Arkansas Department of Health

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SUMMARY OF PROPOSED REGULATION CHANGES: ARKANSAS DEPARTMENT OF HEALTH'S RULES AND REGULATIONS PERTAINING TO PUBLIC WATER SYSTEMS

The Engineering Section of the Arkansas Department of Health administrates primacy for the federal Safe Drinking Water Act in the state of Arkansas and also oversees compliance with the Arkansas Department of Health's Rule and Regulations Pertaining to Public Water Systems. The Rules and Regulations Pertaining to Public Water Systems enable the Arkansas Department of Health to enforce Safe Drinking Water Act requirements in the state of Arkansas. The Engineering Section is proposing two changes to these regulations. These proposed changes are discussed below.

First, on February 13, 2013, the federal government published the Revised Total Coliform Rule (40 CFR parts 141,142). This rule is a modification to the federal Safe Drinking Water Act. In order for the Engineering Section of the Arkansas Department of Health to acquire primacy for the Revised Total Coliform Rule the Arkansas Department of Health's Rules and Regulations Pertaining To Public Water Systems must be dated later in time than the publication date of the federal rule. This process of regulation change will re-date the regulations and enable the Engineering Section of the Arkansas Department of Health to apply for and obtain primacy for this rule.

Second, on January 4, 2011, Congress passed Public Law 111-380 titled "Reduction of Lead in Drinking Water Act". This law modified the Safe Drinking Water Act and changed the requirements pertaining to "lead free" materials and components utilized in drinking water systems. The requirements of 111-380 become effective on January 4, 2014. Water system materials and components that comply with the requirements of 111-380 will be certified according to the National Sanitation Foundation Standard 61, Annex G or National Sanitation Foundation Standard 372. The Engineering Section of the Arkansas Department of Health proposes to modify *Section G. Approved Chemicals, Materials, Equipment, and Processes* to incorporate the product certification necessary to comply with the new "lead free" requirements. Attached to this summary is a copy of the regulatons with proposed language underlined.

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ARKANSAS STATE BOARD OF HEALTH

DEPARTMENT OF HEALTH
CENTER FOR LOCAL PUBLIC HEALTH
ENVIRONMENTAL HEALTH BRANCH
ENGINEERING SECTION

RULES AND REGULATIONS

PERTAINING

TO

PUBLIC WATER SYSTEMS

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Promulgated under the authority of Act 96 of 1913
and
Act 8 of the Second Extraordinary Session of 1961, as amended

This Revision Effective ~~March 23, 2012~~ February 24, 2014

By the Arkansas State Board of Health

RULES AND REGULATIONS PERTAINING TO PUBLIC WATER SYSTEMS

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I. AUTHORITY

A. State Authority

The following Rules and Regulations Pertaining to Public Water Systems are duly adopted and promulgated by the Arkansas State Board of Health pursuant to the authority expressly conferred by the Laws of the State of Arkansas including, without limitation, Act 96 of 1913, as amended (Ark. Code Ann. § 20-7-109).

B. Incorporation by Reference

The Rules and Regulations Pertaining to Public Water Systems incorporate by reference the federal National Primary Drinking Water Regulations found in 40 CFR Parts 141, 142 and 143.

II. PURPOSE

These Rules and Regulations are adopted for the purpose of ensuring that all persons in the State of Arkansas receiving water from a public water system are provided with ample quantities of safe, palatable water which is in full compliance with the National Primary Drinking Water Regulations.

III. DEFINITIONS

For the purpose of these Regulations, the following terms are defined:

A. Contaminant:

Any physical, chemical, biological, or radiological substance or matter in water.

B. Cross-Connection:

A physical connection between a public water supply and either an unsafe or a questionable quality water supply or any toxic or objectionable material.

C. Distribution System:

All systems of conduits and their appurtenances by which water is distributed to consumers.

D. Financial Capacity:

Financial resources of the water system including, but not limited to, the revenue sufficiency, credit worthiness and fiscal controls.

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E. Ground Water:

Naturally occurring water occupying the zone of saturation in the ground below the surface of the earth.

F. Managerial Capacity:

The management structure of the water system including, but not limited to, ownership accountability, staffing, organization and effective linkages.

G. Maximum Contaminant Level (MCL):

The maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity and other specific contaminants where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except for those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition. It is not the intent of these Regulations to include individual service pipes from the property side of the water meter to buildings and plumbing within or in connection with buildings served, since this is covered in the State Plumbing Code.

H. National Primary Drinking Water Regulations:

The current, effective drinking water regulations promulgated by the United States Government.

I. Owner:

Any person, firm, corporation, institution or governmental agency, or their agent, owning, operating, or modifying any water system, distribution system or water treatment plant.

J. Public Water Supply Reservoir:

A lake or reservoir, not owned by the United States of America, which is utilized as a source, directly or indirectly, either permanently, temporarily, or as a standby, for a public water system.

K. Public Water System:

Public water system or PWS means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or serves an average of at least twenty-five individuals daily at least 60 days per year. Such term includes: (1) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. This includes sources for bottled water.

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1. Community Public Water System:

A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

2. Non-Community Public Water System:

A public water system that serves at least 15 service connections or at least 25 persons per day that is not a community water system, or a water source that is not a community water system that is utilized as a source for bottled water.

a) Non-Transient Non-Community Public Water System:

A Non-Community Water System that serves at least 25 of the same individuals at least 180 days (or portions thereof) per year.

b) Transient Non-Community Public Water System:

Any Non-Community Water System that is not a Non-Transient Non-Community Public Water System.

L. Restricted intake zone

An area immediately adjacent to a surface water source intake, in which no activity unrelated to the operation of the intake or water system is permitted.

M. Restricted buffer zone

An area, larger than the restricted intake zone, surrounding a surface water intake, a spring, or a wellhead, in which activity is restricted to those activities that will not have the potential to cause contamination of the water source.

N. Surface Water Influenced Ground Water:

A ground water with significant occurrence of insects or other macro-organisms, algae, or large diameter pathogens such as Giardia lamblia, or which is subject to significant changes in water quality which are determined to be in direct relationship with the climatological or surface water conditions.

