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<b>Submission details</b>	
Issue	Ground water mixing, hydraulic fracturing of injection water disposal wells, souring of ground water aquifers by bacterial contamination
Reference and page number (if known)	TBA

Comment

Ground water mixing from different hydrogeological systems mixes together waters of different mineral compositions. This can lead to precipitation of minerals in the natural fractures accepting the fluids recovered from the mine, plugging the injection path. The salinity varies across this area, going from potable water through to water high in iron and sulfates. This variation in aquifer water quality is seen in the bores nearby. Unsuccessful bores with water quality not suitable for surface use have not been completed for production. As such there is less information on the water quality in the area since poor quality water is under represented in the aggregate. Good water quality is needed for agriculture. Water movement in naturally fractured systems is difficult to characterise with relatively limited amounts of water extracted. The mine has prepared its estimate of water production to be pumped from their very large bore hole. The inflow area on large bore holes in naturally fractured reservoirs can be very large compared to that one can produce from agricultural bores. Although the mine advises that their net water usage is small, their reinjection scheme of mixed aquifer waters is large.

In the oil industry, water disposal wells and water Injection for water flooding for enhanced oil recovery and pressure maintenance are the subject of much study and regulatory interest. Radial flow injection into porous media can result in increasing pore pressure in the porous media at the injection point. The change in geomechanical stress state can result in hydraulic fracturing of the injection well. This allows continued injection at the wellbore driving the fracture in a vertical and horizontal plane, perhaps interconnecting previously unconnected reservoirs. At a macro level, this may occur in a similar fashion in naturally fractured reservoirs. Naturally fractured reservoirs generally have less connected water volume so this hydraulic fracturing may occur sooner than in porous media radial injections. This can result in contamination of agricultural water bores.

Water injection in the oil industry has a long history of accidentally injecting water with sulfate reducing bacteria into injection wells in spite of extensive efforts to avoid this event. Water treatment upset of only a short duration can be sufficient to inoculate the reservoir as well inoculation can occur

Issue	Mine construction Grout curtain technical feasibility , economics and grouting chemicals.
Reference and page number (if known)	TO BE ADVISED UPON REQUEST. TBA

Comment

Techniques of grout curtain development around large civil engineering works is complex with many known unknowables. On a mine with only 150 million dollars revenue over 5 years, this unknowable aspect could use several percent of that revenue. This complexity has significant economic impact on the spacing of the bores and number of bores. The grout injection to stem potential water flows is not an exacting science in porous media and even less understood in naturally fractured geological systems. The number of natural fractures encountered along the grout curtain bores are those that the bore does penetrate. It is very possible that a. Independent set of fractures are only a meter away and not connected to any grout curtain bore.

The continuous flowing of these bores individually or severally, to keep the natural fractures open, in an effort to expel drilling debris from the fracture systems, thus to better allow grouting, will be the result of practices developed long after the license is issued. Since a bore two meters away may intersect another set of natural fractures, with the license in hand and the investment made, the miners will change their plans with variations to develop engineering solutions that are required for the project to progress inspite of previous plans. It is also complex to grout across the vertical height of a bore in naturally fractured rock, success will not be measurable until the main mine shafts are blasted and excavated.

The Cornish miners of South Australia, came here from the tin mines of Cornwall and knew only too well the problems of working mines in naturally fractured rock where water inflow can arise with each advance of the shaft. Perhaps this problem contributed to the original closure of the original mine here. Perhaps it is the newly found confidence that grout curtains will stem the water flow. It is a bold experiment today based upon the experience of the original miners.

The grout materials and systems using caustic injections, sodium silicate solutions and Portland cements may become part of the aquifers and placement control is imprecise. Polymeric additives used in viscosifying injected fluids with cross linking additives can be used to try and control fluids in the grout curtain development. These materials may well be very similar to those used in

Issue	Mine closure and remediation
Reference and page number (if known)	TBA
Comment	<p>Brukung Pyrite Mine is currently the subject of South Australia. Government spending to contain and remediate the acidic water flows originating from that long closed mine site. This contamination moves through the watershed making the Dawsley Creek signposted with contaminated water warnings. This ongoing ward of the state arose from the shift in the economics of the mine production in a global setting. The original venturers in the project ended their responsibility when the profit was gone for their limited liability company. This Bird in Hand project today is within the same global commodity profit regime for gold and silver on a five year primary business model. Markets change and total production costs including remediation costs dominate the economics and corporate viability.</p> <p>As we see at Brukung, remediation for unknowable consequences goes on for generations with tax payer funding while venturers bank their shorter term profit. It is not in the public interest to allow this new mining proposal to proceed in Woodside.</p>
Issue	Noise
Reference and page number (if known)	Tba

