

**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. Sec. 8-4-101 *et seq.*)

City Water & Light Plant of the City of Jonesboro - Eastside WWTP

is authorized to land apply municipal biosolids on sites listed in Condition No. 6 of Part II of the permit at 5205 Ingles Rd., Jonesboro, AR, 72404 in Craighead County, AR.

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

Effective Date: November 1, 2017

Expiration Date: October 31, 2022



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

9/29/17

Issue Date

Part I
PERMIT REQUIREMENTS

SECTION 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 I			
Biosolids Analysis, Reporting, and Record Keeping			
Parameter	Ceiling Concentrations (mg/kg) ¹	Cumulative Pollutant Loading Rate (lb/ac) ⁴	Monitoring Frequency
Arsenic	75	37	Quarterly ^{3,5}
Cadmium	85	35	
Copper	4300	1350	
Lead	840	270	
Mercury	57	15	
Molybdenum	75	Report	
Nickel	420	378	
Selenium	100	90	
Zinc	7500	2520	
Polychlorinated Biphenyls (PCB's)	50	N/A	
Parameter	Maximum Limit	Reporting Units	Monitoring Frequency
Total Solids	Report	Percentage (%)	Quarterly ^{3,5}
pH		S.U.	
Nitrate Nitrogen		mg/kg ¹	
Nitrite Nitrogen			
Ammonia Nitrogen			
Total Kjeldahl Nitrogen			
Total Phosphorus			
Total Potassium			
Sodium Absorption Ratio (SAR)		Unitless	
Total Volume of Waste Applied		gallons/acre/year	Prior to each application
Nitrogen Application Rate	² Depends on Crop	Lbs N/acre/year	

¹ Dry-weight Basis

² Refer to Condition No. 3 of Part II of the permit.

³ When land applying waste from multiple waste streams, the waste analysis and volume applied from each waste stream must be used to calculate the loading rate and application rates.

⁴ Refer to Condition No. 5 of Part II of the permit.

⁵ Sampled quarterly, but to be submitted with the annual reports.

TABLE II		
Soils Analysis, Reporting, and Record Keeping		
Parameter	Limit (Reporting Units)	Monitoring Frequency
Electrical Conductivity	4.0 (mmhos/cm)	Annually, Prior to the 1 st application of the calendar year per application site ²
Cation Exchange Capacity	Report (meq/100g)	
pH ¹	Report (s.u.)	
Sodium Adsorption Ratio (SAR)	12.0 (unitless)	
Nitrate-Nitrogen	Report (mg/kg)	Once every five (5) years per application site ²
Phosphorus		
Potassium		
Arsenic		
Cadmium		
Copper		
Lead		
Mercury		
Molybdenum		
Nickel		
Selenium		
Zinc		

¹ If the resulting pH is 5.7 or lower, lime must be applied in accordance with the University of Arkansas Cooperative Extension Service.

² One composite soil sample must be taken for every 40 acres.

SECTION B. SCHEDULE OF COMPLIANCE:

Compliance with all limitations and conditions is required on the effective date of the permit.

Part II
Specific Conditions

1. This permit is for the land application of municipal biosolids.
2. The land application operation shall be managed in accordance with the October 27, 2011 Waste Management Plan (WMP). If the WMP is inconsistent with this permit, the land application 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. Plant Available Nitrogen (PAN) shall be calculated using the following equations:

PAN Equations	
For Surface applied biosolids, PAN(mg/kg)	$0.3(\text{TKN} - \text{NH}_3) + 0.5\text{NH}_3 + \text{NO}_3 + \text{NO}_2$
For Subsurface applied or Incorporated biosolids, PAN(mg/kg)	$0.3(\text{TKN} - \text{NH}_3) + \text{NH}_3 + \text{NO}_3 + \text{NO}_2$
Conversion from PAN(mg/kg) to PAN(lbs/Dry Ton(DT))	$0.002 * \text{PAN}(\text{mg}/\text{kg})$

The biosolids must be applied at a rate (calculated in units of DT/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 authorized for land application under this permit. Any crop not listed in the following table may be added to the permit as a permit modification.

Nitrogen Uptake of Cover Crops	
Crop Name	Uptake (lbs/acre)
Bermuda	300

4. Land application sites shall maintain adequate vegetation to ensure the nitrogen uptake rate of the cover crop used to calculate the limit in Condition No. 3 is accurate. Land application sites containing forage crops shall maintain 100% coverage with minimum of 80% density. Land application site containing row crops shall be planted in a manner to produce a typical yield.
5. The permittee shall not land apply waste in a manner that would exceed the Cumulative Pollutant Loading Rate in Table I of Part I of the permit. All records demonstrating compliance with this condition shall remain on site and be made available to Department personnel upon request. Pollutant Loading Rate shall be calculated per application event using the following equations. Cumulative Pollutant Loading Rate is determined by cumulative summation of each application event.

$$\frac{\text{Pounds}}{\text{Acre}} = \text{Concentrations} \left(\frac{\text{mg}}{\text{kg}} \right) * 0.002 * \text{Application Rate} \left(\frac{\text{DT}}{\text{acre}} \right)$$

