

**WEST VIRGINIA
SECRETARY OF STATE
JOE MANCHIN, III
ADMINISTRATIVE LAW DIVISION**

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OFFICE WEST VIRGINIA
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Form #6

**NOTICE OF FINAL FILING AND ADOPTION OF A LEGISLATIVE RULE AUTHORIZED
BY THE WEST VIRGINIA LEGISLATURE**

AGENCY: West Virginia Environmental Quality Board TITLE NUMBER: 46

AMENDMENT TO AN EXISTING RULE: YES NO

IF YES, SERIES NUMBER OF RULE BEING AMENDED: One

TITLE OF RULE BEING AMENDED: Requirements Governing Water Quality Standards

IF NO, SERIES NUMBER OF RULE BEING PROPOSED: _____

TITLE OF RULE BEING PROPOSED: _____

THE ABOVE RULE HAS BEEN AUTHORIZED BY THE WEST VIRGINIA LEGISLATURE.

AUTHORIZATION IS CITED IN (house or senate bill number) H.B. 4163

SECTION 64-3-2(a), PASSED ON March 9, 2002

THIS RULE IS FILED WITH THE SECRETARY OF STATE. THIS RULE BECOMES EFFECTIVE ON THE
FOLLOWING DATE: July 1, 2002


Authorized Signature

SCANNED

**TITLE 46
LEGISLATIVE RULES
ENVIRONMENTAL QUALITY BOARD
SERIES 1
REQUIREMENTS GOVERNING WATER
QUALITY STANDARDS**

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OFFICE WEST VIRGINIA
SECRETARY OF STATE

§46-1-1. General.

1.1. Scope. -- These rules establish requirements governing the discharge or deposit of sewage, industrial wastes and other wastes into the waters of the state and establish 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 §22B-3-4

1.3. Filing Date. -- April 15, 2002.

1.4. Effective Date. - July 1, 2002.

§46-1-2. 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. "Board" is the Environmental Quality Board.

2.2. "Chief" is the Chief of the Office of Water Resources of the West Virginia Division of Environmental Protection.

2.3. "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.

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

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

2.6. "Director" is the Director of the West Virginia Division of Environmental Protection.

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

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

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

2.10. "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.

2.11. "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.

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

2.13. "Natural" or "naturally occurring" values or "natural temperature" shall mean for all of the waters of the state:

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

2.13.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.

2.14. "Non-point source" shall mean any source other than a point source from which pollutants may reach the waters of the

state.

2.15. "Persistent" shall mean a pollutant and its transformation products which under natural conditions degrade slowly in an aquatic environment.

2.16. "Point source" shall mean 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.

2.17. "Representative important species of aquatic life" shall mean 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.

2.18. The "State Act" or "State Law" shall mean the West Virginia Water Pollution Control Act, W. Va. Code §22-11-1.

2.19. "Total recoverable" refers to the digestion procedure for certain heavy metals as referenced in 40 CFR 136, as amended June 15, 1990, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act.

2.20. "Trout waters" are streams or stream segments which sustain year-round trout populations. Excluded are those streams or stream segments which receive annual stockings of trout but which do not support year-round trout populations.

2.21. "Water of special concern" are those waters occurring in the categories outlined in section 4.1.c. of the antidegradation policy. This designation provides an intermediate level of antidegradation protection between high quality waters and outstanding national resource waters.

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

2.23. "Water quality standards" means the combination of water uses to be protected and the water quality criteria to be maintained by these rules.

2.24. "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.

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

§46-1-3. 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 Environmental Quality Board 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. 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.

§46-1-4. 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 the water body 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 determined after satisfaction of the intergovernmental coordination of the state's continuing planning process 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 Board and the Director 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 Director 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 2.10 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 Edition, prepared by the Wildlife Resources Division, Department of Natural Resources (1986).

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 2.5 Protection. Waters of special concern include all of those waters listed in 60 C.S.R. 5, Appendix A. Waters of special concern may include, but are not limited to naturally reproducing trout streams, federally designated rivers under the "Wild and Scenic Rivers Act," 16 U. S.C. §§ 1271 et seq., waters in state parks and forests, waters in National parks and forests, waters designated under the "National Parks and Recreation Act of 1978," and waters with unique or exceptional aesthetic, ecological, or recreational value. Waters may be nominated for inclusion in this category by any interested party or by the Board on its own initiative.

4.1.d. 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.) within the State.

Additional waters may be nominated for inclusion in that category by any interested party or by the Board on its own initiative. To designate a nominated water as an outstanding national resource water, the Board shall follow the public notice and hearing provisions as provided in 46 C.S.R. 6.

4.1.e. 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.

§46-1-5. Mixing Zones.

