

**NOTICE OF INTENT TO
GRANT A PERMIT
AUTHORIZING THE USE OF WATER
FOR MUNICIPAL-TYPE PURPOSES
IN LINN 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 AVE., Suite 200, Des Moines, Iowa 50321 an application as described below.

The Cedar Rapids Water Department proposes to withdraw (and inject treated water) water from one newly-drilled, Cambrian_Ordovician (Jordan Sandstone) well, about 1,500 feet deep, located in the “Northwest Treatment Plant Site” next to the UV Building, on land generally described as the NW ¼ of the SW ¼ of Section 15, T83N, R08W, Linn County, Iowa, in the maximum amount of 394.0 million gallons per year at a maximum rate of 2,200 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 purpose of the Aquifer Storage and Recovery (ASR) project is to inject water into the well during times of low water demand and withdraw water primarily in the summer during times of higher water demand. All of the affected land is located on the Applicant’s property. The process will involve injecting up to 3 million gallons of potable chlorinated water (in any one day). The projected volume of recharge (zone of influence creating a displacement zone) will occupy a radius of about 200 feet.

The ASR permit will cover the overall period April 1, 2027 – March 30, 2029. The ultimate purpose of the Aquifer Storage and Recovery (ASR) project is to withdraw water in the summer during times of higher water demand. The well will increase redundancy and help the utility better manage future demand, especially during droughts.

This draft permit is a five-year ‘phased’ permit for this facility. This incremental method of analysis will determine if well maintenance and pumping strategies can have positive impact on the annual water level declines in the region. The permit also contains special conditions related to the Department of Natural Resources’ assessment of the Jordan Sandstone aquifer.

In March, 1998 the Governor signed House File 2292. This Bill requires the Department to initiate a permit program for persons to inject, store, and recover treated water from aquifers for potable use. The above-referenced permit will allow the City of Cedar Rapids to operate the new ASR well.

The Iowa DNR 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 initial limited registration 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 October 21, 2026.

(Michael K. Anderson, P.E.)

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

Applicant: Cedar Rapids Water Dept.

Application Iowa DNR Log No.: 34,642

The Cedar Rapids Water Department proposes to withdraw (and inject treated water) water from one newly-drilled, Cambrian_Ordovician (Jordan Sandstone) well, about 1,500 feet deep, located in the "Northwest Treatment Plant Site" next to the UV Building, on land generally described as the NW ¼ of the SW ¼ of Section 15, T83N, R08W, Linn County, Iowa, in the maximum amount of 394.0 million gallons per year at a maximum rate of 2,200 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 purpose of the Aquifer Storage and Recovery (ASR) project is to inject water into the well during times of low water demand and withdraw water primarily in the summer during times of higher water demand. All of the affected land is located on the Applicant's property. The process will involve injecting up to 3 million gallons of potable chlorinated water (in any one day). The projected volume of recharge (zone of influence creating a displacement zone) will occupy a radius of about 200 feet.

The ASR permit will cover the overall period April 1, 2027 – March 30, 2029. The ultimate purpose of the Aquifer Storage and Recovery (ASR) project is to withdraw water in the summer during times of higher water demand. The well will increase redundancy and help the utility better manage future demand, especially during droughts.

This draft permit is a five-year 'phased' permit for this facility. This incremental method of analysis will determine if well maintenance and pumping strategies can have positive impact on the annual water level declines in the region. The permit also contains special conditions related to the Department of Natural Resources' assessment of the Jordan Sandstone aquifer.

