

## **Responses to Questions for the Record**

**Teresa Marks, Director of the Arkansas Department of Environmental Quality**

### **The Honorable John Shimkus**

1. If Congress includes in legislation, specific national standards, in other words, minimum requirements that a State program must meet, do you think it is necessary for EPA to first issue federal regulations in order for states to implement protective programs?

No.

2. Critics of the approach taken in H.R. 2273 and S. 3512 from the last Congress-allowing States to be in the driver's seat with respect to creating a coal ash regulatory program that meets a minimum federal standard -argue that without a greater role for EPA, in particular rulemaking authority and concurrent enforcement authority, that there won't be a consistent level of protection across the States. Do you agree? Why or why not?

EPA will continue to oversee a state's implementation of a coal ash program, with the ultimate authority to withdraw the program if a state fails to implement it. States can ask for EPA's enforcement assistance, which means EPA can be involved in enforcement.

3. The chart in your written testimony indicates that EPA is increasing its regulatory output, which then increases the amount of work States have to do. Are there times when the rules coming out of EPA make it harder for your State members to manage their programs?

Yes, although it is rare for states collectively to oppose the rules. Our primary concern is often loss of flexibility and increased costs of implementation, although there may be other reasons from time to time.

### **The Honorable Henry A. Waxman**

Drilling mud and other wastes from the exploration and production of oil and gas have been exempt from the requirements of the Resource Conservation and Recovery Act since July 1988, but now include recovered hydraulic fracturing fluid with potentially dangerous constituents. Democratic members of the Energy and Commerce Committee released a report in April, 2011 finding that the top hydraulic fracturing companies had injected fluid containing 29 chemicals that are known or possible human carcinogens, as

well as other contaminants regulated under the Clean Air Act and the Safe Drinking Water Act.

Despite this, according to the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration, shippers and transporters of these materials do not have to comply with any Federal hazardous materials safety regulations. And, as mentioned above, such mud and other wastes are also exempt from requirements under the Resource Conservation and Recovery Act. This means that these hazardous materials are not required to be labeled as hazardous, contained and transported in accordance with Federal hazardous materials regulations, or included in shipping manifests to track the material, prevent diversion, and ensure proper handling by emergency response personnel in accidents and incidents.

The risks of this approach are illustrated by a recent event in Youngstown, Ohio, where authorities were alerted to illegal dumping of drilling fluid into the Mahoning River on January 31, 2013, by an anonymous tip. According to Federal investigators, the dumping went on for several months before the tip was received. Even after the dumping was discovered, state officials failed to inform the public and drinking water facilities drawing water downstream of the dumping site. Public health and environmental impacts are still being assessed.

Coal ash is also currently exempt from federal requirements under the Resource Conservation and Recovery Act and Federal hazardous materials safety regulations, despite the presence of hazardous constituents including arsenic, lead, mercury, and hexavalent chromium in the ash. On December 22, 2008, a coal ash impoundment in Kingston, Tennessee, burst, releasing 5.4 million cubic yards of toxic sludge, blanketing the Emory River and the surrounding land, and creating a superfund site that could cost up to \$1.2 billion to clean up. On August 23, 2005 an ash impoundment at the Martins Creek power plant in Allentown, Pennsylvania was breached, releasing over 100 million gallons of contaminated water and ash into Oughhoughton Creek and the Delaware River. The spill impacted public water supplies in Pennsylvania and New Jersey, elevating arsenic levels to 3,000 times the drinking water standard. The cleanup lasted several months and cost an estimated \$37 million.

1. What, if any, requirements does your state apply to drilling mud and other wastes from the exploration and production of oil and gas when generated, stored, transported, or disposed of within the state?

The State of Arkansas encourages recycling of drilling muds and frac fluids to the extent practicable and most, if not all, operators recycle these fluids. The storage, transport, and disposal of drilling fluids are covered by various permits or authorizations issued either

by the Arkansas Department of Environmental Quality (ADEQ) or the Arkansas Oil and Gas Commission (AOGC).

The AOGC issues permits for the exploration and/or production wells. ADEQ authorizes coverage for pits storing drilling fluids associated with the drilling of oil and gas production wells through a permit by rule under APC&EC Regulation No. 34 (copy attached). These pits are similarly regulated under AOGC's Rule B-17 (copy attached). Disposal of water-based drilling fluids through land application is permitted by ADEQ. Subsurface disposal of frac fluids in injection wells is permitted by the AOGC.

