Minutes - City of Mackay
Special Meeting of the City Council
Tuesday, September 21, 2022

CALL TO ORDER
Wayne Olsen, Mayor called the meeting to order at 10:00 a.m.

Roll Call
Wayne Olsen, Dean Wall, Greg Blackwell, Richard Mangum, Mike Foster, Vicki Wall, and Michelle Teninty.

RECOGNITION OF VISITORS
Ryan McDermott via video and Lenie Wilkie in person

Monitoring Wells
Ryan McDermott stated that Konnex has taken full responsibility for making sure there are no adverse effects on the Mackay municipal water supply. Last year we started drilling monitoring wells, to be clear these are strictly monitoring wells and the purpose of drilling these is to tag the upper aquifer and other aquifers on a monthly and sometimes quarterly basis to send samples to the laboratory, 5 gallons a month of draw. None of these will ever be production wells, they weren't setup to be production wells, they don't have permanent pumps, they have locking caps, they are sampled either with a hand drill sampler or a peristaltic pump and neither of those will soften the well and they're very clean and they're constructed strictly as monitoring wells. They are painted a tan color and There are 3 or 4 bollards around the wellhead itself, and they are of course locked and secure. In order to finish the work for the hydrologist, in order to finish what we need to do for the whole characterization.

We are proposing 7 new wells to be drilled. These are wells that we have the Idaho Department of Water Resources permits for this year and the City of Mackay has been provided with a copy of that permit. These are for the upper aquifer only, the cold-water aquifer. There are already existing residential wells in that area. The reason we will isolate the upper aquifer is that the hydrologist and the State of Idaho recognized a long time ago, that the Mackay spring comes from a very deep source, the hydrologists are saying it's about 1400 ft deep. There's enough head on the source that feeds the Mackay spring that pushes water up at a pressure high enough that none of the service water is trickling down back into the source of the spring. If there's not enough pressure on that, the State and the County would not allow any of these residential wells around the spring to be drilled, nor would they allow the septic system to be installed for all these houses. That would create potential for cross contamination within the spring.

The State hydrologists have a pretty good idea of the ground water conditions particularly in the deeper aquifer that feeds the spring. These will all be on Pat Powers property, and we have his permission to drill those. They will be shallow; the diagram shows what the completion will look like. They're properly drilled wells by an Idaho licensed well driller, the grate is sealed. These will just be for sampling and monitoring. At the end of the mine life, we will have to reclaim these. When we reclaim those, we pull the steel and we pack them with clay, and once that's done its like they were never drilled.

The way in which we go about constructing these wells, they use drilling fluids that are non-reactive, there is no potential for negative reaction to the ground water. We do understand the City's concern. These wells will be visible from town, and we wanted to give the city enough information to answer any questions citizens may have about what we're doing.

Councilman Blackwell asked Mr. McDermott, if something went wrong, what's Konnex's responsibility for the city well?

Mr. McDermott stated that there was really nothing that could go wrong. These wells are scheduled to be drilled at a shallower depth than the culinary wells that have already gone in. The hydrologists are confident, I don't fully understand it. None of these wells will encounter the deeper aquifer that feeds the spring. They're just not deep enough. The same goes for the residential wells that have been drilled that the State has provide well drilling permits for the same reason, they're just not deep enough to impact the deeper aquifer that feeds the spring. I'm not quite sure how to answer your question because we don't anticipate any issues, and there's no physical way to contact or connect with the spring.

Councilman Mangum asked what guarantee does the geologist have that that's exactly how it operates?

Mr. McDermott stated that they do know because the residential wells that are out there are as deep as 250 feet. We have the well logs; we have the drill logs, and these residential wells were drilled at a deeper depth and the reason for that is the home must have enough water not to run the well dry. The intent is to sample our wells monthly, we only need about 5 feet of water in the well to get a healthy sample.

Councilman Foster asked as the Mackay spring aquifer and the subsequent fault line that allows the water to move to the spring, has that been mapped through geological or hydrologic studies.

Mr. McDermott confirmed that it has been mapped. It was originally mapped by a man from the Department of Environmental Quality, a degreed hydrologist, around 20 years ago. He was responsible for mapping the source of all the municipal springs in the State, including Mackay spring. That is a public document that can be found on DEQ's website. He based his study on surface mapping.

We ran a geophysical survey called the GSNAT a month ago, and that survey was designed to look down at depths of about 1500 feet, and it identifies faults and the surface of various ground water zones. He doesn't have the final report back on that from the geophysicists, but we do have initial comments back from them.

The water in the Mackay springs is 20 degrees warmer than the water in the upper aquifer. Hydrologists say when that happens, the water must come from a deep source in order to heat up the temperature that much higher than the surface aquifer. From a hydrologic standpoint we know that at some of the water that originates as snow melt and rain up on top of the White Knobs, must achieve a significant depth for it to be heated 20 degrees higher than the surface water, and secondarily because it

percolates to the surface, it has a significant amount of pressure. It's that pressure that ensures we won't be contaminating the water in the fault.

Councilman Foster asked if the geophysical study that they've done, the preliminary findings are consistent with the hydrologists found 20 years ago?

Mr. McDermott stated that not only are they consistent, but the geophysical study we ran also provides more detail.

Mayor Olsen asked if there were any other questions, there was none.

Mr. McDermott wanted to add that they will share all the data with the city. Our hydrologist pointed out that what we're doing here, with this network of wells, will be advantageous to the City in the future as it relates to the spring, because you'll have the data to understand long term viability of the spring, and be able to understand future fluctuations in the level of the spring in the aquifer.

Mayor Olsen said that it looks like from their drawing, that the reason we have continuous flow of 500 gallons per minute at a cost in temperature, is that that is drawing from a significant source.

Mr. McDermott agreed and stated that its drawing from a space of many miles, with a significant change in topography. It's the change in topography that's the reason the spring exists. We have over 900 plus feet down to a wellhead at an elevation of about 600 feet so there's 2500 to 3000 feet of head, all through limestone, and limestone has a significant natural buffer that give the Mackay spring water a high PH.

Mayor Olsen asked if the barrier was volcanic or granite?

Mr. McDermott replied no, this is all limestone. What we think is probably the contact between the carrack and the limestone is the mechanism that's kept water out of the underground workings up at the mine. The mine hill itself is dry, we've got underground workings that start at 8800 feet up near the pit, and if you go down to the Cossack tunnel, all those workings are connected. There's not a drip of water coming out of that tunnel, so that's pretty clear evidence that the mine hill is dry. It's very likely that the reason for that is there are fracture sets and faults further north of the limestone that act as a conduit.

Mayor Olsen thanked Mr. McDermott for halting production and presenting this information to better understand so when citizens ask what's going on, we can prevent rumors as to what's going on up there. Mayor Olsen also asked if we could have the slides presented in this meeting to hand out to citizen's if they ask.

ADJOURN

Motion to adjourn meeting was made by Councilman Wall, Councilman Blackwell seconded, the motion passed unanimously.

Wayne Olsen, Mayor

Michelle Teninty, City Clerk/Treasurer