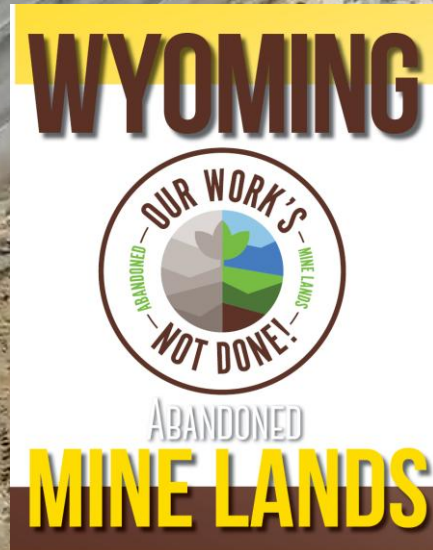


Mitigation of the UPCC Rock Springs Nos. 3, 4, 7, and 8 Mines Below Interstate 80



Ryan Reed, P.E.
BRS, Inc.
Project Manager
1130 Major Ave.
Riverton, WY 82501
307-857-3079
rreed@brsengineering.com



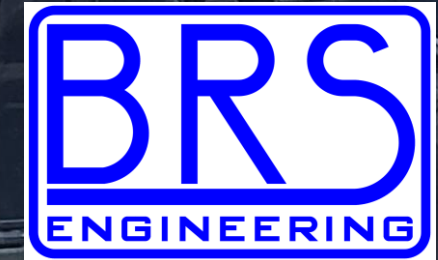
WYOMING



ABANDONED
