

Iron King / Humboldt Smelter Superfund Site

**Dewey-Humboldt Town Council Update
November 19, 2019**



***Jeff Dhont,
Remedial Project Manager
U.S. EPA Region IX***



United States Environmental Protection Agency
Jeff Dhont, Project Manager for IKHS Site



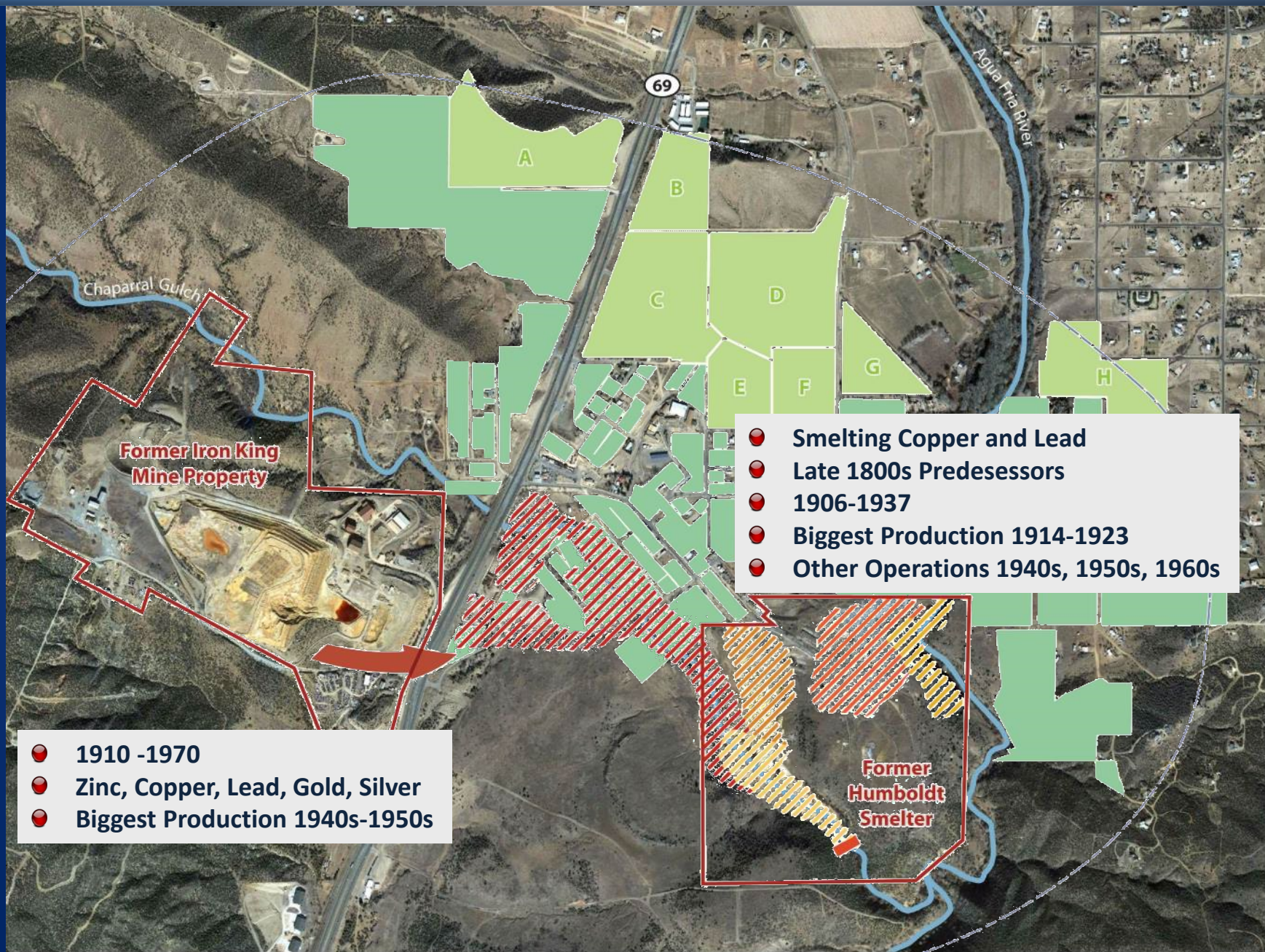
Jeff Dhont
Project Manager for IKHS Site



Yolanda Sanchez
Community Involvement Coordinator

Previously...

Iron King / Humboldt Smelter and Vicinity



Mine Wastes and How they Move



LOTS of

Former Iron King
Mine Property



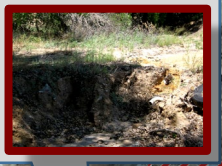
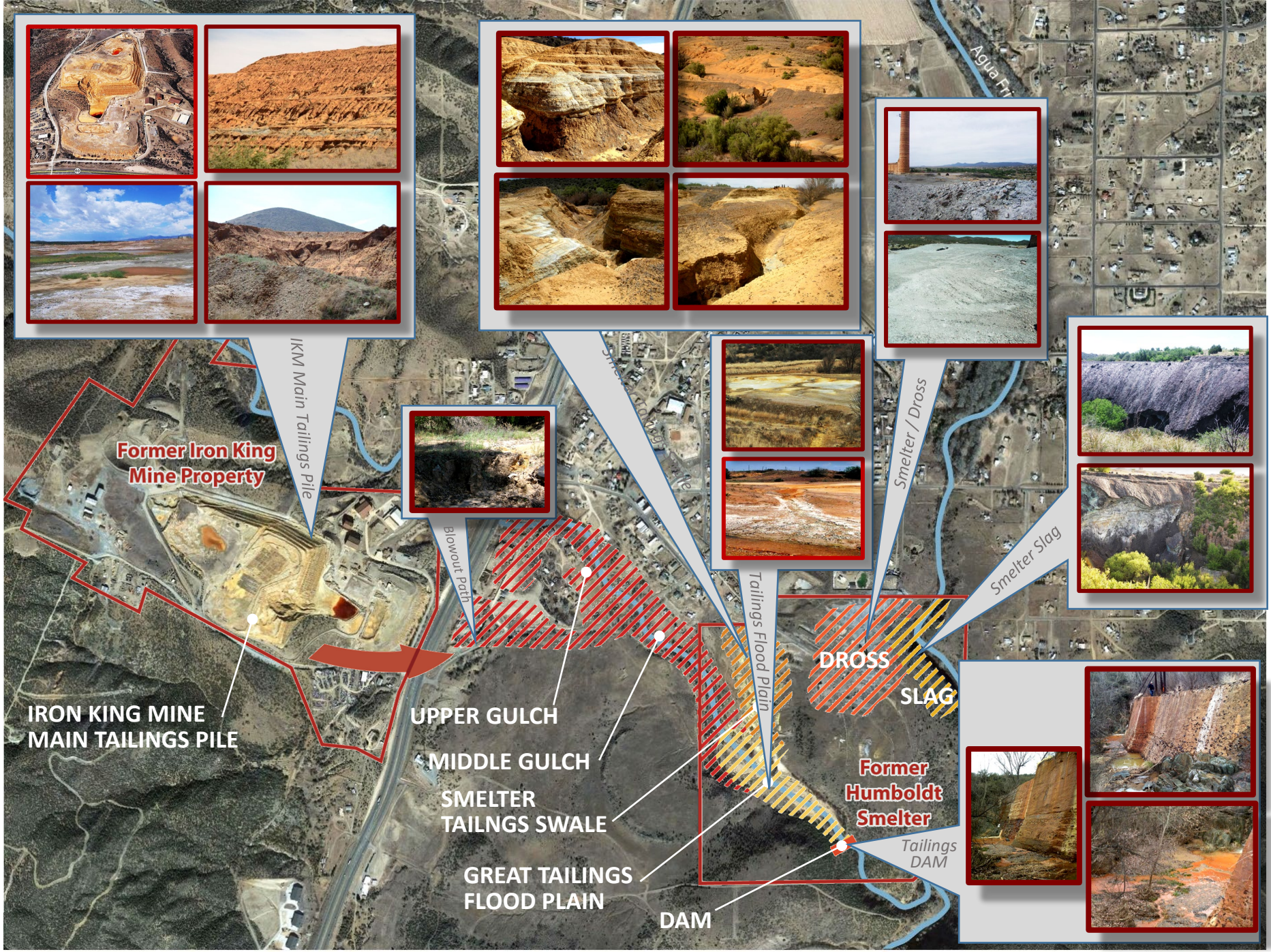
WHAT WAS LEFT BEHIND?