O. Surface Water:

Water that flows over or rests upon the surface of the earth. The term surface water includes rivers, lakes, impoundments, reservoirs and springs in addition to other man made and naturally occurring bodies of water on the surface of the earth. Thermal springs with minimum water temperatures greater than 120 degrees Fahrenheit are not considered surface water.

Surface water shall not include those springs for which a comprehensive hydrogeologic and microbiologic study has been performed by the owner which indicates a lack of surface water influence, and which has been accepted by the

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Department and the Regional Office of the U.S. Environmental Protection Agency, unless additional information refutes the original report's conclusions.

P. Technical Capacity:

The physical infrastructure of the water system including, but not limited to, the source water adequacy, infrastructure adequacy (source, treatment, storage, and distribution) and the ability of system personnel to implement the requisite technical knowledge.

Q. Water Treatment Plant:

A group or assemblage of processes, devices, and structures used for treating or conditioning water for public drinking or domestic purposes.

R. Water Operator

Any person who during the performance of their regular duties, at any community public water system; any non-transient non-community public water system; or any transient non-community public water system that utilizes a surface water or surface water influenced source, exercises individual judgment, whether directly or indirectly, that might affect the safety, quality, or quantity of water delivered from the water system. (The term Operator generally includes, but is not limited to, Managers, Assistant Managers, Superintendents, Assistant Superintendents, Construction and Maintenance Foremen, treatment plant personnel and other persons responsible for the operation and maintenance of wells, reservoirs, water treatment facilities, water distribution facilities, and pumping facilities.)

S. Water Operator of Record:

That person, not including elected officials performing their duties of office, whose primary responsibility is the highest level of management and/or operation of the water system, and compliance with the relevant state and federal drinking water regulations.

T. Water Operator(s) in Responsible Charge

The water operator(s) designated by the owner to be the licensed operator(s) who is in direct supervision of the water system regarding the daily operational activities and protocols that an operator(s) follows when operating a public water system, water treatment facility and/or distribution facility.

IV. APPLICABILITY

These Rules and Regulations apply to all public water systems in the State of Arkansas, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year, including federally owned or maintained public water systems. These Rules & Regulations shall also apply to owners and their agents who plan, design, or construct modifications or additions to public water systems.

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These Rules and Regulations shall apply to all public water systems utilized as a source for bottled water without regard to population served.

V. WATER QUALITY

A. Drinking Water Standards

The quality of the water made available must conform to the National Primary Drinking Water Regulations. The Arkansas Department of Health may require the quality of the water to conform to the National Secondary Drinking Water Regulations.

B. Approval

The quality of new or additional sources of supply must be approved by the Arkansas Department of Health before being made available for public use. Production of water that poses no threat to the consumer's health depends on continuous protection. Because of human frailties associated with protection, priority should be given to selection of the purest source. Polluted sources should not be used unless other sources are not feasible and then only when adequate personnel, equipment, and operating procedures are proposed or in-place to purify and otherwise continuously protect the drinking water supply.

VI. ALTERATIONS OR CHANGES REQUIRED

A. Authority to Issue Orders

The Arkansas Department of Health may, in order to protect the public health and to ensure compliance with these and other applicable regulations, issue orders to public water systems requiring any one or more of the following actions:

1. The securing of a new source;

2. The modification of treatment facilities;

3. The addition of treatment facilities;

4. The securing of new or additional testing equipment;

5. The modification or expansion of monitoring or operating procedures;

6. The updating and submission to the Arkansas Department of Health of the system's long range plan, or the submission of other financial or technical reports requested by the Department, to document the system's technical, financial, and managerial capacity to comply with the requirements of the Safe Drinking Water Act.

DRAFT

7. The conducting of a Comprehensive Performance Evaluation on the system in accordance with the protocols established by the Environmental Protection Agency.

B. Provision of Emergency Water Supply

Upon determination by the Director of the Arkansas Department of Health that a public health emergency exists, the Arkansas Department of Health may order a public water system to provide water to another public water system for the duration of the emergency, provided that the receiving public water system agrees to pay a reasonable rate for the water provided. The Department of Health must make a formal determination that the supplying system has excess capacity, and that the supplying system will not be harmed by the Order.

C. Compliance with Arkansas Department of Health Orders

The person, firm, corporation, institution, governmental agency, or municipality owning a public water system, shall, at its own expense, comply with such orders in a reasonable length of time. Approval of any proposed change or new construction, by the Arkansas Department of Health, is required prior to initiating the change or the new construction.

VII. OPERATION

Every owner must operate the water supply, including water treatment plant and distribution system, so as to meet the standards set forth in the National Primary Drinking Water Regulations, and take every reasonable precaution to protect the water from contamination. Every owner of a surface water system must operate the treatment facility within the operating criteria specified at the time of approval by the Arkansas Department of Health, or as specified in writing to the owner by the Arkansas Department of Health at any time following the approval. (See also Section XXI.)

A. Monitoring

For purposes of determining compliance with the National Drinking Water Regulations, the Arkansas Department of Health Laboratory will be used unless otherwise approved by the Arkansas Department of Health.

The Arkansas Department of Health may, by using a published policy, signed by the Director of the Department, and approved by the U.S. Environmental Protection Agency, utilize any discretion allowed in the National Primary Drinking Water Regulations for monitoring requirements or for Maximum Contaminant Level or Treatment Technique compliance.

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B. Records

The owner shall make such suitable analyses and keep such records of operation as required by the Arkansas Department of Health. True and accurate reports of such analyses and operational records for each month shall be submitted to the Arkansas Department of Health by the tenth day of the following month. (See also Section XVII.)

Unless a longer record retention period is specified elsewhere or required by the National Primary Drinking Water Regulations, all records including analyses results, reports, forms, charts, daily logs, and electronic files shall be retained for a minimum of three (3) years and shall be made available for review if requested.