This material, when disposed, is a solid waste, which can be disposed in a Municipal Solid Waste Landfill or an Industrial Solid Waste Landfill (designed and permitted for the specific material). The material must be non-liquid or solidified before being incorporated into the daily waste mass and must be covered with six (6) inches of soil cover at the end of each working day or more, as necessary to prevent nuisance conditions (odors being a primary concern). There are some reuses for this waste, which may be allowable under certain circumstances.

Exploration and production fluid transportation is not regulated by ADEQ, but is regulated by AOGC's Rule E, a copy of which is attached. ADEQ's regulations are available at:

<http://www.adeq.state.ar.us/regs/default.htm>

AOGC's regulations are available at the following site:

<http://www.astateogc.ar.us/OnlineData/Forms/Rules%20and%20Regulations.pdf>

2. What, if any, authority or ability does your Department have to address the interstate movement of drilling mud and other associated wastes and to track such wastes entering the state?

In Arkansas, AOGC regulations prohibit any person from operating an Exploration and Production Fluid Transportation System without a permit. Further, transporters of exploration and production fluids are required to maintain records of all fluids "received, transported delivered or disposed of" and to keep those records in the Arkansas Office of the permit holder for three years. (See AOGC Rule E-3, a copy of which is attached.)

3. What, if any, requirements does your Department impose to ensure that drilling mud and associated wastes from the exploration and production of oil and gas that enter the state are properly disposed?

See Response to Question 2.

Although ADEQ does not regulate the transportation of these materials, state laws and regulations generally prohibit the improper disposal of wastes. It is unlawful for any person to operate any solid waste processing or disposal facility or site without a permit from ADEQ or to dispose of wastes at any disposal site or facility that is not permitted. (Ark. Code Ann. §8-6-205(a).) Further, it is unlawful to cause pollution of the waters of the state or to place wastes in a location likely to cause pollution of waters of the state. (Ark. Code Ann. §8-4-217(a). Both the Arkansas Solid Waste Management Act (Ark. Code Ann. § 8-6-201 *et seq.*) and the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-201 *et seq.*) contain enforcement and penalty provisions.

Also, AOGC's Rule E-3(i) states that transporters shall only:

transport [drilling fluids] to a permitted well for re-use..., a permitted off-site temporary storage facility, a permitted surface disposal facility or a permitted injection well disposal facility. Exploration and production Fluid shall not be released or discharged onto the ground surface or into Waters of the State, unless otherwise authorized by [ADEQ].

4. What, if any, requirements does your state apply to coal ash when generated, stored, transported, or disposed of within the state?

The State of Arkansas manages coal ash through our Subtitle D Solid Waste program. Coal ash in the state may be disposed in a permitted Municipal Subtitle D Landfill or in an Industrial Solid Waste Landfill. All Municipal or Industrial Landfills in the state must be permitted, and Arkansas' regulation governing solid waste management (Regulation 22) details specific requirements for facility siting, geologic and geotechnical investigations, liner and final cover design standards, operating standards, construction quality assurance, groundwater monitoring and corrective action, closure and post closure care and financial assurance. These requirements have been in place since 1995. Regulation 22 also includes requirements governing the reuse of coal ash.

5. What, if any, authority or ability does your Department have to address the interstate movement of coal ash and to track coal ash entering the state?

The interstate transportation of coal ash is not regulated by ADEQ.

6. What, if any, requirements does your Department impose to ensure that coal ash that enters the state is properly disposed?

Although ADEQ does not regulate the transportation of coal ash, as stated in response to the question on the transportation of drilling fluids, state laws and regulations generally prohibit the improper disposal of wastes. As previously mentioned, it is unlawful for any person to operate any solid waste processing or disposal facility or site without a permit from ADEQ or to dispose of wastes at any disposal site or facility that is not permitted.

(Ark. Code Ann. §8-6-205(a).) Further, it is unlawful to cause pollution of the waters of the state or to place wastes in a location likely to cause pollution of waters of the state. (Ark. Code Ann. §8-4-217(a).) Both the Arkansas Solid Waste Management Act (Ark. Code Ann. § 8-6-201 *et seq.*) and the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-201 *et seq.*) contain enforcement and penalty provisions.

7. If contamination from drilling mud, associated wastes, or coal ash is discovered in a source of public drinking water in your state, what information and resources will be available to your Bureau to track the source of that contamination?

