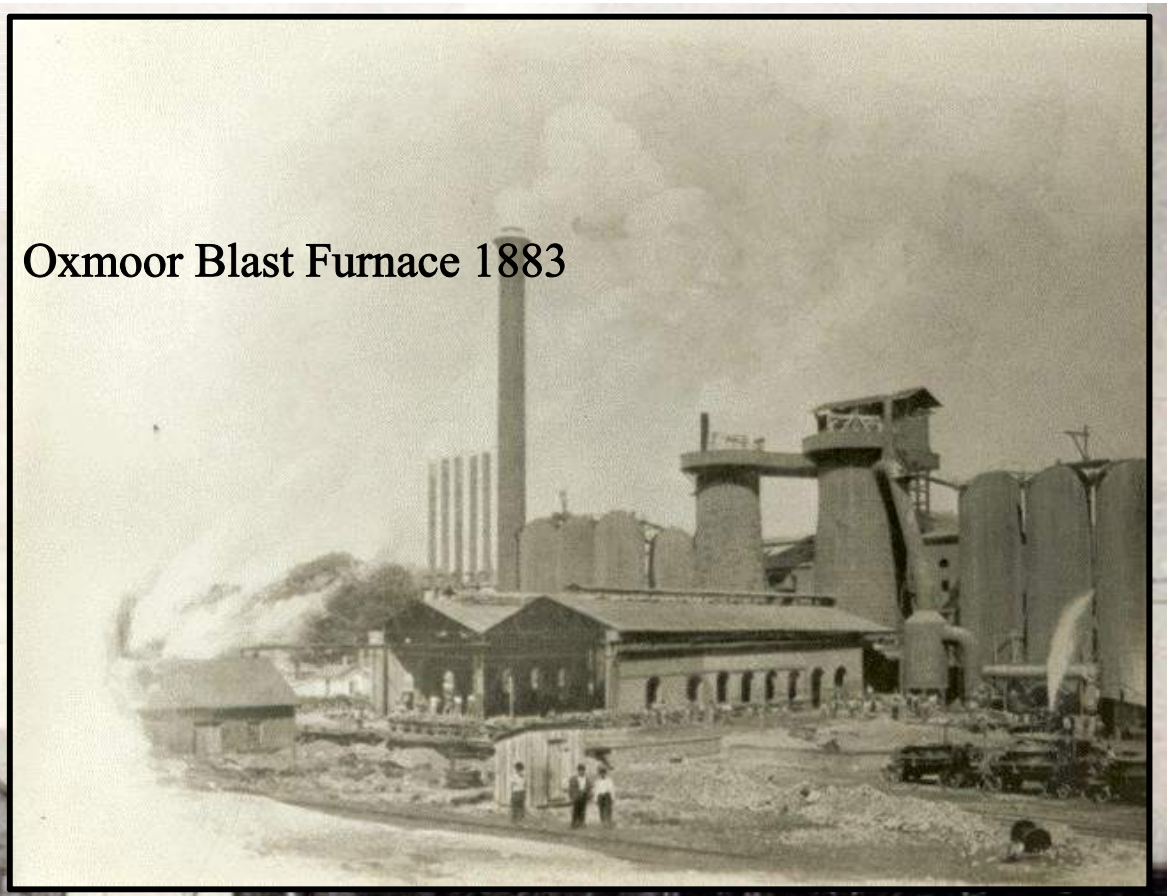
THE U.S. NATIONAL RESPONSE TEAM

REGIONAL RESPONSE TEAM IV

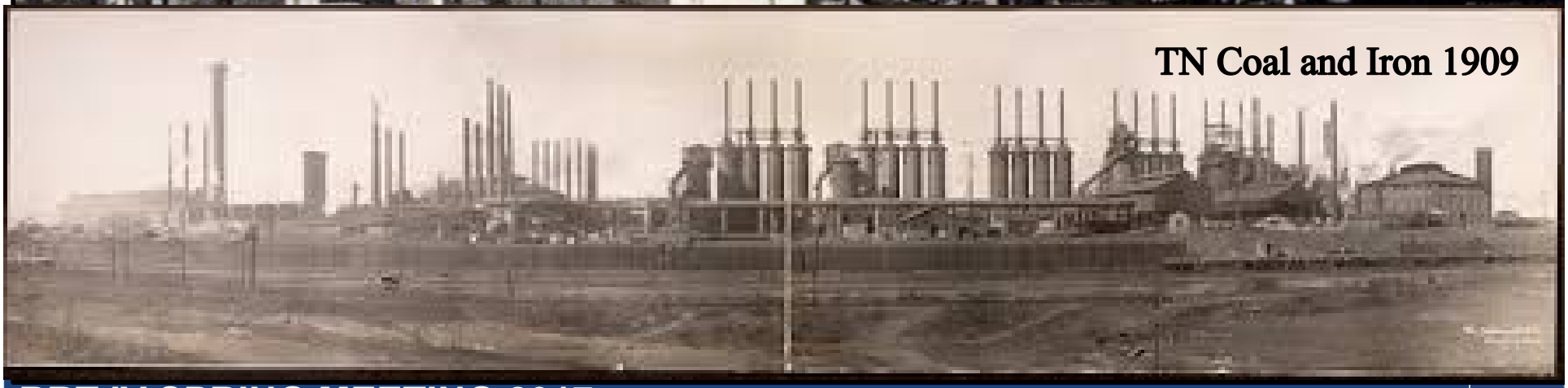
Pelham Pipeline Spill and CR251 Event

Chuck Berry and
Karen Buerki
Region 4 OSCs

- Birmingham founded in 1871
  - Iron ore
  - Limestone
  - Coal
- 1880s – 19 blast furnaces in Jefferson County

