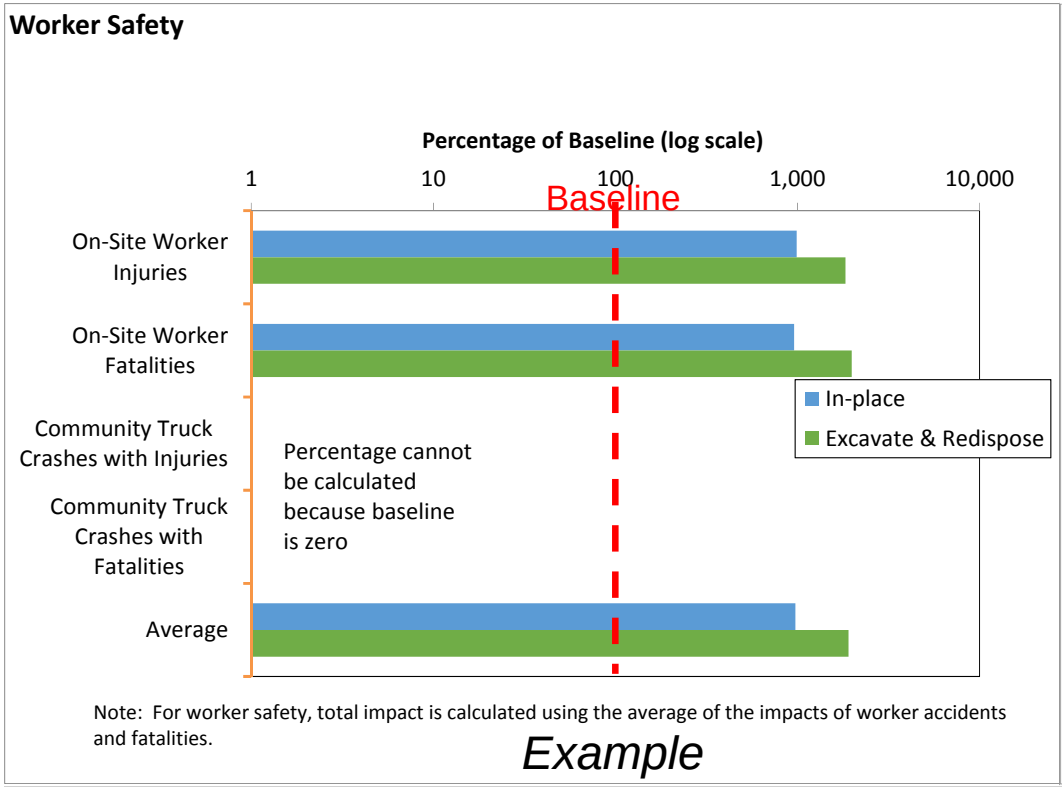
Note: For GSR, total impact is calculated using the average of the impacts of GHG, NO_x, SO_x, PM_{10} emissions, and total energy used.

