

**NOTICE OF INTENT TO MODIFY A PERMIT TO ADD WELLS
FOR MUNICIPAL PURPOSES
IN JASPER COUNTY, IOWA**

Notice is hereby given that pursuant to Iowa Code Chapter 455B, there is now on file with the Iowa Department of Natural Resources, Water Supply Engineering Section, 6200 Park Avenue, Suite '200' Des Moines, Iowa 50321 the application as described below.

The City of Newton, Iowa DNR Log Number 34,522, requests a permit modification to withdraw water from one proposed Jordan aquifer well, approximately 2,200 feet deep, located on land generally described as the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 18, T79N, R19W, and one existing Jordan aquifer well, approximately 2,200 feet deep, located on land generally described as the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ Section 13, T79N, R20W, and from nineteen existing and four proposed Skunk River alluvial aquifer wells, each approximately 44 to 66 feet deep, located on land generally described as the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 13, T79N, R20W, and the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 18, and the W $\frac{1}{2}$ of the SW $\frac{1}{4}$ of T79N, R19W, all in Jasper County, Iowa, in the maximum total combined quantity of 2.1 billion gallons per year at a maximum total rate of 8,150 gallons per minute throughout each year, and a maximum total of 750 million gallons per year at a maximum rate of 2,500 gallons per minute from the Jordan aquifer, for municipal purposes within and without the permittee's corporate limits consistent with its municipal distribution system and other provisions of law.

The Department has determined that this use of water conforms to the relevant criteria (Iowa Code Chapter 455B and Iowa Administrative Code Chapter 567) and recommends the permit be granted. A copy of the summary report for the application is available upon a request to the department at the address listed above. Comments on the report and on this use of water must be received by May 28, 2026, and should be addressed "ATTN: Michael Anderson" and should specify the applicant's log number (34,522).

**IOWA DEPARTMENT OF NATURAL RESOURCES
WATER USE PERMIT SUMMARY REPORT**

Applicant: City of Newton
PO Box 399
Newton, IA 50208

Iowa DNR Application Log #: 34,522

The City of Newton, Iowa DNR Log Number 34,522, requests a permit modification to withdraw water from one proposed Jordan aquifer well, approximately 2,200 feet deep, located on land generally described as the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 18, T79N, R19W, and one existing Jordan aquifer well, approximately 2,200 feet deep, located on land generally described as the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ Section 13, T79N, R20W, and from nineteen existing and four proposed Skunk River alluvial aquifer wells, each approximately 44 to 66 feet deep, located on land generally described as the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 13, T79N, R20W, and the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 18, and the W $\frac{1}{2}$ of the SW $\frac{1}{4}$ of T79N, R19W, all in Jasper County, Iowa, in the maximum total combined quantity of 2.1 billion gallons per year at a maximum total rate of 8,150 gallons per minute throughout each year, and a maximum total of 750 million gallons per year at a maximum rate of 2,500 gallons per minute from the Jordan aquifer, for municipal purposes within and without the permittee's corporate limits consistent with its municipal distribution system and other provisions of law.