MINE LANDS



WYOMING DEPARTMENT OF
ENVIRONMENTAL
QUALITY



ROCK SPRINGS HISTORIC COAL MINING DISTRICT

- Historic Coal Mining Camps/Towns

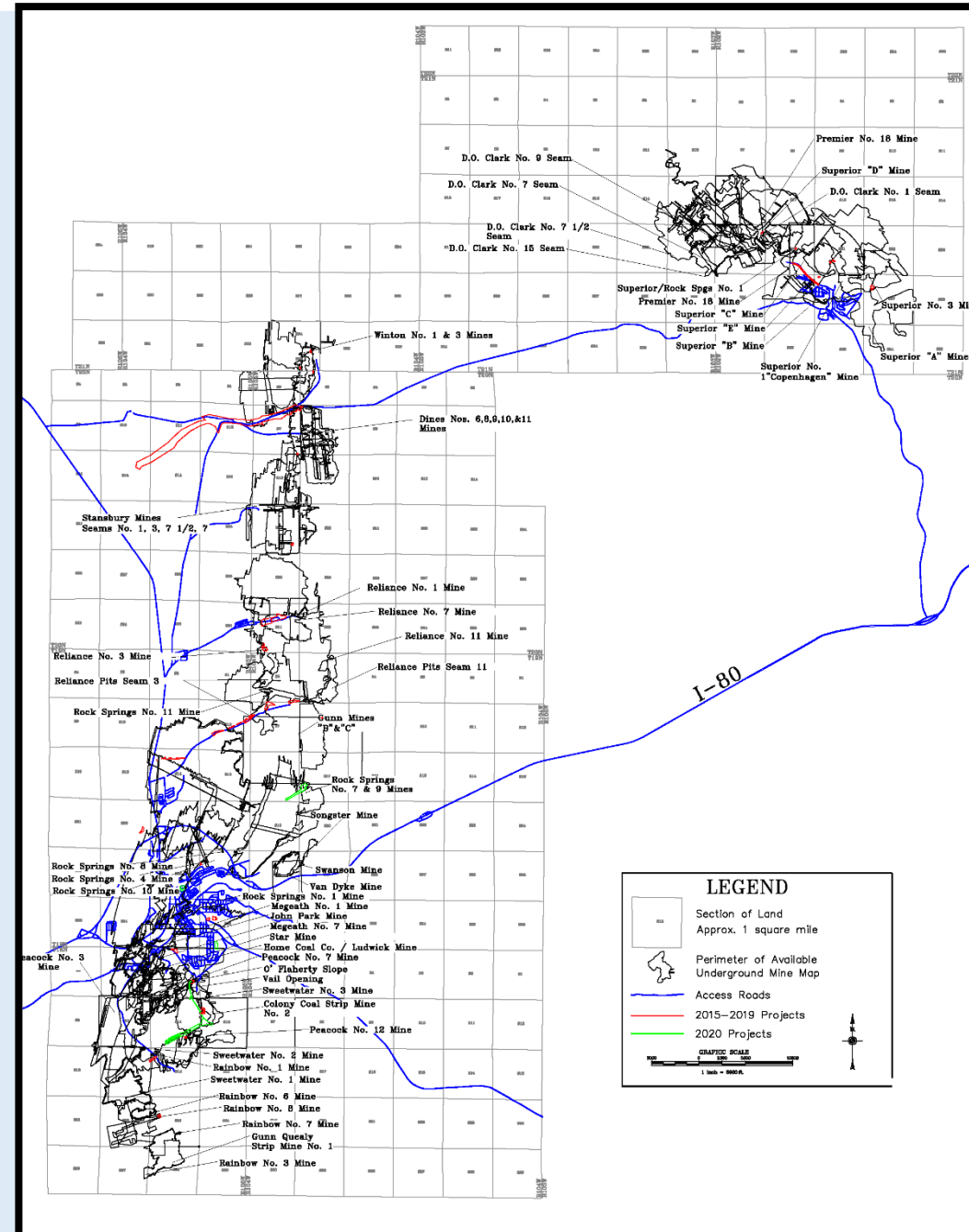
- Rock Springs
- Superior
- Reliance
- Winton
- Dines
- Sweetwater
- Quealy
- Stansbury
- Blairtown
- Megeath
- Van Dyke
- Lionkol
- Gunn

