Notice of Intent to Adopt Rules

1. General Information

a. Agency/Board Name *See attached list for references*
Department of Environmental Quality

b. Agency/Board Address	c. Agency/Board City	d. Agency/Board Zip Code
122 West 25th Street, Herschler Building - 4W	Cheyenne	82002

e. Name of Contact Person	f. Contact Telephone Number
Lindsay Patterson	307-777-7079

g. Contact Email Address
Lindsay.Patterson@wyo.gov

h. Date of Public Notice:	i. Comment Period Ends:
May 13, 2013	June 27, 2013

j. Program(s) *See attached list for references*
Water Quality Divisions

2. Rule Type and Information

a. Choose all that apply: ☐ New Rules* ☒ Amended Rules ☐ Repealed Rules

** "New" rules means the first set of regular rules to be promulgated by the Agency after the Legislature adopted a new statutory provision or significantly amended an existing statute.*

If "New," provide the Enrolled Act number and year enacted:

b. Provide the Chapter Number, and Short Title of Each Chapter being Created/Amended/Repealed *(if more than 5 chapters are being created/amended/repealed, please use the Additional Rule Information form and attach it to this certification)*

Chapter Number:	Short Title:
1	Wyoming Surface Water Quality Standards

c. ☒ The Statement of Reasons is attached to this certification.

d. ☒ N/A ☐ In consultation with the Attorney General's Office, the Agency's Attorney General representative concurs that strike and underscore is not required as the proposed amendments are pervasive (Section 5 of the Rules on Rules).

e. A copy of the proposed rules* may be obtained:

☒ By contacting the Agency at the physical and/or email address listed in Section 1 above.
☒ At the following URL: http://deq.state.wy.us/wqd/watershed/surfacestandards/index.asp

* If Item "d" above is not checked, the proposed rules shall be in strike and underscore format.

3. Public Comments and Hearing Information

a. A public hearing on the proposed rules has been scheduled. ■ Yes ☐ No

If "Yes:"	Date:	Time:	City:	Location:
	July 11, 2013	9:00 AM	Cheyenne	Herschler Building, Room B63, 122 West 25th Street

b. What is the manner in which interested person may present their views on the rulemaking action?

■ By submitting written comments to the Agency at the physical and/or email address listed in Section 1 above.

☐ At the following URL: _____

A public hearing will be held if requested by 25 persons, a government subdivision, or by an association having not less than 25 members. Requests for a public hearing may be submitted:

☐ To the Agency at the physical and/or email address listed in Section 1 above.

☐ At the following URL: _____

c. Any person may urge the Agency not to adopt the rules and request the Agency to state its reasons for overruling the consideration urged against adoption. Requests for an agency response must be made prior to, or within thirty (30) days, after adoption of the rule, addressed to the Agency and Contact Person listed in Section 1 above.

4. Federal Law Requirements

a. These rules are created/amended/repealed to comply with federal law or regulatory requirements. ■ Yes ☐ No

If "Yes:" Applicable Federal Law or Regulation Citation: Federal Water Pollution Control Act (Clean Water Act)

Indicate one (1):

■ The proposed rules meet, but do not exceed, minimum federal requirements.

☐ The proposed rules exceed minimum federal requirements.

Any person wishing to object to the accuracy of any information provided by the Agency under this item should submit their objections prior to final adoption to:

■ To the Agency at the physical and/or email address listed in Section 1 above.

☐ At the following URL: _____

5. State Statutory Requirements

a. Indicate one (1):

■ The proposed rule change *MEETS* minimum substantive statutory requirements.

☐ The proposed rule change *EXCEEDS* minimum substantive statutory requirements. Please provide a statement explaining the reason the rules exceeds the requirements:

6. Authorization

a. I certify that the foregoing information is correct.

Printed Name of Authorized Individual	Todd Parfitt
Title of Authorized Individual	Director
Date of Authorization	May 13, 2013

Distribution List:

- Attorney General and LSO: Hard copy of Notice of Intent; Statement of Reasons; Clean copy of the rules; and Strike-through and underline version of rules (if applicable).
- Secretary of State: Electronic version of Notice of Intent sent to rules@state.wy.us

BEFORE THE
DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

IN THE MATTER OF WATER	)
QUALITY RULES AND	)
REGULATIONS, CHAPTER 1,	)
WYOMING SURFACE WATER	)
QUALITY STANDARDS	)

STATEMENT OF PRINCIPAL REASONS

Background

The Environmental Quality council, pursuant to the authority vested in it by Wyoming Statutes 35-11-112(a)(i), is adopting revisions to Chapter 1 of the Wyoming Water Quality Rules and Regulations. These changes are being proposed pursuant to Wyoming Statutes 35-11-302(a)(i). Chapter 1 contains the water quality standards for surface waters in the state and includes water classifications and designated uses.

Section 303(c) of the Clean Water Act provides states, tribes and territories with the primary authority and responsibility to establish water quality standards for waters of the U.S. within their respective jurisdictions. In Wyoming, the surface water quality standards are administered by the WDEQ/WQD and are contained in Chapter 1 of the Wyoming Water Quality Rules and Regulations. Water quality standards must be reviewed at least once every three years, known as a triennial review, at which time existing standards can be modified and new standards adopted as necessary.

In addition to the standards, the *Implementation Policies for Antidegradation, Mixing Zones and Dilution Allowances, Turbidity and Use Attainability Analysis* are revised as necessary to accommodate changes in the rules. The policies are not in themselves rules or regulations, but have been developed to provide additional detail and guidance on the procedures used to interpret and implement Chapter 1. Following adoption by the state, the standards and *Implementation Policies* are submitted to the Environmental Protection Agency (EPA) for review to determine whether they meet the goals and requirements of the Clean Water Act.

Purpose and Intent of Proposed Revisions

The proposed revisions are intended to protect and maintain the designated uses of waters of the state and achieve the goals of the Environmental Quality and Clean Water Acts. These goals are accomplished by designating uses on waters, setting appropriate water quality criteria to protect designated uses, and implementing an antidegradation policy to maintain the quality of waters whose background quality is better than the criteria outlined in the standards.

Specifically, these rules are being revised to meet the triennial review requirements of the Clean Water Act, maintain Wyoming's primacy for delegated programs of the Clean Water Act, resolve Environmental Protection Agency (EPA) disapprovals from the last rule making, update numeric criteria for priority and non-priority pollutants, revise the duration of the *E. coli* criteria and correct a number of omissions, errors or inconsistencies that have been identified since the most recent revision.

Compliance with Federal Regulations (W.S. 16-3-103(a)(i)(F))

The rule revisions are proposed to comply with the federal regulations regarding the adoption of state water quality standards, specifically those contained in 40 CFR Part 131, which require the designation of water uses, the establishment of numeric and/or narrative water quality criteria sufficient to protect the water's designated uses and the implementation of antidegradation procedures. These rule changes are designed to meet the minimum requirements of federal laws and regulations.

Proposed Revisions to Chapter 1 of the Water Quality Rules and Regulations:

General

When referring to specific classes of Wyoming surface waters, "class" or "classes" of surface waters were changed to "Class" or "Classes" for consistency.

References to "Federal Clean Water Act", "federal Clean Water Act" and "Federal Act" in Sections 2(b)(xl), 2(b)(xliv), 2(b)(xlix), 2(b)(lvii), 2(b)(lx), 3, 25(f), 33(b)(vi), 34(a) and 34(b) were changed to "Clean Water Act" for consistency.

In instances where the first letters of "Use Attainability Analysis" were capitalized, they were changed to lower case, as in "use attainability analysis", to be consistent with the definition in Section 2(b)(liv) and use of the term in the Code of Federal Regulations (CFRs). These are located in Sections 4(e), 33(b), 33(c) and 34.

The first mention of "administrator" in Section 8(b) was changed to "Water Quality Administrator (administrator)" and all subsequent references to the "Water Quality Administrator" or "Water Quality administrator" in the document were changed to "administrator" for consistency with the Environmental Quality Act. These are located in Sections 33(b), 33(c), 34 and 36.

The first mention of "Department of Environmental Quality" in Section 2(b)(li) was followed by (department) and each subsequent reference to the "Department of Environmental Quality" was replaced with "department" for consistency with the Environmental Quality Act. These are located in Sections 4(e), 8(a), 21(f)(iv), 21(f)(v) and 21(f)(vi), Appendix A (b)(ii)(A), Appendix A (b)(ii)(B) and Appendix B footnote 14.

The first mention of "Environmental Quality Council" in Section 4(a) was followed by (council) and each subsequent reference to the "Environmental Quality Council" was replaced with "council" for consistency with the Environmental Quality Act. These are located in Sections 4(e), 33(a), 33(b), 33(c) and 34(b).

Section 1. Authority.

The acronym "W.S." was defined as "Wyoming Statutes" in the text to provide clarification for readers unfamiliar with the statutes cited. W.S. 35-11-101 through 1507 was updated to W.S. 35-11-101 through 35-11-1803 to be consistent with the definition of the Environmental Quality Act in W.S. 35-11-103(a)(xiii). A reference to the definition of the Environmental Quality Act, W.S. 35-11-103(a)(xiii), was added to provide clarification for readers unfamiliar with the Environmental Quality Act.

Section 2. Definitions.

In (a) and (b), the word "section" was removed and replaced with "W.S." to be consistent with other references to Wyoming Statutes within the document.

Definitions not used in the text were removed from Section 2(a) and Section 2(b). These include 2(a)(i), compensatory mitigation; 2(a)(vii), assimilative capacity; 2(b)(xiv), effluent dominated water; and 2(b)(xxxiii), nanograms per liter (ng/L). Numbering of the remaining definitions and references was adjusted accordingly.

In the definitions of "cold water game fish", "*E. coli*", "game fish" and "warm water game fish", references to "Genus" and "Species" were changed from upper case to lower case to be consistent with convention. References to multiple genera were corrected from "genus" to

"genera." The genus for walleye and sauger was changed from "*Stizostedion*" to "*Sander"* to reflect changes in nomenclature.

The portion of the definition of "effluent dependent water" that read "that would be ephemeral without the presence of permitted effluent" was changed to "with insufficient natural flow to support aquatic life" because water bodies other than those that are "ephemeral" may lack sufficient natural hydrology to be classified as effluent dependent through the use attainability analysis process. The important concept for effluent dependent waters is that without the effluent, there would be insignificant aquatic life.

The additional parentheses present between (b)(xx) and b(xxi) was removed.

The date cited in the definition of "Federal Act" was updated from "June 21, 2001" to "November 27, 2002," to reflect the most recent amendments to the Federal Water Pollution Control Act (Clean Water Act).

The abbreviation for micrograms per liter was revised from "mg/L" to "µg/L."

The term "measurable effects" was removed from the definitions of "natural", "natural biotic community" and "natural water quality" because the term is synonymous with "measurable influence" that is also included in each of the definitions.

Reference to "Chapter 18" within the definition of "storm water" was removed, as Chapter 18 is no longer in use.

Section 3. Water Uses.

Language in (a) was modified from "irrigation or stock watering" to "irrigation and/or livestock watering" to reflect situations where a water body is used for both irrigation and livestock uses.

"Cold water game fish" and "warm water game fish" was added to 3(b) for clarification purposes.

The sentence, "The recreation designated use includes primary contact recreation and secondary contact recreation subcategories" was added to 3(e) for clarification purposes.

Section 4. Surface Water Classes and Uses.

The wording of Class 2, Fisheries and Drinking Water, in 4(b) was changed from "known to support fish or drinking water supplies" to "known to support fish and/or drinking water supplies" to reflect the fact that some categories of Class 2 waters are designated for both fish and drinking water uses, rather than one or the other.

The sentence, "New information made available to the department may be cause to amend the classifications," found in 4(e) was removed because the sentence is redundant with information previously stated in the paragraph.

Section 5. Standards Enforcement.

The title of the implementation policies document was capitalized, italicized and revised to include "and Dilution Allowances." Other references to documents or databases that were either underlined or in quotations were italicized for consistency.

Section 7. Class 1 Waters.

Language used in (a) was changed from "paragraph (b)" to "Section 7(b) of these regulations" for clarification.

Section 9. Mixing Zones.

"Acute aquatic life values" and "chronic aquatic life values" were changed to "aquatic life acute values" and "aquatic life chronic values" to be consistent with Appendix B.

The reference to the "Mixing Zone and Dilution Allowances Policy" was revised to "*Mixing Zones and Dilution Allowances Implementation Policy*" to be consistent with the title in the implementation policies document.

Section 10. Testing Procedures.

The sentence "The analytical technique for total uranium (as U) shall be the fluorometric method as referenced in Methods for Determination of Radioactive Substances in Water and Fluvial Sediments, Techniques of Water – Resource Investigations of the U.S. Geological Survey, Book 5, chapter A-5, pp. 83 – 92" was removed because additional methods for determining total uranium have been updated since this reference was first included in Chapter 1 in 1979.

The paragraph "Numeric criteria included in the standards represent levels necessary to

protect designated uses and do not necessarily reflect detection limits that can be achieved using standard analytical techniques. Standard analytical techniques are considered during development of discharge permits and evaluation of water quality data. Sampling entities should consult with the department to determine reporting limit needs to ensure that adequate testing procedures and reporting limits are requested from the laboratory" was added for clarification purposes.

Section 11. Flow Conditions.

The sentence "Whatever method is selected for a specific situation, application of the standards will conform to the magnitude, frequency, and duration provisions as described in these regulations" was modified to "For all methods, application of the standards will conform to the magnitude, duration and frequency provisions described in these regulations" and moved below (a)(iii).

Section 18. Human Health.

The wording of this section was changed from "human health values for 'Fish and Drinking Water'" and "human health values 'Fish Only'" to "Human Health Consumption of Fish and Drinking Water values" and "Human Health Consumption of Fish values," respectively, to be consistent with the revised headings in Appendix B.

The second sentence in the second paragraph was revised from "In such cases, human health values may be determined by use of the site-specific procedures outlined in the references listed in Appendix E of these regulations" to "In such cases, human health values may be established using the site-specific procedures outlined in the references listed in Appendix E or other scientifically defensible methods." This revision was included to specify that site-specific criteria can be developed using methods other than those listed in Appendix E.

Section 20. Agricultural Water Supply.

The sentence "The procedures used to implement this section are described in the 'Agricultural Use Implementation Policy'" was removed, as the *Agricultural Use Implementation Policy* was removed from the Implementation Policies document. This policy was never intended to serve as the final agricultural use policy.

Section 21. Protection of Aquatic Life.

The order of the Classes of water in (a)(i) were changed from "Class 1, 2A, 2B, 2AB and 2C" to "Class 1, 2AB, 2A, 2B and 2C" to be consistent with the order in which the classes of waters are typically listed.

"2D" was added to (a)(ii) to reflect the addition of effluent dependent waters during the last triennial review. The narrative ammonia criteria associated with Class 2D and 3D waters is intended to protect effluent dependent aquatic life from future discharges that may be permitted on the same drainage.

The sentence in (b), "These standards apply to all Class 1, 2A, 2B, 2AB, 2C, 3A, 3B and 3C waters," was changed to "These standards apply to all Class 1, 2 and 3 waters," to include effluent dependent waters, which are Classes 2D and 3D. Numeric acute and chronic values outlined in Appendix B for protection of aquatic life apply to effluent dependent waters except in situations where site-specific criteria has been developed through the process outlined in Section 36.

Section (d) was modified from "In such cases, acute and chronic values may be determined by use of the site-specific procedures outlined in sections 33 or 36 or in the references listed in Appendix E of these regulations" to "In such cases, acute and chronic values may be determined using the site-specific procedures outlined in the references listed in Appendix E or other scientifically defensible methods" to identify that site-specific criteria may be developed using methods other than those listed in Appendix E.

The wording of (e)(i), (e)(ii), (f)(i) and (f)(ii) was modified to be consistent with the policies of the Wyoming Department of Agriculture. The wording of (e)(i) and 21(f)(i) was revised to "The pesticide used is a product which has been registered with the EPA and the Wyoming Department of Agriculture for use in the state, in accordance with W.S. 35-7-356." The term "such toxicants" was revised to "restricted use pesticides" in (e)(ii) and (f)(ii).

Section 22. Radioactive Material.

Section (a) was modified to specify the radiological criteria that apply to waters protected for drinking water uses, rather than incorporate the criteria by reference. Furthermore, the previously referenced 40 CFR 141.15 and 141.16, published July 1, 1998, was outdated, as these sections were removed from the Code of Federal Regulations (65 FR 76745, Dec. 7, 2000, 141.15 and 141.16 are removed).

The referenced limits are 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha particle activity (excluding radon and uranium), 30 μg/L for uranium and 4 millirems per year (mrem/year) for beta particle and photon radioactivity in waters designated for drinking water uses (i.e. Class 1, 2AB and 2A waters). These numeric limits are the maximum contaminant levels for radionuclides published in 40 CFR 141.66.

Section 23. Turbidity.

Section (a) was changed from "cold water fisheries and drinking water supplies" to "cold water fisheries **and/or** drinking water supplies" to indicate that the turbidity criteria apply to both cold water fisheries and drinking water uses, whether or not these uses occur together on the same water body.

Section 24. Dissolved Oxygen.

In both paragraphs, the term "wastes attributable to or influenced by" was changed to "pollution attributable to" to be more inclusive of the types of anthropogenic conditions that can result in impacts to dissolved oxygen concentrations. The term "pollution," defined in Section 2(a), includes "alteration of the physical, chemical or biological properties," rather than just "wastes," defined in Section 2(a) as "sewage, industrial waste and all other liquid, gaseous, solid, radioactive, or other substances which may pollute any waters of the state."

Section 25. Temperature.

The statement "effluent attributable to or influenced by the activities of man shall not be discharged in amounts which" in (a) was changed to "pollution attributable to the activities of man shall not" to be more inclusive of the types of anthropogenic conditions that can result in changes to temperature. Similar changes were made in (b) and (c) and the statement "pollution attributable to the activities of man" was added to (d). The term "pollution," defined in Section 2(a), includes "alteration of the physical, chemical or biological properties," rather than just "wastes," defined in Section 2(a) as "sewage, industrial waste and all other liquid, gaseous, solid, radioactive, or other substances which may pollute any waters of the state."

The abbreviation "F" was revised to "Fahrenheit" and the abbreviation "C" was revised to "Celsius" for clarification. The Celsius equivalent for 60 degrees Fahrenheit was included.

Section (e) was modified from "with the exception of the provisions of Sections 9 and 11 of these regulations" to "with the exception of the provisions of Sections 9 and 11 of these regulations and other natural conditions" to accommodate situations other than those related

to mixing zones (Section 9) and flow (Section 11) that result in temperatures that exceed the temperature criteria in Section 25. An example of such a condition is the upper portion of a pool or lake when ambient air temperatures are high.

Section 26. pH.

Statements in (a) and (b) that include "wastes attributable to or influenced by" were changed to "pollution attributable to" to be more inclusive of the types of anthropogenic conditions that can result in changes to pH. The term "pollution," defined in Section 2(a), includes "alteration of the physical, chemical or biological properties," rather than just "wastes," defined in Section 2(a) as "sewage, industrial waste and all other liquid, gaseous, solid, radioactive, or other substances which may pollute any waters of the state."

Section 27. *E. coli* Bacteria.

Section (a) was revised to: "In all waters designated for primary contact recreation, during the summer recreation season (May 1 through September 30), concentrations of *E. coli* bacteria shall not exceed a geometric mean of 126 organisms per 100 milliliters during any consecutive 60-day period. Primary contact waters are identified in the *Wyoming Surface Water Classification List*."

The following was removed from (a): "All waters in Table A of the Wyoming Surface Water Classification List are designated for primary contact recreation unless identified as a secondary contact water by a "(s)" notation. Waters not specifically listed in Table A of the *Wyoming Surface Water Classification List* shall be designated as secondary contact waters" based on a disapproval by EPA in a September 2008 action letter. EPA disapproved removing primary contact recreation use from a large number of waters because a use attainability analysis (UAA) had not been conducted. EPA's interpretation of Clean Water Act Section 101(a)(2) is that aquatic life and primary contact recreation are attainable on all waters, unless it can be demonstrated through a UAA that the uses are not attainable.

The sampling requirements for determining attainment will be included in *Wyoming's Methods for Determining Surface Water Quality Condition*, as the number of samples required for determining attainment is beyond the scope of the magnitude, duration and frequency information included within Chapter 1. The period over which the geometric mean can be assessed was changed from 30 days to 60 days to be more consistent with the derivation of the *E. coli* criteria. The *E. coli* criteria are derived from *EPA. 1986. Quality Criteria for Water 1986. EPA 440/5-86-001. Office of Water Regulations and Standards, Washington, D.C.*, which were based on sampling conducted over a "summer bathing season," a period of approximately eight weeks.

Section (b) was modified to read: "In all waters designated for secondary contact recreation, and in waters designated for primary contact recreation during the winter recreation season (October 1 through April 30), concentrations of *E. coli* bacteria shall not exceed a geometric mean of 630 organisms per 100 milliliters during any consecutive 60-day period. Waters will be designated for secondary contact recreation through the reclassification and use attainability analysis process outlined in Sections 33 and 34 of these regulations. Secondary contact waters are identified in the *Wyoming Surface Water Classification List*."

Sub-section (d), Variances, "Temporary and/or permanent variances to the *E. coli* values provided in (a) through (c) above may be granted in instances where the primary source of bacterial contamination is found to be natural in origin (wildlife), unavoidable (off-channel stock watering pits), or otherwise in the public interest," was removed based on disapproval by EPA in a September 2008 action letter. EPA's concern with 27(d) was that the variances could be established outside of the State's water quality standards rule making process and establishment of these criteria would be inconsistent with the Clean Water Act and the Code of Federal Regulations.

Section 33. Reclassifications and Site-Specific Criteria.

Section (b)(v) was revised to be consistent with the wording of factor (5) in 40 CFR (Code of Federal Regulations) 131.10(g) and now states: "Physical conditions related to the natural features of the water body, such as the lack of proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of an aquatic life use." The six factors outlined in (b)(i) through (b)(vi) are taken directly from 40 CFR 131.10(g)(1) through 131.10(g)(6).

Section 36. Effluent Dependent Criteria.

The formatting of this section was changed to follow Section 6, Format for Final Rules Submitted for Filing, Chapter 1, Wyoming Secretary of State Rules on Rules. Specifically, the periods following lower case "a" and "b" were removed and replaced with parentheses and the numbers 1-4 under "a" and 1-3 under "b" were replaced with lower case roman numerals in parentheses.

Appendix A. Wyoming Surface Water Classifications.

The upper case letters of "Main Stem" in (a)(iv) was changed to lower case to be consistent with the remainder of the Class 1 waters.

The wording of (a)(x) was changed from "The main stem of the Tongue River, the main stem of the North Fork of the Tongue River, and the main stem of the South Fork of the Tongue River above the U.S. Forest Service Boundary" to "The main stem of the North Fork of the Tongue River, the main stem of the South Fork of the Tongue River and the main stem of the Tongue River above the U.S. Forest Service boundary" to avoid confusion. Both the North Fork Tongue River and South Fork Tongue River are entirely within the U.S. Forest Service boundary, while the main stem of the Tongue River flows across the U.S. Forest Service boundary.

The formatting of this section was changed to follow Section 6, Format for Final Rules Submitted for Filing, Chapter 1, Wyoming Secretary of State Rules on Rules. Specifically, the numbers (1), (2) and (3) were changed to (A), (B) and (C) and the letters (A), (B), (C) and (C) were changed to (I), (II), (III) and (IV).

Section (b) was modified to specify that "recreational use designations" can also be found in the *Wyoming Surface Water Classification List*. The sentence, "The list is published by the department and periodically revised and updated according to the provisions of Sections 4, 33, 34 and 35," was added to make the language consistent with existing language in Section 4(e).

Appendix B. Water Quality Criteria.

The column headings for priority and non-priority pollutants were changed to distinguish aquatic life criteria from human health consumption criteria. Superscripts were moved from the pollutant name to the value to be more consistent with the *National Recommended Water Quality Criteria*. In instances where (HM) and (PAH) followed a particular pollutant in the priority pollutant list, they were removed. HM, referring to halomethane compounds, and PAH, referring to polycyclic aromatic hydrocarbons, were removed because the compounds that were labeled did not include all of the HM or PAH compounds in the list, nor were the abbreviations defined.

The water quality criteria for priority and non-priority pollutants were updated to conform to the most recent federal recommendations. The two sources for the criteria are the Clean Water Act, Section 304(a) recommended criteria (2009 revision), *National Recommended Water Quality Criteria 2009*[1], or the Safe Drinking Water Act (SDWA) *National Drinking Water Regulations, May 2009*[2] and last updated in 40 CFR 141 July 1, 2012[3]. When a lower

[1]National Recommended Water Quality Criteria: http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm
[2]National Drinking Water Regulations: http://water.epa.gov/drink/contaminants/upload/mcl-2.pdf
[3]40 CFR 141 July 1, 2012: http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=96352e3bfeab355ec940593ac9659d21&rgn=div5&view=text&node=40:24.0.1.1.3&idno=40

organoleptic (i.e. taste and odor) value is presented within the *National Recommended Water Quality Criteria*, the organoleptic value is used as the human health consumption of fish and drinking water value. In general, where Section 304(a) and SDWA publish different values for the same pollutant, the more stringent value is included in Appendix B to ensure protection of drinking water supplies and minimize treatment costs.

(a) Priority Pollutants. Priority pollutants are listed in the order they are found on the EPA priority pollutants list that can be accessed here: EPA's Priority Pollutants[4]. The pollutants contained in EPA's Priority Pollutants list that do not occur in the priority pollutants list in Appendix B are those for which no 304(a) criteria currently exist.

Specific Pollutants:

Acrolein. Aquatic life acute and chronic values of 3 µg/L were added. Human health consumption of fish and drinking water value was updated from 190 µg/L to 6 µg/L and human health consumption of fish value was revised from 290 µg/L to 9 µg/L based on the *National Recommended Water Quality Criteria*.

Chlorobenzene. The human health consumption of fish and drinking water value was updated from 100 µg/L to 20 µg/L to reflect the lower organoleptic effects value in the *National Recommended Water Quality Criteria*. The footnote was also changed from "9" to "7" to indicate that the new value is an organoleptic effects value.

1,1-Dichloroethylene. The human health consumption of fish and drinking water value was updated from 330 µg/L to 7 µg/L to reflect the lower maximum contaminant level (MCL) in the *National Primary Drinking Water Regulations*. The footnote "9" was added to indicate the source of the value.

Phenol. The human health consumption of fish value was revised from 1,700,000 µg/L to 860,000 µg/L to be consistent with the *National Recommended Water Quality Criteria*.

Endrin. The human health consumption of fish and drinking water value was revised from 0.59 µg/L to 0.059 µg/L to be consistent with the *National Recommended Water Quality Criteria*.

Polychlorinated Biphenyls (PCBs). The seven PCB compounds were consolidated to one entry to be consistent with the *National Recommended Water Quality Criteria*. The aquatic life chronic, human health consumption of fish and drinking water, and human health consumption of fish values apply to total PCBs, rather than individual PCB compounds. The

[4]EPA Priority Pollutants: http://water.epa.gov/scitech/methods/cwa/pollutants.cfm

footnote "13" was added to the aquatic life chronic value to indicate that the value applies to total PCBs.

Toxaphene. The human health consumption of fish and drinking water and human health consumption of fish values were updated from 0.0028 µg/L to 0.00028 µg/L to be consistent with the *National Recommended Water Quality Criteria*.

Cyanide. The human health values for cyanide were changed to 140 µg/L to be consistent with the *National Recommended Water Quality Criteria*. The previous human health consumption of fish and drinking water value, 200 µg/L, was the MCL from the National Primary Drinking Water Regulations. The previous human health consumption of fish value, 220,000 µg/L, was the value recommended in the *2002 National Recommended Water Quality Criteria*. The superscript "6" was added to the human health values to indicate that the values reflect total cyanide, rather than free cyanide. The aquatic life values for cyanide represent free cyanide. Footnote six was revised to "Criterion expressed as total cyanide, even though the method used to derive the criterion is based on free cyanide. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g. $Fe_4[Fe(CN)_6]_3$, this criterion may be overly conservative."

Nickel. The human health consumption of fish and drinking water value for nickel was revised from 100 µg/L to 610 µg/L to be consistent with the *National Recommended Water Quality Criteria*. The previous value, 100 µg/L, was a MCL from the *National Drinking Water Regulations*, but the criterion was remanded in 1995. The *National Drinking Water Regulations May 2009* and July 1, 2011, 40 CFR 141.62, Maximum Contaminant Levels for Inorganic Compounds, does not include nickel.

Silver. The aquatic life acute value for silver was changed from 3.4 µg/L to 1.7 µg/L to be consistent with the *National Recommended Water Quality Criteria.* The *National Recommended Water Quality Criteria* describe that the aquatic life acute values for aldrin, chlordane, alpha-endosulfan, beta-endosulfan, heptachlor, heptachlor epoxide and silver should be divided by two to be comparable with acute values derived using an averaging period. The aquatic life acute criteria for each of the other parameters (aldrin, chlordane, alpha-endosulfan, beta-endosulfan, heptachlor and heptachlor epoxide) reflected this recommendation, while the silver criterion did not. A footnote was added to each of the parameters, including silver, to outline when the criterion should be used. Footnote 16 reads: "Criterion has been divided by two to be comparable with other acute values derived using an averaging period. Value can be multiplied by two if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded instantaneous maximum."

Further, because silver is a hardness dependent metal, the 1.7 µg/L criterion is only applicable at a hardness of 100 mg/L (as $CaCO_3$); therefore, the recommendation to divide the criterion by two was also included in Appendix F, which details how to derive the criterion for hardness values other than 100 mg/L (as $CaCO_3$).

A human health consumption of fish and drinking water value, 100µg/L, based on the *National Secondary Drinking Water Standards* for silver was added to be consistent with other parameters in Appendix B. Footnote 11 was also added to the 100 µg/L value to identify it as a secondary drinking water criterion.

Thallium. The human health consumption of fish and drinking water value was changed from 2.4 µg/L to 0.24 µg/L and the human health consumption of fish value changed from 4.7 µg/L to 0.47 µg/L to be consistent with the *National Recommended Water Quality Criteria*.

(b) Non-Priority Pollutants. As with priority pollutants, the list of water quality criteria for non-priority pollutants was updated to conform to the most recent federal recommendations.

Specific Pollutants:

Bromate. Bromate was added to the list of non-priority pollutants with a human health consumption of fish and drinking water value of 10 µg/L. Bromate is a byproduct of drinking water disinfection and is included in the *National Primary Drinking Water Regulations* and listed in 40 CFR 141.64, Maximum Contaminant Levels for Disinfection Byproducts.

Chlorite. Chlorite was added to the list of non-priority pollutants with a human health consumption of fish and drinking water value of 1,000 µg/L. Chlorite is a byproduct of drinking water disinfection and is included in the *National Primary Drinking Water Regulations* and listed in 40 CFR 141.64, Maximum Contaminant Levels for Disinfection Byproducts.

Diazinon. Diazinon was added to the list of non-priority pollutants. Aquatic life acute and chronic values, both 0.17 µg/L, were inserted to be consistent with the *2009 National Recommended Water Quality Criteria*. Diazinon was added to the *National Recommended Water Quality Criteria* in 2006. The change is also noted at the following Federal Register Notice: http://www.gpo.gov/fdsys/pkg/FR-2006-02-23/pdf/E6-2557.pdf.

Haloacetic acids. Haloacetic acids were added to the list of non-priority pollutants with a human health consumption of fish and drinking water value of 60 µg/L. Haloacetic acids are

a byproduct of drinking water disinfection and are included in the *National Primary Drinking Water Regulations* and listed in 40 CFR 141.64, Maximum Contaminant Levels for Disinfection Byproducts.

Hexachlorocyclo-hexane-technical. Hexachlorocyclo-hexane-technical was added to the list of non-priority pollutants with human health consumption of fish and drinking water value of 0.0123 µg/L and a human health fish value of 0.0414µg/L. Hexachlorocyclo-hexane-technical has been included in the list of *National Recommended Water Quality Criteria* since 1999.

