



WEST VIRGINIA SECRETARY OF STATE

MAC WARNER

ADMINISTRATIVE LAW DIVISION

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Office of West Virginia
Secretary Of State

NOTICE OF RULE MODIFICATION OF A PROPOSED RULE

AGENCY: Water Resources Division Of Water And
Waste Management

RULE TYPE: Legislative

TITLE-SERIES: 47-02

RULE NAME: Requirements Governing Water Quality
Standards

CITE AUTHORITY: W. Va. Code §§ 22-11-4(a)(16); 22-11-7b.

The above proposed Legislative rules, following review by the Legislative Rule Making Review Committee, is hereby modified as a result of review and comment by the Legislative Rule Making Review Committee. The attached modifications are filed with the Secretary of State.

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENT IS TRUE AND CORRECT.

Yes

Jason E Wandling -- By my signature, I certify that I am the person authorized to file legislative rules, in accordance with West Virginia Code §29A-3-11 and §39A-3-2.

TITLE 47
LEGISLATIVE RULE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER RESOURCES

SERIES 2
REQUIREMENTS GOVERNING WATER QUALITY STANDARDS

§47-2-1. General.

1.1. Scope. -- ~~These rules establish~~ This rule establishes requirements governing the discharge or deposit of sewage, industrial wastes, and other wastes into the waters of the state and establishes water quality standards for the waters of the State standing or flowing over the surface of the State. It is declared to be the public policy of the State of West Virginia to maintain reasonable standards of purity and quality of the water of the State consistent with (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird, fish, and other aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion of agriculture, and the provision of a permanent foundation for healthy industrial development. (*See*, W. Va. Code § 22-11-2.)

1.2. Authority. -- W. Va. Code §§ 22-11-4(a)(16); 22-11-7b.

1.3. Filing Date. -- ~~June 8, 2016~~

1.4. Effective Date. -- ~~July 8, 2016~~

§47-2-2. Definitions.

The following definitions, in addition to those set forth in W. Va. Code § 22-11-3, shall apply to these rules unless otherwise specified herein, or unless the context in which used clearly requires a different meaning:

2.1. "Conventional treatment" is the treatment of water as approved by the West Virginia Bureau for Public Health to assure that the water is safe for human consumption.

2.2. Lakes

2.2a. "Cool water lakes" are lentic water bodies that have a summer hydraulic residence time greater than 14 days, and are either managed by the West Virginia Division of Natural Resources for the support of cool water fish species or support cool water fish species, such as walleye and trout. "Cool water lakes" do not include those waters that receive stockings of trout, but that do not support year-round trout populations. (*See*, Appendix F for a representative list.)

2.2b. "Warm water lakes" are lentic water bodies that have a summer hydraulic residence time greater than 14 days, and are either managed by the West Virginia Division of Natural Resources for the support of warm water fish species or support warm water fish species, such as bass and catfish.

2.3. "Cumulative" means a pollutant which increases in concentration in an organism by successive additions at different times or in different ways (bio-accumulation).

2.4. "Designated uses" are those uses specified in water quality standards for each water or segment whether or not ~~they~~ the uses are being attained. (*See*, sections 6.2 - 6.6, herein)

2.5. "Dissolved metal" is ~~operationally defined as~~ that portion of metal which passes through a 0.45 micron filter.

2.6. "Existing uses" are those uses actually attained in a water on or after November 28, 1975, whether or not ~~they~~ those uses are included in the water quality standards.

2.7. The "Federal Act" means the federal Clean Water Act (also known as the Federal Water Pollution Control Act) 33 U.S.C. §§ 1251 - 1387.

2.8. "High quality waters" are those waters whose quality is equal to or better than the minimum levels necessary to achieve the national water quality goal uses.

2.9. "Intermittent streams" are streams which have no flow during sustained periods of no precipitation and which do not support aquatic life whose life history requires residence in flowing waters for a continuous period of at least six (6) months.

2.10. "Outstanding national resource waters" are those waters whose unique character, ecological or recreational value or pristine nature constitutes a valuable national or State resource.

2.11. "Natural" or "naturally occurring" values or "natural temperature" means, for all of the waters of the State:

2.11.a. Those water quality values which exist unaffected by, or unaffected as a consequence of, any water use by any person; and

2.11.b. Those water quality values which exist unaffected by the discharge, or direct or indirect deposit of, any solid, liquid or gaseous substance from any point source or non-point source.

2.12. "Non-point source" means any source other than a point source from which pollutants may reach the waters of the state.

2.13. "Persistent" means a pollutant and its transformation products which, under natural conditions, degrade slowly in an aquatic environment.

2.14. "Point source" means any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock or vessel or other floating craft from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.

2.15. "Representative important species of aquatic life" means those species of aquatic life whose protection and propagation will assure the sustained presence of a balanced aquatic community. Such species are representative in the sense that maintenance of water quality criteria will assure both the natural completion of the species' life cycles and the overall protection and sustained propagation of the balanced aquatic community.

2.16. "secretary" means the secretary of the Department of Environmental Protection or such other person to whom the secretary has delegated authority or duties pursuant to W. Va. Code §§ 22-1-6 or 22-1-8.

2.17. The "State Act" or "State Law" means the West Virginia Water Pollution Control Act, W. Va. Code § 22-11-1, et seq.

2.18. "Total recoverable" refers to the digestion procedure for certain heavy metals as referenced in 40 CFR 136, as amended ~~June 15, 1990 and March 26, 2007~~, May 18, 2012, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act.

2.19. "Trout waters" are waters which sustain year-round trout populations. Excluded are those waters which receive annual stockings of trout but which do not support year-round trout populations.

2.20. "Water quality criteria" means levels of parameters or stream conditions that are required to be maintained by ~~these regulations~~ this rule. Criteria may be expressed as a constituent concentration, levels, or narrative statement representing a quality of water that supports a designated use or uses.

2.21. "Water quality standards" means the combination of water uses to be protected and the water quality criteria to be maintained by ~~these~~ this rule.

2.22. "Wetlands" are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

2.23. "Wet weather streams" are streams that flow only in direct response to precipitation or whose channels are at all times above the water table.

§47-2-3. Conditions Not Allowable In State Waters.

3.1. Certain characteristics of sewage, industrial wastes, and other wastes cause pollution and are objectionable in all waters of the State. Therefore, the secretary does hereby proclaim that the following general conditions are not to be allowed in any of the waters of the State.

3.2. No sewage, industrial wastes or other wastes present in any of the waters of the State shall cause therein or materially contribute to any of the following conditions thereof:

3.2.a. Distinctly visible floating or settleable solids, suspended solids, scum, foam or oily slicks;

3.2.b. Deposits or sludge banks on the bottom;

3.2.c. Odors in the vicinity of the waters;

3.2.d. Taste or odor that would adversely affect the designated uses of the affected waters;

3.2.e. Materials in concentrations which are harmful, hazardous or toxic to man, animal or aquatic life;

3.2.f. Distinctly visible color;

3.2.g. Algae blooms or concentrations of bacteria which may impair or interfere with the designated uses of the affected waters;

3.2.h. Requiring an unreasonable degree of treatment for the production of potable water by modern water treatment processes as commonly employed; and

3.2.i. Any other condition, including radiological exposure, which adversely alters the integrity of the waters of the State, including wetlands. No significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed.

§47-2-4. Antidegradation Policy.

4.1. It is the policy of the State of West Virginia that the waters of the State shall be maintained and protected as follows:

4.1.a. Tier 1 Protection. Existing water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Existing uses are those uses actually attained in a water on or after November 28, 1975, whether or not they are included as designated uses within these water quality standards.

4.1.b. Tier 2 Protection. The existing high quality waters of the State must be maintained at their existing high quality unless ~~it is the secretary determines~~, after satisfaction of the intergovernmental coordination of the State's continuing planning process as outlined in the Legislative Rule entitled "Antidegradation Implementation Procedures", 60CSR5, and opportunity for public comment and hearing, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. If limited degradation is allowed, it shall not result in injury or interference with existing stream water uses or in violation of State or federal water quality criteria that describe the base levels necessary to sustain the national water quality goal uses of protection and propagation of fish, shellfish and wildlife, and recreating in and on the water.

In addition, the secretary shall assure that all new and existing point sources shall achieve the highest established statutory and regulatory requirements applicable to them and shall assure the achievement of cost-effective and reasonable best management practices (BMPs) for non-point source control. If BMPs are demonstrated to be inadequate to reduce or minimize water quality impacts, the secretary may require that more appropriate BMPs be developed and applied.

4.1.b.1. High quality waters are those waters meeting the definition at section 2.8 herein.

4.1.b.2. High quality waters may include, but are not limited to, the following:

4.1.b.2.A. Streams designated by the West Virginia Legislature under the West Virginia Natural Stream Preservation Act, pursuant to W. Va. Code § 22-13-5; and

4.1.b.2.B. Streams listed in West Virginia High Quality Streams, ~~Fifth~~ Sixth Edition, prepared by the Wildlife Resources ~~Division~~ Section of the Department ~~Division~~ of Natural Resources (~~1986~~ 2011).

4.1.b.2.C. Streams or stream segments which receive annual stockings of trout but which do not support year-round trout populations.

4.1.c. Tier 3 Protection. In all cases, waters which constitute an outstanding national resource shall be maintained and protected and improved where necessary. Outstanding national resource waters include, but are not limited to, all streams and rivers within the boundaries of Wilderness Areas designated by The Wilderness Act, 16 U.S.C. § 1131, et seq.; all Federally designated rivers under the "Wild and Scenic Rivers Act", 16 U.S.C. § 1271, et seq.; all streams and other bodies of water in State Parks which are high quality waters or naturally reproducing trout streams; waters in National Parks and Forests which are high quality waters or naturally reproducing trout streams; waters designated under the

“National Parks and Recreation Act of 1978”, ~~as amended~~ 16 U.S.C § 461, et seq.; and pursuant to ~~subsection 7.1 of the rule entitled “Antidegradation Implementation Procedures.”~~ 60CSR5, those waters whose unique character, ecological or recreational value, or pristine nature constitutes a valuable national or state resource.

Additional waters may be nominated for inclusion in that category by any interested party or by the secretary on ~~his or her~~ the secretary’s own initiative. To designate a nominated water as an outstanding national resource water, the secretary shall follow the public notice and hearing provisions as provided in the Procedural Rule Governing Site Specific Revisions to Water Quality Standards, 46CSR6 46 C.S.R. 6.

4.1.d. All applicable requirements of section 316(a) of the Federal Act shall apply to modifications of the temperature water quality criteria provided for in these rules.

§47-2-5. Mixing Zones.

5.1. In the permit review and planning process or upon the request of a permit applicant or permittee, the secretary may establish, on a case-by-case basis, an appropriate mixing zone.

5.2. The following guidelines and conditions are applicable to all mixing zones:

5.2.a. The secretary will assign, on a case-by-case basis, definable geometric limits for mixing zones for a discharge or a pollutant or pollutants within a discharge. Applicable limits shall include, but ~~may are~~ not be limited to, the linear distances from the point of discharge, surface area involvement, and volume of receiving water and shall take into account other nearby mixing zones. Mixing zones shall take into account the mixing conditions in the receiving stream (i.e.: whether complete or incomplete mixing conditions exist). Mixing zones will not be allowed until applicable limits are assigned by the secretary in accordance with this section.

5.2.b. Concentrations of pollutants which exceed the acute criteria for protection of aquatic life set forth in Appendix E, Table 1 shall not exist at any point within an assigned mixing zone or in the discharge itself unless a zone of initial dilution is assigned. A zone of initial dilution may be assigned on a case-by-case basis at the discretion of the secretary. The zone of initial dilution is the area within the mixing zone where initial dilution of the effluent with the receiving water occurs, and where the concentration of the effluent will be its greatest in the water column. Where a zone of initial dilution is assigned by the secretary, the size of the zone shall be determined using one of the four alternatives outlined in section 4.3.3 of US EPA’s Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001 PB91-127415, March 1991). Concentrations of pollutants shall not exceed the acute criteria at the edge of the assigned zone of initial dilution. Chronic criteria for the protection of aquatic life may be exceeded within the mixing zone but shall be met at the edge of the assigned mixing zone.

5.2.c. Concentrations of pollutants which exceed the criteria for the protection of human health set forth in Appendix E, Table 1 shall not be allowed at any point unless a mixing zone has been assigned by the secretary after consultation with the Commissioner of the West Virginia Bureau for Public Health. Human health criteria may be exceeded within an assigned mixing zone, but shall be met at the edge of the assigned mixing zone. Mixing zones for human health criteria shall be sized to prevent significant human health risks and shall be developed using reasonable assumptions about exposure pathways. In assessing the potential human health risks of establishing a mixing zone upstream from a drinking water intake, the secretary shall consider the cumulative effects of multiple discharges and mixing zones on the drinking water intake. No mixing zone for human health criteria shall be established on a stream which has a seven (7) day, ten (10) year return frequency of five (5) cubic feet per second (cfs) or less.

5.2.d. Mixing zones, including zones of initial dilution, shall not interfere with fish spawning or nursery areas or fish migration routes; shall not overlap public water supply intakes or bathing areas; ~~cause lethality to kill~~ or preclude the free passage of fish or other aquatic life; nor harm any threatened or endangered species, as listed in the Federal Endangered Species Act, 15 U.S.C. § 1531, et seq.

5.2.e. The mixing zone shall not exceed one-third (1/3) of the width of the receiving stream, and in no case shall the mixing zone exceed one-half (1/2) of the cross-sectional area of the receiving stream.