- Mine Tailings
- Waste Rock
- Dross
- Slag
- Mixed up Tailings, Sediments & Soils

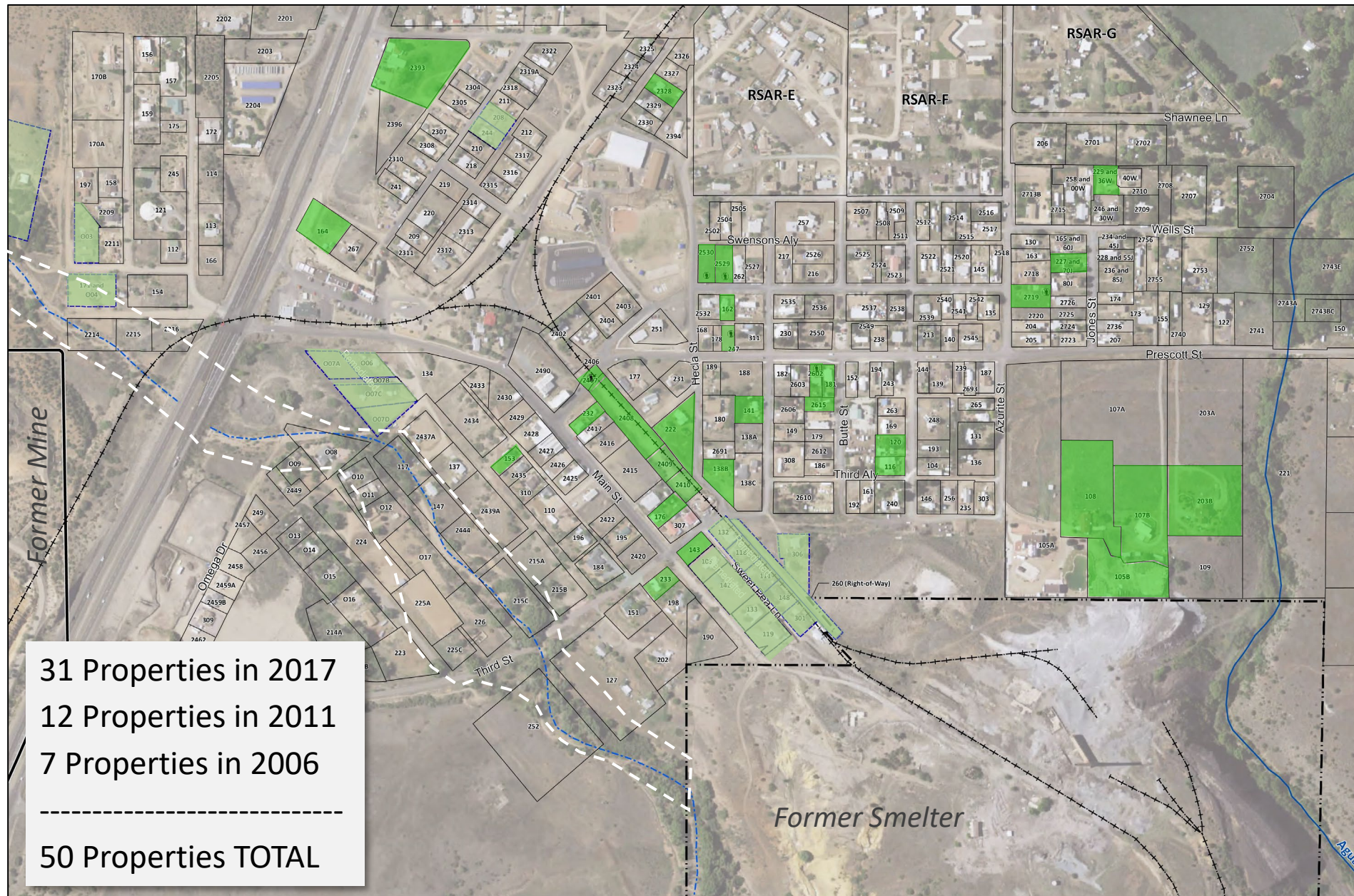
WHY ARE TAILINGS A PROBLEM?

- They are **TOXIC** : High levels of arsenic and lead
- They can **MOVE**: Water, into Soil, in Air
- They can **REACT** Once in the Environment