Nonylphenol. Nonylphenol was added to the list of non-priority pollutants. Aquatic life acute and chronic values, 28 µg/L and 6.6 µg/L, respectively, were inserted to be consistent with the *2009 National Recommended Water Quality Criteria*. Nonylphenol was added to the *National Recommended Water Quality Criteria* in 2006. The federal register notice can be found here: http://www.epa.gov/fedrgstr/EPA-WATER/2006/February/Day-23/w2558.htm.

Hydrogen Sulfide. The "Sulfide, S^{2-}, and HS^-" components of the name of the parameter were deleted. The parameter now reads, "Hydrogen Sulfide (H_2S; Undissociated)." The water quality criterion for hydrogen sulfide was included in the 1976 Quality Criteria for Water (The Red Book), which specified that 2 µg/L acute criterion as "undissociated H_2S."

Tributyltin (TBT). The aquatic life chronic value was revised from 0.063 µg/L to 0.072 µg/L to be consistent with the *National Recommended Water Quality Criteria*. The value changed from 0.063 µg/L in the 2002 *National Recommended Water Quality Criteria* to 0.072 µg/L in the 2006 *National Recommended Water Quality Criteria*. The change is also noted at the following Federal Register Notice: http://www.epa.gov/fedrgstr/EPA-WATER/2004/January/Day-05/w082.htm.

Trichlorfluoromethane. This pollutant was removed from the list of non-priority pollutants, as it was not found in either the *National Recommended Water Quality Criteria* or the *National Drinking Water Regulations*.

Total trihalomethanes (TTHM). Total trihalomethanes (TTHM) were added to the list of non-priority pollutants with a human health consumption of fish and drinking water value of 80 µg/L. Total trihalomethanes are a byproduct of drinking water disinfection and are included in the *National Primary Drinking Water Regulations* and listed in 40 CFR 141.64, Maximum Contaminant Levels for Disinfection Byproducts.

Footnotes

The quantity of aquatic organisms consumed per day noted in footnotes 2 and 8 was updated from 6.5 to 17.5 grams per day to reflect changes made to EPA's default consumption rate in 2000 when the Human Health Methodology was revised.

The previous footnote 6, "Chemicals which are not individually classified as carcinogens but which are contained within a class of chemicals with carcinogenicity as the basis for criteria derivation for that class of chemicals; an individual carcinogenicity assessment for these chemicals is pending," was deleted because no values had this footnote in the *National Recommended Water Quality Criteria*. The revised footnote 6 applies to the human health values for cyanide and reads: "Criterion expressed as total cyanide, even though the method used to derive the criterion is based on free cyanide. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g. $Fe_4[Fe(CN)_6]_3$), this criterion may be overly conservative."

Footnote 11, "The iron and manganese criteria are based on Safe Drinking Water Act secondary standards and are intended to prevent undesirable aesthetic effects. These values represent the dissolved amount of each substance rather than the total amount," was revised to refer to all values based on Safe Drinking Water Act secondary standards. Footnote 11 now reads: "Criterion is based on Safe Drinking Water Act secondary standards and is intended to prevent undesirable cosmetic or aesthetic effects. Value represents the dissolved amount of each substances rather than the total amount. Criterion only applies where drinking water is an actual use." The last sentence allows WDEQ/WQD to protect drinking water uses using secondary drinking water criteria where they occur, but avoids being overly protective on waters that do not support drinking water uses. Because designation of Wyoming's drinking water use is based not on an existing drinking water supply, but the presence of game fish, many waters of the state are protected for drinking water uses that are not in fact used as drinking water. Further, many geologic formations within the state contain high metal concentrations; this results in naturally high metal concentrations in surface waters where drinking water uses do not exist.

Footnote 13 was modified slightly to be consistent with the language used in the *National Recommended Water Quality Criteria*, "or homolog or Aroclor," was added after "all isomer."

A portion of footnote 14, "where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as $CaCO_3$ in the receiving water after mixing, the 87 µg/L chronic criterion will not apply, and aluminum will be regulated based on compliance with the 750 µg/L acute aluminum criterion," was modified to read: "the 87 µg/L chronic criterion will apply except where the receiving water after mixing has a pH greater than or equal to 7.0 and a hardness (as $CaCO_3$) greater than or equal to 50 mg/L. Where the

receiving stream after mixing has a pH greater than or equal to 7.0 and a hardness (as $CaCO_3$) greater than or equal to 50 mg/L, the 750 µg/L acute criterion will apply" to help clarify the conditions under which either the acute or chronic criterion apply.

Footnote 16 was added and reads: "Criterion has been divided by two to be comparable with other acute values derived using an averaging period. Value can be multiplied by two if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded instantaneous maximum."

(c) Site Specific Criteria.

The formatting of section (c) of Appendix B was modified to be consistent with the formatting used in the rest of the document. The formatting follows Chapter 1, Wyoming Secretary of State Rules on Rules, Section 6, Format for Final Rules Submitted for Filing.

Appendix D. Dissolved Oxygen Criteria.

The details provided by the asterisk (*) were moved above the footnotes and "2A" was changed to "2AB" to indicate that the dissolved oxygen criteria apply only to waters with fish as a designated use. The following reference was also added: "Criteria derived from: *U.S. EPA. 1986. Ambient Water Quality Criteria. EPA 440/5-86-003. National Technical Service. Springfield, VA*" to clarify the source of the dissolved oxygen criteria.

Appendix E. References to Develop Site-Specific Criteria and Bioassays.

The title of Appendix E was changed from "References for Use in Making Bioassays of Surface Waters" to "References to Develop Site-Specific Criteria and Bioassays" to identify that some of the references listed in Appendix E are used to develop site-specific criteria based on ambient conditions rather than toxicology tests. An additional reference was added: "U.S. Environmental Protection Agency: Aquatic Life Ambient Freshwater Quality Criteria-Copper. EPA-822-R-07-001. U.S. EPA, 2007" to identify the use of the Biotic Ligand Model to develop site-specific copper criteria.

Appendix F. Conversion Factors and Equation for Hardness Dependent Metals.

The title of Appendix F was changed from "Conversion Factors: Total Recoverable – Dissolved Values for Metals Equations for Parameters With Hardness Dependence" to "Conversion Factors to Change Total Recoverable Metal Values to Dissolved Values and

Equations For Hardness Dependent Metals" for clarification. The title is abbreviated in the Table of Contents as "Conversion Factors and Equations for Hardness Dependent Metals."

The formatting was modified to break the conversion factors and equations into subsections, similar to the formatting within the rest of the document. Additional details were added to both subsections.

The subsection on conversion factors was modified based on footnotes in the *National Recommended Water Quality Criteria* and now reads: "Aquatic life values for the following metals are based on the dissolved amount of each substance. The recommended aquatic life value was calculated by using previous 304(a) aquatic life values expressed in terms of total recoverable metal and multiplying it by a conversion factor (CF). The conversion factors provided below are necessary to convert a metal value expressed as the total recoverable fraction in the water column to the dissolved fraction in the water column."

Some detail and a footnote were added to the subsection describing the conversion factors for cadmium and lead. The subsection now reads: "The conversion factors (CF) for cadmium and lead are not constant but vary with hardness (mg/L of $CaCO_3$). Conversion factors can be calculated using the following equations, although should not exceed one[(a)]:" The footnote is defined on the following page and reads: "Based on Guidance on the Calculation of Hardness-Dependent Metals Criteria presented in: *U.S. EPA. 2002. National Recommended Water Quality Criteria. EPA-822-R-02-047*."

Additional detail was also added to the equations for parameters with hardness dependence. The introduction now reads: "Equations for Hardness Dependent Metals. Aquatic life values at various hardness[(b)] concentrations can be calculated using the formulas below. The formulas include the conversion factors to derive dissolved metal values:"

A 0.5 was added to the formula to derive the acute aquatic life value for silver, $e^{(1.72[\ln(\text{hardness})] - 6.52)}(0.85)(0.5)$, to be consistent with the other criteria derived from the 1980 guidelines, aldrin, chlordane, alpha-endosulfan, beta-endosulfan, heptachlor and heptachlor epoxide. The aquatic life acute values for each of these parameters was divided by two because the original criteria derived from the 1980 guidelines were not to be exceeded instantaneous maximum values, rather than values derived using an averaging period. Footnote "c" was added to the silver formula to clarify when and when not to multiply by 0.5 and reads: "Criterion multiplied by 0.5 to be comparable with other acute values derived using an averaging period. Value does not need to be multiplied by 0.5 if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded maximum."

Appendix G. Equations for pH Dependent Parameters.

The title of Appendix G was modified slightly to read "Equations For pH Dependent Parameters." The words "Acute" and "Chronic" were added to the table and the order of the acute and chronic formulas was reversed to be consistent with other aquatic life values detailed in the Appendices.

Proposed Revisions to the Implementation Policies

The *Implementation Policies for Antidegradation, Mixing Zones and Dilution Allowances, Turbidity and Use Attainability Analysis* were also revised. The entire document was formatted to follow Section 6, Format for Final Rules Submitted for Filing, Chapter 1, Wyoming Secretary of State Rules on Rules. The *Antidegradation Implementation Policy* was modified to reflect changes to requirements for storm water permits and to clarify aspects of the 401 certification process. The *Turbidity Implementation Policy* was revised to specify that the notice of intent to authorize a temporary increase in turbidity will be published a minimum of fourteen days prior to authorizing the turbidity increase and that in certain circumstances (unforeseen acts of nature), the administrator may authorize a temporary increase without publishing a notice of intent. The *Use Attainability Analysis Implementation Policy* was modified to specify a 45-day public comment period for any classification changes made through the use attainability analysis process and to reflect changes to Chapter 1, Section 27, *E. coli* Bacteria. The Recreational Use Designations Use Attainability Analysis (UAA) Worksheet was also revised. As mentioned previously, under the revision of Section 20, the *Agricultural Use Implementation Policy* was removed.

Effect of the Rule Revision

The council anticipates that the result of these proposed revisions will provide a level of surface water protection sufficient to address public health and environmental concerns. The revised standards update the Wyoming surface water protection program to meet the most current federal requirements provided in 40 CFR Part 131.

Public Participation

WDEQ/WQD initiated the revision of Chapter 1 on September 12, 2011 with the release of a public notice and *Proposed Rule Revision Outreach Document*. The public was invited to submit written comments between September 12 and October 21, 2011 or submit oral comments during a public meeting held in Casper, Wyoming on October 13, 2011. Considering the initial public comment, and in anticipation of a fourth quarter Water and Waste Advisory Board (board)

meeting, a second public notice was published on August 24, 2012 and drafts of Chapter 1, Implementation Policies, Statement of Principal Reasons and Responses to Comments (October 21, 2011) were released. Comments were received until September 24, 2012. A Response to Comments (September 24, 2012) was prepared and changes made to the drafts of Chapter 1, Implementation Policies and Statement of Principal Reasons. These documents were included in a rule package released through a November 13, 2012 public notice and considered by the board at a public meeting in Casper, Wyoming on December 14, 2012.

During the December 14, 2012 meeting, the board extended the written public comment period until January 15, 2013. No additional comments were received during the extended public comment period. Considering comments from the board and the public, a revised rule package consisting of Chapter 1, Implementation Policies, Statement of Principal Reasons and Responses to Comments (January 15, 2013) was prepared. These documents were included in a rule package released through a February 19, 2013 public notice and considered by the board at a public meeting held in Casper, Wyoming on March 21, 2013. Consideration of factors listed in W.S. 35-11-302(a)(vi) is reflected in specific comments and responses to comments. During that meeting the board recommended advancing the rules to the Environmental Quality Council. Comments received as a result of each portion of the public outreach process were considered in drafting the proposed revisions.

Conclusion

The council has determined that the adoption of these rules is necessary to update the Wyoming surface water standards to comply with federal regulations and carry out the responsibilities of the Department of Environmental Quality to protect surface water quality in the state.

EXECUTED THIS _____ DAY OF _____, 2013.

FOR THE ENVIRONMENTAL QUALITY COUNCIL

_____

Chairperson

LP/rm/13-0429

WATER QUALITY RULES AND REGULATIONS

Chapter 1

WYOMING SURFACE WATER QUALITY STANDARDS

Proposed Rules
May 13, 2013

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Chapter 1

WYOMING SURFACE WATER QUALITY STANDARDS

Section 1. **Authority**. These regulations are promulgated pursuant to Wyoming Statutes (W. S.) 35-11-101 through 35-11-1803~~1507~~, specifically 302 (a) (i) and 302 (b) (i) and (ii), and no person shall cause, threaten or allow violation of a surface water quality standard contained herein. Nothing in this definition is intended to expand the scope of the Environmental Quality Act, defined at W.S. 35-11-103(a)(xiii) , ~~,~~ and~~s~~ limited in W. S. 35-11-1104, nor do these regulations supersede or abrogate the authority of the state to appropriate quantities of water for beneficial uses.

Section 2. **Definitions**.

(a) The definitions in W.S. ~~section~~ 35-11-103(a) and (c) of the Wyoming Environmental Quality Act apply to these rules. For example:

~~(i) "Compensatory mitigation" means replacement, substitution or enhancement of ecological functions and wetland values to offset anticipated losses of those values caused by filling, draining or otherwise damaging a wetland;~~

(i~~i~~) "Credible data" means scientifically valid chemical, physical and biological monitoring data collected under an accepted sampling and analysis plan, including quality control, quality assurance procedures and available historical data;

(ii~~i~~) "Discharge" means any addition of any pollution or wastes to any waters of the state;

(iii~~v~~) "Ecological function" means the ability of an area to support vegetation and fish and wildlife populations, recharge aquifers, stabilize base flows, attenuate flooding, trap sediment and remove or transform nutrients and other pollutants;

(iv) "Man-made wetlands" means those wetlands that are created intentionally or occur incidental to human activities, and includes any enhancement made to an existing wetland which increases its function or value;

(v~~i~~) "Mitigation" means all actions to avoid, minimize, restore and compensate for ecological functions or wetland values lost;

(vi~~i~~) "Natural wetlands" means those wetlands that occur independently of human manipulation of the landscape;

(viiı) "Nonpoint source" means any source of pollution other than a point source. For purposes of W.S. 16-1-201 through 16-1-207 only, nonpoint source includes leaking underground storage tanks as defined by W.S. 35-11-1415(a)(ix) and aboveground storage tanks as defined by W.S. 35-11-1415(a)(xi);

(viiix) "Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged;

(ix) "Pollution" means contamination or other alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity or odor of the waters or any discharge of any acid or toxic material, chemical or chemical compound, whether it be liquid, gaseous, solid, radioactive or other substance, including wastes, into any waters of the state which creates a nuisance or renders any waters harmful, detrimental or injurious to public health, safety or welfare, to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial uses, or to livestock, wildlife or aquatic life, or which degrades the water for its intended use, or adversely affects the environment. This term does not mean water, gas or other material which is injected into a well to facilitate production of oil, or gas or water, derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the state, and if the state determines that such injection or disposal well will not result in the degradation of ground or surface or water resources;

(xı) "Wastes" means sewage, industrial waste and all other liquid, gaseous, solid, radioactive, or other substances which may pollute any waters of the state;

(xıi) "Waters of the state" means all surface and groundwater, including waters associated with wetlands, within Wyoming;

(xiiı) "Wetlands" means those areas in Wyoming having all three (3) essential characteristics:

(A) Hydrophytic vegetation;

(B) Hydric soils; and

(C) Wetland hydrology.

(xiiiv) "Wetland value" means those socially significant attributes of wetlands such as uniqueness, heritage, recreation, aesthetics and a variety of economic values.

(b) The following definitions supplement those definitions contained in W.S. ~~section~~ 35-11-103 of the Wyoming Environmental Quality Act.

(i) "Acute value" means the one hour average concentration. The EPA has determined that this value, if not exceeded more than once every three years on average, should not result in unacceptable effects on freshwater aquatic organisms and their uses. Acute values represent a response to a stimulus severe enough to induce a rapid reaction, typically in 96 hours or less. Appendix B contains acute values for certain pollutants.

(ii) "Adjacent wetlands" means wetlands that are connected by a defined channel to a surface tributary system, ~~or~~ are within the 100 year flood plain of a river or stream, or occupy the fringe of any still water body which is connected by a defined channel to a surface tributary system.

(iii) "Ambient-based criteria" means water quality criteria that are calculated based upon actual ambient or background water body conditions.

(iv) "Aquatic life" means fish, invertebrates, amphibians~~,~~ and other flora and fauna which inhabit waters of the state at some stage of their life cycles. Aquatic life does not include insect pests or exotic species which may be considered undesirable by the Wyoming Game and Fish or U.S. Fish and Wildlife Service within their appropriate jurisdictions and identified human pathogens.

~~(v) "Assimilative capacity" means the increment of water quality in terms of concentration, during the appropriate critical condition(s), that is better than the applicable numeric criterion. The concept of assimilative capacity has no meaning in relation to pollutants that are limited only by narrative criteria.~~

(v~~i~~) "Best management practices (BMPs)" means a practice or combination of practices that after problem assessment, examination of alternative practices, and in some cases ~~-~~public participation, are determined to be the most technologically and economically feasible means of managing, preventing or reducing nonpoint source pollution.

(vi~~i~~) "Chronic value" means the four day average concentration. The EPA has determined that this value, if not exceeded more than once every three years on average, should not result in unacceptable effects on freshwater aquatic organisms and their uses. Chronic values represent a response to a continuous, long-term stimulus. Appendix B contains chronic values for certain pollutants.

(vii~~i~~) "Cold water game fish~~-~~" means burbot (g~~G~~enus *Lota*), grayling (g~~G~~enus *Thymallus*), trout, salmon and char (genera~~Genus~~ *Salmo*, *Oncorhynchus* and *Salvelinus*)~~,~~ and whitefish (g~~G~~enus *Prosopium*).

(viiix) "Construction-related discharge" means discharges of sediment or turbidity related to construction activities in or along waters of the state. Generally, these discharges include, but are not limited to, construction site dewatering, temporary diversions, runoff from construction sites, excavation or equipment operation beneath the water's surface, the discharge of dredged or fill material and placement of structural members such as bridge abutments, culverts, pipelines, etc. into or across any water of the state.

(ix) "Designated uses" means those uses specified in water quality standards for each water body or segment whether or not they are being attained.

(xi) "Dissolved oxygen" means a measure of the amount of free oxygen in water.

(xii) "*E. coli*" means any of the bacterium in the Ffamily Enterobacteriaceae named *Escherichia* (gGenus) *coli* (sSpecies).

(xiii) "Effluent dependent water" means a water body with insufficient natural flow to support aquatic lifethat would be ephemeral without the presence of permitted effluent, but which has perennial or intermittent flows for all or a portion of its length as the result of the discharge of wastewater.

~~(xiv) "Effluent dominated water" means a water body that would be intermittent or perennial without the presence of wastewater effluent, but for which the flow or volume of water for the majority of the year is primarily attributable to the discharge of wastewater.~~

(xiiiv) "Effluent limitations" means any restriction established by the state or by the administrator of the Environmental Protection Agency on quantities, rates and concentrations of chemical, physical, biological and other constituents which are discharged from point sources into waters of the state, including schedules of compliance.

(xivi) "Environmental Protection Agency" means the federal Environmental Protection Agency (EPA).

(xvii) "Ephemeral stream" means a stream which flows only in direct response to a single precipitation event in the immediate watershed or in response to a single snow melt event, and which has a channel bottom that is always above the prevailing water table.

(xviii) "Eutrophic" means the condition whereby waters or environments saturated with water become nutrient enriched (especially with phosphorus or nitrogen). This action leads to those waters becoming oxygen depleted or anaerobic.

(xvii~~x~~) "Existing quality" as used in these regulations refers only to Class 1 waters and means the established chemical, physical~~,~~ and biological water quality as of the date the specific water segment was designated Class 1 with recognition ~~of the fact~~ that water quality will ~~tend to~~ fluctuate on a seasonal and year-to-year basis depending upon natural variations~~fluctuations~~ in water quantity.

(xviii~~x~~)"Existing use" means those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.

~~(~~)

(xix~~i~~) "Federal Act" means the Federal Water Pollution Control Act (Clean Water Act) and amendments as of November 27, 2002~~June 21, 2001~~.

(xx~~ii~~) "Full body contact water recreation" means any recreational or other surface water use in which there is contact with the water sufficient to pose a significant health hazard (i.e.~~,~~ water skiing, swimming).

(xxi~~ii~~) "Game fish" means bass (~~Genus~~genera *Micropterus* and *Ambloplites*), catfish and bullheads (genera~~Genus~~ *Ameiurus*, *Ictalurus*, *Noturus* and *Pylodictis*), crappie (~~G~~genus *Pomoxis*), freshwater drum (~~G~~genus *Aplodinotus*), grayling (g~~G~~enus *Thymallus*), ~~-~~burbot (g~~G~~enus *Lota*), ~~-~~pike (g~~G~~enus *Esox*), yellow perch (g~~G~~enus *Perca*), sturgeon (~~G~~genus *Scaphirhynchus*), sunfish (g~~G~~enus *Lepomis*), ~~-~~trout, salmon and char (~~Genus~~genera *Salmo*, *Oncorhynchus*~~,~~ and ~~-~~*Salvelinus*), walleye and sauger (~~G~~genus *Sander*~~Stizostedion~~)~~,~~ ~~-~~and whitefish (g~~G~~enus *Prosopium*).

(xxi~~v~~) "Historic data" means scientifically valid data that are~~is~~ more than five years old, or qualitative information that adds some factual information on the historic conditions of a water body. ~~-~~This historic qualitative information may include photographs, journals and factual testimony of persons who have lived near or relied upon the water body, and old records on water use and water conditions.

(xxiii~~v~~)"Hydric soil" means a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

(xxiv~~i~~) "Hydrophytic vegetation" means a community of plants where, under normal circumstances, more than 50 percent of the composition of the dominant species from all strata are obligate wetland (OBL), facultative wetland (FACW), and/or facultative (FAC) species; or a frequency analysis of all species within the community yields a prevalence index value of less than 3.0 (where OBL = 1.0, FACW = 2.0, FAC = 3.0, FACU (facultative upland) = 4.0, and UPL (upland species) = 5.0).

(xxvii) "Intermittent stream" means a stream or part of a stream where the channel bottom is above the local water table for some part of the year, but is not a perennial stream.

(xxviii)"Isolated water" means any surface water of the state which is not connected by a defined channel to a surface tributary system, and is not within the 100 year flood plain of any river or stream and does not occupy the fringe of any still water body which is connected by a defined channel to a surface tributary system.

(xxvix) "Main stem" means the major channel of a river or stream as shown on the latest and most detailed records of the Wyoming State Engineer.

(xxviiix) "Micrograms per liter (mμg/L)" means micrograms of solute per liter of solution equivalent to parts per billion (ppb) in liquids, assuming unit density.

(xxix) "Milligrams per liter (mg/L)" means milligrams of solute per liter of solution equivalent to parts per million (ppm) in liquids, assuming unit density.

(xxxii) "Mixing zone" means limited area or volume of a surface water body within which an effluent becomes thoroughly mixed with the water body.

(xxxiii)"Nanograms per liter (ng/L)" means nanograms of solute per liter of solution equivalent to parts per trillion in liquids, assuming unit density.

(xxxiv)"Natural" means that condition which would exist without the measurable effects or measurable influence of man's activities.

(xxxiiv) "Natural biotic community" means the population structures which were historically or normally present under a given set of chemical and physical conditions or which would potentially exist without the measurable effects or measurable influence of man's activities had not the habitat not been altered.

(xxxiivi) "Natural water quality" means that quality of water which would exist without the measurable effects or measurable influence of man's activities.

(xxxivii) "Nephelometric turbidity unit (NTU)" means the standard unit used to measure the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through water, as measured by a nephelometer.

(xxxviii) "Net environmental benefit (NEB)" means a risk management approach to derive site-specific criteria for effluent dependent water bodies that weighs the potential for loss of a permitted effluent discharge against the benefits of augmented flow. A net environmental benefit is demonstrated where there is a credible threat to remove the permitted discharge, and the discharge has been shown to create an

environmental benefit, ~~and~~ removal of the discharge would cause more environmental harm than leaving it in place and the discharge will not pose a health risk to humans, livestock or wildlife.

_____(xx~~x~~v~~i~~x) "Nongame fish" means all fish species except those listed in Section 2~~-~~(b)(xxi) above.

_____(xxxvii~~l~~) "Non-priority pollutant" means any substance or combination of substances other than those listed by EPA under Section 307(a) of the ~~Federal~~ Clean Water Act.

_____(xxxv~~l~~iii) "Perennial stream" means a stream or part of a stream that flows continually during all of the calendar year as the result of a groundwater discharge or surface runoff.

_____(xxx~~l~~iix) "pH" means a term used to express the intensity of acidic or alkaline conditions. pH is a measure of the hydrogen ion activity in a water sample. It is mathematically related to hydrogen ion activity according to the expression: pH = -log 10 (H^+), where (H^+) is the hydrogen ion activity. A pH value of 7 at 25 degrees Celsius is neutral, with pHs ~~of~~ less than 7 progressively more acidic and pHs ~~of~~ greater than 7 progressively more basic (alkaline).

_____(xl~~iii~~) "PicoCuries per liter (pCi/L)" means a term describing the radiation level of water or solutions. A picocurie is equal to 10^{-12} curie; a curie is defined as 3.7 x 10^{10} disintegrations per second.

_____(xli~~v~~) "Priority pollutants" means those substances or combination of substances that are listed by EPA under Section 307(a) of the ~~Federal~~ Clean Water Act.

(xlii~~v~~) "Primary contact recreation" means any recreational or other surface water use that could be expected to result in ingestion of the water or immersion (full body contact).

_____(xliii~~vi~~) "Salinity" means the total mineral dissolved constituents, after carbonates have been converted to oxides, organics have been oxidized and bromine and iodine have been replaced by chloride. This term is often used interchangeably with the term total dissolved solids.

_____(xliv~~ii~~) "Seasonal fishery" means a water body, or portion thereof, which supports game and/or nongame fish or spawning for only a portion of the year, but does not have the natural physical conditions necessary to support those uses on a year round basis. Seasonal fisheries may include intermittent and ephemeral streams, shallow reservoirs, lakes~~,~~ or ponds, which either naturally recruit fish from adjacent perennial water bodies or are managed as put-and-take fisheries.

(xlv~~iii~~) “Secondary contact recreation” means any recreational or other surface water use in which contact with water is either incidental or accidental and ~~-~~that would not be expected to result in ingestion of the water or immersion.

(xlvi~~x~~) “Storm water”, for the purposes of Section 7 of these regulations~~is chapter~~, means surface runoff from construction sites or industrial activities which are regulated under Section 402~~-~~(p) of the ~~federal~~ Clean Water Act and Chapter 2 ~~or Chapter 18~~ of the Wyoming Water Quality Rules and Regulations. Excluded from this definition are those storm water discharges associated with industrial activities which are subject to an existing federal effluent limitation guideline addressing storm water and where the constituents listed in the federal effluent limitations have a reasonable potential to affect the receiving waters.

(xlvii) “Surface waters of the state” means all perennial, intermittent and ephemeral defined drainages, lakes, reservoirs~~,~~ and wetlands which are not man-made retention ponds used for the treatment of municipal, agricultural or industrial waste; and all other bodies of surface water, either public or private which are wholly or partially within the boundaries of the state. Nothing in this definition is intended to expand the scope of the Environmental Quality Act, as limited in W.S. 35-11-1104.

(xlviii) “Toxic materials” means those materials or combinations of materials including disease causing agents, which, after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the director of the Wyoming Department of Environmental Quality (department), cause death, disease, behavioral abnormalities, cancer, genetic malfunctions, ~~-~~physiological malfunctions (including malfunctions in reproduction) or physical deformations in such organisms or their offspring.

(xlix~~i~~) “Tributary” means those streams or stream segments which flow into or contribute water to another stream, stream segment, downstream reach of the same stream~~,~~ or other water body.

(l~~iii~~) “Undesirable aquatic life” means organisms generally associated with degraded or eutrophic conditions. These may include the following organisms where they have replaced members of the natural biotic community: exotic fish~~,~~ or species which are designated “undesirable” by the Wyoming Game and Fish Department or the U.S. Fish and Wildlife Service within their appropriate jurisdictions.

(li~~v~~) “Use attainability analysis (UAA)” means a structured scientific assessment of the factors affecting the attainment of the use. The factors may include physical, chemical, biological~~,~~ and economic factors as described in Section 33 of these regulations.

_____(liiv) "Warm water game fish" means bass (generaGenus *Micropterus* and *Ambloplites*), catfish and bullheads (generaGenus *Ameiurus, Ictalurus, Noturus* and *Pylodictus*), crappie (Ggenus *Pomoxis*), yellow perch (gGenus *Perca*), sunfish (gGenus *Lepomis*), walleye and sauger (gGenus *StizostedionSander*), pike (gGenus *Esox*), sturgeon (Ggenus *Scaphirhynchus*) and freshwater drum (gGenus *Aplodinotus*).

_____(lviii) "Wetland hydrology" means the presence of water on or near the land surface at a frequency and duration to cause the formation of hydric soils and support a prevalence of vegetation typically adapted to saturated and/or inundated conditions.

_____(livii) "Wyoming Continuing Planning Process (CPP)" means a planning process provided for under Section 303(e)(1) of the Clean WaterFederal Act developed through public participation and consisting of policies, procedures and programs that result in the definition and implementation of actions that lead to the prevention, reduction and abatement of water pollution and for the protection and enhancement of water uses in the State of Wyoming. The CPP is continuous in time and is designed to respond to changes in conditions and attitudes. The CPP is adopted by resolution of the Water and Waste Advisory Board and is certified by the Governor.

_____(lviii) "Wyoming surface waters" shall have the same meaning as "surface waters of the state" defined in Section 2(b)(xlvii).

_____(lvix) "Zone of passage" means a continuous water route which joins segments of a surface water body above and below a mixing zone.

_____(lviix) "404 permit" means a permit issued pursuant to Section 404 of the Clean WaterFederal Act to regulate the discharge of dredged or fill materials into surface waters of the United States.

Section 3. **Water Uses**. The objectives of the Wyoming water pollution control program are described in W.S. 35-11-102. These objectives are designed to serve the interests of the state and achieve the related goals, objectives, and policies of the Clean WaterFederal Act. The objectives of the Wyoming program are to provide, wherever attainable, the highest possible water quality commensurate with the following uses:

(a) Agriculture. For purposes of water pollution control, agricultural uses include irrigation and/or livestock watering.

(b) Fisheries. The fisheries use includes water quality, habitat conditions, spawning and nursery areas, and food sources necessary to sustain populations of cold water game fish, and warm water game fish and nongame fish. This use does not include the protection of exotic species which are designated ""undesirable" by the Wyoming

Game and Fish Department or the U.S. Fish and Wildlife Service within their appropriate jurisdictions.

(c) Industry. Industrial use protection involves maintaining a level of water quality useful for industrial purposes.

(d) Drinking water. The drinking water use involves maintaining a level of water quality that is suitable for potable water or intended to be suitable after receiving conventional drinking water treatment.

(e) Recreation. Recreational use protection involves maintaining a level of water quality which is safe for human contact. It does not guarantee the availability of water for any recreational purpose. The recreation designated use includes primary contact recreation and secondary contact recreation subcategories.

(f) Scenic value. Scenic value use involves the aesthetics of the aquatic systems themselves (odor, color, taste, settleable solids, floating solids, suspended solids, and solid waste) and is not necessarily related to general landscape appearance.

(g) Aquatic life other than fish. This use includes water quality and habitat necessary to sustain populations of organisms other than fish in proportions which make up diverse aquatic communities common to the waters of the state. This use does not include the protection of insect pests or exotic species which may be considered "undesirable" by the Wyoming Game and Fish Department or the U.S. Fish and Wildlife Service within their appropriate jurisdictions or and human pathogens.

(h) Wildlife. The wildlife use includes protection of water quality to a level which is safe for contact and consumption by avian and terrestrial wildlife species.