<p>Comment</p>	<p>Noise is inevitable, it is extremely difficult to avoid exceeding the rural back ground sound power levels. Single noise events from machinery and continuous background noise generated from ventilation, traffic, employee movement arise. The position of the mine relative to Woodside and adjoining habitation will raise the noise levels for the community, for all of the stakeholders. Noise pollution is shared by all.</p> <p>Interestingly, our daughter will be married in Woodside, in early 2020. We have booked Bird in Hand cellar door facilities for a luncheon for 12 in celebration. Due to concerns about mining construction noise and uncertainty of noise control in the various phases of mine development, we must cancel our plans and seek an alternative venue rather than risk such disturbance if this mine is approved. Throughout my career I have worked extensively with heavy transport trucking in the oil industry, the remedy for trucking noise in the affected community was consultation, council and compensation, even buying outright affected property holders as there was no engineering solution to transport noise. This disrupted that rural community. This is not in the public interest, the mine documentation has not satisfactorily demonstrated its ability to keep noise below rural background levels for neighbours and woodside and Inverbrackie.</p>
<p>Issue</p>	<p>Ground water modelling and engineering solutions to modelled problems</p>
<p>Reference and page number (if known)</p>	<p>Tba</p>

<p>Comment</p>	<p>Hydrogeological Modelling of natural fractures in complex ancient geological formations is a statistical projection based upon the exploration bores, the test bores for water and geological measurement and the original historical mine records of such quality and confirmation bias of that day. The ability to model is based upon a number of inputs of various levels of uncertainty. A model is simply a map of potential, it is not the real terrain.</p> <p>The government department has the oil and gas specialist, Mr. Barry Goldstein in the SA Energy department who has the expertise to contribute to the governments assessment of the hydro geological performance and of naturally fractured reservoirs. He can help the department understand the uncertainty in modelling and bore testing and the extrapolation of these models to the large dimensions of works of shafts and tunnels for mining. This would provide another voice to keep in perspective the modelling prepared by the miners chosen contractor.</p> <p>Modelling is a map, not the terrain. Reopening this old mine and extending into new underground workings is not in the public interest.</p>
<p>Issue</p>	<p>Environmental impacts Miscellaneous</p>
<p>Reference and page number (if known)</p>	<p>Tba</p>

Comment

Light spill was not managed at the mine at Callington, lights were repositioned to suit the work at hand for safety purposes. This safety issue anywhere over riders community agreement and the affected, parties have no recourse. Dust from trucks and mining activity is inevitable. Extensive water spraying was used at Callington.

Trucking on our roads breakdown the old roads costing the community in road safety, road works, this is a free ride to the economics of the mine.

This mine is a huge impact on the tourist business in Woodside and area, it diminishes the value of so many investments in this high jobs sectors of the SA ECONOMY..

OVER REACH of the initial agreements for the use of the mining processing at Strathalbyn shows bad faith by government and mining to the affected community.

This mine is a test case for the expansion of mining and trucking for all lease holds from Gawler to Mt Pleasant.

This mining activity in this urban and important agricultural area of the driest state on the driest continent is not in the public interest. Mining regulations have not been written to apply in this populated and economically mature area. Many investment decisions in agriculture and tourism would not have occurred with a mine in the midst. These investments were made with knowledge that the mine was closed and remediated and not to be reopened.

Additional comments

Some of these comments were raised at the last community consultation in Woodside with respect to those herein cited as miscellaneous. There was widespread opposition to this mining project on display at the meeting by an overcapacity crowd. We look to the government of SA to deny the approval to open this mine in spite of the miners thousands of pages of compliance and plans. A mere 180 million dollar 5 year project with subsequent term extensions is not significant to the state in light of the touristic economy and image impact. Adelaide is branding itself as a very environmentally pristine city, recognised as developing a major artistic culture , as a UNESCO CITY OF MUSIC, (;Bird in Hand Cellar door presented a major out door live music venue for many thousands of citizens last year). The investment in the UKARIA cultural music center is within these Adelaide Hills corridors,

With the arts festivals, a socially concerned city, with strong community consultation ( Victoria Square Redevelopment) , Adelaide is ranking now in the top 10 cities globally for living. This is based upon many factors, none of which are enhanced by opening this mine and those future mines for which this is the test case,

This is the agricultural urban corridor around the city. This state is heavily invested in renewable energy and other sustainable projects,this mine doe not support the SA BRAND.

Big mining has a vast remote land area on which to develop projects, there is no reason to compete in the Adelaide Hills with the agricultural and tourist sector. Approving this mine is not in the public interest for South Australians. The previous Premier of South Australia failed the mining community and the Adelaide Hills touristic and agricultural community to allow this company to invest in their studies and develop their momentum in what is a flawed project.

It is now this current SA government that is rising its support by the people of SA for a project with large technical and commercial risk under the pressure of a small cap local MINING company backed by an International Mining Giant from the USA. As the CEO of Terramin advised the