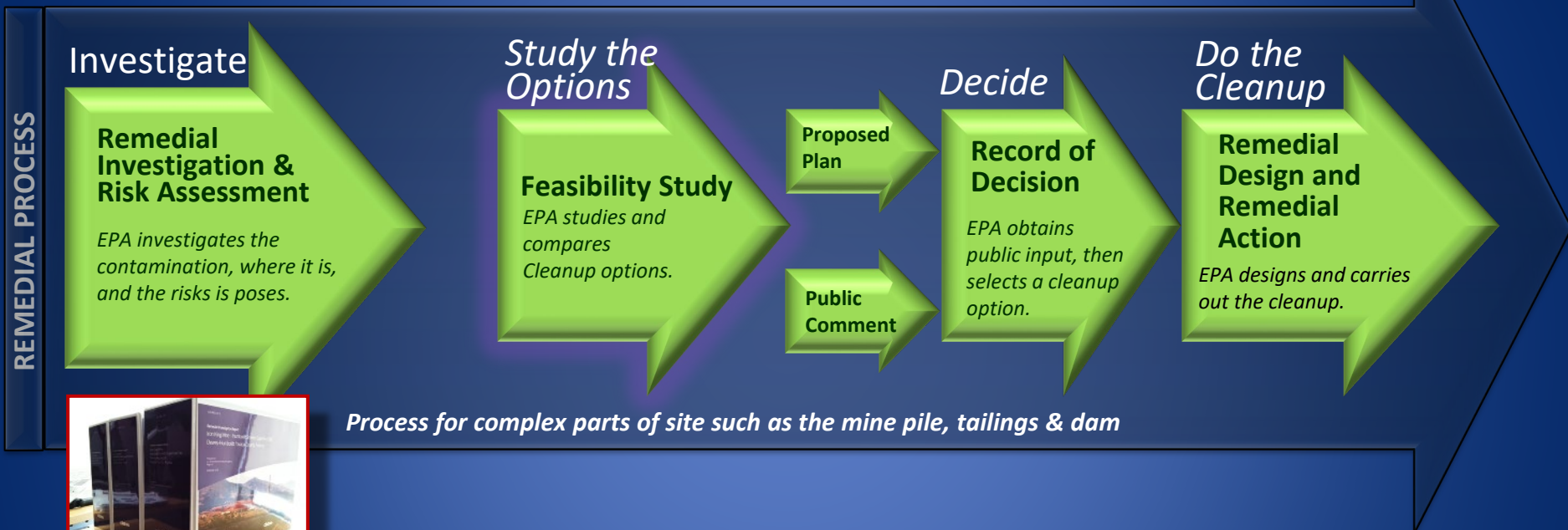
Former
Humboldt
Smelter



Iron King Mine / Humboldt Smelter Superfund Site Completed Residential Yard Removal Actions



Superfund Process

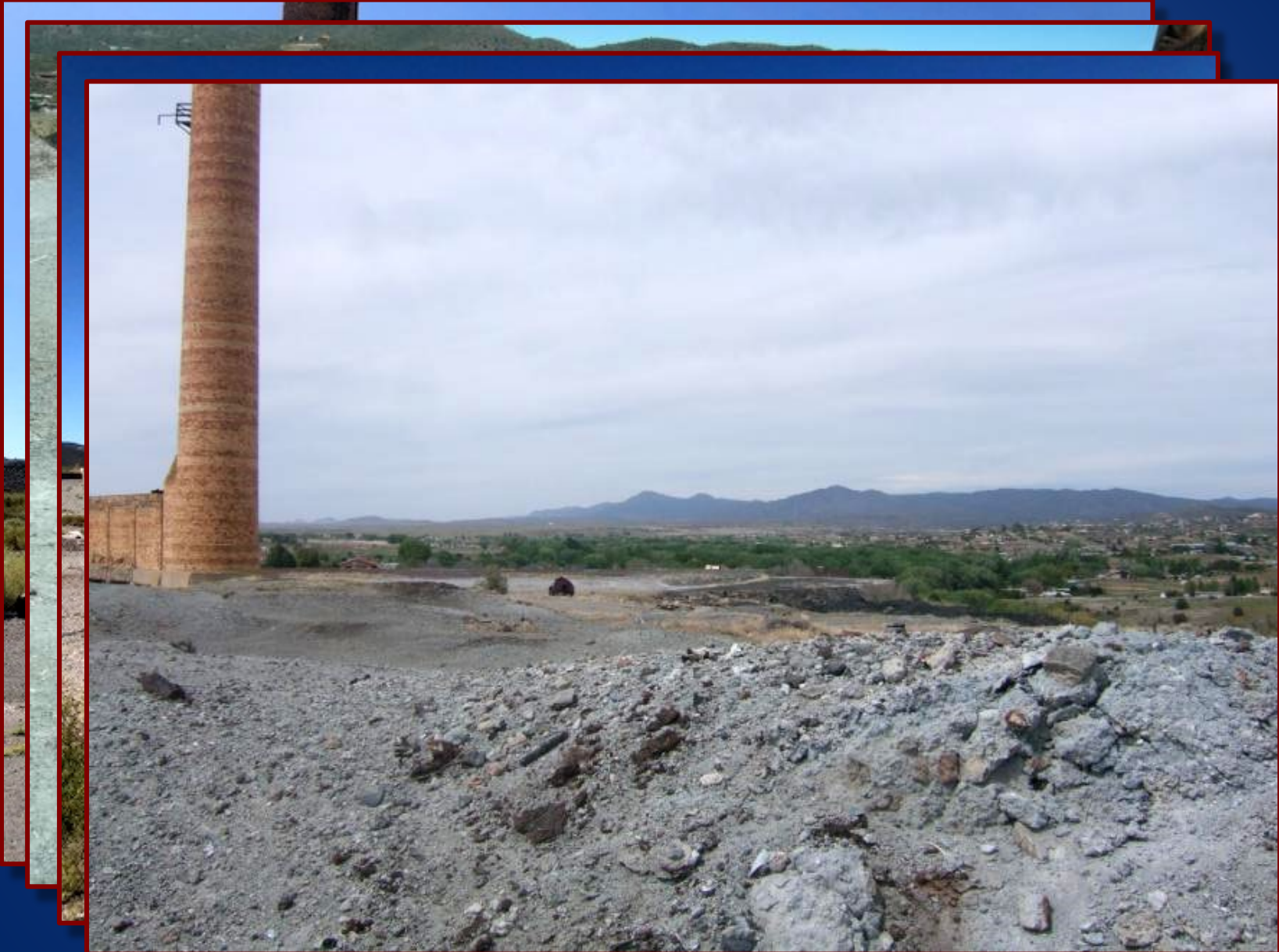


Tonight's Update

- EPA's Action on Dust Control
- Actions on Site Accessibility and Keeping Kids Out
- Fencing and Signage
- Getting to Final Cleanup: Update on Cleanup Options
- Naturally – Occurring Arsenic in Private Drinking Water Wells

Dust Control

Dross – And Dust in High Winds



Area at Smelter with Dross



Application of Posi-Shell[®]



Application of Posi-Shell[®]



Site Access, Children, Fencing and Signs

Routes of Smelter Access



Smelter Physical and Chemical Hazards



Routes of Tailings Pile Access





Iron King Mine / Humboldt Smelter

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • October 2019

Keep Children Away from Former Smelter and Mine Properties	1
EPA is taking action to control dust at the smelter property	2
EPA to visit the community in November	2
The Iron King Mine/Humboldt Smelter Superfund site	3

Keep Children Away from Former Smelter and Mine Properties

The United States Environmental Protection Agency (EPA)



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News Releases

News Releases from Region 09

EPA warns residents to stay away from the Iron King Mine tailings pile and Humboldt smelter

10/03/2019

Contact Information:

Margot Perez Sullivan (perezsullivan_margot@epa.gov)