Example

Safety Pathway Analysis

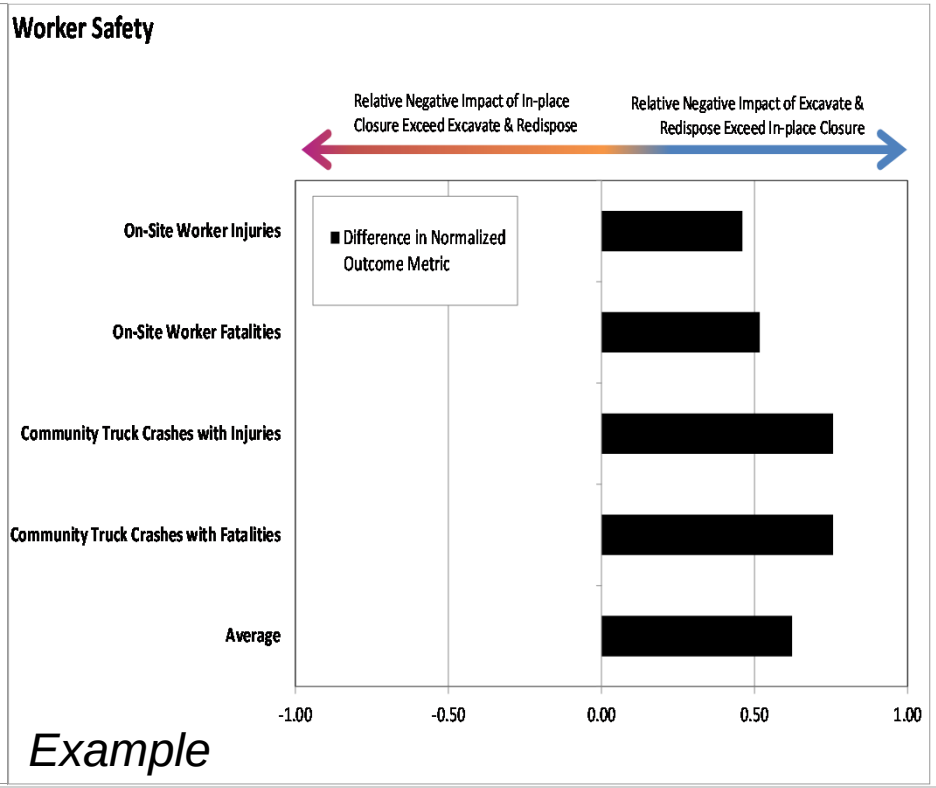
- Key parameters
  - Impoundment acreage / volume
  - Distance to landfill
  - Distance of sourced material to site
- Moderate modeling effort using SiteWise™

- Alternatives
  - Method / route of transportation
- Relative impact drivers
  - Impoundment volume
  - Distance to landfill and construction material source
  - Trips (total) between impoundment and landfill



Note: For worker safety, total impact is calculated using the average of the impacts of worker accidents and fatalities.

