

**RESPONSE TO COMMENTS
FINAL PERMITTING DECISION**

Permit No.: 4811-WR-4

Applicant: Benton County, Arkansas Suburban Sewer District No. 1 – Villages of Cross Creek Project

Prepared by: Sarah Cousins

The following are responses to comments received regarding the draft permit number above and are developed in accordance with regulations promulgated at APC&EC Regulation No. 8, Administrative Procedures.

Introduction

The above permit was submitted for public comment on August 31, 2015. The public comment period ended on September 29, 2015.

During the public notice period, the Arkansas Department of Health (ADH) submitted one (1) comment to the ADEQ.

	Commenter	# of comments raised
1.	Arkansas Department of Health (ADH)	1

Comment 1 ADH site inspection on 9/17/2015 revealed both drip fields have effluent surfacing and both need mowing. In areas the ground is very soft and effluent may be close to surfacing in these areas. Permittee should provide ADH with documentation of corrective action by 10/30/2015.

Response: The Department is aware of the surfacing problems and is working with the permittee to resolve these issues. All documentation and any enforcement action will be available on the ADEQ website for review.

**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.

Benton County, Arkansas Suburban Sewer District No. 1 - Villages of Cross Creek Project

is authorized to operate the decentralized wastewater treatment system with drip irrigation dispersal of the treated wastewater from the facility located at 3302 N Dixieland Rd Little Flock, AR 72756 in Benton County at the following coordinates:

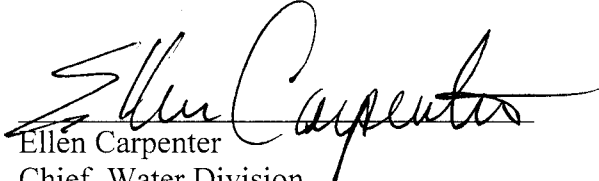
Latitude: 36° 21' 54" N; Longitude: 94° 8' 35" W

The facility is located in Stream Segment 3J of the Arkansas River Basin.

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

Effective Date: November 1, 2015

Expiration Date: October 31, 2020


Ellen Carpenter
Chief, Water Division
Arkansas Department of Environmental Quality


Issue Date

PART I
Permit Requirements

A. 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 1: Effluent Limits, Monitoring, and Reporting Requirements			
Parameter	Limit	Units	Monitoring¹
Carbonaceous Biochemical Oxygen Demand (CBOD5)	30	mg/l	Grab sample once per month
Total Suspended Solids (TSS)	30	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 ³
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) ²	Report	mg/l	
Flow, monthly total	Report	MG	Total flow per calendar month
Flow, daily maximum	Report	MGD	Daily
Loading Rate	Report ³	gpd/ft ²	

¹Refer to Condition 17 of Part II of the permit.

²Refer to Condition 4 of Part II of the permit.

³The maximum loading rate cannot exceed those specified in Table 2 below.

Table 2: Drip Field Soil Loading Rates		
Zone Identification	Maximum Loading Rate (gpd/ft²)	Maximum Capacity (gpd)
Zone 1	0.198	3700
Zone 2	0.198	3700
Zone 3	0.198	3700
Zone 4	0.198	3700
Zone 5	0.198	3700
Zone 6	0.198	3700
Zone 7	0.226	4290
Zone 8	0.226	2990
Zone 9	0.114	2090
Zone 11	0.229	4230
Zone 12	0.143	2637
Zone 13	0.171	3150
Zone 14	0.065	1199
Zone 15	0.143	2637
Zone 16	0.125	2310
Zone 17	0.075	1386

Table 3: Soils Monitoring Requirements for Drip Irrigation Zones		
Parameter	Limit (lbs P/ac)	Monitoring Frequency
Soil Test Phosphorus	100	Annually, Prior to 1 st application of the year.

B. SCHEDULE OF COMPLIANCE

Permittee must be in compliance with Table 3 of Part I.A and Condition 5 of Part II by December 31, 2015. Permittee must be in compliance with Tables 1 and 2 of Part I.A, Conditions 1-4 and 6-18 of Part II, and all of the Conditions in Part III by the effective date of this permit.

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 a residential apartment complex. This type of system is also classified as a Class V shallow injection well under the provisions of Regulation No. 17.
2. 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.
3. The drip irrigation operation shall be managed in accordance with the June 2, 2004 Waste Management Plan (WMP) and additional information received July 23, 2014; December 17, 2014; December 22, 2014; December 23, 2014; June 26, 2015; June 30, 2015; and July 6, 2015. 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.
4. 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 gal/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

5. Wastewater shall only enter the drip irrigation fields at protective rates for phosphorus as defined in Appendix B of Arkansas Natural Resources Commission Rules Governing the Arkansas Soil Nutrient and Poultry Litter Application and Management Program Title 22.
6. Wastewater shall not be discharged from this operation to the waters of the State or onto 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 drip irrigation discharge must be reported within 24 hours to the Enforcement Branch of the Water Division in accordance with Standard Condition 13 of Part III.*