ADEQ has worked with the Arkansas Department of Health and public water suppliers in locating potential environmental sources when elevated levels of hazardous constituents appear in the drinking water supply.

ADEQ may conduct inspections, collect samples, and review existing databases to identify potential sources of contamination. ADEQ also may seek information from other agencies or the regulated community in order to track the source of any contamination, including, for example, information from the licensed transporters maintained by the AOGC.

Regulation 22 details regulatory requirements for permitted Municipal or Industrial Landfills, including requirements for groundwater monitoring and corrective action. As part of these requirements, the owner or operator of a disposal site would be required to notify appropriate local government officials and all persons who own the land or reside on the land that directly overlies any part of the contaminant migration if contaminants have migrated off-site..... (Reg. 22.1205(g).)

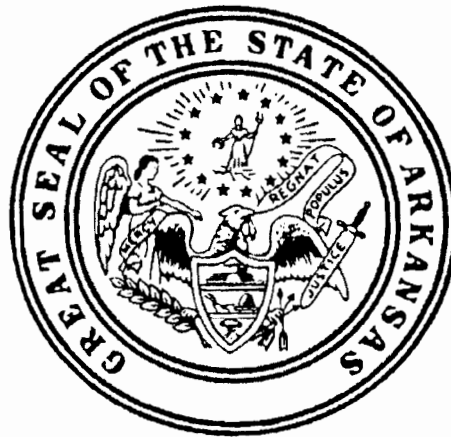
8. How many investigators are employed by your Department to identify and investigate illegal dumping of drilling mud, other wastes from the exploration and production of oil and gas, and coal ash within the state, and ameliorate the potential risks posed by any such dumping?

The Water Division has five (5) inspectors dedicated to monitoring oil and gas activities. In addition, the Water Division has seventeen (17) other inspectors who can also evaluate any improper disposal practices associated with oil and gas activities or coal ash. The Solid Waste Management Division employs eight (8) inspectors, who are responsible for inspecting all permitted disposal facilities and investigating illegal dump sites.

The potential risk associated with the illegal disposal of any solid waste material, including but not limited to coal ash and oil gas exploration wastes, will vary significantly based on the quantity illegally disposed and the location of the disposal. Wastes dumped in or near waters of the State will generally present the greatest potential risk. Where the ADEQ has investigated and found the illegal dumping of these materials the effects have generally been localized and of short duration.

ARKANSAS POLLUTION CONTROL  
and ECOLOGY COMMISSION

REGULATION NO. 34  
State Water Permit Regulation



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REGISTER DIV.  
11 SEP 28 PM 3:56  
STATE OF ARKANSAS  
BY \_\_\_\_\_

Approved by Arkansas Pollution Control and Ecology Commission  
August 26, 2011

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## Chapter 1 GENERAL PROVISIONS

### Reg.34.101 Purpose

It is the purpose of this regulation to adopt standards applicable to the storage, discharge, or disposal of any waste which, if unregulated, will cause pollution of waters of the state or result in wastes being placed in a location where it is likely to cause pollution of the waters of the state. These standards are intended to protect public health and the environment, and prevent, control, or abate pollution.

### Reg.34.102 Authority

Pursuant to the Arkansas Water and Air Pollution Control Act, Ark. Code Ann. § 8-4-101 *et seq.* (hereinafter “the Act”), the Arkansas Pollution Control and Ecology Commission (hereinafter the “Commission” or “APC&EC”) hereby promulgates this Regulation No. 34.

### Reg.34.103 Scope

This regulation applies to all persons proposing to construct, alter, extend, or operate any storage, discharge, or disposal system that does not discharge directly to waters of the state, and the operation of which, if unregulated, will cause pollution of waters of the state or result in wastes being placed in a location where it is likely to cause pollution of the waters of the state. This regulation does not apply to liquid animal waste management systems regulated under APC&EC Regulation 5 or underground injection control (UIC) facilities regulated under APC&EC Regulation 17 or Class II UIC wells permitted by the Arkansas Oil and Gas Commission. This regulation also does not apply to storage or disposal systems permitted under APC&EC Regulation 1 or Regulation 4 or to storage, discharge, or disposal systems which have been issued any NPDES permit other than a stormwater permit or to septic systems regulated by the Arkansas Department of Health.

### Reg.34.104 Definitions

The following definitions apply to this Regulation:

“**ADEQ**” or “**Department**” means the Arkansas Department of Environmental Quality, or its successor.

