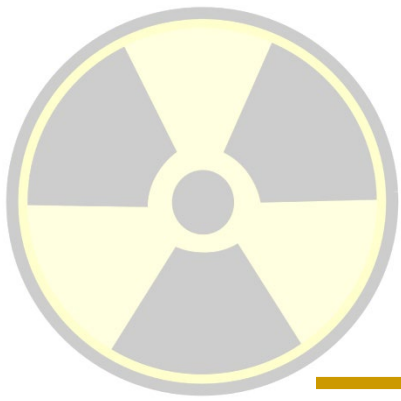




# **Potential Mining in the Black Hills and Climate Change – What Could Possibly Go Wrong?**

**Lilias Jarding, Ph.D.  
Clean Water Alliance  
October 2019**



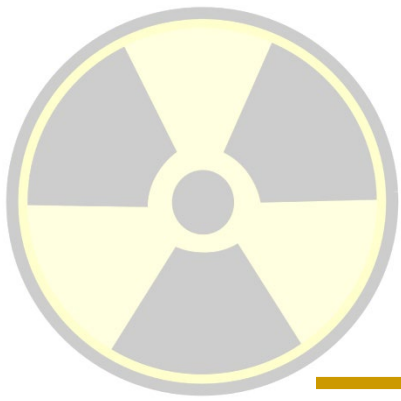
# Overview

---

- **Uranium Mining History and Current Situation in the Black Hills**
- **Gold Mining History and Current Situation in the Black Hills**
- **How Does Climate Change Tie Into The Situation?**



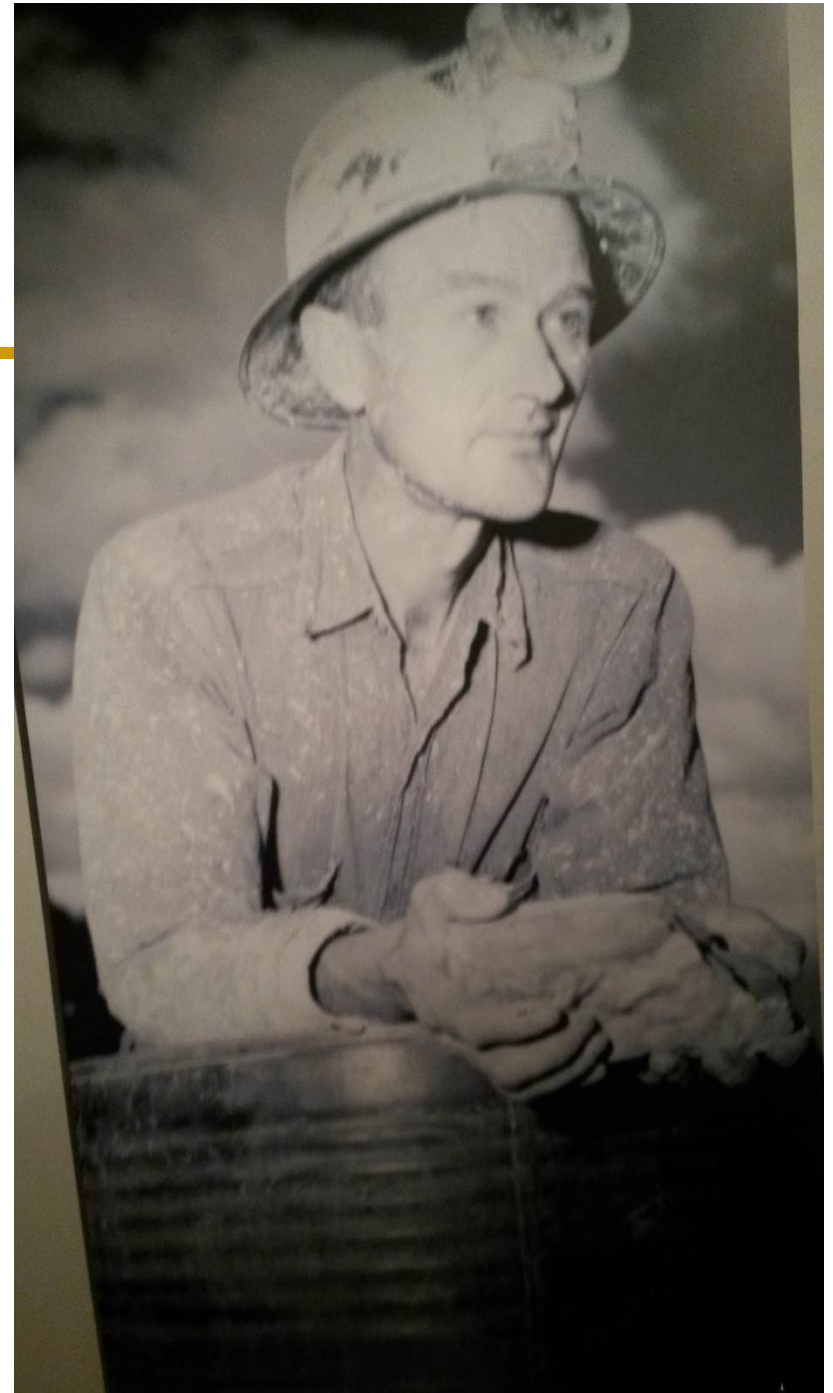
# **Uranium Mining History and Current Issues in the Black Hills**

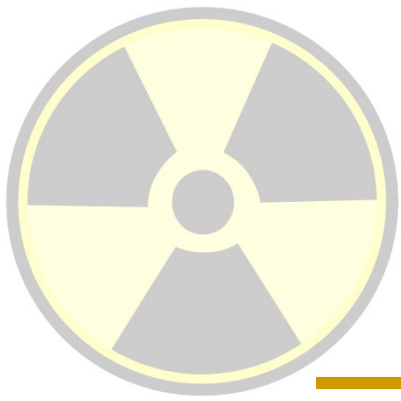


# Uranium Mining

---

- What is uranium for?
- Radioactive and toxic
  - Radioactivity is “forever”
  - Mining uranium has unique risks
    - Cancer
    - Kidney problems