(i) Fish consumption. The fish consumption use involves maintaining a level of water quality that will prevent any unpalatable flavor and/or accumulation of harmful substances in fish tissue.

Section 4. **Surface Water Classes and Uses**. The following water classes are a hierarchical categorization of waters according to existing and designated uses. Except for Class 1 waters, each classification is protected for its specified uses plus all the uses contained in each lower classification. Class 1 designations are based on value determinations rather than use support and are protected for all uses in existence at the time or after designation. There are four major classes of surface water in Wyoming with various subcategories within each class (see "*Wyoming Surface Water Classification List*" for current classificationslisting).

(a) Class 1, Outstanding Waters. Class 1 waters are those surface waters in which no further water quality degradation by point source discharges other than from dams will be allowed. Nonpoint sources of pollution shall be controlled through

implementation of appropriate best management practices. Pursuant to Section 7 of these regulations, the water quality and physical and biological integrity which existed on the water at the time of designation will be maintained and protected. In designating Class 1 waters, the ~~-~~Environmental Quality Council (council) shall consider water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, ~~-~~geological, cultural, archaeological, fish and wildlife, the ~~-~~presence of significant quantities of developable water and other values of present and future benefit to the people.

(b) Class 2, Fisheries and Drinking Water. Class 2 waters are waters, other than those designated as Class 1, that are known to support fish and/or drinking water supplies or where those uses are attainable. Class 2 waters may be perennial, intermittent or ephemeral and are protected for the uses indicated in each sub~~-~~category listed below. There are five subcategories of Class 2 waters.

(i) Class 2AB. Class 2AB waters are those known to support game fish populations or spawning and nursery areas at least seasonally and all their perennial tributaries and adjacent wetlands and where a game fishery and drinking water use is otherwise attainable. Class 2AB waters include all permanent and seasonal game fisheries and can be either "cold water" or "warm water" depending upon the predominance of cold water or warm water species present. All Class 2AB waters are designated as cold water game fisheries unless identified as a warm water game fishery by a "ww" notation in the ~~"~~*Wyoming Surface Water Classification List*~~"~~. Unless it is shown otherwise, these waters are presumed to have sufficient water quality and quantity to support drinking water supplies and are protected for that use. Class 2AB waters are also protected for nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value uses.

(ii) Class 2A. Class 2A waters are those that are not known nor have the potential to support ~~game~~ fish but are used for public or domestic drinking water supplies, including their perennial tributaries and adjacent wetlands. Uses designated on Class 2A waters include drinking water, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

(iii) Class 2B. Class 2B waters are those known to support or have the potential to support game fish populations or spawning and nursery areas at least seasonally and all their perennial tributaries and adjacent wetlands and where it has been shown that drinking water uses are not attainable pursuant to the provisions of Section 33. Class 2B waters include permanent and seasonal game fisheries and can be either "cold water" or "warm water" depending upon the predominance of cold water or warm water species present. All Class 2B waters are designated as cold water game fisheries unless identified as a warm water game fishery by a "ww" notation in the ~~"~~*Wyoming Surface Water Classification List*~~"~~. Uses designated on Class 2B waters include game and nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

(iv) Class 2C. Class 2C waters are those known to support or have the potential to support only nongame fish populations or spawning and nursery areas at least seasonally including their perennial tributaries and adjacent wetlands. Class 2C waters include all permanent and seasonal nongame fisheries and are considered ~~"~~warm water~~"~~. Uses designated on Class 2C waters include nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture~~,~~ and scenic value.

(v) Class 2D. Effluent dependent waters which are known to support fish populations and where the resident fish populations would be significantly degraded in terms of numbers or species diversity if the effluent flows were removed or reduced. Class 2D waters are protected to the extent that the existing fish communities and other designated uses are maintained and that the water quality does not pose a health risk or hazard to humans, livestock or wildlife. Uses designated on Class 2D waters include game or nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture~~,~~ and scenic value.

(c) Class 3, Aquatic Life Other than Fish. Class 3 waters are waters, other than those designated as Class 1, that are intermittent, ephemeral or isolated waters and because of natural habitat conditions, do not support nor have the potential to support fish populations or spawning, or certain perennial waters which lack the natural water quality to support fish (e.g.~~,~~ geothermal areas). Class 3 waters provide support for invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles. Uses designated on Class 3 waters include aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value. Generally, waters suitable for this classification have wetland characteristics, and such characteristics will be a primary indicator used in identifying Class 3 waters. There are four subcategories of Class 3 waters.

(i) ~~-~~Class 3A. Class 3A waters are isolated waters including wetlands that are not known to support fish populations or drinking water supplies and where those uses are not attainable.

(ii)~~—~~ Class 3B. Class 3B waters are tributary waters including adjacent wetlands that are not known to support fish populations or drinking water supplies and where those uses are not attainable. Class 3B waters are intermittent and ephemeral streams with sufficient hydrology to normally support and sustain communities of aquatic life including invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles. In general, 3B waters are characterized by frequent linear wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 3B waters.

(iii) Class 3C. Class 3C waters are perennial streams without the natural water quality potential to support fish or drinking water supplies but do support

wetland characteristics. These may include geothermal waters and waters with naturally high concentrations of dissolved salts or metals or pH extremes.

(iv) Class 3D. Effluent dependent waters which are known to support communities of aquatic life other than fish and where the existing aquatic habitat would be significantly reduced in terms of aerial extent, habitat diversity or ecological value if the effluent flows are removed or reduced~~.~~. Class 3D waters are protected to the extent that the existing aquatic community, habitat and other designated uses are maintained and the water quality does not pose a health risk or hazard to humans, livestock or wildlife.

(d) Class 4, Agriculture, Industry, Recreation and Wildlife. Class 4 waters are waters, other than those designated as Class 1, where it has been determined that aquatic life uses are not attainable pursuant to the provisions of Section 33 of these regulations. Uses designated on Class 4 waters include recreation, wildlife, industry, agriculture and scenic value.

(i) Class 4A. Class 4A waters are artificial canals and ditches that are not known to support fish populations.

(ii) Class 4B. Class 4B waters are intermittent and ephemeral stream channels that have been determined to lack the hydrologic potential to normally support and sustain aquatic life pursuant to the provisions of Section 33(b)(ii) of these regulations. In general, 4B streams are characterized by only infrequent wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 4B waters.

(iii)~~-~~ Class 4C. Class 4C waters are isolated waters that have been determined to lack the potential to normally support and sustain aquatic life pursuant to the provisions of Section 33(b)(i), (iii), (iv), (v)~~,~~ or (vi) of these regulations. Class 4C includes, but is not limited to, off-channel effluent dependent ponds ~~-~~where it has been determined under Section 33(b)(iii) that removing a source of pollution to achieve full attainment of aquatic life uses would cause more environmental damage than leaving the source in place.

(e) Specific stream segment classifications are contained in a separate document entitled ~~"~~*Wyoming Surface Water Classification List*~~"~~ which is published by the department and periodically revised and updated according to the provisions of ~~s~~Sections 4, 33, 34, 35 and Appendix A of this chapter. Class 1 waters are those waters that have been specifically designated by the ~~Environmental Quality C~~council. Class 2AB, 2A, 2B and 2C designations are based upon the fisheries information contained in the Wyoming Game and Fish Department's ~~"~~*Streams and Lakes*~~"~~ ~~inventory~~ *Dd~~atabase~~* ~~as~~ submitted to the d~~D~~epartment ~~of Environmental Quality~~ in June~~,~~ 2000. This database represents the best available information and is considered conclusive. Class 2D and 3D designations are based upon u~~U~~se a~~A~~ttainability a~~A~~nalyses demonstrating that the waters

are effluent dependent and do not pose a hazard to humans, wildlife or livestock. Class 4 designations are based upon knowledge that a water body is an artificial, man-made conveyance, or has been determined not to support aquatic life uses through an approved use attainability analysis. All other waters are designated as Class 3A, 3B or 3C. Section 27 of these regulations describes how recreation use designations are made for specific water bodies.

Section 5. **Standards Enforcement**. The numerical and narrative standards contained within these regulations shall be used to establish effluent limitations for those discharges requiring control via permits to discharge in the case of point sources and best management practices in the case of nonpoint sources. If no permit or best management practice has been issued or implemented for a pollution source the state may, in addition to other appropriate legal action, take direct action to enforce these standards.

The processes used to implement the standards are described in various implementation documents adopted by the department. Such documents are adopted with full public participation and include, but are not limited to, the *Implementation Policies for Antidegradation, Mixing Zones and Dilution Allowances, Turbidity, and Use Attainability Analysis*, the Wyoming Continuing Planning Process (CPP), and best management practices.

These regulations shall not be interpreted to preclude the establishment of appropriate compliance schedules for permitting purposes nor shall compliance with the conditions of these regulations exempt any discharger from the penalty provisions of W.S. 35-11-901.

Section 6. **Interstate Compacts, Court Decrees and Water Rights**. The department shall, after review and conference with the State Engineer, make recommendations to the State Engineer concerning proposed new diversions which could cause violations of these regulations.

Section 7. **Class 1 Waters**.

(a) Except as authorized in Section 7 (b) of these regulations, no new point sources other than dams, may discharge, and no existing point sources, other than dams, may increase their quantity of pollution discharge, to any water designated as Class 1.

(b) Storm water and construction-related discharges of pollution to Class 1 waters may be authorized and shall be controlled through applicable water quality permits, Section 401 certifications and/or by the application of best management practices. Such discharges shall not degrade the quality of any Class 1 water below its existing quality or adversely affect any existing use of the water. Temporary increases in turbidity that are within the limits established in Section 23 of these regulations and that

do not negatively affect existing uses can be permitted. For purposes of this section, temporary increases in turbidity shall not exceed the actual construction period. The department shall impose whatever controls and monitoring are necessary on point source discharges to Class 1 waters and their tributaries to ensure that the existing quality and uses of the Class 1 water are protected and maintained.

(c) Nonpoint source discharges of pollution to Class 1 waters or tributaries of Class 1 waters shall be controlled by application of best management practices adopted in accordance with the Wyoming Continuing Planning Process. For Class 1 waters, best management practices will maintain existing quality and water uses.

Section 8. **Antidegradation**.

(a) Water uses in existence on or after November 28, 1975 and the level of water quality necessary to protect those uses shall be maintained and protected. Those surface waters not designated as Class 1, but whose quality is better than the standards contained in these regulations, shall be maintained at that higher quality. However, after full intergovernmental coordination and public participation, the ~~Wyoming D~~department ~~of Environmental Quality~~ may issue a permit for or allow any project or development which would constitute a new source of pollution, or an increased source of pollution, to these waters as long as the following conditions are met:

(i) The quality is not lowered below these standards;

(ii) All existing water uses are fully maintained and protected;

(iii) The highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved; and

(iv) The lowered water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

(b) The Water Quality A~~a~~dministrator (administrator) may require an applicant to submit additional information, including, but not limited to, an analysis of alternatives to any proposed discharge and relevant economic information before making a determination under this section.

(c) The procedures used to implement this section are described in the ~~"~~*Antidegradation Implementation Policy*.~~"~~

Section 9. **Mixing Zones**. Except for acute whole effluent toxicity (WET) values and Sections ~~-~~14, 15, 16, 17, ~~-~~28 and 29~~-~~(b) of these regulations, compliance with water quality standards shall be determined after allowing reasonable time for mixing. Except for the zone of initial dilution, which is the initial 10% of the mixing zone, the

mixing zone shall not contain pollutant concentrations that exceed the ~~acute~~ aquatic life acute values (see Appendix B). In addition, there shall be a zone of passage around the mixing zone which shall not contain pollutant concentrations that exceed the ~~chronic~~ aquatic life chronic values (see Appendix B). Under no circumstance may a mixing zone be established which would allow human health criteria (see Appendix B) to be exceeded within 500 yards of a drinking water supply intake or result in acute lethality to aquatic life. The procedures used to implement this section are described in the ~~"~~*Mixing Zones and Dilution Allowances Implementation Policy*.~~"~~

Section 10. **Testing Procedures**. For determination of the parameters involved in the standards, analyses will be in accordance with test procedures defined pursuant to: Title 40, Code of Federal Regulations, Part 136, or any modifications thereto. For test procedures not listed in the Code of Federal Regulations, test procedures outlined in the latest editions of: *EPA Methods for Chemical Analysis of Water and Wastes*; ~~or,~~ *Standard Methods for the Examination of Water and Wastewaters;* or~~,~~ *ASTM Standards~~, Part 31, Water~~* shall be used.

~~The analytical technique for total uranium (as U) shall be the fluorometric method as referenced in *Methods for Determination of Radioactive Substances in Water and Fluvial Sediments, Techniques of Water - Resource Investigations of the U.S. Geological Survey, Book 5, Chapter A-5, pp. 83 - 92.*~~

~~———~~Where standard methods of testing have not been established, the suitability of testing procedures shall be determined by the department and the EPA using defensible scientific methods.

Numeric criteria included in the standards represent levels necessary to protect designated uses and do not necessarily reflect detection limits that can be achieved using standard analytical techniques. Standard analytical techniques are considered during development of discharge permits and evaluation of water quality data. Sampling entities should consult with the department to determine reporting limit needs to ensure that adequate testing procedures and reporting limits are requested from the laboratory.

Section 11. **Flow Conditions**.

(a) Numeric water quality standards shall be enforced at all times except during periods below low flow. Low flow can be determined by the following methods~~.~~ ~~Whatever method is selected for a specific situation, application of the standards will conform to the magnitude, frequency, and duration provisions as described in these regulations~~:~~.~~

(i) Using the 7Q10 (the minimum seven (7) consecutive day flow which has the probability of occurring once in ten (10) years);

(ii) The EPA's biologically based flow method which determines a four (4) day, three (3) year low flow for chronic exposures and a one (1) day, three (3) year low flow for acute exposures (~~ref:~~ *Technical Guidance Manual For Performing Waste Load Allocation*~~,~~ *Book VI, Design Conditions: Chapter 1, Stream Design Flow for Steady-State Modeling, August 1986, US EPA*); or

(iii) Other defensible scientific methods.

For all methods, application of the standards will conform to the magnitude, duration and frequency provisions described in these regulations.

(b) During periods when stream flows are less than the minimums described above, the department may, in consultation with the Wyoming Game and Fish Department and the affected discharger(s), require permittees to institute operational modifications as necessary to insure the protection of aquatic life. This section should not be interpreted as requiring the maintenance of any particular stream flow.

(c) The narrative water quality standards in Sections 14, 15, 16, 17, 28 and 29(b) of these regulations shall be enforced at all stream~~-~~flow conditions.

Section 12. **Protection of Wetlands**. Point or nonpoint sources of pollution shall not cause the destruction, damage, or impairment of naturally occurring wetlands except when mitigated through an authorized wetlands mitigation process. When approving mitigation, the department may consider both the ecological functions and the wetland value of the disturbed wetland.

This section does not apply to wetlands created by point or nonpoint sources~~,~~ nor are such wetlands required to be maintained through continuation of such discharges. Similarly, any man-made wetlands or enhancements which have been credited in the state wetland banking program are not required to be maintained until the credit is used for mitigation purposes. These areas will, however, be protected from discharges of wastes, toxic substances or chemical pollutants as are any other waters of the state.

Section 13. **Toxic Materials**. Except for those substances referenced in Sections 21~~-~~(e) and (f) of these regulations, toxic materials attributable to or influenced by the activities of man shall not be present in any Wyoming surface water in concentrations or combinations which constitute "pollution".

Section 14. **Dead Animals and Solid Waste**. Dead animals or solid waste shall not be placed or allowed to remain in Wyoming surface waters. When discovered, removal shall be expeditious unless removal would likely cause more contamination than non-removal. This section should not be interpreted to place a burden on any person to remove dead wildlife from surface waters where the death of the animals occurs under natural or uncontrollable circumstances.

Except as authorized through a 404 permit, solid waste shall not be placed or allowed to remain in surface waters of the state, nor shall solid wastes be placed or allowed to remain in any location which would cause or threaten contamination of Wyoming surface waters.

Section 15. **Settleable Solids**. In all Wyoming surface waters, substances attributable to or influenced by the activities of man that will settle to form sludge, bank or bottom deposits shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife.

Section 16. **Floating and Suspended Solids**. In all Wyoming surface waters, floating and suspended solids attributable to or influenced by the activities of man shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife.

Section 17. **Taste, Odor and Color**. No Class 1, 2, or 3 waters shall contain substances attributable to or influenced by the activities of man that produce taste, odor and color or that would:

(a) Of themselves or in combination, impart an unpalatable or off-flavor in fish flesh;

(b) Visibly alter the natural color of the water or impart color to skin, clothing, vessels or structures;

(c) Produce detectable odor; or

(d) Directly or through interaction among themselves, or with chemicals used in existing water treatment processes, result in concentrations that will impart undesirable taste or odor to public water supplies.

Section 18. **Human Health**. In all Class 1, 2AB, and 2A waters, the "Hhuman Hhealth Consumption of values for "Fish and Drinking Water" values listed in Appendix B of these regulations shall not be exceeded. In all Class 2B, 2C and 2D waters, the "Hhuman Hhealth Consumption of values for "Fish Only" (consumption of aquatic organisms) values shall not be exceeded.

In certain waters, the criteria listed in Appendix B of these regulations may not be appropriate due to unique physical or chemical conditions. In such cases, human health values may be establishdetermined by using of the site-specific procedures outlined in the references listed in Appendix E of these regulationsor other scientifically defensible methods.

Section 19. **Industrial Water Supply**. All Wyoming surface waters which have the natural water quality potential for use as an industrial water supply shall be maintained at a quality which allows continued use of such waters for industrial purposes.

Degradation of such waters shall not be of such an extent to cause a measurable increase in raw water treatment costs to the industrial user(s).

Unless otherwise demonstrated, all Wyoming surface waters have the natural water quality potential for use as an industrial water supply.

Section 20. **Agricultural Water Supply**. All Wyoming surface waters which have the natural water quality potential for use as an agricultural water supply shall be maintained at a quality which allows continued use of such waters for agricultural purposes.

Degradation of such waters shall not be of such an extent to cause a measurable decrease in crop or livestock production.

Unless otherwise demonstrated, all Wyoming surface waters have the natural water quality potential for use as an agricultural water supply.

~~The procedures used to implement this section are described in the "*Agricultural Use Protection Policy*."~~

Section 21. **Protection of Aquatic Life**.

(a) Ammonia.

(i) The toxicity of ammonia varies with pH and temperature and the applicable limitations are included in the tables~~charts~~ in Appendix C of these regulations. The numeric ammonia criteria in Appendix C apply to all Class 1, 2AB, 2A, 2B~~, 2AB~~ and 2C waters.

(ii) In all Class 2D and 3 waters, concentrations of ammonia attributable to or influenced by human activities shall not be present in concentrations which could result in harmful acute or chronic effects to aquatic life, or which would not fully support existing and designated uses.

(b) Specific numeric standards for a number of toxicants are listed in the "A~~a~~quatic L~~l~~ife "A~~a~~cute V~~v~~alue" and "Aquatic Life C~~c~~hronic V~~v~~alue" columns in Appendix B of these regulations. These standards apply to all Class 1, 2~~A, 2B, 2AB, 2C, 3A, 3B~~ and 3~~C~~ waters. For these pollutants, the chronic value (four (4) day average concentration) and the acute value (one (1) hour average concentration) shall not be exceeded more than once every three (3) years.

(c) Others. For those pollutants not listed in Appendix B or C of these regulations, maximum allowable concentrations on Class 1, 2 and 3 ~~-~~waters shall be determined through the bioassay procedures outlined in the references listed in Appendix E of these regulations.

(d) In certain waters, the criteria listed in Appendix B or C of these regulations may not be appropriate due to unique physical or chemical conditions. In such cases, acute and chronic values may be determined ~~by~~ using~~e of~~ the site-specific procedures outlined in ~~sections 33 or 36 or in~~ the references listed in Appendix E or other scientifically defensible methods~~ of these regulations~~.

(e) Aquatic pesticides specifically designed to kill, repel or mitigate aquatic pest problems (e.g.~~such as~~ mosquito larvae or heavy plant growth in irrigation ditches) may be added to surface waters of the state if the use and application is in compliance with the following:

(i) The pesticide~~chemical toxicant~~ used is a product which has been registered with~~by~~ the ~~-~~EPA and ~~approved by~~ the Wyoming Department of Agriculture for use in the state, in accordance with W.S. 35-7-356;

(ii) The application is conducted by a person licensed by the Wyoming Department of Agriculture to purchase and apply restricted use pesticides~~such toxicants~~ in the state;

(iii) All applications of aquatic pesticides must be administered in accordance with label directions. However, compliance with label directions shall not exempt any person or agency from the penalty provisions of W.S. 35-11-901 should non-target species or non-target areas be affected.

(f) This section shall not apply to the use of fish toxicants if the use and application is in compliance with the following:

(i) The pesticide~~chemical toxicant~~ used is a product which has been registered with~~by~~ the ~~-~~EPA and ~~approved by~~ the Wyoming Department of Agriculture for use in the state, in accordance with W.S. 35-7-356;

(ii) The application is conducted by a person licensed by the Wyoming Department of Agriculture to purchase and apply restricted use pesticides ~~such toxicants~~ in the state;

(iii) All applications of fish toxicants must be administered in accordance with label directions. However, compliance with label directions shall not exempt any person or agency from the penalty provisions of W.S. 35-11-901 should non-target species or non-target areas be affected.

(iv) The Wyoming Game and Fish Department may apply fish toxicants to any surface water of the state provided that prior notice is made to the ~~D~~department ~~of Environmental Quality~~ and after receipt of ~~a~~ verification from the Water Quality Division that the proposed application is in compliance with this section.

(v) The National Park Service, as the wildlife management agency in Yellowstone National Park, may apply fish toxicants to surface waters within Yellowstone National Park for the purpose of killing or controlling fish provided that prior notice is made to the ~~D~~department ~~of Environmental Quality~~ and after receipt of a verification from the Water Quality Division that the proposed application is in compliance with this section. Approval from the Wyoming Game and Fish Department is also required prior to application of fish toxicants to waters which flow into surface waters of the state outside of Yellowstone National Park.

(vi) Private certified pesticide applicators for restricted use pesticides may apply fish toxicants only to waters located entirely on private property where there is no surface outlet to waters of the state provided that prior notice is made to the ~~D~~department ~~of Environmental Quality~~ and after receipt of ~~a~~ verification from the Water Quality Division that the proposed application is in compliance with this section. Approval, including any necessary permits, from the Wyoming Game and Fish Department is also required prior to application of fish toxicants to insure protection of fish and wildlife resources.

(vii) Pesticide applications must be conducted in a manner that minimizes to the extent practicable, the magnitude of any change in the concentration of the parameters affected by the activity and the length of time during which any change may occur. The application must include measures that prevent significant risk to public health and ensure that existing and designated uses of the water are protected and maintained upon the completion of the activity.

(viii) Except for the circumstances described in (i) through (vii) above, no other agency or person may apply fish toxicants in any water of the state.

Section 22. **Radioactive Material**.

(a) ~~—~~ In Class 1, 2AB and 2A waters, ~~the~~ radiological limits of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha particle activity (excluding radon and uranium), 30 µg/L for uranium and 4 millirems per year (mrem/year) for beta particle and photon radioactivity ~~established in the most recent Federal Primary Drinking Water Standards published by EPA or its successor agency (40 CFR parts 141.15 and 141.16, published July 1, 1998)~~ shall not be exceeded.

(b) In Class 2B, 2C, 2D, 3 and 4 waters, the total radium-~~-~~226 concentration shall not exceed 60 pCi/L.

(c) In all Wyoming surface waters, radioactive materials attributable or influenced by the activities of man shall not be present in the water or in the sediments in amounts which could cause harmful accumulations of radioactivity in plant, wildlife, livestock~~,~~ or aquatic life.

Section 23. **Turbidity**.

(a) In all cold water fisheries and/or drinking water supplies (C~~c~~lasses 1, 2AB, 2A~~,~~ and 2B), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than ten (10) nephelometric turbidity units (NTUs).

(b) In all ~~-~~warm water or nongame fisheries (C~~c~~lasses 1, 2AB, 2B and 2C), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than 15 NTUs.

(c) An exception to paragraphs (a) and (b) of this section shall apply to:

(i) The North Platte River from Guernsey Dam to the Nebraska line during the annual "silt run" from Guernsey Dam; and

(ii) Short-term increases of turbidity that have been determined by the administrator to have only a minimal effect on water uses. Such determinations shall be made on a case-by-case basis and shall be subject to whatever controls, monitoring~~,~~ and best management practices are necessary to fully maintain and protect all water uses. The procedures used to implement this section are described in the ~~"~~*Turbidity Implementation Policy*.~~"~~

Section 24. **Dissolved Oxygen**. In all Class 2A, 2D and 3 waters, pollution~~wastes~~ attributable to ~~or influenced by~~ the activities of man shall not deplete dissolved oxygen amounts to a level which will result in harmful acute or chronic effects to aquatic life, or which would not fully support existing and designated uses.

In all Class 1, 2AB, 2B and 2C waters, pollution~~wastes~~ attributable to ~~or influenced by~~ the activities of man shall not ~~be present in amounts which will~~ result in a dissolved oxygen content of less than that presented on the chart in Appendix D of these regulations.

Section 25. **Temperature**.

(a) For Class 1, 2 and 3 waters, pollution~~effluent~~ attributable to ~~or influenced by~~ the activities of man shall not ~~be discharged in amounts which~~ change ambient water temperatures to levels which result in harmful acute or chronic effects to aquatic life, or which would not fully support existing and designated uses.

(b) When ambient temperatures are above 60 degrees Fahrenheit (15.6 degrees Celsius) in all Class 1, 2AB~~,~~ and 2B waters which are cold water fisheries, pollution~~effluent~~ attributable to ~~or influenced by~~ the activities of man shall not ~~be discharged in amounts which will~~ result in an increase of more than 2 degrees Fahrenheit (1.1 degree Celsius) in existing temperatures.

(c) When ambient temperatures are above 60 degrees Fahrenheit (15.6 degrees Celsius) in all Class 1, 2AB, 2B and 2C waters~~,~~ which are warm water fisheries, pollution~~effluent~~ attributable to ~~or influenced by~~ the activities of man shall not ~~be discharged in amounts which will~~ result in an increase of more than 4 degrees Fahrenheit (2.2 degrees Celsius) in existing temperatures.

(d) Except on Class 2D, 3 and ~~Class~~ 4 waters, the maximum allowable stream temperature will be the maximum natural daily stream temperature plus the allowable change, provided that this temperature is not lethal to existing fish life and under no circumstance shall pollution attributable to the activities of man result in~~this~~ a~~maximum~~ temperature that exceeds 68 degrees Fahrenheit (20 degrees Celsius) in the case of cold water fisheries and 86 degrees Fahrenheit (30 degrees Celsius) in the case of warm water fisheries.

(e) With the exception of the provisions of Sections 9 and 11 of these regulations and other natural conditions, temperature standards shall apply at all times and at all depths of the receiving water and may not be violated at any time or at any depth.

(f) The various requirements of this section may be waived only under the provisions of Section 316~~-~~(a) of the Clean Water~~Federal~~ Act.

Section 26. **pH**.

(a) For all Wyoming surface waters, pollution~~wastes~~ attributable to ~~or influenced by~~ the activities of man shall not be present in amounts which will cause the pH to be less than 6.5 or greater than 9.0 standard units.

(b) For all Class 1, 2 and 3 waters, pollution~~effluent~~ attributable to the ~~or influenced by human~~ activities of man shall not ~~be discharged in amounts which~~ change the pH to levels which result in harmful acute or chronic effects to aquatic life, directly or in conjunction with other chemical constituents, or which would not fully support existing and designated uses.

Section 27. ***E. coli* Bacteria**.

(a)~~—~~ Primary Contact Recreation. ~~–~~In all waters designated for primary contact recreation, during the summer recreation season (May 1 through September 30), concentrations of *E. coli* bacteria shall not exceed a geometric mean of 126 organisms per

100 milliliters ~~based on a minimum of not less than 5 samples obtained during separate 24 hour periods for~~during any consecutive 6~~3~~0-day period. ~~All waters in Table A of the *Wyoming Surface Water Classification List* are designated for primary contact recreation unless identified as a secondary contact water by a "(s)" notation. Waters not specifically listed in Table A of the Wyoming Surface Water Classification List shall be designated as secondary contact waters. During the period October 1 through April 30, all waters are protected for secondary contact recreation only.~~Primary contact waters are identified in the *Wyoming Surface Water Classification List*.

(b) ~~-~~Secondary Contact Recreation. ~~-~~In all waters designated for secondary contact recreation~~,~~ and in waters designated for primary contact recreation during the winter recreation season (October 1 through April 30), concentrations of *E. coli* bacteria shall not exceed a geometric mean of 630 organisms per 100 milliliters ~~based on a minimum of not less than 5 samples obtained during separate 24 hour periods for~~during any consecutive ~~3~~60-day period. Waters will be designated for secondary contact recreation through the reclassification and use attainability analysis process outlined in Sections 33 and 34 of these regulations. Secondary contact waters are identified in the *Wyoming Surface Water Classification List.*

(c)~~-~~ Single-sample Maximum Concentrations. During the summer recreation season, on all waters designated for primary contact recreation, the following single-sample maximum concentrations of *E. coli* bacteria shall apply:

(i) High use swimming areas ~~-~~- ~~-~~235 organisms per 100 milliliters

(ii) Moderate full body contact ~~-~~- 298 organisms per 100 milliliters

(iii) Lightly used full body contact - 410 organisms per 100 milliliters

(iv) Infrequently used full body contact - 576 organisms per 100 milliliters

Single-sample maximum values may be used to post recreational use advisories in public recreation areas and to derive single-sample maximum effluent limitations on point source discharges. An exceed~~e~~ance of the single-sample maxima shall not be cause for listing a water body on the State 303(d) list or development of a TMDL or watershed plan. The appropriate recreational use category (i through iv, above) shall be determined by the administrator as needed, on a case by case basis. In making such a determination, the administrator may consider such site-specific circumstances as type and frequency of use, time of year, public access, proximity to populated areas~~,~~ and local interests.

~~(d) Variances. Temporary and/or permanent variances to the E. coli values provided in (a) through (c) above may be granted in instances where the primary source of bacterial contamination is found to be natural in origin (wildlife), unavoidable (off-channel stock watering pits), or otherwise in the public interest.~~

Section 28. **Undesirable Aquatic Life**. All Wyoming surface waters shall be free from substances and conditions or combinations thereof which are attributable to or influenced by the activities of man, in concentrations which produce undesirable aquatic life.

Section 29. **Oil and Grease**. In all Wyoming surface waters, substances attributable to or influenced by the activities of man shall not be present in amounts which would cause:

(a) The oil and grease content to exceed 10 mg/L; or

(b) The formation of a visible sheen or visible deposits on the bottom or shoreline, or damage or impairment of the normal growth, function or reproduction of human, animal, plant or aquatic life.

Section 30. **Total Dissolved Gases**. In all Class 1, 2AB, 2B and 2C waters, the total dissolved gas concentration below man-made dams shall not exceed 110 percent of the saturation value for gases at the existing atmospheric and hydrostatic pressures.

Section 31. **Colorado Basin Salinity**. The State of Wyoming is a member of the Colorado River Basin Salinity Control Forum, which includes all states in the Colorado River Basin. This forum has adopted a salinity control program for the basin which has been adopted as Chapter 6 of the Wyoming Water Quality Rules and Regulations.

Section 32. **Biological Criteria**. Class 1, 2 and 3 waters of the state must be free from substances, whether attributable to human-induced point source discharges or nonpoint source activities, in concentrations or combinations which will adversely alter the structure and function of indigenous or intentionally introduced aquatic communities.

Section 33. **Reclassifications and Site-Specific Criteria**.

(a) Any person at any time may petition the department or the Environmental Quality Council (Ccouncil) to change the classification, add or remove a designated use or establish site-specific criteria on any surface water.

