ADEQ
ARKANSAS
Department of Environmental Quality

The Arkansas Department of Environmental Quality (ADEQ) has primacy delegated by the US Environmental Protection Agency to regulate all Class V Underground Injection Control (UIC) wells in Arkansas except for spent brine return wells, which are regulated by the Arkansas Oil and Gas Commission. Also please note that some types of Class V wells for subsurface wastewater disposal require a permit from ADEQ. Please check the following link for more information:
http://www2.adeq.state.ar.us/water/branch_permits/nodischarge_permits/underground_injection_control.htm.
If you have questions pertaining to Class V UIC wells, please contact the ADEQ Office of Water Quality at 501-682-0648.

This inventory requirements document lists information necessary for ADEQ's Office of Water Quality to process requests for Class V UIC wells that are authorized by rule to ensure protection of underground sources of drinking water (USDW).

Before submitting an authorization request, please verify that the following items are addressed:

- ***List all sources of the information provided.***
- ***All calculations must be shown.***
- ***Maps and cross-sections must be of an adequate scale so that details are visible. Information depicted on the maps must be clearly marked with the appropriate legend.***
- ***The report must be prepared under the direction of an Arkansas Registered Professional Geologist.***
- ***Please note that not all of the items listed are applicable in every case. If they don't apply, indicate this with the designation "N/A".***
- ***Additional information may be required by ADEQ.***

Upon submission and approval of the inventory requirements, the Owner/Operator will receive an authorization letter from ADEQ granting authorization to inject. This "Authorized by Rule" status is contingent upon the requirements of 40 CFR §144.12, which prohibits movement of fluid into underground sources of drinking water. If the injection activity causes such movement or causes any other violation of drinking water regulations, the ADEQ may require the well to be closed and revoke the "Authorized by Rule" status under authority of APC&EC Regulation No. 17 and 40 CFR §144(c).

Checklist for Inventory Requirements for Authorized by Rule Class V UIC Wells

 Signed & stamped by an Arkansas Registered Professional Geologist in good standing?

 Facility Information

- facility name, address and location (including latitude and longitude) with well location designated
- AFIN, EPA ID #, permit #
- ownership of facility
- contact information, including telephone numbers, addresses, and emails, of facility personnel, consultants, etc.

 Regulatory Information

- dates and types of site investigations (beginning to present)
- name of ADEQ office with regulatory authority over site investigations
- information regarding any CAO's issued/open/closed for this site.

 Type of Class V UIC well (check one below):

	aquifer remediation wells		dye trace study wells
	a/c return flow wells in a heat pump		backfill of mined out portions of subsurface mines
	cooling water return flow wells		subsidence control wells (fresh water only)
	drainage wells for storm runoff		geothermal energy recovery wells
	dry wells for subsurface waste injection		solution mining wells for conventional mines
	recharge wells for aquifer replenishment		experimental technology wells
	salt water intrusion barrier wells		in-situ recovery of lignite, coal, tar sands, and oil shale

 Other specific information as required by the UIC Program, including, but not limited to:

- map depicting land use of areas adjacent to facility
- map depicting the ownership of property adjacent to the facility boundaries and a list containing the names and addresses of the owners at a minimum ½ mile radius of the facility boundary
- identify the mineral ownership and the percentage for areas that might be affected by the migration of injected fluids over the life of the well, including source of this information
- map and cross-sections indicating the top of the lowermost Underground Source of Drinking Water (USDW), [i.e., a formation containing less than 10,000 ppm Total Dissolved Solids (TDS)].
- construction and completion data of the well(s):
    - construction date
    - injection pressure, rate and anticipated volume
    - depth of well(s)
    - formation proposed for injection
    - type of cement, cementing procedures, techniques and equipment used
    - type, size, weight and grade of materials for all casings
    - size, type and proposed depth of tubing*
    - size, type and proposed depth of packer*
    - description of the proposed tests and logs
    - proposed well stimulation program*
    - schematic diagram sketches of the well, wellhead and related facilities
    - procedures for obtaining representative cores of the injection and confining zones
- proposed operating parameters:
    - calculated injection pressures
    - calculated changes in reservoir pressure, formation fluid displacement, direction of injected waste plume and waste fluid front calculations
    - plan for well operation, maintenance, and supervision
    - plan for potential well failure and/or routine maintenance, including description of holding facilities, back-up well, transportation to another disposal facility, etc.
    - plan for annual mechanical testing requirements (40 CFR §146.8)*

- surface facilities:
  - description of the monitoring systems (i.e., gauges, valves, computerized systems, etc.) for the well
  - plat depicting waste lines, storage tanks (including size, capacity and type of material), pumps or other holding facilities, including any emergency holding facilities
  - type, capacity and capability of filters*
  - description and location of injection pump(s)
- area of review (AoR), including:
  - a listing and/or map of all artificial penetrations (i.e., water wells, oil and gas wells, abandoned wells, etc.) within a minimum of ½ mile radius of the well bore which penetrate the injection zone, and the distance from the penetrations to the proposed well and the injection interval*
  - map of all surface water bodies (i.e., streams, lakes, springs, etc.), mines, quarries, roads, residences or other buildings within ½ mile of the proposed well
  - calculation of the zone of influence {40 CFR §146.6(a)(2)}
- geology and hydrogeology, both regionally and locally:
  - structural contour and isopach maps of injection zone
  - surface geologic map, cross sections and structural contour map depicting the regional geology
  - lithologic and hydrologic descriptions of regional and local geologic units that are penetrated by the well, especially of the upper and lower confining units and the injection zone
  - maps indicating the general vertical and lateral limits of those aquifers that contain water with less than 10,000 mg/l TDS, including direction of water movement
  - a minimum of two cross sections of adequate scale and detail to show the structure, geologic units, and lithology from the surface to the base of the confining zone below the injection zone
  - maps and cross sections showing extent of contaminant plume
- reservoir mechanics:
  - porosity, permability, and temperature* of the injection zone formation
  - bottom-hole pressure, fluid saturation and chemical characteristics of the formation and formation fluids*
  - location, extent and effects of known or suspected faulting, fracturing and/or formation solution channels*
  - fracture gradient calculations*
  - potentiometric map or static fluid level map and regional fluid level gradient
- injectate characteristics:
  - chemical and physical characteristics of the fluids to be injected (including SDS)
  - process from which the fluids are generated
  - compatability of proposed injectate with the formation fluid and procedures for obtaining a representative sample*
  - corrosion tests on all materials that will be in contact with the proposed injectate*
  - description of pretreatment process and facilities*
- closure plan, including plugging and abandonment procedures {40 CFR §144.28 and §146.10(c)}
- copy of a financial assurance mechanism (40 CFR §144.62)*

***Items with an asterisk may not be applicable. If not, indicate with N/A.**
Are all calculations shown?
Are all sources of information shown?