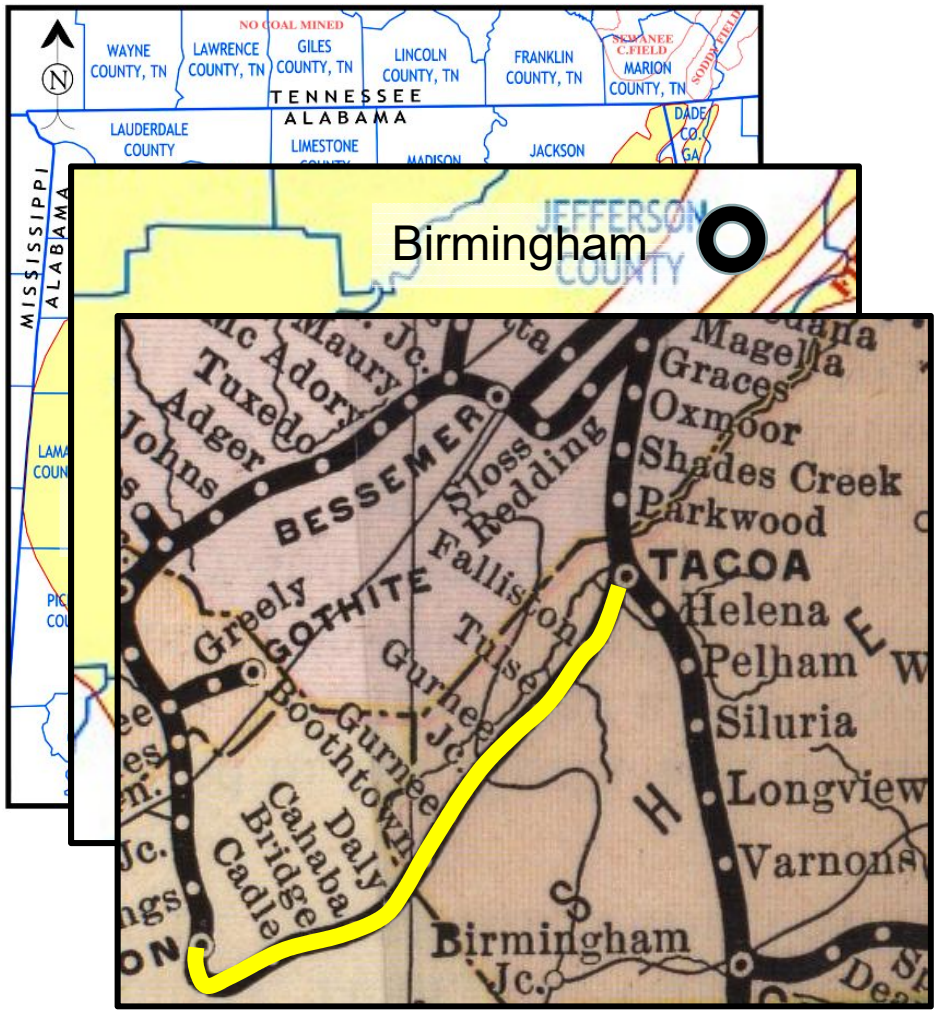


Oxmoor Blast Furnace 1883



TN Coal and Iron 1909

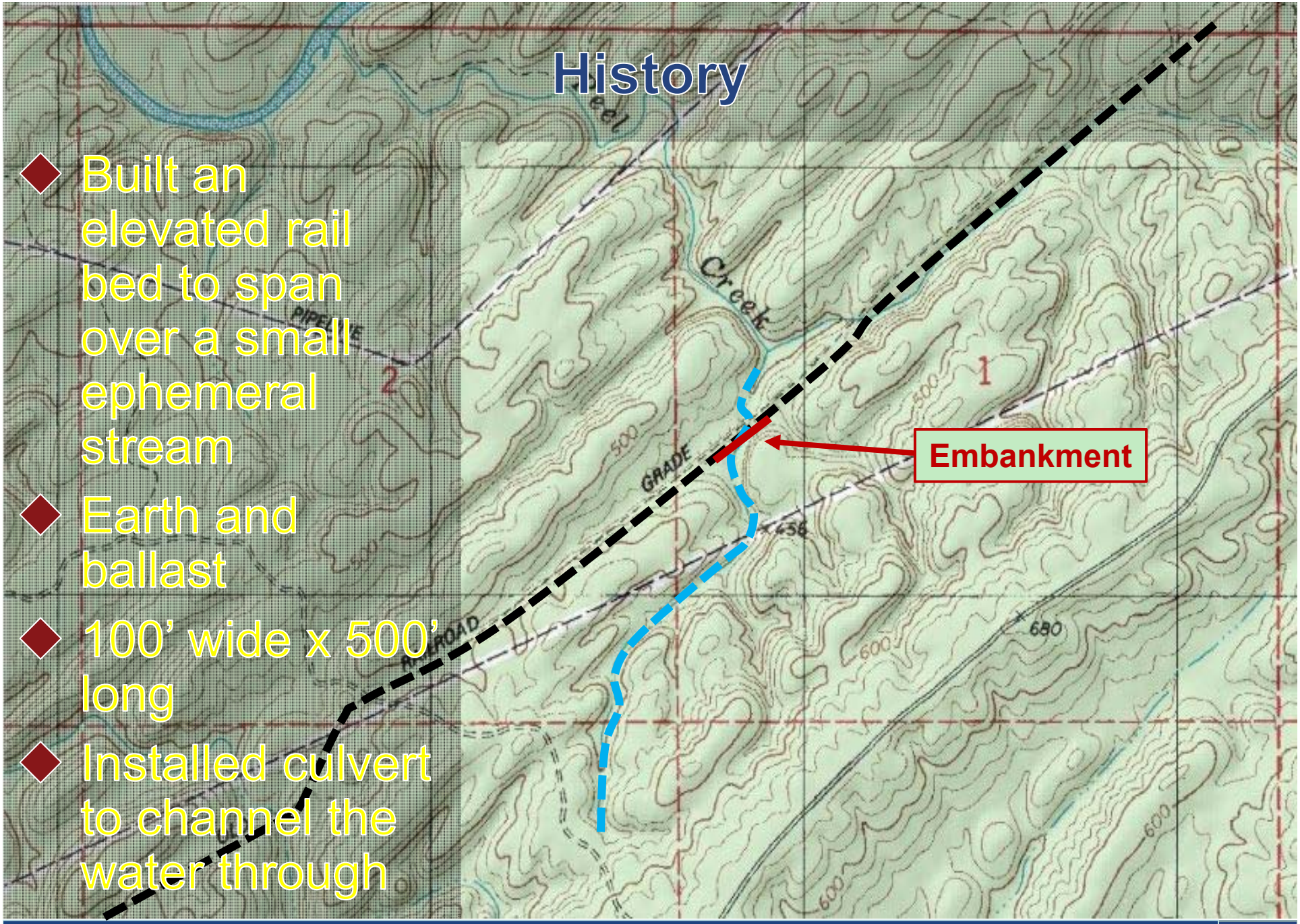
History



- Cahaba coalfield is one of several surrounding Birmingham
- Birmingham Mineral Railroad
- 1889 – L&N expanded BMR to bring Cahaba coal to market
- Helena & Blocton branch line of BMR
- Their engineering will play a major role in controlling this spill

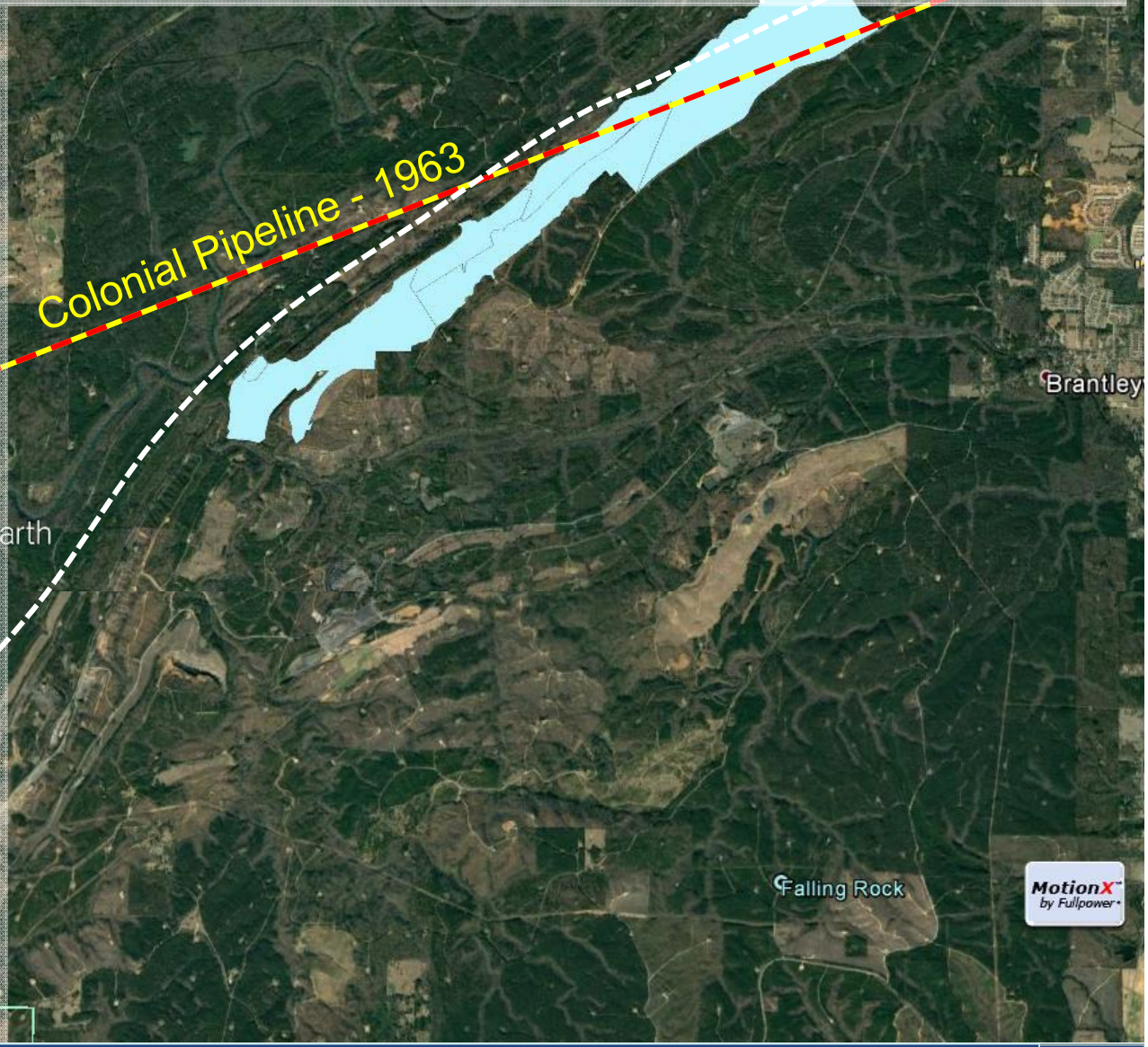
History

- Built an elevated rail bed to span over a small ephemeral stream
- Earth and ballast
- 100’ wide x 500’ long
- Installed culvert to channel the water through

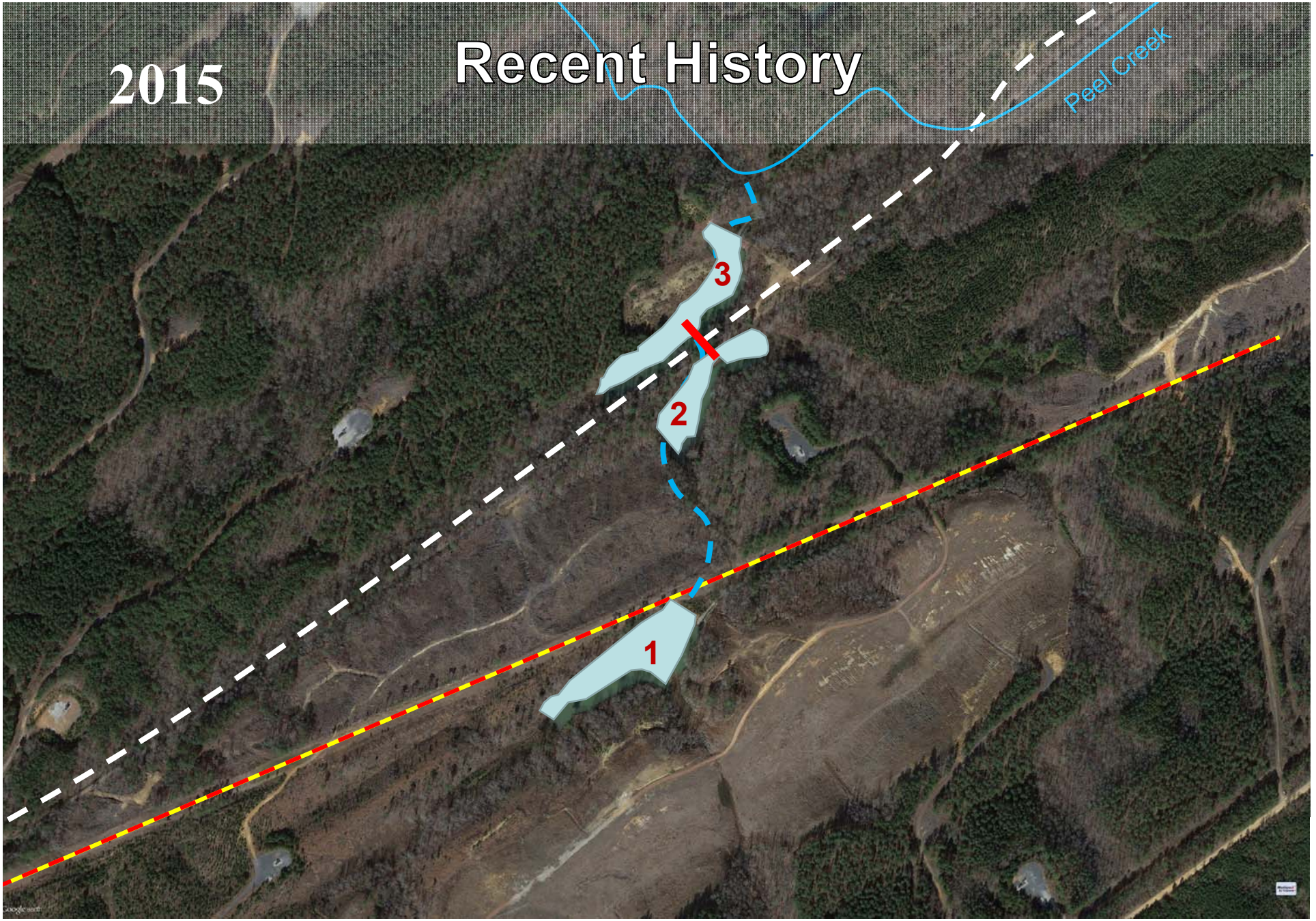


Recent History

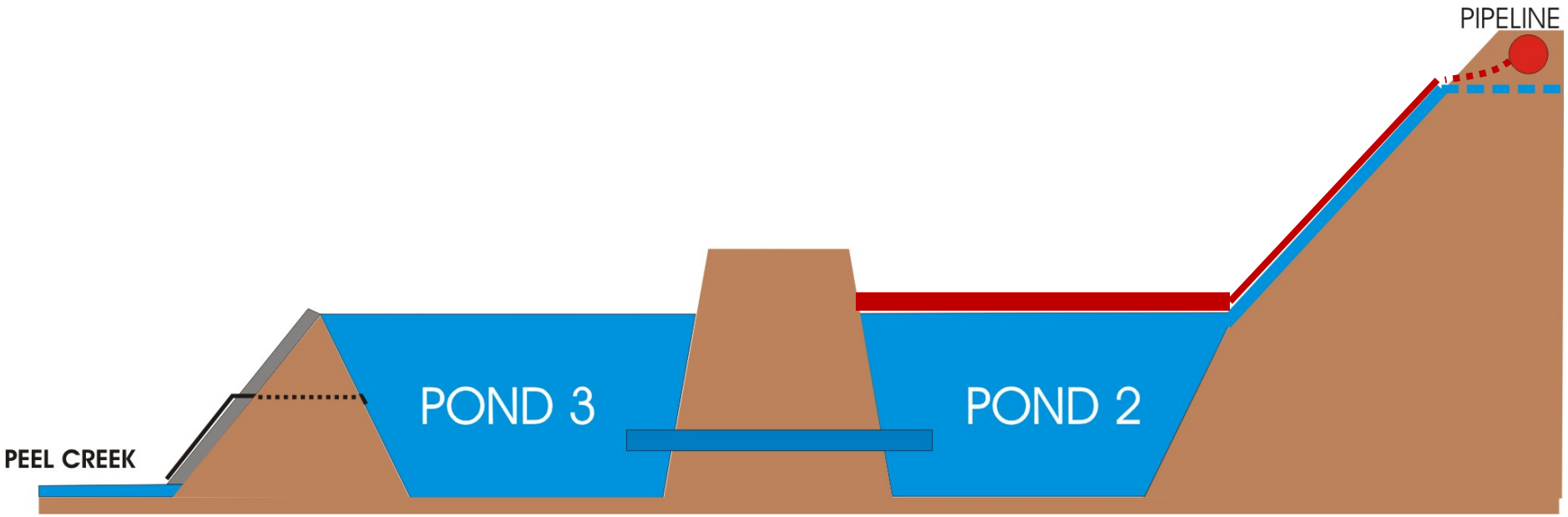
- Iron production slowed / stopped
- Rail line removed in 1950s
- 1963 Colonial Pipeline constructed
- Last of the thick veins Cahaba Coal mined out by early 1990s.
- SEGCO #1 strip mine in 2008

