

**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.*)

**Pet Solutions, LLC  
10511 Gauge Rd.  
Danville, AR 72833**

is authorized to land apply industrial waste, as defined in Part IV, on sites listed in Condition No. 5 of Part II of the permit in Yell County, AR.

The land application sites are located at least 100 feet from tributaries to the Petit Jean River in Stream Segment 3G of the Arkansas River basin.

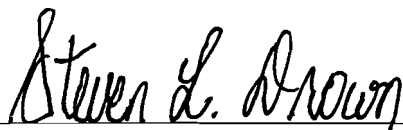
Operation shall be in accordance with all conditions set forth in this permit. In accordance with Condition No. 23 of Part III of the permit, the permittee must reapply for permit coverage at least 180 days prior to the expiration date.

Response to Comments is attached.

Effective Date: June 1, 2010

Modification Effective Date: August 1, 2012

Expiration Date: May 31, 2015



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Steven L. Drown  
Chief, Water Division  
Arkansas Department of Environmental Quality



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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.

<b>TABLE I</b>			
<b>Waste Analysis, Reporting, and Record Keeping</b>			
<b>Parameter</b>	<b>Ceiling Concentrations (<sup>2</sup>mg/L)</b>	<b>Cumulative Pollutant Loading Rate (lbs./ac)</b>	<b>Monitoring Frequency</b>
Arsenic	75	37	Annually, prior to the 1 <sup>st</sup> application of the calendar year
Cadmium	85	35	
Copper	4300	1350	
Lead	840	270	
Mercury	57	15	
Molybdenum	75	N/A	
Nickel	420	378	
Selenium	100	90	
Zinc	7500	2520	
<b>Parameter</b>	<b>Maximum Limits</b>	<b>Reporting Units</b>	<b>Monitoring Frequency</b>
Electrical Conductivity	Report	mmhos/cm	Annually, prior to the 1 <sup>st</sup> application of the calendar year
Total Solids		Percentage (%)	
Nitrate Nitrogen		<sup>2</sup> mg/kg	
Nitrite Nitrogen			
Ammonia Nitrogen			
Total Kjeldahl Nitrogen			
Total Phosphorus			
Total Potassium			
Magnesium			
Sodium			
Calcium			
Oil & Grease		S.U.	
pH		S.U.	
Sodium Absorption Ratio (SAR)	18.0	Unitless	
Debris	0.50	inches	
Nitrogen Application Rate	<sup>1</sup> Depends On Crop	lbs. N/acre/year	Annually, by keeping records prior to each application.
Total Volume of Waste Applied	Report	gallons/acre/year	

<sup>1</sup> Refer to Condition No. 3 of Part II of the permit.

<sup>2</sup> When sampling the sludge from the ponds for land application, the correct reporting units are mg/kg.

<b>TABLE II</b>		
<b>Soils</b>		
Parameter	Limit (Reporting Units)	Monitoring Frequency
Electrical Conductivity	4.0 (mmhos/cm)	Annually, prior to the first application of the year.
Cation Exchange Capacity	Report (meq/100g)	
pH <sup>1</sup>	Report (S.U.)	
Sodium Adsorption Ratio (SAR)	12.0 (Unitless)	
Calcium	Report (mg/kg)	
Magnesium		
Sodium		
Nitrate-Nitrogen		
Phosphorus		
Potassium	Report (mg/kg)	Once every five (5) years
Arsenic		
Cadmium		
Copper		
Lead		
Mercury		
Molybdenum		
Nickel		
Selenium		
Zinc		

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

**Part II  
 SPECIFIC CONDITIONS**

1. This permit is for the land application of industrial waste.
2. The waste disposal system shall be operated in accordance with the April 30, 2012 Waste Management Plan (WMP). If the WMP is inconsistent with this permit, the waste disposal system shall be operated 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 waste, 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 waste, 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))	$0.002 * \text{PAN}(\text{mg/kg})$

