

Here is a short history of the Dewey Burdock uranium mining project at Edgemont SD.

History

The history of the Dewey Burdock area as far back as the 1950's is well known. But what is not well known is the summary of the explorations and subsequent 7,650 old boreholes left by the TVA (the exploratory co hired by the US govt.) unclosed or improperly closed, in two different explorations, over 10 years.



Powertech knew about this when they first concocted this business, but failed to disclose to NRC and EPA and the public. In fact, the permit papers filed to the state of SD featuring tested uranium concentrations in the area, show the highest levels in the alluvial aquifers, which are essentially runoff from the old roll front deposit that was completely mined out back in the 1950's and 60's, and left the open pit mines. The TVA abandoned the site...TWICE ...because they could not find enough new uranium deposits to mine efficiently. The roll front uranium deposit is gone in Dewey Burdock, mined out by the fed govt back in the 50's and 60's in open pit mines.

The Mining Process

ISL mining is the injection of highly corrosive chemicals into the aquifer through many wells in a well field, in this case 4,000, that dissolve the rocks underneath, freeing up into solution the metals of: uranium, arsenic, cadmium, mercury, lead, strontium, thorium, thallium, and more. However, only some of the uranium is able to be extracted. The remaining toxic wastewater with the rest of the toxic heavy metals, including 6 toxic metals known to be radioactive, are re-injected over and over until the waters become saturated with metals and are then deemed non useful waste, and then injected into the UIC wells/ Underground Injection Containment wells described below.

The Insolvent, No- Profit Business Model

Back in the 50's and 60's when uranium mining was going strong at Dewey Burdock, uranium was selling for \$100./lb.

Today the price is around \$23./lb., and the company testified in a recent hearing that their break even point was \$63./ lb., thus not a profitable business model from the start. Nuclear reactors are closing all over the world since the Fukushima accident, greatly reducing demand for uranium, and the ones that are still working will eventually be converted over to thorium reactors that are able to be shut down in a disaster, unlike the uranium reactors that cannot.

Licensing

Powertech/Azarga was ordered in 2014 by the Nuclear Regulatory Commission licensing to find and properly close all of the nearly 8,000 old boreholes from the TVA, and do new pump testing to make sure that confinement was good to solution mine, before any mining could begin. That will cost millions, that the company admittedly does not have.

Powertech/Azarga also recently lost their case in federal court of not doing a proper cultural assessment, required by law, to survey Native American burial grounds and sacred sites to protect. They admitted that they tried to circumvent the law, as they had no money to do that correctly either. And they were just admonished by the Atomic Safety and Licensing Board for the very same thing just this past August, at a hearing in Rapid City. That required survey is estimated to cost 2 million dollars. Thus, they have no actual clear license to mine anything at Dewey Burdock, and won't have for years, if at all. In fact, they have no mining experience at all. Their birth was the takeover of a bankrupt refrigerator manufacturing co. Since then, many foreign hands have now merged with them, including current Russian and Chinese ownership and control. They are asking for a permit for 4,000 ISL solution mining wells in the Inyan Kara aquifer, and 4 disposal UIC wells /Underground Injection Containment wells with the option of more in the future for their hazardous radioactive wastes.

What Are UIC/Underground Injection Containment Wells?

In the UIC wells, hazardous mining wastes containing toxic heavy metals and radioactive metals will be pumped into the Minnelusa aquifer, under high pressure, for a total of 20 years, with option to renew that permit. They could also sell that permit to anyone, without any restrictions at all for a permanent hazardous waste dump.

The Minnelusa aquifer is just above the Madison aquifer, and both aquifers are significant for use waters in the Black Hills and in that area. Pumping for 20 years under high pressure, will drive the toxins into areas outside of the Minnelusa through the many fissures and fractures of the rock layers in this uplift mountainous area. The high pressure of these injection wells have not only historically polluted other aquifers nearby in use, but also caused earthquakes that continued for years, even after the pumping was stopped.

The combination actions of the residual lixivients in the wastewater still actively dissolving rocks they come in contact with, will further widen the fissures and fractures, allowing more and more leaks over time. True containment here is not geologically possible. Now also add in the drawing up of usable waters from nearby aquifers, and you have increased movement from the pressurized UIC's towards the vacuum created by drawing up of the use water/ drinking waters. The contamination of the drinking water increases over time.

