

**AUTHORIZATION FOR A NO-DISCHARGE WATER PERMIT UNDER THE
ARKANSAS WATER AND AIR POLLUTION CONTROL ACT**

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.) and Arkansas Pollution Control and Ecology Commission (APC&EC) and Regulation No. 17 Arkansas Underground Injection Control (UIC) Code.

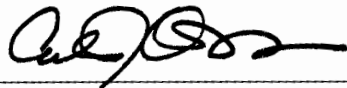
City of Cave Springs - Cave Springs Wastewater Treatment Plant

is authorized to operate the decentralized wastewater treatment system with drip irrigation dispersal of the treated wastewater from the facility located at 134 N. Main St. Cave Springs, AR 72718 in Benton County.

Operation shall be in accordance with all conditions set forth in this permit.

Effective Date: December 1, 2018

Expiration Date: November 30, 2023



Caleb J. Osborne
Associate Director, Office of Water Quality
Arkansas Department of Environmental Quality

11.27.18

Issue Date

PART I
Permit Requirements

LIMITATIONS AND MONITORING REQUIREMENTS:

The following tables detail the constituent limits, monitoring frequencies and the requirements for reporting results to ADEQ for each respective parameter listed in the table heading.

Table I: Effluent Limits, Monitoring, and Reporting Requirements			
Parameter	Limit	Units	Monitoring
Carbonaceous Biochemical Oxygen Demand (CBOD5)	30	mg/l	Grab sample once per month ^A
Total Suspended Solids (TSS)	45	mg/l	
Fecal Coliform Bacteria (FCB)	10,000	colonies/100ml	
pH	6.0 – 9.0	s.u.	
Total Phosphorus (TP)	Report	mg/l	
Total Kjeldahl Nitrogen (TKN)	Report	mg/l	Grab sample once per quarter ^A
Ammonia Nitrogen (NH ₃ -N)	Report	mg/l	
Nitrate Nitrogen (NO ₃ -N) + Nitrite Nitrogen (NO ₂ -N)	Report	mg/l	
Plant Available Nitrogen (PAN) ^B	Report	mg/l	

^A Refer to Condition No. 18 of Part II of the permit.

^B Refer to Condition No. 7 of Part II of the permit.

Table II					
Drip Zones Loading Rate Limits, Monitoring, and Report Requirements					
Zone Identification	Loading Rate Limit ^A	Units	Maximum Volume Limit ^B	Units	Monitoring
Leach Field 1	0.55	gpd/ft ²	26,000	gpd	Daily
Zone 1	0.42		19,524		
Zone 2	0.45		19,309		
Zone 3	0.40		16,424		
Zone 4	0.46		10,811		
Zone 5	0.2		13,059		
Zone 6	0.2		7,723		
Zone 7	0.2		10,910		
Zone 8	0.3		7,081		
Zone 9	0.4		18,291		
Zone 10	0.3		9,450		
Zone 11	0.2		4,110		
Zone 12	0.4		7,522		
Zone 13	0.25		5,717		
Zone 14	0.15		6,097		
Zone 15	0.2		8,378		
Zone 16	0.4		9,427		
Zone 17	0.23		3,694		
Zone 19	0.35		13,778		
Zone 20	0.2		5,766		
Zone 21	0.4		17,040		
Zone 22	0.5		28,113		
Zone 23	0.25		15,640		
Zone 24	0.25		9,547		
Zone 25	0.2		4,436		
Zone 26	0.3		9,334		
Zone 27	0.31		16,511		
Zone 28	0.31		13,018		
Zone 29	0.2		3,923		
Zone 30	0.55		10,116		
Zone 31	0.3		5,714		

^A. Loading Rates for each zone shall not be exceeded.

^B. All monitoring records shall be maintained onsite and made available upon request. The volume for each zone shall be monitor and recorded daily. The maximum volume for each zone shall be reported on the No-Discharge Monitoring Report (NMR).