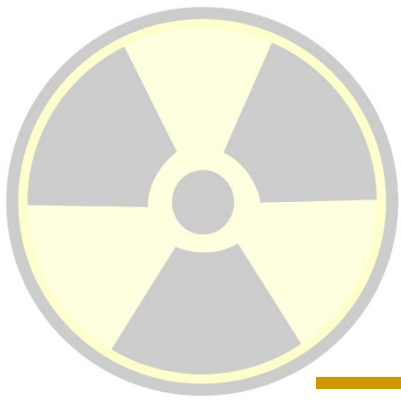


# Historical Uranium Mining

---

- ☢ 1951 - 1972
- ☢ Public unaware of dangers
- ☢ No regulation





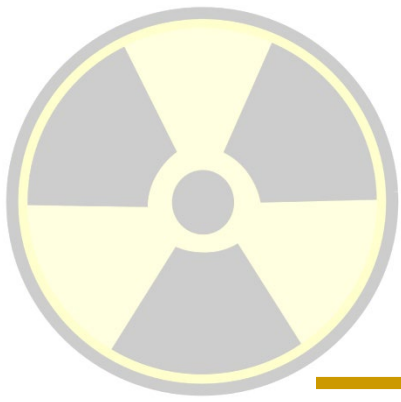
# Lasting Impacts

---

- ☢ 1962 Tailings Spill into Cheyenne River
- ☢ Its fate?