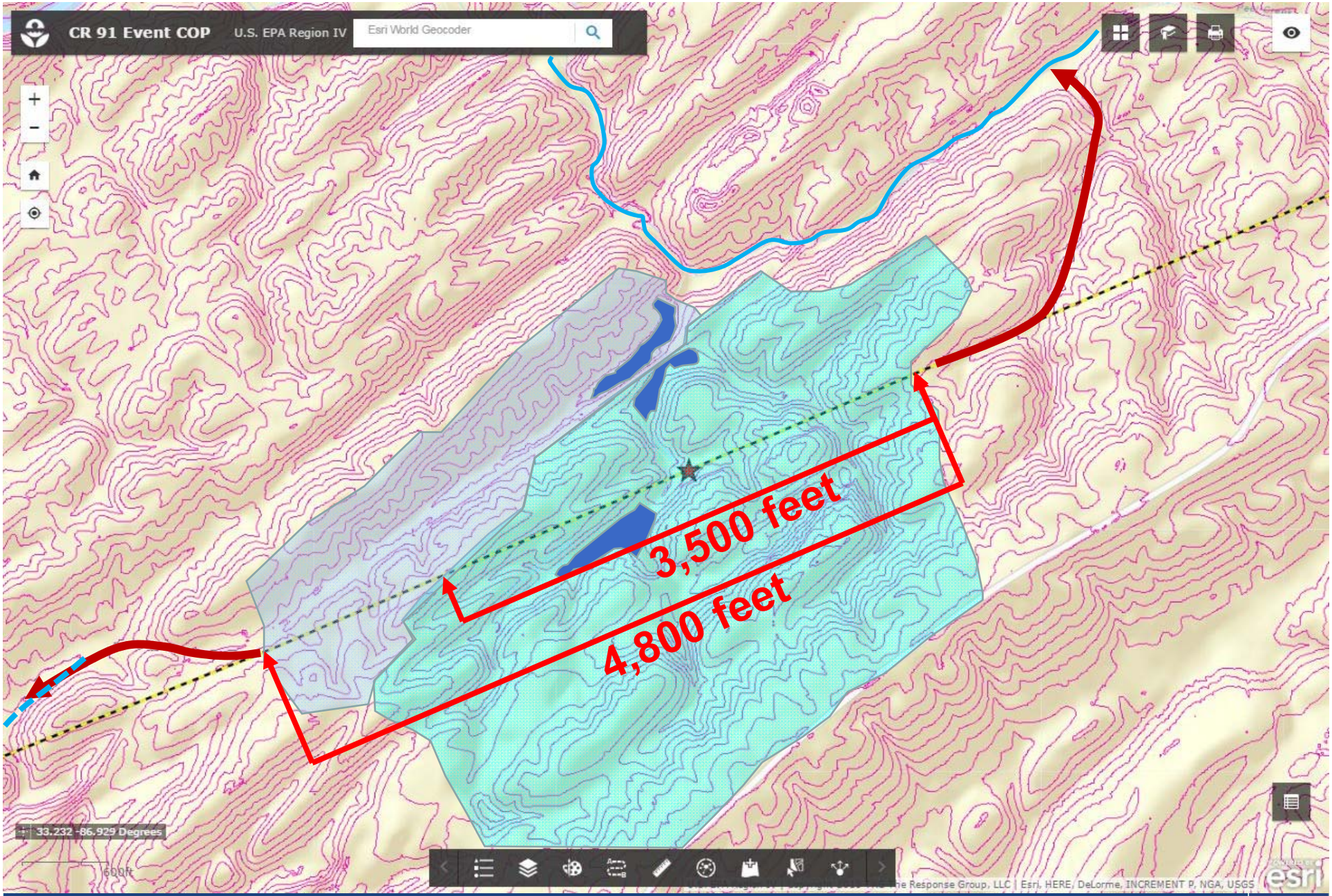


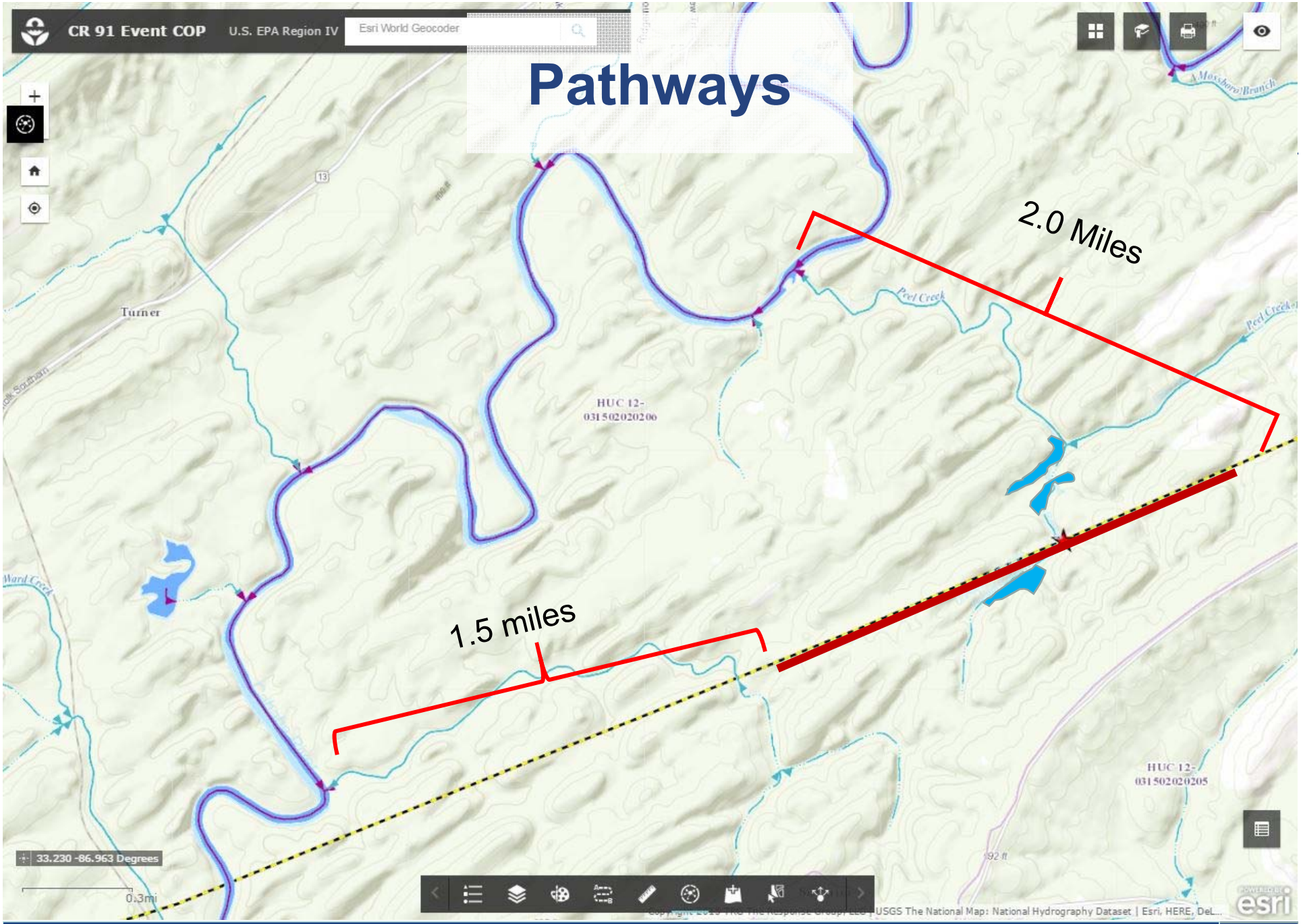
2015 Recent History



World's Largest Underflow Dam




CR 91 Event COP
U.S. EPA Region IV
Esri World Geocoder
3,500 feet
4,800 feet
33.232 -86.929 Degrees
esri


CR 91 Event COP
U.S. EPA Region IV
Esri World Geocoder
Pathways
2.0 Miles
1.5 miles
HUC 12-
031502020206
HUC 12-
031502020205
Turner
Peel Creek
33.230 -86.963 Degrees
0.3mi
esri

What's at Risk?

- Cahaba River is last undammed river in AL
- Wildlife Diversity
  - 131 Fish species
    - Most of any US river per mile
    - 18 endemic
    - 3 T&E
  - 27 Mussels
    - 11 T&E
  - 35 snails
    - 13 endemic
    - 4 T&E
  - 69 total T&E species