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

“**Director**” means the Director of the Arkansas Department of Environmental Quality, or his or her designee, unless the context dictates otherwise.

“**Discharge**” means a discharge of any wastes in any manner which directly or indirectly permits such wastes to reach any of the waters of the state.



**"Disposal"** means the final use of waste, including, but not limited to, surface disposal, subsurface disposal, transport to a recycling or reuse facility, or placement in a landfill, incinerator, or injection well.

**"Facility"** or "system" means any site (including land or appurtenances thereto) or activity or operation that is subject to this regulation.

**"Industrial Waste"** means any liquid, gaseous, or solid waste substance resulting from any process of industry, mining, manufacturing, trade, or business or from the development of any natural resources.

**"Owner" or "Operator"** means any person (an individual, association, partnership, corporation, municipality, state or federal agency) who has the primary management and ultimate decision-making responsibility over the operation of a facility or activity. The operator is responsible for ensuring compliance with all applicable environmental regulations and conditions.

**"Other Wastes"** means garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, sand, ashes, offal, oil, tar chemicals, and all other organic or inorganic substances, not including sewage or industrial waste which may be discharged into the waters of the state. "Any wastes" and "pollutants" include sewage, industrial wastes, or other wastes.

**"Person"** means any state agency, municipality, governmental subdivision of the state or the United States, public or private corporation, individual, partnership, association, or any other entity.

**"Sewage"** means the water-carried waste products from residences, public buildings, institutions, or other buildings, including excrementitious or other discharge from the bodies of humans or animals, together with such groundwater infiltration and surface water as may be present.

**"Storage"** means holding wastes prior to disposal in an open pit or pond dug in the ground, in open tanks, or other open vessel.

**"Waste"** means industrial waste, sewage, or other wastes.

**"Waters of the State"** means all streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state.

## Chapter 2

### PERMIT REQUIREMENTS FOR CONSTRUCTION, OPERATION, AND CLOSURE OF PITS ASSOCIATED WITH OIL AND GAS WELLS AND BRINE PRODUCTION AND INJECTION WELLS

#### Reg.34.201 Pits covered by this Regulation shall include:

- (A) Circulation Pit: A pit used during drilling where Drilling Fluids are circulated during drilling operations. The Circulation Pit may be part of the Mud Pit. Circulation Pits may also refer to a series of open, above-ground tanks, usually made of steel.
- (B) Completion Pit: A pit used for storage of Completion Flow-Back Fluid and Drilling Fluids or other materials which have been cleaned out of the well bore during the initial completion of a well. Circulation or Mud Pits may be used as a Completion Pits when drilling operations conclude.
- (C) Emergency Pit: A pit used for containing fluids at an operating well during an actual emergency and for a temporary period of time. Use of the Emergency Pit is necessitated due to unplanned operational issues, which may include but is not limited to, a temporary shutdown of a disposal well or fluid injection well or associated equipment, temporary overflow of saltwater storage tanks on a producing lease, gas flaring, cement circulation, or a producing well loading up with formation fluids.
- (D) Mud Pit: A pit or series of pits used during drilling where fluids are mixed and circulated during drilling operations. Mud Pits may also refer to a series of open, above-ground tanks, usually made of steel.
- (E) Reserve Pit: A pit not part of the active circulation system, used to store Drilling Fluids or to contain fluids generated during drilling operations. Such fluids would include, but not be limited to, Cuttings, Drilling Fluids, and Encountered Water.
- (F) Test Pit: A pit constructed for use during a well test.
- (G) Workover Pit: A pit used for storage of Completion Flow-Back Fluid, Workover Flow-Back Fluid and other materials which have been cleaned out of the well bore during any subsequent completion or re-completion.

#### Reg.34.202 Permit Requirements for Construction, Operation, and Closure of Pits Associated with Oil and Gas Wells

- (A) Owners or Operators of all pits constructed during the drilling, completion, or testing of an oil, gas, or oil and gas production well, [brine production and injection wells], Class II

Disposal Well, and Class II Commercial Disposal Well shall be deemed to have a permit by rule pursuant to Ark. Code Ann. §8-4-203(1), for the construction, operation, and closure of any pits covered under this Regulation if the Owner or Operator is in full compliance with Rule B-17, as adopted by the Arkansas Oil and Gas Commission on October 28, 2010.