1. In March, 1998 the Governor signed House File 2292. This Bill requires the Department to initiate a permit program for persons to inject, store, and recover treated water from aquifers for potable use. This will allow the City of Cedar Rapids to operate the new ASR well. This will ultimately represent the 13th ASR Permit proposed to be issued under the Aquifer Storage and Recovery Rules which were enacted pursuant to HF 2292 (Chapter 55, IAC).
2. The nearest neighboring water use requiring the diversion of water in sufficiently large proportions to require a water use permit lies approximately 6 miles south and east of Applicant's proposed withdrawal site, and involves the withdrawal of water for industrial-type purposes. Whereas, whereas induced ground water flows beneath said river would be unlikely under normal hydrogeological conditions, and whereas a distance of 2 miles is significant in an alluvial aquifer of this magnitude (representing a drainage are of between 3,500 and 3,600 square miles), it is unlikely that the neighboring user will experience substantial impacts resulting from the Applicant's use of water under normal conditions.
3. The next-nearest neighboring water use requiring the diversion of water in sufficiently large proportions to require a water use permit lies in excess of 10 miles east of Applicant's proposed withdrawal site, and involves the use of water for municipal purposes. Whereas this regulated user is located at a considerable distance downstream from the applicant's proposed site, and whereas the regulated user is withdrawing water for municipal purposes, the Department does not anticipate any substantial impacts resulting from the Applicant's proposed use of alluvial water.
4. The Department has no knowledge of non-regulated uses involving privately owned wells located in the vicinity of Applicant's proposed withdrawal site. The remote location of the Cedar Rapids NWTP will limit the level of direct interference from other pumping wells. In the event that such non-regulated uses exist, it is unlikely for the reasons indicated above that the Applicant's withdrawals will have a substantial impact on the neighboring uses under normal conditions. 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.

Due to declines in water levels of the Cambrian-Ordovician (Jordan Sandstone) aquifer in Iowa, water-level based Tiering criteria have been established to set maximum water level declines and minimize downward trends in the Jordan aquifer's potentiometric surface throughout Iowa. Water use reduction plans and enforcement in the Jordan (Cambrian-Ordovician) aquifer initiate when pumping levels reach 300 feet below the 1978 published potentiometric surface on any permitted Jordan well.

The Iowa Geological Survey has found that increased pumping rates in the Cedar Rapids and Marion metropolitan area have resulted in drawdowns that may exceed 130 feet from 1978 to 2008. Using the State's calibrated groundwater flow model (Visual MODFLOW), drawdowns can be projected, from the 1977 baseline, to the year 2026.

The Cedar Rapids Water Department hired Spheros Environmental (a hydrogeological and environmental consultant) to conduct an assessment ("NWTP ASR Feasibility Assessment") intended to:

- Evaluate the hydrogeology, water quality, and biogeochemistry of the Cambrian-Ordovician Aquifer in the vicinity of the NWTP.
- Determine ASR permitting requirements and potential roadblocks. Identify the number of ASR wells needed to obtain the minimum and desired capacities and provide a conceptual design of the wells and well spacing.
- Complete the groundwater modeling of the Cambrian-Ordovician Aquifer to determine the withdrawal and recharge rates required to maintain an Iowa Department of Natural Resources (DNR) Tier 1 operation status.

Part of the feasibility report summarized the afore-mentioned groundwater modeling. Spheros Environmental utilized the Visual MODFLOW model, which essentially showed that the construction of this ASR well would actually raise groundwater levels by 4 feet at the ASR site (e.g., the UV Building).

Regional flow in the Cambrian-Ordovician Aquifer system has historically been toward the southeast in the Assessment Area (Gannon et al. 2009; Gannon and Holt 2018; Young 1992). Groundwater withdrawals from the Cambrian-Ordovician Aquifer within both the Assessment Area and the larger LICPA have led to a cone of depression in the potentiometric surface focused around central and southeast Linn County (Gannon et al. 2009; Gannon and Holt 2018).

At a local scale, relevant to the assessment and Project Areas, flow gradients in the Cambrian-Ordovician Aquifer are likely driven by high-capacity pumping. Two local cones of depression appear to be associated with high-capacity wells in the Assessment Area—one approximately 5 to 6 miles southeast of the Project Area associated with pumping from wells operated by Ingredion and Archer Daniels Midland, and another approximately 10 miles to the northeast associated with the City of Marion wellfield.

