



SPECIAL UTILITIES COMMISSION MEETING MINUTES

Wednesday, March 20, 2024 at 5:30 PM

Baxter City Hall, 13190 Memorywood Drive, Baxter, MN

"A Growing Community"

CALL TO ORDER

The special meeting of the Baxter Utilities Commission was called to order at 5:30 p.m. by Chairman Yliniemi.

ROLL CALL

Members Present: Commissioner Jack Christofferson, Council Liaison Mark Cross, and Chairman Rock Yliniemi.

Members Absent: Commissioners Douglas Stenberg and John Brenny.

Staff Present: Mayor Darrel Olson, Council Member Zach Tabbatt, Council Member Jeff Phillips, City Administrator Brad Chapulis, Public Works Director/City Engineer Trevor Walter, Assistant City Engineer Trevor Thompson, Streets & Utilities Supervisor Brian Berent, Lead Water and Sanitary Sewer Worker Scott Shelito, and Administrative Assistant Mary Haugen.

Other Present: SEH Consulting Engineers Principal/Project Manager Scott Hedlund, Principal/Water Market Leader Miles Jensen, Senior Engineer/Water Services Chad Katzenberger, Engineer I/Water Services McKenzie Hunt, Senior Hydrogeologist Melanie Niday and Brainerd Dispatch Representative Renee Richardson.

CONSENT AGENDA

1. Approve the Utilities Commission Minutes from March 7, 2024

MOTION by Commissioner Christofferson, seconded by Council Liaison Cross to approve the Utilities Commission Minutes from March 7, 2024. Motion carried unanimously.

BUSINESS ITEMS

2. Summary of Water System: SEH proposed discussion at the 5:30 PM, Wednesday, March 20, 2024 Special Utilities Commission Meeting

Principal/Water Market Leader Miles Jensen introduced himself and the project team to the commission. Mr. Jensen gave an overview of the following items:

- Water Treatment Plant History
- Water Supply
 - Pumping and level data
 - Well rehabilitation
 - Wellhead Investigation
- Water System Studies
 - Past Water Treatment Plant Studies
- Water Distribution
- Future Needs

Mr. Jensen stated that through all the studies increasing the filter run times was the objective in all the studies. He inquired what the increase in run time since the plant's rehabilitation. Lead Water and Sanitary Sewer Worker Scott Shelito stated the plant has achieved 10 more hours of run time which is now 32 hours between backwashes when running two wells and 18 hours when running on three (3) wells. Mr. Shelito noted that last summer 2.4 million gallons (MGD) was the average; however, water use did peak at 3.2 MGD.

Senior Hydrogeologist Melanie Niday reviewed the existing conditions of the wells which range from 121 – 136 feet deep, that draw water from the Quaternary Water Table aquifer. Currently, the wells are experiencing a draw-down of up to 45-feet which can cause excess air to get pulled into the aquifer subsequently causing build up around the screen. Pumping the wells so low stresses both the aquifer and wells.

Council Liaison Cross inquired about the water table. Ms. Niday stated the Quaternary Water Table consists of metamorphic type rock which can release significant quantities of water when pumped and managed properly.

Ms. Niday explained that to prepare for future well fields, previous reports will need to be updated/verified along with reviewing the ability to connect to the existing infrastructure.

The discussion then turned to water distribution. Senior Engineer/Water Services Chad Katzenberger explained that modeling is a valuable tool for system planning and operational performance analysis.

Mr. Katzenberger stated that water use projections have been completed by three (3) different firms in the past. Two (2) projected higher use than has been realized to date, while the other study predicted lower than actual use. Public Works Director/City Engineer Walter inquired what can you offer that has not been done before. Mr. Katzenberger stated this model would have projections updated based on the most current water service area boundary and growth projections, coupled with historical use, which might not have been available with past studies.

The discussion transitioned into the construction of the four (4) wells. It was recommended during the construction of the treatment plant that two (2) additional wells would be needed somewhere between 12 – 20 years. Ms. Niday stated this is a multi-faceted problem that needs to be addressed since all four (4) wells are currently pumping continuously. Factors also include drought conditions and the rehabilitation from 2021 is concerning and part of the bigger picture.

Mayor Olson inquired if the wells are part of the same aquifer and rehabilitation is done again what are the guarantees. Mr. Jensen stated there is no guarantee; however, successful rehabilitations are dependent on the cause(s) of poor well performance and the degree to which the problem has progressed. A portion of the loss in well performance over time can often be attributed to the slow migration of fine particles from the aquifer toward the borehole and into the well screen. In some cases, the screen itself can become clogged due to over pumping of the well beyond the design capacity. Additionally, as air is likely entering the aquifer due to the large draw down identified in the wells, this is creating additional build up on the fine particles surrounding the screen limiting the amount of water entering the well as observed in the draw downs.