1. The beneficial use of the City of Newton's water use permit is for "municipal purposes". That includes public drinking water consumption and ancillary uses like cleaning and washing and disposal of sewage wastes. Municipal water is a priority allocation beneficial use as determined by Iowa Code 455B.266.
2. The proposed Jordan aquifer well is located in the same wellfield area as Newton's nineteen (19) Skunk River alluvial wells and Newton's existing Jordan aquifer well (Well #24). The proposed Jordan aquifer well is located approximately 2,900 feet to the southeast of the existing Jordan well (see Figure 1). Pumping from the proposed well is 2,500 gallons per minute. Pumping capacity from the existing Jordan aquifer well is 2,200 gallons per minute.
3. The four new alluvial wells are also in the same wellfield as referenced in point #2.
4. Historically, the City of Newton obtained approximately 20-30% of its source water from the Jordan aquifer, around 300-500 million gallons per year. The allocation request of 750 million gallons per year increases the allocation percentage to approximately 40% of the total annual supply. The use from the Jordan aquifer had varied greatly, with a high of 545 million gallons in 2012 and a low of 2 million gallons in 2009. The last two years (2021-2022) have had the most use recorded since the well was first put in production in the year 2000 (Figure 2).
5. With a lateral distance of only 2,900-feet, there is estimated to be significant interference between the two Jordan aquifer wells. Given the existing pumping rates (>2,000 gallons per minute), radial distance (2,900 feet), and aquifer parameters (aquifer thickness of 500 feet, aquifer transmissivity of 3,150 square feet per day). These calculations estimate water levels in the Jordan wells to drawdown an additional 60 feet due to interference. If both wells are pumped at the same time, this level of drawdown could have significant impact on Newton's Jordan aquifer Tier 2 criteria, as well as negatively impacting the other Jordan well.

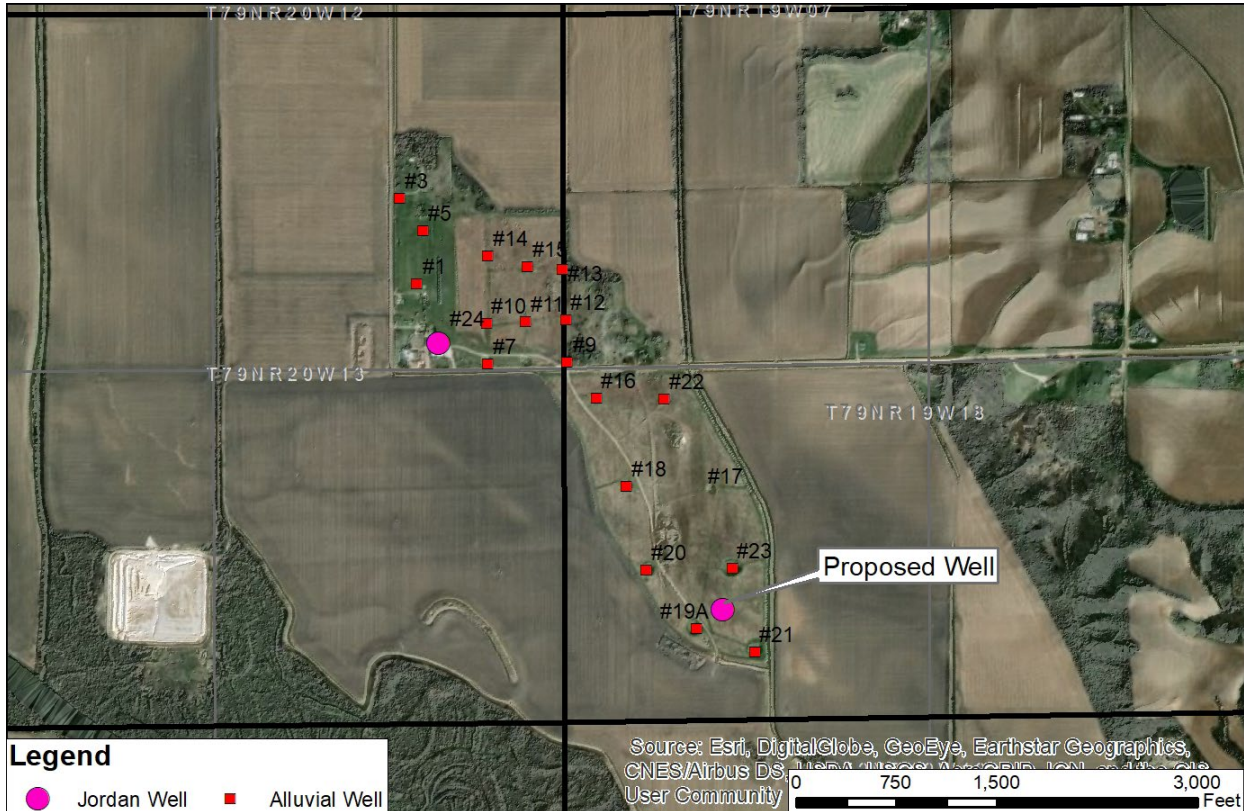


Figure 1: Map of the City of Newton’s existing wellfield, with the proposed Jordan aquifer well.