Spheros as part of the feasibility report also conducted an assessment of the expected mixing of Cedar Rapids potable water (water from the NW treatment Plant) with the general Jordan water at the site. They used "PHREEQC" the model code for their mixing simulations. PHREEQC is a USGS code for doing pH-Redox-Equilibrium Calculations. The simulations indicate that the two "water streams" will mix well with no expected difficulties.

Based on the information available, an Aquifer Storage and Recovery (ASR) system appears to be a feasible addition to the Northwest Water Treatment Plant (NWTP) in Cedar Rapids, Iowa.

This draft permit is a five year 'phased' permit for your facility, allowing the operation of Cambrian_Ordovician (Jordan Sandstone) wells. This incremental method will allow the Department to determine if well maintenance and pumping strategies can have immediate positive impact on the (relatively) minor annual water level declines in the region. Please note that the draft permit also contains special conditions related to the Department's assessment of the Jordan Sandstone aquifer near your City. Please refer to the permit section on Jordan special conditions for details. The good news here is that new data acquired over the last two years indicate there is more available water from the Jordan Sandstone in the proximity to Cedar Rapids than was previously believed. As such, the Department will not object to construction of new Jordan wells in this area in the future.

The Iowa DNR conducted a hydrogeological review and prepared a report to check the effects of this requested Jordan withdrawal. This hydrogeologic report analyzes historic water use and water levels and utilizes a MODFLOW Flex 2015.1 computer model to project water level declines and trends at different rates for the duration of the 5-year permit period, in order to determine if this rule criteria is encountered.

TECHNICAL NOTE: The DNR's analysis of this aquifer utilizes Visual MODFLOW (MODFLOW FLEX). Visual MODFLOW is a three-dimensional groundwater flow model widely used in the professional groundwater modeling community. Visual MODFLOW (VMF or Visual MODFLOW Pro) and MODFLOW FLEX are graphical interfaces for MODFLOW. It is used primarily by hydrogeologists to simulate groundwater flow. The original version of Visual MODFLOW was first released in August 1994. It was based on the USGS MODFLOW-88 and MODPATH codes.

1. As outlined in rule 567 50.4(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:
- 2.

Cedar Rapids [2841] ASR Jordan Well Projected Water Levels	
Local Name	ASR Well
Drill Date	Proposed
Well Elevation (ft)	800
1978 Jordan Water Level Elevation (ft)	598
Total Well Depth (ft)	1,500
Total Casing Depth (ft)	1,000
Est. Static Water Level Depth (ft)*	334
Est. Pumping Water Level Depth (ft)**	484
1978 Jordan Baseline Level Depth (ft)	202
Jordan Tier 2 Depth (1978 level -300 ft.)	502
Jordan Tier 3 Depth (1978 level -400 ft.)	602
Estimated Feet Above Tier 2 (Tier 2 – pumping)	18
Estimated Feet Above Tier 3 (Tier 3 – pumping)	118

*Static water level estimated from 2025 Jordan potentiometric surface.

**Pumping water level estimated using static level, estimated pumping rate of 1,500 gallons per minute (gpm), and projected specific capacity of 10 gpm/ft in the area.

As such, the Cedar Rapids ASR well is expected to be in compliance with rule 567 50.4(3).

- The applicant will be devoting a reasonable amount of water to a beneficial use (municipal and municipal-related use). This includes water for human consumption and for sanitation. 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 five years.