C. Responsibility

Every owner or their agents shall be responsible for compliance with these Regulations and shall submit samples of water to the Arkansas Department of Health Laboratory whenever requested by the Arkansas Department of Health. Such samples must be representative of the water in the system and must not be tampered with in any manner which may affect the analytical results.

D. License

The owner of any community public water system, non-transient non-community public water system, or any other non-community public water system which utilizes a surface water or surface water influenced source shall utilize water operators duly licensed under the provisions of Act 333 of 1957, as amended, and such Rules and Regulations as may be adopted under the provisions of Act 333 of 1957 as amended. (See Arkansas Code Annotated § 17-51-101 et seq)
The owner shall place the direct supervision of the water system under an available Water Operator(s) in Responsible Charge holding a valid license equal to or greater than the classification of the treatment facility and/or distribution facility.

E. Cross-Connection Program

The owner shall institute a routine cross-connection program to locate and eliminate cross-connections. The program shall include routine inspections of commercial and industrial establishments and the routine maintenance of a listing of locations of cross-connection control devices. Each program shall include the mandatory testing of backflow prevention devices by certified testers, on a frequency approved by the Arkansas Department of Health.

F. Fluoridation

1. Application
In accordance with Act 197 of 2011 (§ 20-7-136) , the owner of a public water system

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that produces and treats raw water and that directly or through a consecutive system or systems supplies five thousand (5,000) persons or more shall implement a fluoridation program so as to maintain an optimum fluoride concentration in the water. For such systems and for any public water system that controls the fluoride concentration, the optimum concentration shall be 0.7 milligrams per liter with a control range of 0.6 milligrams per liter to 1.2 milligrams per liter.

2. Equipment, testing and reporting
A public water system that controls the fluoride concentration shall comply with the applicable sections of this regulation. In addition, such public water systems shall comply with the fluoride equipment, record keeping, testing, reporting and related requirements identified as a "must" for Community Public Water Systems contained in Sections II, III, and IV of *Engineering and Administrative Recommendations for Water Fluoridation*, 1995, Centers for Disease Control and Prevention, except that entry point rather than distribution system monitoring shall be utilized for measuring the fluoride concentration. Other exceptions on a case-by-case basis may be allowed but only as specified in writing by the Arkansas Department of Health.

3. Compliance

Pursuant to § 20-7-136 (d) and (e), implementation of a fluoridation program is not required: 1) until funds sufficient to pay capital start-up costs for fluoridation equipment for the system have become available from any source other than tax revenue or service revenue collected by the water system or the entity which owns or controls it; or 2) for a water system in this state that receives its water from a community in another state until a substantially similar fluoridation program is enacted in the other state. Reasonable items for fluoridation start-up include those indispensible to the proper and safe addition and handling of fluoride compounds such as piping, feeder, chemical storage, safety, testing and related equipment and facilities.

G. Approved Chemicals, Materials, Equipment, and Processes

All chemicals added to the water and all materials in contact with in-process or treated water shall be certified as being in compliance with ANSI/NSF Standards 60 and 61, as applicable. In addition, all products required to be "lead free" as determined through Section 1417 of the Safe Drinking Water Act (42 U.S.C. 300g-6) shall be certified as being in compliance with NSF/ANSI 372 or Annex G of NSF/ANSI 61. Certification shall be made by an independent agency. Self-certification by the manufacturer will not be accepted.

All unit processes, equipment, chemicals and appurtenances shall be in accordance with the latest edition of the applicable AWWA standards, and approved by the Arkansas Department of Health.

For treatment facilities utilized for treating water solely for bottled water, at its discretion, the Department may allow certification with the equivalent U.S. Food and Drug Administration food contact or food additive standard in lieu of certification with the appropriate ANSI/NSF 60/61 and AWWA standards.

H. Emergency Planning

Each Community Public Water System and each Non-Transient Non-Community Public Water System shall have a written emergency plan. The emergency plan shall include, at a minimum, names and telephone numbers of responsible utility personnel, procedures to be followed in the event of loss of electricity, source, treatment, storage, or distribution facilities, and procedures to be followed in the event of a loss of distribution system pressure or a known or suspected introduction of contaminants into the distribution system, as approved by the Arkansas Department of Health.

I. Long Range Planning

Each Community Public Water System and each Non-Transient Non-Community Public water system shall have a written long-range plan. The long-range plan shall address, at a minimum, projected needs for source, treatment, storage and distribution for a planning period of at least ten years, and shall demonstrate the system's technical, financial, and managerial capacity to comply with the requirements of the Safe Drinking Water Act.

J. New Systems/Modification of Existing Systems

Prior to the startup of a new public water system or specified extensions or modifications of existing systems, the Owner shall notify the Department of Health that the system is in full compliance with the approved plans, specifications, and special conditions imposed by the Department, and obtain written approval from the Department to initiate use of the new system or modifications. The Department shall issue written approval or disapproval within five working days of the receipt of the certification. If the Department fails to issue an approval or disapproval within five working days following the Department's receipt of the certification, use of the project may be initiated. The Department may grant verbal interim approvals in emergency or critical situations.

VIII. GROUND WATER SUPPLIES

A. Location

1. Surface Drainage

Every well must be located on a site having good surface drainage, at a higher elevation than, and at a safe distance from, any barnyard, privy, soil pipe, any pipe through which sewage may back up or overflow or from any other possible source of pollution and in such a manner as to prevent the contamination of the

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water by either underground seepage or channels, lakes, ponds and surface drainage.

2. Proximity to Sources of Contamination

The horizontal distance from any such possible source of contamination such as privies, septic tanks, sewers, sub-surface pits, sub-surface sewage disposal fields, and barnyards must not be less than 100 feet. This distance shall be used only where a sanitary survey performed by the Arkansas Department of Health indicates it to be safe, and greater distances shall be required where local conditions necessitate. Chemical storage or disposal facilities shall not be located within 100 feet of the well, without written approval of the Arkansas Department of Health.

3. Proposed Well Sites

The location of each proposed well must be approved in writing by the Arkansas Department of Health prior to commencing construction.

4. Location Below Grade Prohibited

No wellhead, well casing or well pump (except submersible pumps) shall be located in any pit, room or spaces extending below ground directly over the well.