5.2.f. In lakes and other surface impoundments, the volume of a mixing zone shall not affect in excess of ten percent (10%) of the volume of that portion of the receiving waters available for mixing.

5.2.g. A mixing zone shall be limited to an area or volume which will not adversely alter the existing or designated uses of the receiving water, nor be so large as to adversely affect the integrity of the water.

5.2.h. Mixing zones shall not:

5.2.h.1. Be used for, or considered as, a substitute for technology-based requirements of the State or Federal Act and other applicable State and federal laws.

5.2.h.2. Extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge.

5.2.h.3. Cause or contribute to any of the conditions prohibited in section 3, herein.

5.2.h.4. Be granted where the instream waste concentration of a discharge is greater than 80%.

5.2.h.5. Overlap one another, except that the secretary may allow mixing zones for human health criteria to overlap, if the overlapping mixing zones comply with all guidelines and conditions of subsection 5.2 herein.

5.2.h.6. Overlap any half-mile zone described in section 7.2.a.2 herein.

5.2.i. In the case of thermal discharges, a successful demonstration conducted under section 316(a) of the Federal Act shall constitute compliance with all provisions of this section.

5.2.j. The secretary may waive the requirements of subdivision 5.2.e and paragraph 5.2.h.2 above if a discharger provides an acceptable demonstration of:

5.2.j.1. Information defining the actual boundaries of the mixing zone in question; and

5.2.j.2. Information and data proving no violation of subdivisions 5.2.d and 5.2.g above by the mixing zone in question.

5.2.k. Upon implementation of a mixing zone in a permit, the permittee shall provide documentation that demonstrates to the satisfaction of the secretary that the mixing zone is in compliance with the provisions outlined in subdivisions 5.2.b, 5.2.c, 5.2.e, and paragraph 5.2.h.2, herein.

5.2.1. In order to facilitate a determination or assessment of a mixing zone pursuant to this section, the secretary may require a permit applicant or permittee to submit such information as he or she deems necessary.

§47-2-6. Water Use Categories.

6.1. ~~These rules~~ This section establishes general Water Use Categories and Water Quality Standards for the waters of the State. Unless otherwise designated by ~~these rules~~ this rule, at a minimum all waters of the State are designated for the Propagation and Maintenance of Fish and Other Aquatic Life (Category B) and for Water Contact Recreation (Category C) consistent with Federal Act goals. Incidental utilization for whatever purpose may or may not constitute a justification for assignment of a water use category to a particular stream segment.

6.1.a. Waste assimilation and transport are not recognized as designated uses. The classification of the waters must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes, including navigation.

Subcategories of a use may be adopted and appropriate criteria set to reflect varying needs of such subcategories of uses, for example to differentiate between trout water and other waters.

6.1.b. At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under section 301(b) and section 306 of the Federal Act and use of cost-effective and reasonable best management practices for non-point source control. Seasonal uses may be adopted as an alternative to reclassifying a water or segment thereof to uses requiring less stringent water quality criteria. If seasonal uses are adopted, water quality criteria will be adjusted to reflect the seasonal uses; however, such criteria shall not preclude the attainment and maintenance of a more protective use in another season. A designated use which is not an existing use may be removed, or subcategories of a use may be established if it can be demonstrated that attaining the designated use is not feasible because:

6.1.b.1. Application of effluent limitations for existing sources more stringent than those required pursuant to section 301 (b) and section 306 of the Federal Act in order to attain the existing designated use would result in substantial and widespread adverse economic and social impact; or

6.1.b.2. Naturally-occurring pollutant concentrations prevent the attainment of the use; or

6.1.b.3. Natural, ephemeral, intermittent or low flow conditions of water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges to enable uses to be met; or

6.1.b.4. Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

6.1.b.5. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water to its original condition or to operate such modification in a way that would result in the attainment of the use; or

6.1.b.6. Physical conditions related to the natural features of the water, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.

6.1.c. The State shall take into consideration the quality of downstream waters and shall assure that its water quality standards provide for the attainment of the water quality standards of downstream waters.

6.1.d. In establishing a less restrictive use or uses, or subcategory of use or uses, and the water quality criteria based upon such uses, the secretary shall follow the requirements for revision of water quality standards as required by W. Va. Code § 22-11-7b and section 303 of the Federal Act and the regulations thereunder. Any revision of water quality standards shall be made with the concurrence of the U.S. EPA. ~~The secretary's administrative procedural regulations for applying for less restrictive uses or criteria shall be followed~~ and the applicant shall follow the Procedural Rule Governing Site Specific Revisions to Water Quality Standards, 46CSR6.

6.2. Category A -- Water Supply, Public. -- This category is used to describe waters which, after conventional treatment, are used for human consumption. This category includes ~~streams~~ waters on which the following are located:

6.2.a. All community domestic water supply systems;

6.2.b. All non-community domestic water supply systems (i.e. hospitals, schools, etc.);

6.2.c. All private domestic water systems;

6.2.d. All other surface water intakes where the water is used for human consumption. (*See Appendix B for partial listing of Category A waters and paragraph 7.2.a.2, herein for additional requirements for Category A waters.*) The manganese human health criterion shall only apply within the five-mile zone immediately upstream above a known public or private water supply used for human consumption.

6.3. Category B -- Propagation and maintenance of fish and other aquatic life. --

This category includes:

6.3.a. Category B1 -- Warm water fishery streams. -- Streams or stream segments which contain populations composed of all warm water aquatic life.

6.3.b. Category B2 -- Trout Waters. -- As defined in section 2.19 herein (*see, Appendix A for a representative list.*)

6.3.c. Category B4 -- Wetlands. -- As defined in section 2.22 herein; certain numeric stream criteria may not be appropriate for application to wetlands (*see, Appendix E, Table 1.*)

6.4. Category C -- Water contact recreation. -- This category includes swimming, fishing, water skiing and certain types of pleasure boating such as sailing in very small craft and outboard motor boats. (*See, Appendix D for a representative list.*)

6.5. Category D. -- Agriculture and wildlife uses.

6.5.a. Category D1 -- Irrigation. -- This category includes all stream segments used for irrigation.

6.5.b. Category D2 -- Livestock watering. -- This category includes all stream segments used for livestock watering.

6.5.c. Category D3 -- Wildlife. -- This category includes all stream segments and wetlands used by wildlife.

6.6. Category E -- Water supply industrial, water transport, cooling and power. -- This category includes cooling water, industrial water supply, power production, commercial and pleasure vessel activity, except those small craft included in Category C.

6.6.a. Category E1 -- Water Transport. -- This category includes all stream segments modified for water transport and having permanently maintained navigation aids.

6.6.b. Category E2 -- Cooling Water. -- This category includes all stream segments having one (1) or more users for industrial cooling.

6.6.c. Category E3 -- Power production. -- This category includes all stream segments extending from a point 500 feet upstream from the intake to a point one-half (1/2) mile below the wastewater discharge point. (See, Appendix C for representative list.)

6.6.d. Category E4 -- Industrial. -- This category is used to describe all stream segments with one (1) or more industrial users. It does not include water for cooling.

§47-2-7. West Virginia Waters.

7.1. Major River Basins and their Alphanumeric System. All streams and their tributaries in West Virginia shall be individually identified using ~~an alphanumeric system as identified in the "Key to West Virginia Stream Systems and Major Tributaries" (1956) as published by the Conservation Commission of West Virginia and revised by the West Virginia Department of Natural Resources, Division of Wildlife (1985)~~ the stream codes developed by the Department and available on the Department's website.

7.1.a. J - James River Basin. All tributaries to the West Virginia - Virginia State line.

7.1.b. P - Potomac River Basin. All tributaries of the main stem of the Potomac River to the West Virginia - Maryland - Virginia state line to the confluence of the North Branch and the South Branch of the Potomac River and all tributaries arising in West Virginia excluding the major tributaries hereinafter designated:

7.1.b.1. S - Shenandoah River and all its tributaries arising in West Virginia to the West Virginia - Virginia state line.

7.1.b.2. PC - Cacapon River and all its tributaries.

7.1.b.3. PSB - South Branch and all its tributaries.

7.1.b.4. PNB - North Branch and all tributaries to the North Branch arising in West Virginia.

7.1.c. M - Monongahela River Basin. The Monongahela River Basin main stem and all its tributaries, excluding the following major tributaries which are designated as follows:

7.1.c.1. MC - Cheat River and all its tributaries, ~~except those listed below:~~

~~7.1.c.1.A. MCB - Blackwater River and all its tributaries.~~

7.1.c.2. MW - West Fork River and all its tributaries.

7.1.c.3. MT - Tygart River and all its tributaries except those listed below:

7.1.c.3.A. MTB - Buckhannon River and all its tributaries.

7.1.c.3.B. MTM - Middle Fork River and all its tributaries.

7.1.c.4. MY - Youghigheny River and all its tributaries to the West Virginia - Maryland State line.

7.1.d. O Zone 1 - Ohio River - Main Stem. The main stem of the Ohio River from the Ohio - Pennsylvania - West Virginia state line to the Ohio - Kentucky - West Virginia state line.

7.1.e. O Zone 2 - Ohio River - Tributaries. All tributaries of the Ohio River excluding the following major tributaries:

7.1.e.1. LK - Little Kanawha River. The Little Kanawha River and all its tributaries excluding the following major tributary, ~~which is designated as follows~~ LKH – Hughes River and all its tributaries.

~~7.1.e.1.A. LKH – Hughes River and all its tributaries.~~

7.1.e.2. K - Kanawha River Zone 1. The main stem of the Kanawha River from mile point 0, at its confluence with the Ohio River, to mile point 72 near Diamond, West Virginia.

7.1.e.3. K - Kanawha River Zone 2. The main stem of the Kanawha River from mile point 72 near Diamond, West Virginia and all its tributaries from mile point 0 to the headwaters, excluding the following major tributaries which are designated as follows:

7.1.e.3.A. KP - Pocatalico River and all its tributaries.

7.1.e.3.B. KC - Coal River and all its tributaries.

7.1.e.3.C. KE - Elk River and all its tributaries.

7.1.e.3.D. KG - Gauley River. The Gauley River and all its tributaries excluding the following major tributaries which are designated as follows:

7.1.e.3.D.1. KG-19 - Meadow River and all its tributaries.

7.1.e.3.D.2. KG-34 - Cherry River and all its tributaries.

7.1.e.3.D.3. KGC - Cranberry River and all its tributaries.

7.1.e.3.D.4. KGW - Williams River and all its tributaries.

7.1.e.3.E. KN - New River. The New River from its confluence with the Gauley River to the Virginia - West Virginia state line and all tributaries excluding the following major tributaries which are designated as follows:

7.1.e.3.E.1. KNG - Greenbrier River and all its tributaries.

7.1.e.3.E.2. KNB - Bluestone River and all its tributaries.

7.1.e.3.E.3. KN-60 - East River and all its tributaries.

7.1.e.3.E.4. K(L)-81-(1) - Bluestone Lake.

7.1.e.4. OG - Guyandotte River. The Guyandotte River and all its tributaries, excluding the following major tributary, ~~which is designated as follows:~~ OGM – Mud River and all its tributaries.

~~7.1.e.4.1. OGM – Mud River and all its tributaries.~~

7.1.e.5. BS - Big Sandy River. The Big Sandy River to the Kentucky - Virginia - West Virginia state lines and all its tributaries arising in West Virginia, excluding the following major tributary, ~~which is designated as follows:~~ BST – Tug Fork and all its tributaries.

~~7.1.e.5.1 BST – Tug Fork and all its tributaries.~~

7.2. Applicability of Water Quality Standards. The following shall apply at all times unless a specific exception is granted in this section:

7.2.a. Water Use Categories as described in section 6 herein.

7.2.a.1. Based on meeting those Section 6 definitions, tributaries or stream segments may be classified for one or more Water Use Categories. When more than one use exists, they shall be protected by criteria for the use category requiring the most stringent protection.

7.2.a.2. Each segment extending upstream from the intake of a Water Supply, Public (Water Use Category A), for a distance of one-half (1/2) mile or to the headwater, must be protected by prohibiting the discharge of any pollutants in excess of the concentrations designated for this Water Use Category in section 8 herein. In addition, within that one-half (1/2) mile zone, the secretary may establish, for any discharge, effluent limitations for the protection of human health that require additional removal of pollutants than would otherwise be provided by this rule. (If a watershed is not significantly larger than this zone above the intake, the water supply section may include the entire upstream watershed to its headwaters.) The one-half (1/2) mile zone described in this section shall not apply to the Ohio River main channel (between Brown's Island and the left descending bank) between river mile points 61.0 and 63.5 and mile points 70 and 71. All mixing zone regulations found in section 5 of this rule will apply except for subdivision 5.2.h.6. Whether a mixing zone is appropriate and the proper size of such zone would need to be considered on a site-specific basis in accordance with the U.S. EPA approved West Virginia mixing zone regulations in section 5 above.

7.2.b. In the absence of any special application or contrary provision, water quality standards shall apply at all times when flows are equal to or greater than the minimum mean seven (7) consecutive day drought flow with a ten (10) year return frequency (7Q10). NOTE: With the exception of paragraph 7.2.c.5 below, exceptions do not apply to trout waters nor to the requirements of section 3 herein.