5.1. In the permit review and planning process or upon the request of a permit applicant or permittee, the Chief 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 Chief 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 not be limited to, the linear distances from the point of discharge, surface area involvement, 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 Chief 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 Chief. 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 Chief, 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 Chief 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 Chief 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 5 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 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 (10) percent 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 body.

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 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 instream waste concentration of a discharge is greater than 80%.

5.2.h.5. Overlap one another.

5.2.h.6. Overlap any 1/2 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 Act shall constitute compliance with all provisions of this section.

5.2.j. The Chief may waive the requirements of subsections 5.2.e and 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 subsections 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 Chief that the mixing zone is in compliance with the provisions outlined in subsections 5.2.b, 5.2.c, 5.2.e, and 5.2.h.2, herein.

5.2.l. In order to facilitate a determination or assessment of a mixing zone pursuant to this section, the Chief may require a permit applicant or permittee to submit such information as deemed necessary.

§46-1-6. Water Use Categories.

6.1. These rules establish general Water Use Categories and Water Quality Standards for the waters of the State. Unless otherwise designated by these rules, 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 body 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 body 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 body, 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 Board shall follow the requirements for

revision of water quality standards as required by W. Va. Code §22B-3-4 and section 303 of the Federal Act and the regulations thereunder. Any revision of water quality standards shall be made with the concurrence of EPA. The Board's administrative procedural regulations for applying for less restrictive uses or criteria shall be followed.

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 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; see section 7.2.a.2, herein for additional requirements for Category A waters.) The manganese human health criteria shall not apply where the discharge point of the manganese is located more than five miles upstream from a known drinking water source.

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 2.20, herein (See Appendix A for a representative list.)

6.3.c. Category B4 -- Wetlands. -- As defined in section 2.24, 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 of category C waters.)

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 aides.

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.

§46-1-7. 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).

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 - Youghieny 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:

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:

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:

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 Chief 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.) Until June 30, 2003, the one-half 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.

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 section 7.2.c.5 listed herein 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 streams, when they are dry or have no measurable flow): Provided, That 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 section 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; In zones of initial dilution and certain mixing zones: Provided, 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 Board 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 waterbody 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 Board, in its 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 Board 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 is required before site-specific criteria for natural conditions are established.

Upon application or on its own initiative, the Board will determine whether a natural condition of a waterbody should be approved as a site-specific water quality criterion. Before it approves a site-specific water quality criterion for a natural condition, the Board 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 waterbody varies with time, the natural condition will be determined to be the actual natural condition of the waterbody measured prior to or concurrent with discharge or operation. The Board will, in its 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 Board and shall include the following information:

7.2.c.4.A. A U.S.G.S. 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 are unavailable, additional studies may be required by the Board;

7.2.c.4.D. General land uses (e.g. mining, agricultural, recreation, 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 Board 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 by the Board and Division of Environmental Protection 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. (See section 8.3 and section 8.4, herein) 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. Except that 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

7.2.d.6.1 Except that the Stony River downstream from the limit of the thermal mixing zone (as established by Board Order of 11/20/75) for the Mount Storm Lake wastewater treatment facility to its confluence with the North Branch of the Potomac River is exempt from the 5°F above natural temperature rise; however, the maximum temperature outside the mixing zone shall not exceed 87°F at any time during the months of May through November and not exceed 73°F at any time during the months of December through April. This exception shall apply until the successful completion of a study conducted pursuant to section 316(a) of the Federal Act or December 31, 1998, whichever comes first.

7.2.d.7. Monongahela River

7.2.d.7.1. Except that flow in the main stem of the Monongahela River, as regulated by the Tygart Reservoir, operated by the U. S. Army Corps of Engineers, is based on a minimum flow of 345 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. Except that 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 (5ug/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 ug/l and manganese: 5 mg/l.

7.2.d.9. Blackwater River - The Blackwater River below Davis, West Virginia shall be classified as a trout water, Category B2.

- 7.2.d.10. West Fork River - (Reserved)
- 7.2.d.11. Tygart River - (Reserved)
- 7.2.d.12. Buckhannon River - (Reserved)
- 7.2.d.13. Middle Fork River - (Reserved)
- 7.2.d.14. Youghiogheny River

7.2.d.14.1 Water Use Categories A and E are excluded from the tributaries of the Youghiogheny River in West Virginia which flow into Maryland.

- 7.2.d.15. Ohio River Main Stem - (Reserved)
- 7.2.d.16. Ohio River Tributaries.