- ☢ 169 abandoned mines and prospects

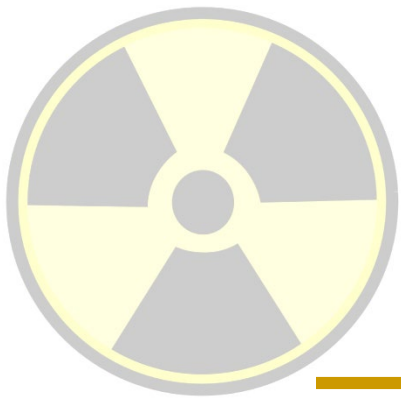


# Darrow Pits Mine

---



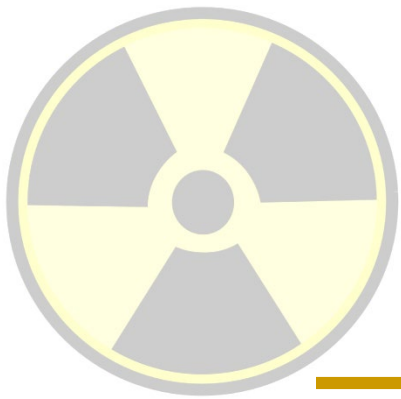
*Rapid City Journal*



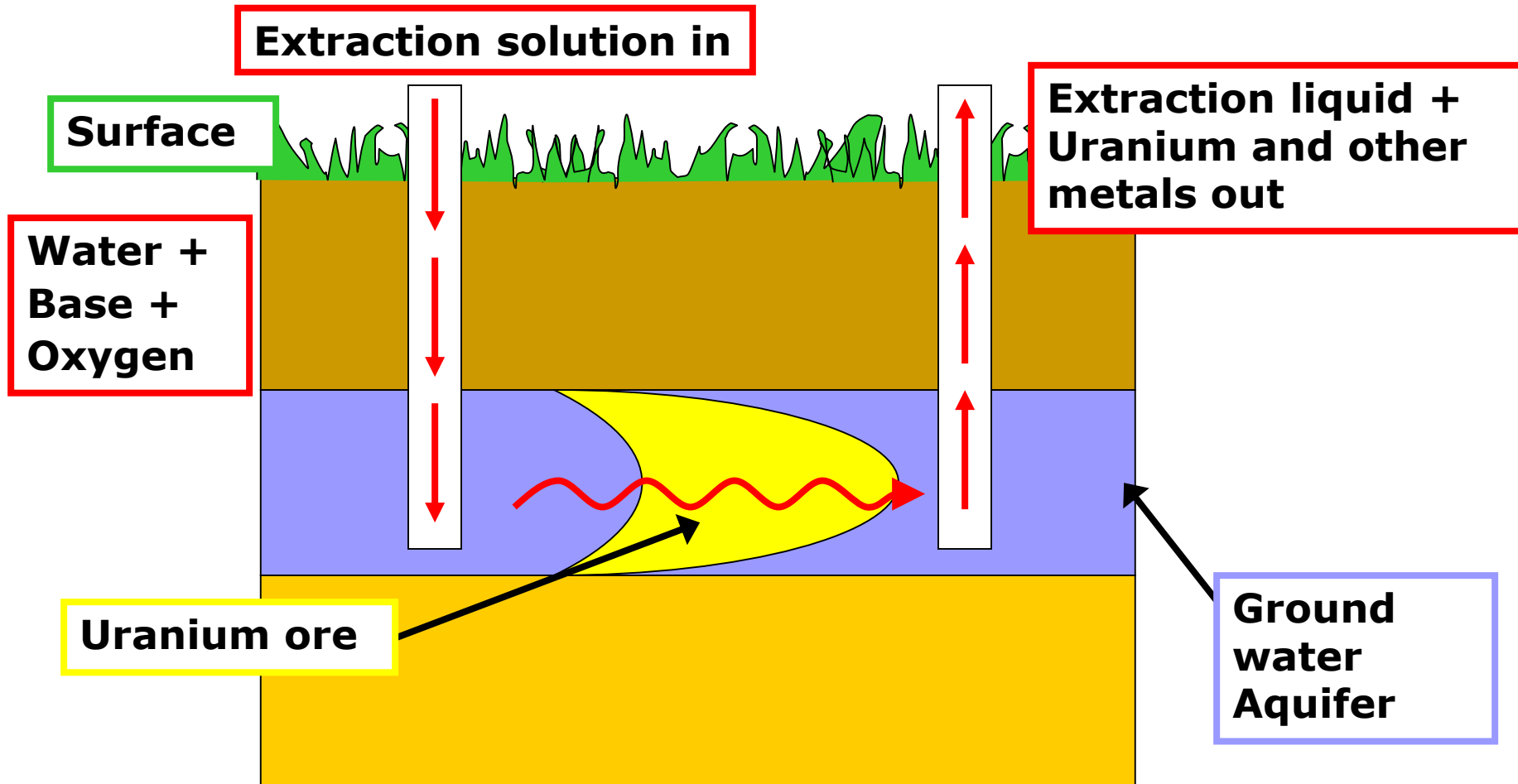
# More Recently

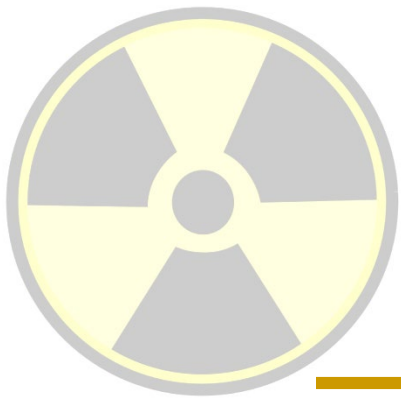
- ☢ 11 Uranium companies have expressed an interest in the Black Hills
- ☢ In situ leaching newer mining method





# In Situ Leach Mining



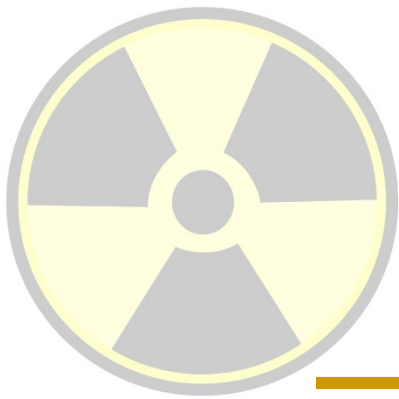


# Kingsville Dome ISL, TX

---



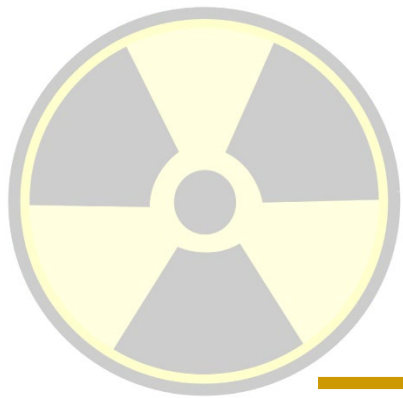




# Common Types of Water Contamination

---

- ☢ **Wastewater ponds**
  - Dam breaks    ● Leaking
- ☢ **Underground water movement out of mining area (“excursion”)**
- ☢ **Failure of piping or pump**
- ☢ **ISL mines commonly have dozens of “reportable incidents”**
- ☢ **May contaminate surface and ground water**



# **Proposed Mine -- Azarga Uranium (Powertech)**

---

- ☢ **Dewey-Burdock project in Black Hills**
- ☢ **Over 10,000 acres**
- ☢ **In situ leach mining**
- ☢ **Along southwestern edge of Hills**



**Chairman**  
**Alexander Molyneux**

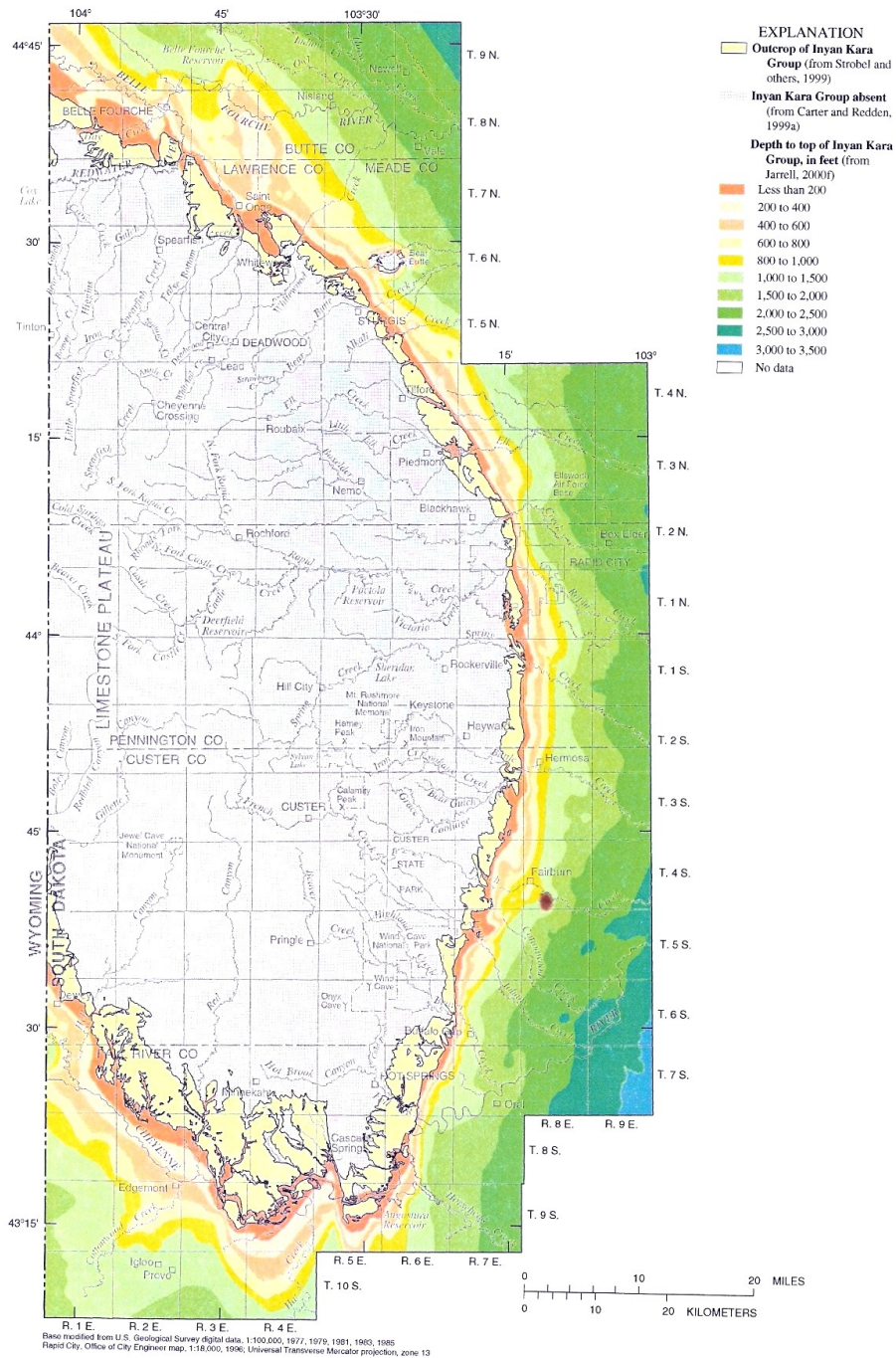
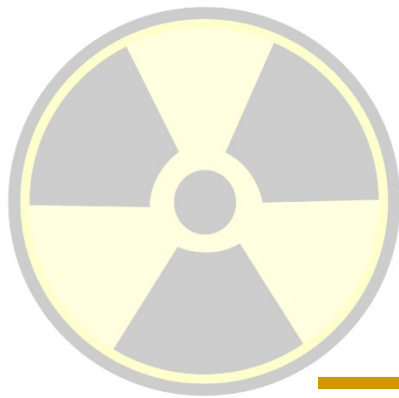
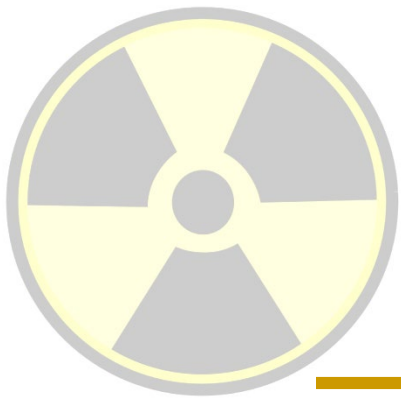


