NOTICE OF INTENT TO MODIFY A PERMIT
AUTHORIZING THE USE OF WATER
FOR MUNICIPAL PURPOSES
IN CHEROKEE 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, 6200 Park Avenue, Suite "200"; Des Moines, Iowa 50321, an application as described below.

The City of Aurelia, Iowa DNR Log Number 34,835, requests a newly-modified water use permit authorizing withdrawals of withdraw water from two existing and one proposed Cretaceous Dakota Sandstone wells, about 305 feet to 400 feet deep, Well # 1, located in the SW ¼ of the SW ¼ of the NE ¼ of Section 10, Well No. 4, located in the S ½ of the SE ¼ of the NW ¼ of Section 10, and new well #5, located in the SE ¼ of Section 10, all in T91N, R39W, Cherokee County, Iowa, in the maximum quantity of 45 million gallons per year at a maximum rate of 470 gallons per minute throughout each year for municipal purposes within and without the permittee's corporate limits consistent with its municipal distribution system and other provisions of law.

The proposed permit modification represents the addition of one Cretaceous Dakota Sandstone well as described above. It also represents no change in yearly allocation from 45 million gallons per year, and the increase in instantaneous pumping capacity from 450 gallons per minute to 470 gallons per minute.

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 request to the Department at the address listed above. Comments on the report and this use of water must be received by November 05, 2026, and should specify the applicant's log number.

(By Michael K. Anderson, P.E.)

IOWA DEPARTMENT OF NATURAL RESOURCES
WATER USE PERMIT SUMMARY REPORT

Applicant: Aurelia Municipal Utilities

Application Log No.: 34,835

The City of Aurelia, Iowa DNR Log Number 34,835, requests a newly-modified water use permit authorizing withdrawals of withdraw water from two existing and one proposed Cretaceous Dakota Sandstone wells, about 305 feet to 400 feet deep, Well # 1, located in the SW ¼ of the SW ¼ of the NE ¼ of Section 10, Well No. 4, located in the S ½ of the SE ¼ of the NW ¼ of Section 10, and new well #5, located in the SE ¼ of Section 10, all in T91N, R39W, Cherokee County, Iowa, in the maximum quantity of 45 million gallons per year at a maximum rate of 470 gallons per minute throughout each year for municipal purposes within and without the permittee's corporate limits consistent with its municipal distribution system and other provisions of law.

The proposed permit modification represents the addition of one Cretaceous Dakota Sandstone well as described above. It also represents no change in yearly allocation from 45 million gallons per year, and the increase in instantaneous pumping capacity from 450 gallons per minute to 470 gallons per minute.

1. All other aspects of this permit, dating back to the original permit dated in September 1972, have remained the same and can be found in the permit file at the Department's office. They are not repeated herein for reasons of brevity. No problems have ever been noted with this permit.

2. The overall water source consists of the Dakota aquifer that is associated with the Little Sioux River drainage basin system that has extensive areal coverage and is associated with plentiful supplies of water. Under normal conditions, the aquifer in question will not subject to significant depletion or experience cones of depression as a result of water withdrawals made at these magnitudes and rates.

    a. The (new) water source consists of Cretaceous Dakota Sandstone as described above. The aquifer is loosely associated in this area with the Little Sioux River drainage basin system. The geology of the northwest Iowa study area is characterized by a sequence of unconsolidated upper Cenozoic (less than about 5 million years) deposits, overlying Mesozoic Cretaceous (about 100 million years) sandstones, shales, and limestones, Paleozoic (520 million to 280 million years) sandstones, shales, and limestones, and Precambrian (2.8 billion to 1.1 billion years) quartzites, granites, and related rocks. The major sources of groundwater in this area are the sandstones in the Cretaceous Dakota Formation.