7.2.d.16.1. Except that 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 ug/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.16.2. Except that a socio-economic variance shall apply to that segment of Harmon Creek (0-97) from its confluence with the Ohio River to a point 2.2 miles upstream, which shall not have water use Category A designation, and which shall have the following instream criteria: Lead 14 ug/l, Daily Maximum, Zinc 181 ug/l, Daily Maximum, Temperature 100 degree F (monitored per Footnote 12 of the permit); Iron 4.0 mg/l, Monthly Average and 8.0 mg/l, Daily Maximum (monitored per Footnote 12 of the permit). Provided, however, that the criteria for Lead, Zinc, Temperature and Iron shall not apply, and instead the state-wide criteria for these parameters shall apply, unless: Weirton Steel Corporation (1) submits to the Office of Water Resources on or before January 31, 2001 a report setting forth the water quality of the discharge from Outlet 004 for these parameters during calendar year 2000; (2) offers further proposals for any appropriate reductions in the above excepted levels; (3) provides any appropriate additional engineering analysis of potential alternatives for reducing further the concentrations of said parameters in the discharge toward achieving statewide criteria; and (4) continues to submit to the Office of Water Resources on a semi-annual basis, summary reports on the water quality of the discharge from Outlet 004 and the

efforts made by Weirton Steel Corporation during the prior six (6) months to improve the quality of said discharge. Additionally Weirton Steel must determine the water quality of Harmon Creek both immediately upstream of and below the discharge of outlet 004 at the Con Rail Bridge by sampling for Flow, pH, Total and Dissolved Lead, Total and Dissolved Zinc, Iron, Fluoride, Temperature, Turbidity, Oil and Grease and Hardness on at least a monthly basis and submit the results to the Office of Water Resources with the semi-annual report. These exceptions shall be in effect until action by the Environmental Quality Board to revise such exceptions or until June 29, 2004, whichever comes first.

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, Water Use Category A shall not apply; and

7.2.d.19.2. The minimum flow shall be 1,960 cfs at the Charleston gauge.

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. Except 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 ug/l and copper not to exceed 105 ug/l as a daily maximum nor 49 ug/l as a 4-day average.

7.2.d.20.3. Except for Simmons Creek (K-54) from its mouth to a point 1200 feet upstream to which the following site-specific numeric criteria shall apply: a maximum daily temperature not to exceed 38°C (100°F) nor a monthly average temperature to exceed 34°C. This exception shall apply until the successful completion of a study conducted pursuant to section 316(a) of the Federal Act or May 30, 1998, whichever comes first.

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 - (Reserved)
- 7.2.d.30. Greenbrier River - (Reserved)
- 7.2.d.31. Bluestone River - (Reserved)
- 7.2.d.32. Bluestone Lake
- 7.2.d.33. East River - (Reserved)
- 7.2.d.34. Guyandotte River - (Reserved)
- 7.2.d.35. Mud River - (Reserved)
- 7.2.d.36. Big Sandy River - (Reserved)
- 7.2.d.37. Tug Fork River - (Reserved)

§46-1-8. 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. (See also 47 C.S.R. 10, section 7.3 - 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 Office of Water Resources of the Division of Environmental Protection (OWR) to develop a site-specific translator consistent with the provisions in this section. The OWR 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. 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.

8.3. 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

subsections 6.1.b.A - F, 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 Board at least every three years. In granting a variance, the requirements for revision of water quality standards in 46 CSR 6 shall be followed.

8.4. Site-specific numeric criteria. The Board 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 Board. In adopting site-specific numeric criteria, the requirements for revision of water quality standards set forth in 46 CSR 6 shall be followed.

§46-1-9. Establishment Of Safe Concentration Values.

When a specific water quality standard has not been established by these rules 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 Chief 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 Chief 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 Chief 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 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 of this section shall perform such testing as approved by the Chief and shall submit all of the following in writing to the Chief:

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 Chief.

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 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 Chief.

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 2.20.

| <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 Halltown) | Jefferson | Flowing Springs Run (Above |
| 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 | " | Dillons 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) |
| 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 Fork) | " | South Branch (Above North |

| | | |
|-----|---------|--------------------------------|
| PSB | " | 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 Smithtown) | Monongalia-Marion | Whiteday Creek (Above |
| 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 |
| 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) (insert date adopted) |
| 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 Compressor Station) |
| & P MC | Randolph | Shavers Fork (Above Little |
| Black Fork) | " | Three Spring Run |
| MC | " | Spruce Knob Lake (Impoundment) |
| MW | Harrison | Dog Run (Pond) |
| MW | Lewis | Stonecoal |
| MT | Barbour | Brushy Fork (Above Valley |
| Furnace) | " | 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 |
| MT | " | 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) | | |
| 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 |
| 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 |
| KN | Mercer | Sewage Treatment Plant) |
| Kellevsville) | " | East River (Above |
| 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) |
| KNG | " | Greenbrier River (Above Hosterman) |
| KNG | " | West Fork-Greenbrier River (Above the |
| KNG | " | impoundment at the tannery) |
| KNG | " | Little River-East Fork |
| KNG | " | Little River-West Fork |
| KNG | " | Five Mile Run |
| KNG | " | Mullenax Run |
| KNG | " | Abes Run |
| KNE | Mercer | Marsh Fork |
| KNE | " | 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.