7.2.c. Exceptions: Numeric water quality standards shall not apply: (See section 7.2.d, herein, for site-specific revisions)

7.2.c.1. When the flow is less than 7Q10;

7.2.c.2. In wet weather streams (or intermittent stream, when they are dry or have no measurable flow), so long as the existing and designated uses of downstream waters are not adversely affected;

7.2.c.3. In any assigned zone of initial dilution of any mixing zone where a zone of initial dilution is required by subdivision 5.2.b herein, or in any assigned mixing zone for human health criteria or aquatic life criteria for which a zone of initial dilution is not assigned or in zones of initial dilution and certain mixing zones, except that all requirements described in section 5 herein shall apply to all zones of initial dilution and all mixing zones;

7.2.c.4. Where, on the basis of natural conditions, the secretary has established a site-specific aquatic life water quality criterion that modifies a water quality criterion set out in Appendix E, Table 1 of this rule. Where a natural condition of a water is demonstrated to be of lower quality than a water quality criterion for the use classes and subclasses in section 6 of this rule, the secretary, in ~~his or her~~ the secretary's discretion, may establish a site-specific water quality criterion for aquatic life. This alternate criterion may only serve as the chronic criterion established for that parameter. This alternate criterion must be met at end of pipe. Where the secretary decides to establish a site-specific water quality criterion for aquatic life, the natural condition constitutes the applicable water quality criterion. A site-specific criterion for natural conditions may only be established through the legislative rulemaking process in accordance with W. Va. Code § 29A-3-1, et seq. and must satisfy the public participation requirements set forth at 40 C.F.R. § 131.20 and 40 C.F.R. Part 25. Site-specific criteria for natural conditions may be established only for aquatic life criteria. A public notice, hearing, and comment period are required before site-specific criteria for natural conditions are established.

Upon application or on ~~it's~~ the secretary's own initiative, the secretary will determine whether a natural condition of a water should be approved as a site-specific water quality criterion. Before he or she approves a site-specific water quality criterion for a natural condition, the secretary must find that the natural condition will fully protect existing and designated uses and ensure the protection of aquatic life. If a natural condition of a water varies with time, the natural condition will be determined to be the actual natural condition of the water measured prior to or concurrent with discharge or operation. The secretary will, in ~~his or her~~ the secretary's discretion, determine a natural condition for one or more seasonal or shorter periods to reflect variable ambient conditions and require additional or continuing monitoring of natural conditions.

An application for a site-specific criterion to be established on the basis of natural conditions shall be filed with the secretary and shall include the following information:

7.2.c.4.A. A United States Geological Survey (USGS) 7.5 minute map showing the stream segment affected and showing all existing discharge points and proposed discharge point;

7.2.c.4.B. The alphanumeric code of the affected stream, if known;

7.2.c.4.C. Water quality data for the stream or stream segment. Where adequate data is ~~are~~ unavailable, the secretary may require additional studies ~~may be required by the secretary~~;

7.2.c.4.D. General land uses (e.g. mining, agricultural, recreational, residential, commercial, industrial, etc.) as well as specific land uses adjacent to the waters for the affected segment or stream;

7.2.c.4.E. The existing and designated uses of the receiving waters into which the segment in question discharges and the location where those downstream uses begin to occur;

7.2.c.4.F. General physical characteristics of the stream segment, including, but not limited to width, depth, bottom composition, and slope;

7.2.c.4.G. Conclusive information and data of the source of the natural condition that causes the stream to exceed the water quality standard for the criterion at issue.

7.2.c.4.H. The average flow rate in the segment and the amount of flow at a designated control point and a statement regarding whether the flow of the stream is ephemeral, intermittent or perennial;

7.2.c.4.I. An assessment of aquatic life in the stream or stream segment in question and in the adjacent upstream and downstream segments; and

7.2.c.4.J. Any additional information or data that the secretary deems necessary to make a decision on the application.

7.2.c.5. For the upper Blackwater River from the mouth of Yellow Creek to a point 5.1 miles upstream, when flow is less than 7Q10. Naturally occurring values for Dissolved Oxygen as established by data collected by the dischargers within this reach and reviewed and approved by the secretary shall be the applicable criteria.

7.2.d. Site-specific applicability of water use categories and water quality criteria - State-wide water quality standards shall apply except where site-specific numeric criteria, variances or use removals have been approved following application and hearing, as provided in ~~46 C.S.R. 6~~ 46CSR6 ~~(See and subsections 8.4 and section 8.5, herein) below.~~ The following are approved site-specific criteria, variances, and use reclassifications:

7.2.d.1. James River - (Reserved)

7.2.d.2. Potomac River

7.2.d.2.1. A site-specific numeric criterion for aluminum, not to exceed 500 ug/l, shall apply to the section of Opequon Creek from Turkey Run to the Potomac River.

7.2.d.3. Shenandoah River - (Reserved)

7.2.d.4. Cacapon River - (Reserved)

7.2.d.5. South Branch - (Reserved)

7.2.d.6. North Branch - (Reserved)

7.2.d.7. Monongahela River – Flow in the main stem of the Monongahela River, as regulated by the Tygart and Stonewall Jackson Reservoirs, operated by the U.S. Army Corps of Engineers, is based on a minimum flow of 425 cfs at Lock and Dam No. 8, river mile point 90.8. This exception does not apply to tributaries of the Monongahela River.

~~7.2.d.7.1. Flow in the main stem of the Monongahela River, as regulated by the Tygart and Stonewall Jackson Reservoirs, operated by the U. S. Army Corps of Engineers, is based on a minimum flow of 425 cfs at Lock and Dam No. 8, river mile point 90.8. This exception does not apply to tributaries of the Monongahela River.~~

7.2.d.8. Cheat River

7.2.d.8.1. In the unnamed tributary of Daugherty Run, approximately one mile upstream of Daugherty Run's confluence with the Cheat River, a site-specific numeric criterion for iron of 3.5 mg/l shall apply, and the following frequency and duration requirements shall apply to the chronic numeric criterion for selenium (5 µg/l): the four-day average concentration shall not be exceeded more than three times every three years (36 months), on average. Further, the following site-specific numeric criteria shall apply to Fly Ash Run of Daugherty Run: acute numeric criterion for aluminum: 888.5 µg/l and manganese: 5 mg/l. For both the unnamed tributary of Daugherty Run, approximately one mile upstream of Daugherty Run's confluence with the Cheat River, and Fly Ash Run, Water Use Category A shall not apply.

7.2.d.8.2. A variance pursuant to ~~46 CSR 6, Section 5.1~~ 46CSR6, based on human-caused conditions which prohibit the full attainment of any designated use and cannot be immediately remedied, shall apply to the Division of Land Restoration's Office of Special Reclamation's discharges into Martin Creek of Preston County and its tributaries, including Glade Run, Fickey Run, and their unnamed tributaries. The following existing conditions will serve as instream interim criteria while this variance is in place: pH range of 3.2-9.0, 10 mg/L total iron, and 15 mg/L dissolved aluminum. Alternative restoration measures, as described in the variance application submitted by the Division of Land Restoration's Office of Special Reclamation, shall be used to achieve significant improvements to existing conditions in these waters during the variance period. Conditions will be evaluated during each triennial review throughout the variance period. This variance shall remain in effect until action by the secretary to revise the variance or until July 1, 2025, whichever comes first.

7.2.d.9. Blackwater River - (Reserved)

7.2.d.10. West Fork River - (Reserved)

7.2.d.11. Tygart River - ~~(Reserved)~~

7.2.d.11.1. A variance pursuant to ~~46 CSR 6, Section 5.1~~ 46CSR6, based on human-caused conditions which prohibit the full attainment of any designated use and cannot be immediately remedied, shall apply to the Division of Land Restoration's Office of Special Reclamation's discharges into Maple Run, Left Fork Little Sandy Creek, and their unnamed tributaries. The following existing conditions will serve as instream interim criteria while this variance is in place: For Maple Run, pH range of 3.3-9.0, 2 mg/L total iron, and 12 mg/L dissolved aluminum; for Left Fork Little Sandy Creek, pH range of 2.5-9.0, 14 mg/L total iron, and 33 mg/L dissolved aluminum. Alternative restoration measures, as described in the variance application submitted by the Division of Land Restoration's Office of Special Reclamation, shall be used to achieve significant improvements to existing conditions in these waters during the variance period. Conditions will be evaluated and reported upon during each triennial review throughout the variance period. This variance shall remain in effect until action by the secretary to revise the variance or until July 1, 2025, whichever comes first.

7.2.d.12. Buckhannon River - (Reserved)

7.2.d.13. Middle Fork River - (Reserved)

7.2.d.14. Youghiogeny River - (Reserved)

7.2.d.15. Ohio River Main Stem - (Reserved)

7.2.d.16. Ohio River Tributaries -

7.2.d.16.1. Site-specific numeric criteria shall apply to the stretch of Conners Run (0-77-A), a tributary of Fish Creek, from its mouth to the discharge from Conner Run impoundment, which shall not have the Water Use Category A and may contain selenium not to exceed 62 µg/l and iron not to exceed 3.5 mg/l as a monthly average and 7 mg/l as a daily maximum.

7.2.d.17. Little Kanawha River - (Reserved)

7.2.d.18. Hughes River - (Reserved)

7.2.d.19. Kanawha River Zone 1 - Main Stem

7.2.d.19.1. For the Kanawha River main stem, Zone 1, the minimum flow shall be 1,960 cfs at the Charleston gauge.

7.2.d.19.2. Pursuant to 46 CSR 6, a Copper Water Effect Ratio (WER) of 5.62 shall be applied to The Sanitary Board of the City of Charleston, West Virginia, wastewater treatment plant discharge of total recoverable copper to Kanawha River, Zone 1.

7.2.d.20. Kanawha River Zone 2 and Tributaries.

7.2.d.20.1. For the main stem of the Kanawha River only, the minimum flow shall be 1,896 cfs at mile point 72.

7.2.d.20.2. The stretch between the mouth of Little Scary Creek (K-31) and the Little Scary impoundment shall not have Water Use Category A. The following site-specific numeric criteria shall apply to that section: selenium not to exceed 62 µg/l and copper not to exceed 105 µg/l as a daily maximum or 49 µg/l as a four-day average.

7.2.d.21. Pocatalico River - (Reserved)

7.2.d.22. Coal River - (Reserved)

7.2.d.23. Elk River - (Reserved)

7.2.d.24. Gauley River - (Reserved)

7.2.d.25. Meadow River - (Reserved)

7.2.d.26. Cherry River - (Reserved)

7.2.d.27. Cranberry River - (Reserved)

7.2.d.28. Williams River - (Reserved)

7.2.d.29. New River -

7.2.d.29.1. In Marr Branch, a tributary of the New River, a site-specific dissolved zinc criteria defined by the equation $CMC = CCC = e^{0.8541 \cdot \ln(\text{hardness}) + 1.151} \times CF$ shall apply for both chronic and acute exposures

7.2.d.30. Greenbrier River - (Reserved)

7.2.d.31. Bluestone River - (Reserved)

7.2.d.32. Bluestone Lake - (Reserved)

7.2.d.33. East River - (Reserved)

7.2.d.34. Guyandotte River -

7.2.d.34.1. Pats Branch from its confluence with the Guyandotte River to a point 1000 feet upstream shall not have Water Use Category A and Category D1 designation.

7.2.d.35. Mud River - (Reserved)

7.2.d.36. Big Sandy River - (Reserved)

7.2.d.37. Tug Fork River - (Reserved)

§47-2-8. Specific Water Quality Criteria.

8.1. Charts of specific water quality criteria are included in Appendix E, Table 1.

8.1.a. Specific state (i.e. total, total recoverable, dissolved, valence, etc.) of any parameter to be analyzed shall follow 40 CFR 136, Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act, as amended, June 15, 1990 and ~~March 26, 2007~~ May 18, 2012. ~~(See also and 47 C.S.R. 10, section 7.3 — 47CSR10, “National Pollutant Discharge Elimination System (NPDES) Program.”)~~

8.1.b. Compliance with aquatic life water quality criteria expressed as dissolved metal shall be determined based on dissolved metals concentrations.

8.1.b.1. The aquatic life criteria for all metals listed in Appendix E, Table 2 shall be converted to a dissolved concentration by multiplying each numerical value or criterion equation from Appendix E, Table 1 by the appropriate conversion factor (CF) from Appendix E, Table 2.

8.1.b.2. Permit limits based on dissolved metal water quality criteria shall be prepared in accordance with the U.S. EPA document "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion, EPA 823-B-96-007 June 1996.

8.1.b.3. NPDES permit applicants may petition the secretary to develop a site-specific translator consistent with the provisions in this section. The secretary may, on a case-by-case basis, require an applicant applying for a translator to conduct appropriate sediment monitoring through SEM/AVS ratio, bioassay or other approved methods to evaluate effluent limits that prevent toxicity to aquatic life.

8.1.c. An "X" or numerical value in the use columns of Appendix E, Table 1 shall represent the applicable criteria.

8.1.d. Charts of water quality criteria in Appendix E, Table 1 shall be applied in accordance with major stream and use applications, sections 6 and 7, herein.

8.2. Criteria for Toxicants

8.2.a. Toxicants which are carcinogenic have human health criteria (Water Use Categories A and C) based upon an estimated risk level of one additional cancer case per one million persons (10^{-6}) and are indicated in Appendix E, Table 1 with an endnote ^(b).