5. Ownership of Restricted Buffer (Wellhead Protection) Zone

The owners of water supplies utilizing a well source shall effectively control a restricted buffer (wellhead protection) zone around the well at 100 feet in radius. Deviation from ownership of the restricted buffer (wellhead protection) zone may be approved by the Arkansas Department of Health for a portion of the restricted buffer (wellhead protection) zone when that portion is owned by another entity and permanent protective easements approved by the Department of Health prohibit the conveyance, use, or storage of potential contaminants within the easement.

B. Well Construction

All public water wells, whether community or non-community, shall be constructed in accordance with the latest edition of AWWA Standard A100 and approved by the Arkansas Department of Health. A copy of the well construction log shall be filed with the Arkansas Department of Health.

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1. Casing

Every well must have an outside water tight casing extending below the ground surface to such a depth as may be necessary, depending upon the character of the underground formations, to exclude the entrance of undesirable water and sub-surface contamination, as determined by the Arkansas Department of Health. The outer casing should be seated securely into an impervious formation whenever possible, otherwise the casing should extend as far as practical below the water table. The casing, when it extends into a pump room, shall project above the pump room floor, and safely above maximum flood elevation.

The annular space between the excavation line and the outside of the casing shall be filled with impervious cement grout in such a manner as to prevent surface water or shallow ground water from running directly down the outside of the casing. The required depth of the grout seal will be determined by the Arkansas Department of Health after a review of the geological formation.

2. Surface Protection

When required, the well must be protected at the surface by a water tight slab or platform extending a minimum of two feet in all directions from the well and sloped to provide drainage away from the well.

3. Wellhead and Pump

The discharge tee of the pump, together with the valves, shall be above the pump room floor. Any pump placed immediately over the well casing must have a watertight metal base to form a cover for the well. The base plate of the pump shall be recessed on the under side to permit the casing to extend into it at least one inch above the level of the concrete foundation. All air-relief vent openings must be at least 24 inches above the floor and must be screened and protected against the possibility of contaminating material entering the vent. Each wellhead shall be provided with a raw water sample tap and the means for measuring drawdown. Exceptions to this may be allowed for pitless adapters provided they conform with all requirements of the latest edition of "Recommended Standards for Waterworks" by the Great Lakes – Upper Mississippi river Board of State Sanitary Engineers (Ten States Standards).

4. Abandonment of Wells

All abandoned wells in consolidated formations must be filled from bottom to within two feet of the top with cement. All wells in unconsolidated formations must be filled with sand or natural material from the bottom to twelve (12) feet

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from the ground surface, and with bentonite or cement from twelve (12) feet to two (2) feet from the ground surface. The record of abandonment must be filed with the Arkansas Department of Health. See "Arkansas Water Well Construction Code" - Arkansas Water Well Construction Commission - for more detailed information on requirements.

C. Raw Water Quality

The raw water at the wellhead shall not contain organic, inorganic or radiochemical contaminants that would not be removed or reduced to acceptable levels by a reasonable method of water treatment.

IX. SURFACE WATER SUPPLIES

A. Raw Water Quality

The water at the intake, based on the monthly arithmetical average number of coliform organisms, shall not exceed 5,000 per 100 ml. in any month; nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml. in more than 5 percent of such samples.

The water at the intake shall not contain organic, inorganic, or radiochemical contaminants that would not be removed or reduced to acceptable levels by a reasonable method of water treatment.

B. Watershed and Reservoir Sanitation

Protective distances stated in this section are minimum distances that may be used only under ideal circumstances. Greater protection will be required in most cases; the extent of the protective area will be determined by a field inspection of the proposed site by the staff of the Department.

1. Recreational Use

Artificial lakes and all other bodies of water serving as reservoirs for city or other public water supplies shall not be used for recreational or other purposes in a manner whereby the water supply might become contaminated and thus become a potential hazard to public health. (Also see Ark. Code Ann. § 14-234-405 and Ark. Code Ann. § 14-251-106.)

2. Water Intake Structures

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Intake structures shall be located and designed such that the best possible water quality can be obtained. Multi-level intake ports shall be provided.

Buoys shall be located in the water supply reservoir at a minimum distance of 300 feet from the intake and the use of the water or land within this 300 foot zone shall be restricted to water supply activity only (restricted intake zone). Greater distances may be required when deemed necessary by the Arkansas Department of Health.

3. Ownership of Restricted Zones

a) River Sources

The owners of water systems utilizing river intakes shall own and effectively control a restricted buffer zone around the water intake. The minimum restricted buffer zone shall include all land from the riverbank to a line 300 feet back, if within a one fourth mile radius of the intake. The maximum extent of this zone will be determined by the Arkansas Department of Health on an individual basis after a sanitary survey of the intake site has been made.

The Department may reduce the downstream protected zone if a weir or other physical barrier precludes downstream water from backing up to the intake.

b) Public Water Supply Reservoirs

The owners of water systems shall own and effectively control a restricted buffer zone around the reservoir. The restricted buffer zone shall include all of the land bounded by a fixed line which is at least 300 feet horizontally from the shore line when the reservoir is at the maximum high water level contour as established by the Arkansas Department of Health. Use of the restricted buffer zone will be determined by the Arkansas Department of Health.

c) Other Reservoir Sources

In the case of large multi- purpose reservoirs developed, owned and operated by the federal government, the water system owner shall effectively control a restricted buffer zone on land around the water intake structure. The extent of this restricted buffer zone will be determined on an individual basis by the Arkansas Department of Health after a sanitary survey of the proposed intake site has been made. All possible sources of contamination are prohibited within this restricted buffer zone.

DRAFT

d) Spring Sources

The owners of water supplies utilizing spring sources shall own and effectively control a restricted buffer zone around the spring. The minimum restricted buffer zone shall be all property with a 300 foot radius of the spring enclosure. The maximum extent of this buffer zone will be determined by the Arkansas Department of Health on an individual basis after a sanitary survey has been made of the spring site.