- 120+ Known Historic Mine Sites with 20,000 acres undermined

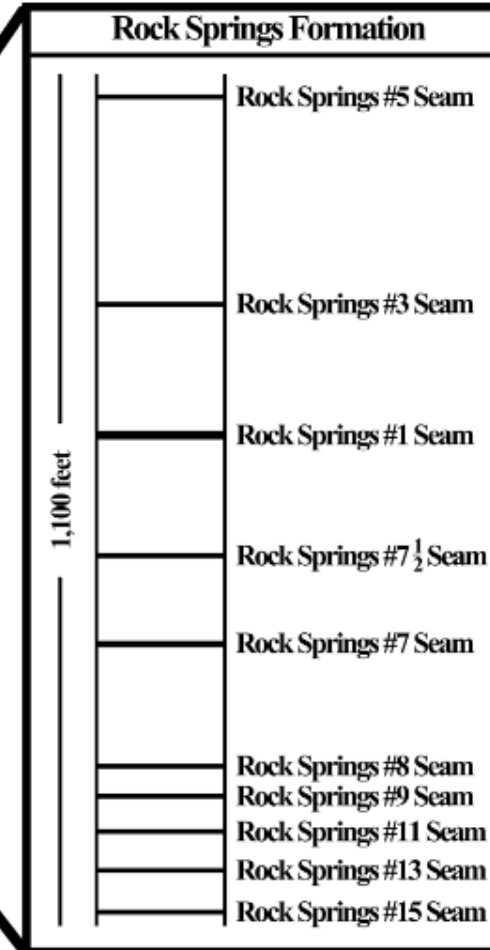
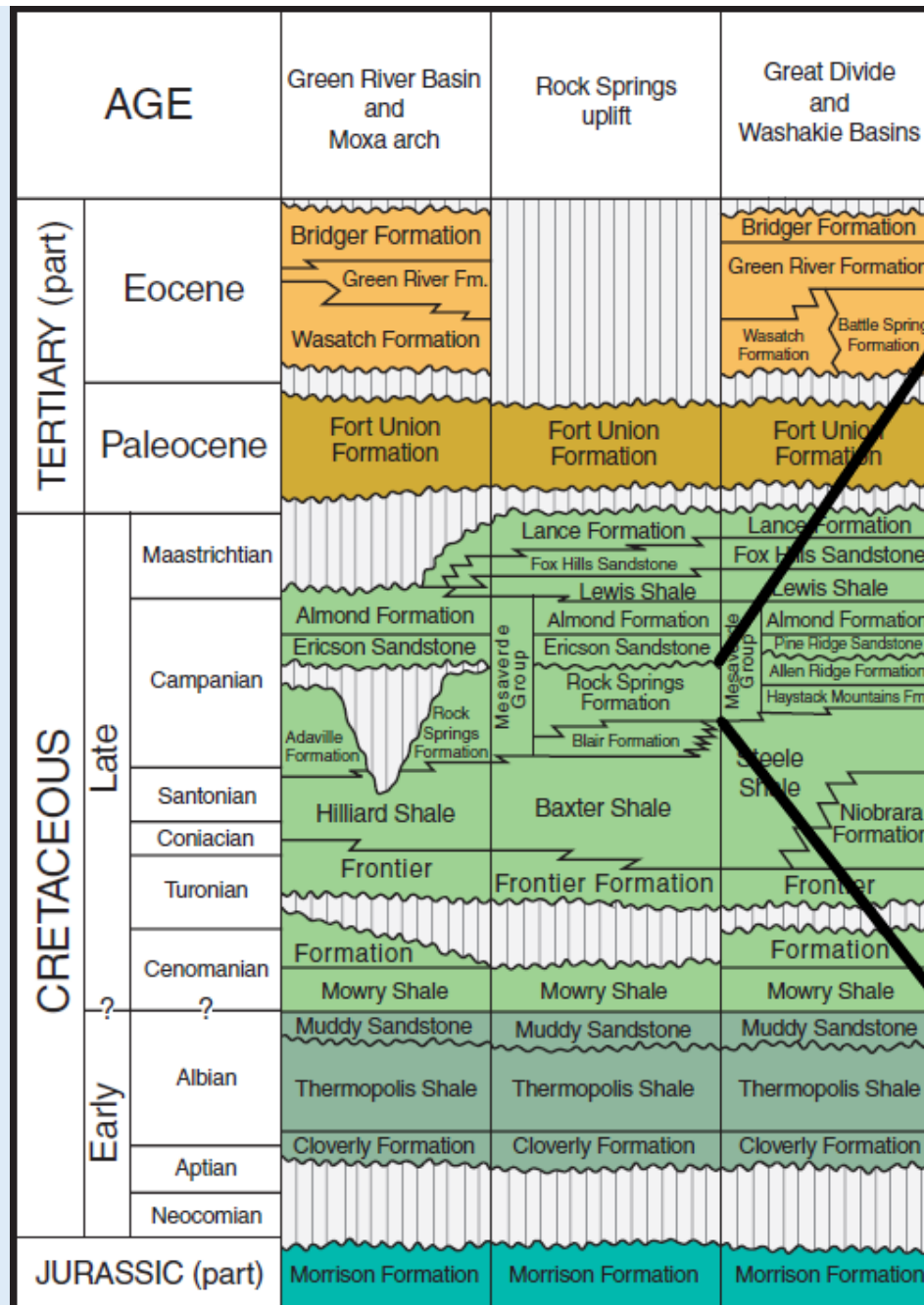
- 640 Acres Undermined Inside the City Limits of Rock Springs in One or More Coal Seams