- (B) No discharge or wastes resulting from pit construction, operation, or closure shall cause pollution of any of the waters of the state. No wastes resulting from pit construction, operation, or closure shall be placed in a location where it is likely to cause pollution of any waters of the state.
- (C) Any Owner or Operator who constructs, operates, or closes a pit in violation of any provisions of this Regulation may be subject to ADEQ enforcement action under the provisions of the Arkansas Water and Air Pollution Control Act, Ark. Code Ann. § 8-4-101 et seq., including the penalties provided in Ark. Code Ann. § 8-4-103.

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### **RULE B-17: WELL DRILLING PITS AND COMPLETION PITS REQUIREMENTS**

a) Applicability

This rule applies to all pits constructed during the drilling, completion and testing of a brine, oil, gas, or oil and gas production well, brine injection or disposal well, Class II Disposal Well, and Class II Commercial Disposal Well. Pits as used in context of this rule refer to the type pits as defined in subparagraph c) below.

b) Joint Enforcement

After the effective date of this rule, any Operator who constructs or operates a pit covered by this Rule, shall be subject to the specific enforcement provisions under the respective authorities of the Arkansas Oil and Gas Commission (AOGC) or the Arkansas Department of Environmental Quality (ADEQ). The regulation of the activities covered under this rule by AOGC and ADEQ shall be in accordance with a Memorandum of Agreement (MOA) between AOGC and ADEQ.

c) Definitions:

- 1) AOGC: Arkansas Oil and Gas Commission.
- 2) ADEQ: Arkansas Department of Environmental Quality.
- 3) APC&EC: Arkansas Pollution Control and Ecology Commission.
- 4) Closed Loop System: A system that uses a combination of solids control equipment incorporated in a series of steel tanks that eliminates the use of a Pit.
- 5) Completion Flow-Back Fluid: Any of a number of liquid and gaseous fluids or mixtures of fluids, chemicals and or solids that flow from a well and consisting of Drilling Fluid, silt, debris, water, brine, oil scum, paraffin, or other materials which have been removed from the well bore during the initial completion of a well, but does not include Frac Flow-Back Fluid.
- 6) Cuttings: Fragments of rock which are a result of the cutting action of the drill bit on rock formations encountered in the well, which are transported to the surface by the Drilling Fluid.
- 7) Discharge: The release, overflow, leakage or seepage of any fluids covered by this Rule.
- 8) Drilling Fluid: Any of a number of liquid and gaseous fluids and mixtures of fluids and solids (as solid suspensions, mixtures and emulsions of liquids, gases, Cuttings and other solids) utilized during brine, oil, or gas drilling operations. Drilling Fluid is generally synonymous with drilling mud, which typically contains bentonitic clays, chemical additives, foaming agents, lubricants, emulsifiers and weighting materials, and which encompasses most muds used in drilling operations, especially muds that contain significant amounts of suspended solids, emulsified water or oil. Mud includes all types of Water-Based, Oil-Based and synthetic-based Drilling Fluids.
- 9) Director of the ADEQ: The Director of the Arkansas Department of Environmental Quality or his or her designated representative.

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- 10) Director of AOGC: The Director of the Arkansas Oil and Gas Commission or his or her designated representative.
- 11) Ecologically Sensitive Waterbody (ESW): Waters that have been given the designated use of Ecologically Sensitive Waterbody by the Arkansas Pollution Control and Ecology Commission. This beneficial use identifies segments known to provide habitat within the existing range of threatened, endangered or endemic species of aquatic or semi-aquatic life forms.
- 12) Encountered Water: Water encountered during brine, oil, or gas drilling operations, which is of sufficient quantity to require disposal, and which is not Produced Water.
- 13) Exploration and Production Waste (E&P Waste): Wastes associated with the exploration, development and production of brine, oil, or gas and which are not regulated by the provisions of, and, therefore, exempt from the Federal Resource Conservation and Recovery Act, and may include, but are not limited to the following: salt water (produced brine or produced water); Oil-Based Drilling Fluids; Water-Based Drilling Fluids, Completion Flow-Back Fluid, Frac Flow-Back Fluid, Workover Flow-Back Fluid, Produced Water; rainwater from firewalls and Pits at drilling and production facilities; and other wastes not described above.
- 14) Extraordinary Resource Waters (ERW): Waters that have been given the designated use of Extraordinary Resource Waterbody by the Arkansas Pollution Control and Ecology Commission. This beneficial use is a combination of the chemical, physical and biological characteristics of a water body and its watershed which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values.
- 15) Frac Flow-Back Fluid: Fluids that consist of fresh water and solids such as sand or other proppant (resin or ceramic grains) or other additives that flow from a well following hydraulic fracturing of a well.
- 16) Natural and Scenic Waterways (NSW): Waters that have been given the designated use of Natural and Scenic Waterways by the Arkansas Pollution Control and Ecology Commission. This beneficial use identifies segments which have been legislatively adopted into a state or federal system.
- 17) Nonhazardous Oilfield Wastes (NOW): Fluids to be used or reused in connection with activities associated with the exploration, development, and production of brine, oil, or gas and includes, but is not limited to, Drilling Fluids, completion fluids, surfactants, and chemicals used to detoxify brine, oil, or gas wastes.
- 18) Oil-Based Drilling Fluid: Drilling Fluid containing diesel or crude oil rather than fresh water as the main liquid phase of the drilling mud.
- 19) Operator: Any person who has the primary management and ultimate decision-making responsibility over the operation of a facility or activity. The Operator is responsible for ensuring compliance with all applicable regulations and conditions.
- 20) Person: Natural person, corporation, organization, municipality, government or governmental subdivision or agency, public or private corporation, business trust, estate, trust, individual, partnership, association, or any other legal entity.