There are usable Minnelusa wells in the southern Black Hills, down gradient from Dewey Burdock. The state DENR says they know of thousands of current Minnelusa wells under use there, however there are many other older wells not registered by the state, where the owners do not even know what aquifer they are in, or how deep their wells are. They will not know when they are sucking up hazardous radioactive heavy metals until they get cancer and their cattle die. Then come the class action law suits to both EPA and Powertech/Azarga, (who will undoubtedly bail and file bankruptcy and walk away from the mess, leaving the wells polluted forever, just like so many other mining companies before them, including those superfund in the Black Hills that taxpayers are still trying to clean up.

Their Hidden Agenda

The permits they will be issued include 4 UIC/ Underground Injection Containment wells with optional addition of more, and **“two right away”, well before they even have any mining.** Originally, they had asked for 8 UIC's, which the EPA noted as ridiculous. Historically, other uranium mines use just one UIC for some 20 years before they ask for

another. **So what does Powertech/Azarga need even 4 wells, and 2 of them “right away” for?**

Answer: Immediate income by trucking and pumping hazardous toxic mining wastes from other mines, other states and even other countries, all allowed under the permit, with no oversight whatsoever, making the Black Hills a toxic waste dump! No mining required!

Since the state of SD does not permit Class 1 disposal wells, the regular UIC's used at mines like this, which do not require prior treatment of hazardous wastes, Powertech/Azarga will have to treat their wastes before deposition, another additional cost of production. The state of SD will only permit a Class 5 UIC, where the level of toxicity is that standard of “storm water”, common runoff from streets. That is not what this mining waste is.

If Powertech/Azarga were actually able to clean this water to levels they boasted about in the NRC/ASLB hearing, “so pure you could almost swim in it”, then that water would be most valuable for agriculture, irrigation and farm use in this high dry area of the country. It does not meet the qualifications for a Class 5 UIC, not for the concentration of toxic metals, or radioactivity of such. **And the permit will let them bring in these hazardous toxic mining wastes from other mines, other states and even other countries with no oversight whatsoever!**

In Summary

So again, the business of hazardous waste deposition becomes the only way to make money for Powertech/Azarga, and likely why the original ridiculous request of 8 hazardous waste injection wells was done. Normally, mines like this only need one UIC, and for some 20 years of **real** actual mining. So even the modified request for 4 Class 5 wells is still ridiculous, and without the ability or clear permit to mine. And they say they need two right away? What in the world for? **The real agenda...make the Black Hills a hazardous waste dump!**

Current Regulations of UIC's by EPA

UIC wells are required to treat wastes to acceptable levels of toxicity **or prove there is no mitigation of the waste.**

The wells are designed so that if they happen to fail, the waste would be confined to the injection zone. **No mitigation means the waste will not affect an underground water supply for 10,000 years or until the waste is not harmful. To ensure this, the EPA mandates there are no faults or other adverse geological features present in the area, that the well injects into layers that do not currently hold water but have the correct features (porosity and permeability), and that are below a confining layer.** In no way does the Dewey Burdock site comply with these regulations. **In this case, the metals are quite immortal. They do not break down and do not detoxify.**

Lack of oversight of UIC wells

Here is a report that criticizes EPA oversight of injection wells from ProPublica published in 2014

The Government Accountability Office says environmental regulators are failing to adequately enforce rules for wells used to dispose of toxic waste from drilling.

by [Naveena Sadasivam](#)

ProPublica, July 29, 2014, 3:40 p.m.

“Injection wells used to dispose of the nation’s most toxic waste are showing increasing signs of stress as regulatory oversight falls short and scientific assumptions prove flawed.”

“Federal environment officials have failed to adequately oversee hundreds of thousands of wells used to inject toxic oil and gas drilling waste deep underground, according to [a new congressional report](#).”

“The report, by the U.S. Government Accountability Office, is critical of the Environmental Protection Agency’s inconsistent handling of safety inspections, poor record keeping, and failure to adjust its guidelines to adapt to new risks brought by the recent boom in domestic drilling, including the understanding that injection wells are causing earthquakes.”