Fencing



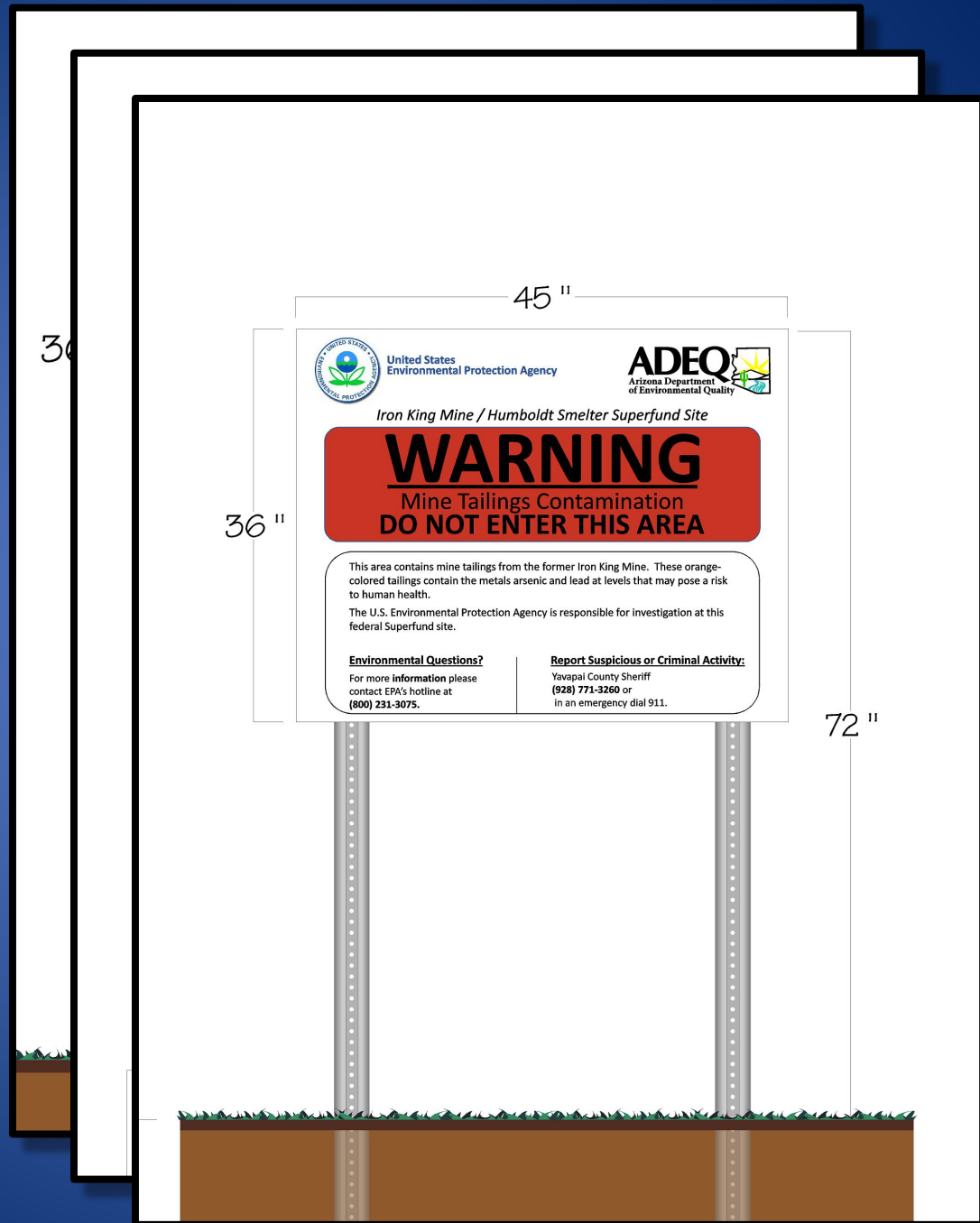
Solid Slag – Challenges to Fencing



Degraded or Absent Fencing at the Tailings Pile



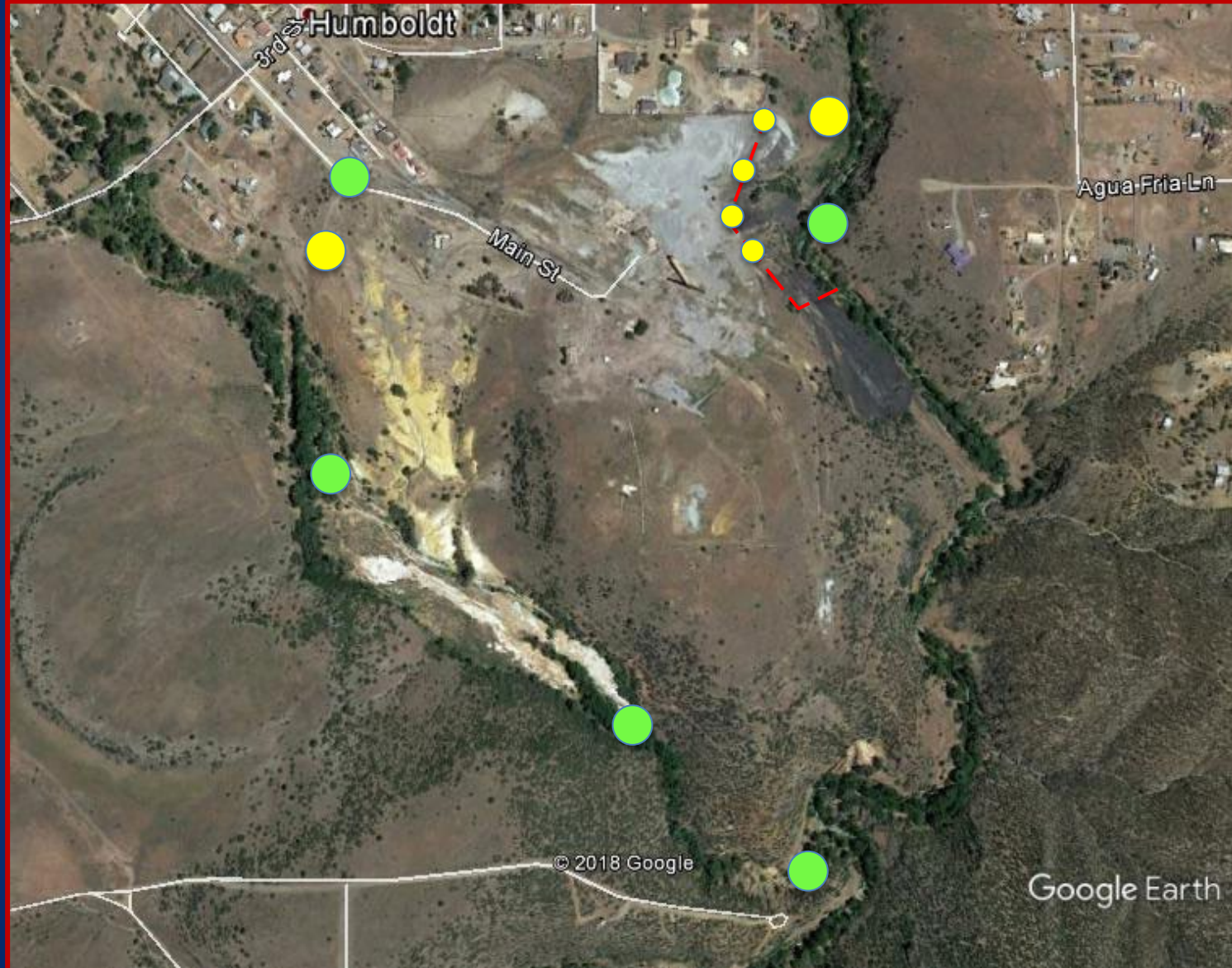
New Superfund Site Signage



New Superfund Site Signage



New Superfund Site Signage - Smelter