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- 21) Pit: shall include:
- A) Circulation Pit: A pit used during drilling where Drilling Fluids are circulated during drilling operations. The Circulation Pit may be part of the Mud Pit. Circulation Pits may also refer to a series of open, above-ground tanks, usually made of steel.
  - B) Completion Pit: A pit used for storage of Completion Flow-Back Fluid and Drilling Fluids or other materials which have been cleaned out of the well bore during the initial completion of a well. Circulation or Mud Pits may be used as a Completion Pits when drilling operations conclude.
  - C) Emergency Pit: A pit used for containing fluids at an operating well during an actual emergency and for a temporary period of time. Use of the Emergency Pit is necessitated due to unplanned operational issues, which may include but is not limited to, a temporary shutdown of a disposal well or fluid injection well or associated equipment, temporary overflow of saltwater storage tanks on a producing lease, gas flaring, cement circulation, or a producing well loading up with formation fluids.
  - D) Mud Pit: A pit or series of pits used during drilling where fluids are mixed and circulated during drilling operations. Mud Pits may also refer to a series of open, above-ground tanks, usually made of steel.
  - E) Reserve Pit: A pit not part of the active circulation system, used to store Drilling Fluids or to contain fluids generated during drilling operations. Such fluids would include, but not be limited to, Cuttings, Drilling Fluids, and Encountered Water.
  - F) Test Pit: A pit constructed for use during a well test.
  - G) Workover Pit: A pit used for storage of Completion Flow-Back Fluid, Workover Flow-Back Fluid and other materials which have been cleaned out of the well bore during any subsequent completion or re-completion.
- 22) Pollution: Such contamination or other alteration of the physical, chemical, or biological properties of any waters of the state, or such discharge of any liquid, gaseous, or solid substance in any waters of the state as will, or is likely to, render the waters harmful, detrimental, or injurious to public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish, or other aquatic life.
- 23) Produced Water: Water produced from any productive or potentially productive brine, oil, or gas producing interval in the well, which is not Completion Flow-Back Fluid, Frac Flow-Back Fluid, Workover Flow-Back Fluid, or Encountered Water.
- 24) Stormwater: Rainwater runoff, snow melt runoff, and surface runoff and drainage.
- 25) Water-Based Drilling Fluid: Drilling Fluid containing fresh waters rather than diesel or crude oil as the liquid component of the drilling mud.
- 26) Waters of the State: All streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of

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water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state.

- 27) **Water Table:** The surface between the zone of saturation and the zone of aeration and the surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere.
- 28) **Workover Flow-Back Fluid:** Any of a number of liquid and gaseous fluids and mixtures of fluids, chemicals and or solids consisting of Drilling Fluid, silt, debris, water, brine, oil scum, paraffin, or other materials which are removed from the well bore during the subsequent or recompletion of a well.

