

The Split Estate Perspective on Uranium

Shannon Anderson
Powder River Basin Resource Council
www.powderriverbasin.org

Who We Are

n We are a grassroots Wyoming organization that promotes responsible extraction and use of our state's abundant mineral resources. Most of our members are rural landowners in Wyoming.

n We provide research assistance, legal support, and information to our members & the greater public.



Member Concerns

- n Main concern: groundwater
- n Oversight & enforcement concerns
- n Land use impacts
- n Socio-economic impacts
- n Combined impacts of multiple uranium sites within close proximity of each other & uranium sites overlapping with other energy production (oil & gas, CBM, wind)

Risks to Water Resources

“Although these In-Situ leach mining techniques are considered more environmentally benign than traditional mining and milling practices they still tend to contaminate groundwater.”

- U.S. Nuclear Regulatory Commission
2007 Report

Risks to Water Resources

- n Most uranium projects will be sited in areas where extensive exploration has been done
- n There is very little oversight & regulation for the exploration process
 - n Many test wells were drilled prior to the Environmental Quality Act
- n Hundreds, and in some cases thousands, of old drill holes cover potential ISL mining areas

Risks to Water Resources

“Older exploration holes in search of fossil fuels and uranium are difficult, if not impossible, to locate and many of them were improperly plugged and abandoned.” - NRC

“Improperly plugged, completed, or abandoned wells that go through both a mining area and fresh water can provide a way for mining liquids to move into fresh water.” – NRC

Risks to Water Resources

- n Past projects have had a lengthy history of surface spills, vertical & horizontal underground excursions, and evaporation pond leaks

“Over the years there have been an inordinate number of spills, leaks and other releases at this operation. Some 80 spills have been reported, in addition to numerous pond leaks, well casing failures and excursions. Unfortunately, it appears that such occurrences have become routine. [DEQ] currently has two large three-ring binders full of spill reports from the Smith Ranch-Highland operations.” - DEQ

Risks to Water Resources

- n Excursion = when drilling and production fluids leave the mining area
- n In 3 ISL sites (2 in Wyoming, 1 in Nebraska), 88 wells were placed on “excursion” status
- n Both horizontal and vertical excursions
- n 4 horizontal excursions lasted up to 5 years
- n 6 vertical excursions lasted at least 8 years

Failure to Restore Groundwater

- n No ISL mine to date has returned groundwater to pre-mining conditions
- n The un-restored constituents are some of the ones that are of greatest concern
 - n The ISL process mobilizes heavy metals
 - n Arsenic, selenium, uranium, vanadium and radium levels are often higher than before mining

But isn't this "bad" water to begin with?

- n Domestic and stock wells can be in the same formations where ISL mining occurs
- n Need for a proper determination of baseline groundwater (localized, not averaged, information)
 - n State law: restoration to "class of use"
- And remember, excursions, abandoned wells, and other communication risks
- Some proposed ISL sites do not have confining layers

Groundwater: what can we do?

- n Proper site characterization is key
- n Need for finalized NRC groundwater restoration rulemaking compliant with EPA requirements
- n Restoration needs to be a priority: new wellfields should not be brought into production until restoration is achieved at current operations



Water Consumption Risks

“[G]roundwater withdrawal at a single mine has the potential to create a deep cone of depression in the local aquifer. As this cone expands over time, it may join those created by neighboring mines and lower the regional water table, which in turn may decrease or terminate flow in streams and springs some distance from the mines.”

- National Research Council, Hardrock Mining on Federal Lands, National Academy Press, 1999, at 151,



Risks to Land Resources

Exploration activity in Crook County



Risks to Land Resources



- n Large footprint of processing centers, pipelines, wells, transmission lines, etc.





Enforcement & Oversight Concerns

- n NRC's regulations are insufficient: NRC needs to consider new enforceable regulations that will prevent or mitigate environmental impacts
- n NRC does not believe it is subject to CEQ regulations governing NEPA
- n NRC does not have an office in Wyoming and has inadequate staff to inspect ISL operations
- n DEQ is also under-staffed for permitting & enforcement (the Mining Association's "solution" is to allow consultants to carry out permitting functions)




Weighing the Benefits against the Burdens

- n No federal royalties; limited state severance tax
- n Possibilities for inflation and increased costs of living
- n Influx of temporary workers into rural areas (road traffic, trash, noise)
- n No infrastructure for emergencies in these rural areas

Burdens vs. Benefits, cont.

“Those who do not work in the energy industries or who do not own shares of production see little of the additional income generated by the boom.” – Equality State Policy Center, *The State of Working Wyoming*, Feb. 2008

““While rising energy-related commodities have increased the state’s treasury and led to low unemployment rates, they have also hurt citizens at the fuel pumps and cash registers.”” - *Wyoming Inflation: Report: Rate high as 8.1 percent*, Sheridan Press, March 31, 2008, citing Wyoming Economic Analysis Division report



Is Uranium/Nuclear the Solution to Our Energy Problems?

- n Promoting energy independence?
- n Tackling climate change?
 - n “[N]uclear power, even in a best case, is only likely to be a small fraction of the long-term effort to curb emissions of carbon dioxide.” - Andrew Revkin, *Debating the Facts on Oil, Nukes, and Climate*, New York Times, Oct. 8, 2008
- n Other options, including investments in energy efficiency, are available now and are cost effective, low-risk investments for the public