6. Land application sites are as follows:

Field ID ¹	New/ Existing	Section(s)	Township	Range	Acreage	Latitude	Longitude
Field No. 1	Existing	2	13 North	4 East	36.58	35° 47' 11.9" N	90° 37' 53.4" W
Field No. 2	Existing	2	13 North	4 East	51.00	35° 47' 24" N	90° 38' 16" W
Field No. 3	Existing	35	14 North	4 East	22.84	35° 47' 37" N	90° 38' 11" W
Field No. 4	Existing	35	14 North	4 East	25.68	35° 47' 38" N	90° 37' 52" W
Field No. 5	Existing	35	14 North	4 East	30.02	35° 47' 38" N	90° 37' 36" W
Field No. 6	Existing	2	13 North	4 East	9.39	35° 47' 12" N	90° 37' 32" W
Field No. 7	Existing	2	13 North	4 East	15.14	35° 47' 12" N	90° 38' 17" W
Field No. 8	Existing	2	13 North	4 East	28.35	35° 47' 13" N	90° 38' 6" W
Field No. 9	Existing	2	13 North	4 East	19.62	35° 47' 11" N	90° 37' 40" W
Field No. 10	Existing	2	13 North	4 East	13.33	35° 46' 59" N	90° 38' 23" W
Field No. 11	Existing	2	13 North	4 East	5.59	35° 47' 3" N	90° 38' 15" W
Field No. 12	Existing	2	13 North	4 East	19.21	35° 46' 59" N	90° 37' 36" W
Field No. 13	Existing	2	13 North	4 East	31.68	35° 46' 44" N	90° 38' 11" W
Field No. 14	Existing	2	13 North	4 East	15.49	35° 46' 47" N	90° 37' 37" W
Field No. 15	Existing	2	13 North	4 East	27.31	35° 47' 23" N	90° 37' 36" W
Field No. 16	Existing	2	13 North	4 East	46.19	35° 46' 51" N	90° 37' 51" W

¹All fields are owned by City Water & Light Plant of the City of Jonesboro

7. Each land use agreement must be maintained in effect during the permit term. A copy of the signed land use agreement must be available on site during land application operations. If a land use agreement becomes void during the permit term, the permittee must notify the Department for a modification of the permit.
8. The permittee shall determine if the land application sites are currently permitted or in use by another user. In the event that the Department determines that any land application site under this permit is permitted for land application under another Office of Water Quality permit, the Department may void this permit and enforcement action may be taken.
9. Biosolids shall be land applied by subsoil injection or surface applied. Surface applied biosolids must be evenly distributed over the entire application area. Incorporated biosolids shall be incorporated into the soil within 24-hours of application.
10. Waste shall not be discharged from this operation to the waters of the State or onto the land in any manner that may result in runoff to the waters of the State.
11. The allowable slope of land application site depends on waste application method. Wastes authorized by Condition 1 of Part II shall not be applied to the land application site with slopes greater than allowed by the table below.

Maximum Slope %	Acceptable Application
6	<ul style="list-style-type: none"> • Surface application of liquid waste • Injection of liquid waste • Surface application of dewatered waste solids • Surface application of dewatered waste with immediate incorporation
12	<ul style="list-style-type: none"> • Injection of liquid waste • Surface application of dewatered waste solids • Surface application of dewatered waste with immediate incorporation
15	<ul style="list-style-type: none"> • No application of liquid wastes without extensive runoff control • Surface application of dewatered waste with immediate incorporation

12. Land application is prohibited when the soils are saturated; frozen; covered with ice or snow; during precipitation events; or when precipitation is imminent (greater than a 50% chance of precipitation predicted by the nearest National Weather Service station) within a 24-hour period.

13. Land application of waste in a flood plain shall not restrict the flow of the base flood, reduce the temporary storage capacity of the flood plain, or result in a washout of solid waste, so as to pose a hazard to human, wildlife or land and water uses.

14. The permittee shall not cause or contribute to the taking of any endangered or threatened species of plant, fish or wildlife. The facility shall not result in the destruction or adverse modification of the known critical habitat of endangered or threatened species as identified in 50 C.F.R. Part 17.

15. Waste shall not be land applied within 100 feet of streams including intermittent streams, ponds, lakes, springs, sinkholes, rock outcrops, wells and water supplies; or 300 feet of extraordinary resource waters as defined by the Department's Regulation No. 2. Buffer distances for streams, ponds and lakes must be measured from the ordinary high water mark.

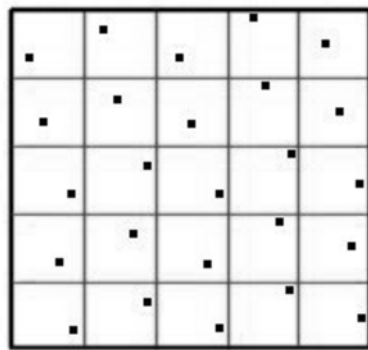
16. Waste shall not be land applied within 50 feet of property lines or 300 feet of neighboring occupied buildings existing as of the date of the permit. The restrictions regarding property lines or neighboring buildings may be waived if the adjoining property is also approved as a land application site under a permit issued by the Department or if the adjoining property owner consents in writing.