The chemical used in the well rehabilitation project helps to break up the build-up on the small particles surrounding the screen and on the screen. The tough thing in a rehabilitation is you never know the complete extent of the build up outside the well. Mr. Cross inquired if the screen could be replaced during the process. Ms. Niday stated the rehabilitation will clean the screen and the screen

is not likely the problem. Assistant City Engineer Thompson asked if the televising of the well will show if the rehabilitation is effective on the screen and Ms. Niday said you will be able to verify the inside of the well screen with the televising but not the outside. Mr. Jensen stated each well rehabilitation will get you more capacity than before the rehabilitation. Mr. Jensen stated that you can see on the graph from the rehabilitation in 2021 where the well capacity rebounded; however, it did not last long likely due to the stress from the high-water demand.

Mr. Cross inquired on the cost of a new well versus rehabilitation. Ms. Niday stated that rehabilitation is approximately \$30,000.00 (2024 cost) whereas a new well is approximately \$250,000.00.

Streets & Utilities Supervisor Brian Berent noted that the first occurrence of running all four (4) wells simultaneously started in June 2023. The peak demands are 6:00 am - 8:00 am and 10:00 pm - 12:00 pm. Mr. Berent stated that proposed developments in 2024 could significantly impact the system.

Mr. Shelito stated the four (4) wells ran from June 1st through the end of September and three (3) wells ran until November 1st. Three (3) wells have been operating continuously since 2017 during summer water demands. Mr. Walter added that the wells were meant to be alternated between 1 & 3 of and 2 & 4 but running (3) wells none of the wells do not have a chance to rest.

Mr. Shelito stated in June 2023 the water towers were at 41.5-feet (average 36 – 40 ft) by the end of June the water level in the towers was continuously 32-feet and losing ground. It was noted that every evening the tower lost ground due to irrigation systems running at night. Low tower alarms did alert when the tower levels reached 30-feet. Mr. Berent stated this is when the City made the decision to run on all four (4) wells at one time.

Council Member Tabbatt inquired if the limitation of irrigation systems helped. Mr. Walter stated it helped by allowing the city to operate on the three (3) wells with assistance from Brainerd Public Utilities connection at the Chlorination and Metering Station (interconnect building). Mr. Berent said it is a tough thing to monitor in Baxter because so many irrigation systems are running off private wells; however, it did seem to help.

3. Approve the Thein Well Company quote in the amount of \$120,000 for the 2024 Well Rehabilitation Project.

Water Services Engineer McKenzie Hunt explained that Thein Well provided an inspection report of the City's wells. The outcome of that inspection has indicated that the current pumping rates of the wells have dropped anywhere from 10% to 23% from last year's testing. The decline in pumping rates is likely due to a decline in the pumping water levels that can come from clogging of the well screens that can come from overuse of the wells. This project is intended to clean the wells so that higher pumping rates can be achieved.

Well rehabilitation is thoroughly cleaning the well screen, gravel pack, and natural formation to raise the Specific Capacity to as high a value as possible and is an eleven-day process per well. All four wells will need to be rehabilitated; however, Well No. 2R and Well No. 3R need the most urgent repair. Wells 2R and 3R will need to be rehabilitated immediately this spring so the wells are back on-line before May. Wells 1R and 4R can be completed around October once the high usage months are concluded.

Ms. Hunt reviewed the solicited quotes on behalf of Baxter for the 2024 Well Rehabilitation Project from three (3) well contractors including Thein Well Company, Traut Companies, and Bergerson-Caswell.

Base Quote:

Thein Well Company	\$120,000.00
Traut Companies	Did Not Quote
Bergerson-Caswell	\$530,200.00

Alternate 1 – Includes a revised final completion date:

Thein Well Company	\$120,000.00
Traut Companies	\$231,800.00
Bergerson-Caswell	\$403,200.00

Public Works Director/City Engineer Walter stated that televising will allow for staff to view the rehabilitation.

Ms. Hunt stated that the chemicals being used will need a two (2) week lead time. Mr. Walter stated that Thein Wells would like to start the process during the first weeks of April and questioned if the chemical order could be placed since it will be before the City Council for approval on April 2, 2024. This would keep the project on schedule. No concerns were expressed with ordering by either Commission or City Council present.

Chair Yliniemi inquired on the chemicals used to clean the well. Mr. Walter stated that Thein Wells had changed the chemical they used to clean the well in 2011. Ms. Hunt stated a water sample has been sent to a lab to review what chemical will likely produce the best results. The chemical that was quoted should cost should be similar to a different chemical that may be recommended with the water testing.

Council Liaison Cross stated he assumed that staff would be filling the water towers before rehabilitation starts. Mr. Walter stated that all three (3) water towers would be filled along with the 400,000-gallon clear well.