| River Basin | County | Operating Company | Source |
|-------------------|-------------|----------------------------|---|
| 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 | | | |
| M | Monongalia | Morgantown Water Comm. | Colburn Creek & |
| M | 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 |

| | | | |
|-----|------------|-------------------------------------|------------------------------|
| MC | " | Union Districk PSD | Cheat Lake-Lake Lynn |
| MC | " | Cooper's Rock State Park | Impoundment |
| MC | Preston | Kingwood Water | Cheat River |
| MC | " | 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 Park | Blackwater River |
| 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 |
| 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 |

Ohio River

| | | | | |
|---|--------|-----------|-------------------------|------------------------------|
| 0 | Zone 1 | Hancock | Chester Water & Sewer | Ohio River |
| 0 | " | Brooke | City of Weirton | Ohio River |
| 0 | " | " | Weirton Steel Division | Ohio River |
| 0 | " | Ohio | Wheeling Water | Ohio River |
| 0 | " | Tyler | Sistersville Mun. Water | Ohio River |
| 0 | " | Pleasants | Pleasants Power Station | Ohio River |
| 0 | " | Cabel | Huntington Water Corp. | Ohio River |
| 0 | " | Marshall | Mobay Chemical Co. | Ohio River |
| 0 | " | Wood | E. I. DuPont | Ohio River |
| 0 | Zone 2 | Marshall | meron Water | Glass House Hollow |
| 0 | " | " | New Urindahana Water | Wheeling Creek System |
| 0 | " | Wetzel | Pine Grove Water | North Fork, Fishing Creek |
| 0 | " | Marshall | Consolidated Coal Co. | Impoundment |
| 0 | " | Tyler | Middlebourne Water | Middle Island Creek |
| 0 | " | Doddridge | West Union Mun. Water | Middle Island Creek |
| 0 | " | Mason | Hidden Valley Country | Lake/Impoundment |
| 0 | " | Jackson | Ripley Water | Mill Creek |
| 0 | " | Wayne | Wayne Municipal Water | Twelve Pole Creek |
| 0 | " | " | East Lynn Lake | East Lynn Lake |
| 0 | Zone 2 | Wayne | 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 River |
| K | Kanawha | Midland Trail School | Impoundment |
| K | " | Cedar Coal Co. | Impoundment |
| K | Fayette | Elkem Metals Co. | Kanawha River |
| K | " | Deepwater PSD | Kanawha River |
| K | " | 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-Montc. 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 |
| 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/Muddl ety 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 |
| New River | | | |
| KN | Fayette | Ames Heights Water | Mill Creek |
| KN | " | Mt. Hope Water | Impounded Mine (Surface) |
| KN | " | Ansted Municipal Water | Mill Creek |
| KN | " | 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/Brusc h Creek |
| KNB | " | Lashmeet PSD | Impoundment |
| KNB | " | Pinnacle Water Assoc. | Mine |
| KNB | " | W.V. Water Bluefield | Impoundment |
| 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 | Greenbrier River |
| KNG | " | Water | |
| 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 | " | Pineville Water | Pinnacle Creek/ Guyandotte River |
| OG | Raleigh | Raleigh Co. PSD-Amigo | Tommy Creek |
| OMG | Cabell | Milton Water Works | Guyandotte River |
| OMG | " | Culloden PSD | Indian Fork Creek |
| OMG | Putnam | Hurricane Municipal Water | Impoundment |
| OMG | " | Lake Washington PSD | Lake Washington |

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 |
| 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 |

| | | | |
|----------------|------------|--|--|
| Ohio | O | OhioRiver | Brooke/ Cabell/ Hancock/ Jackson/ Marshall/ Mason/Ohio/Pleasant/ 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 |
| 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 | Coal River | Kanawha |
| | KC-45-Q | Stephens Branch/ Lake Stephens | 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 |

| | | |
|--------------------|--|--------------------------|
| KNG-28 KNG-28-P | Anthony Creek Meadow Creek/ Lake Sherwood | Greenbrier Greenbrier |
| KNB | Bluestone River/ Bluestone Lake | Summers |
| KG KG | Gauley River Gauley River/ Summersville Lake | Webster Nicholas |
| KGW | Williams River | Webster |