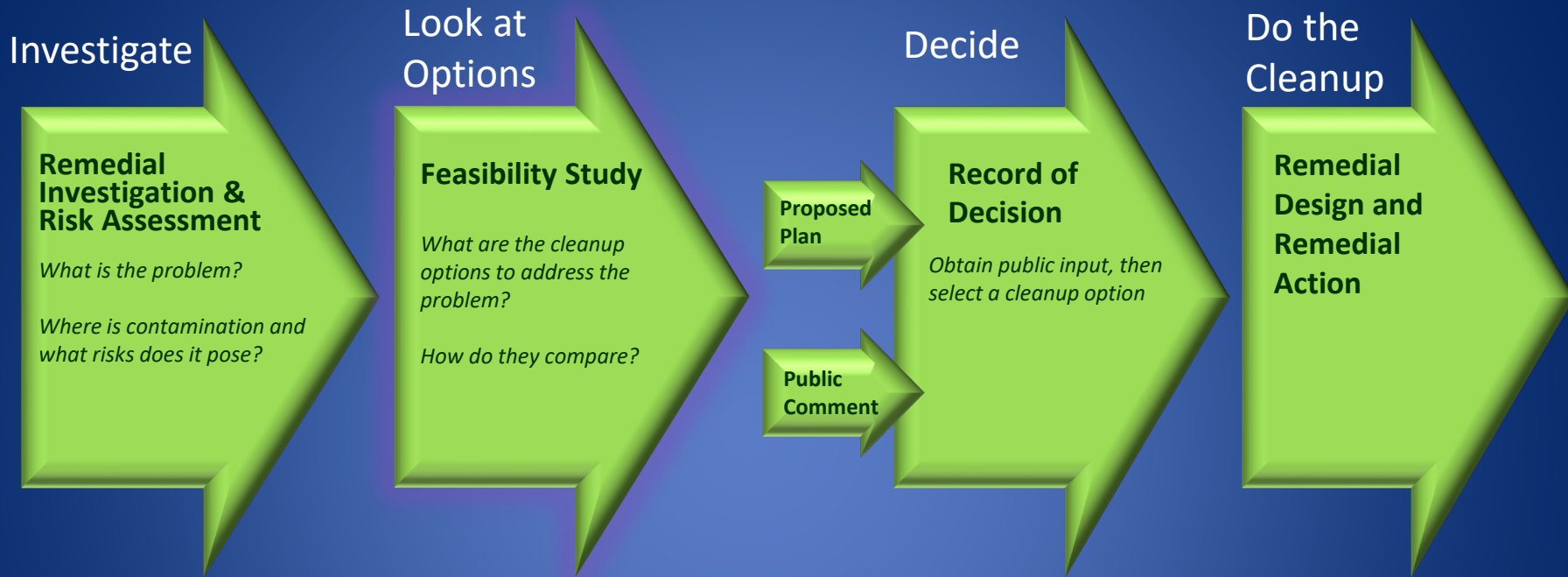


New Superfund Site Signage – Mine Tailings Pile

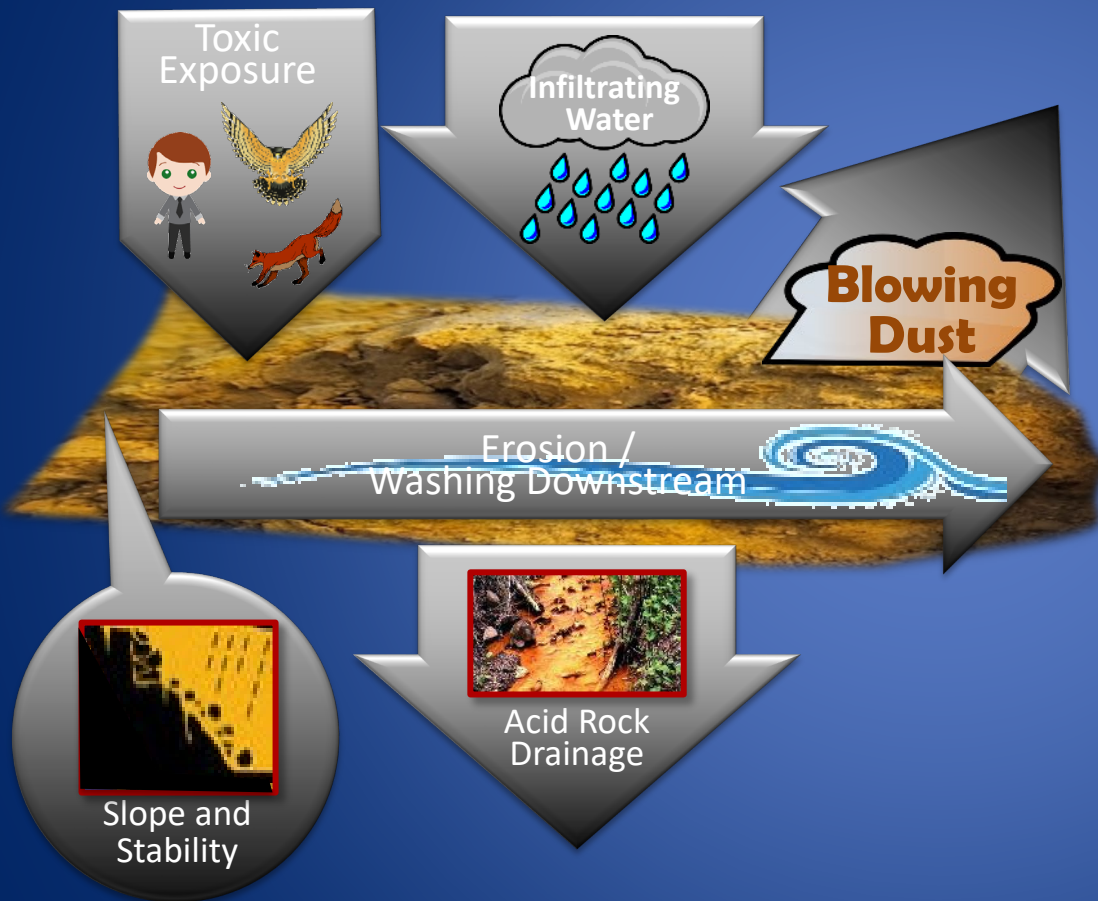


Getting to the FINAL Cleanup

Superfund Process, Feasibility Study and Cleanup Alternatives



Putting Together Cleanup Alternatives: Factors and Goals in Mine Tailings Cleanup