(b) The Water Quality Aadministrator may lower a classification, remove a designated use which is not an existing use nor an attainable use, establish ambient-based criteria on effluent dependent waters, or make a recommendation to the Environmental Quality Council council to establish sub-categories of a use, or establish site-specific criteria if it can be demonstrated through a uUse aAttainability aAnalysis (UAA) that the original classification, and/or designated use or water quality criteria are not feasible because:

(i) Naturally occurring pollutant concentrations prevent the attainment of the classification or use; or

(ii) ~~-~~Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

(iii) 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

(iv) Dams, diversions~~,~~ or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use; or

(v) 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 an~~the~~ aquatic life ~~classification or~~ use; or

(vi) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water~~Federal~~ Act would result in substantial and widespread economic and social impact. This subsection shall not apply to the derivation of site-specific criteria.

(c) The ~~Water Quality A~~administrator may raise a classification, add a designated use~~,~~ or make a recommendation to the c~~Environmental Quality C~~ouncil to establish sub-categories of a use or site-specific criteria, if it can be demonstrated through a u~~U~~se a~~A~~ttainability a~~A~~nalysis (UAA) that such uses are existing uses or may be attained with the imposition of more stringent controls or management practices.

(d) The procedures used to implement this section are described in the ~~"~~*Use Attainability Analysis Implementation Policy*.~~"~~

(e) The provisions of subsections (b) and (c) above are not applicable to Class 1 designations. Class 1 designations may be added or removed in accordance with ~~-~~the provisions of the Environmental Quality Act, the Wyoming Administrative Procedures Act and Section 4~~-~~(a) of these regulations.

Section 34. **Use Attainability Analysis**. The ~~Water Quality~~ administrator shall review all petitions submitted under Section 33 of these regulations and make a determination based upon the technical merits of the u~~U~~se a~~A~~ttainability ~~A~~analysis.

Public notice and opportunity for comment shall be provided prior to making this determination.

(a) Any changes in water classifications or use designations resulting from the administrator's determination shall be submitted to EPA for approval as revised water quality standards for Clean Water Act purposes and shall become effective either upon EPA approval or 90 days after submittal, whichever comes first. ~~-~~If within 90 days of submittal, the EPA determines that any such revised or new standard is not consistent with the applicable requirements of the Clean Water~~Federal~~ Act and specifies the changes needed to meet such requirements, the administrator may consider EPA's recommendations and publish a revised final determination. All determinations made under this subsection are considered final actions of the administrator and may be appealed pursuant to Chapter 1, Section 16 of the Rules of Practice and Procedure.

(b) Except for ambient-based criteria on effluent dependent waters, ~~-~~proposed changes in water quality criteria that result from the administrator's findings shall be recommended to the c~~Environmental Quality C~~ouncil for adoption as revised rules. Ambient-based criteria for effluent dependent waters shall be established according to the provisions of Section 36 of these rules. If adopted by the c~~C~~ouncil, the revised rules shall be filed with the secretary of state and shall become effective 90 days after filing. The revised rules shall also be concurrently submitted to EPA for approval as revised water quality standards for Clean Water Act purposes. If within 90 days of submittal, the EPA determines that any such revised or new standard is not consistent with the applicable requirements of the Clean ~~F~~Water~~ederal~~ Act and specifies the changes needed to meet such requirements, the department may recommend a new standard incorporating EPA's specifications to the c~~Environmental Quality C~~ouncil for adoption.

Section 35. **Credible Data**.

(a) Development of scientifically valid chemical, physical and biological monitoring data shall:

(i) Consist of data collection using accepted referenced laboratory and field methods employed by a person who has received specialized training and has field experience in developing a monitoring plan, a quality assurance plan, and employing the methods outlined in such plans~~;~~ or works under the supervision of a person who has these qualifications. Specialized training includes a thorough knowledge of written sampling protocols and field methods such that the data collection and interpretation are reproducible, scientifically defensible~~,~~ and free from preconceived bias; and

(ii) Includes documented quality assurance consisting of a plan that details how environmental data operations are planned, implemented~~,~~ and assessed with respect to quality during the duration of the project.

(b) Credible data shall be collected on each water body, as required in this section, and shall be considered for purposes of characterizing the integrity of the water body including consideration of soil, geology, hydrology, geomorphology, climate, stream succession and the influences of man upon the system. These data in combination with other available and applicable information shall be used through a weight-of-evidence approach to designate uses and determine whether those uses are being attained. In those instances where numerical standards contained in these rules are exceeded or on ephemeral and intermittent water bodies where chemical and biological sampling may not be practical or feasible, less than a complete set of data may be used to make a decision on attainment.

(c) All changes to use designations after the effective date of this rule shall include the consideration of credible data relevant to the decision. Changes which involve the removal of a use designation or the replacement of a designation shall be supported by a use attainability analysis (UAA).

(d) After the effective date of this rule, credible data shall be utilized in determining a water body's attainment of designated uses.

Section 36. **Effluent Dependent Criteria**. In addition to the provisions of Section 33 of these regulations, the ~~Water Quality A~~administrator may make modifications to the numeric criteria~~values~~ for pollutants listed in Appendix B on Class 2D and 3D waters. These modifications may be made on a categorical or site-specific basis by application of the following process:

(a)~~.~~ The adopted statewide numeric criteria may be modified on Class 2D and 3D waters to reflect ambient conditions by developing a UAA demonstrating that the water body is effluent dependent and that continued discharge of a permitted effluent to the water body has been shown to create a net environmental benefit. Criteria modification based on a finding of net environmental benefit is authorized where:

(i)~~1.~~ The water body is effluent dependent;

(ii)~~2.~~ The discharge has been shown to create an environmental benefit and removal of the discharge would cause more environmental harm than leaving it in place;

(iii)~~3.~~ There is a credible threat to remove the discharge; and

(iv)~~4.~~ Appropriate safeguards are in place, ensuring that downstream uses will be protected and the discharge will pose no health risk or hazard to humans, livestock or wildlife.

(b)~~.~~ Where the above factors have been satisfied, site-~~-~~specific criteria may be set equal to the background concentration plus a margin of error for each parameter

where the highest background concentration exceeds the statewide numeric criteria. Such site-specific criteria will be implemented as instantaneous maximum values.

(i)~~1.~~ The background concentration shall be the highest concentration recorded over the course of a one year period where samples have been taken at least once in each month.

(ii)~~2.~~ The margin of error shall be one standard deviation calculated from the same data set used to establish background.

(iii)~~3.~~ In addition to water column values, aquatic life tissue criteria shall also be established for all parameters known to be bio~~-~~accumulating and where recommended criteria have been developed by EPA. Such criteria~~values~~ shall be at least equal to the nationally recommended tissue criteria published by EPA under ~~s~~Section 304(a) of the Clean Water Act.

(c) The procedures used to implement this section are described in the ~~"~~*Use Attainability Analysis Implementation Policy*.~~"~~

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Appendix A

Wyoming Surface Water Classifications

All surface waters in Wyoming are classified as follows:

(a) Class 1 Waters. The following waters are designated Class 1:

(i) All surface waters located within the boundaries of national parks and congressionally designated wilderness areas as of January 1, 1999;

(ii) The main stem of the Snake River through its entire length above the U.S. Highway 22 Bridge (Wilson Bridge);

(iii) The main stem of the Green River, including the Green River Lakes from the mouth of the New Fork River upstream to the wilderness boundary;

(iv) The mMain sStem of the Wind River from the Wedding of the Waters upstream to Boysen Dam;

(v) The main stem of the North Platte River from the mouth of Sage Creek (approximately 15 stream miles downstream of Saratoga, Wyoming) upstream to the Colorado state line;

(vi) The main stem of the North Platte River from the headwaters of Pathfinder Reservoir upstream to Kortes Dam (Miracle Mile segment);

(vii) The main stem of the North Platte River from the Natrona County Road 309 bridge (Goose Egg bridge) upstream to Alcova Reservoir;

(viii) The main stem of Sand Creek above the U.S. Highway 14 bridge;

(ix) The main stem of the Middle Fork of the Powder River through its entire length above the mouth of Buffalo Creek;

(x) The main stem of the ~~Tongue River, the main stem of the~~ North Fork of the Tongue River, ~~and~~ the main stem of the South Fork of the Tongue River and the main stem ~~of~~ of the Tongue River above the U.S. Forest Service b~~B~~oundary;

(xi) The main stem of the Sweetwater River above the mouth of Alkali Creek;

(xii) The main stem of the Encampment River from the northern U.S. Forest Service boundary upstream to the Colorado state line;

(xiii) The main stem of the Clarks Fork River from the U.S. Forest Service boundary upstream to the Montana state line;

(xiv) All waters within the Fish Creek (near Wilson, Wyoming) drainage;

(xv) The main stem of Granite Creek (tributary of the Hoback River) through its entire length;

(xvi) Fremont Lake;

(xvii) Wetlands adjacent to the above listed Class 1 waters.

(b) Individual water classifications for major water bodies and recreational use designations are listed in the most current version of the ~~"~~*Wyoming Surface Water Classification List*~~"~~. The list ~~is~~ published by the department and periodically revised and updated ~~by the Wyoming Department of Environmental Quality, Water Quality Division~~ according to the provisions of Sections 4, 33, 34 and 35. In addition to the listings contained in that document, the following provisions apply:

(i) National Parks and Wilderness Areas. All surface waters located within the boundaries of Yellowstone and Grand Teton National Parks and congressionally designated wilderness areas as of January 1, 1999 are Class 1 waters. A~~Such~~ Class 1 designation always takes precedence over the classification given in the listing. For example, Dinwoody Creek is shown as a Class 2 water; however, the upper portions are within a wilderness area and those portions are Class 1. The portion below the wilderness boundary is Class 2.

(ii) Unlisted Waters. The waters contained in the ~~"~~*Wyoming Surface Water Classification List*~~"~~ are all waters which are named on the USGS 1:500,000 hydrologic map of Wyoming and those otherwise classified by the department. The c~~C~~lassification l~~L~~ist does not contain an exhaustive listing of all the surface waters in the state. Waters which are not listed are classified as follows:

(A~~1~~) All waters shown as having any species of game fish present in the Wyoming Game and Fish Department's *Streams and Lakes Database* as submitted to the ~~D~~department ~~of Environmental Quality~~ in June~~,~~ 2000 are classified as 2AB;

(B~~2~~) All waters shown as having only nongame fish species present in the Wyoming Game and Fish Department's *Streams and Lakes Database* as submitted to the ~~D~~department ~~of Environmental Quality~~ in June~~,~~ 2000 are classified as 2C;

(~~3~~C) All other waters shall be classified as follows:

(I~~A~~) Those waters supported by an approved UAA containing defensible reasons for not protecting aquatic life uses shall be 4A, 4B or 4C. This category includes isolated, effluent dependent waters;

(II~~B~~) Effluent dependent waters that support resident fish populations shall be 2D;

(III~~C~~) Effluent dependent waters that do not support resident fish populations shall be 3D;

(IV~~C~~) The remaining waters shall be 3A, 3B or 3C.

(iii) Wetlands. All adjacent wetlands shall have the same classification as the water to which they are adjacent.

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~~PRIORITY POLLUTANTS~~

Appendix B

Water Quality Criteria~~.~~[(1)]

(a) Priority Pollutants.~~RIORITY POLLUTANTS~~

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[(2)] (µg/L)	Fish[(8)] ~~-~~(µg/L)
	~~Aquatic Life Acute Value Micrograms/L~~	~~Aquatic Life Chronic Value Micrograms/L~~	~~Human Health Value Fish & Drinking Water[(2)] Micrograms/L~~	~~Human Health Value Fish Only[(8)] Micrograms/L~~
Acenaphthene			20[(7)]	~~-~~990
Acrolein	3	3	~~-1906~~	~~-2909~~
Acrylonitrile~~[(3)]~~			~~-~~0.051[(3)]	~~-~~0.25[(3)]
Benzene~~[(3)]~~			~~-~~2.2[(3)]	~~-~~51[(3)]
Benzidine~~[(3)]~~			~~-~~0.000086[(3)]	~~-~~0.00020[(3)]
Carbon tetrachloride~~[(3)]~~ (Tetrachloromethane)			~~-~~0.23[(3)]	~~-~~1.6[(3)]
Chlorobenzene (Monochlorobenzene)			~~-~~20~~100~~[(9~~7~~)]	~~-~~1,600
1,2,4-~~-~~Trichlorobenzene			~~-~~35	~~-~~70
Hexachlorobenzene~~[(3)]~~			~~-~~0.00028[(3)]	~~-~~0.00029[(3)]
1,2-Dichloroethane~~[(3)]~~			0.38[(3)]	~~-~~37[(3)]
1,1,1-Trichloroethane			200[(9)]	
Hexachloroethane~~[(3)]~~			~~-~~1.4[(3)]	~~-~~3.3[(3)]
1,1,2-Trichloroethane~~[(3)]~~			~~-~~0.59[(3)]	~~-~~16[(3)]
1,1,2,2~~,~~-Tetrachloroethane~~[(3)]~~			0.17[(3)]	~~-~~4[(3)]
Bis(2-chloroethyl) ether~~[(3)]~~			~~-~~0.030[(3)]	~~-~~0.53[(3)]
2-Chloronaphthalene			~~-~~1,000	~~-~~1,600
2,4,6-Trichlorophenol~~[(3)]~~			~~-~~1.4[(3)]	~~-~~2.4[(3)]
4-Chloro-3-methylphenol~~)~~ (3-Methyl-4-chlorophenol) (p-Chloro-m-cresol)			3,000[(7)]	
Chloroform ~~(HM)~~[(3)] (Trichloromethane)			5.7[(3)]	470[(3)]
2-Chlorophenol			0.1[(7)]	~~-~~150
1,2-D~~d~~ichlorobenzene			~~-~~420	~~-~~1,300
1,3-Dichlorobenzene			~~-~~320	~~-~~960

~~PRIORITY POLLUTANTS~~

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
	~~Aquatic Life Acute Value Micrograms/L~~	~~Aquatic Life Chronic Value Micrograms/L~~	~~Human Health Value Fish & Drinking Water[2] Micrograms/L~~	~~Human Health Value Fish Only[8] Micrograms/L~~
1,4-Dichlorobenzene			63	190
3,3'-Dichlorobenzidine[3]			0.021[3]	0.028[3]
1,1-Dichloroethylene[3]			~~330~~7[9]	7,100
1,2-trans-Dichloroethylene			100[9]	10,000
2,4-Dichlorophenol			0.3[7]	290
1,2-Dichloropropane			0.50[3]	15[3]
1,3-Dichloropropene (1,3-Dichloropropylene) ~~(1,3-Dichloropropene)~~ (cis and trans isomers)			0.34[3]	21[3]
2,4-Dimethylphenol			380[7]	850
2,4-Dinitrotoluene[3]			0.11[3]	3.4[3]
1,2-Diphenylhydrazine[3]			0.036[3]	0.20[3]
Ethylbenzene			530	2,100
Fluoranthene			130	140
Bis(2-chloroisopropyl) ether			1,400	65,000
Methylene chloride ~~(HM)~~[3] (Dichloromethane)			4.6[3]	590[3]
Methyl bromide ~~(HM)~~ (Bromomethane)			47	1,500
Bromoform ~~(HM)~~[6] (Tribromomethane)			4.3[3]	140[3]
Dichlorobromomethane ~~(HM)~~[6]			0.55[3]	17[3]
Chlorodibromomethane ~~(HM)~~[6]			0.40[3]	13[3]
Hexachlorobutadiene[3]			0.44[3]	18[3]
Hexachlorocyclopentadiene			1[7]	1,100
Isophorone[3]			35[3]	960[3]
Nitrobenzene			17	690
2,4-Dinitrophenol			69	5,300

~~PRIORITY POLLUTANTS~~

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
	~~Aquatic Life Acute Value Micrograms/L~~	~~Aquatic Life Chronic Value Micrograms/L~~	~~Human Health Value Fish & Drinking Water[2] Micrograms/L~~	~~Human Health Value Fish Only[8] Micrograms/L~~
~~4,6-Dinitro-o-cresol (~~4,6-Dinitro-2-methylphenol~~)~~ (2-Methyl-4,6-dinitrophenol) (4,6-Dinitro-o-cresol)			13	280
N-Nitrosodimethylamine[3]			0.00069[3]	3[3]
N-Nitrosodiphenylamine[3]			3.3[3]	6[3]
N-Nitrosodi-n-propylamine[3]			0.005[3]	0.51[3]
Pentachlorophenol	19[5]	15[5]	0.27[3]	3[3]
Phenol			300[7]	~~170~~860,000
Bis(2-ethylhexyl) phthalate[3]			1.2[3]	2.2[3]
Butyl benzyl phthalate			1,500	1,900
Di-n-butyl phthalate			2,000	4,500
Diethyl phthalate			17,000	44,000
Dimethyl phthalate			270,000	1,100,000
Benzo(a)anthracene ~~(PAH)[3]~~ (1,2-Benzanthracene)			0.0038[3]	0.018[3]
Benzo(a)pyrene ~~(PAH)[3]~~ (3,4-Benzopyrene)			0.0038[3]	0.018[3]
Benzo(b)fluoranthene ~~(PAH)[3]~~ (3,4-Benzofluoranthene)			0.0038[3]	0.018[3]
Benzo(k)fluoranthene ~~(PAH)[3]~~ (11,12-Benzofluoranthene)			0.0038[3]	0.018[3]
Chrysene ~~(PAH)[3]~~			0.0038[3]	0.018[3]
Anthracene ~~(PAH)[6]~~			8,300	40,000
Fluorene ~~(PAH)[6]~~			1,100	5,300
Dibenzo(a,h)anthracene ~~(PAH)[3]~~ (1,2,5,6-Dibenzanthracene)			0.0038[3]	0.018[3]
Indeno(1,2,3-cd)pyrene ~~(PAH)[3]~~			0.0038[3]	0.018[3]

PRIORITY POLLUTANTS

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
	Aquatic Life Acute Value Micrograms/L	Aquatic Life Chronic Value Micrograms/L	Human Health Value Fish & Drinking Water[2] Micrograms/L	Human Health Value Fish Only[8] Micrograms/L
Pyrene (PAH)[6]			830	4,000
Tetrachloroethylene[3]			0.69[3]	3.3[3]
Toluene			1,000[9]	15,000
Trichloroethylene[3]			2.5[3]	30[3]
Vinyl chloride[3] (Chloroethylene)			0.025[3]	2.4[3]
Aldrin[3]	1.5[16]		0.000049[3]	0.000050[3]
Dieldrin[3]	0.24	0.056	0.000052[3]	0.000054[3]
Chlordane[3]	1.2[16]	0.0043	0.00080[3]	0.00081[3]
4,4'-DDT[3]	0.55[16]	0.001	0.00022[3]	0.00022[3]
4,4'-DDE[3]			0.00022[3]	0.00022[3]
4,4'-DDD[3]			0.00031[3]	0.00031[3]
alpha-Endosulfan	0.11[16]	0.056	62	89
beta-Endosulfan	0.11[16]	0.056	62	89
Endosulfan sulfate			62	89
Endrin	0.086	0.036	0.059	0.060
Endrin aldehyde			0.29	0.30
Heptachlor[3]	0.26[16]	0.0038	0.000079[3]	0.000079[3]
Heptachlor epoxide[3]	0.26[16]	0.0038	0.000039[3]	0.000039[3]
alpha-BHC (Hexachlorocyclohexane-alpha)			0.0026[3]	0.0049[3]
beta-BHC (Hexachlorocyclohexane-beta)			0.0091[3]	0.017[3]
gamma-BHC (Lindane) (Hexachlorocyclohexane-gamma)	0.95		0.2[9]	1.8
Polychlorinated biphenyls (PCBs) CB-1242 (Arochlor 1242)[3]		0.014[13]	0.000064 [3](13)	0.000064 [3](13)
PBC-1254 (Arochlor 1254)[3]		0.014	0.000064 [13]	0.000064 [13]

~~PRIORITY POLLUTANTS~~

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
	~~Aquatic Life Acute Value Micrograms/L~~	~~Aquatic Life Chronic Value Micrograms/L~~	~~Human Health Value Fish & Drinking Water[2] Micrograms/L~~	~~Human Health Value Fish Only[8] Micrograms/L~~
~~PBC-1221 (Arochlor 1221)[3]~~		~~0.014~~	~~0.000064[13]~~	~~0.000064[13]~~
~~PBC-1232 (Arochlor 1232)[3]~~		~~0.014~~	~~0.000064[13]~~	~~0.000064[13]~~
~~PBC-1248 (Arochlor 1248)[3]~~		~~0.014~~	~~0.000064[13]~~	~~0.000064[13]~~
~~PBC-1260 (Arochlor 1260)[3]~~		~~0.014~~	~~0.000064[13]~~	~~0.000064[13]~~
~~PBC-1016 (Arochlor 1016)[3]~~		~~0.014~~	~~0.000064[13]~~	~~0.000064[13]~~
Toxaphene[3]	0.73	0.0002	0.00028[3]	0.00028[3]
Antimony			5.6	640
Arsenic[3]	340	150	10[3][9]	10[3][9]
Asbestos[3]			7,000,000 fibers/L[9]	
Beryllium[3]			4[9]	
Cadmium	2.0[4]	0.25[4]	5[9]	
Chromium (III)	569.8[4]	74.1[4]	100[9] (total)	
Chromium (VI)	16	11	100[9] (total)	
Copper	13.4[4]	9[4]	1000[7]	
Cyanide (free)	22	5.2	140[6]~~200~~[9]	140[6]~~220000~~
Lead	64.6[4]	2.5[4]	15[9]	
Mercury	1.4	0.77	0.050	0.051
Nickel	468.2[4]	52.0[4]	610~~100~~[9]	4,600
Selenium	20[10]	5[10]	50[9]	4,200
Silver	~~3.4~~1.7[4][16]			
Thallium			0.2~~.~~4	0.4~~.~~7
Zinc	117.2[4]	118.1[4]	5,000[7]	26,000
Dioxin (2,3,7,8-TCDD)[3]			0.000000005[3]	0.000000005[3]

(b) Non-Priority Pollutants.

Non-Priority Pollutant	Aquatic Life		Human Health Consumption of	
	~~Aquatic Life~~ Acute Value ~~Micrograms/L~~ (µg/L)	~~Aquatic Life~~ Chronic Value ~~Micrograms/L~~ (µg/L)	~~Human Health Value~~ Fish and ~~&~~ Drinking Water[2] ~~Micrograms/L~~ (µg/L)	~~Human Health Value~~ Fish ~~Only~~[8] ~~Micrograms/L~~ (µg/L)
Alachlor[3]			2[9]	
Aluminum (pH 6.5-9.0 only)	750	87[14]		
Ammonia	See Appendix C			
Atrazine			3[9]	
Barium			2,000[9]	
Bis(chloromethyl) eEther[3]			0.00010[3]	0.00029[3]
Bromate			10[9]	
Carbofuran			40[9]	
Chloride	860,000[15]	230,000[15]		
Chlorine (total residual)	19	11		
Chlorite			1,000[9]	
Chlorophenoxy hHerbicide (2,4,5,-TP)			10	
Chlorpyrifos	0.083	0.041		
Chlorophenoxy hHerbicide (2,4,-D)			70[9]	
Dalapon			200[9]	
Demeton		0.1		
Di(2-ethylhexyl) adipate			400[9]	
Diazinon	0.17	0.17		
Dibromochloropropane (DBCP)[3]			0.2[9]	
cis-1,2-Dichloroethylene ~~(cis-1,2-)~~			70[9]	
Dinoseb			7[9]	
Dinitrophenols			69	5,300
Dissolved Gases		100% Sat.		
Dissolved Oxygen		See Appendix D		
E. coli			See Section 27	

Non-Priority Pollutant	Aquatic Life		Human Health Consumption of	
	~~Aquatic Life~~ Acute Value ~~Micrograms/L~~ (µg/L)	~~Aquatic Life~~ Chronic Value ~~Micrograms/L~~ (µg/L)	~~Human Health Value~~ Fish and ~~&~~ Drinking Water[2] ~~Micrograms/L~~ (µg/L)	~~Human Health Value~~ Fish ~~Only~~[8] ~~Micrograms/L~~ (µg/L)
Diquat			20[9]	
Endothall			100[9]	
Ethylene dibromide (EDB)~~[3]~~			0.05[9]	
Fluoride			-2000[11~~9~~]	
Glyphosate			700[9]	
Guthion		0.01		
Haloacetic acids			60[9]	
Hexachlorocyclo-hexane - technical			0.0123[3]	0.0414[3]
Iron		1000[12]	300[11]	
Malathion		0.1		
Manganese	3110[4][12]	1462[4][12]	50[11]	
Methoxychlor		0.03	40[9]	
Mirex		0.001		
Nitrite (as N)			1000[9]	
Nitrates (as N)			10000[9]	
Nitrite+Nitrate (both as N)			10000[9]	
Nitrosamines			0.0008	1.24
Nitrosodibutylamine, N			-0.0063[3]	-0.22[3]
Nitrosodiethylamine, N			0.0008[3]	1.24[3]
N-~~n~~itrosopyrrolidi~~e~~ne, N[3]			0.016[3]	-34[3]
Nonylphenol	28	6.6		
Oxamyl (Vydate)			200[9]	
Parathion	0.065	0.013		
Pentachlorobenzene			-1.4	-1.,5
pH		6.5-9.0		
Picloram			500[9]	
Simazine			4[9]	
Styrene			100[9]	

Non-Priority Pollutant	Aquatic Life		Human Health Consumption of	
	~~Aquatic Life~~ Acute Value ~~Micrograms/L~~ (µg/L)	~~Aquatic Life~~ Chronic Value ~~Micrograms/L~~ (µg/L)	~~Human Health Value~~ Fish and ~~&~~ Drinking Water[2] ~~Micrograms/L~~ (µg/L)	~~Human Health Value~~ Fish ~~Only~~[8] ~~Micrograms/L~~ (µg/L)
~~Sulfide~~ Hydrogen Sulfide (H_2S; Undissociated) ~~(S^{2-}, HS^-)~~		2		
1,2,4,5-Ttetrachlorobenzene			~~-~~0.97	~~-~~1.1
Tributyltin (TBT)	0.46	0.0726~~3~~		
~~Trichlorfluoromethane~~			~~10000~~	~~860000~~
2,4,5-Ttrichlorophenol			1.0[7]	~~-~~3,600
Total trihalomethanes (TTHM)			80[9]	
2,4,5-TP (2,4,5-trichlorophenoxy) Ppropionic acid			50[9]	
Xylenes			10,000[9]	

(1) Except for the aquatic life values for metals and where otherwise indicated, the values given in ~~this~~ Appendix B refer to the total recoverable (dissolved plus suspended) amount of each substance. For the aquatic life values for metals, the values refer to dissolved amount.

(2) Except where otherwise indicated, these values are based on EPA Section 304(a) criteria recommendations assuming consumption of 2 liters of water and 17.5~~6.5~~ grams of aquatic organisms per day.

(3) Except for arsenic, the substance is classified as a carcinogen with the value based on an incremental risk of one additional instance of cancer in one million persons. Arsenic is classified as a carcinogen, however, the value is not based on an additional 1:1,000,000 cancer risk.

(4) Hardness dependent criterion~~a~~. Value given is an example only and is based on a $CaC~~0~~O_3$ hardness of 100 mg/L. Criteria for hardness concentrations other than 100 mg/L as $CaCO_3$ ~~each case~~ must be calculated using the formulas in Appendix F.

(5) pH dependent criterion~~a~~. Value given is an example only and is based on a pH of 7.8. Criteria for pH values other than 7.8~~each case~~ must be calculated using the formulas in Appendix G.

(6) Criterion expressed as total cyanide, even though the method used to derive the criterion is based on free cyanide. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g. $Fe_4[Fe(CN)_6]_3$), this criterion may be overly conservative. ~~Chemicals which are not individually classified as carcinogens but which are contained within a class of chemicals with carcinogenicity as the basis for the criteria derivation for that class of chemicals; an individual carcinogenicity assessment for these chemicals is pending.~~

(7) Criterion~~Value~~ is based on organoleptic (taste and odor) effects and is more stringent than if based solely on toxic or carcinogenic effects.

(8) EPA Section 304(a) human health criteria recommendation assuming consumption of contaminated aquatic organisms at a rate of 17.5~~6.5~~ grams per day.

(9) ~~The c~~Criterion is based on an EPA drinking water standard (m~~M~~aximum c~~C~~ontaminant l~~L~~evel or MCL).

(10) The~~is~~ value is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor 0.922 to convert this to a value that is expressed in terms of dissolved metal. Using this conversion, the ~~chronic~~ aquatic life chronic value for selenium is 4.61 µg/L as dissolved metal.

(11) ~~The iron and manganese~~ C~~c~~riterion~~a~~ is~~are~~ based on Safe Drinking Water Act secondary standards and is~~are~~ intended to prevent undesirable cosmetic or aesthetic effects. ~~These v~~Value~~s~~ represents the dissolved amount of each substance rather than the total amount. Criterion only applies where drinking water is an actual use.

(12) Value is based on the dissolved amount which is the amount that will pass through a 0.45 µm membrane filter prior to acidification to pH 1.5-2.0 with nitric acid.

(13) This criterion applies to total PCBs (~~,~~ i.e.~~,~~ the sum of all congener or all isomer or homolog or Aroclor analyses).

(14) The 87 µg/L chronic criterion for aluminum is based on information showing chronic effects on brook trout and striped bass. The studies underlying the 87 µg/L chronic value, however, were conducted at low pH (6.5~~-~~-6.6) and low hardness (< 10 mg/L~~ppm~~ $CaCO_3$), conditions uncommon in Wyoming surface waters. A water effect ratio toxicity study in West Virginia indicated that aluminum is substantially less toxic at higher pH and hardness (although the relationship is not well quantified at this time). ~~Further,~~ EPA is also aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg/L when either ~~the~~ total recoverable or dissolved aluminum is measured. Based on this information and considering the available toxicological information in Tables 1 and 2 of EPA's Aluminum Criteria Document (EPA 440/5-86-008), the d~~D~~epartment ~~of Environmental Quality~~ will implement the 87 µg/L chronic criterion for aluminum as follows: the 87 µg/L chronic criterion will apply except where the receiving water after mixing has a pH ~~is equal to or~~ greater than or equal to 7.0 and ~~the~~a hardness (as $CaCO_3$) ~~is~~ greater than or equal to ~~or greater than~~ 50 mg/L~~ppm as $CaCO_3$ in the~~

~~receiving water after mixing.~~. Where the receiving stream after mixing has a pH greater than or equal to 7.0 and a hardness (as $CaCO_3$) greater than or equal to 50 mg/L, the 750 ~~87~~ µg/L acute~~chronic~~ criterion will ~~not~~ apply~~, and aluminum will be regulated based on compliance with the 750 µg/L acute aluminum criterion~~. In situations where the 87 µg/L chronic criterion applies, a discharger may request development of and provide the basis for a site-specific chronic criterion based on a water-effect ratio.

~~(15)~~Criterion applies on Class 1, 2AB, 2B and 2C waters only.

(16)Criterion has been divided by two to be comparable with other acute values derived using an averaging period. Value can be multiplied by two if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded instantaneous maximum.

(c) Site-Specific Criteria.~~SITE-SPECIFIC CRITERIA.~~ The criteria in this section is applicable only to the waters and/or locations specified and replaces similar criteria expressed elsewhere in these regulations.

(i) Belle Fourche Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 waters in the Belle Fourche River Drainage above the confluence of Donkey Creek and the main stem of the Belle Fourche River;

(B) The numeric human health criteria for iron and manganese shall not apply to main stem of the Belle Fourche River below the confluence of Donkey Creek.

(ii) Big Horn River Drainage

(A) Cottonwood Creek (near Hamilton Dome): The aquatic life criterion for chloride shall be 860 mg/L and the aquatic life criterion for selenium shall be 43 µg/L. These values represent instantaneous maximum values, not to be exceeded at any time.

(iii) Cheyenne River Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 tributaries of Antelope Creek;

(B) The numeric human health criteria for iron and manganese shall not apply to Little Thunder Creek and all of its Class 2 tributaries below the confluence of North Prong.

(iv) Little Powder River Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 waters in the Little Powder River Drainage.