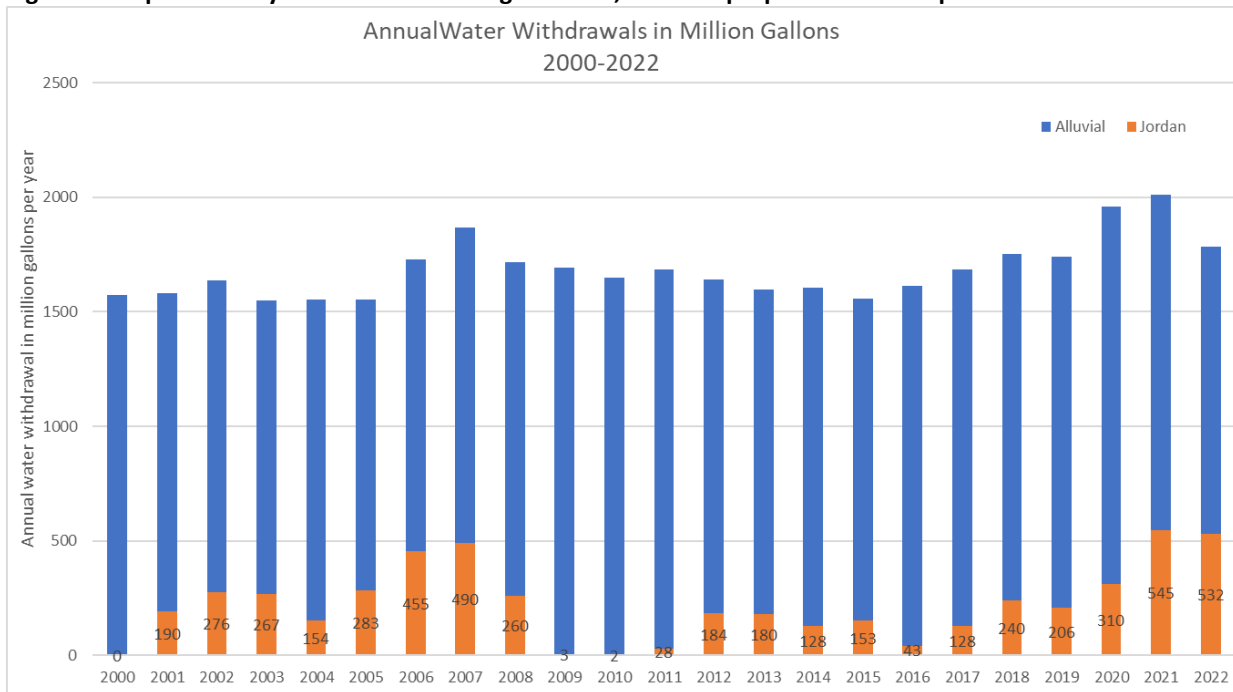


Figure 2: Annual withdrawals of water from the alluvial and Jordan aquifers from the City of Newton, Iowa.

- Due to noted declines in water levels of the Jordan aquifer in areas of Iowa, statewide water-level regulated Tier criteria have been established to set maximum water level declines and minimize downward trends in the Jordan aquifer’s potentiometric surface (IAC 567 Ch. 52.4(3)).