Part II
Specific Conditions

1. This permit is for the operation of a decentralized wastewater treatment system with drip irrigation dispersal of the treated wastewater for residential subdivisions located in the City of Cave Springs. This type of systems is also classified as a Class V shallow injection wells under the provisions of Regulation No. 17.
2. The drip irrigation operation shall be managed in accordance with the October 2018 Waste Management Plan (WMP). If the WMP is inconsistent with this permit, the drip irrigation operation shall be managed in accordance with the terms of the permit and the WMP shall be revised to conform to the permit conditions.
3. Under the provisions of Regulation No. 17 and Title 40 of the Federal Code of Regulations (CFR) Parts 144 and 146, promulgated under Part C of the Safe Drinking Water Act (SDWA), no owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that may allow the movement of fluid containing any contaminant into an underground source of drinking water.
4. The waste disposal system shall be operated by a minimum of a licensed Class II wastewater treatment plant operator by the State of Arkansas in accordance with Ark. Code Ann. § 8-5-205 et seq. and APC&EC Regulation No. 3.
5. Wastewater shall not be discharged from this operation to the waters of the State or dispersed to the land in any manner that may result in pooling, ponding, or runoff to the waters of the State. If any of the above conditions occur, dispersal shall cease immediately. Resumption of application activities cannot occur until all conditions of the permit are met. *Note: Any evidence of runoff must be reported within 24-hours to the Enforcement Branch of the Office of Water Quality in accordance with Standard Condition No. 13 of Part III.*
6. Bypassing the disposal system is prohibited and may result in the revocation of this permit and other appropriate enforcement actions by the Department.
7. Plant Available Nitrogen (PAN) shall be calculated using the following equations:

PAN Equations	
For Subsurface applied or Incorporated waste, PAN (mg/l)	$0.3(\text{TKN} - \text{NH}_3) + \text{NH}_3 + \text{NO}_3 + \text{NO}_2$
Conversion from PAN(mg/l) to PAN(lbs/1000 gal)	$0.00834 * \text{PAN}(\text{mg/l})$

The waste must be applied at a rate (calculated in units of 1000 gallons/acre) that provides a quantity of PAN (lbs N/acre) that is equal to or less than the nitrogen uptake rate of the cover crop (lbs/acre). See the table below for a list of Nitrogen uptakes for crops mentioned in the waste management plan. Any crop not listed in the following table may be added to the permit as an update to the WMP.

Nitrogen Uptake of Cover Crops	
Crop Name	Uptake (lbs/acre)
Bermuda	300
Fescue	138
Rye	50

8. The permittee must maintain current records of all activities related to the removal of solid materials, oil, grease, wastewater, etc., from the operation. The following information must be recorded and made available to ADEQ personnel on request: date of the activity, volume, or weight of material removed, type of material removed, interim or final destination of the material discarded, and complete identification of the carrier(s) transporting the material. If the waste is to be recycled or reused, document the name and address of the receiving entity or firm.
9. The drip irrigation field shall be maintained with 100% vegetative cover with a minimum 80% density for additional treatment, minimize erosion and to ensure the nitrogen uptake rate of the cover crop used to calculate the limit in Condition No. 7 or Part I.
10. When the vegetative cover is mowed, clippings shall be removed from the drip field and managed in accordance with applicable disposal regulations.
11. Any invasive vegetation that would impact the integrity of the drip lines, such as tree and shrub growth, shall be removed. The drip field shall be protected from any activity that might damage the irrigation system.
12. The drip field shall be inspected for damage with 24 hours after mowing or other activities that may damage the field have ceased. Damaged lines or other system components shall be repaired as soon as possible. Records of inspections and any required repairs shall be kept on-site for review and shall be submitted to the Department upon request.
13. Signs shall be posted around the disposal area indicating that the area is irrigated with treated wastewater effluent.
14. The reserve drip irrigation field shall be maintained in a condition to be used should the reserve area need to be brought into service upon failure of the primary drip irrigation field.
15. A complete "Operations and Maintenance (O&M) Manual" of the wastewater treatment system shall be maintained and followed.
16. Sanitary Sewer Overflow (SSO) Reporting Requirements:
 - A. A sanitary sewer overflow is any spill, release or diversion of wastewater from a sanitary sewer collection system including:
 1. Any overflow, whether it discharges to the waters of the state or not.
 2. An overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral), even if that overflow does not reach waters of the state.

B. 24-hour Reporting

Overflows that endanger health or the environment shall be orally reported to the Enforcement Branch of the Office of Water Quality by telephone (501-682-0638) or by email, waterenfssso@adeq.state.ar.us within 24 hours from the time the permittee becomes aware of the circumstance. At a minimum, the following information shall be reported:

1. Permit number and AFIN
2. The location(s) of overflow.
3. The receiving water (If there is one).
4. Cause of overflow.
5. The estimated volume of overflow (gal)

C. 5-day Follow-Up Written web Reporting:

A web written report of overflows shall be provided to ADEQ within 5 days of the 24 hours oral report.