(v) North Platte River Drainage

(A) Poison Spider Creek: The aquatic life criterion for chloride shall be 531 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

(vi) Powder River Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 waters in the Powder River Drainage except on the following waters:

(I) The main stem of Clear Creek and its Class 2 tributaries

upstream of Clearmont, Wyoming;

(II) The main stem of Crazy Woman Creek and its Class 2 tributaries;

(III) The North Fork of the Powder River and all its Class 2 tributaries; and

(IV) The Middle Fork of the Powder River and all its Class 2 tributaries.

(B) Salt Creek: The aquatic life criterion for chloride shall be 1600 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

(C) Meadow Creek (tributary to Salt Creek): The aquatic life criterion for chloride shall be 1600 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

(D) Powder River below Salt Creek: The aquatic life criterion for chloride shall be 984 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

Appendix C

Ammonia Toxicity Criteria

(a) The ammonia values in the tables below are expressed in milligrams ammonia nitrogen per liter (mg N/L) and vary with temperature and/or pH, ~~and~~ fish species or fish life stage. The ammonia criteria for pH values not represented in the tables can be calculated using the formulas in section (b) of ~~this~~ Aappendix C.

(i) pH-Dependent Values of the Acute Criterion (CMC)[1] for Ammonia

Acute Values, (mg N/L)		
pH	**Salmonids Present**	**Salmonids Absent**
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

(ii) Temperature and pH Dependent Values of the Chronic Criterion (CCC)[2] for Ammonia, Fish Early Life Stages *Present*

Temperature, (°C)										
pH	**0**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

(iii) Temperature and pH Dependent Values of the Chronic Criterion (CCC)[2] for Ammonia, Fish Early Life Stages *Absent*

Temperature, (°C)										
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***	**16***
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

* At 15 °C and above, the criterion for fish early life stages absent is the same as the criterion for fish early life stages present.

(b) For pH values not expressed in the tables above, ammonia toxicity criteria can be calculated as follows:

(i) Criterion maximum concentration (CMC) when s~~S~~almonids or other sensitive cold water species are present:

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

(ii) Criterion maximum concentration (CMC) when ~~S~~salmonids or other sensitive cold water species are absent:

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

(iii) Criterion c~~C~~ontinuous c~~C~~oncentration (CCC) when fish early life stages are present:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * MIN(2.85, 1.45*10^{0.028*(25-T)})$$

(iv) Criterion c~~C~~ontinuous c~~C~~oncentration (CCC) when fish early life stages are absent:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * 1.45*10^{0.028*(25-MAX(T,7))}$$

.

(1) Criterion m~~M~~aximum c~~C~~oncentration (CMC) refers to the one-hour average concentration of total ammonia nitrogen (~~in~~ mg N/L) not to be exceeded more than once every three (3) years. The CMC can also be referred to as the acute value.

(2) Criterion c~~C~~ontinuous c~~C~~oncentration (CCC) refers to the 30-day average concentration of total ammonia nitrogen (~~in~~ mg N/L) not to be exceeded more than once every three (3) years. In addition, the highest 4-day average within the 30-day period should not exceed 2.5 times the CCC. The CCC can also be referred to as the chronic value. The CCC values are implemented on Class 2 waters with an assumption that early life stages of fish are present. This assumption can be rebutted, but only where a permittee, discharge permit applicant or affected party provides sufficient site-specific information to support a conclusion that the assumption is not appropriate for that water body.

Appendix D

Minimum Dissolved Oxygen Criteria* (mg/L)

	Cold Water Criteria		Class 2C and Warm Water Criteria	
	Early Life Stages[1],[2]	Other Life Stages	Early Life Stages[2]	Other Life Stages
30 Day Mean	n/aNA[3]	6.5	n/aNA[3]	5.5
7 Day Mean	9.5 (6.5)	n/aNA[3]	6.0	n/aNA[3]
7 Day Mean Minimum[4]	n/aNA[3]	5.0	n/aNA[3]	4.0
1 Day Minimum[4]	8.0 (5.0)	4.0	5.0	3.0

*These limitations apply to Class 1, 2AB, 2B and 2C waters only and in no case shall be interpreted to require dissolved oxygen concentrations greater than 100 percent saturation at ambient temperature and elevation. Criteria derived from: *U.S. EPA. 1986. Ambient Water Quality Criteria. EPA 440/5-86-003. National Technical Service, Springfield, VA.*

[1] These are water column concentrations recommended to achieve the required inter-gravel dissolved oxygen concentrations shown in parentheses. For species that have early life stages exposed directly to the water column, the figures in parentheses apply.

[2] Includes all embryonic and larval stages and all juvenile forms to 30-days following hatching.

[3] n/aNA (not applicable).

[4] All minima should be considered as instantaneous concentrations to be achieved at all times.

~~* These limitations apply to Class 1, 2A, 2B and 2C waters only and in no case shall be interpreted to require dissolved oxygen concentrations greater than 100 percent saturation at ambient temperature and elevation.~~

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Appendix E

References to~~for~~ Develop Site-Specific Criteria and ~~Use in Making~~ Bioassays ~~of Surface Waters~~

U.S. Environmental Protection Agency: Quality Criteria for Water. EPA-440/5-86/001. U.S. EPA, 1986.

U.S. Environmental Protection Agency: Ambient Water Quality Criteria Documents, 1980, and subsequent revisions. U.S. EPA, 1980.

U.S. Environmental Protection Agency: Guidelines for Deriving Numerical National Water Qual-ity Criteria for the Protection of Aquatic Organisms and their Uses. U.S. EPA, 1985.

U.S. Environmental Protection Agency: Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses. U.S. EPA, 1983.

U.S. Environmental Protection Agency: Technical Guidance Manual for Performing Waste Load Allocation, Book VI, Chapter 1: Stream Design Flow for Steady-State Modeling. U.S. EPA, 1986.

U.S. Environmental Protection Agency: Technical Support Document for Water Quality Based Toxics Control. U.S. EPA, 1985.

U.S. Environmental Protection Agency: Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. EPA-600/4-85/013. U.S. EPA, 1985.

U.S. Environmental Protection Agency: Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Second Edition. EPA-600/4-89/001. U.S. EPA, 1989.

U.S. Environmental Protection Agency: Water Quality Standards Handbook, Second Edition, EPA 823-B-94-005a, August 1994, with Appendices.

U.S. Environmental Protection Agency: Aquatic Life Ambient Freshwater Quality Criteria-Copper. EPA-822-R-07-001. U.S. EPA, 2007.

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Appendix F

Conversion Factors to Change: Total Recoverable Metal Values to Dissolved Values for Metals and Equations For Parameters With Hardness[1] Dependent Metals

(a) Conversion Factors. Aquatic life values for the following metals are based on the dissolved amounts of each substance. The recommended aquatic life value was calculated by using previous 304(a) aquatic life values expressed in terms of total recoverable metal and multiplying it by a conversion factor (CF). Because the National Toxics Criteria *(EPA's Section 304(a) criteria)* are expressed as "total recoverable" values, the application of a The conversion factors provided below are is necessary to convert from a metal value expressed as the "total recoverable" fraction in the water column to the to "dissolved" fraction in the water column.

Furthermore, The toxicity of these associated metals also varies with hardness and the total recoverable value must be calculated based on the $CaCO_3$ hardness (mg/L of $CaCO_3$) prior to multiplying by the conversion factor (CF).

(i) The conversion factors for the following metals are constants:

Metal	Acute Value	Chronic Value
Chromium (III)	0.316	0.860
Copper	0.960	0.960
Nickel	0.998	0.997
Silver	0.85	n/aN/A
Zinc	0.978	0.986

(ii) The conversion factors (CF) for Ccadmium and lLead are not constant but vary with hardness (mg/L of $CaCO_3$) and. Conversion factors can be calculated using the following equations, although when an ambient hardness of less than 25 mg/L (as $CaCO_3$) is used to establish criteria for lead or cadmium, the conversion factor should not exceed one[a]:

(A) Cadmium Acute: CF = 1.136672 - [(ln hardness)(0.041838)]

(B) Cadmium Chronic: CF = 1.101672 - [(ln hardness)(0.041838)]

(C) Lead Acute and Chronic: CF = 1.46203 - [(ln hardness)(0.145712)]

(b) Equations fFor ~~Parameters With~~ Hardness[(1)] Dependentce Metals. Aquatic life values at various hardness[(b)] concentrations can be calculated using the formulas below. The formulas include the conversion factors to derive ~~the~~ dissolved metal values:

Parameter	Acute 1-Hour Average Concentration (µg/L)	Chronic 4-Day Average Concentration (µg/L)
Cadmium	$e^{(1.0166[\ln(\text{hardness})]-3.924)}(CF)$	$e^{(0.7409[\ln(\text{hardness})]-4.719)}(CF)$
Chromium (III)	$e^{(0.8190[\ln(\text{hardness})]+3.7256)}(0.316)$	$e^{(0.8190[\ln(\text{hardness})]+0.6848)}(0.860)$
Copper	$e^{(0.9422[\ln(\text{hardness})]-1.700)}(0.960)$	$e^{(0.8545[\ln(\text{hardness})]-1.702)}(0.960)$
Lead	$e^{(1.273[\ln(\text{hardness})]-1.460)}(CF)$	$e^{(1.273[\ln(\text{hardness})]-4.705)}(CF)$
Manganese	$e^{(0.7693[\ln(\text{hardness})]+4.4995)}$	$e^{(0.5434[\ln(\text{hardness})]+4.7850)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})]+2.255)}(0.998)$	$e^{(0.8460[\ln(\text{hardness})]+0.0584)}(0.997)$
Silver	$e^{(1.72[\ln(\text{hardness})]-6.52)}(0.85)(0.5)$[(c)]	~~N/A~~n/a
Zinc	$e^{(0.8473[\ln(\text{hardness})]+0.884)}(0.978)$	$e^{(0.8473[\ln(\text{hardness})]+0.884)}(0.986)$

[(a)]Based on Guidance on the Calculation of Hardness-Dependent Metals Criteria presented in: *U.S. EPA. 2002. National Recommended Water Quality Criteria. EPA-822-R-02-047.*

[(b1)] Hardness as mg/L $CaCO_3$. Hardness values used in these equations must be less than 400 mg/L. For hardness values greater than 400 mg/L, use 400.

[(c)]Criterion multiplied by 0.5 to be comparable with other acute values derived using an averaging period. Value does not need to be multiplied by 0.5 if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded instantaneous maximum.

Appendix G

Equations For ~~Parameters With~~ pH Dependent Parameters~~ce~~

~~Parameter~~	~~4-Day Average Concentration (µg/L)~~	~~1-Hour Average Concentration (µg/L)~~
~~Pentachloro-Phenol~~	~~$e^{[1.005\ (pH)\ -5.290]}$~~	~~$e^{[1.005\ (pH)\ -4.830]}$~~

Parameter	Acute 1-Hour Average Concentration (µg/L)	Chronic 4-Day Average Concentration (µg/L)
Pentachlorophenol	$e^{[1.005(pH)\ -\ 4.830)}$	$e^{[1.005(pH)\ -\ 5.290)}$

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WATER QUALITY RULES AND REGULATIONS

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Chapter 1

WYOMING SURFACE WATER QUALITY STANDARDS

Section 1. **Authority**. These regulations are promulgated pursuant to Wyoming Statutes (W.S.) 35-11-101 through 35-11-1803, specifically 302(a)(i) and 302(b)(i) and (ii), and no person shall cause, threaten or allow violation of a surface water quality standard contained herein. Nothing in this definition is intended to expand the scope of the Environmental Quality Act, defined at W.S. 35-11-103(a)(xiii) and limited in W. S. 35-11-1104, nor do these regulations supersede or abrogate the authority of the state to appropriate quantities of water for beneficial uses.

Section 2. **Definitions**.

(a) The definitions in W.S. 35-11-103(a) and (c) of the Wyoming Environmental Quality Act apply to these rules. For example:

(i) "Credible data" means scientifically valid chemical, physical and biological monitoring data collected under an accepted sampling and analysis plan, including quality control, quality assurance procedures and available historical data;

(ii) "Discharge" means any addition of any pollution or wastes to any waters of the state;

(iii) "Ecological function" means the ability of an area to support vegetation and fish and wildlife populations, recharge aquifers, stabilize base flows, attenuate flooding, trap sediment and remove or transform nutrients and other pollutants;

(iv) "Man-made wetlands" means those wetlands that are created intentionally or occur incidental to human activities, and includes any enhancement made to an existing wetland which increases its function or value;

(v) "Mitigation" means all actions to avoid, minimize, restore and compensate for ecological functions or wetland values lost;

(vi) "Natural wetlands" means those wetlands that occur independently of human manipulation of the landscape;

(vii) "Nonpoint source" means any source of pollution other than a point source. For purposes of W.S. 16-1-201 through 16-1-207 only, nonpoint source includes leaking underground storage tanks as defined by W.S. 35-11-1415(a)(ix) and aboveground storage tanks as defined by W.S. 35-11-1415(a)(xi);

(viii) "Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged;

(ix) "Pollution" means contamination or other alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity or odor of the waters or any discharge of any acid or toxic material, chemical or chemical compound, whether it be liquid, gaseous, solid, radioactive or other substance, including wastes, into any waters of the state which creates a nuisance or renders any waters harmful, detrimental or injurious to public health, safety or welfare, to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial uses, or to livestock, wildlife or aquatic life, or which degrades the water for its intended use, or adversely affects the environment. This term does not mean water, gas or other material which is injected into a well to facilitate production of oil, or gas or water, derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the state, and if the state determines that such injection or disposal well will not result in the degradation of ground or surface or water resources;

(x) "Wastes" means sewage, industrial waste and all other liquid, gaseous, solid, radioactive, or other substances which may pollute any waters of the state;

(xi) "Waters of the state" means all surface and groundwater, including waters associated with wetlands, within Wyoming;

(xii) "Wetlands" means those areas in Wyoming having all three (3) essential characteristics:

(A) Hydrophytic vegetation;

(B) Hydric soils; and

(C) Wetland hydrology.

(xiii) "Wetland value" means those socially significant attributes of wetlands such as uniqueness, heritage, recreation, aesthetics and a variety of economic values.

(b) The following definitions supplement those definitions contained in W.S. 35-11-103 of the Wyoming Environmental Quality Act.

(i) "Acute value" means the one hour average concentration. The EPA has determined that this value, if not exceeded more than once every three years on average, should not result in unacceptable effects on freshwater aquatic organisms and

their uses. Acute values represent a response to a stimulus severe enough to induce a rapid reaction, typically in 96 hours or less. Appendix B contains acute values for certain pollutants.

(ii) "Adjacent wetlands" means wetlands that are connected by a defined channel to a surface tributary system, are within the 100 year flood plain of a river or stream, or occupy the fringe of any still water body which is connected by a defined channel to a surface tributary system.

(iii) "Ambient-based criteria" means water quality criteria that are calculated based upon actual ambient or background water body conditions.

(iv) "Aquatic life" means fish, invertebrates, amphibians and other flora and fauna which inhabit waters of the state at some stage of their life cycles. Aquatic life does not include insect pests or exotic species which may be considered undesirable by the Wyoming Game and Fish or U.S. Fish and Wildlife Service within their appropriate jurisdictions and identified human pathogens.

(v) "Best management practices (BMPs)" means a practice or combination of practices that after problem assessment, examination of alternative practices, and in some cases public participation, are determined to be the most technologically and economically feasible means of managing, preventing or reducing nonpoint source pollution.

(vi) "Chronic value" means the four day average concentration. The EPA has determined that this value, if not exceeded more than once every three years on average, should not result in unacceptable effects on freshwater aquatic organisms and their uses. Chronic values represent a response to a continuous, long-term stimulus. Appendix B contains chronic values for certain pollutants.

(vii) "Cold water game fish" means burbot (genus *Lota*), grayling (genus *Thymallus*), trout, salmon and char (genera *Salmo*, *Oncorhynchus* and *Salvelinus*) and whitefish (genus *Prosopium*).

(viii) "Construction-related discharge" means discharges of sediment or turbidity related to construction activities in or along waters of the state. Generally, these discharges include, but are not limited to, construction site dewatering, temporary diversions, runoff from construction sites, excavation or equipment operation beneath the water's surface, the discharge of dredged or fill material and placement of structural members such as bridge abutments, culverts, pipelines, etc. into or across any water of the state.

(ix) "Designated uses" means those uses specified in water quality standards for each water body or segment whether or not they are being attained.

(x) "Dissolved oxygen" means a measure of the amount of free oxygen in water.

(xi) "*E. coli*" means any of the bacterium in the family Enterobacteriaceae named *Escherichia* (genus) *coli* (species).

(xii) "Effluent dependent water" means a water body with insufficient natural flow to support aquatic life, but which has perennial or intermittent flows for all or a portion of its length as the result of the discharge of wastewater.

(xiii) "Effluent limitations" means any restriction established by the state or by the administrator of the Environmental Protection Agency on quantities, rates and concentrations of chemical, physical, biological and other constituents which are discharged from point sources into waters of the state, including schedules of compliance.

(xiv) "Environmental Protection Agency" means the federal Environmental Protection Agency (EPA).

(xv) "Ephemeral stream" means a stream which flows only in direct response to a single precipitation event in the immediate watershed or in response to a single snow melt event, and which has a channel bottom that is always above the prevailing water table.

(xvi) "Eutrophic" means the condition whereby waters or environments saturated with water become nutrient enriched (especially with phosphorus or nitrogen). This action leads to those waters becoming oxygen depleted or anaerobic.

(xvii) "Existing quality" as used in these regulations refers only to Class 1 waters and means the established chemical, physical and biological water quality as of the date the specific water segment was designated Class 1 with recognition that water quality will fluctuate on a seasonal and year-to-year basis depending upon natural variations in water quantity.

(xviii) "Existing use" means those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.

(xix) "Federal Act" means the Federal Water Pollution Control Act (Clean Water Act) and amendments as of November 27, 2002.

(xx) "Full body contact water recreation" means any recreational or other surface water use in which there is contact with the water sufficient to pose a significant health hazard (i.e. water skiing, swimming).

(xxi) "Game fish" means bass (genera *Micropterus* and *Ambloplites*), catfish and bullheads (genera *Ameiurus, Ictalurus, Noturus* and *Pylodictis*), crappie (genus *Pomoxis*), freshwater drum (genus *Aplodinotus*), grayling (genus *Thymallus*), burbot (genus *Lota*), pike (genus *Esox*), yellow perch (genus *Perca*), sturgeon (genus *Scaphirhynchus*), sunfish (genus *Lepomis*), trout, salmon and char (genera *Salmo, Oncorhynchus* and *Salvelinus*), walleye and sauger (genus *Sander*) and whitefish (genus *Prosopium*).

(xxii) "Historic data" means scientifically valid data that are more than five years old, or qualitative information that adds some factual information on the historic conditions of a water body. This historic qualitative information may include photographs, journals and factual testimony of persons who have lived near or relied upon the water body, and old records on water use and water conditions.

(xxiii) "Hydric soil" means a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

(xxiv) "Hydrophytic vegetation" means a community of plants where, under normal circumstances, more than 50 percent of the composition of the dominant species from all strata are obligate wetland (OBL), facultative wetland (FACW), and/or facultative (FAC) species; or a frequency analysis of all species within the community yields a prevalence index value of less than 3.0 (where OBL = 1.0, FACW = 2.0, FAC = 3.0, FACU (facultative upland) = 4.0, and UPL (upland species) = 5.0).

(xxv) "Intermittent stream" means a stream or part of a stream where the channel bottom is above the local water table for some part of the year, but is not a perennial stream.

(xxvi) "Isolated water" means any surface water of the state which is not connected by a defined channel to a surface tributary system, is not within the 100 year flood plain of any river or stream and does not occupy the fringe of any still water body which is connected by a defined channel to a surface tributary system.

(xxvii) "Main stem" means the major channel of a river or stream as shown on the latest and most detailed records of the Wyoming State Engineer.

(xxviii)"Micrograms per liter (µg/L)" means micrograms of solute per liter of solution equivalent to parts per billion (ppb) in liquids, assuming unit density.

(xxix) "Milligrams per liter (mg/L)" means milligrams of solute per liter of solution equivalent to parts per million (ppm) in liquids, assuming unit density.

(xxx) "Mixing zone" means limited area or volume of a surface water body within which an effluent becomes thoroughly mixed with the water body.

(xxxi) "Natural" means that condition which would exist without the measurable influence of man's activities.

(xxxii) "Natural biotic community" means the population structures which were historically or normally present under a given set of chemical and physical conditions or which would potentially exist without the measurable influence of man's activities had the habitat not been altered.

(xxxiii)"Natural water quality" means that quality of water which would exist without the measurable influence of man's activities.

(xxxiv)"Nephelometric turbidity unit (NTU)" means the standard unit used to measure the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through water, as measured by a nephelometer.

(xxxv) "Net environmental benefit (NEB)" means a risk management approach to derive site-specific criteria for effluent dependent water bodies that weighs the potential for loss of a permitted effluent discharge against the benefits of augmented flow. A net environmental benefit is demonstrated where there is a credible threat to remove the permitted discharge, the discharge has been shown to create an environmental benefit, removal of the discharge would cause more environmental harm than leaving it in place and the discharge will not pose a health risk to humans, livestock or wildlife.

(xxvi) "Nongame fish" means all fish species except those listed in Section 2(b)(xxi) above.

(xxxvii)"Non-priority pollutant" means any substance or combination of substances other than those listed by EPA under Section 307(a) of the Clean Water Act.

(xxxviii)"Perennial stream" means a stream or part of a stream that flows continually during all of the calendar year as the result of a groundwater discharge or surface runoff.

(xxxix)"pH" means a term used to express the intensity of acidic or alkaline conditions. pH is a measure of the hydrogen ion activity in a water sample. It is mathematically related to hydrogen ion activity according to the expression: $pH = -\log 10 (H^+)$, where (H^+) is the hydrogen ion activity. A pH value of 7 at 25 degrees Celsius is neutral, with pHs less than 7 progressively more acidic and pHs greater than 7 progressively more basic (alkaline).

(xl) "PicoCuries per liter (pCi/L)" means a term describing the radiation level of water or solutions. A picocurie is equal to 10^{-12} curie; a curie is defined as 3.7×10^{10} disintegrations per second.

(xli) "Priority pollutants" means those substances or combination of substances that are listed by EPA under Section 307(a) of the Clean Water Act.

(xlii) "Primary contact recreation" means any recreational or other surface water use that could be expected to result in ingestion of the water or immersion (full body contact).

(xliii) "Salinity" means the total mineral dissolved constituents, after carbonates have been converted to oxides, organics have been oxidized and bromine and iodine have been replaced by chloride. This term is often used interchangeably with the term total dissolved solids.

(xliv) "Seasonal fishery" means a water body, or portion thereof, which supports game and/or nongame fish or spawning for only a portion of the year, but does not have the natural physical conditions necessary to support those uses on a year round basis. Seasonal fisheries may include intermittent and ephemeral streams, shallow reservoirs, lakes or ponds, which either naturally recruit fish from adjacent perennial water bodies or are managed as put-and-take fisheries.

(xlv) "Secondary contact recreation" means any recreational or other surface water use in which contact with water is either incidental or accidental and that would not be expected to result in ingestion of the water or immersion.

(xlvi) "Storm water", for the purposes of Section 7 of these regulations, means surface runoff from construction sites or industrial activities which are regulated under Section 402(p) of the Clean Water Act and Chapter 2 of the Wyoming Water Quality Rules and Regulations. Excluded from this definition are those storm water discharges associated with industrial activities which are subject to an existing federal effluent limitation guideline addressing storm water and where the constituents listed in the federal effluent limitations have a reasonable potential to affect the receiving waters.

(xlvii) "Surface waters of the state" means all perennial, intermittent and ephemeral defined drainages, lakes, reservoirs and wetlands which are not man-made retention ponds used for the treatment of municipal, agricultural or industrial waste; and all other bodies of surface water, either public or private which are wholly or partially within the boundaries of the state. Nothing in this definition is intended to expand the scope of the Environmental Quality Act, as limited in W.S. 35-11-1104.

(xlviii) "Toxic materials" means those materials or combinations of materials including disease causing agents, which, after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the director of the Wyoming Department of Environmental Quality (department), cause death, disease, behavioral abnormalities, cancer, genetic

malfunctions, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such organisms or their offspring.

(xlix) "Tributary" means those streams or stream segments which flow into or contribute water to another stream, stream segment, downstream reach of the same stream or other water body.

(l) "Undesirable aquatic life" means organisms generally associated with degraded or eutrophic conditions. These may include the following organisms where they have replaced members of the natural biotic community: exotic fish or species which are designated "undesirable" by the Wyoming Game and Fish Department or the U.S. Fish and Wildlife Service within their appropriate jurisdictions.

(li) "Use attainability analysis (UAA)" means a structured scientific assessment of the factors affecting the attainment of the use. The factors may include physical, chemical, biological and economic factors as described in Section 33 of these regulations.

(lii) "Warm water game fish" means bass (genera *Micropterus* and *Ambloplites*), catfish and bullheads (genera *Ameiurus*, *Ictalurus*, *Noturus* and *Pylodictus*), crappie (genus *Pomoxis*), yellow perch (genus *Perca*), sunfish (genus *Lepomis*), walleye and sauger (genus *Sander*), pike (genus *Esox*), sturgeon (genus *Scaphirhynchus*) and freshwater drum (genus *Aplodinotus*).

(liii) "Wetland hydrology" means the presence of water on or near the land surface at a frequency and duration to cause the formation of hydric soils and support a prevalence of vegetation typically adapted to saturated and/or inundated conditions.

(liv) "Wyoming Continuing Planning Process (CPP)" means a planning process provided for under Section 303(e)(1) of the Clean Water Act developed through public participation and consisting of policies, procedures and programs that result in the definition and implementation of actions that lead to the prevention, reduction and abatement of water pollution and for the protection and enhancement of water uses in the State of Wyoming. The CPP is continuous in time and is designed to respond to changes in conditions and attitudes. The CPP is adopted by resolution of the Water and Waste Advisory Board and is certified by the Governor.

(lv) "Wyoming surface waters" shall have the same meaning as "surface waters of the state" defined in Section 2(b)(xlvii).

(lvi) "Zone of passage" means a continuous water route which joins segments of a surface water body above and below a mixing zone.

(lvii) "404 permit" means a permit issued pursuant to Section 404 of the Clean Water Act to regulate the discharge of dredged or fill materials into surface waters of the United States.

Section 3. **Water Uses**. The objectives of the Wyoming water pollution control program are described in W.S. 35-11-102. These objectives are designed to serve the interests of the state and achieve the related goals, objectives and policies of the Clean Water Act. The objectives of the Wyoming program are to provide, wherever attainable, the highest possible water quality commensurate with the following uses:

(a) Agriculture. For purposes of water pollution control, agricultural uses include irrigation and/or livestock watering.

(b) Fisheries. The fisheries use includes water quality, habitat conditions, spawning and nursery areas, and food sources necessary to sustain populations of cold water game fish, warm water game fish and nongame fish. This use does not include the protection of exotic species which are designated "undesirable" by the Wyoming Game and Fish Department or the U.S. Fish and Wildlife Service within their appropriate jurisdictions.

(c) Industry. Industrial use protection involves maintaining a level of water quality useful for industrial purposes.

(d) Drinking water. The drinking water use involves maintaining a level of water quality that is suitable for potable water or intended to be suitable after receiving conventional drinking water treatment.

(e) Recreation. Recreational use protection involves maintaining a level of water quality which is safe for human contact. It does not guarantee the availability of water for any recreational purpose. The recreation designated use includes primary contact recreation and secondary contact recreation subcategories.

(f) Scenic value. Scenic value use involves the aesthetics of the aquatic systems themselves (odor, color, taste, settleable solids, floating solids, suspended solids and solid waste) and is not necessarily related to general landscape appearance.

(g) Aquatic life other than fish. This use includes water quality and habitat necessary to sustain populations of organisms other than fish in proportions which make up diverse aquatic communities common to the waters of the state. This use does not include the protection of insect pests or exotic species which may be considered "undesirable" by the Wyoming Game and Fish Department or the U.S. Fish and Wildlife Service within their appropriate jurisdictions or human pathogens.

(h) Wildlife. The wildlife use includes protection of water quality to a level which is safe for contact and consumption by avian and terrestrial wildlife species.

(i) Fish consumption. The fish consumption use involves maintaining a level of water quality that will prevent any unpalatable flavor and/or accumulation of harmful substances in fish tissue.

Section 4. **Surface Water Classes and Uses**. The following water classes are a hierarchical categorization of waters according to existing and designated uses. Except for Class 1 waters, each classification is protected for its specified uses plus all the uses contained in each lower classification. Class 1 designations are based on value determinations rather than use support and are protected for all uses in existence at the time or after designation. There are four major classes of surface water in Wyoming with various subcategories within each class (see *Wyoming Surface Water Classification List* for current classifications).

(a) Class 1, Outstanding Waters. Class 1 waters are those surface waters in which no further water quality degradation by point source discharges other than from dams will be allowed. Nonpoint sources of pollution shall be controlled through implementation of appropriate best management practices. Pursuant to Section 7 of these regulations, the water quality and physical and biological integrity which existed on the water at the time of designation will be maintained and protected. In designating Class 1 waters, the Environmental Quality Council (council) shall consider water quality, aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal, industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence of significant quantities of developable water and other values of present and future benefit to the people.

(b) Class 2, Fisheries and Drinking Water. Class 2 waters are waters, other than those designated as Class 1, that are known to support fish and/or drinking water supplies or where those uses are attainable. Class 2 waters may be perennial, intermittent or ephemeral and are protected for the uses indicated in each subcategory listed below. There are five subcategories of Class 2 waters.

(i) Class 2AB. Class 2AB waters are those known to support game fish populations or spawning and nursery areas at least seasonally and all their perennial tributaries and adjacent wetlands and where a game fishery and drinking water use is otherwise attainable. Class 2AB waters include all permanent and seasonal game fisheries and can be either "cold water" or "warm water" depending upon the predominance of cold water or warm water species present. All Class 2AB waters are designated as cold water game fisheries unless identified as a warm water game fishery by a "ww" notation in the *Wyoming Surface Water Classification List*. Unless it is shown otherwise, these waters are presumed to have sufficient water quality and quantity to support drinking water supplies and are protected for that use. Class 2AB waters are also protected for nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value uses.

(ii) Class 2A. Class 2A waters are those that are not known nor have the potential to support fish but are used for public or domestic drinking water supplies, including their perennial tributaries and adjacent wetlands. Uses designated on Class 2A waters include drinking water, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

(iii) Class 2B. Class 2B waters are those known to support or have the potential to support game fish populations or spawning and nursery areas at least seasonally and all their perennial tributaries and adjacent wetlands and where it has been shown that drinking water uses are not attainable pursuant to the provisions of Section 33. Class 2B waters include permanent and seasonal game fisheries and can be either "cold water" or "warm water" depending upon the predominance of cold water or warm water species present. All Class 2B waters are designated as cold water game fisheries unless identified as a warm water game fishery by a "ww" notation in the *Wyoming Surface Water Classification List*. Uses designated on Class 2B waters include game and nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

(iv) Class 2C. Class 2C waters are those known to support or have the potential to support only nongame fish populations or spawning and nursery areas at least seasonally including their perennial tributaries and adjacent wetlands. Class 2C waters include all permanent and seasonal nongame fisheries and are considered warm water. Uses designated on Class 2C waters include nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

(v) Class 2D. Effluent dependent waters which are known to support fish populations and where the resident fish populations would be significantly degraded in terms of numbers or species diversity if the effluent flows were removed or reduced. Class 2D waters are protected to the extent that the existing fish communities and other designated uses are maintained and that the water quality does not pose a health risk or hazard to humans, livestock or wildlife. Uses designated on Class 2D waters include game or nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value.

(c) Class 3, Aquatic Life Other than Fish. Class 3 waters are waters, other than those designated as Class 1, that are intermittent, ephemeral or isolated waters and because of natural habitat conditions, do not support nor have the potential to support fish populations or spawning, or certain perennial waters which lack the natural water quality to support fish (e.g. geothermal areas). Class 3 waters provide support for invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles. Uses designated on Class 3 waters include aquatic life other than fish, recreation, wildlife, industry, agriculture and scenic value. Generally, waters suitable for this classification have wetland characteristics, and such characteristics will be a primary indicator used in identifying Class 3 waters. There are four subcategories of Class 3 waters.