CAHABA SHINER

OBLONG ROCKSNAIL

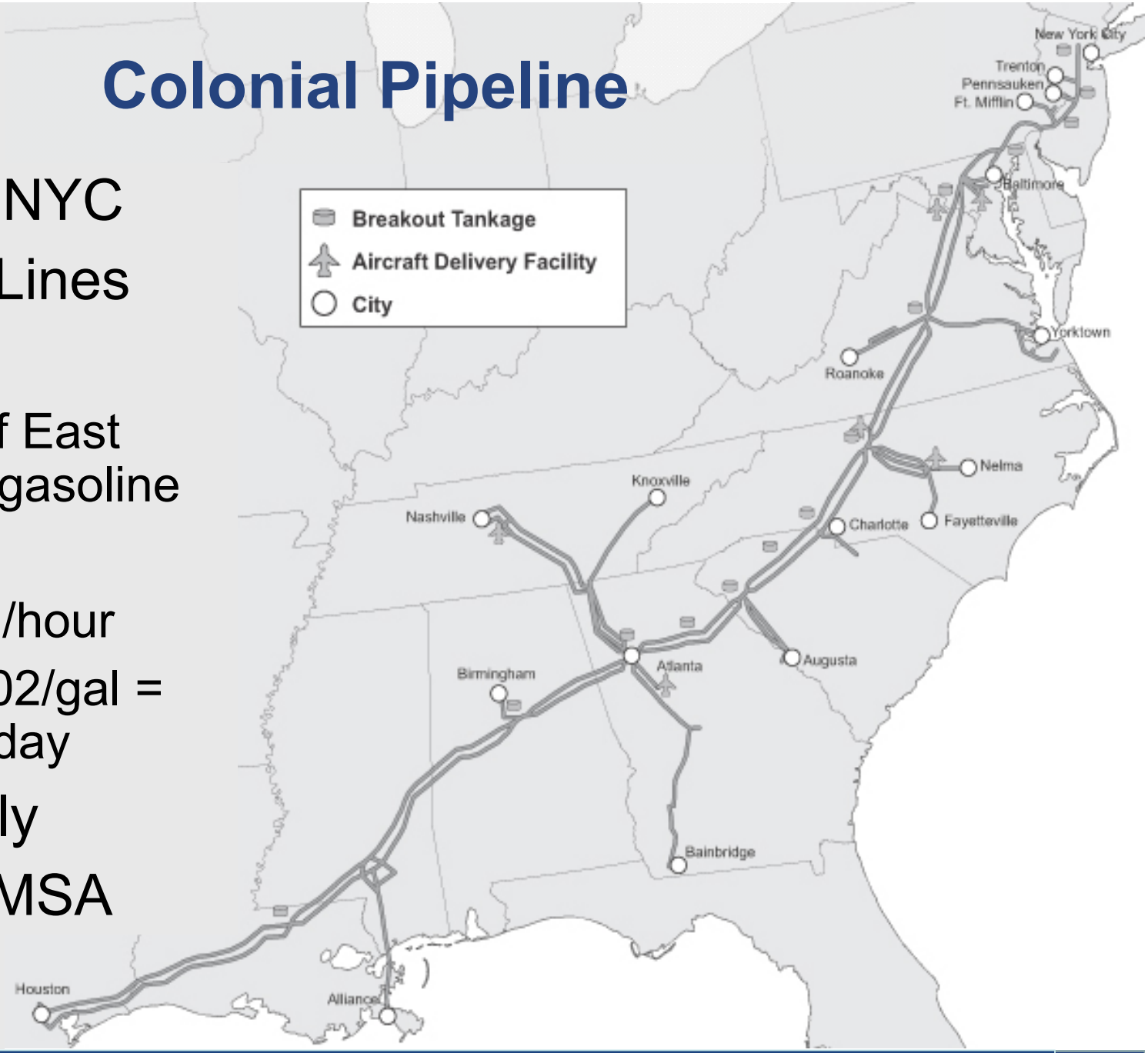
CAHABA ELIMIA

Cahaba Lily

- Only 50 populations left
- Considered for Endangered Species Act protection
- Form basis for recreational commerce on Cahaba

Colonial Pipeline

- Houston NYC
- Two 36” Lines
- Line 1
  - 40% of East Coast gasoline
  - 500psi
  - 2M gal/hour
  - @ $0.02/gal = ≈$1M/day
- Trans only
- DOT PHMSA



Leak Site Location

Discovery and Notification

- As part of a bi-weekly inspection ASMC physically visits the ponds.
- On Friday, September 9, ASMC inspector notified Colonial that there was a strong gasoline smell on one of the ponds.
- Colonial mobilized from nearby Pelham Junction and confirmed the presence of gasoline.
- NRC 1158585. **Volume was unknown. Only a sheen declared.**
- OSC Berry dispatched from Atlanta.

NATIONAL RESPONSE CENTER 1-800-424-8802
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applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1158584

INCIDENT DESCRIPTION

*Report taken by: YN2 RUDY GANTHER at 13:59 on 09-SEP-16
Incident Type: FIXED
Incident Cause: UNKNOWN
Affected Area: POND
Incident was discovered on 09-SEP-16 at 11:31 local incident time.
Affected Medium: WATER POND

REPORTING PARTY
Name: BROCK MOBLEY
Organization: COLONIAL PIPELINE COMPANY
Address: 1185 SANCTUARY PARKWAY
ALPHARETTA, GA 30004
Email Address: bmobley@colpipe.com

PRIMARY Phone: (678)7622263
Type of Organization: PRIVATE ENTERPRISE

SUSPECTED RESPONSIBLE PARTY
Name: BROCK MOBLEY
Organization: COLONIAL PIPELINE COMPANY
Address: 1185 SANCTUARY PARKWAY
ALPHARETTA, GA 30004
PRIMARY Phone: (678)7622263

INCIDENT LOCATION
SEE LAT/LONG County: SHELBY
COUNTY 91
City: PELHAM State: AL
Latitude: 33° 14' 32" N
Longitude: 086° 55' 06" W

RELEASED MATERIAL(S)
CHRIS Code: GAS Official Material Name: GASOLINE: AUTOMOTIVE (UNLEADED)

Discovery and Notification

- OSC Berry arrived at pond late Friday
- Closest anyone could get was this photo
- Colonial set up ICP about 45 minutes away in Hoover, AL
- OSC Berry integrated into UC
- Colonial has invested in a strong ICS culture

Direct Federal Control?

§ 300.322 Response to substantial threats to public health or welfare of the United States.

(a) As part of the investigation described in § 300.320, the OSC shall determine whether a discharge results in a substantial threat to public health or welfare of the United States (including, but not limited to, fish, shellfish, wildlife, other natural resources, and the public and private beaches and shorelines of the United States). Factors to be considered by the OSC in making this determination include, but are not limited to, the size of the discharge, the character of the discharge, and the nature of the threat to public health or welfare of the United States. Upon obtaining such information, the OSC shall conduct an evaluation of the threat posed, based on the OSC's experience in assessing other discharges, and consultation with senior lead agency officials and readily available authorities on issues outside the OSC's technical expertise.

(b) If the investigation by the OSC shows that the discharge poses or may present a substantial threat to public health or welfare of the United States, ***the OSC shall direct all federal, state, or private actions to remove the discharge or to mitigate or prevent the threat of such a discharge***, as appropriate. In directing the response in such cases, the OSC may act without regard to any other provision of law governing contracting procedures or employment of personnel by the federal government to:

(1) Remove or arrange for the removal of the discharge;

(2) Mitigate or prevent the substantial threat of the discharge; and

(3) Remove and, if necessary, destroy a vessel discharging, or threatening to discharge, by whatever means are available.

(c) In the case of a substantial threat to public health or welfare of the United States, the OSC shall:

(1) Assess opportunities for the use of various special teams and other assistance described in § 300.145, including the use of the services of the NSFCC, as appropriate;

(2) Request immediate activation of the RRT; and

(3) Take whatever additional response actions are deemed appropriate, including, but not limited to, implementation of the ACP as required by section 311(j)(4) of the CWA or relevant tank vessel or facility response plan required by section 311(j)(5) of the CWA. When requested by the OSC, the lead agency or RRT shall dispatch appropriate personnel to the scene of the discharge to assist the OSC. This assistance may include technical support in the agency's areas of expertise and disseminating information to the public. The lead agency shall ensure that a contracting officer is available on scene, at the request of the OSC.

- NCP 300.322
  - "…the OSC Shall direct all…actions"
- Direct Federal Control NOT taken
  - Contained
  - No impact to natural waters
- Retained option to enact if conditions changed
- Still retained 51% vote in UC

Incident Objectives

1. Protect workers and citizens
2. Control Source
3. Protect downstream targets (Cahaba)
4. Contain and recover spilled product
   - What's missing?
5. Resumption of Service
   - It wasn't until 5 days later that Colonial asked to put resumption of service as a UC goal
   - Gas lines in major cities
   - Not unexpected – already discussed internally at EPA
   - Fuel waivers RVP & RFG

1. Protect Workers

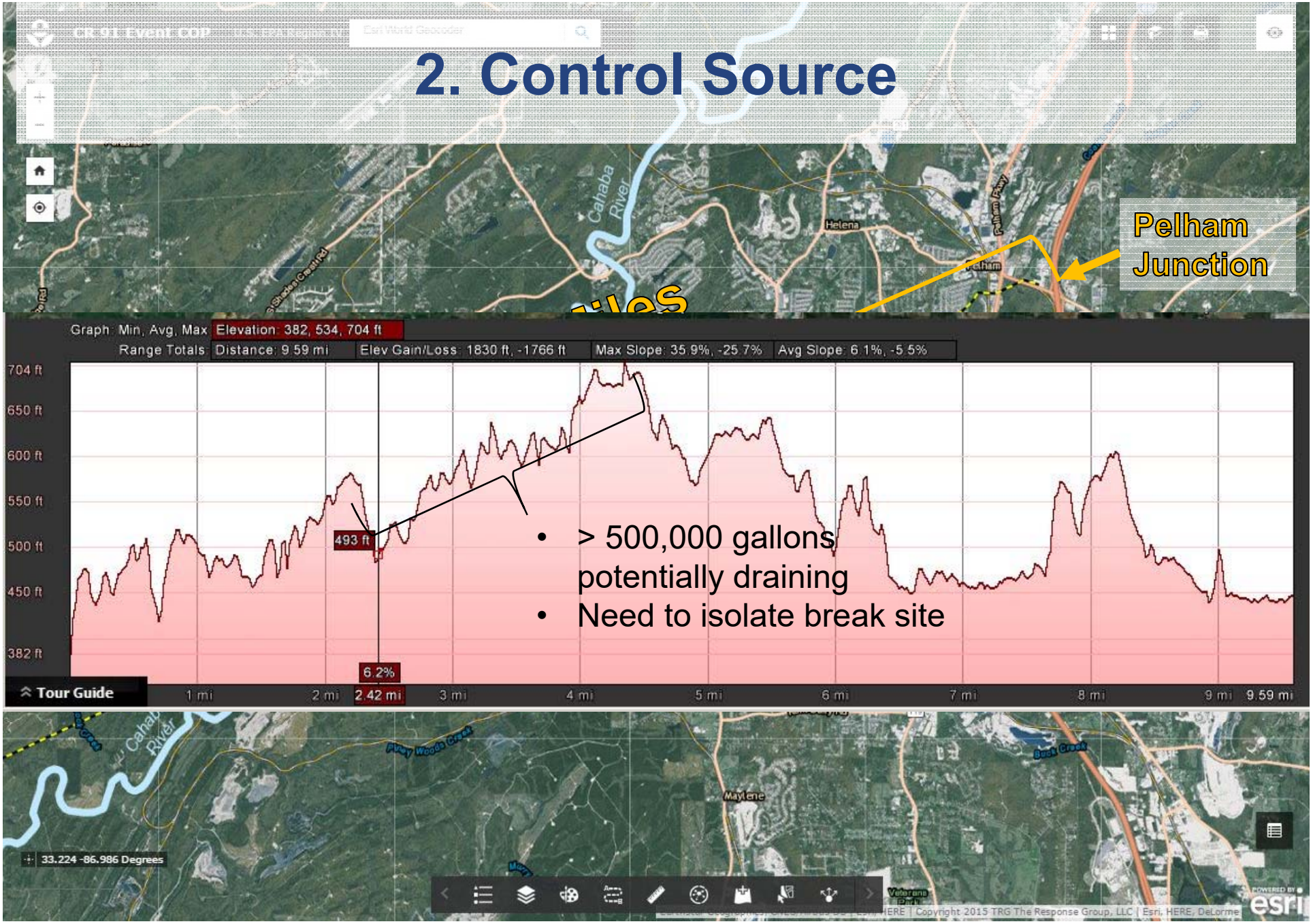
- Gasoline unlike most other petroleum products
- Really, really flammable
- Amazing what you can do with 100 gallons of gas and some det cord