~~8.2.b. For waters other than the Ohio River between river mile points 68.0 and 70.0, a final determination on the critical design flow for carcinogens is not made in this rule, in order to permit further review and study of that issue. Following the conclusion of such review and study, the Legislature may again take up the authorization of this rule for purposes of addressing the critical design flow for carcinogens: Provided, That until such time as the review and study of the issue is concluded or until such time as the Legislature may again take up the authorization of this rule, the regulatory requirements for determining effluent limits for carcinogens shall remain as they were on the date this rule was proposed. The critical design flow for human health criteria effluent limits shall be the long-term harmonic mean flow.~~

~~8.2.b.1. For the Ohio River between river mile points 68.0 and 70.0 the critical design flow for determining effluent limits for carcinogens shall be harmonic mean flow.~~

8.3. Criteria for Nutrients

8.3.a. Lakes

8.3.a.1. This subsection establishes nutrient criteria designed to protect Water Use Categories B and C. The following cool water nutrient criteria shall apply to cool water lakes. (*See Appendix F for a representative list.*) The following warm water nutrient criteria shall apply to all other lakes with a summer residence time greater than 14 days.

8.3.a.2. Total phosphorus shall not exceed 40 µg/l for warm water lakes and 30 µg/l for cool water lakes based on an average of four or more samples collected during the period May 1 to October 31. Chlorophyll-a shall not exceed 20 µg/l for warm water lakes and 10 µg/l for cool water lakes based on an average of four or more samples collected during the period May 1 to October 31. In lieu of total phosphorus and/or chlorophyll-a sampling, impairment may be evidenced at any time by noncompliance with subsection 3.2 above, as determined by the secretary.

8.4. Variances from Specific Water Quality Criteria. A variance from numeric criteria may be granted to a discharger if it can be demonstrated that the conditions outlined in paragraphs 6.1.b.1 through 6.1.b.6 herein limit the attainment of one or more specific water quality criteria. Variances shall apply only to the discharger to whom they are granted and shall be reviewed by the secretary at least every three years. In granting a variance, the secretary shall follow the requirements for revision of water quality standards in 46 CSR 6 shall be followed 46CSR6.

8.5. Site-specific numeric criteria. The secretary may establish numeric criteria different from those set forth in Appendix E, Table 1 for a stream or stream segment upon a demonstration that existing numeric criteria are either over-protective or under-protective of the aquatic life residing in the stream or stream segment. A site-specific numeric criterion will be established only where the numeric criterion will be fully protective of the aquatic life and the existing and designated uses in the stream or stream segment. ~~The site-specific numeric criterion may be established by conducting a Water Effect Ratio study pursuant to the procedures outlined in US EPA's "Interim Guidance on the Determination and Use of Water Effect Ratios for Metals" (February 1994); other methods may be used with prior approval by the secretary.~~ In adopting site-specific numeric criteria, the requirements for revision of water quality standards set forth in 46 CSR 6 shall be followed, unless developed pursuant to subdivision 8.5.a herein.

8.5.a. A site-specific numeric criterion may be established as part of the NPDES permitting process using any of the following established methods: a Water Effect Ratio study pursuant to the procedures described in U.S. EPA's "Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals" (February 1994); the Streamlined Water-Effect Ratio Procedure for Discharges of Copper (March 2001); a Biotic Ligand Model analysis pursuant to the procedures described in U.S. EPA's "Aquatic Life Ambient Freshwater Quality Criteria – Copper" (February 2007).

§47-2-9. Establishment Of Safe Concentration Values.

When a specific water quality standard has not been established by ~~these rules~~ this rule and there is a discharge or proposed discharge into waters of the State, the use of which has been designated a Category B1, B2, B3 or B4, such discharge may be regulated by the secretary where necessary to protect State waters through establishment of a safe concentration value as follows:

9.1. Establishment of a safe concentration value shall be based upon data obtained from relevant aquatic field studies, standard bioassay test data which exists in substantial available scientific literature, or data obtained from specific tests utilizing one (1) or more representative important species of aquatic life designated on a case-by-case basis by the secretary and conducted in a water environment which is equal to or closely approximates that of the natural quality of the receiving waters.

9.2. In those cases where it has been determined that there is insufficient available data to establish a safe concentration value for a pollutant, the safe concentration value shall be determined by applying the appropriate application factor as set forth below to the 96-hour LC 50 value. Except where the secretary determines, based upon substantial available scientific data, that an alternate application factor exists for a pollutant, the following appropriate application factors shall be used in the determination of safe concentration values:

9.2.a. Concentrations of pollutants or combinations of pollutants that are not persistent and not cumulative shall not exceed 0.10 (1/10) of the 96-hour LC 50.

9.2.b. Concentrations of pollutants or combinations of pollutants that are persistent or cumulative shall not exceed 0.01 (1/100) of the 96-hour LC 50.

9.3. Persons seeking issuance of a permit pursuant to ~~these rules~~ this rule authorizing the discharge of a pollutant for which a safe concentration value is to be established using special bioassay tests pursuant to subsection 9.1 shall perform such testing as approved by the secretary and shall submit all of the following in writing to the secretary:

9.3.a. A plan proposing the bioassay testing to be performed.

9.3.b. Such periodic progress reports of the testing as may be required by the secretary.

9.3.c. A report of the completed results of such testing including, but not limited to, all data obtained during the course of testing and all calculations made in the recording, collection, interpretation, and evaluation of such data.

9.4. Bioassay testing shall be conducted in accordance with ~~methodologies test procedures outlined in 40 C.F.R. § 136, as amended, or other methodologies approved by the secretary, outlined in the following documents: U.S. EPA Office of Research and Development Series Publication, Methods for Measuring the Acute Toxicity (EPA/600/4-90/027F, August 1993, 4th Edition) or Short Term Methods~~

~~for Estimating Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/600/4-89/001), March 1989; Standard Methods for the Examination of Water and Wastewater (18th Edition); or ASTM Practice E 729-88 for Conducting Acute Toxicity Tests with Fishes, Macroinvertebrates and Amphibians as published in Volume 11.04 of the 1988 Annual Book of ASTM Standards. Test waters shall be reconstituted according to recommendations and methodologies specified in the previously cited references or methodologies approved in writing by the secretary.~~

APPENDIX A

CATEGORY B-2 - TROUT WATERS

This list contains known trout waters and is not intended to exclude any waters which meet the definition in Section 2.19.

| <u>River Basin</u> | <u>County</u> | <u>Stream</u> |
|--------------------|---------------|--------------------------------------|
| James River | | |
| J | Monroe | South Fork Potts Creek |
| Potomac River | | |
| P | Jefferson | Town Run |
| P | " | Rocky Marsh Run |
| P | Berkeley | Opequon Creek |
| P | " | Tuscarora Creek (Above Martinsburg) |
| P | " | Middle Creek (Above Route 30 Bridge) |
| P | " | Mill Creek |
| P | " | Hartland Run |
| P | " | Mill Run |
| P | " | Tillance Creek |
| P | Morgan | Meadow Branch |
| PS | Jefferson | Flowing Springs Run (Above Halltown) |
| PS | " | Cattail Run |
| PS | " | Evitt's Run |
| PS | " | Big Bullskin Run |
| PS | " | Long Marsh Run |
| PC | Hampshire | Cold Stream |
| PC | " | Edwards Run and Impoundment |
| PC | " | Dillions Run |
| PC | Hardy | Lost River |
| PC | " | Camp Branch |
| PC | " | Lower Cove Run |
| PC | " | Moores Run |
| PC | " | North River (Above Rio) |
| PC | " | Waites Run |
| PC | " | Trout Run |
| PC | " | Trout Pond (Impoundment) |

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| | | |
|--------------------|-------------------|----------------------------------|
| PC | " | Warden Lake (Impoundment) |
| PC | " | Rock Cliff Lake (Impoundment) |
| PSB | Hampshire | Mill Creek |
| PSB | " | Mill Run |
| PSB | Hardy | Dumpling Creek |
| PSB | Grant-Pendleton | North Fork South Branch |
| PSB | Grant | North Fork Lunice Creek |
| PSB | " | South Fork Lunice Creek |
| PSB | " | South Mill Creek (Above Hiser) |
| PSB | " | Spring Run |
| PSB | Pendleton | Hawes Run (Impoundment) |
| PSB | " | Little Fork |
| PSB | " | South Branch (Above North Fork) |
| <u>River Basin</u> | <u>County</u> | <u>Stream</u> |
| Potomac River | | |
| PSB | Pendleton | Senena Creek |
| PSB | " | Laurel Fork |
| PSB | " | Big Run |
| PNB | Mineral | North Fork Patterson Creek |
| PNB | " | Fort Ashby (Impoundment) |
| PNB | " | New Creek |
| PNB | " | New Creek Dam 14 (Impoundment) |
| PNB | " | Mill Creek (Above Markwood) |
| Monongahela River | | |
| M | Monongalia-Marion | Whiteday Creek (Above Smithtown) |
| MC | Monongalia | Morgan Run |
| MC | " | Coopers Rock (Impoundment) |
| MC | " | Blaney Hollow |
| MC | Preston | Laurel Run |
| MC | " | Elsey Run |
| MC | " | Saltlick Creek |
| MC | " | Buffalo Creek |
| MC | " | Wolf Creek |
| MC | Tucker | Clover Run |
| MC | " | Elklick Run |
| MC | " | Horseshoe Run |

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| | | |
|--------------------|----------------|---|
| MC | " | Maxwell Run |
| MC | " | Red Creek |
| MC | " | Slip Hill Mill Branch |
| MC | " | Thomas Park (Impoundment) |
| MC | " | Blackwater River (Above Davis) |
| MC | " | Blackwater River (Below Davis) |
| MC | Randolph | Camp Five Run |
| MC | " | Dry Fork (Above Otter Creek) |
| MC | " | Glady Fork |
| MC | " | Laurel Fork |
| MC | " | Gandy Creek (Above Whitmer) |
| MC | " | East Fork Glady Fork (Above C & P Compressor Station) |
| MC | Randolph | Shavers Fork (Above Little Black Fork) |
| MC | " | Three Spring Run |
| MC | " | Spruce Knob Lake (Impoundment) |
| MW | Harrison | Dog Run (Pond) |
| MW | Lewis | Stonecoal |
| MT | Barbour | Brushy Fork (Above Valley Furnace) |
| MT | " | Teter Creek Lake (Impoundment) |
| MT | " | Mill Run |
| MT | Taylor-Barbour | Tygart Lake Tailwaters (Above Route 119 Bridge) |
| MT | Preston | Roaring Creek (Above Little Lick Branch) |
| MT | Randolph | Tygart River (Above Huttonsville) |
| MT | " | Elkwater Fork |
| <u>River Basin</u> | <u>County</u> | <u>Stream</u> |

Monongahela River

| | | |
|-----|-----------------------|-------------------------------------|
| MT | Randolph | Big Run |
| MTB | Upshur-Randolph-Lewis | Right Fork Buckhannon River |
| MTB | Upshur | Buckhannon River (Above Beans Mill) |
| MTB | Upshur | French Creek |
| MTB | Upshur-Randolph | Left Fork Right Fork |
| MTN | Upshur | Right Fork Middle Fork River |
| MTM | Randolph | Middle Fork River (Above Cassity) |

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| | | |
|----------------------|---------------------|--|
| MY | Preston | Rhine Creek |
| Little Kanawha River | | |
| LK | Upshur | Left Fork-Right Fork Little Kanawha River |
| LK | Upshur-Lewis | Little Kanawha River (Above Wildcat) |
| Kanawha River | | |
| KE | Braxton | Sutton Reservoir |
| KE | " | Sutton Lake Tailwaters (Above Route 38/5 Bridge) |
| KE | Webster | Back Fork |
| KE | " | Desert Fork |
| KE | " | Fall Run |
| KE | " | Laurel Fork |
| KE | " | Left Fork Holly River |
| KE | " | Sugar Creek |
| KE | " | Elk River (Above Webster Springs) |
| KC | Raleigh | Stephens Lake (Impoundment) |
| KC | " | Marsh Fork (Above Sundial) |
| KG | Nicholas | Summersville Reservoir (Impoundment) |
| KG | " | Summersville Tailwaters (Above Collison Creek) |
| KG | Nicholas | Deer Creek |
| KG | Randolph-Webster | Gauley River (Above Moust Coal Tipple) |
| KG | Fayette | Glade Creek |
| KG | Nicholas | Hominy Creek |
| KG | " | Anglins Creek |
| KG | Greenbrier | Big Clear Creek |
| KG | " | Little Clear Creek and Laurel Run |
| KG | " | Meadow Creek |
| KG | Fayette | Wolf Creek |
| KG | Nicholas | Cherry River |
| KG | Greenbrier-Nicholas | Laurel Creek |
| KG | " " | North Fork Cherry River |
| KG | Greenbrier | Summit Lake (Impoundment) |
| KG | Greenbrier-Nicholas | South Fork Cherry River |