4. Deviations from the Restricted Buffer Zone

Deviations from the minimum restricted buffer zone may be approved by the Arkansas Department of Health for a portion of the restricted buffer zone when that portion is owned by another governmental entity and protective easements to prohibit the conveyance, use, or storage of potential contaminants within the easement are granted to the public water system.

5. Pollution of the Watershed

a) Objectionable Substances

No sewage, garbage, dead animals, refuse, industrial wastes or other objectionable substances shall be deposited in the reservoir, or in the restricted zones of any surface water source or surface water influenced ground water source.

None of the above substances may be deposited, discharged, or disposed of within the watershed of the water source, without the written approval of Arkansas Department of Health.

b) Domestic Animals

Horses, cows, sheep, goats, swine, fowl, or other domestic animals are prohibited in the restricted zones. Domestic animal lots and pens located on the watershed of a water supply shall be maintained in a manner acceptable to the Arkansas Department of Health.

c) Human Habitation

Residences, dwellings, houses, cottages, camps, cabins, tents, trailers, club houses, or other places where people reside, congregate, or are employed are prohibited in the restricted buffer zone around the

DRAFT

reservoir; provided, however, that the water utility may, upon approval by the Arkansas Department of Health, construct such structures in the restricted buffer zone that are necessary for the protection of the reservoir. All sewage disposal facilities located on the watershed of the reservoir shall be constructed and maintained in accordance with the requirements of the Arkansas Department of Health.

d) Picnicking and Camping

Camping is prohibited in the restricted buffer zone of the water supply. Picnicking is prohibited in the restricted intake zone.

e) Swimming, Bathing, Skiing

Swimming, bathing, or skiing in the restricted intake zone of the water supply, or other zones as specified by the Arkansas Department of Health, is prohibited.

C. Filtration Required

1. Approval Required

Filtration of all surface water sources and surface water influenced groundwater sources, by a method approved by the Arkansas Department of Health, is required.

2. Use of Discretion

The Arkansas Department of Health may, by using a published policy, signed by the Director of the Department and approved by the U.S. Environmental Protection Agency, utilize discretion allowed in the National Primary Drinking Water Regulations to allow an alternate MCL for turbidity.

D. Determination of Level of Treatment Required

The Arkansas Department of Health shall:

Set the level of removal/inactivation for enteric cysts and viruses (logarithmic removal rates) required for each surface water source and each surface water influenced groundwater source.

Determine treatment plant efficiency for removal of enteric cysts and viruses.

Determine the contact time or other operational parameter associated with each treatment plant and its equipment, based on information submitted by the owner or established by the staff of the Arkansas Department of Health, for

DRAFT

assigning the level of inactivation of enteric cysts and viruses provided by the disinfection system.

Determine if each ground water source utilized by a public water system is surface water influenced.

X. WATER TREATMENT PLANTS

A. Location

Plants shall be located on sites having good drainage and not subject to flooding. They shall also be located so that no conduit, basin or other structure containing or conducting water in the process of treatment can possibly be affected by leakage from any sewer, drain or other source of contamination.

B. Chemical Feed and Dosing

Adequate quantities of suitable chemicals shall be provided as required for the approved treatment processes. All chemical feed machines shall be kept in good repair and accurately adjusted so that proper and efficient dosage of chemicals can be maintained at all times. Proper safety equipment shall be provided, and safety procedures followed, where chemicals are used or stored.

C. Mixing and Flocculation

Facilities shall be designed and operated to insure adequate mixing of chemicals with the untreated water and to maximize particle formation. All mixing devices shall be maintained in good repair so as to provide efficient mixing of the chemicals.

D. Sedimentation Basins

Sedimentation basins shall be designed and operated so as to maximize particulate removal. Sedimentation basins shall be cleaned as often as necessary so as to reduce algal growth and minimize taste and odors in the settled water.

E. Filters

Filters shall be designed and operated so as to maximize contaminant removal. Filters shall be inspected periodically and kept in good operating condition. All valves, controls, and regulators shall be maintained in good working order. The rate of backwash shall be sufficient to rid the filter of all accumulations. Filter-to-waste facilities are required.

DRAFT

F. Disinfection Equipment

All disinfection equipment shall be maintained in good working condition. All leaks shall be corrected immediately. Ammonia or other suitable leak indicators shall be kept on hand at all times and shall be used for the determination of leaks. Disinfection equipment shall be kept clean and free from deposits so as to not impede the feed or regulating devices. Adequate heating, safety equipment, spare parts, and ventilation facilities shall be provided.

G. Laboratory

Adequate laboratory facilities suitable for the control of the treatment processes involved shall be provided and shall be certified by the Arkansas Department of Health, if necessary.

H. Plant Maintenance

All treatment plants shall be kept and maintained in a clean and sanitary manner. All accumulations of trash, chemical bags, cans, etc., shall be removed from the premises daily. Surrounding grounds shall be maintained in a suitable manner.

XI. POTABLE WATER STORAGE TANKS

A. Location

Potable water storage tanks shall be located above ground water level unless otherwise approved in writing by the Arkansas Department of Health. The location must be such that surface water and underground drainage will be away from the structure. They shall not be placed in close proximity to any sewer, privy, septic tank, absorption field or other source of pollution from which either surface or underground drainage might flow toward the storage tank. The minimum distances from any sources of pollution shall be in accordance with Section VIII. A. Any sewer located within 100 feet of any storage tank that has a portion which is located below grade should be constructed with water-tight mechanical joints.

B. Drainage

All potable water storage tanks shall be protected against flooding. The ground surface shall be sloped to drain or divert surface water away from the storage tank and shall be so graded that no surface water will pool within the vicinity of the storage tank. Floors of passageways, galleries or compartments adjacent to any potable water storage tank shall have free drainage to the surface of the ground or into a

DRAFT

drainage pit equipped with proper drainage pumps of ample capacity which are properly maintained.

C. Overflows

Overflow pipes shall discharge freely at least 12 inches above ground or flood level or into an open basin from a point not less than 12 inches above the top of spill line of the basin. They shall be protected against backflow. The overflow outlet shall be turned downward or to the side, and protected to prevent the entrance of rain, dust, birds, insects, rodents, or other contaminating material.