1. Protect Workers

1. Protect Workers

- Omnipresent threat of catastrophic explosion
- LEL & benzene
- Based on EPA/GST suggestions
  - Increased monitoring 10x
  - Escorts at all work areas
  - Safety Officer at all work area
- Frequent work stoppages

2. Control Source

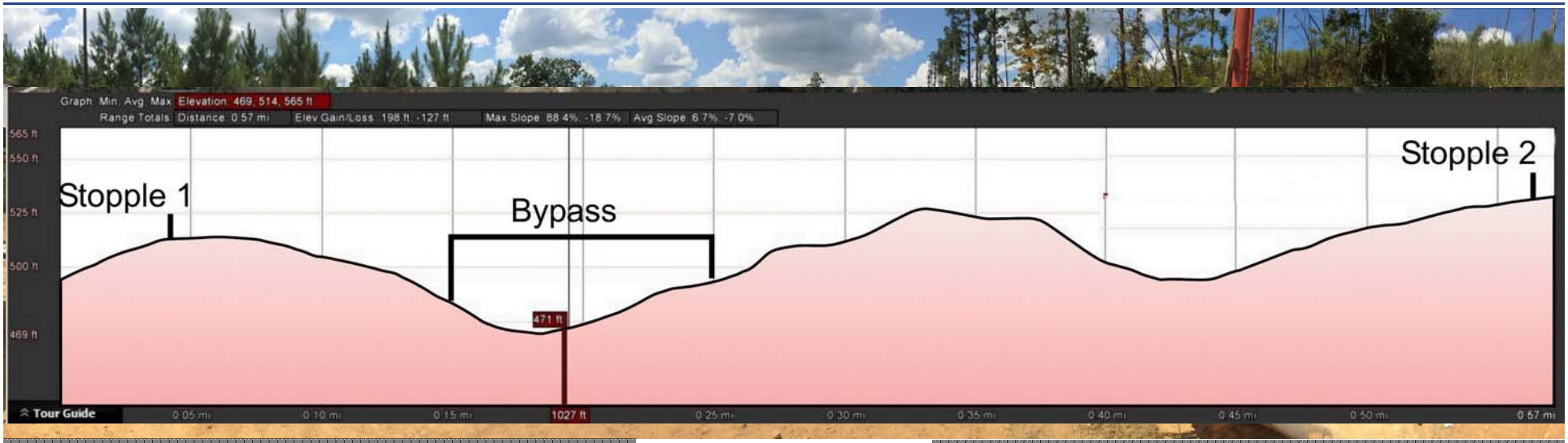


How do you plug a pipeline?

STOPPLEs

- TD Williamson Co.
- Allow you to plug the line anywhere
- Then “drain up” the line from THREAD-O-RING™ fittings
- Pipeline must be supported

2. Control Source



- Drain up includes "pressure up" at opposite end
- Causes additional loss from leak

- Adequate N_2 pressure difficult due to topography
- Eventually installed TOR at bypass cut in and drained from there

3. Protect the Cahaba

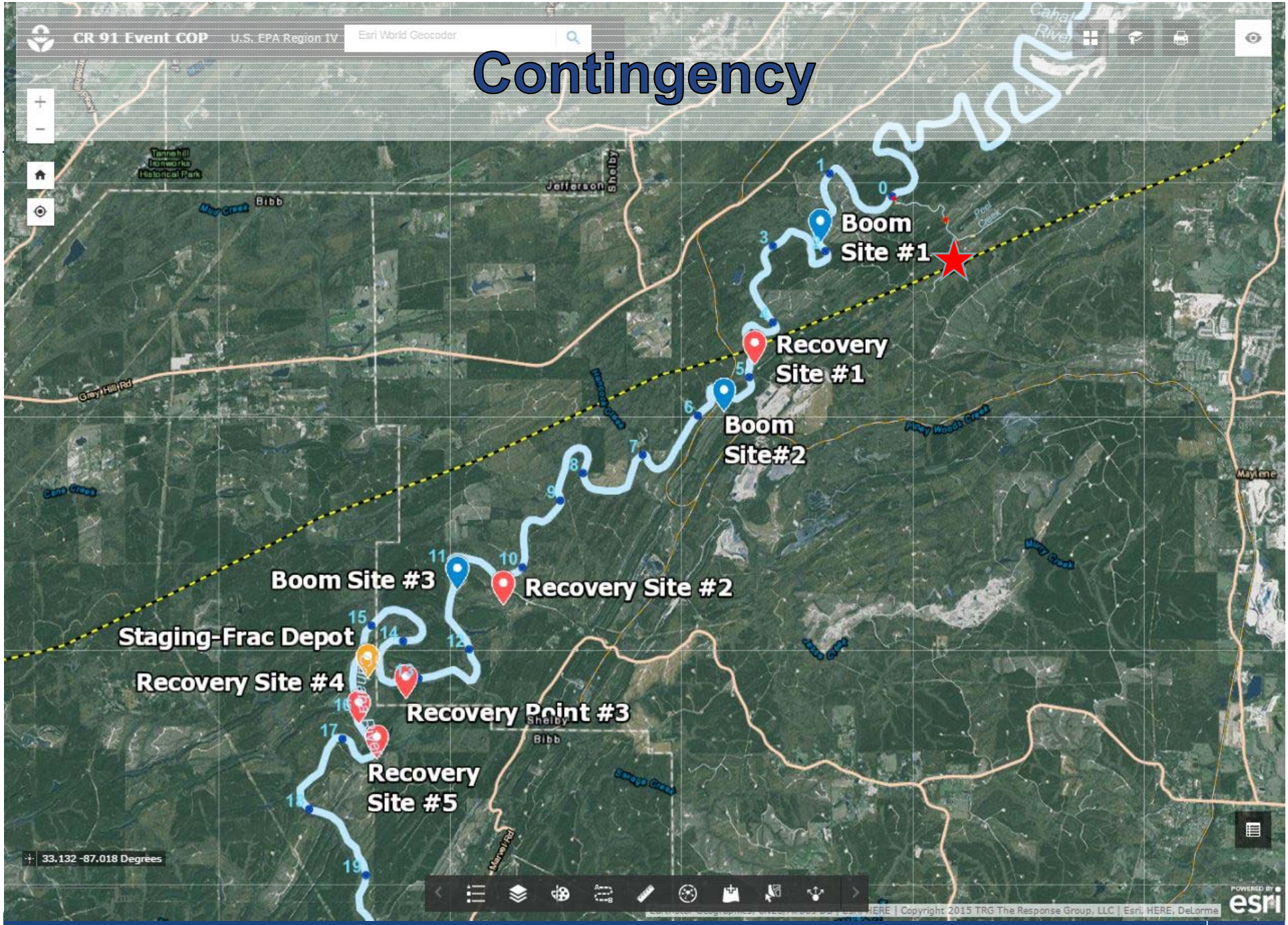
- Downstream protection "complicated"
- Lots of unknowns
  - Where did Pond 2 go? Was there a culvert?
    - As-builts obtained around Day 5
  - What was storage capacity of Pond 2?
    - How much rain would it take to overtop it?
    - Tropical storm season
- OSC asked Colonial to plan for and construct downstream containment in Peel Creek.

Underflow Dams

Boom Set
Collection Point

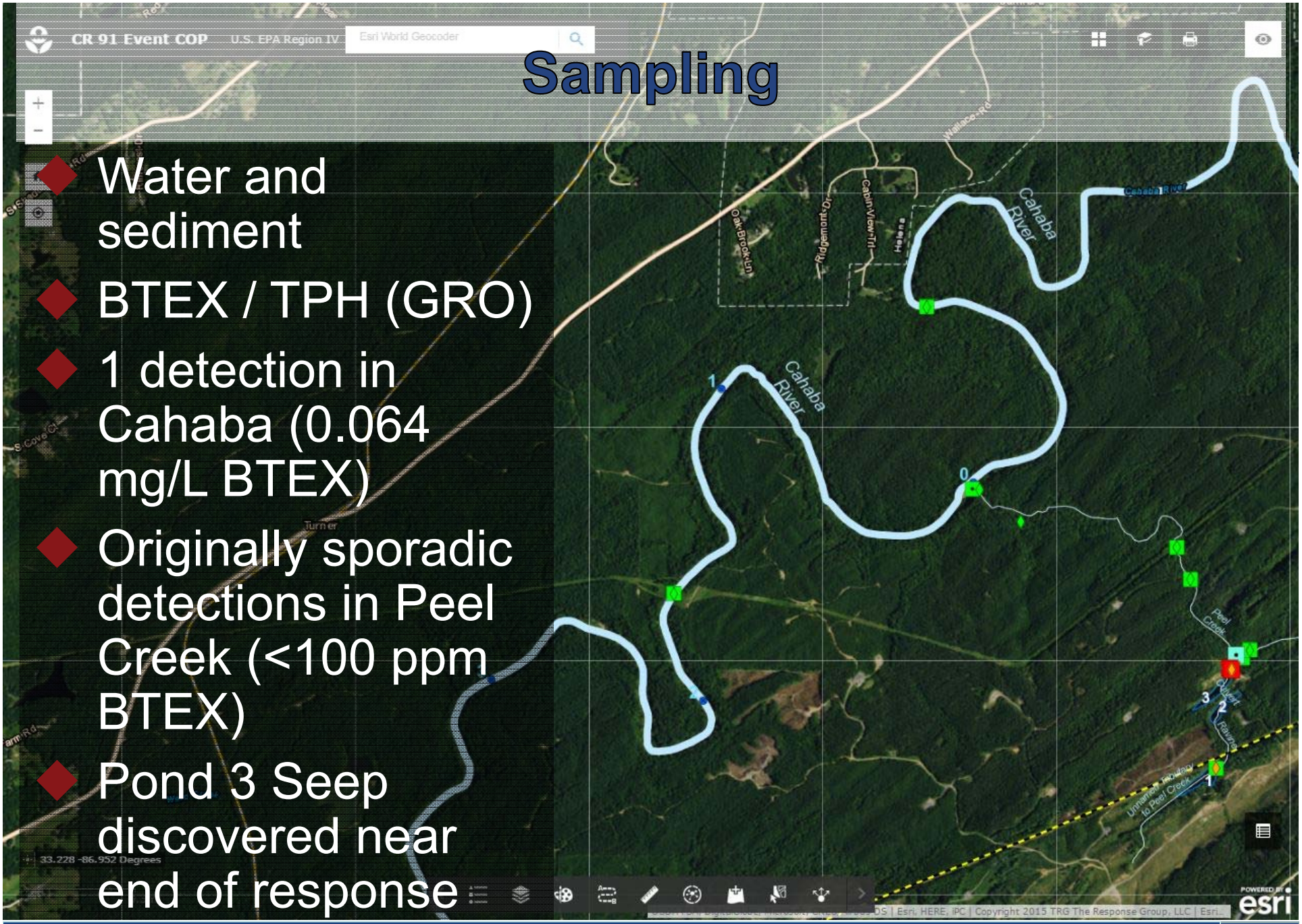
Pond 3 Underflow

Contingency



Sampling

- Water and sediment
- BTEX / TPH (GRO)
- 1 detection in Cahaba (0.064 mg/L BTEX)
- Originally sporadic detections in Peel Creek (<100 ppm BTEX)
- Pond 3 Seep discovered near end of response