The waste must be applied at a rate (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 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)	Crop Name	Uptake (lbs./acre)
Barley	59	Rye	50
Buckwheat	32	Sorghum	121
Corn	208	Wheat	70
Oats	75	Bermuda	300
Rice	106	Fescue	138

4. Land application fields shall possess adequate vegetation to ensure the nitrogen uptake rate of the cover crop used to calculate the limit in condition No. 3 is accurate. Fields possessing row crops must be planted in a manner to produce the typical yield per acre for that crop listed in the USDA's "Agricultural Waste Management Field Handbook." Fields containing other vegetation shall be maintained at a minimum of 80% vegetative cover. Waste Application shall not occur on land without vegetative cover unless the waste is either subsurface injected or incorporated into the soil.
5. Land application sites are as follows:

Owner	Field ID	New/ Existing	Section(s)	Township	Range	Acreage	Latitude	Longitude
Pet Solutions, LLC.	Field #1	Existing	11	5N	21W	43.6	35°05'43" N	93°12'00" W
	Field #2	New	12	5N	21W	32.6	35°05'43" N	93°11'19" W

6. 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 Water Division permit, the Department may void this permit and enforcement action may be taken.
7. Waste shall be land applied by surface application. Surface applied waste must be evenly distributed over the entire application area.
8. 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 or ponding on the surface of the land. Ponding caused by rainfall/stormwater must not have a visual sheen.
9. The allowable slope of the land application site depends on the waste application method. Waste shall not be applied to the land application site with slopes greater than allowed by the table below.

<b>Slope %</b>	<b>Acceptable Application</b>
6	Surface Application of Liquid Waste
12	Injection of Liquid Waste/Surface Application of Dewatered Waste
15	No Application of Liquid Wastes without extensive runoff control/ Surface Application of Dewatered Wastes with immediate incorporation

10. Land application is prohibited when the soils are saturated; frozen; covered with ice or snow; during precipitation events; or when precipitation is imminent (50% chance of precipitation predicted by the nearest National Weather Service station).
11. Disposal 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 life, wildlife, or land and water uses.
12. Waste shall not be spread within: 50 feet of property lines and rock outcrops; 100 feet of lakes, ponds, springs, wetlands, streams, and sinkholes; 200 feet of drinking water wells; or 300 feet of occupied buildings or bodies of water classified as an "extraordinary resource body of water." All boundaries must be flagged prior to land applying.
13. The Permittee must comply with 40 CFR 257 Appendix I, which refers to the Maximum Contaminant Levels promulgated under the Safe Drinking Water Act.
14. Solid material accumulated in the waste storage dike, pits or vessels shall be removed as necessary to maintain the basin's design volume and to protect the storage system. Solids collected in the basin shall be disposed by methods approved by the Director.
15. The permittee must keep current records of the waste that is shipped from the facility. The outgoing waste records must include: volumes of the waste, the name of the entity receiving the waste, type of waste, and shipping date.
16. The permittee is required to maintain a freeboard of 12 inches in Pond #1 and Pond #2. The permittee is required to maintain a freeboard of 26 inches in Pond #3.

17. The depth of the sludge in the storage lagoons shall be measured once every five years and reported with the permit renewal application.
18. Should the facility under this permit cease operations, the permittee shall submit to the Department, for approval, a closure plan for the system storage structures within sixty (60) days of the final day of operation.
19. Annual reports are due by May 1<sup>st</sup> of each year for the previous permitted months from January to December (i.e. Annual report is due on May 1<sup>st</sup>, 2012 for the 2011 calendar year). The annual reports shall include the following:
  - A. land application dates;
  - B. land application locations;
  - C. quantities of waste applied in dry tons per acre per year and/or in gallons per acre per year;
  - D. methods of disposal;
  - E. amounts of nutrients applied;
  - F. total amount of PAN applied on each field (pounds/acre);
  - G. cover crop of each field;
  - H. total metals added (in that particular year) in lbs. per acre;
  - I. total metals applied to date;
  - J. copies of the waste and soil analyses

The annual reports shall be submitted to the following address:

Arkansas Department of Environmental Quality  
Water Division, No-Discharge Section  
5301 Northshore Dr.  
North Little Rock, Arkansas 72118  
Fax (501) 682-0910

Or

[Water-permit-application@adeq.state.ar.us](mailto: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 a civil penalty 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 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) 682-0910

Or

[Water-enforcement-report@adeq.state.ar.us](mailto: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 or 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.)