- Historic Coal Mining Companies

- Union Pacific Coal Company
- Central Coal and Coke Company
- Gunn-Quealy Coal Company
- Colony Coal Company
- Lion Coal Company
- Wyoming Coal Company
- Megeath Coal Company
- Rocky Mountain Associated Coal Corporation



ROCK SPRINGS FORMATION CHRONOSTRATIGRAPHY



MINE VOIDS GROUND CONTROL FAILURE

Depth from Surface in Feet

-0059.8F

Original Roof of Mine
has Collapsed



Mine Roof Support Timber
"Stull" or "Prop"



Roof Failure by
Spalling into Slabs



SWEETWATER COUNTY COMPLETED DRILLING AND GROUTING PROJECTS

- 2015 - 2024:
- 22 Drilling and Grouting Projects
 - \$105,500,000.00 Total Construction Costs
 - 385,000 Cubic Yard of Grout Installed



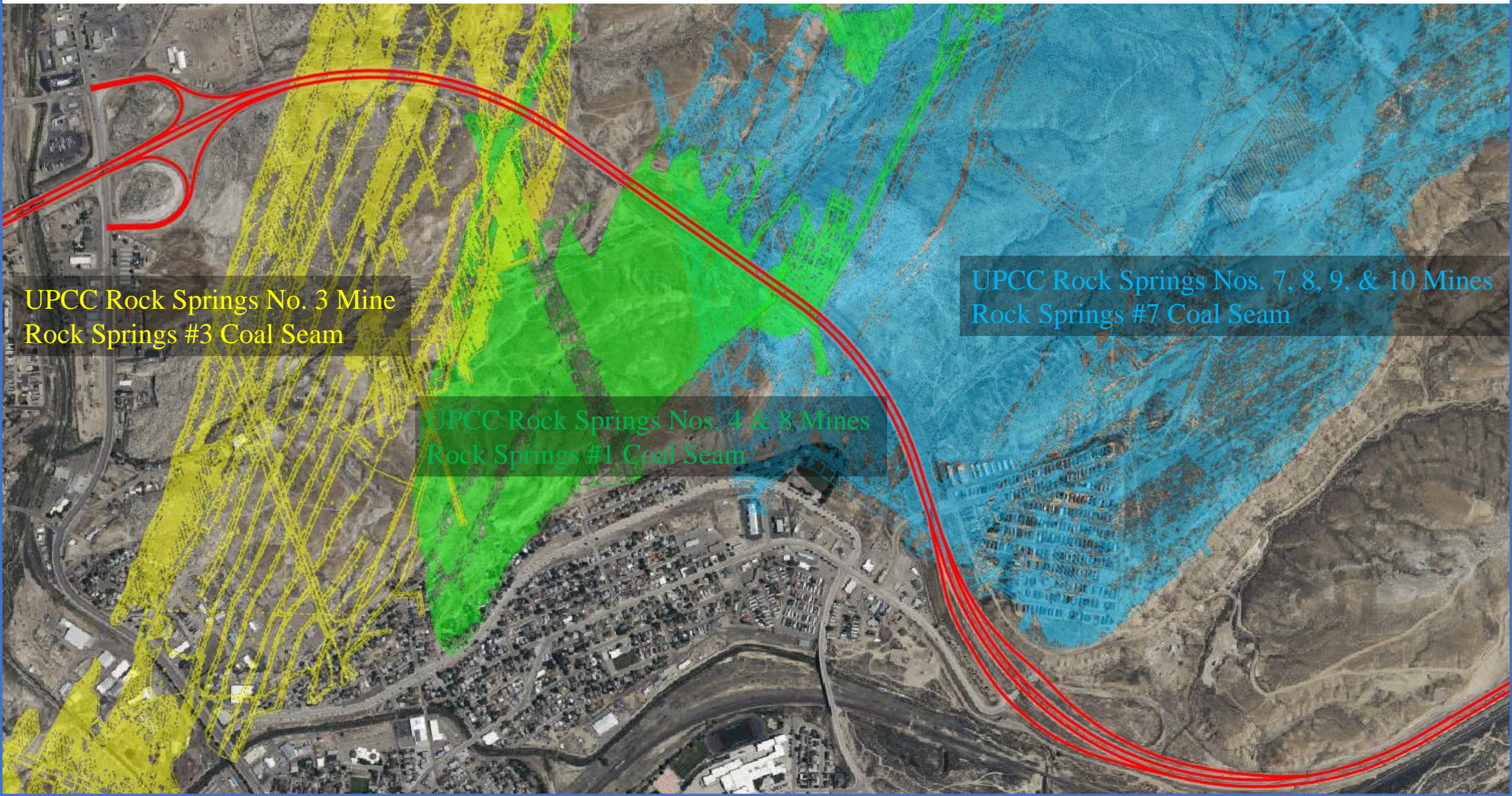
Drilling and Grouting near County School in Rock Springs