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| <u>River Basin</u> | <u>County</u> | <u>Stream</u> |
|--------------------|-----------------------------|---|
| Kanawha River | | |
| KGC | Pocahontas-Webster-Nicholas | Cranberry River |
| KGC | Pocahontas | South Fork Cranberry River |
| KGW | Pocahontas | Tea Creek |
| KGW | Pocahontas-Webster | Williams River (Above Dyer) |
| KN | Raleigh | Glade Creek |
| KN | Summers | Meadow Creek |
| KN | Fayette | Mill Creek |
| KN | " | Laurel Creek (Above Cotton Hill) |
| KN | Raleigh | Pinch Creek |
| KN | Monroe | Rich Creek |
| KN | " | Turkey Creek |
| KN | Fayette | Dunloup Creek (Downstream from Harvey Sewage Treatment Plant) |
| KN | Mercer | East River (Above Kelleysville) |
| KN | " | Pigeon Creek |
| KN | Monroe | Laurel Creek |
| KNG | Monroe | Kitchen Creek (Above Gap Mills) |
| KNG | Greenbrier | Culverson Creek |
| KNG | " | Milligan Creek |
| KNG | Greenbrier-Monroe | Second Creek (Rt. 219 Bridge to Nickell's Mill) |
| KNG | Greenbrier | North Fork Anthony Creek |
| KNG | " | Spring Creek |
| KNG | " | Anthony Creek (Above Big Draft) |
| KNG | Pocahontas | Watoga Lake |
| KNG | " | Beaver Creek |
| KNG | " | Knapp's Creek |
| KNG | " | Hills Creek |
| KNG | " | North Fork Deer Creek (Above Route 28/5) |
| KNG | " | Deer Creek |
| KNG | " | Sitlington Creek |
| KNG | " | Stoney Creek |
| KNG | " | Swago Creek |
| KNG | " | Buffalo Fork (Impoundment) |
| KNG | " | Seneca (Impoundment) |

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| | | |
|-----|----------|--|
| KNB | " | Greenbrier River (Above Hosterman) |
| KNB | " | West Fork-Greenbrier River (Above the impoundment at the tannery) |
| KNB | " | Little River-East Fork |
| KNB | " | Little River-West Fork |
| KNB | " | Five Mile Run |
| KNB | " | Mullenax Run |
| KNB | " | Abes Run |
| KNB | Mercer | Marsh Fork |
| KNB | " | Camp Creek |
| OG | Wyoming | Pinnacle creek |
| BST | McDowell | Dry Fork (Above Canebrake) |

APPENDIX B

This list contains known waters used as public water supplies and is not intended to exclude any waters as described in Section 6.2, herein.

| <u>River Basin</u> | <u>County</u> | <u>Operating Company</u> | <u>Source</u> |
|--------------------|---------------|----------------------------|---|
| Shenandoah River | | | |
| S | Jefferson | Charlestown Water | Shenandoah River |
| Potomac River | | | |
| P | Jefferson | 3-M Company | Turkey Run |
| P | " | Shepherdstown Water | Potomac River |
| P | " | Harpers Ferry Water | Elk Run |
| P | Berkeley | DuPont Potomac River Works | Potomac River |
| P | " | Berkeley County PSD | Le Feure Spring |
| P | " | Opequon PSD | Quarry Spring |
| P | " | Hedgesville PSD | Speck Spring |
| P | Morgan | Paw Paw Water | Potomac River |
| PSB | Hampshire | Romney Water | South Branch Potomac River |
| PSB | " | Peterkin Conference Center | Mill Run |
| PSB | Hardy | Moorefield Municipal Water | South Fork River |
| PSB | Pendleton | U.S. Naval Radio Sta. | South Fork River |
| PSB | " | Circleville Water Inc. | North Fork of South Branch, Potomac River |
| PSB | Grant | Mountain Top PSD | Mill Creek, Impoundment |
| PSB | " | Petersburg Municipal Water | South Branch, Potomac River |
| PNB | Grant | Island Creek Coal | Impoundment |
| PNB | Mineral | Piedmont Municipal Water | Savage River, Maryland |
| PNB | " | Keyser Water | New Creek |
| PNB | " | Fort Ashby PSD | Lake |

Monongahela River

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| | | | |
|--------------------|---------------|-----------------------------|-----------------------------------|
| M | Monongalia | Morgantown Water Comm. | Colburn Creek & Monongahela River |
| M | " | Morgantown Ordinance Works | Monongahela River |
| M | Preston | Preston County PSD | Deckers Creek |
| M | Monongalia | Blacksville # 1 Mine | Impoundment |
| M | " | Loveridge Mine | Impoundment |
| M | " | Consolidation Coal Co. | Impoundment |
| M | Preston | Mason Town Water | Block Run |
| MC | Preston | Fibair Inc. | Impoundment |
| MC | Monongalia | Cheat Neck PSD | Cheat Lake |
| MC | " | Lakeview County Club | Cheat Lake-Lake Lynn |
| <u>River Basin</u> | <u>County</u> | <u>Operating Company</u> | <u>Source</u> |
| Monongahela River | | | |
| MC | Monongalia | Union Districk PSD | Cheat Lake-Lake Lynn |
| MC | " | Cooper's Rock State Park | Impoundment |
| MC | Preston | Kingwood Water | Cheat River |
| MC | Preston | Hopemount State Hosp. | Snowy Creek |
| MC | " | Rowlesburg Water | Keyser Run & Cheat River |
| MC | " | Albright | Cheat River |
| MC | Tucker | Parsons Water | Shavers & Elk Lick Fork |
| MC | " | Thomas Municipal | Thomas Reservoir |
| MC | " | Hamrick PSD | Dry Fork |
| MC | " | Douglas Water System | Long Run |
| MC | " | Davis Water | Blackwater River |
| MC | " | Hambleton Water System | Roaring Creek |
| MC | " | Canaan Valley State | Blackwater River Park |
| MC | Pocahontas | Cheat Mt. Sewer | Shavers Lake |
| MC | " | Snowshoe Co. Water | Shavers Fork |
| MC | Randolph | Womelsdorf Water | Yokum Run |
| MW | Harrison | Lumberport Water | Jones Run |
| MW | " | Clarksburg Water Bd. | West Fork River |
| MW | " | Bridgeport Mun. Water | Deecons & Hinkle Creek |
| MW | " | Salem Water Board | Dog Run |
| MW | " | West Milford Water | West Fork River |
| MW | Lewis | W. V. Water-Weston District | West Fork River |

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| | | | |
|-----|----------|-------------------------------------|------------------------------|
| MW | " | Jackson's Mill Camp | Impoundment |
| MW | " | West Fork River PSD | West Fork River |
| MW | " | Kennedy Compressor Station | West Fork River |
| MW | " | Jane Lew Water Comm. | Hackers Creek |
| MW | Harrison | Bel-Meadow Country Club | Lake |
| MW | " | Harrison Power Station | West Fork River |
| MW | " | Oakdale Portal | Impoundment |
| MW | " | Robinson Port | Impoundment |
| MT | Marion | Fairmont Water Comm. | Tygart River |
| MT | " | Mannington Water | Impoundment |
| MT | " | Monongah Water Works | Tygart River |
| MT | " | Eastern Assoc. | Coal Corp Impoundment |
| MT | " | Four States Water | Impoundment |
| MT | Harrison | Shinnston Water Dept. | Tygart River |
| MT | Taylor | Grafton Water | Tygart River-Lake |
| MT | Barbour | Phillippi Water | Tygart River |
| MT | " | Bethlehem Mines Corp. | Impoundment |
| MT | " | Belington Water Works | Tygart River & Mill Run Lake |
| MT | Randolph | Elkins Municipal Water | Tygart River |
| MT | " | Beverly Water | Tygart River |
| MT | " | Valley Water | Tygart River |
| MT | " | Huttonsville Medium Security Prison | Tygart River |
| MT | " | Mill Creek Water | Mill Creek |
| MTB | Upshur | Buckhannon Water Board | Buckhannon River |

| <u>River Basin</u> | <u>County</u> | <u>Operating Company</u> | <u>Source</u> |
|--------------------|---------------|--------------------------|---------------|
| Ohio River | | | |
| ○ Zone 1 | Hancock | Chester Water & Sewer | Ohio River |
| ○ " | Brooke | City of Weirton | Ohio River |
| ○ Zone 1 | Brooke | Weirton Steel Division | Ohio River |
| ○ " | Ohio | Wheeling Water | Ohio River |
| ○ " | Tyler | Sistersville Mun. Water | Ohio River |
| ○ " | Pleasants | Pleasants Power Station | Ohio River |
| ○ " | Cabell | Huntington Water Corp. | Ohio River |
| ○ " | Marshall | Mobay Chemical Co. | Ohio River |
| ○ " | Wood | E. I. DuPont | Ohio River |

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| | | | |
|----------|-----------|-----------------------|---------------------------|
| ○ Zone 2 | Marshall | Meron Water | Glass House Hollow |
| ○ " | " | New Urindahana Water | Wheeling Creek System |
| ○ " | Wetzel | Pine Grove Water | North Fork, Fishing Creek |
| ○ " | Marshall | Consolidated Coal Co. | Impoundment |
| ○ " | Tyler | Middlebourne Water | Middle Island Creek |
| ○ " | Doddridge | West Union Mun. Water | Middle Island Creek |
| ○ " | Mason | Hidden Valley Country | Lake/Impoundment |
| ○ " | Jackson | Ripley Water | Mill Creek |
| ○ " | Wayne | Wayne Municipal Water | Twelve Pole Creek |
| ○ " | " | East Lynn Lake | East Lynn Lake |
| ○ " | " | Monterey Coal Co. | Impoundment |

Little Kanawha

| | | | |
|-----|---------|-----------------------------|----------------------------------|
| LK | Wood | Claywood Park PSD | Little Kanawha River |
| LK | Calhoun | Grantsville Mun. Water | Little Kanawha River |
| LK | Gilmer | Glenville Utility | Little Kanawha River |
| LK | " | Consolidated Gas Compressor | Steer Creek |
| LK | Braxton | Burnsville Water Works | Little Kanawha River |
| LK | Roane | Spencer Water | Spring Creek Mile Tree Reservoir |
| LK | Wirt | Elizabeth Water | Little Kanawha River |
| LKH | Ritchie | Cairo Water | North Fork Hughes River |
| LKH | " | Harrisville Water | North Fork Hughes River |
| LKH | " | Pennsboro Water | North Fork Hughes River |

Kanawha River

| | | | |
|---|---------|---------------------------|-----------------------------|
| K | Putnam | Buffalo Water | Cross Creek |
| K | " | Winfield Water | Poplar Fork & Crooked Creek |
| K | " | South Putnam PSD | Poplar Fork & Crooked Creek |
| K | Kanawha | Cedar Grove Water | Kanawha River |
| K | " | Pratt Water | Kanawha River |
| K | Fayette | Armstrong PSD PO-K1-CO-EL | Kanawha River & Gum Hollow |
| K | " | Kanawha Water Co.- | Unnamed Tributary Kanawha |
| | | | Beards Fork |
| K | Kanawha | Midland Trail School | Impoundment |
| K | " | Cedar Coal Co. | Impoundment |
| K | Fayette | Elkem Metals Co. | Kanawha River |
| K | Fayette | Deepwater PSD | Kanawha River |

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| <u>River Basin</u> | <u>County</u> | <u>Operating Company</u> | <u>Source</u> |
|--------------------|---------------|---------------------------------------|-------------------|
| Kanawha River | | | |
| K | Fayette | Kanawha Falls PSD | Kanawha River |
| K | " | W.V. Water-Montgomery | Kanawha River |
| Pocatalico River | | | |
| KP | Kanawha | Sissonville PSD | Pocatalico River |
| KP | Roane | Walton PSD | Silcott Fork Dam |
| Coal River | | | |
| KC | Kanawha | St. Albans Water | Coal River |
| KC | " | Washington PSD | Coal River |
| KC | Lincoln | Lincoln PSD | Coal River |
| KC | Boone | Coal River PSD | Coal River |
| KC | " | Whitesville PSD | Coal River |
| KC | Raleigh | Armco Mine 10 | Marsh Fork |
| KC | " | Armco Steel-Monte. Stickney | Coal River |
| KC | Raleigh | Peabody Coal | Coal River |
| KC | " | Stephens Lake Park | Lake Stephens |
| KC | Boone | W.V. Water-Madison Dist. | Little Coal River |
| KC | " | Van PSD | Pond Fork |
| KC | Raleigh | Consol. Coal Co. | Workmans Creek |
| KC | Boone | Water Ways Park | Coal River |
| Elk River | | | |
| KE | Kanawha | Clendenin Water | Elk River |
| KE | " | W.V. Water-Kanawha Valley District | Elk River |
| KE | Kanawha | Pinch PSD | Elk River |
| KE | Clay | Clay Waterworks | Elk River |
| KE | " | Prociuous PSD | Elk River |
| KE | Braxton | Flatwoods-Canoe Run PSD | Elk River |
| KE | " | Sugar Creek PSD | Elk River |
| KE | " | W.V. Water-Gassaway Dist. | Elk River |
| KE | " | W.V. Water-Sutton Dist. | Elk River |

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| | | | |
|--------------------|---------------|----------------------------|------------------------------|
| KE | Webster | W.V. Water-Webster Springs | Elk River |
| KE | | Holly River State Park | Holly River |
| Gauley River | | | |
| KG | Nicholas | Craigsville PSD | Gauley River |
| KG | " | Summersville Water | Impoundment/ Muddlety Creek |
| KG | " | Nettie-Leivasy PSD | Jim Branch |
| KG | Webster | Cowen PSD | Gauley River |
| KG | Nicholas | Wilderness PSD | Anglins Creek & Meadow River |
| KG | " | Richwood Water | North Fork Cherry River |
| KN | Fayette | Ames Heights Water | Mill Creek |
| KN | " | Mt. Hope Water | Impounded Mine (Surface) |
| KN | Fayette | Ansted Municipal Water | Mill Creek |
| <u>River Basin</u> | <u>County</u> | <u>Operating Company</u> | <u>Source</u> |
| New River | | | |
| KN | Fayette | Fayette Co. Park | Impoundment |
| KN | " | New River Gorge Campground | Impoundment |
| KN | " | Fayetteville Water | Wolfe Creek |
| KN | Raleigh | Beckley Water | Glade Creek |
| KN | " | Westmoreland Coal Co. | Farley Branch |
| Bluestone River | | | |
| KNB | Summers | Jumping Branch-Nimitz | Mt. Valley Lake |
| KNB | " | Bluestone Conf. Center | Bluestone Lake |
| KNB | " | Pipestem State Park | Impoundment |
| KNB | Mercer | Town of Athens | Impoundment |
| KNB | " | Bluewell PSD | Impoundment |
| KNB | " | Bramwell Water | Impoundment |
| KNB | " | Green Valley-Glenwood PSD | Bailey Reservoir |
| KNB | " | Kelly's Tank | Spring |
| KNB | " | W.V. Water Princeton | Impoundment/ Brusch Creek |
| KNB | " | Lashmeet PSD | Impoundment |
| KNB | " | Pinnacle Water Assoc. | Mine |
| KNB | " | W.V. Water Bluefield | Impoundment |