D. Design and Operation

Sufficient useable storage shall be provided with consideration given to average daily demand, peak hourly demand, power outages, and fire flows, if applicable. Particular care shall be taken to insure that construction joints are water tight and free of any material likely to deteriorate or fail due to weathering. Storage tanks shall be kept free from cracks. All inlet and outlet pipes shall be properly supported and shall be provided with a flexible joint, or equal, to prevent cracking the pipe if unequal settlement should occur. Wall castings shall be provided with suitable collars to insure watertight connections.

All potable water storage tanks shall be designed, inspected, repaired, and painted in accordance with the latest edition of the applicable AWWA standards. A routine maintenance program, including regular cleaning and painting, shall be applied to all potable water storage tanks. All leaks shall be promptly repaired.

E. Covers

Suitable and substantial covers shall be provided for all potable water storage tanks. They shall be water tight and of some permanent material and shall be constructed so as to provide drainage away from the cover and to prevent the entrance of contamination. The surface of covers shall not be used for any purpose in connection with which contamination material is likely to be produced.

F. Manholes

Manhole openings shall be fitted with raised water tight walls projecting at least 4 inches above the surrounding surface, with a solid water tight cover with edges projecting downward at least 2 inches around the outside frame, or be fitted with a gasketed, weather tight cover. The manhole covers shall be provided with a sturdy locking device and should be kept locked at all times except when actually in use.

G. Vents and Other Openings

Any necessary vents or opening through covers of storage tanks for water level control gauges or other purposes shall be constructed so as to prevent the entrance of

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dust, rain, bird, insects and any other material that might include contamination. Any such opening shall be provided with a pipe sleeve or other device making a watertight junction with the storage tank cover and extending without openings to at least 12 inches above the surface of the cover with a stuffing box at the top. No such vents or openings shall be provided near sources of dust, smoke and the like nor where surface water might splash into them. Vents must be protected with a 24-mesh screen.

H. Cleaning and Disinfection

Potable water storage tanks shall be cleaned as often as necessary. They shall be effectively disinfected before being placed into service in accordance with the "American Water Works Association Standard for Disinfection of Water Storage Facilities" (the latest edition of AWWA C652-92 or the latest revision thereof). Before the storage tank is placed in service, two consecutive series of samples that are not collected on the same day must show that the water is bacteriologically safe for drinking purposes.

XII. DISINFECTION REQUIRED

Disinfection of all public water supplies by a method approved by the Arkansas Department of Health must be provided. Disinfection must include adequate contact holding time prior to pumping into the distribution and storage system. An adequate residual of the disinfectant must be carried to all points throughout the distribution system.

XIII. BOOSTER PUMP STATIONS

Booster pump stations shall be located on sites having good surface drainage and not subject to flooding. When the pump suction lines are connected to the distribution system, they must be automatically controlled so as not to reduce the suction line pressure to less than 20 pounds per square inch. The suction line on any booster pump shall be so located and constructed to prevent contamination of the water supply.

XIV. DISTRIBUTION SYSTEM

All public water supply distribution systems shall be tested and constructed using materials and construction methods in accordance with the latest edition of the applicable AWWA standards and approved by the Arkansas Department of Health.

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A. Sanitary and Safety Hazards.

The operating routine shall include necessary protective measures to detect and remove or destroy any contaminant of concern or regulation that might enter the distribution system. Every precaution must be taken against the possibility of sewage contamination of the water in the distribution system. Water mains and sanitary sewers shall be constructed as far apart as practicable, and shall be separated by undisturbed and compacted earth. A minimum horizontal distance of ten feet should be maintained between water lines and sewer lines or other sources of contamination. Water lines and sewers shall not be laid in the same trench except on the written approval of the Arkansas Department of Health. Water mains necessarily in close proximity to sewers must be placed so that the bottom of the water line will be at least 18 inches above the top of the sewer line at its highest point. If this distance must unavoidably be reduced, the water line or the sewer line must be encased in watertight pipe with sealed watertight ends extending at least ten feet either side of the crossing. Any joint in the encasement pipe is to be mechanically restrained. The encasement pipe may be vented to the surface if carrying water or sewer under pressure. Where a water line must unavoidably pass beneath the sewer line, at least 18 inches of separation must be maintained between the outside of the two pipes in addition to the preceding encasement requirement. Exceptions to this must be approved in writing by the Arkansas Department of Health

A minimum horizontal distance of three feet shall be maintained between water lines and other underground utilities of a nonsanitary nature (gas, electric, etc.). Exceptions to this must be approved in writing by the Arkansas Department of Health and Human Services.

B. System Design

1. General

The distribution system shall be properly arranged and of ample capacity to insure a supply of water to all parts of the system to meet any reasonable demand, including fire, if applicable, without producing a condition of negative pressure in any part of the system. A minimum pressure of 20 pounds per square inch shall be maintained, except under emergency conditions such as a fire flow or main break. Pipes shall have sufficient structural strength and shall be properly supported and reinforced where necessary to guard against structural failures and resulting sanitary hazards. All drains, such as hydrant drips or valve pits, shall discharge onto the ground surface where possible, or into dry pits or gravel pockets, but not into any sewer.

2. Location Records

An accurate up-date record shall be kept of the location of every item in the distribution system with all mains, valves and other underground structures

carefully referenced to reasonably permanent aboveground objects in order that the underground structure may be properly located. Such records should show all pipes carrying domestic sewage or toxic industrial wastes located within 10 feet of any element of the distribution system.

3. Depth of Mains

All water pipes must be located at sufficient depth to protect the pipe from the direct effect of traffic and at least below maximum frost depth of the locality, or be otherwise protected.

4. Valves

Valves shall be located at frequent intervals along all water mains and at such points to permit closing off of any section of a water main for repairs or testing without affecting water service to any extended area. All valves shall be tested for leakage and operation by routine inspection at frequent intervals. Leaky stuffing boxes shall be properly and promptly repaired.