Pond 3

Pond 3

4. Recover Product

- Nothing revolutionary
  - Pumps
  - Skimmers
  - Vac trucks
- Initial ratio over 95%
- Offload into frac tanks
  - Scrub vapors
- Transport to Pelham facility

Recover Product

- Eventually boom could be used to corral

- Flush Banks
- Excavate Shoreline
- ADEM O&M on Oct 3

Recover Product

- Recovery begs the question: How much was spilled?
  - Colonial continually updated the estimate.
    - 09/9 – Sheen; 1,000 gallons (verbal to OSC)
    - 09/10 – 1,000 bbls (42,000 gal)
    - 09/13 – 6,000 bbls (252,000 gal)
  - Measurement taken directly from Pond 2 on 09/10
    - 3.25 inches = 109,000 gallons on Pond 2 (1.25 acres)
  - 10/6 Final Estimate – 7,370 bbls (309,540 gal)
    - Based on “Dynamic Discharge” + “Static Discharge” – “Product Recovered From Pipe”
  - Recovered from Pond – 88,671 gallons
  - **Evaporated – 220,869 gallons**

5. Resumption of Service

- Two options
  1. Repair existing line
     - Impossible given saturated soil
  2. Bypass
     - Selected after efforts to dig out pipeline failed
- ColPipe had issues emptying the line
  - N_2 push insufficient
- Delays prompted selection of Opt 2
- Done under oversight of PHMSA

Break Site Removal

Break Site Remediation

- Excavate soil around Lines 1 and 2
- Water has to be managed
- Collected 1-2 gpd at underflow
- EPA stayed in UC until Colonial could demonstrate no substantial release

Break Site Remediation

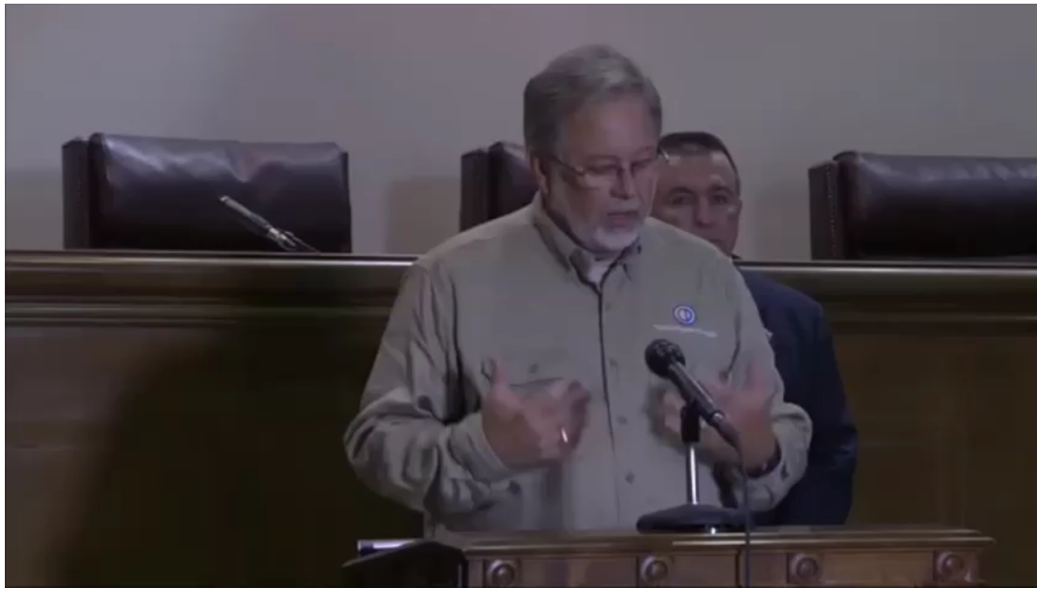
Break Site Remediation

- Could only excavate one line at a time
  - Bypass was on top of 2
- Stopples removed after bypass established
- Reestablishing service required a full line drain-up

Line 1 Explosion

Line 1 Explosion

- As part of the Line 1 reestablishment of service, contractors were working about 5 miles west of the original spill
- Excavator hit the line, rupturing it
- Flames reported hundreds of feet in air
- 1 dead, 5 hospitalized
  - 1 additional death 1 month later



CR251 Event

- Located about 5 miles SW of original spill
- Excavating in order to evacuate Line 1 for permanent repair
- Also rural, but 5 nearby residences

CR 251 EVENT

- First IC Decision –
  - Do not extinguish
- Establish UC
- Establish Objectives
  - Protect Public
    - Fire break
    - Air monitoring
  - Protect Workers
    - Air Monitoring
  - Protect Waterway
    - Boom
    - Sampling
- RRT Activation

Fire Fighting

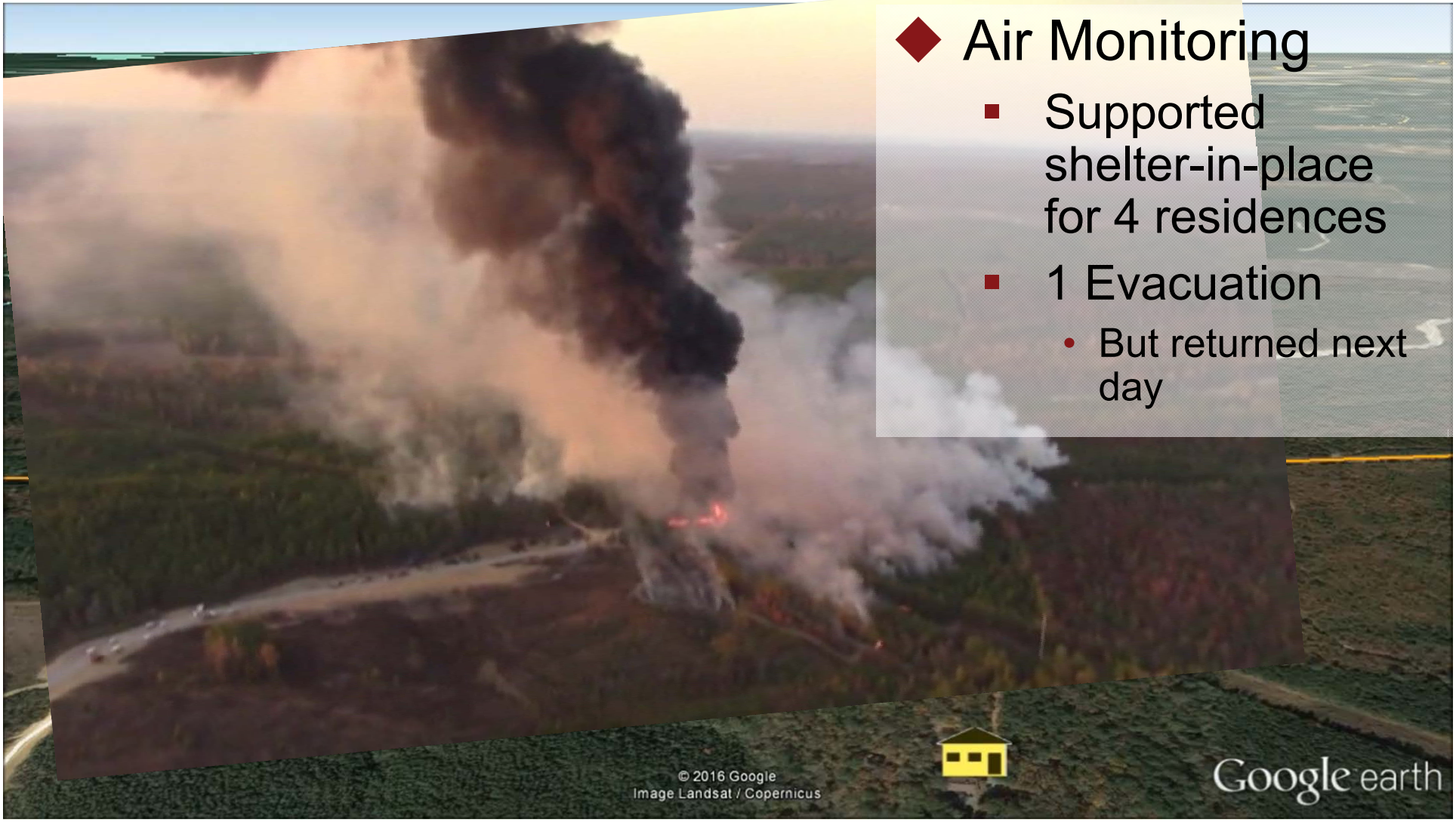
Credit: AP

- "Let it burn" tactic for pipeline led to TFR
- Pressure needed to be bled off
- Drain-up plan developed

Air Monitoring

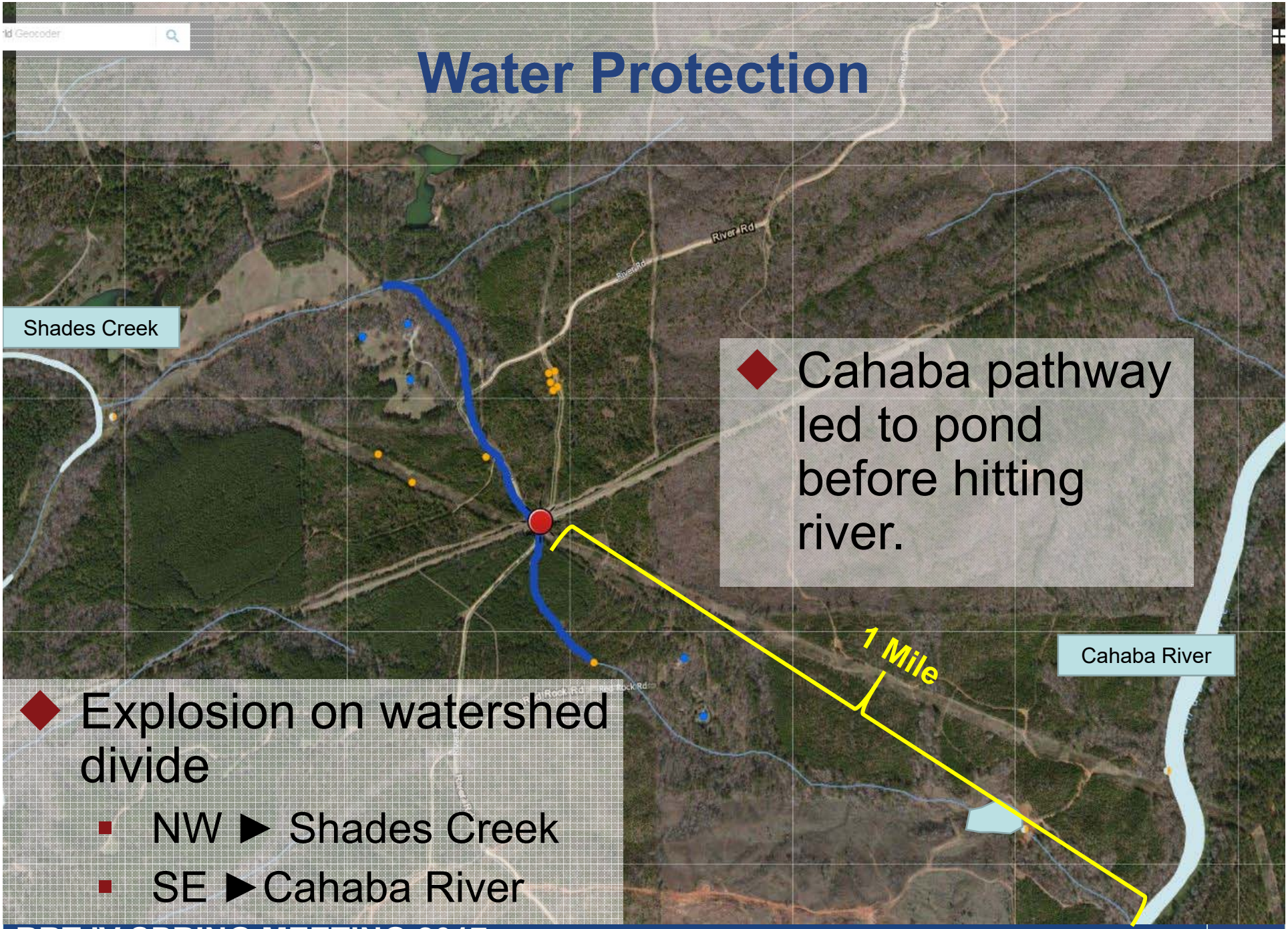
- Colonial and EPA contractors
  - Particulates
  - VOCs
- 5 residences only due to remote location
- Mainly concerned with particulates due to voluminous smoke