“The GAO’s findings echo those in [a 2012 ProPublica investigation](#) which found that the nation’s injection wells were often poorly regulated and experienced high rates of failure, likely leading to pollution of underground water supplies. **ProPublica’s**

investigation found that the EPA did not know exactly how many wells existed in the United States or what volume of waste was being injected into them, and that it did not possess complete records required to be collected under the Safe Drinking Water Act.”

“These wastes, often euphemistically referred to as "saltwater," commonly contain a mixture of water, hazardous chemicals and radioactive minerals.”

“The EPA generally agreed with the GAO's findings and characterization of the challenges the agency is currently facing.

Concerns have mounted recently about potential water contamination from injections wells.”

This report was done when EPA had a more complete staff and budget. What upgrades to inspections and oversight have been made since 2012? And how will these new budget cuts under the Trump administration affect oversight and regulation of injection wells? If EPA depends on permit fees from industry to make up a significant portion of their budget, as FDA and NRC do, 95% to be exact, then how can we be sure that EPA does not just issue, in this case, permits in dangerous areas that should not be issued, just because they have to underwrite their paychecks? **If the circumstances of the past have not been rectified, then no new permits for any injection wells should be issued, period.**

Cases of Water Contamination, 2008-2010

Cases of Unauthorized Injection, of toxins not permitted -859

Cases of Over Pressurized Injection, resulting in damage to well casings and equipment -1,199

Test Failures for Significant Leaks- 6,723

Total Wells With Violations- 60,467

In Conclusion

The high dry area we live in cannot afford to sacrifice these aquifers. Water is the new gold, it is said and predictions are for severe droughts in the Western states in the future. Humanity has continuously failed to clean up our mining messes throughout history, as evident from all the superfund sites of total and complete loss of any use all

over the country and the world, not to mention the over 10,000 other old uranium mines that should be super funds and are not, due to lack of funding for remediation/burial.

What the Residents of the Black Hills Get With These Permits - Absolutely Nothing.

We sacrifice 2 aquifers forever, and risk the Madison, the major drinking water aquifer, for a totally foreign insolvent mining co, with no experience mining, and likely, like the other co's of this caliber in history, to make a huge toxic and radioactive mess, file bankruptcy and walk away...leaving us taxpayers to fund whatever cleanup we can do.

We Need Your Help

Please write to the EPA and express your concerns on these permits. Now that you understand what is truly at stake, the water resources of the Beautiful Black Hills. Best is to come to the hearing and you will be given 3 minutes to present your concerns, then also hand in to them or send by email. If you send email, you can make it as long as you want.

Written comments must be submitted online at [regulations.gov](https://www.regulations.gov) under docket number EPA-R08-OW-2019-0512. Comments may also be sent by mail to Valois Robinson, U.S. EPA Region 8, Mail Code: 8WD-SDU, 1595 Wynkoop Street, Denver, CO 80202-1129.

The EPA has also scheduled a public hearing on the following date, time and location:

Saturday, October 5, 2019, from 9:00 a.m. to 12:00 p.m. and from 2:00 p.m. to 6:00 pm at the:

**The Mueller Center
801 South 6th Street
Hot Springs, South Dakota 57747**

The public may also provide written and/or verbal comments during the public hearing.

The Administrative Record for these UIC Program proposed actions is available for review at: <https://www.epa.gov/uic/uic-epa-region-8>

Please reference these sound science points.