Figure 52. Depth to top of Inyan Kara Group.

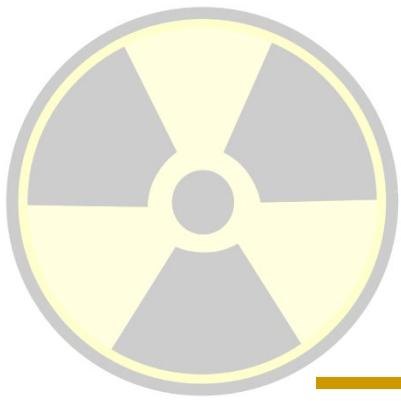


# Mining Plan

---



- ☢ 4,000 mining wells in Inyan Kara aquifer
- ☢ 9,000 gpm of water
  - Enough for 864,000 cows
- ☢ Pump wastes into Minnelusa aquifer
- ☢ 8 – 18 years
- ☢ 3 drinking water aquifers impacted



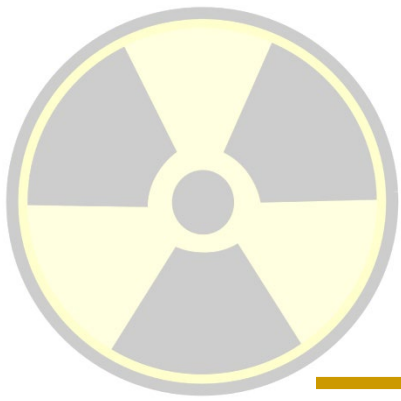
# Permit Process

---

- ☢ 10 permits needed
- ☢ Trying to get permits from federal EPA, NRC, BLM, and state DENR
- ☢ State processes on hold until federal decisions made



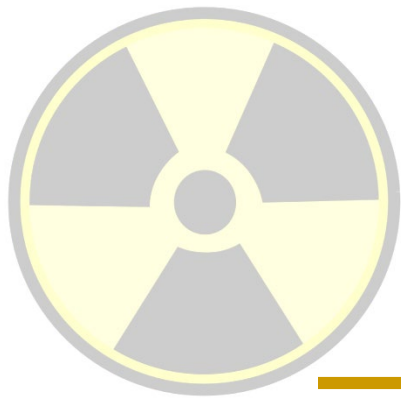
**Powertech Office  
Edgemont, SD**



# Environmental Protection Agency

- **March 2017 EPA issued *draft* water permits**
  - **Hearings April – May 2017**
  - **700 people attended**
  - **92% of comments anti-mining**



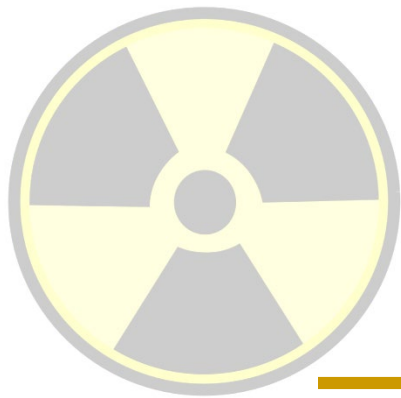


# Environmental Protection Agency

---

- New draft permits and hearing Oct. 5
  - About 80 comments
  - 100% were against the mining
- Written Comments due Dec. 9