7. Static and pumping water levels from Newton’s Jordan well #24 were provided by the Newton water department between the years of 2000-2022. Measurements are shown in feet below ground surface (bgs) in Figure 3. Water levels tend to correlate with withdrawals, years with higher withdrawal such as 2007 and 2022 generally have lower static levels, years with lower water withdrawals, such as 2009 and 2010, have water level recovering somewhat, though not back to the original static water level of 172 feet bgs, measured in September of 2000. Recent increases in water withdrawals from the Jordan aquifer have declined water levels in the aquifer by approximately 100 feet since 2016.
8. Since 2016, the City of Newton has submitted pumping water levels in Well #24 for Jordan aquifer rule Tier criteria. The Jordan Tier 2 rule pumping level criteria of 414 feet bgs for Well #24 (and the proposed well) is also shown on Figure 3. Since 2020, pumping water levels have declined at a far more significant rate than static water levels. This is especially true during the past two years, with pumping water levels declining extensively in 2021 and 2022. In 2022, Well #24 pumping water level was recorded to be 110 feet below the static level, or 395 feet bgs, only 19 feet above the Jordan Tier 2 level of 414 feet bgs. The extreme decline in the pumping water level might be the result of higher pumping, or the well becoming less productive due to loss connection with the aquifer due to overpumping. Routine well maintenance is encouraged for the city.

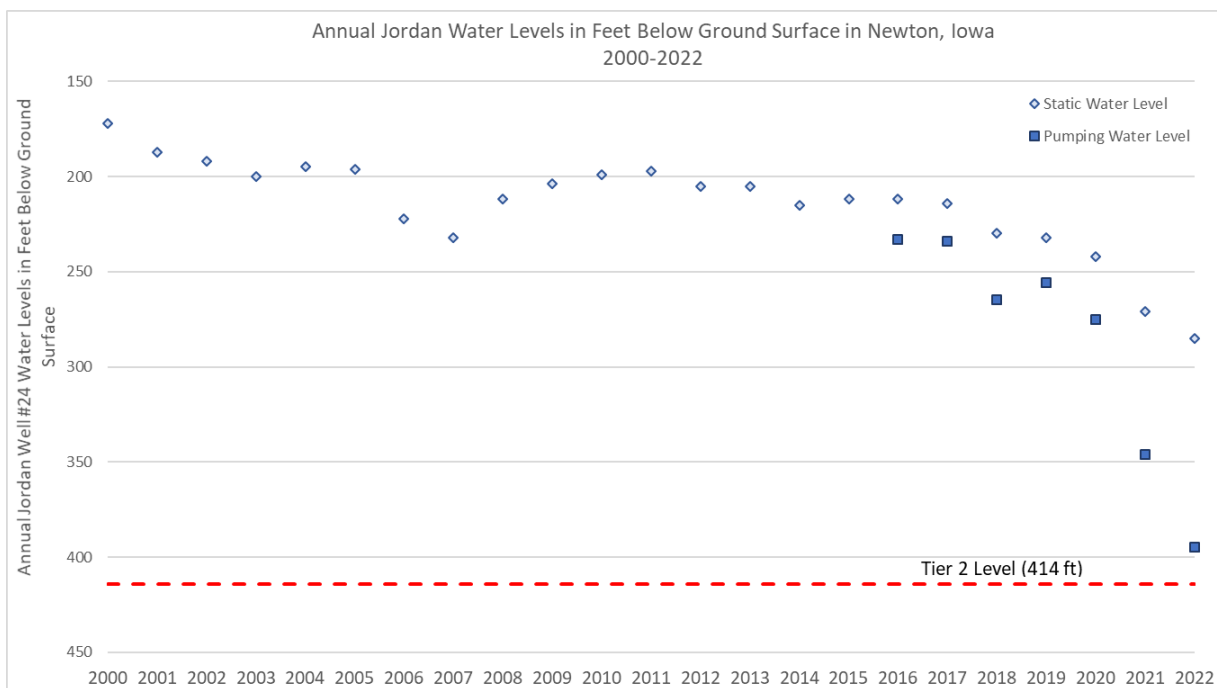


Figure 3: Static and pumping water level measurements submitted to the Water Use Program. The Jordan Tier level at the well’s location is 414 feet below ground surface.