“**APCEC**” means the Arkansas Pollution Control and Ecology Commission.

“**Applicable water quality standards**” means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303 (a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under APCEC Regulation No. 2, as amended, (regulation establishing water quality standards for surface waters of the State of Arkansas.)

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

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

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

“**Industrial Waste**” means water and sludge from the treatment of boiler blow-down water, wet scrubber blow-down, centrifuge wastewater, facility wash-down water, and process liquids from a protein conversion facility.

“**s.u.**” means 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 modification of a No-Discharge operation under permit number 3778-WR-5 and AFIN 75-00051.

1. **Permitting Authority**

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

2. **Applicant**

Pet Solutions, LLC  
10511 Gauge Rd.  
Danville, AR 72833

3. **Facility/Waste Description**

Pet Solutions, LLC owns and operates a protein conversion facility in Centerville, AR. The facility processes chicken material to recover protein, nutrients, and fats. The recovered products are sold in bulk for use as additives in animal feeds. The permittee must analyze the waste in accordance with Table I of Part I of the permit. The annual application rates will be governed by the nitrogen contents of the waste and the nitrogen uptake of the cover crop at the land application site. This permit is for the land application of industrial waste.

4. **Receiving Stream Location**

The land application sites are located at least 100 feet from tributaries of the Petit Jean River in Stream Segment 3G of the Arkansas River Basin. Neither the Petit Jean River nor its tributaries in Stream Segment 3G are listed on the 2008 ADEQ 303(d) List of Impaired Streams of the State of Arkansas. This facility plans to grow Bermuda and Bahia grass on its land application sites.

5. **Consultant for this Facility**

Andrew Rike  
Harbor Environmental & Safety  
8114 Cantrell Road, Suite 350  
Little Rock, AR 72227

**6. Previous Permit Activity**

Previous Permit No.: 3778-WR-4  
Effective Date: 6/1/2010  
Expiration Date: 5/31/2015

The permittee submitted a permit modification application which was received on 4/5/2011, with additional information received 6/15/2011, 10/13/2011, and 4/30/2012. It is proposed that the modified water no-discharge permit be reissued with an expiration date of 5/31/2015.

Legal Order Review:

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

Site Visits/Inspections:

The facility was last inspected on 2/26/2008 and found the following violations:

- A. A waste management plan was not on file at the facility.
- B. Solids that were land applied in the summer of 2007 were observed as having been spread within 100 feet of an ephemeral drainage located in the application field.
- C. The improper storage of waste by-products and inadequate housekeeping measures were observed. Specifically, the waste piles at the northwest corner of the facility, the spillage of waste in this same area and spillage on the levees of Pond 1. This is considered placing waste in a location where it is likely to cause pollution to the waters of the State.
- D. Reviewed sampling analyses for the April 2006 through March 2007 reporting period showed that only one waste sample was collected during that time. The permit requires that semiannual grab samples of the land applied waste be collected for analysis.

**7. Applicant Activity**

Under the standard industrial classification (SIC) code 2077 or North American Industry Classification System (NAICS) code 311613, the applicant activities are for a refuse system. This permit is for the land application of industrial waste.

**8. Waste Storage and Land Application**

Pet Solutions, LLC owns and operates a protein conversion facility in Centerville, AR. The facility processes chicken material from chicken processing plants to recover protein, nutrients, and fats. The recovered products are sold in bulk for use as additives in animal feeds. This permit is for the land application of industrial waste.