7. The permittee must maintain current and complete 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.
8. The drip irrigation field shall be maintained with 100% vegetative cover with a minimum 80% density for additional treatment and to minimize erosion.
9. When the vegetative cover is mowed, clippings shall be removed from the drip field.
10. 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.
11. 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.
12. Signs shall be posted around the disposal area indicating that the area is irrigated with treated wastewater effluent.
13. The reserve drip irrigation fields 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 fields.
14. 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.
15. A complete "Operations and Maintenance (O&M) Manual" of the wastewater treatment system shall be maintained and followed.
16. 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.
17. The current permitted treatment process may require modifications to comply with future total Phosphorous concentration limit requirements for nutrient surplus designated areas. This revision will require a permit modification.
18. Parameters sampled in Table 1 of Part I shall be reported to the Department prior to the 15th of the following month. Parameters sampled quarterly shall be reported to the Department prior to the 15th of the following month after sampling.

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
Water Division, 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.

“**Protective rate**” means the application rate for commercial fertilizers approved by the Arkansas Natural Resources Commission for designated nutrients that provides for proper crop utilization and prevention of significant impact to waters within the State.

“**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.

“**Annual**” or “**Yearly**” is defined as a fixed calendar year or any portion of the fixed calendar year for an effluent characteristic or parameter with a measurement frequency of once/year. A calendar year is January through December, or any portion thereof.

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 4811-WR-4 and AFIN 04-00899.

1. Permitting Authority

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

2. Applicant

Benton County, Arkansas Suburban Sewer District No. 1 - Villages of Cross Creek Project
PO Box 9299
Fayetteville, AR 72703

3. Facility Location

The facility located as follows: 2 miles east of I-540 in Rogers off of Hwy. 62 on Dixieland Road near the community of Little Flock in Section 35, Township 20 N, Range 30 W, in Benton County, Arkansas. The facility is located at the following coordinates:

Latitude: 36° 21' 54" N Longitude: 94° 8' 35" W

4. Receiving Stream Location

The facility is located in Stream Segment 3J of the Arkansas River Basin, which is located 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 2008 ADEQ 303(d) list of impaired waterbodies in the State of Arkansas are near the land application site. It was determined that none are present within 10 miles of the facility.

5. Previous Permit Activity

Previous Permit No.: 4811-WR-3
Previous AFIN: 04-00899
Original Effective Date: February 1, 2010
Modification Effective Date: January 15, 2015
Expiration Date: January 31, 2015

The permittee submitted a permit renewal application on July 23, 2014 which was revised due to a permit transfer and resubmitted on December 17, 2014 with additional information received on December 22, 2014; December 23, 2014; June 26, 2015; June 30, 2015; and July 6, 2015.

No-Discharge Monitoring Report Review:

The previous 5 years of No-Discharge Monitoring Report data were reviewed during the permit renewal process. There were 10 violations for CBOD, 18 violations for TSS, 12 violations for Fecal Coliform, and a failure to report for pH and Total Phosphorus. A corrective action plan is being requested by the Enforcement Branch.

Legal Order Review:

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

Site Visits/Inspections:

The Inspection Branch conducted a site visit on August 1, 2013. There were several violations noted and an adequate response was received.

6. Changes From the Previously Issued Permit

- A. Addition of monitoring requirements for Total Kjeldahl Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, and Plant Available Nitrogen; see Statement of Basis Part 13.A.ii.f.
- B. Additional flow monitoring; see Statement of Basis Part 13.A.ii.a.
- C. Table 2 in Part I.A of the permit was added; see Statement of Basis Part 13.A.ii.h.
- D. Table 3 in Part I.A of the permit was added; see Statement of Basis Part 13.A.iii.
- E. Part II.5 has been added; see Statement of Basis Part 13.B.ii.
- F. Schedule of Compliance added to Part I.B.
- G. Part II.2, Part II.3, and Part II.16 have been added to comply with Department policy.
- H. Part II.4 has been added; see Statement of Basis Part 13.B.i.
- I. Part II.7 has been added; see Statement of Basis Part 13.B.vi.
- J. Part II.11 has been added; see Statement of Basis Part 13.B.x.
- K. Part II.13 has been added; see Statement of Basis Part 13.B.xi.

7. Applicant Activity

Under the standard industrial classification (SIC) code 6513 or North American Industry Classification System (NAICS) code 531190, the applicant activities are for operation of apartment buildings. Under the SIC code 4971 or NAICS code 221310, the applicant activities are for a drip irrigation system. This permit is for the operation of a decentralized wastewater treatment with drip irrigation dispersal of the treated wastewater from a residential apartment complex.

8. Consultant for this Facility

Charles Presley
Presely Brannon Engineering
PO Box 607
Huntsville, AR 72740

9. Facility Type, Size, and Design Flowrates

The facility consists of 192 unit residential apartment complex on a 23 acre site. The apartments will be served by public water provided by Benton County Water District #1, Avoca, AR. The wastewater flows were estimated from water usage records for existing apartments in the Water District. The actual water usage value per existing apartment was then doubled to estimate the wastewater for this facility. The area used for drip irrigation is 6.78 acres, with 3.82 acres of active zones and 2.96 acres of reserved zones.