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) Not to exceed: | 750xCF ⁵ | 87xCF ⁵ | 750xCF ⁵ | 87xCF ⁵ | | | |
| 8.2 Ammonia (ug/l): Un-ionized ammonia (UA) shall be determined from values of total ammonia-N, pH and temperature according to the following equation: $UA = 1.2(\text{total ammonia-N}) \cdot 10^{(pH - pK_a)}$ where $pK_a = 0.0902 + 2730 / (273.2 + T)$ and T = temperature (°C) The concentration of un-ionized ammonia (NH ₃) shall not exceed 50 ug/l. | | | | | 50 | | |
| 8.2.1 Acute and chronic aquatic life criteria for ammonia shall be determined using the National Criterion for Ammonia in Fresh Water ^d from USEPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014, December 1999) | X | X | X | X | | | |

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 |
| 8.3 Antimony (ug/l) Not to exceed: | | | | | | 4300 | 14 | |
| 8.4 Arsenic ^b (ug/l) Not to exceed: | | | | | | 50 | 50 | 100 |
| 8.4.1 Dissolved Trivalent Arsenic Not to exceed: | 360 x CF ⁵ | 190 x CF ⁵ | 360 x CF ⁵ | 190 x CF ⁵ | | | | |
| 8.5 Barium (mg/l) Not to exceed: | | | | | | | 1.0 | |
| 8.6 Beryllium (ug/l) | 130 | | 130 | | | | .0077 | |
| 8.7 Cadmium (ug/l) Soluble Cd Hardness (mg/l CaCO ₃) 0 - 35 36 - 75 76 - 150 > 150 | | | | | | | | |
| 8.7.1 Not to exceed 10 ug/l in the Ohio River (O Zone 1) main stem (see section 7.1.d. herein) | | | | | | | X | X |

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 |
| 8.7.3 The four-day average concentration of dissolved cadmium shall not exceed the value determined by the following equation: $Cd = e^{(0.7852[\ln(\text{hardness})]-3.490)} \times CF^5$ | | X | | | | | | |
| 8.7.4 The one-hour average concentration of dissolved cadmium shall not exceed the value determined by the following equation: $Cd = e^{(1.128[\ln(\text{hardness})]-3.828)} \times CF^5$ | X | | | | X | | | |
| 8.8 Chloride (mg/l) Not to exceed: | 860 | 230 | | | 860 | 230 | 250 | 250 |
| 8.9.1 Chromium, dissolved hexavalent (ug/l): Not to exceed: | 16 x CF ⁵ | 11 x CF ⁵ | | | 16 x CF ⁵ | 7.2 x CF ⁵ | 50 | |
| 8.9.2 Chromium, trivalent (ug/l) The one-hour average concentration of dissolved trivalent chromium shall not exceed the value determined by the following equation: $\exp\{0.8190[\ln(\text{hardness})]+3.7256\} \times (CF^5)$ | X | | | | X | | | |
| 8.9.3 The four-day average concentration of dissolved trivalent chromium shall not exceed the value determined by the following concentration: $\exp\{0.8190[\ln(\text{hardness})]+0.6848\} \times (CF^5)$. | | X | | | | X | | |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | |
|---|--------------------|--------------------|----|--------------------|--------------------|--------------------|----------------|----------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | ALL OTHER USES | |
| | B1, B4 | | B2 | CHRON ² | ACUTE ¹ | CHRON ² | C ³ | A ⁴ |
| | ACUTE ¹ | CHRON ² | | | | | | |
| 8.10 Copper (ug/l) Not to exceed: | | | | | | | | 1000 |
| 8.10.1 The four-day average concentration of dissolved copper shall not exceed the value determined by the following equation ^a : $Cu = e^{(0.854[\ln(\text{hardness})]-1.465)} \times CF^5$ | | | X | | | | | |
| 8.10.2 The one-hour average concentration of dissolved copper shall not exceed the value determined by the following equation ^a : $Cu = e^{(0.9422[\ln(\text{hardness})]-1.464)} \times CF^5$ | | | | | X | | | |
| 8.11 Cyanide (ug/l) (As free cyanide HCN+CN ⁻) Not to exceed: | X | | | | | | | |
| 8.12 Dissolved Oxygen ^c : not less than 5 mg/l at any time. | 22 | 5.0 | | | 22 | 5.0 | 5.0 | 5.0 |
| 8.12.1 Kanawha River main stem, Zone 1 - Not less than 4.0 mg/l at any time. | X | | | | | | | X |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|----------------|----------------|----------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | |
| | B1, B4 | | B2 | CHRON ² | C ³ | A ⁴ | ALL OTHER USES |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | | | | |
| 8.12.2 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. | | | | | | | |
| 8.12.3 Not less than 7.0 mg/l in spawning areas and in no case less than 6.0 mg/l at any time. | X | | | | | | |
| 8.13 Fecal Coliform: Maximum allowable level of fecal coliform content for Primary 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 |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | ALL OTHER USES |
|--|-----------------|----|--------------------|--------------------|--------------------|----------------|----------------|----------------|
| | AQUATIC LIFE | | | HUMAN HEALTH | | C ³ | A ⁴ | |
| | B1, B4 | B2 | CHRON ² | ACUTE ¹ | CHRON ² | | | |
| | | | | | | | | |
| 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 | | |
| 8.14 Fluoride (mg/l) Not to exceed: | | | | | | | 1.4 | |
| 8.14.1 Not to exceed 2.0 for category D uses. | | | | | | | | X |
| 8.15 Iron ^c (mg/l) Not to exceed: | | | 1.5 | | | | 1.5 | |
| 8.16 Lead (ug/l) Not to exceed: | | | | | | | 50 | |
| 8.16.1 The four-day average concentration of dissolved lead shall not exceed the value determined by the following equation ^a : $Pb = e^{(1.273(\ln(\text{hardness}) - 4.705))} \times CF^5$ | | | X | | | | | X |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | ALL OTHER USES |
|---|--------------------|--------------------|--------------------|----------------|----------------|--------------------|----------------|----------------|
| | AQUATIC LIFE | | | HUMAN HEALTH | | CHRON ² | A ⁴ | |
| | B1, B4 | | B2 | C ³ | A ⁴ | | | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | | | | | |
| 8.16.2 The one-hour average concentration of dissolved lead shall not exceed the value determined by the following equation ² : $Pb = e^{(1.273[\ln(\text{hardness})]-1.46)} \times CF^5$ | X | | | X | | | | |
| 8.17 Manganese (mg/l) (see §6.2.d) Not to exceed: | | | | | | 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 shall not exceed (ug/l): | 2.4 | | | 2.4 | | 0.15 | 0.14 | |
| 8.18.2 Methylmercury (water column) Not to exceed (ug/l): | | .012 | | | .012 | | | |
| 8.19 Nickel (ug/l) Not to exceed: | | | | | | 4600 | 510 | |
| 8.19.1 The four-day average concentration of dissolved nickel shall not exceed the value determined by the following equation ² : $Ni = e^{(0.846[\ln(\text{hardness})]+1.1643)} \times CF^5$ | | | X | | X | | | |