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Greenbrier River

| | | | |
|-----|------------|--------------------------------|------------------------------|
| KNG | Summers | W.V. Water Hinton | Greenbrier River & New River |
| KNG | " | Big Bend PSD | Greenbrier River |
| KNG | Greenbrier | Alderson Water Dept. | Greenbrier River |
| KNG | " | Ronceverte Water | Greenbrier River |
| KNG | " | Lewisburg Water | Greenbrier River |
| KNG | Pocahontas | Denmar State Hospital Water | Greenbrier River |
| KNG | " | City of Marlinton Water | Knapp Creek |
| KNG | " | Cass Scenic Railroad | Leatherbark Creek |
| KNG | " | Upper Greenbrier PSD | Greenbrier River |
| KNG | " | The Hermitage | Greenbrier River |

Guyandotte River

| | | | |
|----|---------|-----------------------|---------------------------------|
| OG | Cabell | Salt Rock PSD | Guyandotte River |
| OG | Lincoln | West Hamlin Water | Guyandotte River |
| OG | Logan | Logan Water Board | Guyandotte River |
| OG | " | Man Water Works | Guyandotte River |
| OG | " | Buffalo Creek PSD | Buffalo Creek/ Mine/Wells |
| OG | Logan | Chapmanville | Guyandotte River |
| OG | " | Logan PSD | Whitman Creek/ Guyandotte River |
| OG | Mingo | Gilbert Water | Guyandotte River |
| OG | Wyoming | Oceana Water | Laurel Fork |
| OG | " | Glen Rogers PSD | Impoundment |
| OG | Wyoming | Pineville Water | Pinnacle Creek |
| OG | Raleigh | Raleigh Co. PSD-Amigo | Tommy Creek |

| | | | |
|--------------------|---------------|--------------------------|-------------------|
| OMG | Cabell | Milton Water Works | Guyandotte River |
| OMG | " | Culloden PSD | Indian Fork Creek |
| <u>River Basin</u> | <u>County</u> | <u>Operating Company</u> | <u>Source</u> |

Guyandotte River

| | | | |
|-----|--------|---------------------------|-----------------|
| OMG | Putnam | Hurricane Municipal Water | Impoundment |
| OMG | Putnam | Lake Washington PSD | Lake Washington |

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Big Sandy River

| | | | |
|-----|----------|------------------------|-------------------|
| BS | Wayne | Kenova Municipal Water | Big Sandy River |
| BS | " | Fort Gay Water | Tug Fork |
| BST | Mingo | Kermit Water | Tug Fork |
| BST | " | Matewan Water | Tug Fork |
| BST | " | A & H Coal Co., Inc. | Impoundment |
| BST | " | Williamson Water | Impoundment |
| BST | McDowell | City of Welch | Impoundment/Wells |
| BST | " | City of Gary | Impoundment/Mine |

APPENDIX C

CATEGORY E-3 - POWER PRODUCTION

This list contains known power production facilities and is not intended to exclude any waters as described in Section 6.6.c, herein.

| <u>River Basin</u> | <u>County</u> | <u>Station Name</u> | <u>Operating Company</u> |
|--------------------|---------------|---------------------------|-----------------------------------|
| Monongahela River | | | |
| M | Monongalia | Fort Martin Power Station | Monongahela Power |
| M | Marion | Rivesville Station | Monongahela Power |
| MC | Preston | Albright Station | Monongahela Power |
| Potomac | Grant | Mt. Storm Power Station | Virginia Electric & Power Company |
| Ohio River | | | |
| O - Zone 1 | Wetzel | Hannibal (Hydro) | Ohio Power |
| O " " | Marshall | Kammer | Ohio Power |
| O " " | " | Mitchell | Ohio Power |
| O " " | Pleasants | Pleasants Station | Monongahela Power |
| O " " | " | Willow Island Station | Monongahela Power |
| O " " | Mason | Phillip Sporn Plant | Central Operating (AEP) |
| O " " | " | Racine (Hydro) | Ohio Power |
| O " " | " | Mountaineer | Appalachian Power Co. |
| K | Putnam | Winfield (Hydro) | Appalachian Power Co. |
| K | Kanawha | Marmet (Hydro) | Appalachian Power Co. |
| K | " | London (Hydro) | Appalachian Power Co. |
| K | " | Kanawha River | Appalachian Power Co. |
| K | " | John E. Amos | Appalachian Power Co. |

APPENDIX D

CATEGORY C - WATER CONTACT RECREATION

This list contains waters known to be used for water contact recreation and is not intended to exclude any waters as described in section 6.4, herein.

| <u>River Basin</u> | <u>Stream Code</u> | <u>Stream</u> | <u>County</u> |
|--------------------|--------------------|--|---------------|
| Shenandoah | S | Shenandoah River | Jefferson |
| Potomac | P | Potomac River | Jefferson |
| | P | " " | Hampshire |
| | P | " " | Berkeley |
| | P | " " | Morgan |
| | P-9 | Sleepy Creek & Meadow Branch | Berkeley |
| | P-9-G-1 | North Fork of Indian Run | Morgan |
| South Branch | PSB | South Branch of Potomac River | Hampshire |
| | PSB | " " | Hardy |
| | PSB | " " | Grant |
| | PSB-21-X | Hawes Run | Pendleton |
| | PSB-25-C-2 | Spring Run | Grant |
| | PSB-28 | North Fork South Branch Potomac River | Grant |
| North Branch | PNB | North Branch of Potomac River | Mineral |
| | PNB-4-EE | North Fork Patterson Creek | Grant |
| | PNB-7-H | Linton Creek | Grant |
| | PNB-17 | Stoney River-Mt. Storm Lake | Grant |
| | PC | Cacapon River | Hampshire |

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Monongalia

| | | | |
|-------|-------|------------------------------------|--------------------------|
| Cheat | MC | Cheat Lake/Cheat river | Monongalia/Preston |
| | MC | Alpine Lake | Preston |
| | MC-6 | Coopers Rock Lake/ Quarry Run | Monongalia |
| | MC-12 | Big Sandy Creek | Preston |
| | MSC | Shavers Fork | Randolph |
| | MTN | Middle Fork River | Barbour/Randolph/ Upshur |
| | MW | West Fork River | Harrison |
| | MW-18 | Stonecoal Creek/ Stonecoal Lake | Lewis |

| <u>River Basin</u> | <u>Stream Code</u> | <u>Stream</u> | <u>County</u> |
|--------------------|--------------------|--|---|
| Ohio | O | Ohio River | Brooke/Cabell/ Hancock/Jackson/ Marshall/Mason/Ohio/ Pleasants/Tyler/ Wayne/Wood/Wetzel |
| | O-2-H | Beech Fork of Twelvepole Creek/Beech Fork Lake | Wayne |
| | O-2-Q | East Fork of Twelvepole Creek/East Lynn Lake | Wayne |
| | O-3 | Fourpole Creek | Cabell |
| | O-21 | Old Town Creek/ McClintic Ponds | Mason |
| | OMI | Middle Island Creek/ Crystal Lake | Doddridge |
| | OG | Guyandotte River | Cabell |
| | OG | Guyandotte River/ R. D. Bailey Lake | Wyoming |
| | OGM | Mud River | Cabell |

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| | | | |
|--------------------|--------------------|---|--|
| Little Kanawha | LK | Little Kanawha River/ Burnsville Lake | Braxton |
| Kanawha | K | Kanawha River | Fayette/Kanawha/ Mason/Putnam |
| | K-1 | Unnamed Tributary Krodel Lake | Mason |
| | KC KC-45-Q | Coal River Stephens Branch/ Lake Stephens | Kanawha Raleigh |
| | KE | Elk River | Kanawha/Clay/ Braxton/Webster/ Randolph |
| | KE | Sutton Lake | Braxton |
| | KN | New River | Fayette/Raleigh/ Summers |
| | KN-26-F | Little Beaver Creek | Raleigh |
| | KNG | Greenbrier River | Greenbrier/ Pocahontas/Summers |
| | KNG-23-E-1 | Little Devil Creek/ Moncove Lake | Monroe |
| <u>River Basin</u> | KNG-28 KNG-28-P | Anthony Creek Meadow Creek/ Lake Sherwood | Greenbrier Greenbrier |
| | <u>Stream Code</u> | <u>Stream</u> | <u>County</u> |
| | KNB | Bluestone River/ Bluestone Lake | Summers |
| | KG | Gauley River | Webster |
| | KG | Gauley River/ Summersville Lake | Nicholas |
| | KGW | Williams River | Webster |
| | | | |
| | | | |
| | | | |
| | | | |

47CSR2
APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|---------------------|---------------------|---------------------|--------------------|------|----|-----|
| 8.1 Dissolved Aluminum (ug/l) For water with pH <6.5 or >9.0 | 750xCF ⁵ | 750xCF ⁵ | 750xCF ⁵ | 87xCF ⁵ | | | |
| 8.1.1 Dissolved Aluminum (ug/l) For water with pH ≥ 6.5 and ≤ 9.0, the four-day average concentration of dissolved aluminum determined by the following equation ⁶ : $Al = e^{(1.3695[\ln(hardness)] + 0.9121)} \times CF^5$ | | X | | X | | | |
| 8.1.2 Dissolved Aluminum (ug/l) For water with pH ≥ 6.5 and ≤ 9.0, the one-hour average concentration of dissolved aluminum determined by the following equation ⁶ : $Al = e^{(1.3695[\ln(hardness)] + 1.8268)} \times CF^5$ | X | | X | | | | |
| 8.2. Acute and chronic aquatic life criteria for ammonia shall be determined using the National Criterion for Ammonia in Fresh Water ⁴ from USEPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014, December 1999) | X | X | X | X | | | |
| 8.3 Antimony (ug/l) | | | | | 4300 | 14 | |
| 8.4 Arsenic (ug/l) | | | | | 10 | 10 | 100 |
| 8.4.1 Dissolved Trivalent Arsenic (ug/l) | 340 | 150 | 340 | 150 | | | |

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APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|--|
| 8.5 Barium (mg/l) | | | | | | 1.0 | |
| 8.6 Beryllium (ug/l) | 130 | | 130 | | | 4.0 | |
| 8.7 Cadmium (ug/l) Hardness Soluble Cd (mg/l CaCO ₃) 0 - 35 1.0 36 - 75 2.0 76 - 150 5.0 > 150 10.0 | | | | | | X | |
| 8.7.1 10 ug/l in the Ohio River (O Zone 1) main stem (see section 7.1.d, herein) | | | | | | X | |
| 8.7.2 The four-day average concentration of dissolved cadmium determined by the following equation: $Cd = e^{(0.7409[\ln(\text{hardness})]-4.719)} \times CF^5$ | | X | | X | | | |
| 8.7.3 The one-hour average concentration of dissolved cadmium determined by the following equation: $Cd = e^{(1.0166[\ln(\text{hardness})]-3.924)} \times CF^5$ | X | | X | | | | |
| 8.8 Chloride (mg/l) | 860 | 230 | 860 | 230 | 250 | 250 | |
| 8.9.1 Chromium, dissolved hexavalent (ug/l): | 16 | 11 | 16 | 7.2 | | 50 | |
| 8.9.2 Chromium, trivalent (ug/l) The one-hour average concentration of dissolved trivalent chromium determined by the following equation: $CrIII = e^{(0.8190[\ln(\text{hardness})]-3.7256)} \times CF^5$ | X | | X | | | | |

47CSR2
APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|----|-----|----|-----|-----|------|---|
| 8.9.3 The four-day average concentration of dissolved trivalent chromium determined by the following concentration: $Cr_{III} = e^{(0.8190[\ln(hardness)]-0.6848)} \times CF^5$ | | X | | X | | | |
| 8.10 Copper (ug/l) | | | | | | 1000 | |
| 8.10.1 The four-day average concentration of dissolved copper determined by the following equation ^a : $Cu = e^{(0.8545[\ln(hardness)]-1.702)} \times CF^5$ | | X | | X | | | |
| 8.10.2 The one-hour average concentration of dissolved copper determined by the following equation ^a : $Cu = e^{(0.9422[\ln(hardness)]-1.700)} \times CF^5$ | X | | X | | | | |
| 8.11. Cyanide (ug/l) (As free cyanide HCN+CN ⁻) | 22 | 5.0 | 22 | 5.0 | 5.0 | 5.0 | |
| 8.12 Dissolved Oxygen ^c : not less than 5 mg/l at any time. | X | | | | X | X | X |
| 8.12.1 Ohio River main stem - the average concentration shall not be less than 5.0 mg/l per calendar day and shall not be less than 4.0 mg/l at any time or place outside any established mixing zone - provided that a minimum of 5.0 mg/l at any time is maintained during the April 15-June 15 spawning season. | X | | | | | | |
| 8.12.2 Not less than 7.0 mg/l in spawning areas and in no case less than 6.0 mg/l at any time. | | | X | | | | |