MOTION by Commissioner Christofferson, seconded by Council Liaison Cross to approve the Thein Well Company Quote with Alternate 1 in the amount of \$120,000 for the 2024 Well Rehabilitation Project. Motion carried unanimously.

4. Approve the SEH Professional Services Contract in the Not to Exceed Amount of \$7,500.00 for the Water Capital Asset Management Plan (CAMP) 2024 Update

Mr. Jensen explained that ongoing maintenance and updating of the Water System CAMP is expected to be an annual occurrence to help the City stay on top of its water asset management.

MOTION by Commissioner Christofferson, seconded by Council Liaison Cross approve the SEH Professional Services Contract in the Not To Exceed Amount of \$7,500.00 for the Water Capital Asset Management Plan (CAMP) 2024 Update. Motion carried unanimously.

5. Approve the SEH Professional Services Contract in the Not to Exceed Amount of \$64,800.00 for the 2024 Water System Hydraulic Model Update and Water System 20-Year Use Projections

Senior Engineer/Water Services Chad Katzenberger explained the City's water model was last updated and utilized in 2009-2010 by AE2S Engineering. As the City has grown, and the water system has expanded since then, the model would benefit from an update to better reflect current water system conditions and more closely match observed system performance.

Water use projections have been completed by three (3) different engineering firms in the past. Two (2) projected higher use than has been realized to date, while the other study predicted lower than actual use. It is recommended that the projections be updated based on the most current water service area boundary and growth projections, coupled with historical use. This task is foundational to the water system needs planning effort since the type and location of the anticipated growth will influence overall water needs and the facilities required to support those needs.

The workplan is laid out in four phases:

- The first phase will establish an updated and calibrated water model.
- The second phase will update the City's water use projections over a 20-year planning period.
- The third phase will utilize the model to analyze specific water system planning and operational questions. The first water system planning question identified for analysis will be potential relocation or abandonment of trunk water main near the intersection of TH 371 and TH 210. As planning moves forward for a grade separation interchange project, removal, and relocation of water main in anticipation of this work is imminent.
- The fourth phase will prepare an updated ultimate water system planning map reflecting recommended pipe size updates and other pending water system improvements including potential for a new well field.

MOTION by Commissioner Christofferson, seconded by Council Liaison Cross to approve the SEH Professional Services Contract in the Not to Exceed Amount of \$64,800.00 for the 2024 Water System Hydraulic Model Update and Water System 20-Year Use Projections. Motion carried unanimously.

6. Approve the SEH Professional Services Contract in the Not to Exceed Amount of \$24,900.00 for the 2024 Preliminary Aquifer Evaluation

Hydrogeologist Niday explained the City of Baxter is experiencing a significant decrease in available aquifer capacity in water supply wells within the existing well field. Recent rehabilitation projects have not been effective at providing a long-term solution to the capacity issue, likely due to multiple factors.

Ms. Niday explained that rehabilitation may not allow chemicals to sufficiently penetrate the aquifer to remove mineral or bacterial buildup and reduced capacity is likely to reoccur within a relatively short period of time. In addition, a lowering of the head levels in the aquifer also has resulted in lower capacity that must be addressed for long-term water supply needs since the properties of an existing aquifer cannot be changed.

Ms. Niday presented the following two options:

1. Short Term - Existing Aquifer Options: In conjunction with the planned well rehabilitation for 2024 in a separate agreement, short term well field options will be evaluated in the first task to potentially replace existing well(s) or expand the existing well field to ensure sufficient water capacity is available using the existing aquifer and infrastructure; new well(s) located away from the existing wells, but in the same aquifer, will not be influenced by current aquifer buildup near the existing wells.
2. Long Term – New Well Field Options: However, because replacement well(s) or existing well field expansion does not address the decreased head levels in the current aquifer, the second task will address long-term well field options to identify a potential second well field under different aquifer conditions that can supplement the existing well field for years in the future.

Council Liaison Cross inquired if the long-term plan is included in this contract. Ms. Niday stated it is included in the contract to provide assistance with future planning.

MOTION by Commissioner Christofferson, seconded by Council Liaison Cross to approve the SEH Professional Services Contract in the Not to Exceed Amount of \$24,900.00 for the 2024 Preliminary Aquifer Evaluation. Motion carried unanimously.

Chair Yliniemi inquired if Mr. Walter had any concerns with any of the agenda items. Mr. Walter stated several of these items were not included in the 2024 Water Expenditure Budget. City Administrator Chapulis stated a discussion with the Finance Director will be held before the April 2, 2024 city council meeting.

ADJOURN

MOTION by Council Liaison Cross, seconded by Commissioner Christofferson seconded by to adjourn at 7:30 p.m. Motion carried unanimously.

Approved by:

Respectfully Submitted,

Rock Yliniemi
Chairman

Mary Haugen
Administrative Assistant