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 | |
| 8.19.2 The one-hour average concentration of dissolved nickel shall not exceed the value determined by the following equation ^a : $Ni = e^{(0.846(\ln(\text{hardness}))+3.361)} \times CF^5$ | X | | | | | | | | |
| 8.20 Nitrate (as Nitrate-N) (mg/l) | | | X | | | | | | |
| 8.21 Nitrite (as Nitrite-N) (mg/l) Not to exceed: | 1.0 | | | .060 | | | | 10 | |
| 8.22 Organics | | | | | | | | | |
| Chlordane ^b (ng/l) | 2400 | 4.3 | 2400 | 4.3 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 |
| DDT ^b (ng/l) | 1100 | 1.0 | 1100 | 1.0 | 0.024 | 0.024 | 0.024 | 0.024 | 0.024 |
| Aldrin ^b (ng/l) | 3.0 | | 3.0 | | 0.071 | 0.071 | 0.071 | 0.071 | 0.071 |
| Dieldrin ^b (ng/l) | 2500 | 1.9 | 2500 | 1.9 | 0.071 | 0.071 | 0.071 | 0.071 | 0.071 |
| Endrin (ng/l) | 180 | 2.3 | 180 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| Toxaphene ^b (ng/l) | 730 | 0.2 | 730 | 0.2 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| PCB ^b (ng/l) | | 14.0 | | 14.0 | 0.045 | 0.045 | 0.044 | 0.045 | 0.045 |
| Methoxychlor (ug/l) | | 0.03 | | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Dioxin (2,3,7,8- TCDD) ^b (pg/l) | | | | | 0.014 | 0.014 | 0.013 | 0.014 | 0.014 |

