

**Arkansas Department of Environmental Quality
Water Division**

LAND APPLICATION AND/OR STORAGE OF WATER-BASED DRILLING FLUIDS PERMIT APPLICATION

The Arkansas Department of Environmental Quality (ADEQ) Water Division will not accept this application package unless all the instructions are followed. Plans, specifications, and supporting documents shall be prepared in accordance with all applicable Arkansas Pollution Control and Ecology Commission (APCEC) regulations, ADEQ guidelines, and good and acceptable engineering practices. Failure to submit all of the required items in the order described below will lead to additional processing and review time for the permit application.

For more information, links to other forms, or for an electronic version of this form, visit the Water Division web site at: http://www.adeq.state.ar.us/water/branch_permits

A. General (All New or Modification Application Packages):

1. All designs and documentation must conform to all applicable state and federal rules and regulations.
2. If approvals or permits in addition to those listed in Section J are necessary for the construction of these facilities, the Department may hold approval of this application package to coordinate with other approvals.

B. Cover Letter (All Application Packages):

1. Submit an original cover letter, which lists all items and attachments included in the application package as well as a brief description of the requested permitting action. For modifications, describe the proposed changes from the previous permit. This letter shall be signed by the person signing the application form (Permittee).
2. If the application is for a renewal, include a statement confirming that there have been no changes made to the system.

C. Application Form (All Application Packages):

1. Submit an original completed and appropriately executed application form. The instructions (Pages 1 through 4) need not be submitted. Any content changes made to this form will result in the application package being returned. The Department will only accept application packages that have been fully completed with all applicable items addressed.
2. The application must be made in the applicant's legal name, whether this is an individual or company name.
3. If the applicant (Permittee) is a corporation or company, it must be registered for business with the Arkansas Secretary of State. The legal applicant name listed on the application must match the name listed with the Arkansas Secretary of State.
4. The application must be signed appropriately in accordance with Department signatory policy described on the application. An alternate person may be designated as the signing official, provided the referenced criteria are met.
5. The legal name on all forms should be consistent with the legal name on the plans, specifications, agreements, etc.

D. Disclosure Statement (All Application Packages):

1. Submit an original completed and appropriately executed Disclosure Statement form as required by Arkansas Code Annotated Section 8-1-106, which can be downloaded at http://www.adeq.state.ar.us/water/branch_permits.
2. The applicant name (Permittee name) on the disclosure must be the legal name of the company and match the name on the application and the name listed with the Arkansas Secretary of State.

E. Application Fee (All New or Major Modification Application Packages):

1. An application fee of \$500. A fee schedule can be found in APCEC Regulation No. 9.
2. Submit a check or money order in the appropriate amount made payable to: Arkansas Department of Environmental Quality.

F. Signature Page (All New or Major Modification Application Packages):

1. A signature page stating that all documents in the application package (except for those items prepared by a professional geologist or professional soil classifier) were prepared or reviewed by a professional engineer registered in the State of Arkansas must be included.
2. The professional engineer registered in the State of Arkansas must stamp and sign this page.

G. Property Ownership Documentation (All New or Modification Application Packages involving new land application sites):

Provide one of the following:

1. Legal documentation of the ownership (such as a contract, deed, article of incorporation, etc.) of the property, or
2. Written notarized agreement signed by both parties indicating future purchase of the property by the permit applicant and a plat or survey map showing the property, or
3. Written notarized long term lease agreement signed by both parties and specifically indicating intended use of the property and a plat or survey map showing the property addressed in the lease.
4. For land that is neither owned nor leased by the applicant, a notarized Land Use Contract or other notarized document containing the same information. The name of the person signing the Land Use Contract must match the name shown on the deed, which must also be provided.

H. **Waste Management Plan** (All New or Modification Application Packages):

1. **Facility Description:**

Submit a detailed explanation describing how the waste will be stored and disposed. For a modification, clearly describe the changes from the previous permit.