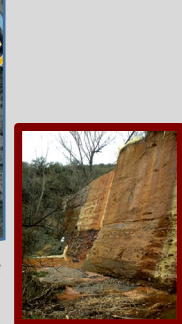
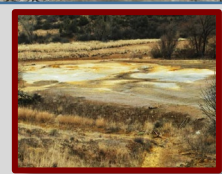
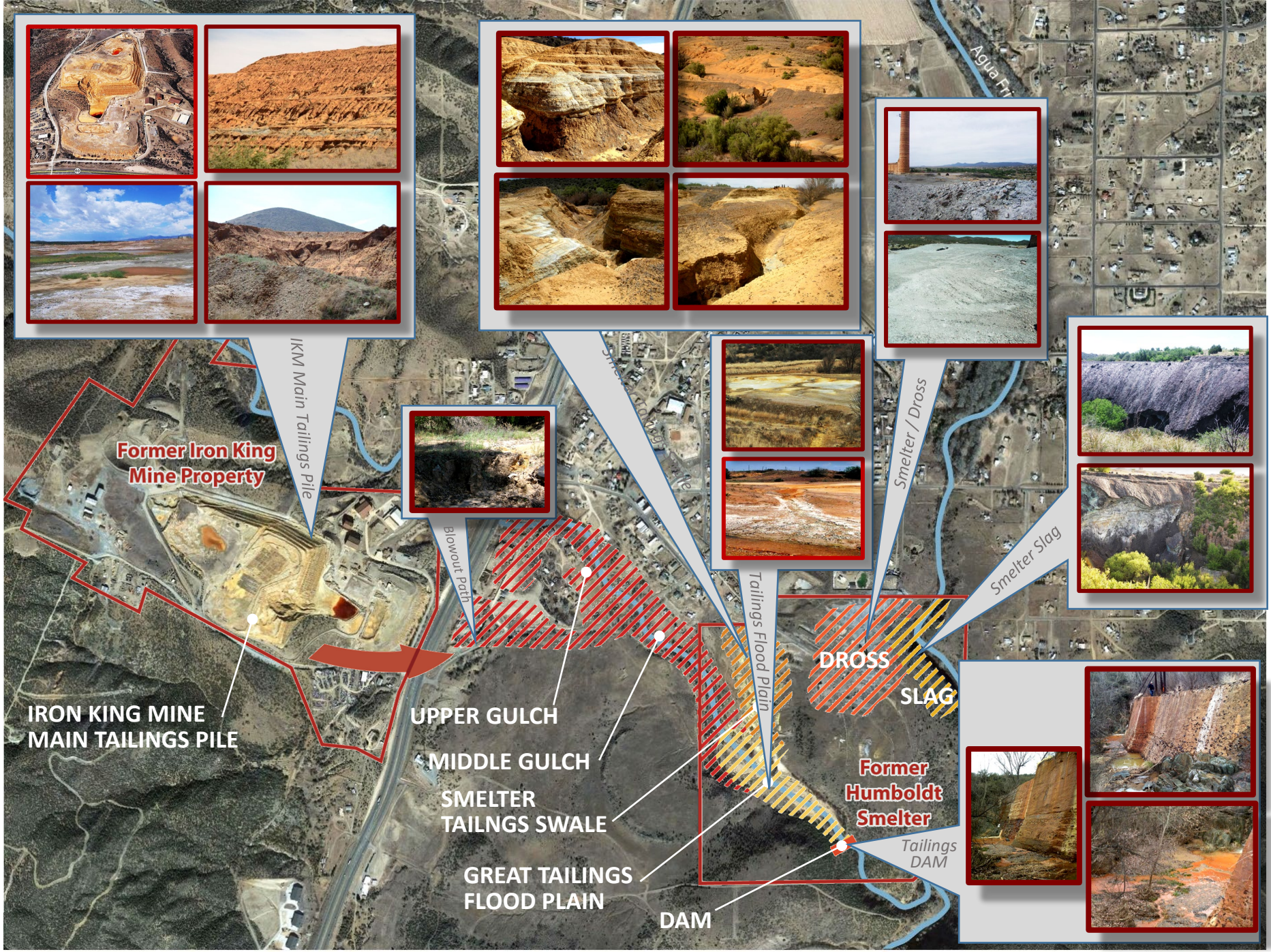


Goals

- PROTECT people and animals
- CREATE STABLE SLOPES
- CONTROL EROSION
- CHANNEL THE WATER
- STOP INFILTRATION of Rainwater
Don't Make Acid Mine Drainage
- Future LAND USES?

Questions

- Move it or cover it where it is?
- What kinds of cover?
- Is there enough cover material?
- Where does the repository go?
- Is there enough repository space?
- Is existing environment preserved?
- What future land uses?
- How would it look?



Groups of Alternatives



Overview of Cleanup Alternatives for the East Side of Highway



Alternative 1: Do Nothing

Alternative 2: Build a channel in all of Chaparral Gulch and cap outside the channel