17. All boundaries, cited in Conditions 15 and 16 of Part II of the Permit, must be flagged prior to any land application event for all land application sites. Flags may not be removed until it has been verified that the land application system does not land apply within the cited setbacks.

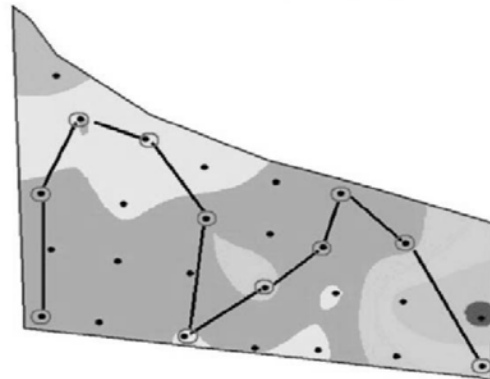
18. The biosolids generator must issue a signed certification stating that the Pathogen Reduction, Vector Attraction Reduction, and Pollutant Concentration Limits have been met. The State requirements on Pathogen Reduction, Vector Attraction Reduction, and Pollutant Concentration Limits are the same as those listed in 40 C.F.R. Part 503.32, 40 C.F.R. Part 503.33 and 40 C.F.R. Part 503.13. All the above information must be made available to the land-applicator before the biosolids materials are delivered. Concurrently, a signed copy of each certification must be also submitted to the ADEQ Office of Water Quality with the annual reports.

19. Biosolids can only be stored in accordance with the permit and the approved waste management plan, if provisions are made in the plan for that purpose.

20. The containers used for the transportation of the biosolids must be of the closed type. Transportation equipment must be leak-proof and kept in sanitary condition at all times. Biosolids must be enclosed or covered as to prevent littering, vector attraction, or any other nuisances. Transportation of the biosolids must be such that will prevent the attraction, harborage or breeding of insects or rodents.
21. The land application sites shall have the soils tested for the parameters listed in Table II of Part I of the permit. Soil samples shall be collected according to the following method:
- One composite soil sample shall be representative of ≤ 40 acres.
 - Identify representative sampling areas/zones that are uniform in soil and previous management history. Soils that are contained within the same soil association according to the USDA Soil Survey are considered uniform for the purposes of this permit. These areas shall be identified on a site map. The areas shall remain the same between each sampling event.
 - Using a clean soil probe, soil auger, or spade, collect a minimum of 20 individual subsamples to a 4-inch depth per sample area in a random zigzag or grid pattern (see Fig 1 below) in accordance with the sampling locations on the site map. If using a spade, avoid wedge shaped samples. One composite sample must be taken for every land application site identified in Condition 6 above.
 - Combine individual subsamples in a clean plastic bucket and mix thoroughly. Place a subsample of the mixed composite in a clean soil box and label with the field ID name, and permittee information. Subsamples shall be representative of each land application site.



Grid Pattern



Zig Zag

Figure 1. Representative Soil Sampling of Land Application Area Patterns

22. Annual Reports are due by May 1st of each year for the previous permitted months from January to December (i.e. Annual report is due on May 1st, 2016 for the 2015 calendar year). Annual reports shall be sent to the Department and to the owner of the land receiving waste and include the following:

- a. land application dates;
- b. land application locations;
- c. quantities of biosolids applied in dry tons per acre per year and in gallons per acre per year;
- d. methods of application;
- e. cover crop grown on each field;
- f. amounts of nitrogen applied;
- g. total elements added (in that particular year) in lbs per acre;
- h. total elements applied to date;
- i. copies of the biosolids analysis, soil analyses and the biosolids certification;
- j. map of locations of soil subsamples.

The annual reports shall be submitted to the following address:

Arkansas Department of Environmental Quality
Office of Water Quality, No-Discharge Section
5301 Northshore Dr.
North Little Rock, Arkansas 72118
Fax (501) 682-0880

Or

Water-permit-application@adeq.state.ar.us

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 (Ark. Code Ann. § 8-4-101 et seq.) 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 (Ark. Code Ann. § 8-4-101 et seq.) 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 (Ark. Code Ann. § 8-4-101 et seq.).

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 (within 24 hours). 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 (Ark. Code Ann. § 8-4-101 et seq.) 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. 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 (Ark. Code Ann. § 8-4-101 et seq.).

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.*) as amended.

“**Annual Pollutant Loading Rate**” means the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.

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

“**Application Site or Land Application Site**” means all contiguous areas of a users' property intended for sludge application.

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

“**Biosolids**” means any sludge or material derived from sludge that can be beneficially used. Beneficial use includes, but is not limited to, land application to agricultural land, forest land, a reclamation site or sale or give away to the public for home lawn and garden use.

“**Cumulative Pollutant Loading Rate**” means the maximum of an inorganic pollutant (dry-weight basis) that is applied to a unit area of land.

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

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

“**Dry weight-basis**” means 100 percent solids (i.e., percent moisture).