9. There are no other high capacity Jordan wells within ten miles of Newton’s Jordan well #24. The nearest known Jordan well in the area are the City of Altoona’s wells, located 17 miles to the west of Newton’s wellfield. Despite the extreme distance, water levels in Newton’s Jordan well is influence by the City of Altoona’s pumping from the Jordan aquifer, as well as pumping from other Des Moines metro area Jordan wells.
10. Water use reduction plans and enforcement in the Jordan aquifer begin when pumping levels reach 300 feet below the 1978 published potentiometric surface on any permitted Jordan water use well.

Summary Report

City of Newton

Log 34,522

- 11. This summary report analyzes historic water use and water levels and utilizes a MODFLOW Flex 6.1 computer model to project water level declines and trends at different rates for the duration of the 10-year permit period to determine if this rule criteria is encountered.
- 12. The groundwater model is a Central Iowa Jordan aquifer model calibrated with results from 2000 to 2022. For the groundwater model, in the area of Newton’s Jordan well, specific storage (Ss), effective porosity, total porosity, and specific yield (Sy) estimates for the Jordan aquifer the Newton area set at published values from previous models and program numbers. These value are: Specific Storage = 1.e-6; Specific Yield = 0.1; Effective Porosity = 0.05; and Total Porosity = 0.2. In the area of the existing and proposed Jordan aquifer wells, the aquifer’s horizontal conductivity is estimated to be 1.2e-5 meters per second.
- 13. Figure 4 shows calculated vs. observed head. The correlation coefficient of the model is 0.96 and normalized root mean square error is 4.98%.

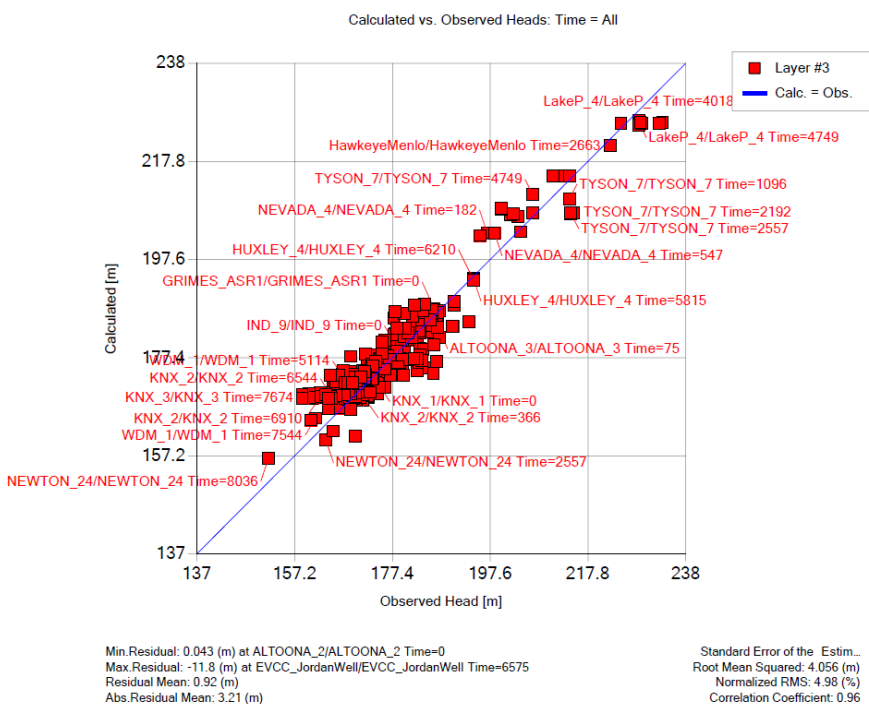


Figure 4: Calculated vs. observed heads from the Jordan aquifer in pumping wells from central Iowa, 2000-2022.