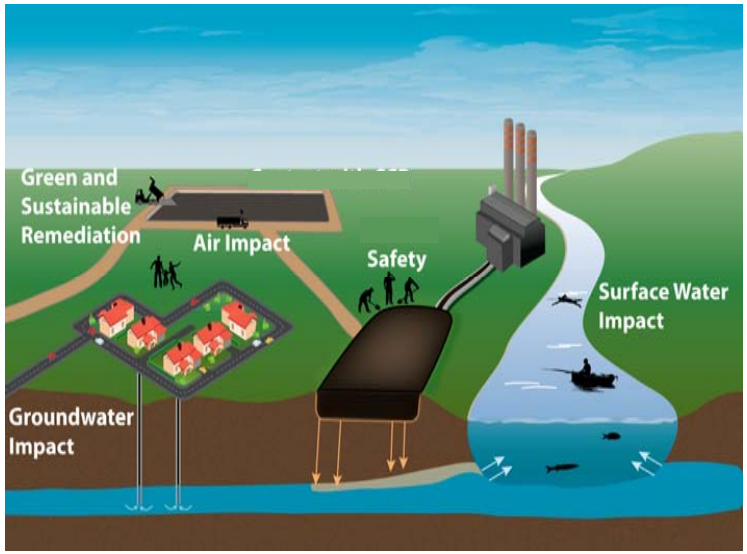
Example



Example

Framework Summary

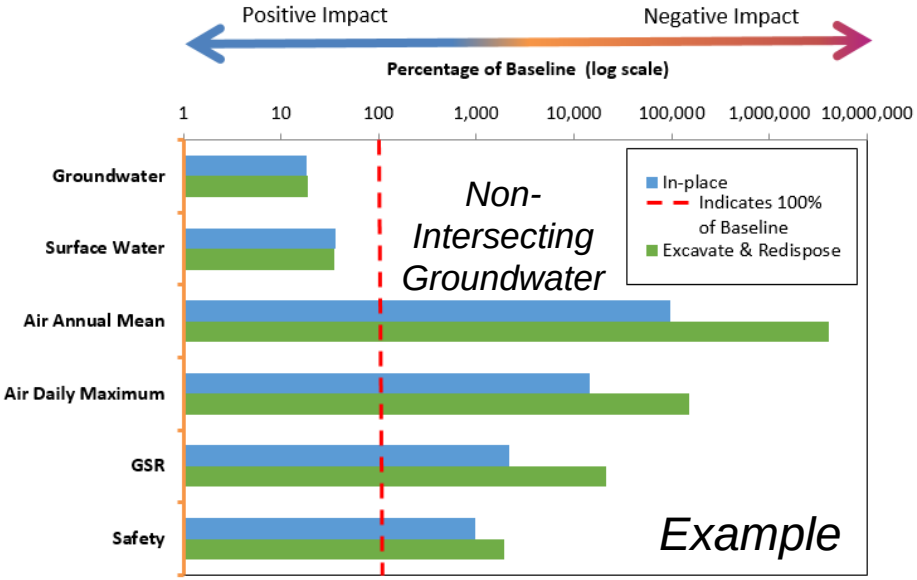
- Evaluates relative impact of Closure In-Place versus Closure by Removal scenarios for multiple local pathways that may be affected. Pathways include:
  - Groundwater and surface water, typically assumed to be impacted
  - Air, green & sustainable remediation, and safety, typically assumed to begin with negligible impacts

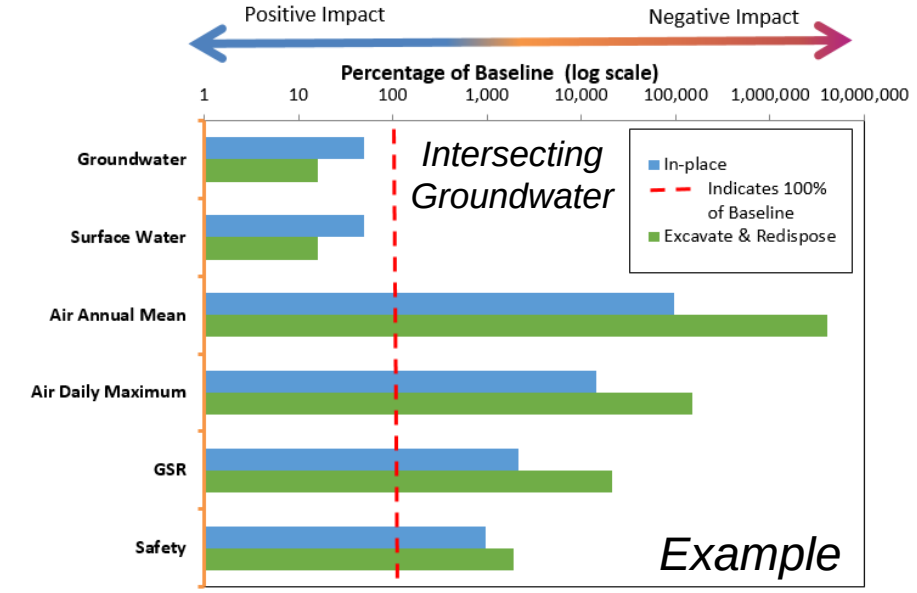


- Quantifies relative impacts for use in decision-making, but does not provide an absolute answer
  - Factors outside framework include cost and regulatory direction