“**Land application**” means the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the land so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil. Land application includes distribution and marketing (i.e. the selling or giving away of the sludge).

“**Ordinary High Water Mark**” means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a cleat, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

“**Pathogen**” means an organism that is capable of producing an infection or disease in a susceptible host.

“**Pollutant Limit**” means a numerical value that describes the maximum amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the maximum amount of a pollutant that can be applied to a unit area of land (e.g., pounds per acre); the maximum density of a microorganism per unit amount of sewage sludge (e.g., Most Probable Number per gram of total solids); the maximum volume of a material that can be applied to a unit area of land (e.g., gallons per acre); or the maximum amount of pollutant allowed in plant tissue (e.g., parts per million).

“**Runoff**” means rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off of the land surface.

“**Sewage sludge**” means solid, semi-solid, or liquid residue generated during the treatment of domestic sewage and/or a combination of domestic sewage and industrial waste of a liquid nature in a Treatment Works. Sewage sludge includes, but is not limited to, domestic septage, scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the incineration of sewage sludge or grit and

screenings generated during preliminary treatment of domestic sewage in a Treatment Works. These must be disposed of in accordance with 40 CFR Part 258.

“Total solids” means the materials in the sewage sludge that remain as residue if the sludge is dried at 103 to 105 degrees Celsius.

“Vector Attraction” means the characteristic of sewage sludge that attracts rodents, flies, mosquitoes or other organisms capable of transporting infectious agents.

“Volatile Solids” means the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

“mg/kg” means milligram per kilogram.

“NH₃” means Ammonia Nitrogen.

“NO₃ + NO₂” means Nitrate + Nitrite Nitrogen.

“PAN” means Plant Available Nitrogen.

“TKN” means Total Kjeldahl Nitrogen.

“s.u.” shall mean standard units.

QUARTERLY:

(1) is defined as a fixed calendar quarter or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December; or

(2) is defined as a fixed three month period (or any part of the fixed three month period) of or dependent upon the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of once/quarter that does not coincide with the fixed calendar quarter. Seasonal calendar quarters May through July, August through October, November through January, and February through April.

SEMI-ANNUAL:

is defined as the fixed time periods January through June, and July through December (or any portion thereof) for an effluent characteristic with a measurement frequency of once/6 months or twice/year.

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.

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 5142-WR-1 and AFIN 16-00936.

1. Permitting Authority

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

2. Applicant

City Water & Light Plant of the City of Jonesboro
400 East Monroe, P.O. Box 1289
Jonesboro, AR 72403

3. Facility Location

The land application sites are located at: Eastside WWTP, 5205 Ingles Rd., Jonesboro, AR, 72404
Directions: 0.8 miles east of the intersection of AR St HWY 463 and Ingels Road. The facility is to the south. in Craighead County, Arkansas. The land application sites are located at the following coordinates:

Latitude: 35° 47' 29" N; Longitude: 90° 37' 51" W

4. Waterbody Evaluation

The land application sites are located in Stream Segment 5A of the St. Francis River basin, which is not in the Nutrient Surplus Area. Surrounding areas were evaluated to determine if any Extraordinary Resource Waters (ERWs), Ecologically Sensitive Waterbodies (ESWs), Natural and Scenic Waterways (NSW), or waterbodies in the 2008 ADEQ 303(d) list of impaired waterbodies in the State of Arkansas are near the land application sites. The waterbody evaluation was determined that the land application sites are more than 10 miles away from any impacted waterway. The land application sites meet the required setbacks; therefore, no additional permit requirements are necessary.

5. Permit History

- A. Permit No. AR0043401 was issued to City Water & Light Plant of the City of Jonesboro and effective March 1, 2012 for the land application of biosolids.
- B. Permit No. 5142-W was issued to City Water & Light Plant of the City of Jonesboro and effective November 1, 2012 for the land application of biosolids due to the general permit no longer covering this action.

6. Previous Permit Activity

Previous Permit No.: 5142-W
Effective Date: November 1, 2012
Expiration Date: October 31, 2017

The permittee has previously land applied biosolids under NPDES Permit No. AR0043401. The NPDES permit will no longer include land application of biosolids, and this No-Discharge permit covers all land application of biosolids at the permitted sites.

The permittee submitted a permit renewal application for a No-Discharge permit, which was received on May 7, 2017. It is proposed that the renewed water no-discharge permit be issued for a 5-year term.

Reports Review

The previous 5 years of reports were reviewed during the permit renewal process. No permit violations occurred and no further actions are required.

Legal Order Review:

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

Inspections:

No inspections occurred under the previous permit.

7. Changes from the Previously Issued Permit

- A. Removed magnesium, sodium, and calcium from the list of monitoring requirements in Table I of Part I. See No. 12.A.ii.k for more information.
- B. Added a limit for electrical conductivity in Table II of Part I. See No. 12.A.iii.b for more information.
- C. Added a limit for SAR in Table II of Part I. See No. 12.A.iii.d for more information.
- D. Removed magnesium from the list of monitoring requirements in Table II of Part I. See No. 12.A.iii.a for more information.
- E. Reduced the number of cover crops listed in Condition 3 of Part II to just include Bermuda, as it is the only cover crop mentioned in the WMP.
- F. Added Condition 5 of Part II. See No. 12.B.iii for more information.
- G. Added Condition 14 of Part II. See No. 12.B.xi for more information.
- H. Added Condition 21 of Part II. See No. 12.B.xiv for more information.
- I. Fixed the latitude and longitude of Field No. 1 in Condition 6 of Part II to ensure accuracy.