d) **Commencement of Construction Operations**

The Operator shall notify the appropriate AOGC Regional Office, via mail, e-mail or fax, at least forty-eight (48) hours prior to the commencement of Pit construction operations. The Notice of Commencement (NOC) shall be on a form agreed upon by AOGC and ADEQ and shall include at a minimum (i) the Operator information (name, address, and emergency contact phone number), (ii) the location of the drill pad site (latitude and longitude in degrees, minutes, seconds, and County, Section, Range, and Township, including the 1/4 of the 1/4 position within the Section), (iii) the approximate size of the drill pad, (iv) the approximate distance to the nearest Waters of the State, (v) the type of fluid system and type of Drilling Fluids to be used, (vi) well name, (vii) nearest city/town, and (viii) the approximate date Pit construction operations shall commence. Upon receiving the Notice of Commencement, AOGC shall forward a copy to ADEQ, Arkansas Department of Health, and the County Judge of the county in which the pit is located. AOGC and ADEQ staff may conduct site inspections as deemed necessary.

e) **Discharges Prohibited**

The Discharge from a Pit or any activity associated with the drilling or completion of a well to any surface or ground waters or in a location where it is likely to cause pollution to any surface or groundwaters is prohibited. Such discharge may subject the Operator to ADEQ enforcement actions under the provisions of the Water and Air Pollution Control Act (Act 472 of 1949, as amended, A. C. A. § 8-4-101, et seq.) and enforcement actions of AOGC under Act 105 of 1939, as amended. Any Discharge must be reported within twenty-four (24) hours to the AOGC and ADEQ. Leakage from any Pit is considered an unauthorized Discharge.

f) **Mud, Circulation and Reserve Pit Construction Requirements:**

1) **General Requirements:**

- A) Mud, Circulation and Reserve Pits constructed within the 100 year flood plain must be in accordance with any county or other local ordinance or requirement pertaining to the 100 year flood plain.
- B) The location of all Mud, Circulation or Reserve Pits shall be chosen with reasonable consideration to maximizing the distance from surface waters. Mud, Circulation or Reserve Pit construction in streams, creeks, lakes, or any other water bodies is strictly prohibited.
- C) Any Mud, Circulation or Reserve Pit construction in wetlands must receive appropriate prior authorization from the U.S. Army Corps of Engineers.

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- D) In areas other than jurisdictional wetlands referenced in subparagraph f) 1) C) above, where the water table is ten (10) feet or less below the ground surface, all Mud, Circulation or Reserve Pits shall be constructed above ground, or the Operator shall use a closed loop system.
- 2) Reserve Pit Requirements:
- A) All Reserve Pits shall be constructed with a minimum of two (2) feet of freeboard, and shall be maintained to handle a storm event up to a 10-year, 24-hour storm event during the operation of the Reserve Pit. Reserve Pits constructed above ground utilizing bermed side walls, shall be constructed with a minimum of 2:1 (two feet horizontal to one foot vertical) side slope on both the interior and exterior walls. The top of the bermed pit walls must be a minimum of 2 feet wide.
- B) All Reserve Pits shall be constructed with a liner using one of the following methods:
- i) A synthetic liner of at least twenty (20) mils thickness, with a four (4) inch welded seam overlap, completely covering the Reserve Pit bottom and inside walls. Sand or sandy material must be placed below the liner if a rocky or uneven surface is encountered. The synthetic liner must be protected from deterioration, punctures and/or any activity which may damage the integrity of the synthetic liner.
- ii) A compacted clay liner may be applied to the bottom and sides of the Reserve Pit to create an impervious/impermeable barrier. Construction of the Reserve Pit and compacted clay liner shall be in accordance with sound construction and engineering principles designed and constructed to prevent any leakage or seepage to Waters of the State, with due consideration given to the topography, Pit material composition, and availability of liner material(s). The clay used to construct the liner may be in situ or mixed with additional off-site materials, if the on-site clay is inadequate.
- iii) Other materials or methods used for liner construction must be approved by both the Director of the ADEQ and the Director of the AOGC prior to use.
- 3) Mud and Circulation Pits:
- A) Closed Loop Systems may be used for Mud and Circulation Pits, and must be maintained in a leak-free condition.
- B) Earthen Mud and Circulation Pits shall be constructed with a minimum of two (2) feet of freeboard, and shall be maintained to handle a storm event up to a 10-year, 24-hour storm event during the operation of the Mud or Circulation Pit.
- C) Earthen Mud and Circulation Pit liners shall be constructed using one of the following methods:
- i) A synthetic liner of at least twenty (20) mils thickness, with a four (4) inch welded seam overlap, completely covering the Reserve Pit bottom