Wastewaters from the recovery processes first flow into Pond #1. These wastewaters consist of water and sludge from the treatment of boiler blow-down water, wet scrubber blow-down, centrifuge wastewater, facility wash-down water, and process liquids. Pond #1 is the primary anaerobic lagoon used as a receiving, settling, and separation pond. Chemical adjustment may be done as needed. The dimensions of Pond #1 are 125 feet by 335 feet by 11 feet (2,430,745 gallon capacity) with a 12 inch freeboard and 2:1(H:V) side slopes. The majority of the sludge will come from Pond #1. Wastewater from the mid-depth of the pond then flows into Pond #2.

Aerobic biological treatment and chemical adjustment are accomplished in Pond #2. The dimensions of Pond #2 are 130 feet by 150 feet by 21 feet (1,443,641 gallon capacity) with a 12 inch freeboard and 2:1(H:V) side slopes. Wastewater then flows into Pond #3.

Pond #3 is known as the holding pond and will store wastewater until land application. Two surface aerators are utilized to maintain aerobic conditions in Pond #3. The dimensions of Pond #3 are 140 feet by 560 feet by 13 feet (4,810,534 gallon capacity) with a 26 inch freeboard and 2:1(H:V) side slopes.

Treated wastewater will be land applied to Field #1 via a traveling reel sprinkler irrigation system. Field #2 will utilize center pivots. Sludge is rarely land applied from this facility. However, when necessary, sludge is land applied via a manure spreader.

**9. Total Available Acreage**

There are 76.2 acres covered under this permit. The annual application of wastes is limited by the plant available nitrogen (PAN) equation and the nitrogen uptake rate of the cover crop, Condition No. 3 of Part II of the permit.

**10. Permit History**

- A. Permit No. 3778-W was issued to J & B Farms, Inc. and effective 12/30/1989.
- B. Permit No. 3778-WR-1 was issued to J & B Farms, Inc. and effective 4/28/1999.
- C. Permit No. 3778-WR-2 was issued to J & B Farms, Inc. and effective 9/22/2004 for a renewal.
- D. Permit No. 3778-WR-3 was not issued.
- E. Permit No. 3778-WR-4 was issued to Pet Solutions, LLC and effective 6/1/2010.

**11. List of All Land Application Sites**

See Permit Condition No. 5 of Part II.

**12. Basis for Permit Conditions**

The Arkansas Department of Environmental Quality has made a tentative determination to issue a permit for the no-discharge facility as described in the application and waste management plan. Permit requirements and conditions are based on regulations 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.)

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



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

The associated limits and Cumulative Pollutant Loading Rate (CPLRs) are adopted from EPA's risk assessment Federal Part 503 rule that governs the land application of biosolids. 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.

Removal of reporting requirement for chromium

Chromium was removed in accordance with revisions to the 40 CFR Part 503 as stated in Federal Register Document 95-25740.

Reporting requirements for percent total solids of the waste

This parameter is required to convert between a wet and dry basis.

Reporting requirements for all nitrogen compounds in the waste, Plant Available Nitrogen (PAN) application limit, and vegetation cover requirement

This permit is based on land application in accordance with agronomic rates. In order to determine what application rates need to be used the PAN must be known. Nitrate-nitrogen, nitrite-nitrogen, ammonia-nitrogen, and total Kjeldahl nitrogen are required in order calculate the PAN in order to comply with Condition No. 3 of Part II. The application rate of PAN is limited to the nitrogen uptake rate of the cover crop. The rate is designed to provide the amount of nitrogen needed by the crop or vegetation while minimizing the risk of nitrogen supplied in the waste from migrating to the groundwater. This limit ensures that nitrogen supplied in the waste will have no greater impact on groundwater than that supplied in agricultural operations using commercial fertilizers or manure.

Reporting requirements for total phosphorus and total potassium in the waste

These constituents are required for plant growth and are monitored to ensure crop nutrients are provided. Also, phosphorus may be the limiting nutrient in the Nutrient Surplus Area as delineated by the Arkansas Natural Resource Commission.