NEW JERSEY, INTERSTATE 80 SUBSIDENCE AT MILE POST 34

FEBRUARY 2025



MINES AND COAL SEAMS UNDERMINING INTERSTATE 80 AT ROCK SPRINGS



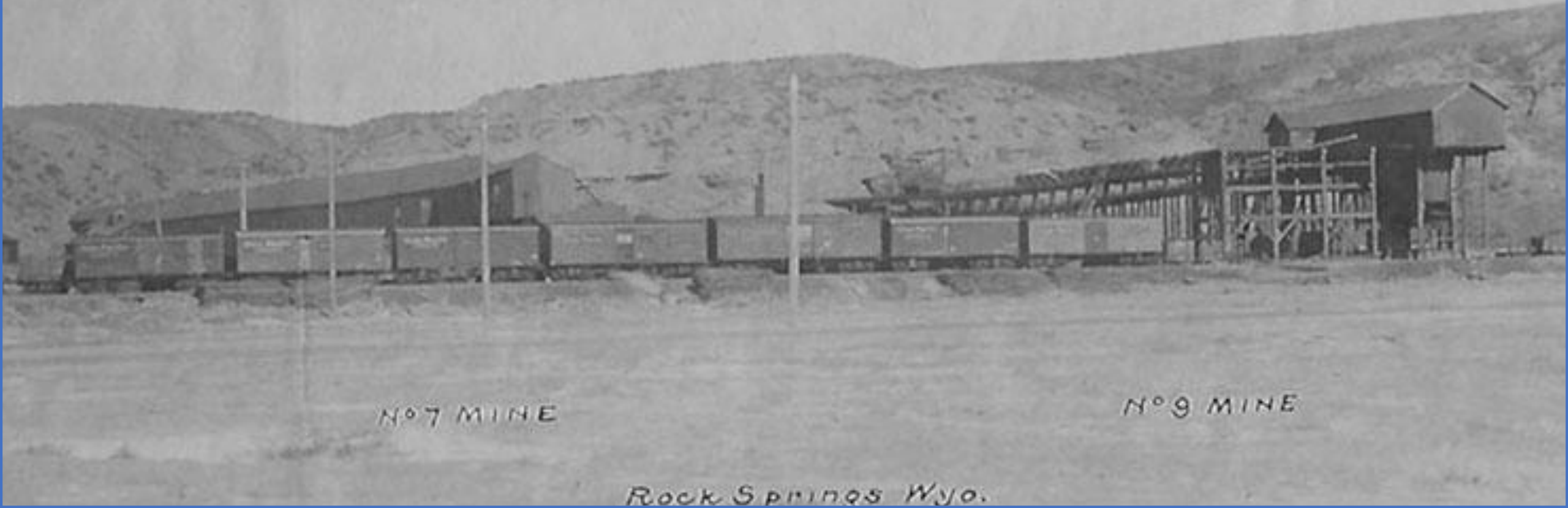
UPCC Rock Springs No. 3 Mine
Rock Springs #3 Coal Seam

UPCC Rock Springs Nos. 4 & 8 Mines
Rock Springs #1 Coal Seam

UPCC Rock Springs Nos. 7, 8, 9, & 10 Mines
Rock Springs #7 Coal Seam

UNION PACIFIC COAL COMPANY ROCK SPRINGS Nos. 7 & 9 Mines

Rock Springs #7 Coal Seam
UPCC RS No. 7 Mine
1888 to 1927
UPCC RS No. 9 Mine
1890 to 1913



N^o 7 MINE

N^o 9 MINE

Rock Springs Wyo.

UNION PACIFIC COAL COMPANY ROCK SPRINGS No. 8 Mine

Rock Springs #7 Coal Seam
UPCC RS No. 8 Mine
1888 to 1920



UNION PACIFIC COAL COMPANY ROCK SPRINGS No. 10 Mine

Rock Springs #7 Coal Seam
UPCC RS No. 10 Mine
1900 to 1924



UNION PACIFIC COAL COMPANY ROCK SPRINGS No. 4 Mine

Rock Springs #1 Coal Seam
CC&CC RS No. 4 Mine
1884 to 1895
UPCC RS No. 4 Mine
1913 to 1948