10. Waste Treatment and Storage Components

The treatment system is designed to treat 32,000 gpd of wastewater and consists of two large settling tanks. Each tank is sized for 35,000 gallons nominal capacity. The tanks are followed by a flow splitter and then by two model 36/30 BioClere treatment units in parallel. The treatment units have media for a fixed film process and are constructed with an integral clarifier under the media for biomass collection and recycling. The treatment units are followed by a 5000 gallon dosing tank with 8 turbine pumps sized to dose the treated wastewater to subsurface drip irrigation tubing.

11. Drip Irrigation Field Size and Loading Rate

Zones 1-6 are on 2.55 acres to the north of the facility. Zones 7, 8, and 11 are on 1.27 acres adjacent to the facility.

Drip Field Soil Loading Rates			
Zone Identification	Zone Area (ft ²)	Loading Rate (gpd/ft ²)	Maximum Capacity (gpd)
Zone 1	18,500	0.198	3700
Zone 2	18,500	0.198	3700
Zone 3	18,500	0.198	3700
Zone 4	18,500	0.198	3700
Zone 5	18,500	0.198	3700
Zone 6	18,500	0.198	3700
Zone 7	18,496	0.226	4290
Zone 8	18,496	0.226	2990
Zone 11	18,472	0.229	4230

12. Reserve Irrigation Field Size

Zones 9 and 12-17 are on 2.96 acres adjacent to the facility.

Drip Field Soil Loading Rates			
Zone Identification	Zone Area (ft ²)	Loading Rate (gpd/ft ²)	Maximum Capacity (gpd)
Zone 9	18,333	0.114	2090
Zone 12	18,441	0.143	2637
Zone 13	18,421	0.171	3150
Zone 14	18,446	0.065	1199
Zone 15	18,441	0.143	2637
Zone 16	18,480	0.125	2310
Zone 17	18,480	0.075	1386

13. Basis for Permit Conditions

The Arkansas Department of Environmental Quality has made a 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

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. Waste Conditions

a. Reporting requirements for monthly total flow and daily maximum flow

The monthly total flow and 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.

b. Limit for Carbonaceous Biochemical Oxygen Demand (CBOD5)

This limit is intended to prevent the formation of algae that contributes to the clogging of emitters and other equipment within the drip irrigation system. 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 being dispersed in a non-public area and is receiving additional treatment by the soil.

c. 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 30 mg/l is a consistently achievable limit and appropriate because treated effluent is being dispersed in a non-public area and is receiving additional treatment by the soil.

d. 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.

e. 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.

f. Reporting requirements for all nitrogen compounds in the waste

These concentrations are required to calculate the plant available nitrogen to comply with Part II, Condition No. 4 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.

g. 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. A specific limit for Total Phosphorus may be established to comply with future Total Phosphorous concentration limit requirements for nutrient surplus designated areas. This may require a permit modification.

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.

iii. Soil Limit

Limit for soil test phosphorus

Soil test phosphorus is the measure of phosphorus in the soil that is available for plants to use. It is required to determine the protective rate of application of waste containing phosphorus in Nutrient Surplus Areas. Treated effluent cannot be land applied on fields with high soil test phosphorus (greater than 100 lbs P/acre) or on fields if soil test phosphorus is not known at a protective rate. Soil test phosphorus varies due to plant uptake of phosphorus and chemical reactions in the soil.

B. Part II – Specific Conditions

i. Plant Available Nitrogen Requirement

The Water Division 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. Protective rates for phosphorus

Subsurface discharge of treated effluent is limited by the protective rates defined in Appendix B of Title 22, which manages soil nutrients in defined Nutrient Surplus Areas to protect waters of the State. Protective rates are designed to provide the nutrients needed for plants while preventing over-application of nutrients.

iii. 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.

iv. 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.

v. 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.

vi. 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.

vii. 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.

viii. Removal of grass clippings

The drip irrigation system disperses treated 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.

ix. 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.

x. 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 began and completed.

xi. 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.

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.

14. Financial Assurance

The permittee is considered a sewer improvement district based on the Judgement and Order Establishing Benton County Arkansas Suburban Sewer District No.1 – Villages of Cross Creek Project from May 9, 2012 which was submitted to the Department on October 15, 2014. This excludes them from the definition of a nonmunicipal domestic sewage treatment works in accordance with Ark. Code Ann. § 8-4-203(b)(1)(A)(ii); therefore, the permittee is not required to provide financial assurance to comply with the fee requirements stated in Ark. Code Ann. § 8-4-203(b).

15. Point of Contact

For additional information, contact

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Technical review

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16. 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 and 8-5-703, as amended.
- J. Ark. Code Ann. § 8-5-205, as amended.
- K. Arkansas Department of Health, “Rules and Regulations Pertaining to Onsite Wastewater Systems.”
- L. Judgement and Order Establishing Sewer District, received October 15, 2014.

- M. Renewal Application No. 4811-WR-4 received July 23, 2014
- N. Revised Application received December 17, 2014.
- O. Additional Information received December 22, 2014; December 23, 2014; June 26, 2015; June 30, 2015; and July 6, 2015.