8. Applicant Activity

Under the standard industrial classification (SIC) code 4952 or North American Industry Classification System (NAICS) code 22132, the applicant's activities are the operation of a sewerage system. This permit is for the land application of municipal biosolids.

9. Waste Collection and Application Method

The biosolids (sludge) comes from the City Water & Light Wastewater Treatment Plant (WWTP), which is covered under NPDES Permit No. AR0043401. Secondary sludge from the final clarifiers is gravity thickened in gravity thickeners Nos. 1 and 2. Secondary sludge from final clarifiers Nos. 3 and 4 is sent to gravity thickener no. 3. Thickened sludge from gravity thickeners Nos. 1-3 is then sent to aerated sludge storage tanks Nos. 0-3. Aerated Sludge Storage Tanks No. 0, 1, 2, and 3 have a combined capacity of approximately 358,830 ft³ (2,684,232 gallons). Thickened sludge is first sent to Aerated Sludge Storage Tank No. 0, which is then subsequently transferred to Aerated Sludge Storage Tank No. 1, 2, and finally 3. Biosolids from Aerated Sludge Storage Tank No. 3 are land-applied through a fixed sludge irrigation system on the permittee's property, adjacent to the WWTP treatment units. When the biosolids cannot be land applied the sludge is temporary stored in the sludge storage tanks.

10. Total Available Acreage

The permittee has 397.4 acres available to land apply the waste. The application of wastes is limited by 40 C.F.R Part 503 ceiling concentration limits, 40 C.F.R. Part 503 cumulative pollutant loading, plant available nitrogen (PAN) equation and the nitrogen uptake rate of the cover crop, refer to Condition 3 of Part II of the permit.

11. List of all Land Application Sites

See Condition No. 6 of Part II of the permit.

12. 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 authorized pursuant to 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 thereunder.

Permit conditions, limits, reporting requirements, and justifications are listed as follows:

A. Part I—Permit Requirements

i. Monitoring Frequency

This facility proposes to land apply approximately 1,300 tons of biosolids annually; therefore, in accordance with Table 1 of 40 C.F.R. Part 503.16, the frequency of monitoring is quarterly. The monitoring frequency of quarterly prior to the first land application per waste stream per quarter is to ensure that a representative sample of what is being applied to the land is measured and recorded. In order to ensure over application of nutrients does not occur, the total volume of each waste and nitrogen application rate must be measured and recorded daily from each waste stream. The loading rates and application rates shall be calculated using each waste analysis and the volume of waste applied from each waste stream. The parameters that must be measured at this frequency can be compared to the soil parameters if a problem arises to determine if the land application is the pollutant source.

Some soil parameters only need to be measured once every 5 years because annual measurements do not show a significant accumulation.

ii. Waste Monitoring and Reporting Requirements

a. Limits and reporting requirements for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc in the biosolids

The associated limits and Cumulative Pollutant Loading Rates (CPLRs) are adapted from EPA's risk assessment Title 40 of the Code of Federal Regulations (C.F.R.) Part 503 rule that governs the land application of sewage sludge. This assessment considered 14 different pathways of exposure to highly exposed individuals, including humans, animals (including small organisms) and plants. These limits minimize the potential for the accumulation of metals in soils to concentrations that could have adverse effects on the environment.

b. Limit for polychlorinated biphenyls (PCBs) concentration in the biosolids

Biosolids can contain trace amounts of PCBs. The content of PCBs in biosolids to be land applied is limited to a maximum of 50 mg/kg under 40 C.F.R. Part 761. Annual reporting requirements for PCBs were included to verify compliance with the permit.

c. Reporting requirements for percent total solids in the biosolids

This parameter is required to convert the biosolids analysis values between a wet and dry basis.

d. Reporting requirements for pH of the biosolids

The pH of the biosolids must be reported to ensure that it will not negatively impact the pH of the soil. While a limit has not been implemented in the permit cycle, the Department will review this information and may implement limits on pH in the future, if deemed necessary.