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 | |
| Acrylonitrile ^b (ug/l) | | | | | | 0.66 | | 0.059 | |
| Benzene ^b (ug/l) | | | | | | 71 | | 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 | | 0.72 | |
| Carbon tetrachloride ^b (ug/l) | | | | | | 4.4 | | 0.25 | |
| Chloroform ^b (ug/l) | | | | | | 470 | | 5.7 | |
| Halomethanes (ug/l) | | | | | | 15.7 | | 0.19 | |
| 1,2-dichloroethane ^b (ug/l) | | | | | | 99 | | 0.035 | |
| 1,1,1-trichloroethane ^b (mg/l) | | | | | | | | 12 | |
| 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 | |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | | |
|---|--------------------|--------------------|--------------------|--------------------|----------------|-------|----------------|--|----------------|
| | AQUATIC LIFE | | | | HUMAN HEALTH | | | | |
| | B1, B4 | | B2 | | C ³ | | A ⁴ | | ALL OTHER USES |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | CHRON ² | | | | | |
| Tetrachloroethylene ^b (ug/l) | | | | | | 8.85 | 0.8 | | |
| Toluene ^b (mg/l) | | | | | | 200 | 6.8 | | |
| Polynuclear Aromatic Hydrocarbons (PAH) ^b (ug/l) | | | | | | 0.031 | .0028 | | |
| Phthalate esters (ug/l) | | 3.0 | | 3.0 | | | | | |
| Vinyl chloride ^b (chloroethene)(ug/l) | | | | | | 525 | 2.0 | | |
| alpha-BHC (alpha- Hexachloro-cyclohexane) ^b (ug/l) | | | | | | 0.013 | .0039 | | |
| beta-BHC(beta- Hexachloro-cyclohexane) ^b (ug/l) | | | | | | 0.046 | 0.014 | | |
| gamma-BHC (gamma- Hexachloro-cyclohexane) ^b (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 ^b (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 | | |

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 |
| 8.22.1 The organic chemicals listed in §8.22 shall not exceed the specified water quality criteria. When the specified criteria are less than the practical laboratory quantification level, instream values will be calculated from discharge concentrations and flow rates, where applicable. | | | | | | | |
| 8.23 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 |
| 8.24 Phenolic Materials | | | | | | | |
| 8.24.1 Phenol (ug/l) Not to exceed: | | | | | 4,600,000 | 21,000 | |
| 8.24.2 2-Chlorophenol (ug/l) Not to exceed: | | | | | 400 | 120 | |
| 8.24.3 2,4-Dichlorophenol (ug/l) Not to exceed: | | | | | 790 | 93 | |
| 8.24.4 2,4-Dimethylphenol (ug/l) Not to exceed: | | | | | 2300 | 540 | |
| 8.24.5 2,4-Dinitrophenol (ug/l) Not to exceed: | | | | | 14,000 | 70 | |
| 8.24.6 Pentachlorophenol ^b (ug/l) | | | | | 8.2 | 0.28 | |

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 |
| 8.24.6.a The one-hour average concentration of pentachlorophenol shall not exceed the value determined by the following equation: $\exp(1.005(\text{pH})-4.869)$ | X | | | X | | | | |
| 8.24.6.b The 4-day average concentration of pentachlorophenol shall not exceed the value determined by the following equation: $\exp(1.005(\text{pH})-5.134)$. | | X | | | X | | | |
| 8.24.7 2,4,6-Trichlorophenol ^b (ug/l) Not to exceed: | | | | | | 6.5 | 2.1 | |
| 8.25 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 |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | ALL OTHER USES |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|----------------|
| | AQUATIC LIFE | | | HUMAN HEALTH | | C ³ | A ⁴ | |
| | B1, B4 | | B2 | ACUTE ¹ | CHRON ² | | | |
| | ACUTE ¹ | CHRON ² | CHRON ² | | | | | |
| 8.25.1 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 |
| 8.26 Selenium (ug/l) Not to exceed: | 20 | 5 | | 20 | 5 | | 10 | |
| 8.27 Silver (ug/l) Hardness Silver 0-50 1 51-100 4 101-200 12 >201 24 | | | | | | | | X |

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 | |
| 8.27.1 | | | | | | | |
| 0-50 | | | | | | | |
| 51-100 | | | | | | | |
| 101-200 | | | | | | | |
| 201-400 | | | | | | | |
| 401-500 | | X | | | | | |
| 501-600 | | | | | | | |
| 8.27.2 The one-hour average concentration of dissolved silver shall not exceed the value determined by the following equation: Ag=e ^{(1.72ln(hardness)-6.52)} x CF ⁵ | | | | | | X | |