Observations from Framework Testing

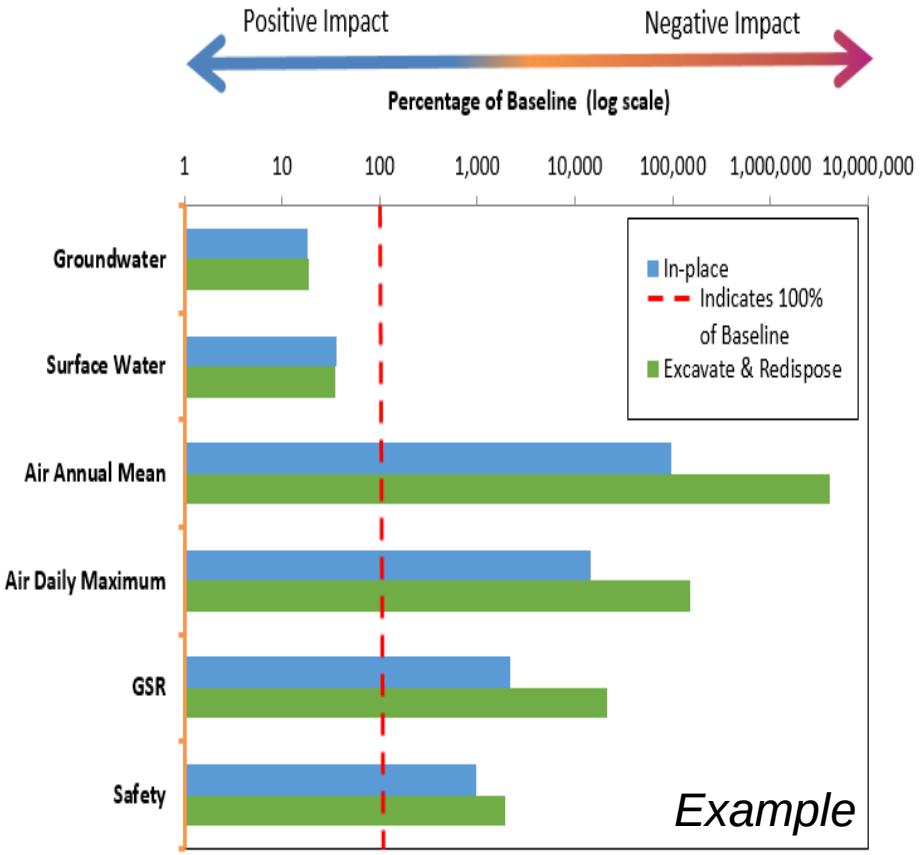
- Groundwater and surface water
  - Closure In-Place and Excavate & Redispose can both provide a benefit relative to an impacted current condition.
  - The benefit from Closure In-Place may be reduced if groundwater intersects the CCR in the impoundment after dewatering.
  - The type of cap planned for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

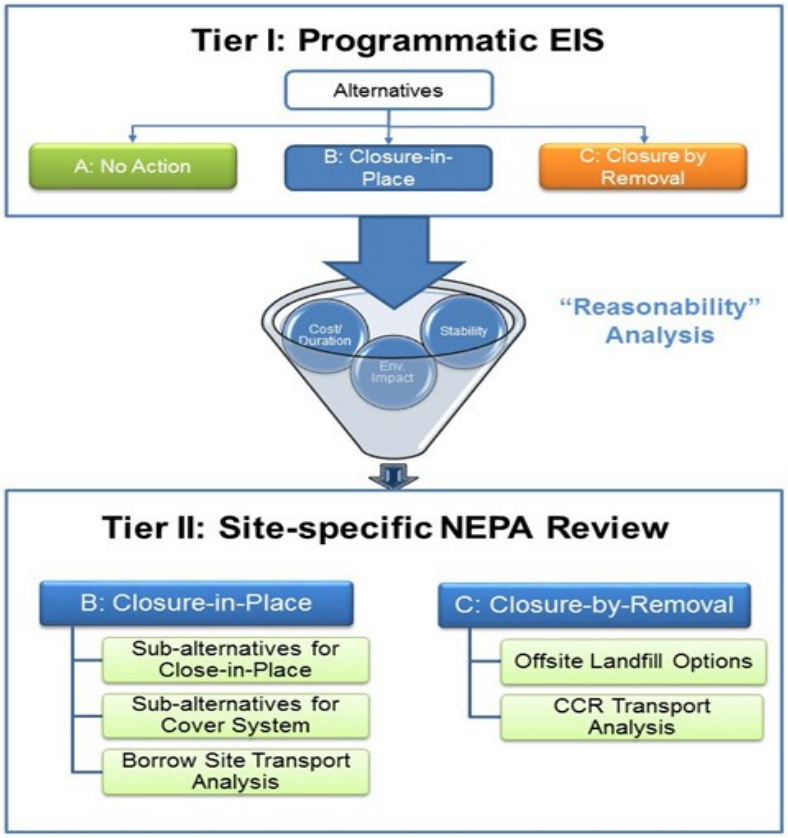
At 6 plants, TVA proposes to close 10 ponds by 2018

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

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

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
- 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!