47CSR2
APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|---|-----|---|-----|---|-----|---|
| 8.13 Fecal Coliform: Maximum allowable level of fecal coliform content for Water Contact Recreation (either MPN or MF) shall not exceed 200/100 ml as a monthly geometric mean based on not less than 5 samples per month; nor to exceed 400/100 ml in more than ten percent of all samples taken during the month. | | | | | X | X | |
| 8.13.1 Ohio River main stem (zone 1) - During the non-recreational season (November through April only) the maximum allowable level of fecal coliform for the Ohio River (either MPN or MF) shall not exceed 2000/100 ml as a monthly geometric mean based on not less than 5 samples per month. | | | | | X | X | |
| 8.14 Fluoride (mg/l) | | | | | | 1.4 | |
| 8.14.1 Not to exceed 2.0 for category D1 uses. | | | | | | | X |
| 8.15 Iron ^c (mg/l) | | 1.5 | | 1.0 | | 1.5 | |
| 8.16 Lead (ug/l) | | | | | | 50 | |
| 8.16.1 The four-day average concentration of dissolved lead determined by the following equation ^a : $P_b = e^{(1.273[\ln(\text{hardness})] - 4.705)} \times CF^5$ | | X | | X | | | |
| 8.16.2 The one-hour average concentration of dissolved lead determined by the following equation ^a : $p_b = e^{(1.273[\ln(\text{hardness})] - 1.46)} \times CF^5$ | X | | X | | | | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|---|-----|------|------|------|------|------|--|
| 8.17 Manganese (mg/l) (see §6.2.d) | | | | | | 1.0 | |
| 8.18 Mercury The total organism body burden of any aquatic species shall not exceed 0.5 ug/g as methylmercury. | | | | | 0.5 | 0.5 | |
| 8.18.1 Total mercury in any unfiltered water sample (ug/l): | 2.4 | | 2.4 | | 0.15 | 0.14 | |
| 8.18.2 Methylmercury (water column) (ug/l): | | .012 | | .012 | | | |
| Nickel (ug/l) | | | | | 4600 | 510 | |
| 8.19.1 The four-day average concentration of dissolved nickel determined by the following equation ⁴ : $N_i = e^{(0.846(\ln(\text{hardness}))+0.0584)} \times CF^5$ | | X | | X | | | |
| 8.19.2 The one-hour average concentration of dissolved nickel determined by the following equation ⁴ : $N_i = e^{(0.846(\ln(\text{hardness}))+2.255)} \times CF^5$ | X | | X | | | | |
| 8.20 Nitrate (as Nitrate-N) (mg/l) | | | | | | 10 | |
| 8.21 Nitrite (as Nitrite-N) (mg/l) | 1.0 | | .060 | | | | |
| 8.22 Nutrients | | | | | | | |
| Chlorophyll -a (µg/l) (see §47-2-8.3) | | | | | | | |
| Total Phosphorus (µg/l) (see §47-2-8.3) | | | | | | | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|-------------|------------|-------------|------------|---------------|---------------|--------------|
| <u>8.23 Organics</u> | | | | | | | |
| <u>Acenaphthene (ug/l)</u> | | | | | <u>990</u> | <u>670</u> | |
| <u>Acrylonitrile^b (ug/l)</u> | | | | | <u>0.66</u> | <u>0.059</u> | |
| <u>Aldrin^b (ng/l)</u> | <u>3.0</u> | | <u>3.0</u> | | <u>0.071</u> | <u>0.071</u> | <u>0.071</u> |
| <u>alpha-BHC (alpha- Hexachloro- cyclohexane)^b (ug/l)</u> | | | | | <u>0.013</u> | <u>0.039</u> | |
| <u>Anthracene (ug/l)</u> | | | | | <u>40,000</u> | <u>8,300</u> | |
| <u>Benzene^b (ug/l)</u> | | | | | <u>51</u> | <u>0.66</u> | |
| <u>Benzo(a) Anthracene^b (ug/l)</u> | | | | | <u>0.018</u> | <u>0.0038</u> | |
| <u>Benzo(a) Pyrene^b (ug/l)</u> | | | | | <u>0.018</u> | <u>0.0038</u> | |
| <u>Benzo(b) Fluoranthene^b (ug/l)</u> | | | | | <u>0.018</u> | <u>0.0038</u> | |
| <u>Benzo(k) Fluoranthene^b (ug/l)</u> | | | | | <u>0.018</u> | <u>0.0038</u> | |
| <u>beta-BHC(beta- Hexachloro- cyclohexane)^b (ug/l)</u> | | | | | <u>0.046</u> | <u>0.014</u> | |
| <u>Bromoform^b (ug/l)</u> | | | | | <u>140</u> | <u>4.3</u> | |
| <u>Carbon tetrachloride^b (ug/l)</u> | | | | | <u>4.4</u> | <u>0.25</u> | |
| <u>Chlordane^b (ng/l)</u> | <u>2400</u> | <u>4.3</u> | <u>2400</u> | <u>4.3</u> | <u>0.46</u> | <u>0.46</u> | <u>0.46</u> |
| <u>Chlorobenzene (mg/l)</u> | | | | | <u>21</u> | <u>0.68</u> | |
| <u>Chloroform^b (ug/l)</u> | | | | | <u>470</u> | <u>5.7</u> | |
| <u>Chrysene^b (ug/l)</u> | | | | | <u>0.018</u> | <u>0.0038</u> | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|-------------|-------------|-------------|-------------|--------------|---------------|--------------|
| DDT ^b (ng/l) | <u>1100</u> | <u>1.0</u> | <u>1100</u> | <u>1.0</u> | <u>0.024</u> | <u>0.024</u> | <u>0.024</u> |
| Dibenzo(a,h)Anthracene ^b (ug/l) | | | | | <u>0.018</u> | <u>0.0038</u> | |
| Dichlorobromomethane ^b (ug/l) | | | | | <u>17</u> | <u>0.55</u> | |
| Dieldrin ^b (ng/l) | <u>2500</u> | <u>1.9</u> | <u>2500</u> | <u>1.9</u> | <u>0.071</u> | <u>0.071</u> | <u>0.071</u> |
| Dioxin (2,3,7,8- TCDD) ^b (pg/l) | | | | | <u>0.014</u> | <u>0.013</u> | <u>0.014</u> |
| Endrin (ng/l) | <u>180</u> | <u>2.3</u> | <u>180</u> | <u>2.3</u> | <u>2.3</u> | <u>2.3</u> | <u>2.3</u> |
| Ethylbenzene (mg/l) | | | | | <u>29</u> | <u>3.1</u> | |
| Fluoranthene (ug/l) | | | | | <u>370</u> | <u>300</u> | |
| Fluorene (ug/l) | | | | | <u>5300</u> | <u>1100</u> | |
| gamma-BHC (gamma- Hexachloro- cyclohexane) ^b (ug/l) | <u>2.0</u> | <u>0.08</u> | <u>2.0</u> | <u>0.08</u> | <u>0.063</u> | <u>0.019</u> | |
| Heptachlor ^b (ng/l) | <u>520</u> | <u>3.8</u> | <u>520</u> | <u>3.8</u> | <u>0.21</u> | <u>0.21</u> | |
| Hexachlorobenzene ^b (ng/l) | | | | | <u>0.77</u> | <u>0.72</u> | |
| Indeno(1,2,3-cd)Pyrene ^b (ug/l) | | | | | <u>0.018</u> | <u>0.0038</u> | |
| Methoxychlor (ug/l) | | <u>0.03</u> | | <u>0.03</u> | <u>0.03</u> | <u>0.03</u> | <u>0.03</u> |
| Methyl Bromide (ug/l) | | | | | <u>1500</u> | <u>47</u> | |
| Methylene Chloride ^b (ug/l) | | | | | <u>590</u> | <u>4.6</u> | |
| PCB ^b (ng/l) | | <u>14.0</u> | | <u>14.0</u> | <u>0.045</u> | <u>0.044</u> | <u>0.045</u> |
| Phthalate esters ^c (ug/l) | | <u>3.0</u> | | <u>3.0</u> | | | |
| Pyrene (ug/l) | | | | | <u>4000</u> | <u>830</u> | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|---|-------------|------------|-------------|------------|--------------|--------------|--------------|
| <u>Tetrachloroethylene^b (ug/l)</u> | | | | | <u>8.85</u> | <u>0.8</u> | |
| <u>Toluene^b (mg/l)</u> | | | | | <u>200</u> | <u>6.8</u> | |
| <u>Toxaphene^b (ng/l)</u> | <u>730</u> | <u>0.2</u> | <u>730</u> | <u>0.2</u> | <u>0.73</u> | <u>0.73</u> | <u>0.73</u> |
| <u>Trichloroethylene^b (ug/l)</u> | | | | | <u>81</u> | <u>2.7</u> | |
| <u>Vinyl chloride^b (chloroethene) (ug/l)</u> | | | | | <u>525</u> | <u>2.0</u> | |
| <u>1,1,1-trichloroethane^b (mg/l)</u> | | | | | | <u>12</u> | |
| <u>1,1,2,2-tetrachloroethane (ug/l)</u> | | | | | <u>11</u> | <u>0.17</u> | |
| <u>1,1-dichloroethylene^b (ug/l)</u> | | | | | <u>3.2</u> | <u>0.03</u> | |
| <u>1,2-dichlorobenzene (mg/l)</u> | | | | | <u>17</u> | <u>2.7</u> | |
| <u>1,2-dichloroethane^b (ug/l)</u> | | | | | <u>99</u> | <u>0.035</u> | |
| <u>1,3-dichlorobenzene (mg/l)</u> | | | | | <u>2.6</u> | <u>0.4</u> | |
| <u>1,4-dichlorobenzene (mg/l)</u> | | | | | <u>2.6</u> | <u>0.4</u> | |
| <u>2,4-dinitrotoluene^b (ug/l)</u> | | | | | <u>9.1</u> | <u>0.11</u> | |
| <u>2-Chloronaphthalene (ug/l)</u> | | | | | <u>1600</u> | <u>1000</u> | |
| <u>2-methyl-4,6-Dinitrophenol (ug/l)</u> | | | | | <u>765</u> | <u>13.4</u> | |
| <u>8.23 Organics</u> | | | | | | | |
| <u>Chlordane^b (ng/l)</u> | <u>2400</u> | <u>4.3</u> | <u>2400</u> | <u>4.3</u> | <u>0.46</u> | <u>0.46</u> | <u>0.46</u> |
| <u>DDT^b (ng/l)</u> | <u>1100</u> | <u>1.0</u> | <u>1100</u> | <u>1.0</u> | <u>0.024</u> | <u>0.024</u> | <u>0.024</u> |
| <u>Aldrin^b (ng/l)</u> | <u>3.0</u> | | <u>3.0</u> | | <u>0.071</u> | <u>0.071</u> | <u>0.071</u> |
| <u>Dieldrin^b (ng/l)</u> | <u>2500</u> | <u>1.9</u> | <u>2500</u> | <u>1.9</u> | <u>0.071</u> | <u>0.071</u> | <u>0.071</u> |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|---|-----|------|-----|------|-------|-------|-------|
| Endrin (ng/l) | 180 | 2-3 | 180 | 2-3 | 2-3 | 2-3 | 2-3 |
| Toxaphene ^b (ng/l) | 720 | 0-2 | 720 | 0-2 | 0-73 | 0-73 | 0-73 |
| PCB ^b (ng/l) | | 14-0 | | 14-0 | 0-045 | 0-044 | 0-045 |
| Methoxychlor (ug/l) | | 0-03 | | 0-03 | 0-03 | 0-03 | 0-03 |
| Dioxin (2,3,7,8 TCDD) ^b (pg/l) | | | | | 0-014 | 0-013 | 0-014 |
| Acrylonitrile ^b (ug/l) | | | | | 0-66 | 0-059 | |
| Benzene ^b (ug/l) | | | | | 51 | 0-66 | |
| 1,2-dichlorobenzene (mg/l) | | | | | 17 | 2-7 | |
| 1,3-dichlorobenzene (mg/l) | | | | | 2-6 | 0-4 | |
| 1,4-dichlorobenzene (mg/l) | | | | | 2-6 | 0-4 | |
| 2,4-dinitrotoluene ^b (ug/l) | | | | | 9-1 | 0-11 | |
| Hexachlorobenzene ^b (ng/l) | | | | | 0-77 | 0-73 | |
| Carbon tetrachloride ^b (ug/l) | | | | | 4-4 | 0-25 | |
| Chloroform ^b (ug/l) | | | | | 470 | 5-7 | |
| Bromoform ^b (ug/l) | | | | | 140 | 4-3 | |
| Dichlorobromomethane ^b (ug/l) | | | | | 17 | 0-55 | |
| Methyl Bromide (ug/l) | | | | | 1500 | 47 | |
| Methylene Chloride ^b (ug/l) | | | | | 590 | 4-6 | |
| 1,2-dichloroethane ^b (ug/l) | | | | | 99 | 0-035 | |
| 1,1,1-trichloroethane ^b (mg/l) | | | | | | 12 | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|--|--|-----|--|-----|--------|--------|--|
| 1,1,2,2-tetrachloroethane (ug/l) | | | | | 11 | 0.17 | |
| 1,1-dichloroethylene ^b (ug/l) | | | | | 3.2 | 0.03 | |
| Trichloroethylene ^b (ug/l) | | | | | 81 | 2.7 | |
| Tetrachloroethylene ^b (ug/l) | | | | | 8.85 | 0.8 | |
| Toluene ^b (mg/l) | | | | | 200 | 6.8 | |
| Acenaphthene (ug/l) | | | | | 990 | 670 | |
| Anthracene (ug/l) | | | | | 40,000 | 8,300 | |
| Benzo(a) Anthracene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Benzo(a) Pyrene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Benzo(b) Fluoranthene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Benzo(k) Fluoranthene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Chrysene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Dibenzo(a,h) Anthracene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Fluorene (ug/l) | | | | | 5300 | 1100 | |
| Indeno(1,2,3-cd) Pyrene ^b (ug/l) | | | | | 0.018 | 0.0038 | |
| Pyrene (ug/l) | | | | | 4000 | 830 | |
| 2-Chloronaphthalene (ug/l) | | | | | 1600 | 1000 | |
| Phthalate esters ^c (ug/l) | | 3.0 | | 3.0 | | | |
| Vinyl chloride ^b -(chloroethene) (ug/l) | | | | | 525 | 2.0 | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|---|-----|------|-----|------|-----------|--------|---|
| alpha-BHC (alpha-Hexachloro-cyclohexane)* (ug/l) | | | | | 0.013 | .0039 | |
| beta-BHC(beta-Hexachloro-cyclohexane)* (ug/l) | | | | | 0.046 | 0.014 | |
| gamma-BHC (gamma-Hexachloro-cyclohexane)* (ug/l) | 2.0 | 0.08 | 2.0 | 0.08 | 0.063 | 0.019 | |
| Chlorobenzene (mg/l) | | | | | 21 | 0.68 | |
| Ethylbenzene (mg/l) | | | | | 29 | 3.1 | |
| Heptachlor ⁵ (ng/l) | 520 | 3.8 | 520 | 3.8 | 0.21 | 0.21 | |
| 2-methyl-4,6-Dinitrophenol (ug/l) | | | | | 765 | 13.4 | |
| Fluoranthene (ug/l) | | | | | 370 | 300 | |
| 8.23.1 When the specified criteria for organic chemicals listed in §8.23 are less than the practical laboratory quantification level, instream values will be calculated from discharge concentrations and flow rates, where applicable. | | | | | | | |
| 8.24 pH ^c No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated. | X | X | X | X | X | X | X |
| 8.25 Phenolic Materials | | | | | | | |
| 8.25.1 Phenol (ug/l) | | | | | 4,600,000 | 21,000 | |
| 8.25.2 2-Chlorophenol (ug/l) | | | | | 400 | 120 | |
| 8.25.3 2,4-Dichlorophenol (ug/l) | | | | | 790 | 93 | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|---|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |
| 8.25.4 2,4-Dimethylphenol (ug/l) | | | | | 2300 | 540 | |
| 8.25.5 2,4-Dinitrophenol (ug/l) | | | | | 14,000 | 70 | |
| 8.25.6 Pentachlorophenol ^b (ug/l) | | | | | 8.2 | 0.28 | |
| 8.25.6.a The one-hour average concentration of pentachlorophenol determined by the following equation: $\exp(1.005(\text{pH})-4.869)$ | X | | X | | | | |
| 8.25.6.b The 4-day average concentration of pentachlorophenol determined by the following equation: $\exp(1.005(\text{pH})-5.134)$. | | X | | X | | | |
| 8.25.7 2,4,6-Trichlorophenol ^b (ug/l) | | | | | 6.5 | 2.1 | |
| 8.26 Radioactivity: Gross Beta activity not to exceed 1000 picocuries per liter (pCi/l), nor shall activity from dissolved strontium-90 exceed 10 pCi/l, nor shall activity from dissolved alpha emitters exceed 3 pCi/l. | X | | X | | X | X | X |
| 8.26.1 Gross total alpha particle activity (including radium-226 but excluding radon and uranium shall not exceed 15 pCi/l and combined radium-226 and radium-228 shall not exceed 5pCi/l; provided that the specific determination of radium-226 and radium-228 are not required if dissolved particle activity does not exceed 5pCi/l, the concentration of tritium shall not exceed 20,000 pCi/l; the concentration of total strontium-90 shall not exceed 8 pCi/l in the Ohio River main stem. | X | | X | | X | X | X |