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 | | | |
| <p>8.28 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.</p> | | | | | | | |
| <p>8.28.1 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.</p> | X | | | | | | |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | ALL OTHER USES | | | | | | | | | | | | |
|--|--------------------|--------------------|--------------------|----------------|----------------|--------------------|--------------------|----------------|----|---------|----|----|--|--|---|--|--|--|--|--|
| | AQUATIC LIFE | | | HUMAN HEALTH | | CHRON ² | CHRON ² | | | | | | | | | | | | | |
| | B1, B4 | | B2 | C ³ | A ⁴ | | | | | | | | | | | | | | | |
| | ACUTE ¹ | CHRON ² | ACUTE ¹ | | | | | | | | | | | | | | | | | |
| <p>8.28.2 For the Bluestone R (KNB), Bluestone Lake (KN-60) East River (KNE), New River (KN), Gauley R. (KG) and Greenbrier River (KNG): Temperature rise shall be limited to no more than 5°F above natural temperature, not to exceed 81°F at any time during the months of May through November and not to exceed 73°F at any time during December through April.</p> | | | | | | | | | | | | | | | | | | | | |
| <p>8.28.3 No heated effluents will be discharged in the vicinity of spawning areas. The maximum temperatures for cold waters are expressed in the following table:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Daily Mean °F</th> <th>Hourly Max °F</th> </tr> </thead> <tbody> <tr> <td>Oct-Apr</td> <td>50</td> <td>55</td> </tr> <tr> <td>Sep-May</td> <td>58</td> <td>62</td> </tr> <tr> <td>Jun-Aug</td> <td>66</td> <td>70</td> </tr> </tbody> </table> | | Daily Mean °F | Hourly Max °F | Oct-Apr | 50 | 55 | Sep-May | 58 | 62 | Jun-Aug | 66 | 70 | | | X | | | | | |
| | Daily Mean °F | Hourly Max °F | | | | | | | | | | | | | | | | | | |
| Oct-Apr | 50 | 55 | | | | | | | | | | | | | | | | | | |
| Sep-May | 58 | 62 | | | | | | | | | | | | | | | | | | |
| Jun-Aug | 66 | 70 | | | | | | | | | | | | | | | | | | |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | ALL OTHER USES | |
|---|---|--------------------|--------------------|--------------------|--------------------|----------------|----------------|----------------|-----|
| | AQUATIC LIFE | | | HUMAN HEALTH | | C ³ | A ⁴ | | |
| | B1, B4 | | B2 | ACUTE ¹ | CHRON ² | | | | |
| | ACUTE ¹ | CHRON ² | CHRON ² | | | | | | |
| 8.28.4 For Ohio River Main Stem (01) (see section 7.1.d, herein): | Dates | Period | Ave. | Inst. Max. | | | | | |
| | Jan 1-31 | | 45°F | 50°F | | | | | |
| | February | | 45 | 50 | | | | | |
| | March 1-15 | | 51 | 56 | | | | | |
| | March 16-31 | | 54 | 59 | | | | | |
| | April 1-15 | | 58 | 64 | | | | | |
| | April 16-30 | | 64 | 69 | | | | | |
| | May 1-15 | | 68 | 73 | | | | | |
| | May 16-31 | | 75 | 80 | | | | | |
| | June 1-15 | | 80 | 85 | | | | | |
| | June 16-30 | | 83 | 87 | | | | | |
| | July 1-31 | | 84 | 89 | | | | | |
| | August 1-31 | | 84 | 89 | | | | | |
| | Sept 1-15 | | 84 | 87 | | | | | |
| | Sept 16-30 | | 82 | 86 | | | | | |
| | Oct 1-15 | | 77 | 82 | | | | | |
| | Oct 16-31 | | 72 | 77 | | | | | |
| | Nov 1-30 | | 67 | 72 | | | | | |
| | Dec 1-31 | | 52 | 57 | | | | | |
| | | | | | X | | | | |
| 8.29 | Thallium (ug/l) | | | | | | | 6.3 | 1.7 |
| 8.30 | Threshold odor | | | | | | | | |
| | Not to exceed a threshold odor number of 8 at 104°F as a daily average. | | | | | X | | X | X |

APPENDIX E, TABLE 1

| PARAMETER | USE DESIGNATION | | | | | | | | | | |
|---|-----------------|----|--------------------|--------------------|--------------------|--------------------|--------------------|----------------|----------------|---|---|
| | AQUATIC LIFE | | | HUMAN HEALTH | | ALL OTHER USES | | | | | |
| | B1, B4 | B2 | CHRON ² | ACUTE ¹ | CHRON ² | | | C ³ | A ⁴ | | |
| | | | | | | ACUTE ¹ | CHRON ² | | | | |
| 8.31 Total Residual Chlorine (ug/l - measured by amperometric or equivalent method) Not to exceed: | 19 | | 11 | | | | | | | | |
| 8.31.1 No chlorinated discharge allowed | | | | X | | | | | | | |
| 8.32 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 |

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 |
| 8.32.1 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 | | |
| 8.33 Zinc (ug/l) The four-day average concentration of dissolved zinc shall not exceed the value determined by the following equation ² : $Zn = e^{(0.8473(\ln(\text{hardness}))+0.7614)} \times CF^5$ | X | | | | | X | |
| 8.33.1 The one-hour average concentration of dissolved zinc shall not exceed the value determined by the following equation ² : $Zn = e^{(0.8473(\ln(\text{hardness}))+0.8604)} \times CF^5$ | 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.
- 4 These criteria have been calculated to protect human health from toxic effects through drinking water and fish consumption, 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.
 - 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.
 - 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).

**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 |