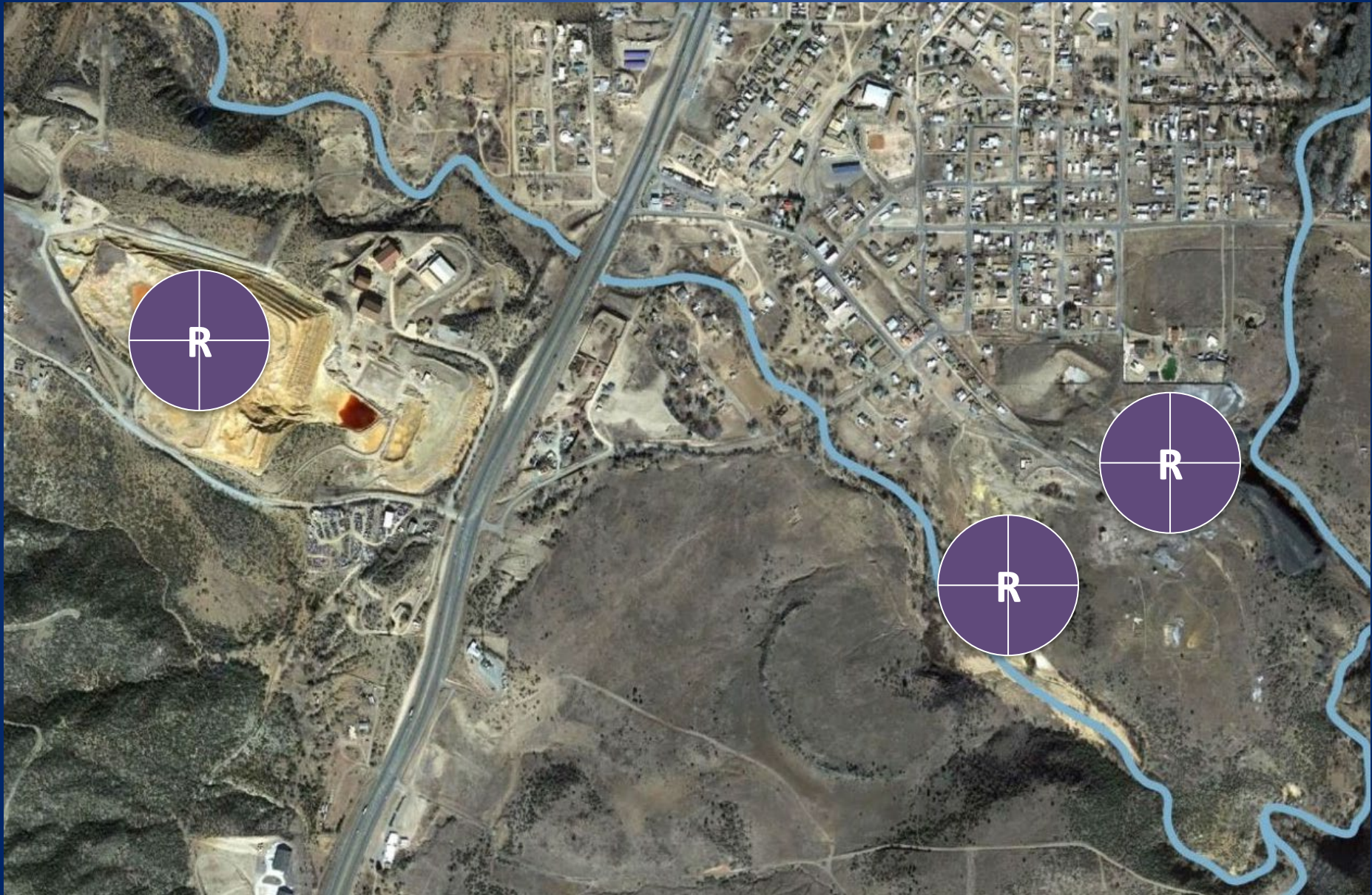
Alternative 3: Remove all waste in flood plain up to the dam

Alternative 4: Remove all waste in ALL of Chaparral Gulch

Where Might Removed Wastes Go?



Repository: Where Might Removed Wastes Go?



Naturally-Occurring Arsenic In Private Drinking Water Wells

Natural Arsenic in Private Drinking Water Wells



Arsenic is 100% bioavailable in water

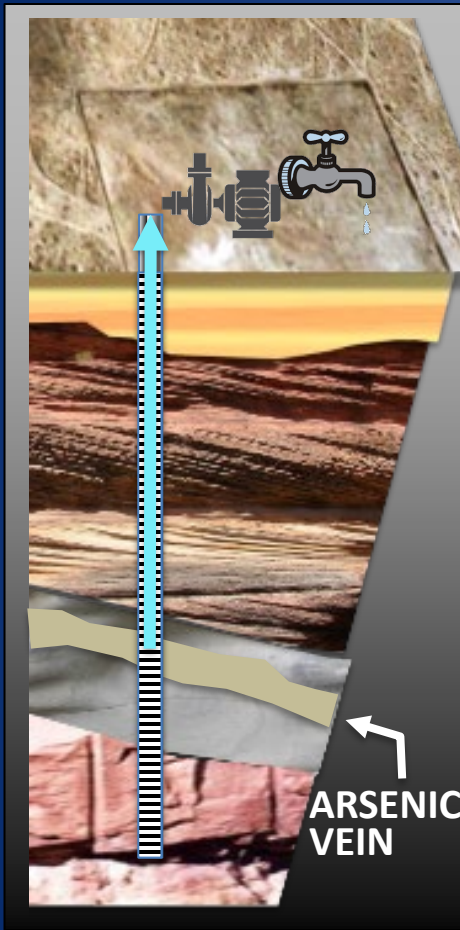
It can cause cancers after years of drinking

We drink water every day

If you don't test, you will never know

Studies showing arsenic is more toxic

Natural Arsenic in Private Drinking Water Wells



- Arsenic is naturally-occurring in rock in mine country
- Arsenic levels can vary by area, by street, or even yard to yard
- NO government oversight of *private* well water. It is up to the well owner



- TEST PRIVATE WELL WATER – ideally 6 months apart, and confirm in a few years
- The drinking water standard is 10 micrograms per liter (parts per billion)
- If arsenic is elevated, install in-home water treatment system for arsenic

EPA Contacts



Jeff Dhont
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Environmental Scientist