5. Blowoff Drainage

Blowoffs shall be so located that the distribution system may be properly flushed, and so that danger of contamination of the water line by backflow will be eliminated. No blowoff shall be connected to any sewer or storm drain, submerged in any surface water or installed in any manner that will permit backsiphonage into the distribution system. The discharge of the blowoff shall be located above natural grade, and be screened, capped, or plugged.

C. Water Main Construction

Construction shall be carried out so as to insure a water distribution system free from leaks, thoroughly supported to prevent settlement or breakage of pipes and thoroughly sterilized to remove all possibility of infection or contamination. Particular care must be taken to guard against the entrance of sewage into the trench during or after construction. Any sewage matter that might be found in the trench shall be carefully removed and the location sterilized with a suitable chlorine compound spread over the area. Ample provision must be made to remove all ground or surface water from the trenches and no such water shall be allowed to enter the pipe. The interior of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter at all times. They shall be carefully inspected and thoroughly cleaned before laying. After laying and before completion of backfill, lines shall be tested in accordance with the latest edition of the applicable AWWA specifications for the pipe material being used.

D. Used Pipe

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The use of secondhand or used pipe is prohibited unless it was previously used for the distribution of potable water, or approved by the Arkansas Department of Health.

E. Disinfection of Pipe

Before being placed in service, all new water distribution systems, extensions to existing systems, any valved section of such extension or any replacement of the water distribution system shall be properly disinfected. Prior to disinfection, all dirt shall be removed by thorough flushing. All valves and appurtenances affected shall be operated while the pipeline is filled with the disinfecting agent. Following disinfection, all treated water shall be thoroughly flushed from the pipeline and bacteriological samples shall be taken to determine the efficiency of the disinfection procedure. Before the system or line is placed in service, two consecutive series of samples that are not collected on the same day must show that the water is bacteriologically safe for drinking purposes. Disinfection shall conform with American Water Works Association, "Standard Specifications for Disinfecting Water Mains," C651-92, or the latest revision thereof.

F. Plumbing Inspection and Sewage Disposal Required

1. Approved Sewage Disposal Required

No public water system shall provide service to a new building or residence in an unsewered area until the customer provides written documentation that the Department of Health has approved plans for construction of a sewage disposal facility for the building or residence, or that no disposal system approval is required by the Department of Health for the building.

2. Plumbing Inspection Required

No public water system shall provide new service to any building or residence until the customer provides written documentation that the service line and building plumbing were inspected by the system's certified plumbing inspector, and found to be in substantial compliance with the State Plumbing Code (Rules and Regulations Governing Construction, Installation, and Inspection of Plumbing and Drainage).

a) No System Plumbing Inspector

If the system has no certified plumbing inspector, the written documentation shall be obtained from the Department of Health's Area Plumbing Inspector or a certified inspector designated by the Area Inspector.

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b) Temporary Construction Service

Temporary service for construction purposes, in unsewered areas, may be provided only after compliance with Section XIV. F. 1, above.

XV. RETURN OF COOLING WATER

The return of heating or cooling water to a potable water storage reservoir or distribution system is prohibited.

XVI. CROSS CONNECTIONS

Any physical connection is prohibited whereby a public water system whether community or non-community, is connected to an unsafe or questionable water supply system either inside or outside of any building or buildings.

A. Prohibited Services

Domestic water shall not be supplied to any device, equipment, or service connection which may permit the contamination of the water supply by backsiphonage or backflow. Provision of water service to any service connection found to contain a cross-connection shall immediately be terminated, unless a backflow prevention device of a type approved by the Arkansas Department of Health is installed between the cross-connection and the public water system.

XVII. NOTIFICATION

A. Notification of Arkansas Department of Health

The owner shall report to the Arkansas Department of Health within the 48 hour time limit prescribed by the Arkansas Department of Health the failure to comply with any primary drinking water regulation including failure to comply with monitoring requirements. The owner is not required to report analytical results to the Arkansas Department of Health in cases where the analysis was performed by the Arkansas Department of Health Laboratory.

The owner shall report to the Arkansas Department of Health within four hours of the discovery and evaluation of any emergency condition located in the water system which affects the ability of the water system to deliver adequate quantities of safe water to its customers. Examples of such emergencies include loss of pressure in the distribution system, failure of the source or treatment facility or parts thereof, voluntary

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or mandatory water conservation efforts, or the known or suspected introduction of any contaminant into the water system.

The owner shall report to the Arkansas Department of Health, within two working days, of any change of the Operator of Record for the water system. The owner shall report both the names of the former Operator of Record and the new Operator of Record.

B. Notification of the Public

The owner shall, as directed in writing by the Arkansas Department of Health or as required by the National Primary Drinking Water Regulations, notify the public of its failure to comply with the National Primary Drinking Water Regulations, and/or its failure to comply with these regulations, or of any emergency condition. Public notification shall be given using the wording directed by the Arkansas Department of Health. The public notification shall be given in a timely manner as directed by the Arkansas Department of Health.

In lieu of applying specific National Primary Drinking Water Regulations public notification requirements to bottled water, the Engineering Section shall notify the water bottler and the appropriate state regulatory program when the Department has determined that there has been a failure of the bottled water source to comply with the monitoring, Maximum Contaminant Level, or Treatment Technique requirements of the National Primary Drinking Water Regulations, as applied Non-Transient Non-Community Public Water Systems.

XVIII. APPROVED LABORATORIES

The Arkansas Department of Health Laboratory shall conduct analyses for the purpose of determining compliance with the National Primary Drinking Water Regulations. Routine examinations on a daily, weekly, or monthly basis may be conducted in a public water system plant laboratory certified by the Arkansas Department of Health.

XIX. VARIANCES AND EXEMPTIONS

A review of chemical and physical analyses for public water systems in the State of Arkansas indicates that a program of variances and exemptions is not needed by the State. If the need arises, the Arkansas Department of Health is authorized to implement a program of variances and exemptions consistent with the requirements of the National Primary Drinking Water Regulations.