- 14. Figure 5 shows modeled and measured water levels for Newton’s Jordan aquifer wells. The model and measured water levels align with each other from 2000 until the last measured values in 2022. Water use withdrawal projections were completed using the estimated pumping scenario in the calibrated MODFLOW model.
- 15. This model projection uses the increase in water allocation and additional well requested by the permittee of 750 mgy or 1.0 million gallons per day per well for two active wells. Other wells in the Jordan aquifer pump as projected from current permitted limits.
- 16. Figure 5 shows measured, modeled, and forecasted static water levels in the City of Newton’s Jordan wells. The forecasted water levels appear to maintain themselves throughout the time period modeled, declining 12 feet, from 263 feet bgs in 2023 to 275 feet bgs in 2034. Those water levels are over 100 feet above the Jordan Tier 2 criteria.

17. At 285 feet bgs, the 2022 water levels provided by the City of Newton have were 22 feet lower than the modeled value of 263 feet bgs. Water levels forecasted in the model decline to 275 feet bgs in 2034. The measured value in 2022 of 285 bgs is 10 feet below the lowest forecasted levels in 2034. The discrepancy in measured and modeled values could be due to: 1) the Jordan well needing maintenance (the well losing a direct connection with the aquifer), 2) other users in the area withdrawing water not included in the model, or 3) other boundary conditions or aquifer properties not adequately addressed in the groundwater model.

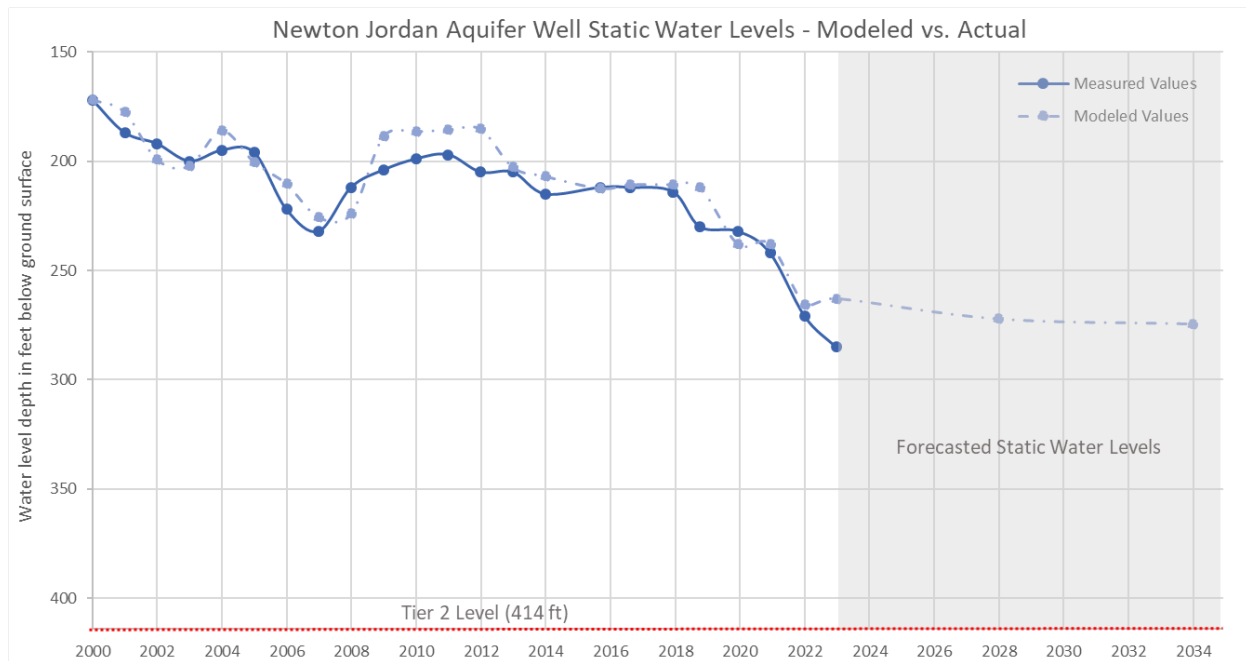


Figure 5: Measured, modeled, and forecasted water levels for the City of Newton’s Jordan aquifer wellfield.