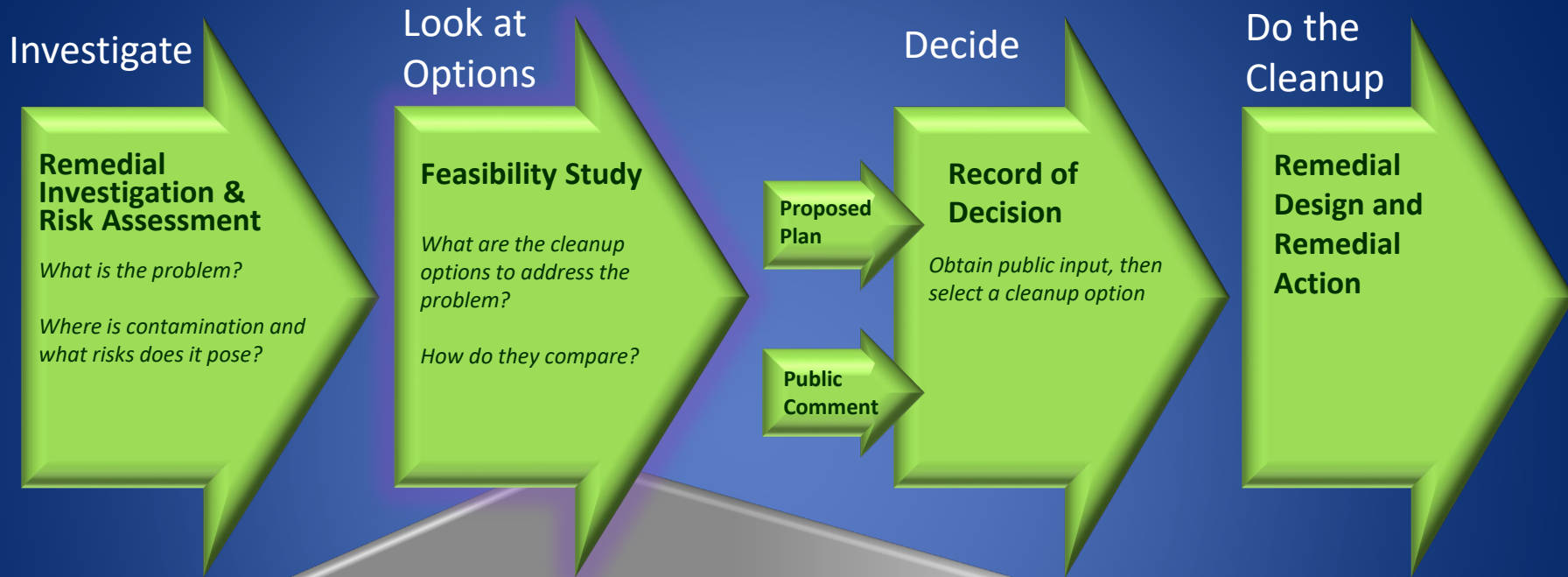
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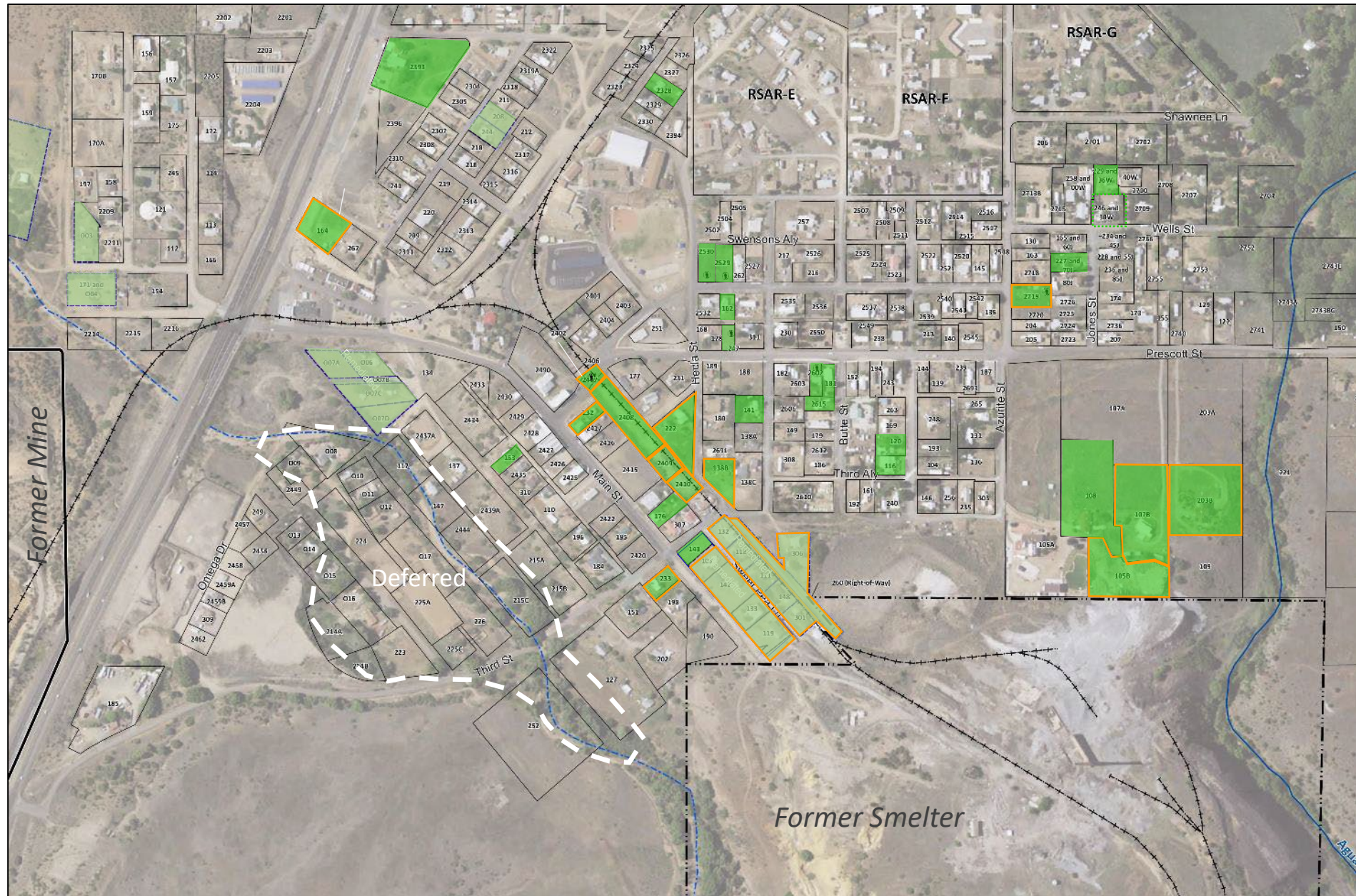
Superfund Process, Feasibility Study and Cleanup Alternatives



Warning Barrier

Iron King Mine / Humboldt Smelter Superfund Site

Completed Residential Yard Removal Actions



What Did the Removal Action Entail?



Excavation only where necessary

- Access Agreement and Property Plans
- Preparation
- Excavation and Removal
- Confirmation Samples
- Warning Marker (Snow Fence) if Necessary
- Backfill & Compaction
- Restoration of Features



Warning Barrier

What

- Soils deeper than marker still had contamination at target depth
- Focus: Keep soils below marker from ending up on the surface

What We Did

- Protocol
- Sent letters to owners with protocol
- Visited Town officials to inform them for permitting and public notice

Where, Mostly

- Along former rail corridor into Smelter
- Just north of the smelter
- Where tailings or elevated soils were imported



What is a Coal Gassification Plant (Manufactured Gas Plant)?

What

- Localized plants that produced NATURAL GAS from coal, coke, water and heat
- Gas was piped for use in industry, street lighting, home heating, etc.

When and Where

- Late 1800s/very early 1900s before widespread centrally generated electricity
- Mostly larger cities with significant population to make gas pipeline infrastructure cost-effective

Wastes

- Coal Tars
- Polycyclic Aromatic Hydrocarbons

Research into Possibility of Manufactured Gas Plant at the Smelter

- There is no indication today of such a plant or MGP wastes
- Historical Documents show ELECTRICITY Only
 - Historical documents indicate “Electric Plant” and “Power: Elec w/Steam”
 - Smelter had rotary belt stationary plants for plant and the local town
 - Such electricity was typically produced by steam from coal or oil
 - Very inefficient & unlikely MGP would be built just to provide electric power only
- Historical Documents make no mention of GAS PRODUCTION or GAS LINES
 - Sanborn maps and Certificate of Necessity show no gas plant or distribution lines
 - Highly unlikely that Sanborn maps would not show an MGP or gas lighting plant
- Population of 1000 (1907) very unlikely to warrant installation of MGP gas lines and infrastructure.
- MGP would be a big deal to the community – yet extensive news/articles search for 1880-1920 for Humboldt found NO mention of MGP in Humboldt throughout this period. This same search showed numerous articles for MGP in Phoenix and Nogales, for example