(i) Class 3A. Class 3A waters are isolated waters including wetlands that are not known to support fish populations or drinking water supplies and where those uses are not attainable.

(ii) Class 3B. Class 3B waters are tributary waters including adjacent wetlands that are not known to support fish populations or drinking water supplies and where those uses are not attainable. Class 3B waters are intermittent and ephemeral streams with sufficient hydrology to normally support and sustain communities of aquatic life including invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles. In general, 3B waters are characterized by frequent linear wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 3B waters.

(iii) Class 3C. Class 3C waters are perennial streams without the natural water quality potential to support fish or drinking water supplies but do support wetland characteristics. These may include geothermal waters and waters with naturally high concentrations of dissolved salts or metals or pH extremes.

(iv) Class 3D. Effluent dependent waters which are known to support communities of aquatic life other than fish and where the existing aquatic habitat would be significantly reduced in terms of aerial extent, habitat diversity or ecological value if the effluent flows are removed or reduced. Class 3D waters are protected to the extent that the existing aquatic community, habitat and other designated uses are maintained and the water quality does not pose a health risk or hazard to humans, livestock or wildlife.

(d) Class 4, Agriculture, Industry, Recreation and Wildlife. Class 4 waters are waters, other than those designated as Class 1, where it has been determined that aquatic life uses are not attainable pursuant to the provisions of Section 33 of these regulations. Uses designated on Class 4 waters include recreation, wildlife, industry, agriculture and scenic value.

(i) Class 4A. Class 4A waters are artificial canals and ditches that are not known to support fish populations.

(ii) Class 4B. Class 4B waters are intermittent and ephemeral stream channels that have been determined to lack the hydrologic potential to normally support and sustain aquatic life pursuant to the provisions of Section 33(b)(ii) of these regulations. In general, 4B streams are characterized by only infrequent wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 4B waters.

(iii) Class 4C. Class 4C waters are isolated waters that have been determined to lack the potential to normally support and sustain aquatic life pursuant to the provisions of Section 33(b)(i), (iii), (iv), (v) or (vi) of these regulations. Class 4C includes, but is not limited to, off-channel effluent dependent ponds where it has been determined under Section 33(b)(iii) that removing a source of pollution to achieve full attainment of aquatic life uses would cause more environmental damage than leaving the source in place.

(e) Specific stream segment classifications are contained in a separate document entitled *Wyoming Surface Water Classification List* which is published by the department and periodically revised and updated according to the provisions of Sections 4, 33, 34, 35 and Appendix A of this chapter. Class 1 waters are those waters that have been specifically designated by the council. Class 2AB, 2A, 2B and 2C designations are based upon the fisheries information contained in the Wyoming Game and Fish Department's *Streams and Lakes Database* submitted to the department in June 2000. This database represents the best available information and is considered conclusive. Class 2D and 3D designations are based upon use attainability analyses demonstrating that the waters are effluent dependent and do not pose a hazard to humans, wildlife or livestock. Class 4 designations are based upon knowledge that a water body is an artificial, man-made conveyance, or has been determined not to support aquatic life uses through an approved use attainability analysis. All other waters are designated as Class 3A, 3B or 3C. Section 27 of these regulations describes how recreation use designations are made for specific water bodies.

Section 5. **Standards Enforcement**. The numerical and narrative standards contained within these regulations shall be used to establish effluent limitations for those discharges requiring control via permits to discharge in the case of point sources and best management practices in the case of nonpoint sources. If no permit or best management practice has been issued or implemented for a pollution source the state may, in addition to other appropriate legal action, take direct action to enforce these standards.

The processes used to implement the standards are described in various implementation documents adopted by the department. Such documents are adopted with full public participation and include, but are not limited to, the *Implementation Policies for Antidegradation, Mixing Zones and Dilution Allowances, Turbidity and Use Attainability Analysis*, the Wyoming Continuing Planning Process (CPP) and best management practices.

These regulations shall not be interpreted to preclude the establishment of appropriate compliance schedules for permitting purposes nor shall compliance with the conditions of these regulations exempt any discharger from the penalty provisions of W.S. 35-11-901.

Section 6. **Interstate Compacts, Court Decrees and Water Rights**. The department shall, after review and conference with the State Engineer, make

recommendations to the State Engineer concerning proposed new diversions which could cause violations of these regulations.

Section 7. **Class 1 Waters**.

(a) Except as authorized in Section 7(b) of these regulations, no new point sources other than dams may discharge, and no existing point sources, other than dams, may increase their quantity of pollution discharge, to any water designated as Class 1.

(b) Storm water and construction-related discharges of pollution to Class 1 waters may be authorized and shall be controlled through applicable water quality permits, Section 401 certifications and/or by the application of best management practices. Such discharges shall not degrade the quality of any Class 1 water below its existing quality or adversely affect any existing use of the water. Temporary increases in turbidity that are within the limits established in Section 23 of these regulations and that do not negatively affect existing uses can be permitted. For purposes of this section, temporary increases in turbidity shall not exceed the actual construction period. The department shall impose whatever controls and monitoring are necessary on point source discharges to Class 1 waters and their tributaries to ensure that the existing quality and uses of the Class 1 water are protected and maintained.

(c) Nonpoint source discharges of pollution to Class 1 waters or tributaries of Class 1 waters shall be controlled by application of best management practices adopted in accordance with the Wyoming Continuing Planning Process. For Class 1 waters, best management practices will maintain existing quality and water uses.

Section 8. **Antidegradation**.

(a) Water uses in existence on or after November 28, 1975 and the level of water quality necessary to protect those uses shall be maintained and protected. Those surface waters not designated as Class 1, but whose quality is better than the standards contained in these regulations, shall be maintained at that higher quality. However, after full intergovernmental coordination and public participation, the department may issue a permit for or allow any project or development which would constitute a new source of pollution, or an increased source of pollution, to these waters as long as the following conditions are met:

(i) The quality is not lowered below these standards;

(ii) All existing water uses are fully maintained and protected;

(iii) The highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved; and

(iv) The lowered water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

(b) The Water Quality Administrator (administrator) may require an applicant to submit additional information, including, but not limited to, an analysis of alternatives to any proposed discharge and relevant economic information before making a determination under this section.

(c) The procedures used to implement this section are described in the *Antidegradation Implementation Policy*.

Section 9. **Mixing Zones**. Except for acute whole effluent toxicity (WET) values and Sections 14, 15, 16, 17, 28 and 29(b) of these regulations, compliance with water quality standards shall be determined after allowing reasonable time for mixing. Except for the zone of initial dilution, which is the initial 10% of the mixing zone, the mixing zone shall not contain pollutant concentrations that exceed the aquatic life acute values (see Appendix B). In addition, there shall be a zone of passage around the mixing zone which shall not contain pollutant concentrations that exceed the aquatic life chronic values (see Appendix B). Under no circumstance may a mixing zone be established which would allow human health criteria (see Appendix B) to be exceeded within 500 yards of a drinking water supply intake or result in acute lethality to aquatic life. The procedures used to implement this section are described in the *Mixing Zones and Dilution Allowances Implementation Policy*.

Section 10. **Testing Procedures**. For determination of the parameters involved in the standards, analyses will be in accordance with test procedures defined pursuant to: Title 40, Code of Federal Regulations, Part 136, or any modifications thereto. For test procedures not listed in the Code of Federal Regulations, test procedures outlined in the latest editions of: *EPA Methods for Chemical Analysis of Water and Wastes*; *Standard Methods for the Examination of Water and Wastewaters;* or *ASTM Standards* shall be used.

Where standard methods of testing have not been established, the suitability of testing procedures shall be determined by the department and the EPA using defensible scientific methods.

Numeric criteria included in the standards represent levels necessary to protect designated uses and do not necessarily reflect detection limits that can be achieved using standard analytical techniques. Standard analytical techniques are considered during development of discharge permits and evaluation of water quality data. Sampling entities should consult with the department to determine reporting limit needs to ensure that adequate testing procedures and reporting limits are requested from the laboratory.

Section 11. **Flow Conditions**.

(a) Numeric water quality standards shall be enforced at all times except during periods below low flow. Low flow can be determined by the following methods:

(i) Using the 7Q10 (the minimum seven (7) consecutive day flow which has the probability of occurring once in ten (10) years);

(ii) The EPA's biologically based flow method which determines a four (4) day, three (3) year low flow for chronic exposures and a one (1) day, three (3) year low flow for acute exposures (*Technical Guidance Manual For Performing Waste Load Allocation, Book VI, Design Conditions: Chapter 1, Stream Design Flow for Steady-State Modeling, August 1986, US EPA*); or

(iii) Other defensible scientific methods.

For all methods, application of the standards will conform to the magnitude, duration and frequency provisions described in these regulations.

(b) During periods when stream flows are less than the minimums described above, the department may, in consultation with the Wyoming Game and Fish Department and the affected discharger(s), require permittees to institute operational modifications as necessary to insure the protection of aquatic life. This section should not be interpreted as requiring the maintenance of any particular stream flow.

(c) The narrative water quality standards in Sections 14, 15, 16, 17, 28 and 29(b) of these regulations shall be enforced at all streamflow conditions.

Section 12. **Protection of Wetlands**. Point or nonpoint sources of pollution shall not cause the destruction, damage, or impairment of naturally occurring wetlands except when mitigated through an authorized wetlands mitigation process. When approving mitigation, the department may consider both the ecological functions and the wetland value of the disturbed wetland.

This section does not apply to wetlands created by point or nonpoint sources, nor are such wetlands required to be maintained through continuation of such discharges. Similarly, any man-made wetlands or enhancements which have been credited in the state wetland banking program are not required to be maintained until the credit is used for mitigation purposes. These areas will, however, be protected from discharges of wastes, toxic substances or chemical pollutants as are any other waters of the state.

Section 13. **Toxic Materials**. Except for those substances referenced in Sections 21(e) and (f) of these regulations, toxic materials attributable to or influenced by the activities of man shall not be present in any Wyoming surface water in concentrations or combinations which constitute “pollution”.

Section 14. **Dead Animals and Solid Waste**. Dead animals or solid waste shall not be placed or allowed to remain in Wyoming surface waters. When discovered, removal shall be expeditious unless removal would likely cause more contamination than non-removal. This section should not be interpreted to place a burden on any person to remove dead wildlife from surface waters where the death of the animals occurs under natural or uncontrollable circumstances.

Except as authorized through a 404 permit, solid waste shall not be placed or allowed to remain in surface waters of the state, nor shall solid wastes be placed or allowed to remain in any location which would cause or threaten contamination of Wyoming surface waters.

Section 15. **Settleable Solids**. In all Wyoming surface waters, substances attributable to or influenced by the activities of man that will settle to form sludge, bank or bottom deposits shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife.

Section 16. **Floating and Suspended Solids**. In all Wyoming surface waters, floating and suspended solids attributable to or influenced by the activities of man shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife.

Section 17. **Taste, Odor and Color**. No Class 1, 2 or 3 waters shall contain substances attributable to or influenced by the activities of man that produce taste, odor and color or that would:

(a) Of themselves or in combination, impart an unpalatable or off-flavor in fish flesh;

(b) Visibly alter the natural color of the water or impart color to skin, clothing, vessels or structures;

(c) Produce detectable odor; or

(d) Directly or through interaction among themselves, or with chemicals used in existing water treatment processes, result in concentrations that will impart undesirable taste or odor to public water supplies.

Section 18. **Human Health**. In all Class 1, 2AB and 2A waters, the "Human Health Consumption of Fish and Drinking Water" values listed in Appendix B of these regulations shall not be exceeded. In all Class 2B, 2C and 2D waters, the "Human Health Consumption of Fish" (consumption of aquatic organisms) values shall not be exceeded.

In certain waters, the criteria listed in Appendix B of these regulations may not be appropriate due to unique physical or chemical conditions. In such cases, human health values may be established using the site-specific procedures outlined in the references listed in Appendix E or other scientifically defensible methods.

Section 19. **Industrial Water Supply**. All Wyoming surface waters which have the natural water quality potential for use as an industrial water supply shall be maintained at a quality which allows continued use of such waters for industrial purposes.

Degradation of such waters shall not be of such an extent to cause a measurable increase in raw water treatment costs to the industrial user(s).

Unless otherwise demonstrated, all Wyoming surface waters have the natural water quality potential for use as an industrial water supply.

Section 20. **Agricultural Water Supply**. All Wyoming surface waters which have the natural water quality potential for use as an agricultural water supply shall be maintained at a quality which allows continued use of such waters for agricultural purposes.

Degradation of such waters shall not be of such an extent to cause a measurable decrease in crop or livestock production.

Unless otherwise demonstrated, all Wyoming surface waters have the natural water quality potential for use as an agricultural water supply.

Section 21. **Protection of Aquatic Life**.

(a) Ammonia.

(i) The toxicity of ammonia varies with pH and temperature and the applicable limitations are included in the tables in Appendix C of these regulations. The numeric ammonia criteria in Appendix C apply to all Class 1, 2AB, 2A, 2B and 2C waters.

(ii) In all Class 2D and 3 waters, concentrations of ammonia attributable to or influenced by human activities shall not be present in concentrations which could result in harmful acute or chronic effects to aquatic life, or which would not fully support existing and designated uses.

(b) Specific numeric standards for a number of toxicants are listed in the "Aquatic Life Acute Value" and "Aquatic Life Chronic Value" columns in Appendix B of these regulations. These standards apply to all Class 1, 2 and 3 waters. For these pollutants, the chronic value (four (4) day average concentration) and the acute value

(one (1) hour average concentration) shall not be exceeded more than once every three (3) years.

(c) Others. For those pollutants not listed in Appendix B or C of these regulations, maximum allowable concentrations on Class 1, 2 and 3 waters shall be determined through the bioassay procedures outlined in the references listed in Appendix E of these regulations.

(d) In certain waters, the criteria listed in Appendix B or C of these regulations may not be appropriate due to unique physical or chemical conditions. In such cases, acute and chronic values may be determined using the site-specific procedures outlined in the references listed in Appendix E or other scientifically defensible methods.

(e) Aquatic pesticides specifically designed to kill, repel or mitigate aquatic pest problems (e.g. mosquito larvae or heavy plant growth in irrigation ditches) may be added to surface waters of the state if the use and application is in compliance with the following:

(i) The pesticide used is a product which has been registered with the EPA and the Wyoming Department of Agriculture for use in the state, in accordance with W.S. 35-7-356;

(ii) The application is conducted by a person licensed by the Wyoming Department of Agriculture to purchase and apply restricted use pesticides in the state;

(iii) All applications of aquatic pesticides must be administered in accordance with label directions. However, compliance with label directions shall not exempt any person or agency from the penalty provisions of W.S. 35-11-901 should non-target species or non-target areas be affected.

(f) This section shall not apply to the use of fish toxicants if the use and application is in compliance with the following:

(i) The pesticide used is a product which has been registered with the EPA and the Wyoming Department of Agriculture for use in the state, in accordance with W.S. 35-7-356;

(ii) The application is conducted by a person licensed by the Wyoming Department of Agriculture to purchase and apply restricted use pesticides in the state;

(iii) All applications of fish toxicants must be administered in accordance with label directions. However, compliance with label directions shall not exempt any person or agency from the penalty provisions of W.S. 35-11-901 should non-target species or non-target areas be affected.

(iv) The Wyoming Game and Fish Department may apply fish toxicants to any surface water of the state provided that prior notice is made to the department and after receipt of verification from the Water Quality Division that the proposed application is in compliance with this section.

(v) The National Park Service, as the wildlife management agency in Yellowstone National Park, may apply fish toxicants to surface waters within Yellowstone National Park for the purpose of killing or controlling fish provided that prior notice is made to the department and after receipt of a verification from the Water Quality Division that the proposed application is in compliance with this section. Approval from the Wyoming Game and Fish Department is also required prior to application of fish toxicants to waters which flow into surface waters of the state outside of Yellowstone National Park.

(vi) Private certified pesticide applicators for restricted use pesticides may apply fish toxicants only to waters located entirely on private property where there is no surface outlet to waters of the state provided that prior notice is made to the department and after receipt of verification from the Water Quality Division that the proposed application is in compliance with this section. Approval, including any necessary permits, from the Wyoming Game and Fish Department is also required prior to application of fish toxicants to insure protection of fish and wildlife resources.

(vii) Pesticide applications must be conducted in a manner that minimizes to the extent practicable, the magnitude of any change in the concentration of the parameters affected by the activity and the length of time during which any change may occur. The application must include measures that prevent significant risk to public health and ensure that existing and designated uses of the water are protected and maintained upon the completion of the activity.

(viii) Except for the circumstances described in (i) through (vii) above, no other agency or person may apply fish toxicants in any water of the state.

Section 22. **Radioactive Material**.

(a) In Class 1, 2AB and 2A waters, radiological limits of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha particle activity (excluding radon and uranium), 30 μg/L for uranium and 4 millirems per year (mrem/year) for beta particle and photon radioactivity shall not be exceeded.

(b) In Class 2B, 2C, 2D, 3 and 4 waters, the total radium-226 concentration shall not exceed 60 pCi/L.

(c) In all Wyoming surface waters, radioactive materials attributable or influenced by the activities of man shall not be present in the water or in the sediments in

amounts which could cause harmful accumulations of radioactivity in plant, wildlife, livestock or aquatic life.

Section 23. **Turbidity**.

(a) In all cold water fisheries and/or drinking water supplies (Classes 1, 2AB, 2A and 2B), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than ten (10) nephelometric turbidity units (NTUs).

(b) In all warm water or nongame fisheries (Classes 1, 2AB, 2B and 2C), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than 15 NTUs.

(c) An exception to paragraphs (a) and (b) of this section shall apply to:

(i) The North Platte River from Guernsey Dam to the Nebraska line during the annual "silt run" from Guernsey Dam; and

(ii) Short-term increases of turbidity that have been determined by the administrator to have only a minimal effect on water uses. Such determinations shall be made on a case-by-case basis and shall be subject to whatever controls, monitoring and best management practices are necessary to fully maintain and protect all water uses. The procedures used to implement this section are described in the *Turbidity Implementation Policy*.

Section 24. **Dissolved Oxygen**. In all Class 2A, 2D and 3 waters, pollution attributable to the activities of man shall not deplete dissolved oxygen amounts to a level which will result in harmful acute or chronic effects to aquatic life, or which would not fully support existing and designated uses.

In all Class 1, 2AB, 2B and 2C waters, pollution attributable to the activities of man shall not result in a dissolved oxygen content of less than that presented on the chart in Appendix D of these regulations.

Section 25. **Temperature**.

(a) For Class 1, 2 and 3 waters, pollution attributable to the activities of man shall not change ambient water temperatures to levels which result in harmful acute or chronic effects to aquatic life, or which would not fully support existing and designated uses.

(b) When ambient temperatures are above 60 degrees Fahrenheit (15.6 degrees Celsius) in all Class 1, 2AB and 2B waters which are cold water fisheries,

pollution attributable to the activities of man shall not result in an increase of more than 2 degrees Fahrenheit (1.1 degree Celsius) in existing temperatures.

(c) When ambient temperatures are above 60 degrees Fahrenheit (15.6 degrees Celsius) in all Class 1, 2AB, 2B and 2C waters which are warm water fisheries, pollution attributable to the activities of man shall not result in an increase of more than 4 degrees Fahrenheit (2.2 degrees Celsius) in existing temperatures.

(d) Except on Class 2D, 3 and 4 waters, the maximum allowable stream temperature will be the maximum natural daily stream temperature plus the allowable change, provided that this temperature is not lethal to existing fish life and under no circumstance shall pollution attributable to the activities of man result in a temperature that exceeds 68 degrees Fahrenheit (20 degrees Celsius) in the case of cold water fisheries and 86 degrees Fahrenheit (30 degrees Celsius) in the case of warm water fisheries.

(e) With the exception of the provisions of Sections 9 and 11 of these regulations and other natural conditions, temperature standards shall apply at all times and at all depths of the receiving water and may not be violated at any time or at any depth.

(f) The various requirements of this section may be waived only under the provisions of Section 316(a) of the Clean Water Act.

Section 26. **pH**.

(a) For all Wyoming surface waters, pollution attributable to the activities of man shall not be present in amounts which will cause the pH to be less than 6.5 or greater than 9.0 standard units.

(b) For all Class 1, 2 and 3 waters, pollution attributable to the activities of man shall not change the pH to levels which result in harmful acute or chronic effects to aquatic life, directly or in conjunction with other chemical constituents, or which would not fully support existing and designated uses.

Section 27. ***E. coli* Bacteria**.

(a) Primary Contact Recreation. In all waters designated for primary contact recreation, during the summer recreation season (May 1 through September 30), concentrations of *E. coli* bacteria shall not exceed a geometric mean of 126 organisms per 100 milliliters during any consecutive 60-day period. Primary contact waters are identified in the *Wyoming Surface Water Classification List*.

(b) Secondary Contact Recreation. In all waters designated for secondary contact recreation and in waters designated for primary contact recreation during the winter recreation season (October 1 through April 30), concentrations of *E. coli* bacteria

shall not exceed a geometric mean of 630 organisms per 100 milliliters during any consecutive 60-day period. Waters will be designated for secondary contact recreation through the reclassification and use attainability analysis process outlined in Sections 33 and 34 of these regulations. Secondary contact waters are identified in the *Wyoming Surface Water Classification List.*

(c) Single-sample Maximum Concentrations. During the summer recreation season, on all waters designated for primary contact recreation, the following single-sample maximum concentrations of *E. coli* bacteria shall apply:

(i) High use swimming areas - 235 organisms per 100 milliliters

(ii) Moderate full body contact - 298 organisms per 100 milliliters

(iii) Lightly used full body contact - 410 organisms per 100 milliliters

(iv) Infrequently used full body contact - 576 organisms per 100 milliliters

Single-sample maximum values may be used to post recreational use advisories in public recreation areas and to derive single-sample maximum effluent limitations on point source discharges. An exceedance of the single-sample maxima shall not be cause for listing a water body on the State 303(d) list or development of a TMDL or watershed plan. The appropriate recreational use category (i through iv, above) shall be determined by the administrator as needed, on a case by case basis. In making such a determination, the administrator may consider such site-specific circumstances as type and frequency of use, time of year, public access, proximity to populated areas and local interests.

Section 28. **Undesirable Aquatic Life**. All Wyoming surface waters shall be free from substances and conditions or combinations thereof which are attributable to or influenced by the activities of man, in concentrations which produce undesirable aquatic life.

Section 29. **Oil and Grease**. In all Wyoming surface waters, substances attributable to or influenced by the activities of man shall not be present in amounts which would cause:

(a) The oil and grease content to exceed 10 mg/L; or

(b) The formation of a visible sheen or visible deposits on the bottom or shoreline, or damage or impairment of the normal growth, function or reproduction of human, animal, plant or aquatic life.

Section 30. **Total Dissolved Gases**. In all Class 1, 2AB, 2B and 2C waters, the total dissolved gas concentration below man-made dams shall not exceed 110 percent of the saturation value for gases at the existing atmospheric and hydrostatic pressures.

Section 31. **Colorado Basin Salinity**. The State of Wyoming is a member of the Colorado River Basin Salinity Control Forum, which includes all states in the Colorado River Basin. This forum has adopted a salinity control program for the basin which has been adopted as Chapter 6 of the Wyoming Water Quality Rules and Regulations.

Section 32. **Biological Criteria**. Class 1, 2 and 3 waters of the state must be free from substances, whether attributable to human-induced point source discharges or nonpoint source activities, in concentrations or combinations which will adversely alter the structure and function of indigenous or intentionally introduced aquatic communities.

Section 33. **Reclassifications and Site-Specific Criteria**.

(a) Any person at any time may petition the department or the council to change the classification, add or remove a designated use or establish site-specific criteria on any surface water.

(b) The administrator may lower a classification, remove a designated use which is not an existing nor attainable use, establish ambient-based criteria on effluent dependent waters, make a recommendation to the council to establish sub-categories of a use or establish site-specific criteria if it can be demonstrated through a use attainability analysis (UAA) that the original classification, designated use or water quality criteria are not feasible because:

(i) Naturally occurring pollutant concentrations prevent the attainment of the classification or use; or

(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

(iii) 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

(iv) Dams, diversions or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use; or

(v) 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 an aquatic life use; or

(vi) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact. This subsection shall not apply to the derivation of site-specific criteria.

(c) The administrator may raise a classification, add a designated use or make a recommendation to the council to establish sub-categories of a use or site-specific criteria, if it can be demonstrated through a use attainability analysis (UAA) that such uses are existing uses or may be attained with the imposition of more stringent controls or management practices.

(d) The procedures used to implement this section are described in the *Use Attainability Analysis Implementation Policy*.

(e) The provisions of subsections (b) and (c) above are not applicable to Class 1 designations. Class 1 designations may be added or removed in accordance with the provisions of the Environmental Quality Act, the Wyoming Administrative Procedures Act and Section 4(a) of these regulations.

Section 34. **Use Attainability Analysis**. The administrator shall review all petitions submitted under Section 33 of these regulations and make a determination based upon the technical merits of the use attainability analysis. Public notice and opportunity for comment shall be provided prior to making this determination.

(a) Any changes in water classifications or use designations resulting from the administrator's determination shall be submitted to EPA for approval as revised water quality standards for Clean Water Act purposes and shall become effective either upon EPA approval or 90 days after submittal, whichever comes first. If within 90 days of submittal, the EPA determines that any such revised or new standard is not consistent with the applicable requirements of the Clean Water Act and specifies the changes needed to meet such requirements, the administrator may consider EPA's recommendations and publish a revised final determination. All determinations made under this subsection are considered final actions of the administrator and may be appealed pursuant to Chapter 1, Section 16 of the Rules of Practice and Procedure.

(b) Except for ambient-based criteria on effluent dependent waters, proposed changes in water quality criteria that result from the administrator's findings shall be recommended to the council for adoption as revised rules. Ambient-based criteria for effluent dependent waters shall be established according to the provisions of Section 36 of these rules. If adopted by the council, the revised rules shall be filed with the secretary of state and shall become effective 90 days after filing. The revised rules shall also be concurrently submitted to EPA for approval as revised water quality standards for Clean

Water Act purposes. If within 90 days of submittal, the EPA determines that any such revised or new standard is not consistent with the applicable requirements of the Clean Water Act and specifies the changes needed to meet such requirements, the department may recommend a new standard incorporating EPA's specifications to the council for adoption.

Section 35. **Credible Data**.

(a) Development of scientifically valid chemical, physical and biological monitoring data shall:

(i) Consist of data collection using accepted referenced laboratory and field methods employed by a person who has received specialized training and has field experience in developing a monitoring plan, a quality assurance plan, and employing the methods outlined in such plans or works under the supervision of a person who has these qualifications. Specialized training includes a thorough knowledge of written sampling protocols and field methods such that the data collection and interpretation are reproducible, scientifically defensible and free from preconceived bias; and

(ii) Includes documented quality assurance consisting of a plan that details how environmental data operations are planned, implemented and assessed with respect to quality during the duration of the project.

(b) Credible data shall be collected on each water body, as required in this section, and shall be considered for purposes of characterizing the integrity of the water body including consideration of soil, geology, hydrology, geomorphology, climate, stream succession and the influences of man upon the system. These data in combination with other available and applicable information shall be used through a weight-of-evidence approach to designate uses and determine whether those uses are being attained. In those instances where numerical standards contained in these rules are exceeded or on ephemeral and intermittent water bodies where chemical and biological sampling may not be practical or feasible, less than a complete set of data may be used to make a decision on attainment.

(c) All changes to use designations after the effective date of this rule shall include the consideration of credible data relevant to the decision. Changes which involve the removal of a use designation or the replacement of a designation shall be supported by a use attainability analysis (UAA).

(d) After the effective date of this rule, credible data shall be utilized in determining a water body's attainment of designated uses.

Section 36. **Effluent Dependent Criteria**. In addition to the provisions of Section 33 of these regulations, the administrator may make modifications to the numeric criteria for pollutants listed in Appendix B on Class 2D and 3D waters. These

modifications may be made on a categorical or site-specific basis by application of the following process:

(a) The adopted statewide numeric criteria may be modified on Class 2D and 3D waters to reflect ambient conditions by developing a UAA demonstrating that the water body is effluent dependent and that continued discharge of a permitted effluent to the water body has been shown to create a net environmental benefit. Criteria modification based on a finding of net environmental benefit is authorized where:

(i) The water body is effluent dependent;

(ii) The discharge has been shown to create an environmental benefit and removal of the discharge would cause more environmental harm than leaving it in place;

(iii) There is a credible threat to remove the discharge; and

(iv) Appropriate safeguards are in place, ensuring that downstream uses will be protected and the discharge will pose no health risk or hazard to humans, livestock or wildlife.

(b) Where the above factors have been satisfied, site-specific criteria may be set equal to the background concentration plus a margin of error for each parameter where the highest background concentration exceeds the statewide numeric criteria. Such site-specific criteria will be implemented as instantaneous maximum values.

(i) The background concentration shall be the highest concentration recorded over the course of a one year period where samples have been taken at least once in each month.

(ii) The margin of error shall be one standard deviation calculated from the same data set used to establish background.

(iii) In addition to water column values, aquatic life tissue criteria shall also be established for all parameters known to be bioaccumulating and where recommended criteria have been developed by EPA. Such criteria shall be at least equal to the nationally recommended tissue criteria published by EPA under Section 304(a) of the Clean Water Act.

(c) The procedures used to implement this section are described in the *Use Attainability Analysis Implementation Policy*.

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Appendix A

Wyoming Surface Water Classifications

All surface waters in Wyoming are classified as follows:

(a) Class 1 Waters. The following waters are designated Class 1:

(i) All surface waters located within the boundaries of national parks and congressionally designated wilderness areas as of January 1, 1999;

(ii) The main stem of the Snake River through its entire length above the U.S. Highway 22 Bridge (Wilson Bridge);

(iii) The main stem of the Green River, including the Green River Lakes from the mouth of the New Fork River upstream to the wilderness boundary;

(iv) The main stem of the Wind River from the Wedding of the Waters upstream to Boysen Dam;

(v) The main stem of the North Platte River from the mouth of Sage Creek (approximately 15 stream miles downstream of Saratoga, Wyoming) upstream to the Colorado state line;

(vi) The main stem of the North Platte River from the headwaters of Pathfinder Reservoir upstream to Kortes Dam (Miracle Mile segment);

(vii) The main stem of the North Platte River from the Natrona County Road 309 bridge (Goose Egg bridge) upstream to Alcova Reservoir;

(viii) The main stem of Sand Creek above the U.S. Highway 14 bridge;

(ix) The main stem of the Middle Fork of the Powder River through its entire length above the mouth of Buffalo Creek;

(x) The main stem of the North Fork of the Tongue River, the main stem of the South Fork of the Tongue River and the main stem of the Tongue River above the U.S. Forest Service boundary;

(xi) The main stem of the Sweetwater River above the mouth of Alkali Creek;

(xii) The main stem of the Encampment River from the northern U.S. Forest Service boundary upstream to the Colorado state line;

(xiii) The main stem of the Clarks Fork River from the U.S. Forest Service boundary upstream to the Montana state line;

(xiv) All waters within the Fish Creek (near Wilson, Wyoming) drainage;

(xv) The main stem of Granite Creek (tributary of the Hoback River) through its entire length;

(xvi) Fremont Lake;

(xvii) Wetlands adjacent to the above listed Class 1 waters.

(b) Individual water classifications for major water bodies and recreational use designations are listed in the most current version of the *Wyoming Surface Water Classification List*. The list is published by the department and periodically revised and updated according to the provisions of Sections 4, 33, 34 and 35. In addition to the listings contained in that document, the following provisions apply:

(i) National Parks and Wilderness Areas. All surface waters located within the boundaries of Yellowstone and Grand Teton National Parks and congressionally designated wilderness areas as of January 1, 1999 are Class 1 waters. A Class 1 designation always takes precedence over the classification given in the listing. For example, Dinwoody Creek is shown as a Class 2 water; however, the upper portions are within a wilderness area and those portions are Class 1. The portion below the wilderness boundary is Class 2.