A 5-day follow-up written report can be filled-in or downloaded from the ADEQ Office of Water Quality/Enforcement Branch Web page at

http://www.adeq.state.ar.us/water/branch_enforcement/forms/sso_report.asp

D. 24-hour and 5 days reporting:

24-hour reporting can be filled-in or downloaded from the ADEQ Office of Water Quality/Enforcement Branch Web page at address above if all information are available and 5 days follow up reporting is not required.

E. All SSOs shall be reported on the No-Discharge Monitoring Report

Total the daily occurrences and volumes from all locations on your system and report this number. For counting occurrences, each location on the sanitary sewer system where there is an overflow, spill, release, or diversion of wastewater on a given day is counted as one occurrence. For example, if on a given day overflows occur from a manhole at one location and from a damaged pipe at another location then you should record two occurrences for that day.

17. Should the facility under this permit cease operations, the permittee shall submit to the Department, for approval, a closure plan for the system's storage and treatment structures within sixty (60) days of the final day of operation.
18. The treated effluent shall be sampled in accordance with the monitoring frequencies listed in Table 1 of Part I. The treated effluent sample shall be representative of the effluent to be dispersed to the drip fields. The monthly monitoring reports shall be submitted to the Department prior to the 15th of the following month. If the permittee monitors any pollutant more frequently than required by this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the No-Discharge Monitoring Report (NMR). Such increased frequency shall also be indicated on the NMR.

19. The permittee shall not add connections outside of the described service area, or connections that cause an exceedance of the treatment works design flow, without approval from the ADEQ and the Arkansas Department of Health (ADH).

Part III
Standard Conditions

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Arkansas Water and Air Pollution Control Act and is grounds for civil and administrative enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. Penalties for Violations of Permit Conditions

The Arkansas Water and Air Pollution Control Act provides that any person who violates any provisions of a permit issued under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year, or a fine of not more than twenty-five thousand dollars (\$25,000) or both for each day of such violation. Any person who violates any provision of a permit issued under the Act may also be subject to civil penalty in such amount as the court shall find appropriate, not to exceed ten thousand dollars (\$10,000) for each day of such violation. The fact that any such violation may constitute a misdemeanor shall not be a bar to the maintenance of such civil action.

3. Permit Actions

- A. This permit may be modified; revoked and reissued; or terminated for cause including, but not limited to the following:
- i. Violation of any terms or conditions of this permit;
 - ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
 - iii. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination; or
 - iv. Failure of the permittee to comply with the provisions of Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation No. 9 (Permit fees).
- B. The filing of a request by the permittee for a permit modification; revocation and reissuance; termination; or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

4. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of this permit or applicable state statutes or regulations which defeats the regulatory purposes of the permit may subject the permittee to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act and Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

6. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

8. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

9. Permit Fees

The permittee shall comply with all applicable permit fee requirements (i.e., including annual permit fees following the initial permit fee that will be invoiced every year the permit is active) for No-Discharge permits as described in APC&EC Regulation No. 9 (Regulation for the Fee System for Environmental Permits). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to revoke this permit.

10. Proper Operation and Maintenance

A. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

B. The permittee shall provide an adequate and trained operating staff which is duly qualified to carry out operation, maintenance, and testing functions required to insure compliance with the conditions of this permit.

11. Duty to Mitigate

The permittee shall take all reasonable steps to prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health, the environment, or the water receiving the discharge.

12. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the State.

13. Reporting of Violations and Unauthorized Discharges

- A. Any violations to this permit must be reported to the Enforcement Branch of the Department immediately. Any leaks or seeps shall be reported to the Department and appropriately corrected. Any discharge from the fluids storage system such as an overflow, a broken pipe, etc., shall be immediately reported to the Department.
- B. The operator shall visually monitor and report immediately (within 24 hours) to the Enforcement Branch any unauthorized discharge from any facility caused by dike or structural failure; equipment breakdown; human error; etc., and shall follow up with a written report within five (5) days of such occurrence. The written report shall contain the following:
 - i. A description of the permit violation and its cause;
 - ii. The period of the violation, including exact times and dates;
 - iii. If the violation has not been corrected, the anticipated time expected to correct the violation; and
 - iv. Steps taken or planned to reduce, eliminate, and prevent the recurrence of the violation.
- C. Reports shall be submitted to the Enforcement Branch at the following address:

Arkansas Department of Environmental Quality
Office of Water Quality, Enforcement Branch
5301 Northshore Dr.
North Little Rock, Arkansas 72118
Fax (501) 682-0880

Or

Water-enforcement-report@adeq.state.ar.us

14. Penalties for Tampering

The Arkansas Water and Air Pollution Control Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year or a fine of not more than ten thousand dollars (\$10,000) or by both such fine and imprisonment.