2. **Waste Description:**

Submit details including the source and anticipated volumes.

3. **Soil Evaluation** (All New Application Packages or Modifications that include new land sites):

- a) A laboratory certified by the ADEQ shall perform all testing.
- b) One (1) sample for every ten (10) acres shall be collected and analyzed. Identify locations where samples were collected on a map of the land application area. The locations of the samples must be representative of the area where land application is proposed to take place.
- c) Methods of sampling must be in accordance with the University of Arkansas Cooperative Extension Service guidelines.
- d) Infiltration rates must be determined onsite for each identified soil type. (in/hr)
- e) Samples must be analyzed for the parameters listed below. Values shall be reported in mg/kg, unless otherwise indicated:

pH (standard units)

Conductivity ($\mu\text{mho/cm}$)

Cation Exchange Capacity (meq/100g)

Exchangeable Sodium Percent (% Na sat.)

Sodium Absorption Ratio (SAR)

Total Petroleum Hydrocarbons

Potassium

Arsenic

Barium

Cadmium

Calcium

Chlorides

Chromium

Copper

Iron

Lead

Magnesium

Manganese

Mercury

Nickel

Selenium

Sodium

Sulfate

Zinc

- f) **Soils Report.** A soil evaluation of the disposal site shall be prepared, stamped, and signed by a professional soil classifier registered in the state of Arkansas. The report shall include the following:

Field description of soil profile, based on examinations of excavation pits or auger borings, within five feet of land surface or to bedrock describing the following parameters by individual diagnostic horizons. Applicants shall dig pits when necessary for evaluation of the soils at the site. All pits should have GPS coordinates reported in the soils report.

- (a) thickness of the horizon;
- (b) texture;
- (c) color and other diagnostic features;
- (d) structure;
- (e) internal drainage;
- (f) depth, thickness, and type of restrictive horizon(s);
- (g) taxonomic identification to the family level; and

Presence or absence and depth of evidence of any seasonal high water table.

Recommendations concerning loading rates of liquids, solids, other wastewater constituents and amendments. Maximum daily applications, in inches, shall be provided for each soil mapping unit. The loading rates should be based on an average of the soils in a loading area. An average range of 10% should be used.

A field-delineated soil map delineating soil mapping units within each land application site and showing all physical features (rock outcrops, depressions, water bodies, streams, drains...etc), location of pits and auger borings, legends, scale, and a north arrow. The legends shall also include dominant soil series name and family or higher taxonomic class for each soil mapping unit.

Determine the location of piezometers to be installed to monitor soil saturation levels. Specifications for the installation and use of the piezometers shall be submitted to the Department with the soils report.

4. **Maps** (All New Application Packages or Modifications that include new land application sites):

For Modifications, submit an updated site map specific to the modification(s) only.

- a) Topographic map showing all facility-related structures within the storage and disposal areas, and delineation of any land application area(s). All pond numbers and field names shall be delineated on the maps.
- b) County map showing the general location of the facility and all facility-related structures within the storage and disposal areas, and delineation of any land application area(s)
- c) Site map. The site map shall include the following minimum items:
 - (1) all facility-related structures within the storage and disposal areas, and delineation of any land application area(s).
 - (2) All pond numbers and field names shall be delineated on the maps.
 - (3) The location of all wells, streams (intermittent, and perennial), springs, lakes, ponds, and other surface drainage features within 500 feet of all waste storage and disposal site(s).
 - (4) Delineation of buffer distances as follows (buffer distances for streams, ponds, and lakes must be measured from the ordinary high water mark). Buffer distances are required around all land application areas and storage ponds, unless otherwise noted below.
 - (a) 10 feet from utility easement borders, unless otherwise released by the utility company in writing (storage ponds, only);
 - (b) 50 feet of rock outcrops and property lines;
 - (c) 100 feet of wetlands, lakes, ponds, springs, streams, and sinkholes;
 - (d) 200 feet of water wells (except monitoring wells);
 - (e) 300 feet of occupied buildings, water supplies, or an Extraordinary Resource Waters, Ecologically Sensitive Waterbody, or Natural or Scenic Waterway (as defined in APCEC Regulation No 2.)
 - (4) Site property boundaries within 500 feet of all waste storage and disposal site(s).
 - (5) Approximate soil series boundaries.
 - (6) Location of the 100-year floodplain.
 - (7) Location of any and all subsurface drainage pipes, tiles, etc. on the property. If none are present, this must be stated.
 - (8) All existing and proposed irrigation piping and equipment shall be delineated on the maps.