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. 3 of Part II of the permit.

f. Reporting requirements for total phosphorus and total potassium in the biosolids

These constituents are required for plant growth and are monitored to ensure crop nutrients are provided.

g. Reporting requirements for Sodium Adsorption Ratio (SAR) in the biosolids

SAR is a measure of sodicity hazard commonly used to evaluate irrigation water and soils for agricultural use. Because the biosolids will be land applied, the SAR needs to be evaluated to show the biosolids is acceptable for use. According to the *Practical*

Handbook of Disturbed Land Revegetation (Munshower, 1994), when the SAR rises above 18 in the waste, serious physical soil problems arise and plants have difficulty absorbing water.

h. Total Volume of Waste Applied

The total volume of waste applied is also needed to calculate the loading of metals and nutrients to the land application site.

i. Nitrogen Application Rate

Land application of the waste covered under this permit is restricted by the nitrogen application rate. The nitrogen application rate is the amount of nitrogen applied to the land in pounds/acre/year. Using the nitrogen components of the waste analysis and the volume of waste applied, the nitrogen application rate shall be calculated using the equations provided in Condition 3 of Part II of the permit. In order to ensure the application of waste will not exceed the Plant Available Nitrogen (PAN) limit for the cover crop identified in Condition No. 3 of Part II of the permit, the nitrogen application rate must be calculated prior to each application.

j. Removal of reporting requirements for percent volatile solids and BOD5

The reporting requirements for percent of volatile solids and BOD5 were removed because the data are not used to evaluate the waste for land application. Please note, in cases where the permittee will be attempting to meet the vector reduction option in 40 CFR Part 503.33(b)(1) would be required to perform the required laboratory analysis.

k. Removal of the monitoring and reporting requirements of calcium, magnesium, and sodium in the waste

These parameters were removed from the permit because the Department was only using these analyses to calculate SAR and laboratories are able to calculate SAR without reporting these parameters.

iii. Soil monitoring and reporting requirements

a. Removal of the reporting requirement for magnesium in soils

This parameter was removed from the permit because the Department is only using the analysis to calculate SAR and laboratories are able to calculate SAR without reporting this parameter.

b. Limit for the electrical conductivity of the soil

The measurement of the electrical conductivity (EC) of the soil is used to determine the salinity or the amount of salts in the soil. In *Soils: an Introduction to Soils and Plant Growth*, an EC of 4.0 mmhos/cm or less is considered normal. Once the EC exceeds 4.0 mmhos/cm, the soil becomes Saline. Saline soils are known to reduce plant growth and affect soil permeability.

c. Reporting requirements for pH of the soil

Soil pH must be monitored to ensure compliance with Table II of Part I of the permit. The acidic limit of 5.7 was adapted from the University of Arkansas Cooperative Extension Service (UAEX) Self-study Guide 8: Soil Fertility Management in Pastures Essential Nutrient for Plant Growth to maintain an optimal pH for plant growth. Also when the pH becomes too low, heavy metals are more soluble and therefore more susceptible to leaching to the groundwater.

d. Reporting requirements for Sodium Adsorption Ratio (SAR) in the soil

In addition to evaluating SAR in the biosolids, it should also be monitored in the soils of the application site. According to the *Practical Handbook of Disturbed Land Revegetation* (Munshower, 1994), when the SAR rises above 12 to 15 in the soil serious physical soil problems arise and plants have difficulty absorbing water. According to the 2009 ADEQ Landfarm Study, University of Arkansas soil scientist, Dr. Kristofor Brye, recommends that the SAR in soil be less than 12. SAR values above this range are considered undesirable conditions for plant growth. High sodium content disperses the soil and causes it to crust. Sodium also negatively influences the ability of water to infiltrate the soil.

B. Part II—Specific Conditions

i. Plant Available Nitrogen (PAN) application limit

The Department 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. Any land application of industrial waste is limited by the nitrogen uptake of the cover crop and the PAN. The application rate is designed 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.

ii. Vegetation Cover Requirement

In order to ensure proper uptake of nitrogen, the land application site 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.

iii. Cumulative Loading Rate

The Office of Water Quality has provided the proper Cumulative Pollutant Loading Rate equation in order to ensure the permittee does not exceed the metal loading rate. Land application of biosolids is limited by the metal loading on the soils. The application rate is designed to be protective of the environment and has been adapted from 40 C.F.R. Part 503.

iv. Land Use Agreement

The permittee shall maintain a land use agreement with each land owner, in order to prevent over application of nutrients from multiple sources land applying waste to the same site. This condition encourages the applicant to confirm with the landowner that the site is not currently covered under another active permit before permitting the site.

- v. Permit termination if the land application site is currently permitted under a previously issued permit

A site covered in more than one permit is at risk of over application of nutrients and metals. This condition encourages the applicant to confirm with the landowner that the site is not currently covered under another active permit before permitting the site.

- vi. Even Application

In order to avoid over application to one area of the land application site, the waste shall be distributed evenly over the entire land application site. If the waste is over applied to one portion of the application site, there is potential for concentration on that portion of the site and the waste to runoff to the waters of the State.

- vii. No runoff or discharge requirement

A discharge from this site may result in pollutants entering the waters of the State in violation of Ark. Code Ann. § 8-4-217. Specific land application method requirements including even surface application or subsoil injection and precipitation and moisture limitations, are to ensure that no runoff containing potential pollutants will enter the waters of the State. These conditions are adaptations of APC&EC Regulation 5.406 (A) & (B).