15. Laboratory Analysis

All laboratory analyses submitted to the Department shall be completed by a laboratory certified by ADEQ under Ark. Code Ann. § 8-2-201 *et seq.* Analyses for the permittee's internal quality control or process control do not need to be performed by an ADEQ certified laboratory.

16. Retention of Records

The permittee shall retain records of all monitoring information, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.

17. Record Contents

Records and monitoring information shall include:

- A. The date, exact place, time, and methods of sampling or measurements, and preservatives used, if any;
- B. The individuals(s) who performed the sampling or measurements;
- C. The date(s) the analyses were performed;
- D. The individual(s) who performed the analyses;
- E. The analytical techniques or methods used; and
- F. The measurements and results of such analyses.

18. Inspection and Entry

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit,
- D. Sample, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance any substances or parameters at any location.

19. Planned Changes

The permittee shall give notice and provide the necessary information to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility.

20. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

21. Transfers

The permit is nontransferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

22. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying; revoking and reissuing; terminating this permit; or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit. Information shall be submitted in the form, manner, and time frame requested by the Director.

23. Duty to reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The complete application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Conditions of this permit will continue in effect past the expiration date pending issuance of a new permit, if:

- A. The permittee has submitted a timely and complete application; and
- B. The Director, through no fault of the permittee, does not issue a new permit prior to the expiration date of the previous permit.

24. Signatory Requirements

- A. All applications, reports, or information submitted to the Director shall be signed and certified. All permit applications shall be signed as follows:
 - i. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - a. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
 - b. The manager of one or more manufacturing, production, or operation facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including: having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - ii. For a partnership or sole proprietorship: by a general partner or proprietor, respectively; or
 - iii. For a municipality, State, Federal, or other public agency; by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - a. The chief executive officer of the agency, or
 - b. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.
- B. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - i. The authorization is made in writing by a person described above.
 - ii. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent

responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
iii. The written authorization is submitted to the Director.

- C. Any person signing a document under this section shall make the following certification: “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

25. Availability of Reports

Except for data determined to be confidential under the Arkansas Trade Secrets Act (Ark. Code Ann. § 4-75-601 *et seq.*), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Environmental Quality. As required by the Regulations, the name and address of any permit applicant or permittee, permit applications, permits, and effluent data shall not be considered confidential.

26. Penalties for Falsification of Reports

The Arkansas Air and Water Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this permit shall be subject to civil penalties and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act.

27. Applicable Federal, State, or Local Requirements

Permittees are responsible for compliance with all applicable terms and conditions of this permit. Receipt of this permit does not relieve any operator of the responsibility to comply with any other applicable Federal, State, or local statute, ordinance policy, or regulation.

Part IV
Definitions

“**Act**” means the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.)

“**APC&EC**” means the Arkansas Pollution Control and Ecology Commission.

“**Available Acreage**” means total acreage minus buffer zones

“**Daily Maximum**” means the highest allowable “daily discharge” during the calendar month.

“**Department**” means the Arkansas Department of Environmental Quality (ADEQ).

“**Director**” means the Director of the Arkansas Department of Environmental Quality.

“**Grab sample**” means an individual sample collected in less than 15 minutes in conjunction with an instantaneous flow measurement.

“**MGD**” means million gallons per day.

“**mg/l**” means milligrams per liter or parts per million (ppm).

“**NH₃**” means Ammonia Nitrogen.

“**NO₃ + NO₂**” means Nitrate + Nitrite Nitrogen.

“**PAN**” means Plant Available Nitrogen.

“**ppm**” means parts per million.

“**Sewage sludge**” means the solids, residues, and precipitate separated from or created in sewage by the unit processes a publicly-owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff that are discharged to or otherwise enter a publicly-owned treatment works.

“**s.u.**” means standard units.

“**TKN**” means Total Kjeldahl Nitrogen.

Monitoring and Reporting:

When a permit becomes effective, monitoring requirements are of the immediate period of the permit effective date. Where the monitoring requirement for an effluent characteristic is monthly or more frequently, the No-Discharge Monitoring Report (NMR) shall be submitted by the 15th of the month following the sampling. Monthly is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.