18. Conclusions

- The 2022 water level measurements provided by the city indicate a substantial, anomalous drop in pumping water and static water levels in the Jordan aquifer. It is assumed this drop in water levels is due to Well #24 requiring maintenance, not the aquifer itself.
- There is likely an adequate groundwater supply in the local Jordan aquifer for the requested maximum rate of 750 million gallons per year utilizing Newton’s current and proposed Jordan aquifer well.
- The model indicates Jordan “Tier 2” regulatory levels will likely not be encountered for over 10 years at the requested maximum rate. The static levels are anticipated to be 275 feet bgs, 139 feet above the Tier 2 level.
- To better characterize the aquifer and potential well interference, a 72-hour continuous rate pump and recovery test of the proposed Jordan well, using the current Jordan well as an observation well is required to provide well interference and recovery estimates, as well as aquifer characteristics in the area.

Newton had planned to construct a new Jordan well, but due to some changing conditions related to their projected demands, they are changing course. Instead, the plan is to construct 4 new shallow alluvial wells. The new wells will be located in the same area and type of construction as the existing wells near the plant.

Summary Report

City of Newton

Log 34,522

19. The applicant is devoting a reasonable amount of water to a beneficial use (municipal usage). There is no evidence that the use of water pursuant to a permit granted in accordance with the conclusions contained herein will constitute a waste of the water resources of the State, will be incompatible with the state comprehensive plan for water resources, will impair the effect of pollution control laws of this State or the navigability of and navigable watercourse, or will be detrimental to the public interest or to the interests of property owners with prior or superior rights who might be affected. The requested amount of water use is also justified by law, barring compelling circumstances that mitigate to the contrary.

THEREFORE:

The requested use of water conforms to the relevant criteria in Division III, Part 4, Chapter 455B, Code of Iowa and Chapter 50 of Part 567, Iowa Administrative Code. No substantial adverse effect upon other water users is foreseen at this time. Following publication of notice and subject to revisions in response to comments that may be submitted, the attached draft permit should be issued for a period of ten years.

Water Supply Engineering Section

Date:

**IOWA DEPARTMENT OF NATURAL RESOURCES
WATER USE PERMIT**

Permit issued to:

NEWTON WATER WORKS
PO BOX 399
NEWTON IA 50208-0399

Permit Number: 5504-M7

Effective: mm/dd/yyyy

Expires: mm/dd/yyyy

The Permittee is authorized to:

withdraw water from one proposed Jordan aquifer well, approximately 2,200 feet deep, located on land generally described as the SW ¼ of the SW ¼ of Section 18, T79N, R19W, and one existing Jordan aquifer well, approximately 2,200 feet deep, located on land generally described as the SE ¼ of the NE ¼ Section 13, T79N, R20W, and from nineteen existing and four proposed Skunk River alluvial aquifer wells, each approximately 44 to 66 feet deep, located on land generally described as the SE ¼ of the NE ¼ of Section 13, T79N, R20W, and the SW ¼ of the NW ¼ of Section 18, and the W ½ of the SW ¼ of T79N, R19W, all in Jasper County, Iowa, in the maximum total combined quantity of 2.1 billion gallons per year at a maximum total rate of 8,150 gallons per minute throughout each year, and a maximum total of 750 million gallons per year at a maximum rate of 2,500 gallons per minute from the Jordan aquifer, for municipal purposes within and without the permittee's corporate limits consistent with its municipal distribution system and other provisions of law.

This authorization to withdraw water has been granted pursuant to the provisions of Part 4 of Division III of Chapter 455B, Code of Iowa, and Chapter 50 of Part 567, Iowa Administrative Code, and is further subject to the general permit conditions within this permit.