1. Powertech/Azarga is not a trustworthy company to grant permits controlling our precious water resources. They are insolvent and have been since their beginning. They have already proven that they avoid the law in any way they can, and have admitted that they cannot afford to do the work necessary to prep the site, do proper surveys or set up a proper mine. They are broke. They will have no monies set aside for remediation and clean up of their messes after they are done mining, leaving clean up to us taxpayers, like every other mining co who has come to the Black Hills in the past.
2. Asking for 4 times the standard amount of UIC wells, with an unspecified additional amount in the future, gives away their real agenda in making our Black Hills a toxic hazardous waste dump. No other mine historically has needed more than 1 UIC well, and they used that for 20 years before they needed a second one.
3. Permitting 2 UIC's "right away", even when they are years away, if at all, of mining, has nothing to do with the mining in SD. They would only use these wells to truck and pump hazardous mining waste from other mines, other states and even other countries, with no oversight as to what they are really putting down that well. Since they admit they are broke, and that they have attempted to avoid the law on other issues, what is to prevent them from putting untreated toxic wastes down the well, as a cost saving measure? We would not even know until the surrounding environment and wells in use are poisoned forever. By then, it is too late.
4. Granting this large number of UIC wells guarantees a hazardous waste dump, because a single mine of this size does not produce the amount of waste that requires 4 + UIC wells.
5. The state DENR says they know of thousands of current Minnelusa wells under use that area, however there are many other older wells not registered by the state, where the owners do not even know what aquifer they are in, or how deep their wells are. They will not know when they are sucking up hazardous radioactive

heavy metals until they get cancer and their cattle die.

6. Under EPA rules, “No mitigation means the waste will not affect an underground water supply for 10,000 years or until the waste is not harmful. To ensure this, the EPA mandates there are no faults or other adverse geological features present in the area, that the well injects into layers that do not currently hold water but have the correct features (porosity and permeability), and that are below a confining layer.” In no way does the Dewey Burdock site comply with these regulations. The wastes will be injected into a permanently sacrificed aquifer. The fractures and fissures and sinkholes that break the rock strata can be seen on satellite images. These will allow the hazardous waste water to flow both up and down from the aquifer they were injected into, polluting the Madison aquifer, the major drinking water source in the Black Hills. No one can guarantee non movement of that waste water for 10,000 years in an area like we have here with constant uplift still going on, rock strata continually fracturing and minor earthquakes already on record. And that is your EPA requirement.
7. Your EPA requirements for Class 5 wells is for non hazardous ingredients. In this case, the metals are quite immortal. They do not break down and do not detoxify. Some are even radioactive. This wastewater does not classify as non hazardous no matter how you look at it.
8. The Black Hills is already earthquake prone, as demonstrated by quakes that have happened on record, and the fact that this area is still in uplift. We don’t need any more prodding for earthquakes by high pressure injections of any kind.
9. Bringing in unlimited amounts of mining waste from virtually “the world” is not anything that Black Hills residents would approve of. We did not come here to live in a toxic waste dump. EPA has already said that such would be allowed under these permits.
10. The residual lixivients in the mining wastewater will continue to dissolve the rock surrounding the Minnelusa aquifer, creating exit points for the hazardous waste to infiltrate and contaminate the surrounding area and adjacent aquifers.
11. EPA has a miserable reputation and record for regulating even the more hazardous oil and gas wells, and class 1 worst toxic wells prior, so I have no faith they will even regulate these wells, especially now that this administration has so severely

cut EPA budget and lost over 7,500 of its top scientists in the last 2 years. EPA has admitted that there will be no oversight. We just have to take Powertech/Azarga's word for it that they are following the law? I don't think so. It was found that in just 2 years monitoring, there were over 60,000 such wells that were in violation, and these are just the ones who got caught. The chances for violations here are unacceptable. The risk to our water resources is too great.

12. We live in a high dry area that is predicted to suffer massive droughts in the future. We cannot sacrifice 2 and maybe even 3 aquifers.

For more information on UIC wells:

<https://www.nap.edu/read/13355/chapter/7#121>

For more information on failures of EPA oversight and regulation on hazardous waste:

<https://www.gao.gov/assets/680/675690.pdf>

<https://flowforwater.org/wp-content/uploads/2013/02/2012.07.01-Underground-Injection-Wells.pdf>

<https://www.cleanwateraction.org/files/publications/UIC%20-%20Clean%20Water%20report%201.6.15.pdf>

<http://chej.org/wp-content/uploads/Deep%20Well%20Injection%20-%20PUB%20056.pdf>

<https://www.fws.gov/policy/561fw16.html>

<https://ndep.nv.gov/uploads/water-wpc-permitting-stormwater-uic-docs/uic-poster-epa04.pdf>

- document constructed by Independent Black Hills Volunteers -