5. **Detailed Plans** (All New or Modification Application Packages. For Modifications, submit plans specific to the modification(s) only):

Plans must include the following minimum items:

- a) Plan views of all storage and disposal units, piping, valves, and equipment.
- b) Detailed drawings of any proposed construction must be submitted. Drawings must contain sufficient dimensions to verify storage volumes.
- c) Synthetic liners with a minimum thickness of 40 mils shall be installed in storage ponds.
- d) Location of the storage pond staff gauges and a table showing the volume in barrels that corresponds to each 0.5-foot increment on the staff gauge.
- e) A spray irrigation system shall be utilized to distribute the fluids evenly over the application areas. All existing and proposed irrigation equipment shall be disclosed in the plans.
- f) Location of fencing around the storage ponds.
- g) Plans must depict a completed design and not be labeled with preliminary phrases (e.g., for review only, not for construction, etc.) that indicate that they are anything other than final plans. However, the plans may be labeled with the phrase: final design – not released for construction.)

6. **Specifications** (All New or Modification Application Packages):

Specifications must include the following minimum items:

- a) Proposed cover crop(s) or vegetative cover. If additional irrigation water is proposed for the crop, a crop-based need for water must demonstrated and be based upon sound irrigation scheduling practices at a rate no greater than the crop uptake. (Fresh water may not be applied to the site in order to flush the topsoil of salts.)
- b) Detailed specifications for each storage and disposal unit, piping, valves, equipment (i.e., pumps, blowers, mixers, diffusers, flow meters, etc.), high water alarms, liners etc.
- c) Specifications for irrigation equipment with sufficient detail to demonstrate the proposed spray irrigation system is capable of distributing the fluids evenly over the application area.
- d) Site work (i.e., earthwork, clearing and grubbing, excavation and backfill, fencing, seeding, etc.)
- e) Means for ensuring quality and integrity of the construction including leakage and pressure testing.
- f) Plans for monitoring during construction by a Professional Engineer registered in the State of Arkansas.

7. **Engineering Calculations** (All New or Modification Application Packages):

- a) All design calculations must be signed, sealed, and dated by a Professional Engineer licensed in the State of Arkansas. For Modifications, submit calculations specific to the modification(s) only.
- b) All calculations used in the design of the proposed waste disposal system, including flow rates, storage volumes, waste application rates, elemental application rates, size(s) and locations of pumps, and residence time(s) must be submitted.

- c) Calculations must include the following minimum items:
 Hydraulic and pollutant loading calculations.
 Sizing criteria for each storage pond and associated equipment.
 Pump selection information including pump curves.
 Mainline and lateral design
 Irrigation system calculations (headloss formulas, pump curves, manufacturer specifications for sprinklers, pumps, etc., showing the pumps and sprinklers are appropriate for the distribution piping.)

8. **Operation and Maintenance Plan** (All New or Major Modification Application Packages):

Submit an operation and maintenance plan that shall be maintained for all systems and include at a minimum:

- a) Description of the operation of the system in sufficient detail to show what operations are necessary for the system to function and by whom the functions are to be conducted.
- b) If oil or grease removal and collection will be required, please submit an oil/grease disposal plan.
- c) Solids build-up monitoring and removal plan.
- d) Description of anticipated maintenance.
- e) Include safety measures including restriction of access to the site and equipment.
- f) Spill prevention provisions such as response to upsets and bypasses including how to control, contain and remediate.
- g) Contact information for personnel, emergency responders and regulatory agencies.