- viii. Maximum allowable slope for the land application area

In order to protect waters of the State, additional measures must be taken to ensure contamination via runoff is prevented. Topography of the land application area affects the potential for runoff and erosion. The limits listed in Condition 11 of Part II of the permit were adapted from the *Wastewater Engineering: Treatment and Reuse, 4th Edition*, Table 14-51 as an acceptable maximum slope for the acceptable application of wastes.

ix. Land application during precipitation and saturated conditions

In order to protect waters of the State, additional measures must be taken to ensure contamination via runoff is prevented. Therefore, the Department adapted the associated conditions from APC&EC Regulation No. 5.406(B) that governs the liquid animal waste management systems. Land application of industrial waste is prohibited during a precipitation event or when significant precipitation is imminent. When land applying industrial waste there is a critical time to prevent runoff to the waters of the State, which is during land application and right after land application before the industrial waste has had time to absorb into the soil. In order to protect the environment, the Department defined the word “imminent” to mean greater than a 50% chance of precipitation predicted by the nearest National Weather Service station. When the National Weather Service station predicts greater than 50% chance of precipitation the Department believes there is a good chance of rain which could cause pollution to the waters of the State. Also, to ensure the facility will not land applying during precipitation, the operator must be present during any period of land application.

x. Land application of waste to a flood plain

Land application of waste to a flood plain shall not increase the level of the base flood by one foot or more, to avoid increasing the velocity of the flow downstream of the site, reducing the temporary storage capacity of the flood plain, or increasing the levels of the flood waters.

xi. Habitat protection

This condition is adapted from 40 C.F.R. Part 503 and is included to ensure that endangered or threatened species are considered and protected during land application.

xii. Buffer distances

Minimum buffer distances are required between land application areas and areas that may be vulnerable to water pollution in order to minimize the risk of nutrients or pollutants from leaving the field and reaching surface waters. Buffer distances were adapted from APC&EC Regulation 5.406(D) and generally accepted scientific knowledge and engineering practices.

xiii. Flagged Boundaries

In order to be protective of surface waters, minimum buffer distances have been established. In order to verify that the permittee will be applying waste within all of the required boundaries of the land application site(s), the Department will require all boundaries to be flagged prior to and be present during any land application events.

xiv. Soil Sampling

The sampling requirements were included in the permit to ensure the samples of the soils are collected in an appropriate manner and to ensure representative samples are collected.

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.

13. Point of Contact

For additional information, contact

Timothy Byrne
Engineer
Permits Branch, Office of Water Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
501-682-0648
E-mail: byrnet@adeq.state.ar.us

Technical review

Jamal Solaimanian Ph.D., PE
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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

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, as amended.
- B. APC&EC Regulation No. 5, Liquid Animal Waste Management Systems, as amended.
- C. APC&EC Regulation No. 8, Administrative Procedures, as amended.
- D. APC&EC Regulation No. 9, Fee System for Environmental Permits, as amended.
- E. 40 C.F.R. Part 503 for land application of sewage sludge.
- F. Ark. Code Ann. § 8-4-101 et seq., Arkansas Water and Air Pollution Control Act.
- G. Ark. Code Ann. § 4-75-601 et seq., Arkansas Trade Secrets Act.
- H. Arkansas Department of Health (2014). *Rules and Regulations Pertaining to Onsite Wastewater Systems*.
- I. Integrated Water Quality and Assessment Report (305(b) Report).
- J. US Army Corps of Engineers Regulatory Guidance Letter No. 05-05.
- K. 2009 ADEQ Landfarm Study.
- L. *Practical Handbook of Disturbed Land Revegetation*, Munshower, 1994.
- M. *Wastewater Engineering: Treatment and Reuse, 4th Edition*.

- N. UAEX Self-Study Guide 8: Soil Fertility Management in Pastures essential Nutrient for Plant Growth.
- O. *Soils: An Introduction to Soils and Plant Growth*: 4th Edition; Donahue, Miller, & Shickluna; 1977.
- P. USDA Natural Resource Conservation Service, *Indicators for Soil Quality Evaluation*, April 1996.
- Q. Application No. 5142-WR-1 received May 7, 2017.
- R. Additional information submitted June 5, 2017.
- S. Annual report dated April 4, 2017.

**RESPONSE TO COMMENTS
FINAL PERMITTING DECISION**

Permit No.: 5142-WR-1
Applicant: City Water and Light Plant of the City of Jonesboro (CWL) – East Side Wastewater Treatment Plant
Prepared by: Timothy Byrne

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 25, 2017. The public comment period ended on September 24, 2017.

During the public notice period, Jay Earley of City Water & Light Plant Jonesboro submitted comments to the ADEQ. Five (5) comments were received.

	Commenter	# of comments raised
1.	Jay Earley for City Water & Light Plant Jonesboro	5

Comment 1 Regarding Table II (Soils), page 2 of Part I, a 4.0 mmhos/cm limit for Electrical Conductivity (EC) in the soil was included in the Permit. All historical data of EC in the soil is significantly lower than the stated limit. With this monitoring data in mind and considering that we successfully produce and maintain an adequate cover crop (Bermuda grass) on our biosolids application sites indicating that current EC levels are conducive to plant growth, CWL respectfully requests that ADEQ consider removal of the monitoring and reporting requirements for EC in the Permit. At a minimum, CWL respectfully requests the removal of the numerical limit for EC in the Permit.