Conditions of this permit may be appealed as provided in rule 567--50.9, Iowa Administrative Code. Appeal must be in writing and must be received at the Iowa Department of Natural Resources, Water Supply Engineering Section, 6200 park Avenue, Suite '200' Des Moines, Iowa 50321 within thirty days of the date of the certification of the mailing of the permit.

FOR THE DIRECTOR:

By: _____ Date Executed: mm/dd/yyyy _____
cc: Permit File

CERTIFICATE OF MAILING

On the date shown below, a copy of the foregoing permit was mailed to the Permittee and to each person entitled to receive a copy as provided by rule 567--50.8(2), Iowa Administrative Code.

Certified by (initials): _____ Date: _____

GENERAL PERMIT CONDITIONS

1. Permittee shall maintain accurate and up-to-date records of monthly water use from each authorized source and submit them annually to the Department.
2. Permittee may be required to submit other information related to the regulation of this use of water as directed by the Department.
3. Permittee shall be responsible for securing and complying with all applicable provisions of state law, the rules and regulations of this Department, and of all federal and local health and water pollution control agencies in the operation of this facility.
4. Permittee shall be responsible for notifying the Department when there are changes to any conditions and authorizations given in this permit, including additional water source(s), well(s), intake(s), an expansion of the facility, or any other listed condition.
5. Permittee shall construct, maintain, and monitor observation wells as directed by the Department to define the effects of Permittee's water withdrawals on groundwater resources or on other water users who might be affected by the withdrawals authorized herein.
6. Each well authorized as a source of water in this permit must be constructed to allow for accurate measurement of water levels.
7. Withdrawals from permitted wells may be made only after the Permittee has made the following information available to the Department: well location(s), well log(s), and results of yield tests. Required chip samples shall be submitted to the Iowa Geological Survey.
8. Permittee shall be responsible for accurately measuring depth to water under non-pumping (static) conditions, depth to water under pumping conditions, and pumping rate(s) for all active wells listed in this permit, at a minimum of one measurement per year. These records shall be submitted annually to the Department.
9. As outlined in rule 567 502.4(3), the Permittee may withdraw from the Jordan aquifer only when well pumping levels are above three hundred (300) feet from the baseline, or 50% of the 1978 water level, as determined from available Department records. The following table expresses specific conditions for Jordan aquifer wells listed in this permit.

Table 1: Newton [5504] Jordan Well Water Levels

Local Name	Well #24	Proposed Well
Drill Date	9/1/2000	mm/dd/yyyy
Well Elevation (ft)	769	769
1978 Jordan Water Level Elevation (ft)	655	655
Total Well Depth (ft)	2,256	2,256
Total Casing Depth (ft)	1,720	1,720
2022 Static Water Level Depth (ft)*	285	285**
2022 Pumping Water Level Depth (ft)*	395	395**
1978 Jordan Baseline Level Depth (ft)	114	114
Jordan Tier 2 Depth (1978 level -300 ft.)	414	414
Jordan Tier 3 Depth (1978 level -400 ft.)	514	514
Estimated Feet Above Tier 2 (Tier 2 – pumping)	19	19
Estimated Feet Above Tier 3 (Tier 3 – pumping)	119	119

*Water levels from 2022 annual report form.

**Proposed Well’s values are all estimated from Well #24

10. Permittee shall submit to the Department within 90 days of being notified by the Department or no later than the expiration date of this permit, whichever first occurs, a plan for implementing routine day-to-day water conservation measures and for implementing emergency water conservation measures during periods of water shortage. Until such a plan has been submitted to and approved by the Department, Permittee shall implement those emergency water conservation measures determined to be necessary by the Department pursuant to Iowa Code Sections 455B.265 and 455B.266.

11. This permit supersedes Water Use Permit No. 5504-M6.

CAVEAT

Permittee is advised that pursuant to Section 455B.271, Code of Iowa, the authority to withdraw water provided by this permit may be modified, canceled or suspended in case of any breach of the terms or conditions herein, in case of any violation of state law pertaining to the permit, or if found necessary to prevent substantial injury to private or public interests.