STATEMENT OF BASIS

This Statement of Basis is for information and justification of the permit limits only and is not enforceable. This permit decision is for renewal of a No-Discharge operation under permit number 4893-WR-3 and AFIN 04-01642.

1. Permitting Authority

Arkansas Department of Environmental Quality
Office of Water Quality, Permits Branch
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. Applicant

Cave Springs Wastewater Treatment Plant
P.O. Box 5
Cave Springs, AR 72718

3. Facility Location

The facility located as follows: The Creeks Golf Course near U.S. Hwy 112 in Cave Springs to nearest City of Cave Springs in Section 12, Township 18 North, Range 31 West, in Benton County, Arkansas. The facility is located at the following coordinates:

Latitude: 36° 15' 2" N Longitude: 94° 14' 30" W

4. Waterbody Evaluation

The decentralized wastewater treatment system is located in Stream Segment 3J of the Arkansas River Basin, which is in the Nutrient Surplus Area. Surrounding areas were evaluated to determine if any Extraordinary Resource Waters (ERWs), Ecologically Sensitive Waterbodies (ESWs), Natural or Scenic Rivers, or waterbodies in the 2016 ADEQ 303(d) list of impaired waterbodies in the State of Arkansas are near the decentralized wastewater treatment system. The facility is approximately three miles from the stream segment of Osage Creek, which is listed as an ESW. The system is for subsurface disposal and runoff is not permitted; therefore, no additional requirements are necessary at this time.

5. Previous Permit Activity

Previous Permit No.: 4893-WR-2
Effective Date: July 1, 2012
Expiration Date: June 17, 2017

The permittee submitted a permit renewal application which was received on November 10, 2016, with additional information received up to October 4, 2018. It is proposed that the current water No-Discharge permit be reissued for a 5-year term.

No-Discharge Monitoring Report Review:

The previous five (5) years of No-Discharge Monitoring Report data were reviewed during the permit renewal process. The facility has exceeded Carbonaceous Biochemical Oxygen Demand, Total Suspended Solids, and Fecal Coliform Bacteria multiple times. The facility is in process of providing a corrective action plan to the Enforcement Branch of the Office of Water Quality.

Legal Order Review:

There are currently no active Consent Administrative Orders (CAOs) or Notice of Violations (NOVs) for this facility.

Site Visits/Inspections:

A compliance inspection was performed on November 30, 2012. It was noted at the time of the inspection that waste treatment had not commenced at Waste Treatment Plant 2.

6. Changes From the Previously Issued Permit

- A. Revised the limits, monitoring and reporting requirements for daily maximum flow and loading rate. See Table II of Part I and Statement of Basis Nos. 11.A.ii.g and 11.A.ii.h.
- B. Removed requirement for reporting total monthly flow since the facility is required to monitor loading rate and maximum volume limit for each zone daily.
- C. Revised limits for CBOD5 and TSS. See Table I of Part I and Statement of Basis Nos. 11.A.ii.a and 11.A.ii.b.
- D. Revised monitoring requirements for the nitrogen component. See Table I of Part I and Statement of Basis No. 11.A.ii.e.
- E. Condition No. 2 of Part II was revised based on the revisions submitted with the renewal application.
- F. Condition No. 5 of Part II was revised. See Statement of Basis No. 11.B.ii.
- G. Condition No. 7 of Part II was revised. See Statement of Basis No. 11.B.i.
- H. Condition No. 8 of Part II was revised to clarify that current and complete records need to be maintained for all activities related to the removal of solid materials, oil, grease, wastewater, etc., from the operation.
- I. Condition No. 9, 10, and 11 of Part II were revised. See Statement of Basis Nos. 11.B.vi, 11.B.vii., and 11.B.viii.
- J. Condition No. 12 of Part II was added. See Statement of Basis No. 11.B.ix.
- K. Condition No. 15 of Part II was revised.
- L. Condition No. 16 of Part II was added. See Statement of Basis No. 11.B.xi.
- M. Condition No. 18 of Part II was added. See Statement of Basis No. 11.B.iv.
- N. Condition Nos. 7 and 15 of Part II of the previous permit was removed.

7. Changes From the Previously Drafted Permit

- A. Revised Table II of Part I to reflect the loading rates, daily maximum flow, and number of zones in the revised Waste Management Plan.
- B. Revised Condition No. 11 of Part II of the permit. See Statement of Basis 11.B.vii.
- C. Added Condition No. 19 of Part II of the permit to clarify that the permittee must not add connections to the system that have not been previously approved.