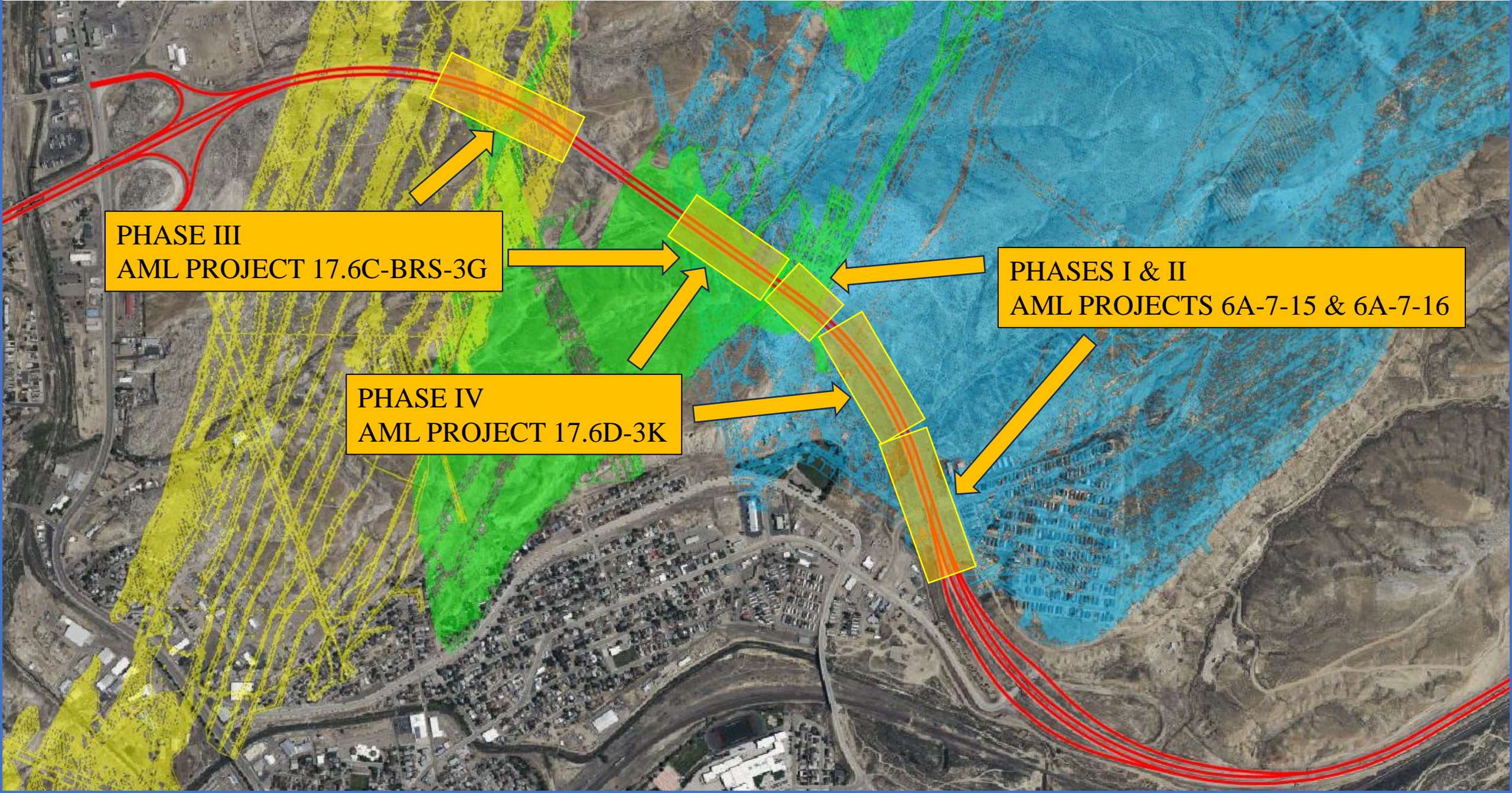


UNION PACIFIC COAL COMPANY ROCK SPRINGS No. 8 Mine

Rock Springs #1 Coal Seam
CC&CC RS No. 8 Mine
1921 to 1962



PHASES OF MITIGATION WORK ON INTERSTATE 80 AT ROCK SPRINGS



PHASE III
AML PROJECT 17.6C-BRS-3G

PHASE IV
AML PROJECT 17.6D-3K

PHASES I & II
AML PROJECTS 6A-7-15 & 6A-7-16

COMPLETION OF THE 6A-7-15 & 6A-7-16 PROJECTS PHASES I & II

June 2005 to April 2007

255 Drill Hole Completed

9,100 CY of Grout Installed

Mitigated up to a Depth of ~100 ft. of Cover

\$2,000,000 Total Project Cost



Shot Down Coal, Rock Springs, WY

COMPLETION OF THE 17.6C-BRS-3G PROJECT PHASE III

April to October 2022

143 Drill Hole Completed

19,000 CY of Grout Installed

Mitigated up to a Depth of ~200 ft. of Cover

\$6,400,000 Total Project Cost



COMPLETION OF THE 17.6D-3K PROJECT PHASE IV

April to October 2024

210 Drill Hole Completed

18,000 CY of Grout Installed

Mitigated up to a Depth of ~200 ft. of Cover

\$8,400,000 Total Project Cost



INSTALLING TRAFFIC BARRIERS



DRILLING OPERATIONS



INSTALLING TREMMIE PIPE



GROUTING OPERATIONS



GROUTING OPERATIONS



PRESSURE GROUTING ABANDONED MINE WORKINGS

0000.0F





THANK YOU! QUESTIONS?