(ii) Unlisted Waters. The waters contained in the *Wyoming Surface Water Classification List* are all waters which are named on the USGS 1:500,000 hydrologic map of Wyoming and those otherwise classified by the department. The classification list does not contain an exhaustive listing of all the surface waters in the state. Waters which are not listed are classified as follows:

(A) All waters shown as having any species of game fish present in the Wyoming Game and Fish Department's *Streams and Lakes Database* as submitted to the department in June 2000 are classified as 2AB;

(B) All waters shown as having only nongame fish species present in the Wyoming Game and Fish Department's *Streams and Lakes Database* as submitted to the department in June 2000 are classified as 2C;

(C) All other waters shall be classified as follows:

(I) Those waters supported by an approved UAA containing defensible reasons for not protecting aquatic life uses shall be 4A, 4B or 4C. This category includes isolated, effluent dependent waters;

(II) Effluent dependent waters that support resident fish populations shall be 2D;

(III) Effluent dependent waters that do not support resident fish populations shall be 3D;

(IV) The remaining waters shall be 3A, 3B or 3C.

(iii) Wetlands. All adjacent wetlands shall have the same classification as the water to which they are adjacent.

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Appendix B

Water Quality Criteria[1]

(a) Priority Pollutants.

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
Acenaphthene			20[7]	990
Acrolein	3	3	6	9
Acrylonitrile			0.051[3]	0.25[3]
Benzene			2.2[3]	51[3]
Benzidine			0.000086[3]	0.00020[3]
Carbon tetrachloride (Tetrachloromethane)			0.23[3]	1.6[3]
Chlorobenzene (Monochlorobenzene)			20[7]	1,600
1,2,4-Trichlorobenzene			35	70
Hexachlorobenzene			0.00028[3]	0.00029[3]
1,2-Dichloroethane			0.38[3]	37[3]
1,1,1-Trichloroethane			200[9]	
Hexachloroethane			1.4[3]	3.3[3]
1,1,2-Trichloroethane			0.59[3]	16[3]
1,1,2,2-Tetrachloroethane			0.17[3]	4[3]
Bis(2-chloroethyl) ether			0.030[3]	0.53[3]
2-Chloronaphthalene			1,000	1,600
2,4,6-Trichlorophenol			1.4[3]	2.4[3]
4-Chloro-3-methylphenol (3-Methyl-4-chlorophenol) (p-Chloro-m-cresol)			3,000[7]	
Chloroform (Trichloromethane)			5.7[3]	470[3]
2-Chlorophenol			0.1[7]	150
1,2-Dichlorobenzene			420	1,300
1,3-Dichlorobenzene			320	960
1,4-Dichlorobenzene			63	190
3,3'-Dichlorobenzidine			0.021[3]	0.028[3]
1,1-Dichloroethylene			7[9]	7,100
1,2-trans-Dichloroethylene			100[9]	10,000

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
2,4-Dichlorophenol			0.3[7]	290
1,2-Dichloropropane			0.50[3]	15[3]
1,3-Dichloropropene (1,3-Dichloropropylene) (cis and trans isomers)			0.34[3]	21[3]
2,4-Dimethylphenol			380	850
2,4-Dinitrotoluene			0.11[3]	3.4[3]
1,2-Diphenylhydrazine			0.036[3]	0.20[3]
Ethylbenzene			530	2,100
Fluoranthene			130	140
Bis(2-chloroisopropyl) ether			1,400	65,000
Methylene chloride (Dichloromethane)			4.6[3]	590[3]
Methyl bromide (Bromomethane)			47	1,500
Bromoform (Tribromomethane)			4.3[3]	140[3]
Dichlorobromomethane			0.55[3]	17[3]
Chlorodibromomethane			0.40[3]	13[3]
Hexachlorobutadiene			0.44[3]	18[3]
Hexachlorocyclopentadiene			1[7]	1,100
Isophorone			35[3]	960[3]
Nitrobenzene			17	690
2,4-Dinitrophenol			69	5,300
4,6-Dinitro-2-methylphenol (2-Methyl-4,6-dinitrophenol) (4,6-Dinitro-o-cresol)			13	280
N-Nitrosodimethylamine			0.00069[3]	3[3]
N-Nitrosodiphenylamine			3.3[3]	6[3]
N-Nitrosodi-n-propylamine			0.005[3]	0.51[3]
Pentachlorophenol	19[5]	15[5]	0.27[3]	3[3]
Phenol			300[7]	860,000
Bis(2-ethylhexyl) phthalate			1.2[3]	2.2[3]
Butylbenzyl phthalate			1,500	1,900
Di-n-butyl phthalate			2,000	4,500

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
Diethyl phthalate			17,000	44,000
Dimethyl phthalate			270,000	1,100,000
Benzo(a)anthracene(1,2-Benzanthracene)			0.0038[3]	0.018[3]
Benzo(a)pyrene (3,4-Benzopyrene)			0.0038[3]	0.018[3]
Benzo(b)fluoranthene (3,4-Benzofluoranthene)			0.0038[3]	0.018[3]
Benzo(k)fluoranthene(11,12-Benzofluoranthene)			0.0038[3]	0.018[3]
Chrysene			0.0038[3]	0.018[3]
Anthracene			8,300	40,000
Fluorene			1,100	5,300
Dibenzo(a,h)anthracene(1,2,5,6-Dibenzanthracene)			0.0038[3]	0.018[3]
Indeno(1,2,3-cd)pyrene			0.0038[3]	0.018[3]
Pyrene			830	4,000
Tetrachloroethylene			0.69[3]	3.3[3]
Toluene			1,000[9]	15,000
Trichloroethylene			2.5[3]	30[3]
Vinyl chloride (Chloroethylene)			0.025[3]	2.4[3]
Aldrin	1.5[16]		0.000049[3]	0.000050[3]
Dieldrin	0.24	0.056	0.000052[3]	0.000054[3]
Chlordane	1.2[16]	0.0043	0.00080[3]	0.00081[3]
4,4'-DDT	0.55[16]	0.001	0.00022[3]	0.00022[3]
4,4'-DDE			0.00022[3]	0.00022[3]
4,4'-DDD			0.00031[3]	0.00031[3]
alpha-Endosulfan	0.11[16]	0.056	62	89
beta-Endosulfan	0.11[16]	0.056	62	89
Endosulfan sulfate			62	89
Endrin	0.086	0.036	0.059	0.060
Endrin aldehyde			0.29	0.30
Heptachlor	0.26[16]	0.0038	0.000079[3]	0.000079[3]
Heptachlor epoxide	0.26[16]	0.0038	0.000039[3]	0.000039[3]

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
alpha-BHC (Hexachlorocyclohexane-alpha)			0.0026[3]	0.0049[3]
beta-BHC (Hexachlorocyclohexane-beta)			0.0091[3]	0.017[3]
gamma-BHC (Lindane) (Hexachlorocyclohexane-gamma)	0.95		0.2[9]	1.8
Polychlorinated biphenyls (PCBs)		0.014[13]	0.000064[3][13]	0.000064[3][13]
Toxaphene	0.73	0.0002	0.00028[3]	0.00028[3]
Antimony			5.6	640
Arsenic	340	150	10[3][9]	10[3][9]
Asbestos			7,000,000 fibers/L[9]	
Beryllium			4[9]	
Cadmium	2.0[4]	0.25[4]	5[9]	
Chromium (III)	569.8[4]	74.1[4]	100[9] (total)	
Chromium (VI)	16	11	100[9] (total)	
Copper	13.4[4]	9[4]	1000[7]	
Cyanide (free)	22	5.2	140[6]	140[6]
Lead	64.6[4]	2.5[4]	15[9]	
Mercury	1.4	0.77	0.050	0.051
Nickel	468.2[4]	52.0[4]	610	4,600
Selenium	20[10]	5[10]	50[9]	4,200
Silver	1.7[4][16]		100[11]	
Thallium			0.24	0.47
Zinc	117.2[4]	118.1[4]	5,000[7]	26,000
Dioxin (2,3,7,8-TCDD)			0.000000005[3]	0.000000005[3]

(b) Non-Priority Pollutants.

Non-Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
Alachlor			2[9]	
Aluminum (pH 6.5-9.0 only)	750	87[14]		
Ammonia	See Appendix C			
Atrazine			3[9]	
Barium			2,000[9]	
Bis(chloromethyl) ether			0.00010[3]	0.00029[3]
Bromate			10[9]	
Carbofuran			40[9]	
Chloride	860,000[15]	230,000[15]		
Chlorine (total residual)	19	11		
Chlorite			1,000[9]	
Chlorophenoxy herbicide (2,4,5-TP)			10	
Chlorpyrifos	0.083	0.041		
Chlorophenoxy herbicide (2,4-D)			70[9]	
Dalapon			200[9]	
Demeton		0.1		
Di(2-ethylhexyl) adipate			400[9]	
Diazinon	0.17	0.17		
Dibromochloropropane (DBCP)			0.2[9]	
cis-1,2-Dichloroethylene			70[9]	
Dinoseb			7[9]	
Dinitrophenols			69	5,300
Dissolved Gases		100% Sat.		
Dissolved Oxygen		See Appendix D		
E. coli			See Section 27	
Diquat			20[9]	
Endothall			100[9]	
Ethylene dibromide (EDB)			0.05[9]	
Fluoride			2000[11]	

Non-Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value (µg/L)	Chronic Value (µg/L)	Fish and Drinking Water[2] (µg/L)	Fish[8] (µg/L)
Glyphosate			700[9]	
Guthion		0.01		
Haloacetic acids			60[9]	
Hexachlorocyclo-hexane - technical			0.0123[3]	0.0414[3]
Iron		1000[12]	300[11]	
Malathion		0.1		
Manganese	3110[4][12]	1462[4][12]	50[11]	
Methoxychlor		0.03	40[9]	
Mirex		0.001		
Nitrite (as N)			1000[9]	
Nitrates (as N)			10000[9]	
Nitrite+Nitrate (both as N)			10000[9]	
Nitrosamines			0.0008	1.24
Nitrosodibutylamine, N			0.0063[3]	0.22[3]
Nitrosodiethylamine, N			0.0008[3]	1.24[3]
Nitrosopyrrolidine, N			0.016[3]	34[3]
Nonylphenol	28	6.6		
Oxamyl (Vydate)			200[9]	
Parathion	0.065	0.013		
Pentachlorobenzene			1.4	1.5
pH		6.5-9.0		
Picloram			500[9]	
Simazine			4[9]	
Styrene			100[9]	
Hydrogen Sulfide (H_2S; Undissociated)		2		
1,2,4,5-Tetrachlorobenzene			0.97	1.1
Tributyltin (TBT)	0.46	0.072		
2,4,5-Trichlorophenol			1.0[7]	3,600
Total trihalomethanes (TTHM)			80[9]	
2,4,5-TP (2,4,5-trichlorophenoxy) Propionic acid			50[9]	
Xylenes			10,000[9]	

[(1)]Except for the aquatic life values for metals and where otherwise indicated, the values given in Appendix B refer to the total recoverable (dissolved plus suspended) amount of each substance. For the aquatic life values for metals, the values refer to dissolved amount.

[(2)]Except where otherwise indicated, these values are based on EPA Section 304(a) criteria recommendations assuming consumption of 2 liters of water and 17.5 grams of aquatic organisms per day.

[(3)]Except for arsenic, the substance is classified as a carcinogen with the value based on an incremental risk of one additional instance of cancer in one million persons. Arsenic is classified as a carcinogen, however, the value is not based on an additional 1:1,000,000 cancer risk.

[(4)]Hardness dependent criterion. Value given is an example only and is based on a $CaCO_3$ hardness of 100 mg/L. Criteria for hardness concentrations other than 100 mg/L as $CaCO_3$ must be calculated using the formulas in Appendix F.

[(5)]pH dependent criterion. Value given is an example only and is based on a pH of 7.8. Criteria for pH values other than 7.8 must be calculated using the formulas in Appendix G.

[(6)]Criterion expressed as total cyanide, even though the method used to derive the criterion is based on free cyanide. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g. $Fe_4[Fe(CN)_6]_3$), this criterion may be overly conservative.

[(7)]Criterion is based on organoleptic (taste and odor) effects and is more stringent than if based solely on toxic or carcinogenic effects.

[(8)]EPA Section 304(a) human health criteria recommendation assuming consumption of contaminated aquatic organisms at a rate of 17.5 grams per day.

[(9)]Criterion is based on an EPA drinking water standard (maximum contaminant level or MCL).

[(10)]The value is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor 0.922 to convert this to a value that is expressed in terms of dissolved metal. Using this conversion, the aquatic life chronic value for selenium is 4.61 µg/L as dissolved metal.

[(11)] Criterion is based on Safe Drinking Water Act secondary standards and is intended to prevent undesirable cosmetic or aesthetic effects. Value represents the dissolved amount of each substance rather than the total amount. Criterion only applies where drinking water is an actual use.

[(12)]Value is based on the dissolved amount which is the amount that will pass through a 0.45 µm membrane filter prior to acidification to pH 1.5-2.0 with nitric acid.

[13]This criterion applies to total PCBs (i.e. the sum of all congener or all isomer or homolog or Aroclor analyses).

[14]The 87 μg/L chronic criterion for aluminum is based on information showing chronic effects on brook trout and striped bass. The studies underlying the 87 μg/L chronic value, however, were conducted at low pH (6.5-6.6) and low hardness (< 10 mg/L $CaCO_3$), conditions uncommon in Wyoming surface waters. A water effect ratio toxicity study in West Virginia indicated that aluminum is substantially less toxic at higher pH and hardness (although the relationship is not well quantified at this time). EPA is also aware of field data indicating that many high quality waters in the U.S. contain more than 87 μg/L when either total recoverable or dissolved aluminum is measured. Based on this information and considering the available toxicological information in Tables 1 and 2 of EPA's Aluminum Criteria Document (EPA 440/5-86-008), the department will implement the 87 μg/L chronic criterion for aluminum as follows: the 87 μg/L chronic criterion will apply except where the receiving water after mixing has a pH greater than or equal to 7.0 and a hardness (as $CaCO_3$) greater than or equal to 50 mg/L. Where the receiving stream after mixing has a pH greater than or equal to 7.0 and a hardness (as $CaCO_3$) greater than or equal to 50 mg/L, the 750 μg/L acute criterion will apply. In situations where the 87 μg/L chronic criterion applies, a discharger may request development of and provide the basis for a site-specific chronic criterion based on a water-effect ratio.

[15]Criterion applies on Class 1, 2AB, 2B and 2C waters only.

[16]Criterion has been divided by two to be comparable with other acute values derived using an averaging period. Value can be multiplied by two if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded instantaneous maximum.

(c) Site-Specific Criteria. The criteria in this section are applicable only to the waters and/or locations specified and replaces similar criteria expressed elsewhere in these regulations.

(i) Belle Fourche Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 waters in the Belle Fourche River Drainage above the confluence of Donkey Creek and the main stem of the Belle Fourche River;

(B) The numeric human health criteria for iron and manganese shall not apply to main stem of the Belle Fourche River below the confluence of Donkey Creek.

(ii) Big Horn River Drainage

(A) Cottonwood Creek (near Hamilton Dome): The aquatic life criterion for chloride shall be 860 mg/L and the aquatic life criterion for selenium shall be 43 µg/L. These values represent instantaneous maximum values, not to be exceeded at any time.

(iii) Cheyenne River Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 tributaries of Antelope Creek;

(B) The numeric human health criteria for iron and manganese shall not apply to Little Thunder Creek and all of its Class 2 tributaries below the confluence of North Prong.

(iv) Little Powder River Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 waters in the Little Powder River Drainage.

(v) North Platte River Drainage

(A) Poison Spider Creek: The aquatic life criterion for chloride shall be 531 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

(vi) Powder River Drainage

(A) The numeric human health criteria for iron and manganese shall not apply to Class 2 waters in the Powder River Drainage except on the following waters:

(I) The main stem of Clear Creek and its Class 2 tributaries upstream of Clearmont, Wyoming;

(II) The main stem of Crazy Woman Creek and its Class 2 tributaries;

(III) The North Fork of the Powder River and all its Class 2 tributaries; and

(IV) The Middle Fork of the Powder River and all its Class 2 tributaries.

(B) Salt Creek: The aquatic life criterion for chloride shall be 1600 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

(C) Meadow Creek (tributary to Salt Creek): The aquatic life criterion for chloride shall be 1600 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

(D) Powder River below Salt Creek: The aquatic life criterion for chloride shall be 984 mg/L. This value represents an instantaneous maximum value, not to be exceeded at any time.

Appendix C

Ammonia Toxicity Criteria

(a) The ammonia values in the tables below are expressed in milligrams ammonia nitrogen per liter (mg N/L) and vary with temperature and/or pH, fish species or fish life stage. The ammonia criteria for pH values not represented in the tables can be calculated using the formulas in section (b) of Appendix C.

(i) pH-Dependent Values of the Acute Criterion (CMC)[(1)] for Ammonia

Acute Values, (mg N/L)		
pH	**Salmonids Present**	**Salmonids Absent**
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

(ii) Temperature and pH Dependent Values of the Chronic Criterion (CCC)[2] for Ammonia, Fish Early Life Stages *Present*

Temperature (°C)										
pH	**0**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

(iii) Temperature and pH Dependent Values of the Chronic Criterion (CCC)[(2)] for Ammonia, Fish Early Life Stages *Absent*

Temperature (^{o}C)										
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***	**16***
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

*At 15 ^{o}C and above, the criterion for fish early life stages absent is the same as the criterion for fish early life stages present.

(b) For pH values not expressed in the tables above, ammonia toxicity criteria can be calculated as follows:

(i) Criterion maximum concentration (CMC) when salmonids or other sensitive cold water species are present:

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

(ii) Criterion maximum concentration (CMC) when salmonids or other sensitive cold water species are absent:

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

(iii) Criterion continuous concentration (CCC) when fish early life stages are present:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * MIN(2.85, 1.45*10^{0.028*(25-T)})$$

(iv) Criterion continuous concentration (CCC) when fish early life stages are absent:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * 1.45*10^{0.028*(25-MAX(T,7))}$$

.

[(1)]Criterion maximum concentration (CMC) refers to the one-hour average concentration of total ammonia nitrogen (mg N/L) not to be exceeded more than once every three (3) years. The CMC can also be referred to as the acute value.

[(2)]Criterion continuous concentration (CCC) refers to the 30-day average concentration of total ammonia nitrogen (mg N/L) not to be exceeded more than once every three (3) years. In addition, the highest 4-day average within the 30-day period should not exceed 2.5 times the CCC. The CCC can also be referred to as the chronic value. The CCC values are implemented on Class 2 waters with an assumption that early life stages of fish are present. This assumption can be rebutted, but only where a permittee, discharge permit applicant or affected party provides sufficient site-specific information to support a conclusion that the assumption is not appropriate for that water body.

Appendix D

Minimum Dissolved Oxygen Criteria* (mg/L)

	Cold Water Criteria		Class 2C and Warm Water Criteria	
	Early Life Stages[1][2]	Other Life Stages	Early Life Stages[2]	Other Life Stages
30 Day Mean	n/a[3]	6.5	n/a[3]	5.5
7 Day Mean	9.5 (6.5)	n/a[3]	6.0	n/a[3]
7 Day Mean Minimum[4]	n/a[3]	5.0	n/a[3]	4.0
1 Day Minimum[4]	8.0 (5.0)	4.0	5.0	3.0

*These limitations apply to Class 1, 2AB, 2B and 2C waters only and in no case shall be interpreted to require dissolved oxygen concentrations greater than 100 percent saturation at ambient temperature and elevation. Criteria derived from: *U.S. EPA. 1986. Ambient Water Quality Criteria. EPA 440/5-86-003. National Technical Service, Springfield, VA.*

[1]These are water column concentrations recommended to achieve the required inter-gravel dissolved oxygen concentrations shown in parentheses. For species that have early life stages exposed directly to the water column, the figures in parentheses apply.

[2]Includes all embryonic and larval stages and all juvenile forms to 30-days following hatching.

[3]n/a (not applicable).

[4]All minima should be considered as instantaneous concentrations to be achieved at all times.

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Appendix E

References to Develop Site-Specific Criteria and Bioassays

U.S. Environmental Protection Agency: Quality Criteria for Water. EPA-440/5-86/001. U.S. EPA, 1986.

U.S. Environmental Protection Agency: Ambient Water Quality Criteria Documents, 1980, and subsequent revisions. U.S. EPA, 1980.

U.S. Environmental Protection Agency: Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses. U.S. EPA, 1985.

U.S. Environmental Protection Agency: Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses. U.S. EPA, 1983.

U.S. Environmental Protection Agency: Technical Guidance Manual for Performing Waste Load Allocation, Book VI, Chapter 1: Stream Design Flow for Steady-State Modeling. U.S. EPA, 1986.

U.S. Environmental Protection Agency: Technical Support Document for Water Quality Based Toxics Control. U.S. EPA, 1985.

U.S. Environmental Protection Agency: Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. EPA-600/4-85/013. U.S. EPA, 1985.

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U.S. Environmental Protection Agency: Water Quality Standards Handbook, Second Edition, EPA 823-B-94-005a, August 1994, with Appendices.

U.S. Environmental Protection Agency: Aquatic Life Ambient Freshwater Quality Criteria-Copper. EPA-822-R-07-001. U.S. EPA, 2007.

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Appendix F

Conversion Factors to Change Total Recoverable Metal Values to Dissolved Values and Equations For Hardness Dependent Metals

(a) Conversion Factors. Aquatic life values for the following metals are based on the dissolved amount of each substance. The recommended aquatic life value was calculated by using previous 304(a) aquatic life values expressed in terms of total recoverable metal and multiplying it by a conversion factor (CF). The conversion factors provided below are necessary to convert a metal value expressed as the total recoverable fraction in the water column to the dissolved fraction in the water column.

The toxicity of these metals also varies with hardness and the total recoverable value must be calculated based on the hardness (mg/L of $CaCO_3$) prior to multiplying by the conversion factor (CF).

(i) The conversion factors for the following metals are constants:

Metal	Acute Value	Chronic Value
Chromium (III)	0.316	0.860
Copper	0.960	0.960
Nickel	0.998	0.997
Silver	0.85	n/a
Zinc	0.978	0.986

(ii) The conversion factors (CF) for cadmium and lead are not constant but vary with hardness (mg/L of $CaCO_3$). Conversion factors can be calculated using the following equations, although when an ambient hardness of less than 25 mg/L (as $CaCO_3$) is used to establish criteria for lead or cadmium, the conversion factor should not exceed one[(a)]:

(A) Cadmium Acute: CF = 1.136672 - [(ln hardness)(0.041838)]

(B) Cadmium Chronic: CF = 1.101672 - [(ln hardness)(0.041838)]

(C) Lead Acute and Chronic: CF = 1.46203 - [(ln hardness)(0.145712)]

(b) Equations for Hardness Dependent Metals. Aquatic life values at various hardness[(b)] concentrations can be calculated using the formulas below. The formulas include the conversion factors to derive dissolved metal values:

Parameter	**Acute 1-Hour Average Concentration (µg/L)**	**Chronic 4-Day Average Concentration (µg/L)**
Cadmium	$e^{(1.0166[\ln(\text{hardness})] - 3.924)}(CF)$	$e^{(0.7409[\ln(\text{hardness})] - 4.719)}(CF)$
Chromium (III)	$e^{(0.8190[\ln(\text{hardness})] + 3.7256)}(0.316)$	$e^{(0.8190[\ln(\text{hardness})] + 0.6848)}(0.860)$
Copper	$e^{(0.9422[\ln(\text{hardness})] - 1.700)}(0.960)$	$e^{(0.8545[\ln(\text{hardness})] - 1.702)}(0.960)$
Lead	$e^{(1.273[\ln(\text{hardness})] - 1.460)}(CF)$	$e^{(1.273[\ln(\text{hardness})] - 4.705)}(CF)$
Manganese	$e^{(0.7693[\ln(\text{hardness})] + 4.4995)}$	$e^{(0.5434[\ln(\text{hardness})] + 4.7850)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 2.255)}(0.998)$	$e^{(0.8460[\ln(\text{hardness})] + 0.0584)}(0.997)$
Silver	$e^{(1.72[\ln(\text{hardness})] - 6.52)}(0.85)(0.5)$[(c)]	n/a
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.884)}(0.978)$	$e^{(0.8473[\ln(\text{hardness})]+0.884)}(0.986)$

[(a)]Based on Guidance on the Calculation of Hardness-Dependent Metals Criteria presented in: *U.S. EPA. 2002. National Recommended Water Quality Criteria. EPA-822-R-02-047.*

[(b)]Hardness as mg/L $CaCO_3$. Hardness values used in these equations must be less than 400 mg/L. For hardness values greater than 400 mg/L, use 400.

[(c)]Criterion multiplied by 0.5 to be comparable with other acute values derived using an averaging period. Value does not need to be multiplied by 0.5 if criterion is to be used as an instantaneous maximum or end of pipe value, as the original criterion was derived using EPA's 1980 guidelines as a not to be exceeded instantaneous maximum.

Appendix G

Equations For pH Dependent Parameters

Parameter	Acute 1-Hour Average Concentration (µg/L)	Chronic 4-Day Average Concentration (µg/L)
Pentachlorophenol	$e^{[1.005(pH) - 4.830)}$	$e^{[1.005(pH) - 5.290)}$

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Wyoming
Surface Water Quality Standards

Implementation Policies
for

Antidegradation
Mixing Zones and Dilution Allowances
Turbidity
Use Attainability Analysis

~~February, 2007~~May 13,2013

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ANTIDEGRADATION IMPLEMENTATION POLICY
(Chapter 1, Section 8)

Section 1. Purpose. Section 8 of the Wyoming Surface Water Quality Standards ~~for Wyoming Surface Waters~~ (Water Quality ~~Division~~ Rules and Regulations, Chapter 1) establishes a regulatory policy concerning antidegradation. Section 8 ~~That regulation~~ provides:~~...~~

(a) Water uses in existence on or after November 28, 1975 and the level of water quality necessary to protect those uses shall be maintained and protected. Those surface waters not designated as Class 1, but whose quality is better than the standards contained in these regulations, shall be maintained at that higher quality. However, after full intergovernmental coordination and public participation, the ~~Wyoming D~~department ~~of Environmental Quality~~ may issue a permit for or allow any project or development which would constitute a new source of pollution, or an increased source of pollution, to these waters as long as the following conditions are met:

(i) The quality is not lowered below these standards;

(ii) All existing water uses are fully maintained and protected;

(iii) The highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved; and

(iv) The lowered water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

(b) The Water Quality Administrator (administrator) may require an applicant to submit additional information, including, but not limited to, an analysis of alternatives to any proposed discharge and relevant economic information before making a determination under this section.

(c) The procedures used to implement this section are described in the ~~"~~Antidegradation Implementation Policy.~~"~~

Antidegradation protection is one of the essential elements of ~~the~~ state surface water quality standards programs and is required under Section 303(d)(4)(B) of the ~~federal~~ Clean Water Act. The purpose of this implementation procedure is to disclose the decision-making and public participation processes that will be employed by the Water Quality Division in order to ensure compliance with ~~the requirements of~~ Section 8.

A secondary purpose of this implementation policy~~an~~ is to ensure federal approval of ~~the State's~~ Wyoming's surface water quality standards. Al~~T~~though ~~the State~~Wyoming has ~~the~~ primary authority to establish standards, the ~~U.S.~~ EPA has a responsibility to ~~make a~~ determine~~ation of~~ whether such standards meet~~will achieve~~ the goals and requirements of the

Clean Water~~federal~~ Act. To a large extent, approval of the standards relies ~~up~~on approval of an antidegradation implementation procedure.

Section 2. Concepts~~II.~~ . Water quality standards designate the uses which are protected on waters of the state and establish criteria that describe the maximum pollutant concentrations and other water quality conditions ~~that are~~ necessary to maintain those uses. Many waters in the state have an existing level of water quality that is better than the criteria established to support designated uses. The antidegradation requirements are designed to maintain water quality at the higher levels unless there are good reasons for lowering the water quality.

~~The f~~Federal regulations (40 CFR 131.12) require state standards programs to address 3 levels or "tiers" of antidegradation protection. "Tier 1" is the basic level of protection which applies to all waters. Waters which are afforded tier 1 protection ~~only~~ are waters not generally considered to be high quality, ~~or~~ are not currently supporting designated uses, or where assimilative capacity does not exist for parameters that would be affected by a proposed activity.

"Tier 2" protections apply to high quality waters. These are waters which have an existing quality that is better than the established use-support criteria and where an assimilative capacity exists for parameters that would be affected by a proposed activity. Under tier 2, a lowering of water quality may be allowed if it is determined that the amount of degradation is insignificant or if the lowered water quality is necessary to accommodate important economic or social development in the area. Under no circumstances, however, may water quality be lowered below the criteria established in the standards or below a level that would impair an existing use.

"Tier 3" protections apply to waters that constitute "outstanding national resource waters" (ONRWs)[1]. Tier 3 requires maintenance of existing quality with no consideration of assimilative capacity or economic or social development. In certain circumstances, temporary lowering of water quality is allowable~~,~~; however, the general rule is that no new point sources or increased pollutant loading from existing point sources is allowed~~able~~.

The antidegradation implementation procedures that follow shall apply to the review of regulated activities involving new or increased discharges of pollution. Regulated activities include individual Wyoming Pollution Discharge Elimination System (WYPDES) effluent discharge permits, WYPDES storm water permits for industrial and construction activities and Section 401 water quality certifications. The procedure is organized starting with the highest level of protection applied to Class 1 waters to the basic minimum level applicable to all waters.

[1]The Wyoming water quality protection program has no provision for designating waters that have "national" significance~~,~~; however, waters designated as Class 1 under the surface water standards are considered to be outstanding resources. Though not designated as ONRWs, Class 1 waters are afforded a level of antidegradation protection which is a functional equivalent of EPA's tier 3 concept.

Section 3. Outstanding Aquatic Resources (Class 1 ~~Waters~~) ~~(Outstanding Aquatic Resources)~~. ~~I~~The qualification requirements for Class 1 waters are listed in Chapter 1, ~~Water Quality Rules and Regulations,~~ Section 4(a). In addition, the general categories of waters (e.g.~~,~~ waters in national parks, etc.) and specific waters designated as Class 1 are listed in Chapter 1, Appendix A ~~of Chapter 1~~.

Class 1 waters are designated by the Environmental Quality Council in rulemaking hearings. Both the Wyoming Administrative Procedures Act and the ~~D~~department's c~~C~~ontinuing ~~P~~planning ~~P~~process (CPP) provide for public input during regulatory and planning processes. Any interested person may nominate a water for Class 1 designation through the procedures outlined in those documents.

(a)~~A.~~ Point Source Discharges. The Wyoming surface water quality standards prohibit new or increased "end-of-the-pipe"~~,~~ effluent discharges of pollution to Class 1 waters but allow limited discharges associated with storm water runoff and temporary discharges associated with construction activities. Permits issued by the d~~D~~epartment ~~of Environmental Quality (DEQ)~~ for storm water or construction-related discharges will contain the following safeguards: ~~(1)~~ changes in water quality will be limited to temporary increases in turbidity; ~~(2)~~ turbidity increases will be limited to those allowed in ~~Section 23 of~~ Chapter 1, Section 23, unless a temporary turbidity waiver as been granted by the administrator; and ~~(3)~~ necessary controls and monitoring will be required to ensure existing water quality and uses are maintained and protected.

Furthermore, the d~~D~~epartment will impose whatever controls are necessary on regulated point source discharges to tributaries of Class 1 waters to the extent that the existing quality and uses of the downstream Class 1 segment will be protected and maintained. It is the ~~D~~department's interpretation that "tributary" means any waters feeding the mainstem and any upstream mainstem segments.