Air Monitoring



- Air Monitoring
  - Supported shelter-in-place for 4 residences
  - 1 Evacuation
    - But returned next day

Water Protection

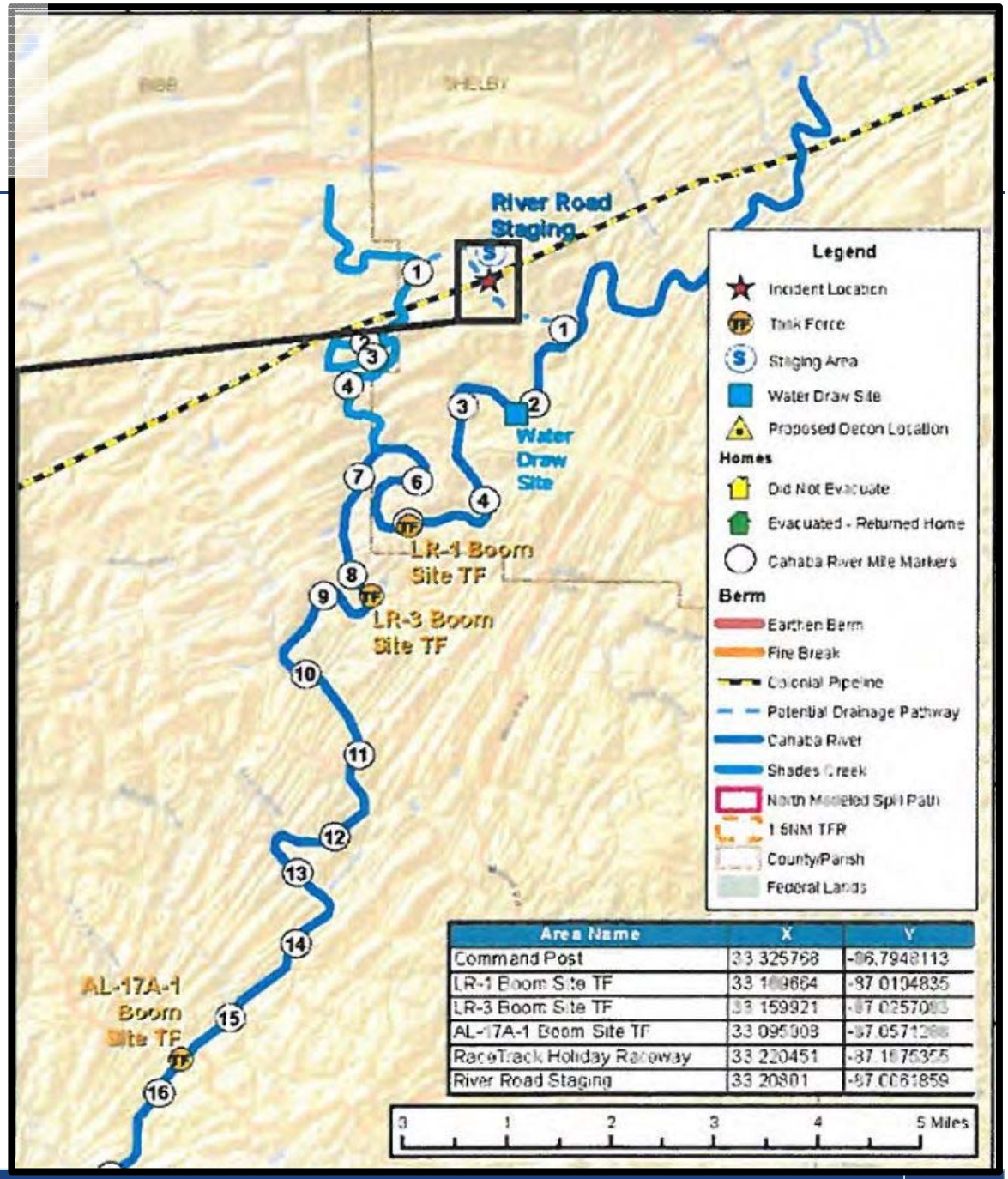


- Cahaba pathway led to pond before hitting river.

- Explosion on watershed divide
  - NW ► Shades Creek
  - SE ►Cahaba River

Water Protection

- 3 boom sets applied
- 5.0, 8.25, and 15.5 miles
- Pond had adequate freeboard (15 feet)
- Berm constructed around burn site



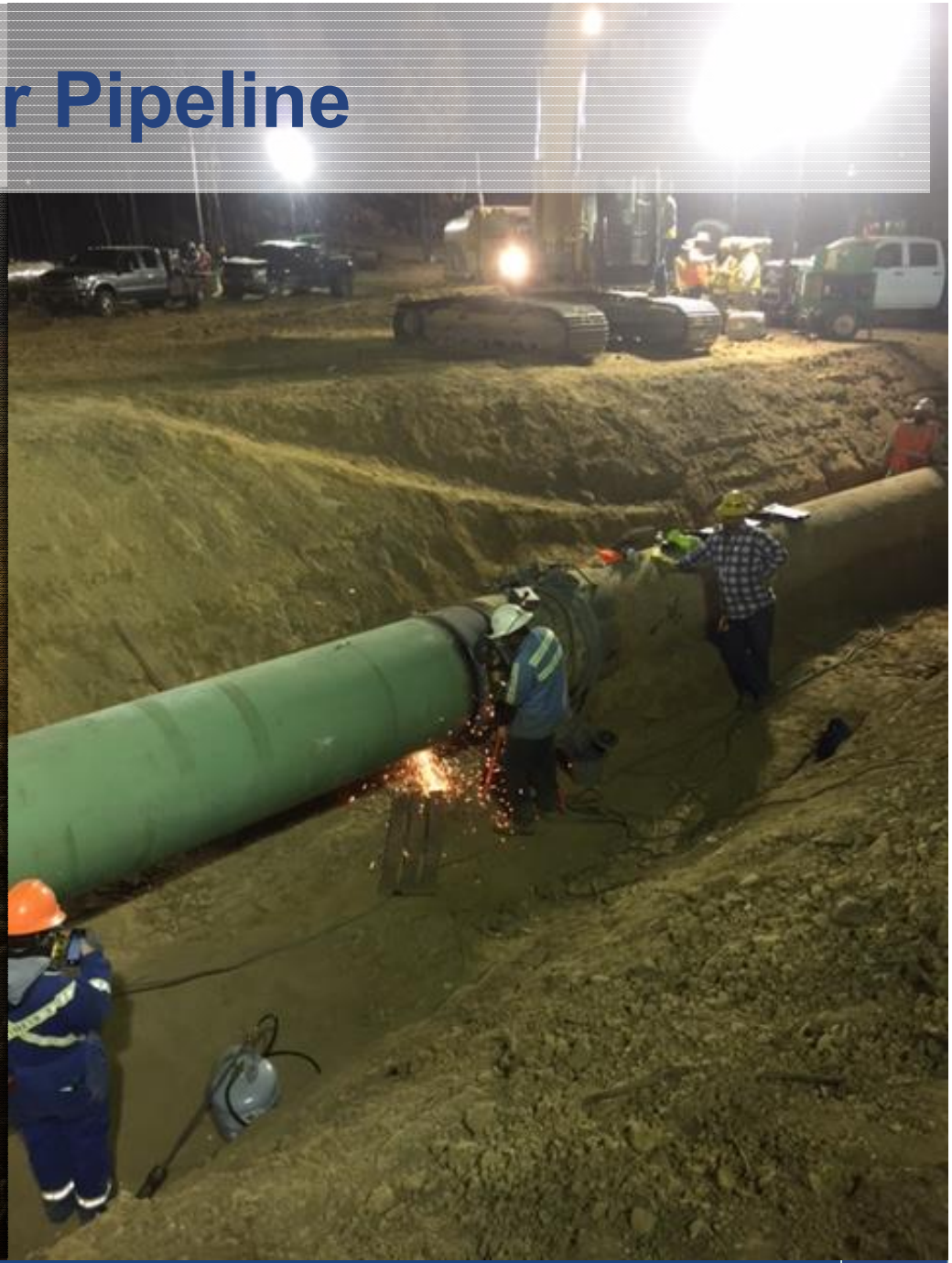
Water Protection

Consequences

- Line 1 shut down again
  - RFG Fuel Waiver issued November 3
- Delayed repair of Line 1 at Pelham spill
  - All internal Colonial resources committed
  - Same contractor
- PHMSA / NTSB / OSHA investigation