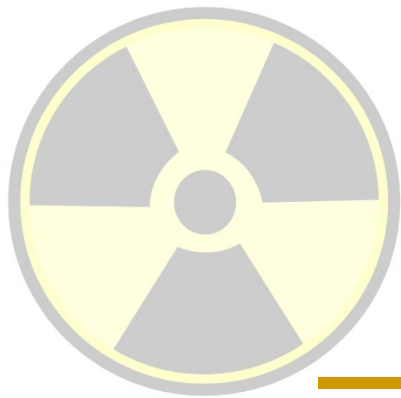


# Nuclear Regulatory Commission

---

- **Governs nuclear materials and power plants**
- **Powertech filed nuclear materials application in 2009**

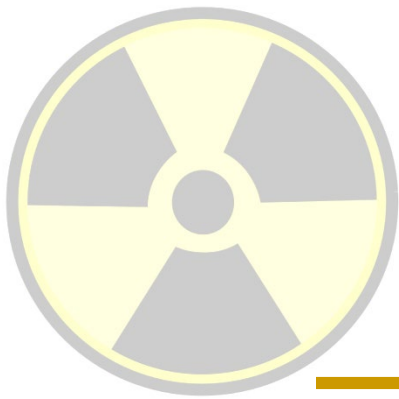




# Nuclear Regulatory Commission

---

- **Oglala Sioux Tribe is key part of process**
  - **Tribal government objected to cultural site survey process**
  - **Protect cultural and historical resources**
- **NRC issued license in April 2014**
- **NRC administrative Board held hearing on license in August 2014**



# Nuclear Regulatory Commission

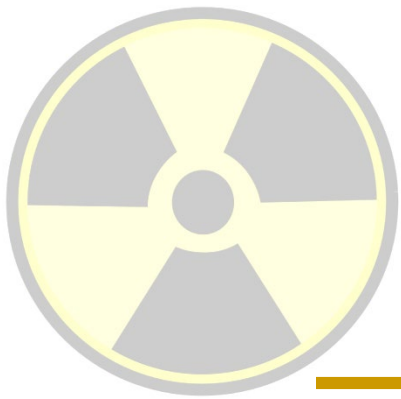
---

- ☢ OST appealed to federal court
  - Court told NRC to do a proper cultural survey
  - Left license in place
- ☢ Long process
- ☢ Hearing Aug. 28-30
- ☢ Expect next decision in November





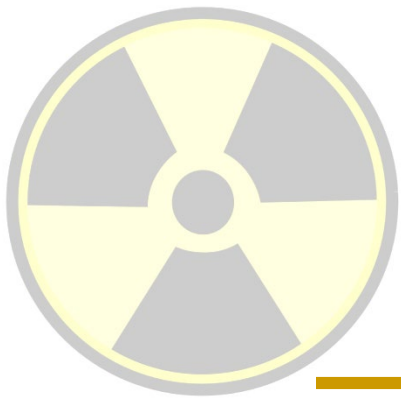
# **Gold Mining History and Current Issues in Black Hills**



# **What is the Situation Now?**

---

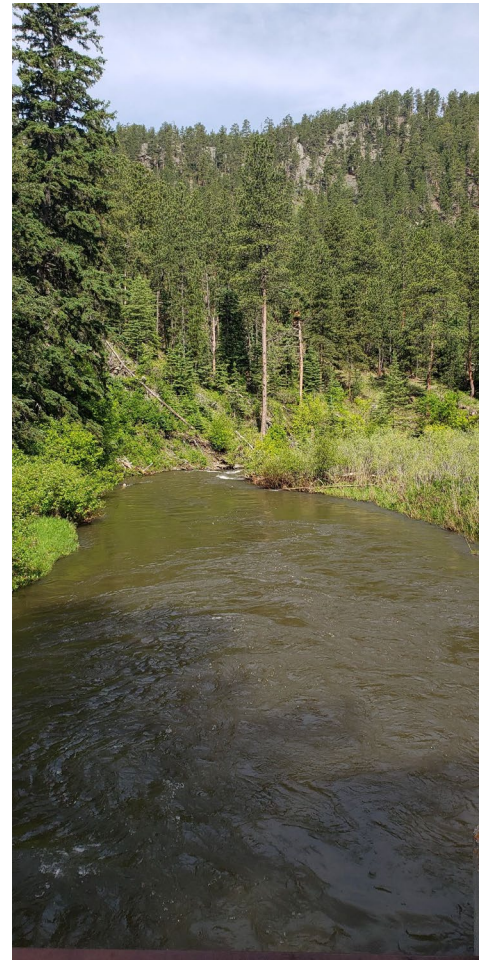
- **5 recent applications to explore for gold on lands controlled by Forest Service in the Black Hills**
- **One was withdrawn**
- **2 of the others are known (more in a minute) and are in Rapid Creek watershed**
- **2 are unknown**
  - **US Forest Service said in central Hills**
  - **Won't tell us who or exactly where**