D. Revised Statement of Basis No. 10 to reflect the description of the Waste Treatment System in the revised Waste Management Plan.

8. Applicant Activity

Under the standard industrial classification (SIC) code 4952 or North American Industry Classification System (NAICS) code 221320, the applicant activities are for a sewage treatment facility.

9. Consultant for this Facility

Barret Knutson
McClelland Consulting Engineers, Inc.
1810 N. College Ave.
Fayetteville, AR 72702

10. Waste Treatment System

The wastewater treatment system consists of two separate package treatment plants which dispose of effluent via subsurface drip irrigation. The system is designed for 1,774 lots to be connected to the system. As of August 2018, 831 lots are connected to the system currently. Treatment Plant 1 is designed to treat a maximum of 97,000 gallons per day. Treatment Plant 2 is designed to treat a maximum of 320,000 gallons per day.

A Septic Tank Effluent Pumping (STEP) system collects septic tank effluent from individual lots. Lift stations pump the septic tank effluent to the treatment plants through a sanitary sewer force main. Wastewater is sent through a biological treatment unit, which is comprised of two 19,000 gallon parallel Lotus aerobic moving bed biofilm reactors. Flow then is sent through a splitter and routed to two 26-foot diameter secondary clarifiers. The clarifiers allow for flow equalization and separation of liquid and sludge during retention. A chemical feed station is available for the addition of chemicals during the treatment process for pH control or solids settling aids. The effluent from the clarifiers is sent to separate dosing tanks and then pumped to the underground leach field piping system for subsurface disposal. Sludge removed from the clarifiers is sent to a concrete sludge holding tank.

Effluent from Treatment Plant 1 is sent Drip Fields 1 and 2. The drip fields have a storage tank, which holds effluent prior to subsurface discharge through the leach lines. Effluent is pumped from the holding tank to the leach fields at regular time intervals.

Effluent from Treatment Plant 2 is sent to Drip Fields 3 through 5. Drip Field 3 contains Zones 5 through 12. Drip Field 4 contains Zones 13 through 24, except for Zone 18 which was not utilized. Drip Field 5 contains Zones 25 through 31. Treatment Plant 2 has three separate drip fields supplying effluent to a total of 27 zones. Alternate fields are available.

11. Basis for Permit Conditions

The Arkansas Department of Environmental Quality has made a tentative determination to issue a permit for the No-Discharge facility as described in the application and waste management plan. Permit requirements and conditions are based on the Arkansas Water and Air Pollution Control Act

(Ark. Code Ann. 8-4-101 *et seq.* and Ark. Code Ann. § 8-4-201 *et seq.*) and regulations promulgated there to and Regulation No. 17 Arkansas Underground Injection Control (UIC) Code.

Specific permit conditions and limits and their sources are listed as follows:

A. Part I – Permit Requirements

i. Monitoring Frequency

This decentralized wastewater treatment system treats domestic wastewater from residential subdivisions located in the City of Cave Springs. The waste cannot be sampled prior to every application as waste is constantly being applied. Therefore, frequent monitoring of the effluent is required to ensure the effluent is meeting the requirements of the permit.

ii. Effluent Conditions

a. Limit for Carbonaceous Biochemical Oxygen Demand (CBOD5)

This limit is intended to prevent taste and odor problem in groundwater and prevent leaching of metals to groundwater. According to the Onsite Wastewater Treatment Systems Manual, Drip Irrigation systems are capable of meeting CBOD5 concentrations as low as 5 mg/l. The Department has determined that a concentration of 30 mg/l is a consistently achievable limit and appropriate because treated effluent is receiving additional treatment by the soil.

b. Limit for Total Suspended Solids (TSS)

This limit is required to prevent the small diameter spray emitters within the drip system from becoming clogged with suspended solids or algae growth within the wastewater. According to the Onsite Wastewater Treatment Systems Manual, Drip Irrigation systems are capable of meeting TSS concentrations as low as 5 mg/l. The Department has determined that a concentration of 45 mg/l is a consistently achievable limit and appropriate because treated effluent is receiving additional treatment by the soil.

c. Limit for Fecal Coliform Bacteria (FCB)

According to the Onsite Wastewater Treatment Systems Manual, Drip Irrigation systems are capable of meeting low levels of Fecal Coliform. The Department has determined that bacteria concentration of 10,000 col/100ml is a consistently achievable limit and appropriate where treated effluent is being dispersed in a non-public area and is receiving additional treatment by the soil. Since the depth of the groundwater table is five feet, there is sufficient soil to treat the fecal coliform bacteria before entering waters of the State.