Response: The Department acknowledges the comment. However, the Department believes that it cannot be removed at this time. This may be reevaluated once we have received more data regarding the monitoring and reporting requirements for EC in the permit, as well as removing the numerical limit for EC in the permit. The EC limit is in place to reduce the possibility of plant growth reduction in cases where the value could spike and the soil could become saline.

Comment 2 Regarding Table II (Soils), page 2 of Part I, a 12.0 (unitless) limit for SAR in the soil was included in the Permit. Based on the historical data of the SAR in the soil, all results have been significantly lower than the stated limit. Additionally, SAR levels in the soil are unlikely to increase based on the low SAR levels in the biosolids being applied. With this monitoring data in mind and considering that

we successfully produce and maintain an adequate cover crop (Bermuda grass) on our biosolids application sites indicating that current SAR levels are conducive to plant growth, CWL respectfully requests that ADEQ consider removal of the monitoring and reporting requirements for SAR in the Permit. At a minimum, if ADEQ feels that the monitoring and reporting requirement cannot be removed, CWL respectfully requests the removal of the numerical limit for SAR in the Permit.

Response: The Department acknowledges the comment. However, the Department believes that it cannot be removed at this time but may be reevaluated once we have received more data regarding the monitoring and reporting requirements for SAR in the permit. The SAR reporting requirement is in place to inform the distributor of any change that could occur in the waste or the soil over time. The reporting and monitoring requirement will limit the possibility of serious physical soil problems

Comment 3 Regarding Part II, page 3, #17, CWL land applies biosolids using a fixed spray irrigation system. The location of the spray nozzles and area of sludge application was designed around the boundaries cited in Conditions 15 and 16 of Part II of the Permit. Therefore waste is not applied within any of the boundaries cited in Condition 15 and 16 of Part II of the Permit. The nozzles and the application areas cannot be changed without significant modifications. With this in mind, CWL respectfully request that ADEQ consider removing “and present during” from Condition #17. Flags present during application and throughout the year present difficulties during the harvest and maintenance of our cover crop (Bermuda grass).

Response: The Department acknowledges the comment. The permit has been amended to no longer include the flags to remain year round. However, language was added to the condition saying flags may not be removed until it is verified that the land application system is not land applying within the setbacks

Comment 4 Regarding Item #12.A.iii.e, page 6 of the Statement of Basis, it states that if cation exchange capacity, nitrate-nitrogen, phosphorus, and potassium concentrations in the soil have increased, ADEQ may require cessation of land application activities, further testing, or remediation activities. CWL respectfully requests clarification as to what ADEQ constitutes as an increase in concentrations in the soil and what is the baseline for determining an increase in concentrations.

Response: The Department acknowledges your comment. The statement regarding the cessation of land application activities, further testing, or remediation activities is ambiguous and will be removed for clarification.

Comment 5 Regarding Item #12.A.iii.f, page 6 of the Statement of Basis, it states that if arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc concentrations in the soil have increased, ADEQ may require cessation of land application activities, further testing, or remediation activities. CWL respectfully

requests clarification as to what ADEQ constitutes as an increase in concentrations in the soil and what is the baseline for determining an increase in concentrations.

Response: The Department acknowledges your comment. The statement regarding the cessation of land application activities, further testing, or remediation activities is ambiguous and will be removed for clarification.

Part	Draft Permit	Final Permit	Comment #
Part II, Page 3, Condition 17	All boundaries, cited in Conditions 15 and 16 of Part II of the Permit, must be flagged prior to and present during any land application event for all land application sites.	All boundaries, cited in Conditions 15 and 16 of Part II of the Permit, must be flagged prior to any land application event for all land application sites. Flags may not be removed until it has been verified that the land application system does not land apply within the cited setbacks.	3
Statement of Basis, Page 6, Part 12.A.iii.e	<p><u>Reporting requirements for cation exchange capacity, nitrate-nitrogen, phosphorus, and potassium in soils</u></p> <p>These parameters are indicators of soil quality. The chemical condition of soil affects soil-plant relations, water quality, buffering capacities, availability of nutrients and water to plants and other organisms, mobility of contaminants, and some physical conditions. (USDA Natural Resources Conservation Service "Indicators for Soil Quality Evaluation" April 1996.) Reporting requirements are included to verify that problems from over-application of wastes or other sources are not occurring. If results indicate that soil concentrations have increased, the Department may require cessation of land application activities, further testing, or remediation activities</p>	Removed	4

Part	Draft Permit	Final Permit	Comment #
Statement of Basis, Page 6, Part 12.A.iii.f	<p><u>Reporting requirements for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc in soils</u></p> <p>The list of metal cations was adapted from 40 C.F.R. Part 503 for the land application of sewage sludge. Limits were not established due to the variability of analyzing the concentrations of these metals. Reporting requirements are included to verify that metals from land application of waste or other sources are not being applied at a rate that causes accumulation of metals to levels that could have adverse effects on the environment. If results indicate that soil concentrations have increased, the Department may require cessation of land application activities, further testing, or remediation activities.</p>	Removed	5