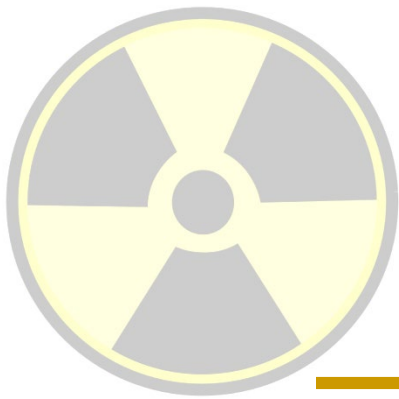


# Rapid Creek Watershed Activity

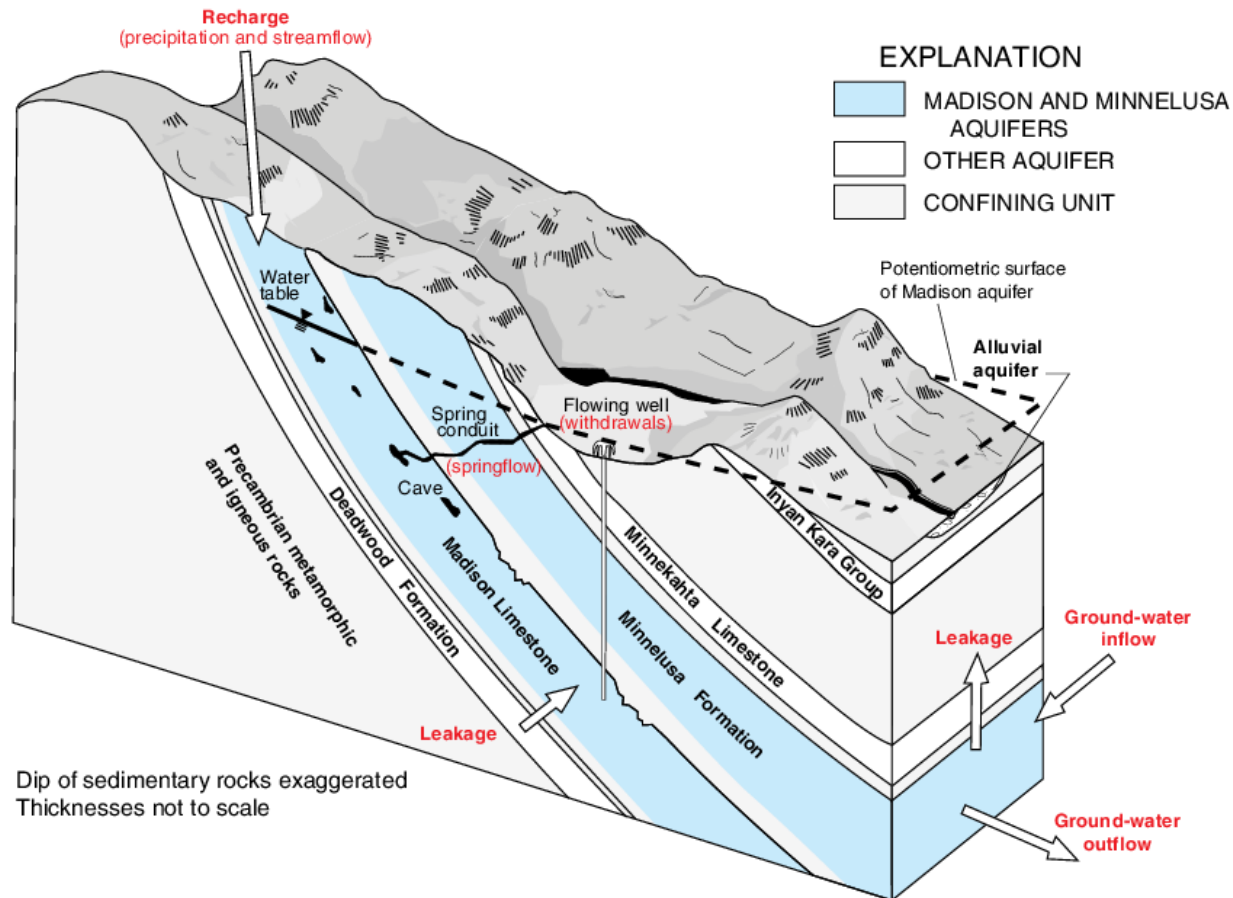
---

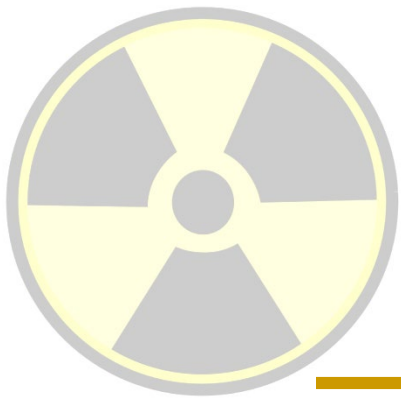
- ☢ If there was a toxic spill from gold exploration or mining in the central Black Hills, it could go into Rapid Creek, Pactola Lake, and Rapid City's water supply





# Rapid Creek and the Connecting Aquifers



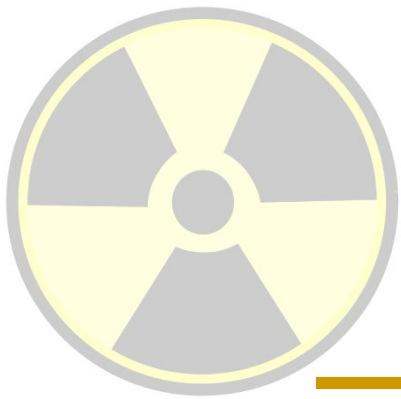


**So --**

---

- **If there was a toxic spill in the central Black Hills, all 3 sources of Rapid City water – Rapid Creek, the Madison Aquifer, and the Minnelusa Aquifer -- could become contaminated at the same time and in a short period of time**

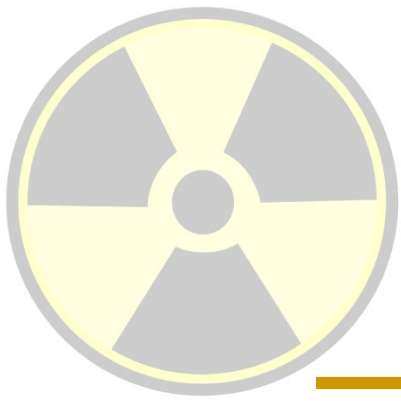




# Why Are We Concerned?

---

- ⚠ **Cultural resources and practices threatened by open pit mining, 24-hour noise, traffic**
- ⚠ **Modern gold mining uses cyanide, which leaches gold and heavy metals (arsenic, lead, etc.) out of the rock**
- ⚠ **Many mines have created permanent acid water flowage**
- ⚠ **Mining creates waste rock, which is often stored with water behind a dam**