d. Minimum and maximum pH

The allowable pH range of 6.0-9.0 is adopted from APC&EC Regulation No. 2 because this range also supports bacteria and plant growth in the drip irrigation field.

e. Reporting requirements for all nitrogen compounds in the waste

These concentrations are required to calculate the plant available nitrogen to comply with Condition No. 7 of Part II of the permit. The plant available nitrogen dispersed to the irrigation field should not exceed the nitrogen uptake of the vegetation in the drip irrigation area, otherwise nitrogen compounds could migrate to waters of the State. Since the wastewater receives treatment prior to dispersal to the soil, secondary treatment from the soil and the nitrogen parameters results were consistent in the wastewater, the monitoring frequency of the nitrogen parameters will be quarterly. The quarterly monitoring frequency will be identical to the NPDES monitoring requirement for municipal wastewater.

f. Reporting requirements for Total Phosphorus (TP)

Monitoring and reporting requirements for Total Phosphorus are required to evaluate the amount of phosphorus being added to the drip irrigation field. Phosphorus has been determined to cause eutrophication in surface waters, which may be reached due to drip irrigation activities or heavy rains.

g. Reporting requirements for daily maximum flow

The daily maximum flow are required to be monitored and reported to assess whether the system is being operated at or below the design flow rates.

h. Drip field loading rates

The drip irrigation field soil loading rates are determined by a Professional Soil Classifier registered in the state of Arkansas to ensure that the drip field zones are not hydraulically overloaded. Loading rates by the system should not exceed the soil loading rates to avoid hydraulically overloading the soil. Effluent flow to a zone can be used to calculate the loading rate of the specified zone. If the calculated loading rate exceeds the design soil loading rate, or visual observation of surfacing effluent, the zone is hydraulically overloaded should be removed from the dosing rotation or dose volume reduced until sufficient time has passed for the zone to dry out.

B. Part II – Specific Conditions

i. Plant Available Nitrogen Requirement

The Office of Water Quality has provided the proper Plant Available Nitrogen (PAN) equation in order to ensure the permittee does not exceed the nitrogen uptake of the cover crop. The previously submitted monthly monitoring reports showed that the facility has exceeded or was close to exceeding the PAN limit. Therefore, the Department left the

PAN limit in this permit in order to provide the amount of nitrogen needed by the crop or vegetation and reduce the risk of nutrients running off into the waters of the State.

If the PAN of the effluent exceeds the nitrogen uptake of the cover crop, the facility may be required to adjust their treatment system at the next permit renewal to reduce the PAN of the effluent so that it does not exceed the nitrogen uptake rate of the cover crop.

ii. No pooling, no ponding, no discharge

Any activity occurring under this permit shall not discharge to the waters of the State. A discharge from this site may result in pollutants entering the waters of the State, which is a violation of Ark. Code Ann. § 8-4-217. In order to prevent a discharge from the permitted operation, the facility shall control the rate of application to prevent pooling, ponding, overland flow, or runoff.

iii. Bypassing Treatment

In order for the wastewater to received adequate treatment, the wastewater shall be properly treated prior to drip dispersal. Bypassing treatment would be a violation of this permit.

iv. Reporting requirements and monitoring frequency

In order to ensure the facility is being proper maintained and operated the Department will require the facility to submit monthly monitoring reports.

v. Record keeping of liquids or solids leaving the facility

In order to maintain complete records of the disposal of the treated leachate or solids associated with the leachate system, the facility shall maintain records of any type of material that is shipped from the facility.

vi. Vegetation Cover Requirement

In order to ensure proper treatment from the soil and to prevent erosion, the drip fields shall maintain 100% vegetative coverage with a minimum of 80% density. Furthermore, the vegetative coverage and density is also used for stabilization purposes to reduce the risk of soil erosion and runoff.

vii. Removal of grass clippings

The drip irrigation system disperses effluent to the root zone of the cover crop for additional treatment from the uptake from the cover crop and from the soil. In order to obtain the appropriate treatment from the cover crop the grass clippings shall be removed. All clippings must be removed from the drip field to prevent accumulation of nutrients in the field. The materials may be beneficially reused at a location outside the drip field (e.g. compost or mulch reuse) or otherwise managed according to state and local solid waste regulations.

viii. Removal of invasive vegetation

This condition was added to the permit in order to prevent damage to the drip dispersal lines or equipment from invasive vegetation.