Reporting requirements for the pH in the waste

The preferred pH range of 6.0-9.0 is adapted from APC&EC Regulation No. 2 because this range supports bacteria and plant growth. See also "Reporting requirements for pH of the soil." The land application of wastes outside of this range can slowly change the pH of the soils in the land application site to an undesirable level thus requiring the addition of soil amendments to adjust the soil pH to acceptable levels. When the pH becomes too low, heavy metals are more soluble and therefore more susceptible to leaching to the groundwater. When the pH is too high, soils may have an inadequate availability of iron, manganese, copper, zinc, boron, and phosphorus that may cause plant growth to be stunted and reduce the uptake of these elements by the plants.

Reporting requirements for Oil & Grease

The permitted waste is known to contain high levels of Oil & Grease. Excessive application of Oil & Grease has the potential to kill or prevent the growth of crops, as well as become a source of pollutants in groundwater and surface water. The Department may require a limit for this parameter in future permits.

Debris limit of 0.5 inches

Solid material larger than 0.5 inches is not allowed to be land applied under this permit, since this material could not be conveyed through the allowable application methods.

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 adopted from the University of Arkansas Cooperative Extension Service 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.

Sodium Adsorption Ratio (SAR) and reporting requirements for magnesium, calcium, and sodium in the waste and the soil

SAR is a measure of sodicity hazard commonly used to evaluate irrigation water and soils for agricultural use. Because these sites will be irrigated, using the water from the sedimentation basins, the SAR needs to be evaluated to show the water is acceptable for use. According to the *Practical Handbook of Disturbed Land Revegetation* (Munshower, 1994), when the SAR rises above 12 to 15 in the soil or 18 in the waste, 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. Soils with a SAR above the acceptable range are also not easily remediated. The Department has decided to impose the limit of 12 for SAR in the soil and require reporting only of the SAR in the waste. In this case, the parameter has not been required previously and there is not enough data for this type of waste to make a determination and impose a limit. However, if the SAR in the waste is or will be approaching the previously mentioned recommended limits, the Department may impose the recommended limits and require additional treatment in order to lower the SAR to acceptable levels. SAR is calculated using the following equation. In order to calculate SAR, the concentrations of magnesium, calcium, and sodium must be known. All parameters are expressed as mg/kg.

$$SAR = \frac{Na/23}{\sqrt{\frac{Ca/20 + Mg/12}{2}}}$$

Reporting requirements for cation exchange capacity, nitrate-nitrogen, phosphorus, and potassium in soils

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.

Reporting requirements for the electrical conductivity of the waste and the soil and reporting of the waste volume

The measurement of the electrical conductivity (EC) of the waste is used to determine the salinity or the amount of salts in the waste. EC is commonly used to determine if waters are appropriate for use in irrigation. The Department uses these parameters to verify that the acreage is appropriate for the proposed volume of fluids to prevent over-application of salts. The equation used to determine the minimum area required based on Electrical Conductivity is as shown below. Conductivity is expressed in  $\mu\text{mhos/cm}$  and volume is expressed in barrels.

$$A_c = \frac{1.7 \times 10^{-4} (EC_{\text{Effluent}}) (V_{\text{Effluent}})}{1000 - EC_{\text{Soil}}}$$

Reporting requirements for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc in soils

The list of metal cations was adopted from 40 C.F.R. Part 503 for the land application of biosolids. 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.

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.

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 9 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 biosolids.

Disposal of waste to a flood plain

Disposal 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.

Freeboard requirements

To ensure that the facility does not have a discharge by overflowing the ponds, they will be required to maintain a minimum freeboard of 12 inches in Pond #1 and Pond #2. The permittee will be required to maintain a freeboard of 30 inches in Pond #3. The freeboard requirement for Pond #3 is due to the design of the system. At this facility, Pond #1 flows into Pond #2 which flows into Pond #3. This means that Pond #3 will need to be able to receive the total volume of rainfall from a 25yr-24hr storm event from the 3 ponds. The total volume to be received is 85,030 cubic feet of water which equates to 1.13 foot depth in Pond #3. In order to maintain the 12 inch freeboard and receive the 25yr-24hr storm event, Pond #3 will need to have a 2.13 foot freeboard which is approximately 26 inches.