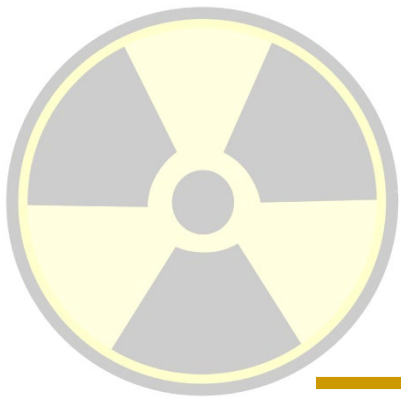


# Problems in the Black Hills

---

- ☢ **Gold mining started in the 1870s, at which time the Black Hills were taken from Lakota control**
- ☢ **The Homestake Mine, Lead --**
  - **Contaminated soil, surface and ground water**
  - **Killed 18 miles of Creek and was a Superfund Site**
  - **Left a large hole**



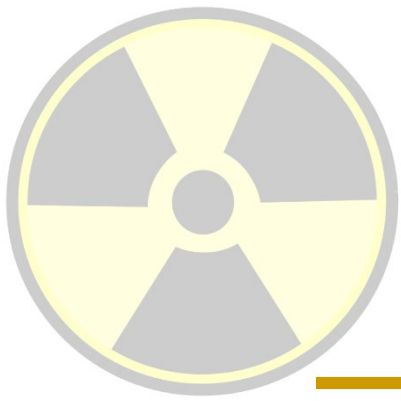


# Problems in the Black Hills

---

- **The Gilt Edge Mine in the northern Hills, which stopped operations in 1999, is a Superfund site**
  - **The state and EPA cannot stop acid mine drainage**



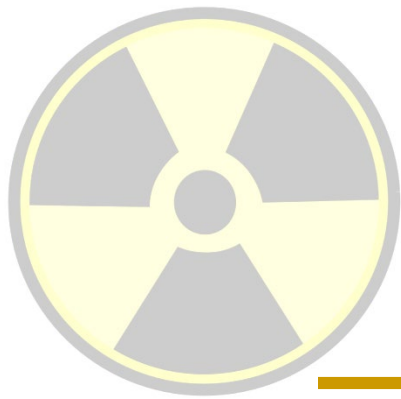


# Recent Accidents

---

- **Gold King Mine, CO – 2015**
  - **Acid mine drainage spill**
    - **Impacts for 150 miles**
- **Brumadinho Mine, Brazil – 2019**
  - **Tailings dam broke**
  - **134 people killed and 252 unaccounted for**



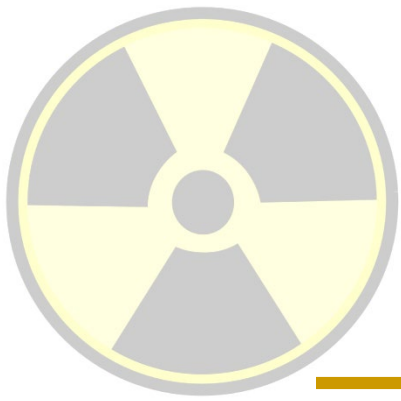


# Mineral Mountain Resources

---

- 7500 acres of claims near Pe' Sla and Rochford
- Wants to dig open pit mine
- Drilled 9 holes and left late last winter
- Has just returned to re-start drilling



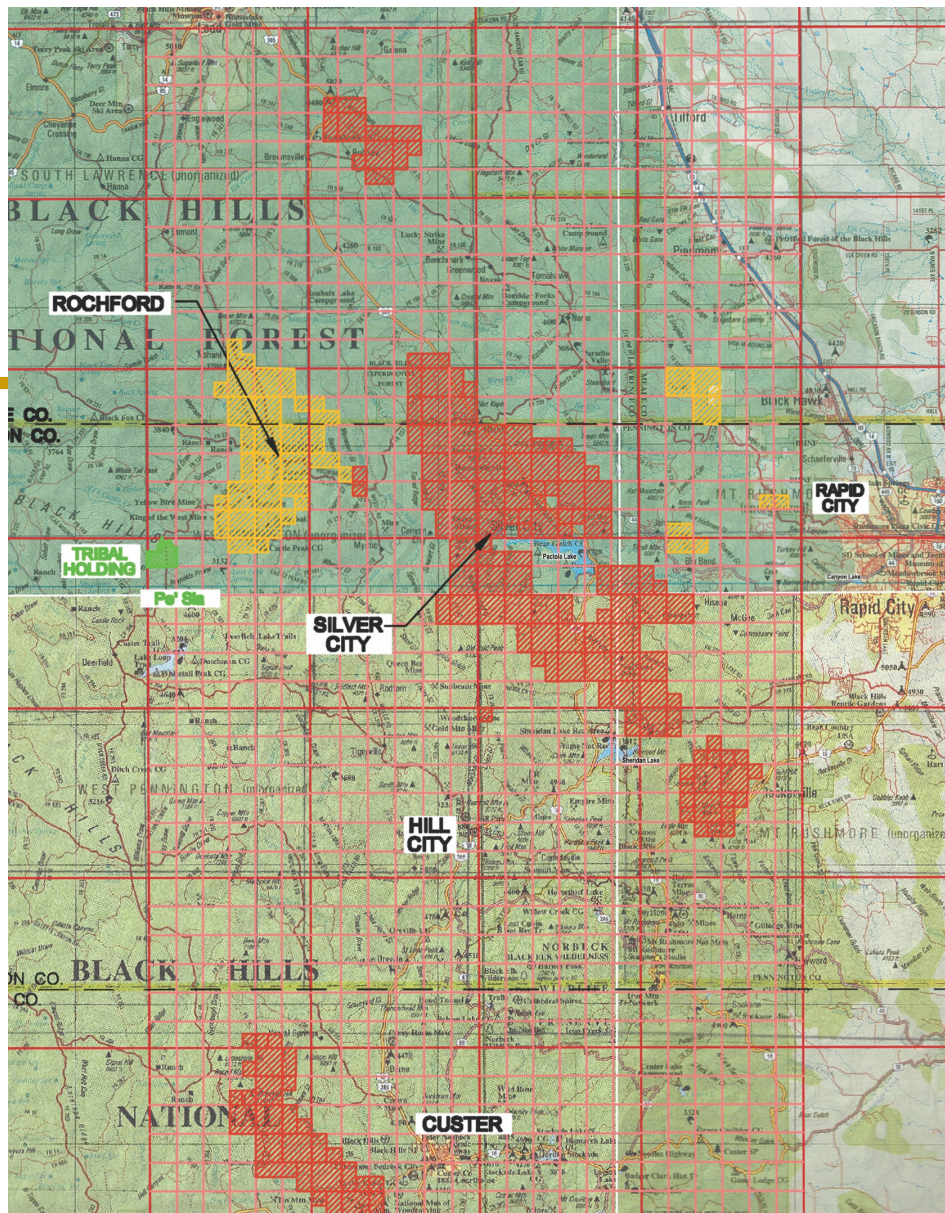
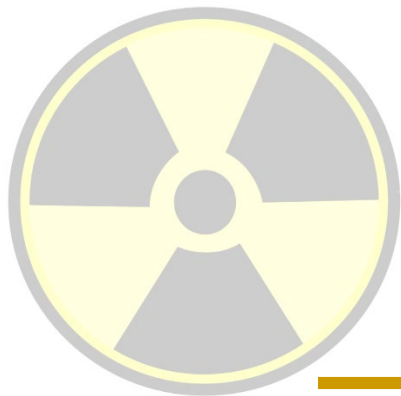