ix. Inspection of drip fields

This type of system has a history of damaged drip field lines or system components occurring during activities such as disking or mowing the field; therefore, the drip field should be inspected after any activity that may cause damage to the field is completed. Because surfacing of effluent from damaged lines will take time, inspections of the drip field should occur 24 hours after activity has ceased in that area of the drip field. Any damaged lines or other system components should be repaired immediately. The Department requires that records be kept on-site for review of inspections and when repairs are begun and completed.

x. Requirements for maintaining a reserve drip irrigation field

A reserve drip irrigation field is required in the event that the drip irrigation field becomes hydraulically overloaded and no longer absorbs the volume of treated effluent at the soil loading rates for the associated zone.

xi. Sanitary Sewer Overflow (SSO) Reporting

Any overflow of sanitary waste can be harmful to human health or the environment; therefore, all SSOs shall be reported.

xii. Requirements for a closure plan

This condition is required to ensure that the permittee takes all of the necessary means to adequately close this type of system, which includes removal of all the waste from the system and properly filling or collapsing the septic systems.

C. Part III – Standard Conditions

Standard Conditions have been included in this permit based on generally accepted scientific knowledge, engineering practices and the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

D. Part IV – Definitions

All definitions in Part IV of the permit are self-explanatory.

12. Point of Contact

For additional information, contact

Katherine McWilliams
Engineer
Permits Branch, Office of Water Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
501-682-0651
E-mail: mcwilliamsk@adeq.state.ar.us

Technical review

Jamal Solaimanian, Ph.D., P.E.
Engineer Supervisor
Permits Branch, Office of Water Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
501-682-0620
E-mail: jamal@adeq.state.ar.us

13. Annual Fee

In accordance with APC&EC Regulation No. 9, the annual fee for this permit is \$500.

14. Sources

The following Sources were used to draft the permit:

- A. APC&EC Regulation No. 2, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas.
- B. APC&EC Regulation No. 3, Licensing of Wastewater Treatment Plant Operators.
- C. APC&EC Regulation No. 8, Administrative Procedures.
- D. APC&EC Regulation No. 9, Permit Fee Regulations.
- E. APC&EC Regulation No. 17, Arkansas Underground Injection Control Code.
- F. Integrated Water Quality and Assessment Report (305(b) Report).
- G. Ark. Code Ann. § 8-4-101 et seq., Arkansas Water and Air Pollution Control Act.
- H. 40 CFR Parts 144 and 146.
- I. Ark. Code Ann. § 8-4-203, as amended.
- J. Arkansas Department of Health, "Rules and Regulations Pertaining to Onsite Wastewater Systems."
- K. Application No. 4893-WR-3 received November 10, 2016.
- L. Waste Management Plan dated October 4, 2018.
- M. Additional Information received up to October 4, 2018.

15. Response to Comments from the Public Notice for the 1st Draft Permit

The Department originally drafted a permit for the operation of a decentralized wastewater treatment system with drip irrigation dispersal of the treated wastewater that was public noticed on August 24, 2017. Based on the revised Waste Management Plan received on October 4, 2018, and the changes listed in No. 7 of the Statement of Basis, this permit had to be redrafted and sent to another public notice period in accordance with APC&EC Regulation 8.103(V). Below are the comments submitted from the 1st public notice of the permit with the Department response.

Comment 1 The City has determined that they would like to bring TP1 back online and the work to do so is nearly complete. It is therefore requested that Dripfield 2, which is connected to TP1 and contains treatment zones 1-4, be added to the permit.

Response: The Department received additional correspondence on December 28, 2017 stating that Treatment Plant 1 would be added to the permit at a later date as a permit modification. On October 4, 2018, a revised Waste Management Plan was submitted that included Treatment Plant 1. The draft permit has been revised to include Treatment Plant 1 as described in the October 2018 Waste Management Plan.

Comment 2 The design calculations used in the initial waste management plan (WMP) do not match actual parameters of the constructed system. The original WMP also provides design calculations which do match actual system parameters, while also providing design calculations for multiple zones which do not exist in the constructed system. Since the WMP is used to draft the permit, a new WMP will need to be developed.

Response: The Department received a revised Waste Management Plan on January 22, 2018 and Addendum on February 1, 2018. A revised Waste Management Plan was received on October 4, 2018 that included Treatment Plant 1. The draft permit was revised in accordance with the October 2018 Waste Management Plan.

16. Public Notice

The draft permit was public noticed on October 24, 2018. No comments were received.