Depth of Sludge

Measuring the depth of the sludge in the storage pond(s) are required to ensure that the facility's treatment plant is operating properly. If the results show that the facility cannot properly operate the treatment plant, the facility may be required to remove the sludge to an adequate depth.

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 adopted from APC&EC Regulation 5.40 and generally accepted scientific knowledge and engineering practices.

Standard Conditions

The conditions applicable to all no-discharge permits have been included in this permit based on generally accepted scientific knowledge and engineering practices (Ark. Code Ann. § 8-4-203 (e)(2)(B)(i)) and the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.) and Ark. Code Ann. § 8-1-101 et seq.

**13. Changes from the Previously Issued Permit**

- A. Added 32.6 acres of land application area as requested by the permittee.
- B. Added monitoring requirements for Electrical Conductivity, Sodium Adsorption Ratio (SAR), Calcium, Magnesium, Sodium, and debris size in the waste.
- C. Added limits for the SAR and debris size in the waste.
- D. Removed Chromium from the monitoring requirements of the waste and the soil.
- E. Added monitoring requirements for SAR, Calcium, and Sodium in the soil.
- F. Added limits for the SAR and Electrical Conductivity in the soil.
- G. Added freeboard requirements and sludge depth reporting.

**14. Point of Contact**

For additional information, contact the permit writer at:

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**15. Sources**

The following Sources were used to draft the permit:

- A. APC&EC Regulation No. 2, Water Quality Standards for Surface Waters of the State of Arkansas.
- B. APC&EC Regulation No. 5, Liquid Animal Waste Management Systems.
- C. APC&EC Regulation No. 8, Administrative Procedures.
- D. APC&EC Regulation No. 9, Fee System for Environmental Permits.
- E. 40 CFR 503 for land application of biosolids.
- 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. Integrated Water Quality and Assessment Report (305(b) Report).
- I. "Wastewater Engineering: Treatment and Reuse, 4th Edition," Table 14-51.
- J. USDA Part 651, Animal Waste Management Field Handbook.
- K. Recommended Standards for Wastewater Facilities, 2004 Edition.
- L. Application for Permit No. 3778-WR-5 was received on 4/5/2011.
- M. Additional information submitted 6/15/2011, 10/13/2011, and 4/30/2012.
- N. Comment letter from Andrew Rike received via email on 5/25/2012.



ARKANSAS  
Department of Environmental Quality

## RESPONSE TO COMMENTS

This is the Water Division's response to comments received on the subject draft permit in accordance with Reg. 8.211(A)(2) promulgated by the Arkansas Pollution Control and Ecology Commission (APC&EC) pursuant to Ark. Code Ann. § 8-4-203 *et seq.*

Subject: Permit No. 3778-WR-5  
Pet Solutions, LLC.

Prepared by: Stephen Hogan, P.E., Engineer, Permits Branch, Water Division

Permit Action: Final decision and response to comments received on the draft permit publicly noticed on May 30, 2012.

Date Prepared: July 31, 2012

The following comments were received on the draft permit:

A letter was received from Andrew Rike, consultant, via email on May 25, 2012.

### ISSUE #1

The consultant objects to the addition of the requirement to maintain a five (5) foot separation between the land application site and groundwater. This condition will make some of the land application sites unusable. This condition is unjustified and could pose a financial impact to the facility. Furthermore, the affected sites would not receive the benefit of the nutrients from the site. Please remove this condition from the permit.

### RESPONSE #1

The Department acknowledges the comment. The Department believes that by monitoring the waste and the soils, allowing appropriate application rates based on the Plant Available Nitrogen (PAN) equation from Condition No. 3 of Part II of the Final permit, and implementing best management practices are sufficient to protect groundwater and the environment. In the event the Department finds that there is a significant change in the soil or waste sample results or other issues of concern, the Department can require additional measures be implemented in order to abate or prevent pollution to Waters of the State. Therefore, this condition will be removed from the permit.