# F3 Gold (Big Rock Exploration)

---

- **Almost 2500 mining claims in central Black Hills**
- **1872 Mining Law**
  - **Asked to drill near Silver City and inlet to Pactola Lake**
  - **Says it's only exploring**
  - **But if they find mineable gold, someone will want to mine it**





PREPARED BY  
CLEAN WATER ALLIANCE  
WITH THE SUPPORT OF  
CLEAN WATER LEGACY  
[www.bhcleanwateralliance.org](http://www.bhcleanwateralliance.org)



MMR GOLD CLAIMS  
F3 GOLD CLAIMS  
NOTE: BIG ROCK  
PLANS TO EXPLORE  
ON F3 GOLD CLAIMS

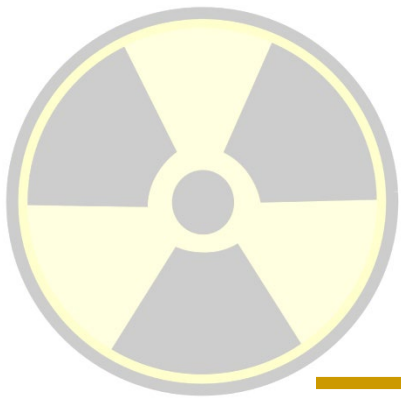
For more information visit  
[www.BHCleanWaterAlliance.com](http://www.BHCleanWaterAlliance.com)  
f Black Hills Clean Water Alliance

or [www.DakotaRuralAction.org](http://www.DakotaRuralAction.org)  
f Dakota Rural Action, Black Hills Chapter

BLACK HILLS CHAPTER  
DAKOTA RURAL ACTION  
GRASSROOTS ORGANIZING FOR THE FUTURE



# **How Does Climate Change Tie Into the Situation?**

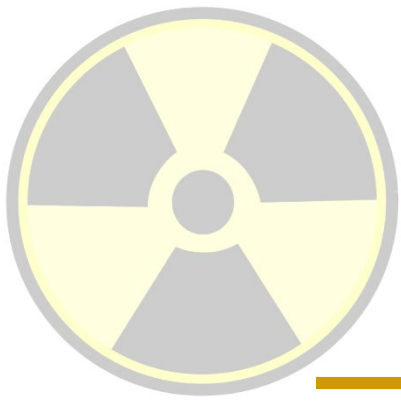


# Climate Change in Western SD Means --

---

- ☢ More moisture comes in the form of snow
- ☢ More runoff in the Spring
- ☢ More intense weather events
- ☢ More flooding

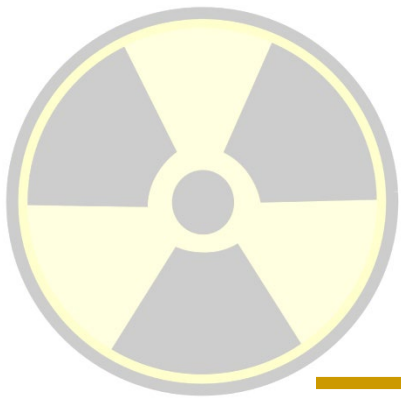




**So --**

---

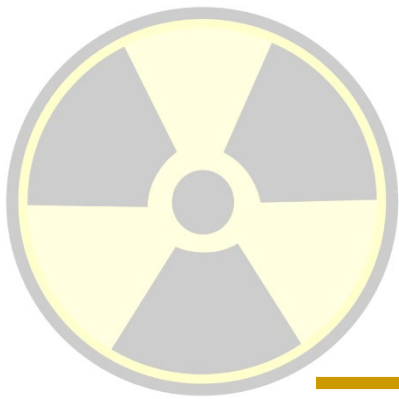
- ⚠ **More difficulty mining**
- ⚠ **More possibility of runoff and spills from leaching and waste piles**
- ⚠ **Runoff and spills go farther downstream**
- ⚠ **More negative impacts on wildlife, cultural sites, humans, livestock, communities, economy**
- ⚠ **It all goes into the creeks and rivers**



# Issues for EAs/EISs

---

- **Assessment of new projects is based on historical information**
  - **100-year floods**
  - **Past high temperatures**
- **With climate change, this data is outdated**
  - **Will be larger floods, higher temperatures**
- **So planning is based on outdated information**
  - **Tendency to “under plan”**



# What You Can Do

---

- Find out more at [bhcleanwateralliance.org](http://bhcleanwateralliance.org)
- Do written comments on uranium mining EPA water permits by Dec. 9
- Mobilize others to make comments/resolutions
- Join our e-mail list/events
- Talk to everyone you see





**Pilamayaye!**

**Questions?**