Water Supply Engineering Section

Date: September 21, 2026

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

Permit issued to:	Permit Number:	YYYYY
CEDAR RAPIDS WATER DEPT	Effective:	YYYYY
GENERAL MANAGER	Expires:	YYYYY
1111 SHAVER RD NE		
CEDAR RAPIDS IA 52402		

The Permittee is authorized to:

(Cedar Rapids) is allowed to withdraw (and inject treated water) water from one newly-drilled, Cambrian_Ordovician (Jordan Sandstone) well, about 1,500 feet deep, located in the "Northwest Treatment Plant Site " next to the UV Building, on land generally described as the NW ¼ of the SW ¼ of Section 15, T83N, R08W, Linn County, Iowa, in the maximum amount of 394.0 million gallons per year at a maximum rate of 2,200 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 purpose of the Aquifer Storage and Recovery (ASR) project is to inject water into the well during times of low water demand and withdraw water primarily in the summer during times of higher water demand. All of the affected land is located on the Applicant's property. The process will involve injecting up to 3 million gallons of potable chlorinated water (in any one day). The projected volume of recharge (zone of influence creating a displacement zone) will occupy a radius of about 200 feet.

The water use permit will be issued on a five-year permit cycle.

The ASR permit will be issued on a two-year permit cycle, and will cover the overall period April 1, 2027 – March 31, 2029.

The well will increase redundancy and help the utility better manage future demand, especially during droughts.

This authorization to withdraw water has been granted pursuant to the provisions of Part 4 of Subchapter 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 IAC 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 Ave., 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:	xxxxx
cc: Field Office No. 1 – MANCHESTER		
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 may be asked to construct, maintain, and monitor observation wells, only 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 50.4(3), the Permittee may unconditionally 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. If well pumping levels fall below the expressed baseline, water conservation conditions may be added. The following table expresses specific conditions for Jordan aquifer wells listed in this permit:

Cedar Rapids [2841] ASR Jordan Well Projected Water Levels	
Local Name	ASR Well
Drill Date	Proposed
Well Elevation (ft)	800
1978 Jordan Water Level Elevation (ft)	598
Total Well Depth (ft)	1,500
Total Casing Depth (ft)	1,000
Est. Static Water Level Depth (ft)*	334
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*Static water level estimated from 2025 Jordan potentiometric surface.

**Pumping water level estimated using static level, estimated pumping rate of 1,500 gallons per minute (gpm), and projected specific capacity of 10 gpm/ft in the area.

As such, the pumping levels are above Tier 2. As such, the Cedar Rapids ASR well will be in compliance with rule 567 52.4(3).

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.

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.

**IOWA DEPARTMENT OF NATURAL RESOURCES
AQUIFER STORAGE AND RECOVERY (ASR) LIMITED REGISTRATION**

Registration issued to:	Registration Number:	ASR LR-2026-01
CEDAR RAPIDS WATER DEPT % GENERAL MANAGER 1111 SHAVER RD NE CEDAR RAPIDS IA 52402	Effective:	03.20.2027
	Expires:	03.30.2029

The limited registration holder is authorized to:

inject treated water from one newly-drilled, Cambrian_Ordovician (Jordan Sandstone) well, about 1,500 feet deep, located in the "Northwest Treatment Plant Site", next to the UV Building, on land generally described as the NW ¼ of the SW ¼ of Section 15, T83N, R08W, Linn County, Iowa, in the maximum amount of 394.0 million gallons per year at a maximum rate of 2,200 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 purpose of the Aquifer Storage and Recovery (ASR) project is to inject water into the well during times of low water demand and withdraw water primarily in the summer during times of higher water demand. All of the affected land is located on the Applicant's property. The process will involve injecting up to 3 million gallons of potable chlorinated water (in any one day). The projected volume of recharge (zone of influence creating a displacement zone) will occupy a radius of about 200 feet.

The (concurrent) water use permit will be issued on a five-year permit cycle.

The ASR permit will be issued on a two-year permit cycle, and will cover the overall period April 1, 2027 – March 30, 2029.