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XX. PRELIMINARY REPORTS

Before detailed plans and specifications are prepared for the construction of new public water systems or major improvements to existing public water systems are prepared, the owner or his authorized agent shall submit to the Arkansas Department of Health a preliminary report containing data and information sufficient for the complete understanding of the proposed work. The "Recommended Standards for Waterworks" by the Great Lakes - Upper Mississippi River Board of State Sanitary Engineers (Ten States Standards) is recommended as a guide. An inspection by Arkansas Department of Health staff of all proposed surface water and all groundwater source locations shall be conducted as part of the review of the preliminary report.

For proposed new Community Public Water Systems and Non-Transient Non-Community Public Water Systems, the preliminary report shall include sufficient information to demonstrate the system's technical, financial, and managerial capacity to comply with the requirements of the Safe Drinking Water Act (See Section VII. H.). The Department shall not approve the construction of any new Community Public Water System or Non-Transient Non-Community Public Water System unless the Department formally concurs that the report demonstrates the system's technical, financial, and managerial capacity to comply with the requirements of the Safe Drinking Water Act.

XXI. SUBMISSION OF PLANS AND SPECIFICATIONS

A. Submission of Plans

The owner or his authorized agent shall submit two complete sets of engineering plans and specifications to, and receive written approval of, the Arkansas Department of Health, before constructing or entering into a contract to construct a water supply system, source of supply, water purification plant and/or distribution system, or any alterations thereto. Thereafter such engineering plans and specifications must be adhered to unless deviations are submitted to, and receive written approval of, the Arkansas Department of Health. The Arkansas Department of Health may, upon approval of a written agreement between the owner and the Arkansas Department of Health, delegate plan review responsibility for minor distribution improvements to the owner.

B. Extensions to Existing Distribution Systems

If the engineering plans are solely for the extension to an existing distribution system, only such information as is necessary for a clear understanding of the proposed extension will be required. This information must, in general, conform to the requirements for a complete system.

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All construction plans and specifications for the construction of new systems or extensions, expansions or modifications of existing systems submitted to the Department for review shall be in full compliance with all Plan Review Policy Statements issued by the Department and signed by the Director of the Department of Health.

C. Construction Verification:

The owner or his authorized agent shall retain the design engineer, another competent engineer, or, if approved by the Arkansas Department of Health, the supplying water utility, to ensure that the project is constructed in accordance with the engineering plans and specifications as approved by the Department. The Department may require the inspecting engineer or utility to submit a statement following substantial completion documenting that a project was constructed in accordance with the Department approved plans and specifications.

XXII. ENGINEERS REPORT

A. Design Data

A report, written by the designing or consulting engineer, shall be presented with all engineering plans and shall give all data upon which the design is based, or which is required for the complete understanding of the engineering plans.

B. Surface Water Supply.

If a surface supply is proposed, the nature and extent of the watershed with special reference to its sanitary condition and anticipated maximum and minimum water yield shall be fully and explicitly discussed, together with proposed methods and regulations for the prevention of accidental or other pollution. A small scale map of the watershed, showing the roads and number and character of the buildings, shall be included in the report. Other features that should be discussed in the report are storage, capacity, average depth, general nature and area of the storage reservoir, probable water quality of the source, and proposed treatment processes. Treatment must be based on a thorough study of raw water quality.

C. Ground Water Supply.

If a well supply is proposed, the number, depth, size and construction, method of pumping, type of strainer, geological formations through which wells will be drilled, and probable yield of the wells shall be given. Treatment must be provided based upon a thorough study of raw water quality. If collecting galleries are to be used, describe their construction. A map shall be submitted showing the location of all buildings, privies, sewers, underground conduits or other possible sources of contamination within 1320 feet of the proposed wells, galleries or gravity conduits.

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D. Unsupplied Area

Should there be areas within the area served by the public water system which, on account of topography or other reasons, cannot feasibly be supplied with water, a definite statement to this effect must be made and the probable future methods of supplying water to the area should be discussed.

E. Estimate of Cost

An estimate of the cost for the construction of the water supply, source of supply, water treatment plant and/or distribution system shall accompany all engineering plans. The estimate shall include quantities of the necessary materials.

F. Plan Review Fee.

In accordance with Act 469 of 1965, as amended (Ark. Code Ann. § 20-123 et seq.), a review fee of one percent (1%) of the estimated cost shall be submitted with the engineering plans and specifications. The maximum fee is five hundred dollars ($500.00). A minimum fee of $50.00 is required. Unless the maximum fee is paid, a detailed cost estimate must accompany the engineering plans and specifications. No fee is required for preliminary engineering reports.

XXIII. RIGHT OF ACCESS

The owners of public water systems shall permit reasonable access to personnel of the Arkansas Department of Health for the purpose of inspection of facilities and records, or collection of samples. Access shall be permitted whether or not there is any question that the system is in compliance with applicable legal requirements.

XXIV. ADMINISTRATIVE PENALTY AUTHORITY

The Arkansas Department of Health shall have the authority to assess administrative penalties against any public water system and/or its authorized agent for failure to comply with any portion of these regulations, provided that such penalties and procedures are in accordance with Arkansas Statutes.

XXV. ANNUAL FEES

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The annual fees for public water systems provided for in Arkansas Statutes § 20-28-101 et seq are established at $0.30 per service connection per month for community and nontransient noncommunity water systems, with a minimum fee of $250; and at $125 for transient noncommunity water systems.

XXVI. SEVERABILITY

If any provision of these Rules and Regulations, or the application thereof to any person or circumstances is held invalid, such provisions or applications of these Rules and Regulations which can give effect without the invalid provisions or applications, and to this end the provisions hereto are declared to be severable.

XXVII. REPEAL

All Regulations and parts of Regulations in conflict herewith are hereby repealed.

CERTIFICATION

This will certify that the foregoing Rules and Regulations Pertaining to Public Water Systems were adopted by the Arkansas State Board of Health at a regular session of the Board held in Little Rock, Arkansas on January 23, 2014.

Nathaniel Smith, MD, MPH, Secretary
Arkansas State Board of Health
Interim Director and State Health Officer
Arkansas Department of Health

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