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| PARAMETER | USE DESIGNATION | | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |
| 8.27 Selenium (ug/l) Water Column Concentration ^f | | 5 | | 5 | | 50 | |
| 8.27.1 Selenium (ug/g) ^g (based on instantaneous measurement) 8.0 ug/g Fish Whole-Body Concentration or 11.3 ug/g Fish Muscle (skinless, boneless filet) | | X | | X | | | |
| 8.27.2 Selenium (ug/g) Fish Egg/Ovary Concentration ^h (based on instantaneous measurement) | | 15.8 | | 15.8 | | | |
| 8.28 Silver (ug/l) Hardness Silver 0-50 1 51-100 4 101-200 12 >201 24 | | | | X | | X | |
| 8.28.1 0-50 1 51-100 4 101-200 12 201-400 24 401-500 30 501-600 43 | | X | | | | | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |
| 8.28.2 The one-hour average concentration of dissolved silver determined by the following equation: $Ag=e^{(1.72[\ln(\text{hardness})]-6.59)} \times CF^5$ | X | | X | | | | |
| 8.29 Temperature Temperature rise shall be limited to no more than 5°F above natural temperature, not to exceed 87°F at any time during months of May through November and not to exceed 73°F at any time during the months of December through April. During any month of the year, heat should not be added to a stream in excess of the amount that will raise the temperature of the water more than 5°F above natural temperature. In lakes and reservoirs, the temperature of the epilimnion should not be raised more than 3°F by the addition of heat of artificial origin. The normal daily and seasonable temperature fluctuations that existed before the addition of heat due to other natural causes should be maintained. | X | | | | | | |
| 8.29.1 For the Kanawha River Main Stem (K-1): Temperature rise shall be limited to no more than 5°F above natural temperature, not to exceed 90°F in any case. | X | | | | | | |

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| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

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| 8.29.2 No heated effluents will be discharged in the vicinity of spawning areas. The maximum temperatures for cold waters are expressed in the following table: Daily Mean °F Hourly Max °F Oct-Apr 50 55 Sep- 5 May 58 62 Jun-Aug 66 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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**47CSR2
APPENDIX E, TABLE 1**

| PARAMETER | USE DESIGNATION | | | | | | |
|---|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |
| 8.30 Thallium (ug/l) | | | | | 6.3 | 1.7 | |
| 8.31 Threshold odor ^c Not to exceed a threshold odor number of 8 at 104°F as a daily average. | | X | | X | X | X | |
| 8.32 Total Residual Chlorine (ug/l - measured by amperometric or equivalent method) | 19 | 11 | | | | | |
| 8.32.1 No chlorinated discharge allowed | | | X | | | | |
| 8.33 Turbidity No point or non-point source to West Virginia's waters shall contribute a net load of suspended matter such that the turbidity exceeds 10 NTU's over background turbidity when the background is 50 NTU or less, or have more than a 10% increase in turbidity (plus 10 NTU minimum) when the background turbidity is more than 50 NTUs. This limitation shall apply to all earth disturbance activities and shall be determined by measuring stream quality directly above and below the area where drainage from such activity enters the affected stream. Any earth disturbing activity continuously or intermittently carried on by the same or associated persons on the same stream or tributary segment shall be allowed a single net loading increase. | | X | | X | X | X | |

**47CSR2
APPENDIX E, TABLE 1**

| PARAMETER | USE DESIGNATION | | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES |
| | B1, B4 | | B2 | | C ³ | A ⁴ | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|--|
| 8.33.1 This rule shall not apply to those activities at which Best Management Practices in accordance with the State's adopted 208 Water Quality Management Plan are being utilized, maintained and completed on a site-specific basis as determined by the appropriate 208 cooperative or an approved Federal or State Surface Mining Permit is in effect. This exemption shall not apply to Trout Waters. | | X | | | X | X | |
| 8.34 Zinc (ug/l) The four-day average concentration of dissolved zinc determined by the following equation ^a : $Z_n = e^{(0.8473[\ln(\text{hardness})] + 0.884)} \times CF^5$ | | X | | X | | | |
| 8.34.1 The one-hour average concentration of dissolved zinc determined by the following equation ^a : $Z_n = e^{(0.8473[\ln(\text{hardness})] + 0.884)} \times CF^5$ | X | | X | | | | |

¹ One hour average concentration not to be exceeded more than once every three years on the average, unless otherwise noted.

² Four-day average concentration not to be exceeded more than once every three years on the average, unless otherwise noted.

³ These criteria have been calculated to protect human health from toxic effects through fish consumption, unless otherwise noted. ~~Concentration-Annual geometric mean concentration~~ not to be exceeded, unless otherwise noted.

⁴ These criteria have been calculated to protect human health from toxic and/or organoleptic effects through drinking water and fish consumption, unless otherwise noted. ~~Concentration-Annual geometric mean concentration~~ not to be exceeded, unless otherwise noted.

⁵ The appropriate Conversion Factor (CF) is a value used as a multiplier to derive the dissolved aquatic life criterion is found in Appendix E, Table 2.

⁶ Phthalate esters are determined by the summation of the concentrations of Butylbenzyl Phthalate, Diethyl Phthalate, Dimethyl Phthalate, Di-n-Butyl Phthalate and Di-n-Octyl Phthalate.

^a Hardness as calcium carbonate (mg/l). The minimum hardness allowed for use in this equation shall not be less than 25 mg/l, even if the actual ambient hardness is less than 25 mg/l. The maximum hardness value for use in this equation shall not exceed 400 mg/l even if the actual hardness is greater than 400 mg/l.

^b Known or suspected carcinogen. Human health standards are for a risk level of 10⁻⁶.

^c May not be applicable to wetlands (B4) - site-specific criteria are desirable.

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APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | |
|-----------|--------------------|--------------------|--------------------|--------------------|----------------|-------------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | |
| | B1, B4 | | B2 | | C ³ | A ⁴ |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | |
| | | | | | | ALL OTHER USES |

^d The early life stage equation in the National Criterion shall be used to establish chronic criteria throughout the state unless the applicant demonstrates that no early life stages of fish occur in the affected water(s).

^e Hardness as calcium carbonate (mg/l). The minimum hardness allowed for use in this equation shall not be less than 26 mg/l, even if the actual ambient hardness is less than 26 mg/l. The maximum hardness value for use in this equation shall not exceed 200 mg/l even if the actual hardness is greater than 200 mg/l.

^f Water column values take precedence over fish tissue values when new inputs of selenium occur in waters previously unimpacted by selenium, until equilibrium is reached between the water column and fish tissue.

^g Overrides any water column concentration when water concentrations and either fish whole body or fish muscle (skinless, boneless filet) are measured, except in situations described in footnote ⁱ

^h Overrides any fish whole-body, fish muscle (skinless, boneless filet), or water column concentration when fish egg/ovary concentrations are measured, except in situations described in footnote ⁱ

APPENDIX E

TABLE 2**Conversion Factors**

| Metal | Acute | Chronic |
|----------------|---|---|
| Aluminum | 1.000 | 1.000 |
| Arsenic (III) | 1.000 | 1.000 |
| Cadmium | $1.136672 - [(\ln \text{ hardness})(0.041838)]$ | $1.101672 - [(\ln \text{ hardness})(0.041838)]$ |
| Chromium (III) | 0.316 | 0.860 |
| Chromium(VI) | 0.982 | 0.962 |
| Copper | 0.960 | 0.960 |
| Lead | $1.46203 - [(\ln \text{ hardness})(0.145712)]$ | $1.46203 - [(\ln \text{ hardness})(0.145712)]$ |
| Nickel | 0.998 | 0.997 |
| Silver | 0.85 | N/A |
| Zinc | 0.978 | 0.986 |
| | | |

APPENDIX F

COOL WATER LAKES

This list contains lakes to be managed for cool water fisheries and is not intended to exclude any waters which meet the definition in Section 2.2.

| <u>River Basin</u> | <u>County</u> | <u>Lake</u> |
|--------------------|------------------|--------------------------------------|
| Potomac River | | |
| PC | Hardy Lost River | Trout Pond (Impoundment) |
| PC | Hardy Lost River | Rock Cliff Lake (Impoundment) |
| PSB | Pendleton | Hawes Run (Impoundment) |
| PNB | Mineral | New Creek Dam 14(Impoundment) |
| Monongahela River | | |
| MC | Monongalia | Coopers Rock (Impoundment) |
| MC | Monongalia | Cheat Lake |
| MC | Tucker | Thomas Park (Impoundment) |
| MC | Randolph | Spruce Knob Lake (Impoundment) |
| MT | Taylor | Tygart Lake |
| MW | Lewis | Stonecoal Lake |
| Kanawha River | | |
| KC | Raleigh | Stephens Lake (Impoundment) |
| KG | Nicholas | Summersville Reservoir (Impoundment) |
| KG | Greenbrier | Summit Lake (Impoundment) |
| KNG | Pocahontas | Watoga Lake |
| KNG | Pocahontas | Buffalo Fork (Impoundment) |
| KNG | Pocahontas | Seneca (Impoundment) |
| KCG | Pocahontas | Handley Pond |
| Guyandotte River | | |
| OG | Wyoming/Mingo | RD Bailey Lake |