In March, 1998 the Governor signed House File 2292. This Bill requires the Department to initiate a permit program for persons to inject, store, and recover treated water from aquifers for potable use. The proposed (above-referenced) permit represents a modification to applicant's existing water allocation authorization, and will allow DSMWW to test the integrity of the initial well and subsequently test the ASR equipment, and process. This represents the initial phase of the aquifer storage and recovery permitting process, and will ultimately represent the 13th ASR Permit proposed to be issued under the Aquifer Storage and Recovery Rules which were enacted pursuant to HF 2292 (Chapter 55, IAC).

This authorization to inject water has been granted pursuant to the provisions of Part 4 of Subchapter III of Chapter 455B, Code of Iowa, and Chapters 567, Iowa Administrative Code (IAC) - 55, and is further subject to the conditions attached.

Conditions may be appealed as provided in rule 567--50.9, Iowa Administrative Code. Appeal must be in writing and must be received at the Department of Natural Resources; 6200 PARK AVE., Suite "200"; Des Moines, Iowa 50321 within thirty days of the date of the certification of the mailing of the limited registration.

FOR THE DIRECTOR:

By: _____ Date Executed: xxxxxx

ASR LR-2026-01

(mka)

cc: Field Office 1, Manchester
File: CON 3-9 Water Use Permit yyyy
File: CON 3-9 ASR LR-26-01

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: _____

CONDITIONS

1. Other statutes. Registration holders shall be responsible for compliance with all applicable provisions of state law and the rules and regulations of this Department and of federal and local health and water pollution control agencies.
2. Observation wells. Registration holders may be required to construct, maintain, and monitor observation wells, if specifically directed by the Department, to define the effects of the registration holder's use of an aquifer storage and recovery well or other associated diversion of water into groundwater or on other water users who might be affected by the injection authorized herein
3. Repair and maintenance. The registration holders are responsible for the repair, maintenance, and modifications to the well and associated injection/recovery system. The overall system shall be kept in good repair.
4. Modifications of well. The well shall not be modified without Department approval. The related injection/recovery system and appurtenances may be modified without Department approval providing the modifications do not enlarge the ASR well area.
5. Closure. If the registration holders discontinue use of the well, the Department shall be notified and closure shall be made in accordance with 567 – Chapter 39, IAC, or by an alternative method as approved by the Department. The limited registration shall be revoked upon submission of proof that the drainage well was properly closed.
6. Modification or cancellation of limited registration. As provided in 567—55.6(455B), the Department may modify or cancel the limited registration or require the registration holder to take other actions to protect the public health and safety, to protect the public interest in lands and waters, or to prevent any manner of substantial injury to persons or property.
7. Application of pesticides, herbicides, liquid animal wastes, and nitrogen management. Application of pesticides and herbicides within the area contained within the aquifer storage and recovery well zone of influence must be made in accordance with label directions and pesticide rules of the Iowa Department of Agriculture and Land Stewardship (Iowa Code Chapter 206 and rules adopted pursuant to Chapter 206). Application of liquid animal waste to lands drained by the aquifer storage and recovery well shall be done in a manner that will not result in a discharge of the waste to the ASR well or associated catchment area/drainage system without filtration through the existing soil profile. Application of nitrogen from all sources, including manure, legumes, and commercial fertilizers shall not exceed the ISU Extension-recommended optimum levels for the crop being grown (effective with the year 2000 crop season).
8. Trihalomethane (THM) and Haloacetic Acid (HAA) concentrations shall be measured on a bi-weekly basis over the course of injection and recovery. The chlorine concentration of the injected water shall not exceed 4.0 milligrams per liter (mg/l). Temperature, specific conductance, pH, and Eh (ORP) shall be measured weekly.
9. During recharge, two samples (at the beginning and the end of the recharge phase) will be analyzed for calcium, sodium, alkalinity, sulfate, total dissolved solids (TDS), dissolved iron, and dissolved manganese. The water recovered from the well shall be sampled at 10, 25, 50, 75, and 100 percent recovery and analyzed for the same set of parameters. Sampling may be required/occur with additional samples if recovery is greater than 100%.