    b. Most of the water-producing sandstones in the Dakota Formation are found in the basal Nishnabotna Member, although scattered sandstones in the overlying Woodbury Member also yield significant amounts of groundwater. IGWS geologists have defined the Lower Dakota aquifer as the water-bearing sandstone and conglomerate units of the Nishnabotna Member and the directly adjacent and hydrologically contiguous sandstone bodies in the overlying Woodbury Member. An intensive one-year study of the geology and hydrogeology of this formation was undertaken to provide a more quantitative assessment of the aquifer, and to construct a groundwater flow model that can be used as a planning tool for future water development/beneficial use.

    c. A numerical groundwater flow model of the Lower Dakota aquifer was developed using four hydrogeologic layers. The model was created using Visual MODFLOW version 4.2. Hydrologic processes include net recharge, hydraulic conductivity, specific storage, flow through boundaries, no flow boundaries, well discharge, river boundary, and groundwater upwelling. Insertion of this water usage into the numerical model indicates that the aquifer can support this usage.

3. According to information available to the Department, the applicant's water usage is consistent with the amount of water normally authorized for per capita use for a typical community water supply of this size. (968 population is the year-2020 U.S. Census, which gives a per capita use of 127.4 gpcd for this allocation).

4. The nearest neighboring water user drawing water from the aquifer is located approximately 4 miles from the Applicant's well field. There should be no substantial interference effects.

5. In any event, the interests of individuals using water for domestic purposes, as well as those persons benefiting from the permits mentioned above, are amply protected, in the event of substantial injury, pursuant to Section 455B.271, Code of Iowa.

6. The amount and rate requested by the Applicant thus appear to be justified by law, barring compelling circumstances that mitigate to the contrary. The applicant is devoting a reasonable amount of water to a beneficial use (human drinking water consumption and associated sanitation and such types of uses). 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.

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 adverse effect upon other water users is foreseen at this time. (No well interference has been noted.) 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

IOWA DEPARTMENT OF NATURAL RESOURCES
WATER USE PERMIT

Permit issued to:

CITY OF AURELIA
CITY CLERK
236 MAIN ST
AURELIA IA 51005-7728

Permit Number: 3196-M6

Effective: xxxxx

Expires: xxxxx

The Permittee is authorized to:

withdraw water from three existing Cretaceous Dakota Sandstone aquifer wells, about 305 feet to 400 feet deep, Well # 1, located in the SW ¼ of the SW ¼ of the NE ¼ of Section 10, Well No. 4, located in the S ½ of the SE ¼ of the NW ¼ of Section 10, and new well #5, located in the SE ¼ of Section 10, all in T91N, R39W, Cherokee County, Iowa, in the maximum quantity of 45 million gallons per year at a maximum rate of 470 gallons per minute throughout each year 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 Chapters 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: _____

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. If the Department determines that withdrawals from the Dakota Formation of the Cretaceous System within a designated geographical area are causing water level declines which constitute a significant threat to the public interest in the availability of water for sustained beneficial use of the aquifer, renewal of this permit shall be denied, and the permit shall be modified or canceled in accordance with the procedures specified in Iowa Code Section 455B.271, as necessary to protect the aquifer for sustained use.
10. Permittee must apply to renew this water use permit using the appropriate DNR form prior to the expiration date of the current permit version.

11. If water withdrawals or uses authorized under this permit are determined by the Department, based on available monitoring data, field observations, or other credible evidence, to be the cause of adverse effects on surface water streams, springs, or ponds, or the ecosystems attached or adjacent thereto, then the Department shall notify the Permittee in writing and may require the Permittee to reduce withdrawal rates, conduct additional hydrogeologic investigations, or take other corrective measures deemed necessary to protect the ecological integrity of those surface waters. The Permittee shall respond to any such notice within 30 days with a proposed corrective action plan, subject to Department approval. For purposes of this condition, "adverse effects" include but are not limited to reductions in baseflow, degradation of cold-water or other designated uses, or harm to species or their habitat.

12. 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.

13. This permit supersedes Water Use Permit No. 3196-R5.

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.