I. **Monitoring Well Work Plan** (All New Application Packages or Modifications that include new land application sites):

The design and construction of the wells must be completed in accordance with the EPA Handbook of Practices for the Design and Installation of Ground-Water Monitoring Wells. The work plan must be signed by professional geologist registered in the state of Arkansas and must be reviewed and approved by ADEQ prior to implementation of the ground water monitoring system. The work plan must include the following provisions:

- 1. The wells must be completed in the shallowest ground water zone and the construction must isolate that zone from any deeper ground water zones/aquifers. The wells must be installed at appropriate locations to adequately determine ground water gradient and ground water flow direction. Wells must be constructed so as to provide a sufficient volume of ground water to accommodate required sampling and analysis;
- 2. The screened interval of the wells must be designed to intercept the top of the water table;
- 3. Appropriate risers, pads, and other protections must be installed at the well head to prevent damage by vehicles or heavy equipment;

J. **Agency Approvals** (All New or Major Modification Application Packages):

Agency approval letters must be provided with the application package. Agencies must either approve the proposed project or have no objections to the proposed project. Objection letters will not be accepted and permits will not be issued to facilities if the agencies below object to the proposed project.

- 1. A wetland determination must be provided for each land application site (new permits or permit modifications where new land sites are being added). The wetland determination must be performed by a District Conservationist from the Natural Resources Conservation Service or any other individual certified to perform wetland determinations.
- 2. Provide the Arkansas Health Department (ADH) a copy of the maps and a description of the operation, and attach the response letter from the ADH.
- 3. Attach a copy of the Federal Emergency Management Agency (FEMA) map for the facility. For sites located in a 100-year floodplain, attach a copy of the Floodplain Development Permit from the county Floodplain Administrator or other appropriate agency.
- 4. Attach an endangered, threatened, or candidate species determination from the U.S. Fish and Wildlife Service and/or other appropriate federal or state agency indicating that the proposed project is not likely to adversely impact any federally listed endangered, threatened, or candidate species.
- 5. If the facility is located within national forest land, a national wilderness area, or national wildlife refuge area, attach written consent for the proposed operation from the agency responsible for managing such area.
- 6. If the facility is located within a state wildlife management area as designated by the Arkansas Game and Fish, attach written consent for the proposed operation from the agency responsible for managing such area.
- 7. Attach a letter from the Department of Arkansas Heritage regarding the impact of the siting of the proposed operation to any cultural resource listed in, or eligible for listing in, the National Register of Historic Places. If the initial determination is that a significant and adverse impact will occur, attach documentation of appropriate mitigation.

K. **Financial Assurance** (All New or Major Modification Application Packages for Additional Storage Units):

- 1. A plan to close the permitted facility and make any site restoration deemed necessary by the department.
- 2. A detailed cost estimate to close and restore the permitted facility.
- 3. A financial mechanism that demonstrates to the department's satisfaction the permittee's financial ability to ensure adequate closure and any necessary restoration of the permitted facility in accordance with the requirements of this section
- 4. The amount of any financial assurance required under this section shall be equal to or greater than the detailed cost estimate for a third party to close the permitted facility in accordance with closure plans approved by the department.

L. Mailing Address (All Application Packages):

1. The completed application package, including all supporting information and materials should be sent by U.S. Certified Mail, Return Receipt Requested, Mail Service (i.e. Federal Express) or hand-delivery to the following address:
Permits Branch – No Discharge Section
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317; or
2. By electronic mail (documents should be submitted in PDF format) to :
Water-permit-application@adeq.state.ar.us;
3. Fee payment may be made separately, but the application will not be deemed complete until such payment is received by the Department.