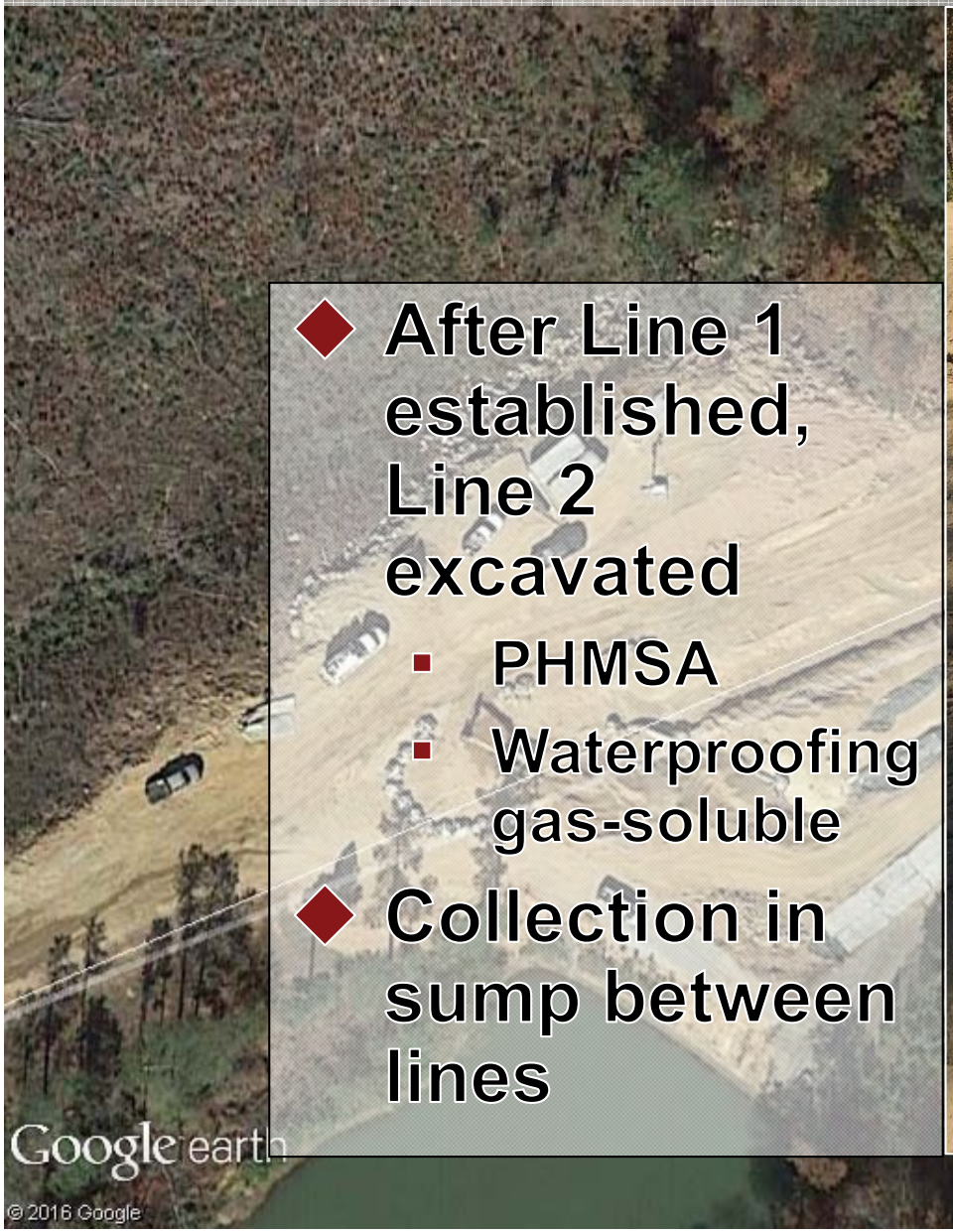
Repair Pipeline

- Pipeline repaired on November 06
- Countermeasures removed over next few days
- Transferred to ADEM for final oversight and disposal

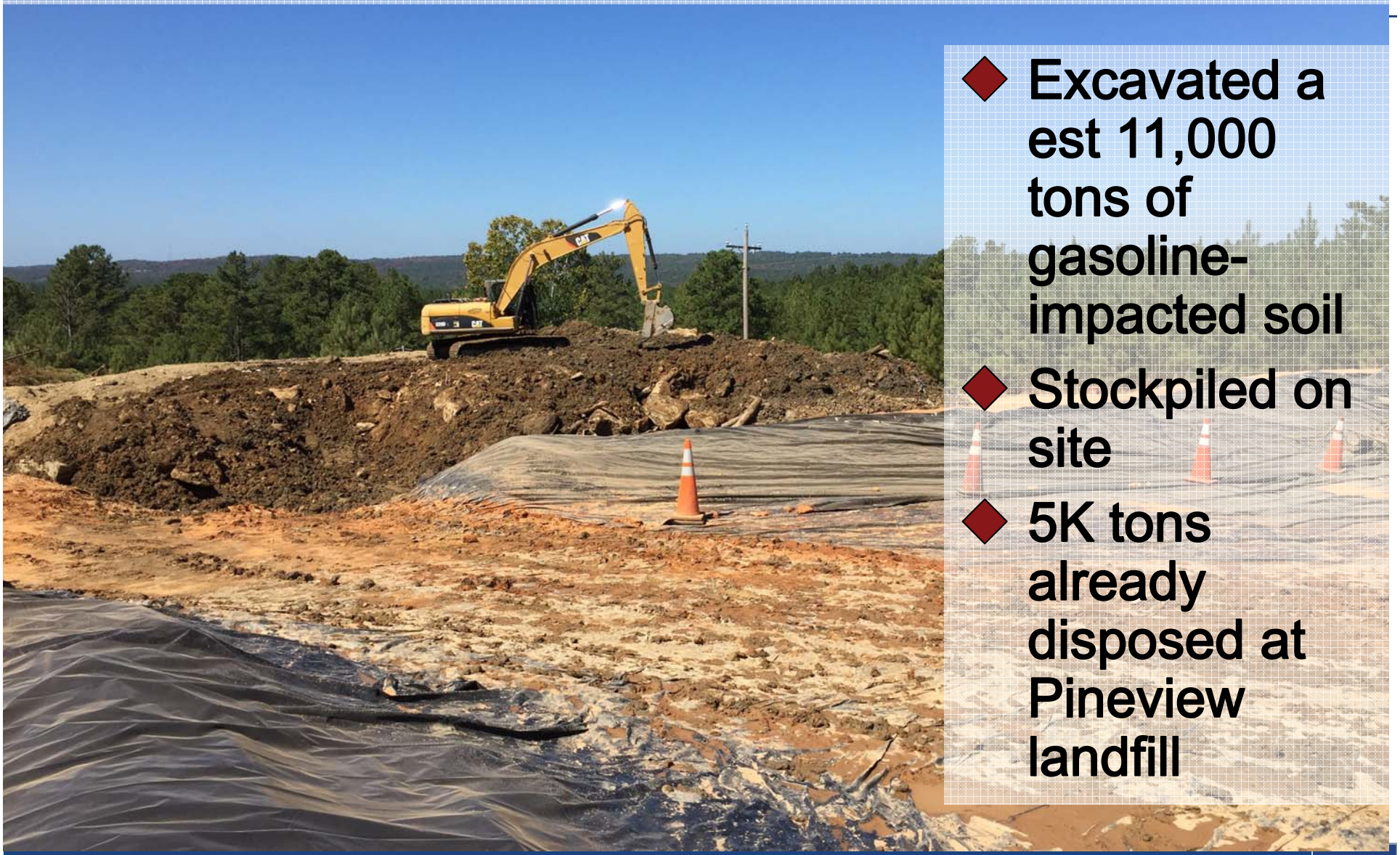


Completion of Pelham Spill

- After Line 1 established, Line 2 excavated
  - PHMSA
  - Waterproofing gas-soluble
- Collection in sump between lines

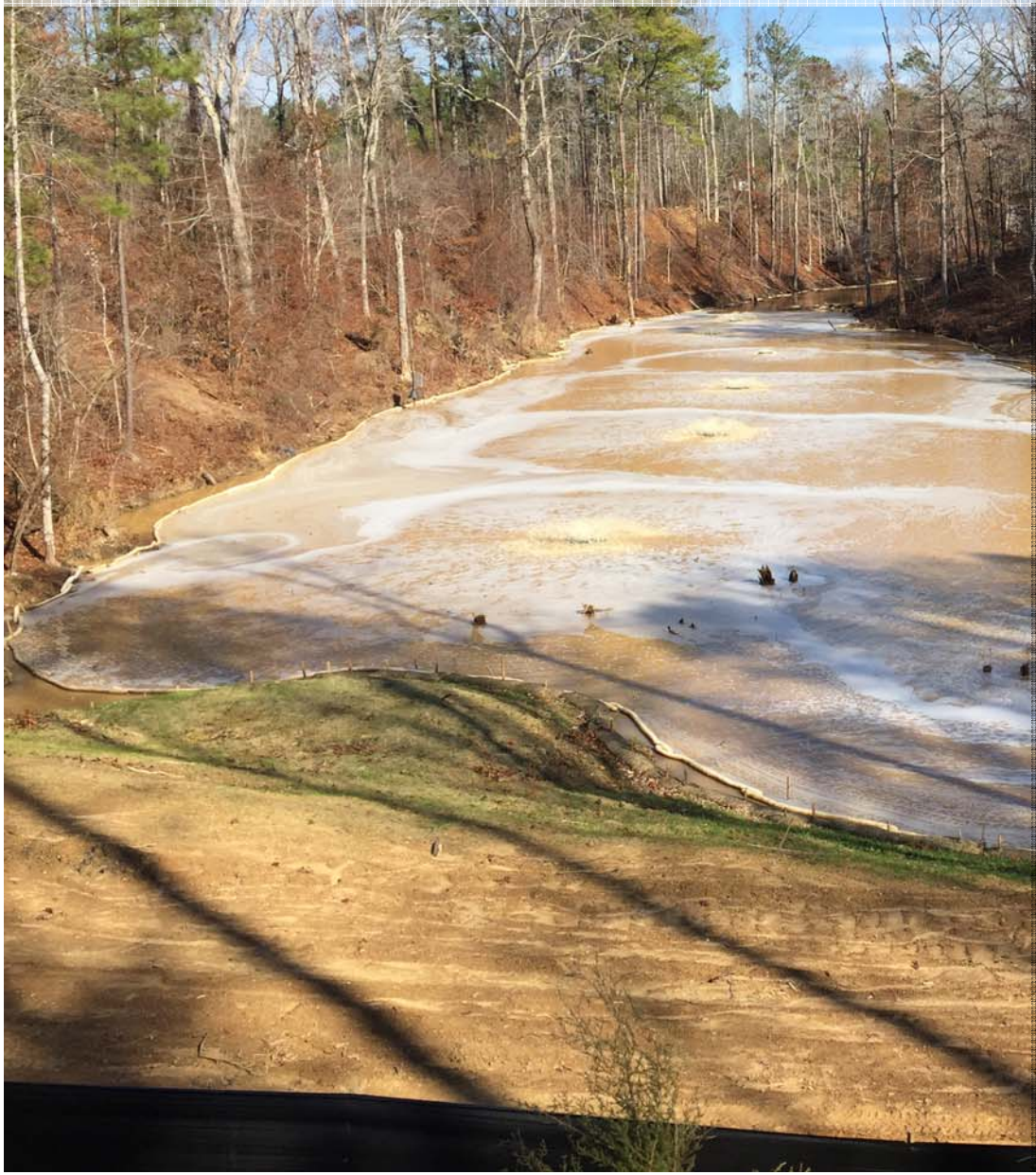


Contaminated Soil



- Excavated a est 11,000 tons of gasoline-impacted soil
- Stockpiled on site
- 5K tons already disposed at Pineview landfill

Removal from UC



- Site Visit 12-14-16
  - Minimal product collected in sump between Line 1 and 2 (sheen only)
  - Aeration active in Pond 2
- Discussed with ADEM
- December 15
  - OSC removed EPA from UC
  - All future site activities with ADEM