The following procedures and decision-making processes will be used for each of the Water Quality Division's discharge permitting authorizations on Class 1 waters:

(i)~~1.~~ WYPDES~~,~~ ~~"e~~End ~~o~~ Of ~~t~~The ~~p~~Pipe~~"~~ ~~p~~Permits~~:~~. Permits for new or increased effluent discharges to Class 1 waters will not be issued. This prohibition is not intended to include temporary construction-related discharges or industrial storm water permits for which effluent limits have been established where there is no reasonable potential for a discharge of the associated effluent limitations.

(ii)~~2.~~ WYPDES Storm W~~w~~ater Permits *(Industrial Activities)*.~~:~~

(A)~~a.~~ Storm water permits for industrial activities may be issued with appropriate conditions and monitoring requirements on a~~n~~ ~~individual~~ case-by-case basis on Class 1 waters. An application for an industrial storm water permit must contain:

(I~~1~~) ~~a~~A list of all pollutants which can reasonably be expected to occur on-site and be exposed to runoff events;

(II~~2~~) ~~a~~A map showing the location of the industrial facility in relation to the Class 1 receiving water and/or tributaries;

(III~~3~~) ~~w~~Water quality data that characterizes the existing quality of the receiving Class 1 water and/or its tributaries in relation to the potential on-site pollutants;

(IV~~4~~) ~~a~~A storm water pollution prevention plan that provides:

(~~a~~1.) ~~r~~Runoff from the industrial site resulting from up to a 100-year storm event will not discharge to a Class 1 water; or

(~~b~~2.) ~~r~~Runoff which may discharge to a Class 1 water as the result of any storm event will be of equal or better quality than the receiving water; and

(V~~5~~) ~~a~~A monitoring plan designed to ensure compliance with item (~~4~~IV).

(B)~~b.~~ Prior to issuing an industrial storm water permit, the ~~D~~department will make a determination based upon the information submitted in the application that the potential effects on the Class 1 receiving stream, if any, will be temporary in nature and limited to discharges of clean sediment and turbidity. The ~~D~~department may also include any additional construction practices, treatment processes, monitoring and reporting requirements or other special conditions as ~~may be~~ necessary to achieve and demonstrate that existing water quality and uses will be maintained.

(C)~~c.~~ The d~~D~~epartment will conduct a 30-day public notice and comment period prior to the issuance of any industrial storm water permit on Class 1 waters disclosing its intent to issue a permit for industrial storm water discharges. Information received as a result of the public notice will be considered by the department~~DEQ~~ and may affect the final determination regarding permit approval.

(D)~~d.~~ Existing general storm water permits for industrial activities will remain in effect for the remainder of their terms. The reauthorization of these permits, however, is not guaranteed and will be subject to the provisions of the revised rule and the implementation policy described above.

(iii)~~3.~~ WYPDES Storm W~~w~~ater Permits *(Construction Activities)*.~~:~~

(A)~~a.~~ General storm water permits for construction activities may be issued with appropriate conditions and monitoring requirements on Class 1 waters. Public comment is solicited prior to establishment of general permits and at each subsequent renewal (at least once every five years). Small construction general permits (SCGP) cover construction

projects that disturb between one and five acres (includes sum of disturbed acres that are part of a common plan of development or sale) and large construction general permits (LCGP) cover construction projects that disturb five acres or more (includes sum of disturbed acres that are part of a common plan of development or sale). The SCGP is a "no application" permit, where a project is automatically covered when the operator complies with the provisions of the SCGP. An application for a LCGP must contain ~~An application for a construction stormwater permit must contain~~ a ~~N~~notice of ~~i~~Intent (NOI) to discharge storm water prepared according to the provisions ~~of Appendix B~~ of the Wyoming General ~~Stormwater~~ Permit to Discharge Storm Water Associated with Large~~for~~ Construction Activities. The applicant must submit along with the NOI, a detailed storm water pollution prevention plan (SWPPP) ~~which~~ that includes sufficient controls on all potential sources of pollution. The SWPPP~~pollution prevention plan~~ must demonstrate that the only types of pollution that could reasonably be expected to reach a Class 1 water during a runoff event are ~~limited to~~ turbidity and sediment. Although the SCGP does not require an application, the requirements are generally identical to those in the LCGP.

(B)~~b.~~ Runoff from ancillary, construction-related facilities such as borrow areas, gravel processing areas, asphalt processing plants, concrete mixing, fuel and~~&~~ solvent storage areas, equipment staging and maintenance areas, and any area which may be a source of pollutants other than turbidity and sediment must be controlled so as not to discharge to any Class 1 water. This provision applies to runoff resulting from up to a 100-year storm event.

(C)~~c.~~ The d~~D~~epartment shall conduct an in-house review of the NOI and pollution control plan prior to approving coverage under the LCGP~~general stormwater permit~~. The ~~D~~department may also include any additional construction practices, monitoring and reporting requirements, or other special conditions that~~as~~ may be necessary to achieve and demonstrate that existing water quality and uses will be maintained. Upon issuance, ~~T~~the department~~DEQ~~ accepts comments on all general permit authorizations for a period of 30 days following the authorization. Any aggrieved party may appeal an authorization under a general permit pursuant to W.S. 35-11-801(d). Parties considering an appeal should provide comments to the department~~will not normally conduct a public notice and comment period prior to authorizing specific activities under the stormwater general permit~~. ~~Public comment was solicited prior to the establishment of the general permit and public notice will be provided at each subsequent renewal (at least once every five years).~~ Upon review of any application for a construction storm water permit, the d~~D~~epartment may also choose to deny authorization under the general permit and require an individual permit. ~~-~~ In such instances, a 30-day public notice will be conducted.

(b)~~4.~~ Clean Water Act Section 401 Water Quality Certifications. This section ~~e~~ ~~Department adopted a policy on October 11, 1996~~ outlines procedures used by the department ~~regarding the issuance of 401 certifications for activities on Class 1 waters. This policy was specifically designed~~ to ensure the protection of existing quality and uses of Class 1 waters ~~and serves as the antidegradation implementation procedure~~ for activities subject to 401 certifications ~~on Class 1 waters~~. Certifications are required for federal licenses or permits to discharge and include Section 404 permits issued by the U.S. Army Corps of Engineers and hydropower licenses issued by the Federal Energy Regulatory Commission (FERC).

~~a. The following classes of construction activities are examples of what may be authorized on Class 1 waters:~~

~~(1) Habitat Restoration and Enhancement;~~

~~(2) Repair and Maintenance of Existing Structures;~~

~~(3) Road Construction and Maintenance;~~

~~(4) Utility Construction and Maintenance;~~

~~(5) Streambank Stabilization and Flood Control;~~

~~(6) Minor Recreational Facilities (boat docks, fishing piers, hiking trails etc.);~~

~~(7) Environmental Cleanup Activities; and~~

~~(8) Miscellaneous Development on Isolated Wetlands~~

~~b. Pursuant to the regulations, Chapter 1, Section 7, Certification must be denied on Class 1 waters for the following types of activities if the construction or operation of any new facilities will involve a point source effluent discharge or if the expansion of any existing facility will result in an increase of pollution from an existing discharge. Examples of facilities and activities that commonly involve discharges include wastewater treatment plants, power plants, food processing facilities, gravel processing operations, mining, oil production and refining, fish hatcheries, aquaculture, feedlots, etc.~~

(i)~~c.~~ Federal licenses or permits~~Construction activities~~ can be certified by the department~~DEQ~~ if activities authorized by the license or permit~~they are designed to~~ meet the following ~~general and activity-specific~~ requirements:

(A~~1~~) Any resultant water quality degradation shall be temporary and all potential negative effects cease at the end of the construction period;

(B~~2~~) Potential contaminants are limited to turbidity and sediment. Increases in downstream turbidity are limited to 10 NTUs above the upstream condition at all times on streams that support cold water game fisheries and/or drinking water supplies and 15 NTUs on streams that support warm water fisheries, unless a temporary turbidity waiver has been granted by the administrator. Sediment cannot be discharged in amounts that will adversely affect existing or designated~~beneficial~~ uses as described in Chapter 1, Sections 15 and 16;

(C~~3~~) Long term or permanent degradation of s~~S~~tream channel stability~~integrity~~ and aquatic habitat will ~~is~~ not occur~~preserved and maintained. Written~~

~~concurrence from the Wyoming Game & Fish Dept. that aquatic habitat will not be degraded will be solicited~~;

(D~~4~~) Long-term or permanent degradation of aesthetic properties will not occur~~All existing uses are fully protected and maintained~~; and

~~(5) Existing ambient conditions i.e. dissolved oxygen, pH or temperature are not degraded; and~~

(E~~6~~) Process water from~~All~~ construction activities (e.g. hydrostatic testing, gravel washing, etc.) ~~must be designed and operated in such a manner that water from dewatering activities, hydrostatic testing of pipelines, gravel washing etc. so as~~ will not ~~to allow a surface~~ discharge to a Class 1 water.

(ii)~~d.~~ 401 Certification shall be denied for federal licenses or permits authorizing discharge to~~on~~ Class 1 waters if any of the following apply~~ies~~:

(A~~1~~) The activity~~project~~ may result~~s~~ in degradation of water chemistry~~,~~ or long-term or permanent loss or reduction of: channel stability, aquatic habitat, or ~~a reduction in~~ existing or designated~~beneficial~~ uses;

(B~~2~~) ~~The application does not contain nor can the certification be conditioned to provide reasonable assurance that turbidity can be controlled within the 10 NTU limit.~~ Sediment will be discharged in amounts that settle to form sludge, bank or bottom deposits;

~~(3) Project may result in channel instability or significant loss of aquatic habitat. Written concurrence from the Game & Fish Dept. is not obtained;~~

~~(4) Project may result in a loss or reduction of beneficial uses;~~

(C~~5~~) Existing ambient conditions will be degraded by the activity; or

~~(~~D~~6~~) Any surface discharge of process water to a Class 1 water will occur.

(iii) The applicant may be asked to consider multiple reasonable alternatives for accomplishing the project objectives and justify the chosen alternative with consideration of environmental, economic and social factors. The chosen alternative may not have significant adverse affects to existing or designated uses.

(iv) Wyoming Game and Fish Department (WGFD) must be consulted for comments prior to certification of the activity. If evidence of consultation with WGFD is not provided with the application materials, the department may consult with WGFD on behalf of

the applicant. Results of the consultation will be considered in the decision to approve, approve with conditions or deny certification;

(v)~~e.~~ In addition to the general requirements above, the following measures apply on an activity-specific basis on Class 1 waters:

(A~~1~~) Aquatic Habitat Improvement Activities.~~:~~

~~(a) All projects must be supported by the Wyoming Game & Fish Department;~~

(~~b~~I) Projects shall maintain existing and designated uses and should generally not ~~be designed to trade~~convert one habitat type~~beneficial use~~ to~~for~~ another unless all aquatic habitat functions are~~; but all uses must be fully~~ remain~~tained~~, (e.g. instream habitat structures may not impede movement of resident fish species; existing wetlands may~~should~~ not be excavated or inundated to create deep water habitat~~areas for fish,~~; spawning, rearing or feeding habitat may~~or stream segments that serve as nursery areas or food sources should~~ not be converted to holding areas for adult fish);

(~~c~~II) Project plans must be based on sound scientific principles, data and analyses that are commensurate with project complexity and risk of degradation~~Special consideration can be given for projects that are part of an approved watershed restoration plan or wetland conservation plan~~; and

(~~d~~III) The department shall~~must~~ use discretion and professional judgment in determining whether existing and designated~~beneficial~~ uses will be degrad~~impair~~ed ~~in light of the overall project purposes and desired effects~~ by the activity.

(B~~2~~) Repair/Maintenance Activities.~~:~~ Currently serviceable structures may be~~The~~ repaired, rehabilitated~~ion~~ or replaced,~~ment of currently serviceable structures~~ provided that the proposed work does not deviate from the original plans, purpose~~,~~ or use of the structure and ~~is acceptable if~~ the general requirements for certification on Class 1 waters are met.

(C~~3~~) Streambed and Streambank Stabilization and Flood Control Activities.~~:~~ ~~Riprap, revetments, jetties~~ Streambank stabilization and flood control~~other similar~~ structures can be approved if the objectives~~purpose of the project~~ are~~is~~ to reduce existing environmental degradation, ~~is necessary to~~ protect human health and safety, or ~~to~~ prevent substantial loss of ~~private~~ property ~~and does not significantly and adversely affect beneficial uses~~.

~~(4) Roads, Utilities and Minor Recreational Activities:Existing facilities may be maintained and new facilities constructed either as part of a public project or private development as long as the general requirements for construction on Class 1 waters are met.~~

(iv~~D~~)~~f.~~ Public Notice. ~~Individual 401 certifications are issued on all section 404 permits including the U.S. Army Corps of Engineers' nationwide and statewide general permits~~

~~on Class 1 waters, and hydropower licenses issued by the Federal Energy Regulatory Commission (FERC).~~ A joint WDEQ/Corps of Engineers public notice is issued by the Corps prior to the issuance of all individual Section 404 permits. ~~There is no public notice prior to the authorization of any activity under a Section 404 nationwide or statewide general permit on Class 1 waters. The DEQ does not have a joint permitting agreement with FERC, therefore,~~ The department~~DEQ~~ shall conduct a separate public notice and comment period prior to ~~issuing 401~~ certifying~~ication for~~ all FERC or other federal licenses. With the exception of minor projects with minimal effects, the department shall conduct a separate public notice and comment period ~~and~~ prior to certifying all nationwide or regional general Section 404 permits ~~on Class 1 waters~~.

(c)~~B.~~ Nonpoint Sources. Nonpoint sources of pollution are not regulated by permits issued by the d~~D~~epartment, but are controlled by the voluntary application of cost effective and reasonable best management practices. For Class 1 waters, best management practices will maintain existing quality and water uses.

Section 4. High Quality Waters ~~–~~(Class~~es~~ 2AB, 2A, 2B~~,~~ and 2C).~~IV~~

~~A. The antidegradation procedure under this part applies to the issuance of WYPDES Effluent Permits, Stormwater Permits (Industrial & Construction Activities) and Section 401 Certifications of Activities Regulated by the Federal Energy Regulatory Commission (FERC).~~

Waters classified as 2AB, 2A, 2B or 2C are known to support populations of fish and/or drinking water supplies and are considered to be high quality waters. The Water Quality Division may issue a permit or certification for new or increased discharges to these waters upon making a finding that the amount of resultant degradation is insignificant or that the discharge is necessary to accommodate important economic or social development in the area where the waters are located. The Department must also ensure that the highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved. For purposes of antidegradation implementation these may be referred to as "reviewable waters".

Where there are existing regulated point or nonpoint sources located in the area, the Water Quality Division will ensure that compliance with the required controls has been or will be achieved prior to authorizing the proposed regulated activity. This requirement is primarily intended to ensure that proposed activities that will result in water quality degradation for a particular parameter will not be authorized where there are existing unresolved compliance problems involving the same parameter in the zone of influence of the proposed activity. The "zone of influence" is determined as appropriate for the parameter of concern, the characteristics of the receiving water (e.g. lake versus river, etc.)~~,~~ and other relevant factors. Where available, a Total Maximum Daily Load (TMDL) analysis or other watershed-scale plan will be the basis for identifying the appropriate zone of influence. The Division may conclude that such compliance has not been assured where existing sources are violating their WYPDES permit requirements. However, the existence of schedules of compliance for purposes of WYPDES permit requirements may be taken into consideration in such cases. In other words, required controls on existing regulated sources need not be finally achieved prior to authorizing a proposed activity provided there is reasonable assurance of future compliance.

(a) WYPDES Effluent Permits and Storm Water Permits (Industrial and Construction Activities). The antidegradation review under this part consists of three sequential evaluations: ~~,~~ ~~1. D~~determination of significance; ~~2. e~~economic evaluation; and ~~3. E~~examination of alternatives.

(i)~~1.~~ Determination of Significance.~~:~~

(A)~~a.~~ Based ~~up~~on information submitted in an application for a water quality permit ~~or certification~~, the ~~A~~administrator shall make a determination of whether the proposed discharge will result in a significant lowering of water quality with respect to adopted numeric water quality criteria. The significance determination will be based on the chronic numeric standard and flow for the pollutant of concern except for those pollutants which have only acute numeric standards in which case the acute standard and flow will be used. S~~This s~~ignificance determination shall be made with respect to the net effect of the new or increased water quality impacts of the proposed activity, taking into account any environmental benefits resulting from the activity and any water quality-enhancing mitigation measures impacting the segment or segments under review, if such measures are incorporated with the proposed activity. The activity shall be considered not to result in significant degradation~~,~~ if:

(~~1~~I) The activity may be permitted under a general permit established by the state for discharges regulated under section 402 ~~or by the Corps of Engineers for discharges regulated under Section 404 of the Clean Water Act~~; or

(II~~2~~) The new or increased loading from the source under review is less than 10 percent of the existing total load to that segment for critical constituents (e.g. those for which there are stream standards ~~set~~ and which are present in the discharge)~~;~~, provided~~,~~ that the cumulative impact of increased loadings from all sources does not exceed 10 percent of the baseline total load established for the segment (the baseline total load shall be determined at the time of the first proposed new or increased water quality impacts to the reviewable waters~~.~~); or

(III~~3~~) The new or increased loading from the source under review will consume, after mixing, less than 20 percent of the available increment between low flow pollutant concentrations and the relevant standards (assimilative capacity), for critical constituents; or

(IV~~4~~) The activity will result in only temporary or short term changes in water quality.

(B)~~b.~~ If an activity is considered not to result in significant degradation, no further review will be conducted. General WYPDES permits ~~and 401 certifications of general 404 permits~~ will be issued at this point. In the case of individual WYPDES permits, the Water Quality Division shall prepare a draft permit and provide opportunity for public comment before the ~~WYPDES~~ permit is issued. Such public notices shall contain a statement describing the rationale for the determination of non-significance. If the permit is issued, the determination

may be appealed to the Environmental Quality Council under the provisions of the Wyoming Administrative Procedures Act.

(C)~~c.~~ If a determination is made that a proposed activity is likely to result in significant degradation of reviewable waters, an evaluation shall be made as to whether the degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

(ii)~~2.~~ Economic Evaluation.~~:~~ ~~The following provisions shall apply to this determination:~~

(A)~~a.~~ The "area in which the waters are located" shall be determined from the facts on a case-by-case basis. The area shall include all areas directly impacted by the proposed activity.

(B)~~b.~~ A determination shall be made on the facts on a case-by-case basis whether the proposed activity is important economic or social development. If the applicant submits evidence that the activity is an important development, it shall be presumed important unless information to the contrary is submitted in the public review process. The determination shall take into account information received during the public comment period and shall give substantial weight to any applicable determinations by local governments or land use planning authorities.

(C)~~c.~~ If the proposed activity is determined not to be important for economic or social development, authorization for the associated discharge(s) will be denied.

(D)~~d.~~ If the proposed activity is determined to be important economic or social development, a determination shall be made whether the degradation that would result from such activity is necessary to accommodate that development.

(iii)~~3.~~ Examination of Alternatives. The degradation shall be considered acceptable if there are no other water quality control alternatives available that:

(A)~~a.~~ ~~w~~Would result in no degradation or less degradation of ~~the~~ state waters; and

(B)~~b.~~ ~~a~~Are determined to be economically, environmentally~~,~~ and technologically reasonable.

(C)~~c.~~ ~~This d~~Determination of whether such alternatives are available~~,~~ shall be based upon a reasonable level of analysis by the project proponent, consistent with accepted engineering practices, and ~~any~~ information submitted by the public or ~~which is~~ otherwise available to the a~~A~~dministrator. The assessment shall, at a minimum, address practical water quality control technologies, the feasibility and availability of which has been demonstrated under field conditions similar to those of the activity under review. The scope of

alternatives considered shall be limited to those that would accomplish the proposed activity's purpose.

(D)~~d.~~ In determining the economic reasonableness of water quality control alternatives, the ~~A~~administrator may use some of the following factors to weigh the reasonableness of the various alternatives.

(~~1~~I) Whether the costs of the alternative significantly exceed the costs of the proposal;

(~~2~~II) For publicly owned treatment works (POTWs), whether user charges resulting from the alternative would significantly exceed user charges for similarly situated POTWs or public water supply projects;

(~~3~~III) For any discharger into waters of the state, whether the treatment alternative represents costs that significantly exceed costs for other similar dischargers to similar stream classes, or standard industry practices.

(~~4~~IV) Any other environmental benefits, unrelated to water quality which may result from each of the alternatives examined.

(E)~~e.~~ Upon conclusion of the alternatives analysis, the ~~A~~administrator shall select a preferred alternative and prepare a draft permit and public notice proposing to authorize the selected alternative. The selected alternative shall be the least degrading, reasonable alternative consistent with the social and economic benefits. The public notice shall contain a statement describing the results of the antidegradation review. If the permit is issued, all administrative decisions relating to the antidegradation review or permit issuance may be appealed to the Environmental Quality Council under the provisions of the Wyoming Administrative Procedures Act.

(b)~~B.~~ Clean Water Act Section 401 Certifications. This section outlines procedures used by the department to fulfill antidegradation requirements on high quality waters for activities subject to 401 certifications. Certifications are required for federal licenses or permits to discharge and include Section 404 permits issued by the Army Corps of Engineers and hydropower licenses issued by the Federal Regulatory Commission (FERC). ~~Individual Section 404 Permits Issued by the U.S. Army Corps of Engineers.Activities involving a discharge of dredged or fill materials that are considered to have more than minor adverse affects on the aquatic environment are regulated by individual Section 404 Permits. The decision making process relative to the 404 permitting program are contained in the 404(b)(1) guidelines *(40 CFR Part 230)*. Prior to issuing a permit under the 404(b)(1) guidelines, the Corps of Engineers must: (1) make a determination that the proposed discharges are unavoidable *(i.e. necessary)*; (2) examine alternatives to the proposed activity and authorize only the least damaging practicable alternative; and (3) require mitigation for all impacts associated with the activity. A 404(b)(1) findings document is produced as a result of this procedure and is the basis for the permit decision. Public participation is also provided for in this process.~~

~~Because the 404(b)(1) guidelines contain all of the required elements of an antidegradation review, the department will not conduct a separate review for the same activity. Section 401 certifications of individual 404 permits will rely upon the information contained in the 404(b)(1) findings document.~~

(i) Certification of Nationwide and Regional General 404 Permits Issued by the U.S. Army Corps of Engineers. Section 404 nationwide general permits are reissued by the Corps every five years. At the time of reissuance, the department will review the permit to determine if certification can be categorically granted or whether project-specific certification review is necessary. When categorical certification is granted for a specific permit, the department will consider the terms and conditions of the permit to ensure they comply with the antidegradation provisions of Wyoming's Surface Water Quality Standards. The department may add conditions to the certifications that apply broadly to all nationwide permits or add conditions that are permit-specific.

(ii) For certification of FERC and other federal licenses, individual section 404 permits and nationwide or regional general 404 permits with project-specific requirements, the following requirements must be met:

(A) Any resultant water quality degradation shall be temporary and all potential negative effects cease at the end of the project;

(B) Potential contaminants are limited to turbidity and sediment. Increases in downstream turbidity are limited to 10 NTUs above the upstream condition on streams that support cold water game fisheries and/or drinking water supplies and 15 NTUs on streams that support warm water fisheries, unless a temporary waiver is granted by the administrator. Sediment cannot be discharged in amounts that will adversely affect existing and designated uses as described in Chapter 1, Sections 15 and 16;

(C) Stream channel stability and aquatic habitat are not significantly degraded; and

(D) Aesthetic properties are not significantly degraded~~;~~.

(iii) 401 Certification Shall Be Denied on Class 2 waters if any of the following apply:

(A) The project results in more than minimal degradation of water chemistry;

(B) Sediment will be discharged in amounts that settle to form sludge, bank or bottom deposits;

(C) The project may result in channel instability or more than minimal permanent loss of aquatic habitat; or

(D) The project may result in degradation of existing or designated uses. The department shall use discretion and professional judgment to determine whether existing or designated uses will be degraded by the activity.

(iv) For activities that require an individual certification review by the department, evidence of consultation with WGFD should be included with preconstruction notification documents. If evidence of the consultation is not included, the department may consult with WGFD on behalf of the applicant. Results of the consultation will be considered in the decision to approve, approve with conditions or deny certification.

Section 5. Use Protected Waters (Classes 2D, 3, and 4)V. ***(all) (all)***In general, Class 2D, 3 and 4 waters do not warrant the special protection provided toon high quality waters and shall be afforded a basic level of antidegradation protection (EPA tier 1 equivalent). This level of protection is focused on maintaining existing uses and may allow lowering water quality asso long as the established criteriona for any parameter isare not exceeded. The issuance of water quality permits and certifications shall not normally involve an examination of economic necessity or alternatives to the proposed activity;, however, the administrator may determine on a case-by-case basis that special circumstances exist in relation to a proposed discharge and conduct a High Quality Water (See Section 4, above) tier 2 type review of the proposed discharge may be conducted prior to authorizing the activity. Special circumstances may include, but are not limited to, exceptional recreational or ecological significance (e.g. location in a park or urban greenway, presence of rare or sensitive plant and animal species, contains unique aquatic features such as wetland fens or geothermal springs, etc.).

Section 6. Existing Use Protection for (aAll Wyoming Surface Waters)VI. Except for the special considerations provided in Chapter 1 of the Wyoming Water Quality Rules and regulations regarding Class 2D, 3D and 4C waters, existing in-stream water uses shall be maintained and protected in all Wyoming surface waters. For Class 1 waters, existing uses will be protected by implementing the requirements described in Section 3III of this implementation policy. For hHigh qQuality and uUse pProtected wWaters, this implementation policy assumes that attainment of the criteria assigned to protect the current water body classification will serve to maintain and protect all existing uses. In some cases, however, water quality may have improved in the segment since the classifications were assigned, resulting in an existing use that is higher than the current classification. In other cases, the classifications may have been assigned based on inadequate information, resulting in classifications that do not fully encompass the existing uses of the segment. Where the antidegradation review results in the identification of an existing use that has protection requirements that are clearly defined, but are not addressed in the current classification and criteria, the dDivision will ensure that such existing uses are fully protected, based on implementation of appropriate numeric or narrative water quality criteria or criteria guidance. For example, where a proposed activity will result in the discharge of a substance for which sufficient data to derive appropriate criteria are available (e.g. §Clean Water Act Section 304(a) criteria), but numeric criteria have not been adopted in

the Chapter 1 ~~regulations~~, the ~~D~~division will develop effluent limitations that will protect the existing use. In cases where there is a proposed discharge where federally-listed threatened or endangered species are present (i.e. aquatic species), the ~~D~~division will work with the U.S. Fish and Wildlife Service and EPA to gather available information and evaluate whether special existing use protection requirements are necessary to protect the listed species. Where there is a question regarding the appropriate classification of a segment, the applicant may be required to provide information regarding existing uses.

MIXING ZONES AND DILUTION ALLOWANCES IMPLEMENTATION POLICY
(Chapter 1, Section 9)

Section 1I. – Purpose . Section 9 of the Wyoming Surface Water Quality Standards for Wyoming Surface Waters (Water Quality Division Rules and Regulations, Chapter 1) provides for the establishment of a zone of dilution in the vicinity of point source discharges where acute and chronic aquatic life criteria and human health criteria may be exceeded. Section 9 provides:...

Except for acute whole effluent toxicity (WET) values and Sections 14, 15, 16, 17, 28 and 29(b) of these regulations, compliance with water quality standards shall be determined after allowing reasonable time for mixing. Except for the zone of initial dilution, which is the initial 10% of the mixing zone, the mixing zone shall not contain pollutant concentrations that exceed the acute aquatic life acute values (see Appendix B). In addition, there shall be a zone of passage around the mixing zone which shall not contain pollutant concentrations that exceed the chronic aquatic life chronic values (see Appendix B). Under no circumstance may a mixing zone be established which would allow human health criteria (see Appendix B) to be exceeded within 500 yards of a drinking water supply intake or result in acute lethality to aquatic life. The procedures used to implement this section are described in the "Mixing Zones and Dilution Allowances Implementation Policy."

This policy addresses how mixing and dilution of point source discharges in receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations for point sources. In all cases, mixing zone and dilution allowances shall be limited as necessary to protect the integrity and designated uses of the receiving water.

Section 2II. – Concepts. A mixing zone is a limited area within the receiving water body where initial dilution of a point source discharge of pollution takes place. The establishment of a mixing zone is not appropriate in all circumstances. For example, in non-perennial or low flow streams, there may not be any dilution available to mix with the discharge. Also, there may be instances where background concentrations of specific pollutants in the receiving stream provide no assimilative capacity. In circumstances like these, acute and chronic criteria would have to be met in the discharge itself.

Where the establishment of a mixing zone is appropriate and possible, the design needs to be based on the following 3 concepts:

(a)1. The size and configuration of the mixing zone shall not impair the integrity of the water body as a whole;

(b)2. There shall be no lethality to aquatic organisms through the mixing zone; and.

(c)3. There shall be no significant health risks to human populations associated with the mixing zone *(e.g. proximity to recreation areas or drinking water intakes)*.

The size, configuration and other relevant design considerations shall be based on critical flow conditions for both the receiving water ~~stream flow~~ and the effluent ~~flow~~. Effluent critical conditions include effluent flow and pollutant concentrations; receiving water critical conditions include receiving water flow, background pollutant concentrations and other characteristics of the receiving water that affect pollutant concentrations (e.g. temperature, pH, reaction rates, etc.) This policy addresses mixing zones and dilution allowances where ~~(1)~~ mixing is complete and near instantaneous at the point of discharge~~;~~ (Section 3) and ~~(2)~~ mixing is incomplete at the point of discharge (Section 4).

Section 3~~III~~. Complete Mixing ~~Dilution Allowances~~.

(a)~~A.~~ Where the discharge is to a river or stream~~, dilution is available at critical conditions,~~ and available information is sufficient to conclude that there is near instantaneous and complete mixing of the discharge with the receiving water at critical conditions, an appropriate dilution allowance may be provided in calculating chemical-specific discharge limitations. An assumption of complete mixing may be based on any of the following:

(i)~~1.~~ ~~The m~~Mean daily flow of the discharge exceeds the critical in-stream flow;

(ii)~~2.~~ ~~The presence of a~~An effluent diffuser ~~that~~ covers the entire stream width at critical flow;

(iii)~~3.~~ ~~A d~~Demonstration by the permittee, based on in-stream studies, that shows no more than a 10% difference in bank to bank concentrations within a longitudinal distance not greater than 2 stream/river widths; or

(iv)~~4.~~ Other defensible discharge outlet designs and configurations provided by the permittee.

(b)~~B.~~ The basis for concluding that complete mixing occurs will be documented in the rationale for the discharge permit.

(c)~~C.~~ The dilution allowance for continuous discharges shall be based on the critical low flow of the receiving stream. Critical low flow can be determined using the methods provided in Chapter 1, Section 11.

(d)~~D.~~ For controlled discharges, such as lagoon facilities that discharge only during high ambient flows, the stream flow to be used in determining a dilution allowance shall be the lowest flow expected to occur during the period of discharge.

(e)~~E.~~ Where a discharger has installed a diffuser in the receiving stream, that portion of the stream flow affected by the diffuser may be used to calculate a dilution allowance. For example, 50% of the 7Q10 low flow may be used for a diffuser extending halfway across the stream bottom.

Section 4~~IV~~. Incomplete Mixing~~.~~

(a)~~A.~~ Where dilution is available at critical conditions and the discharge does not mix at a near instantaneous and complete rate, an appropriate mixing zone may be designated for purposes of implementing aquatic life and human health criteria in the receiving stream. Where a mixing zone is allowed, its size and shape will be determined on a case-by-case basis as follows:

(i)~~1.~~ ~~m~~Mixing zones for streams and rivers shall not exceed one-half ~~-~~of the cross-sectional area or a length 10 times the stream width at critical low flow, whichever is more limiting; and

(ii)~~2.~~ ~~m~~Mixing zones in lakes shall not exceed 5% of the lake surface area or 200 feet in radius, whichever is more limiting.

(b)~~B.~~ The above limits are intended to establish the maximum allowable size of mixing zones~~;~~, however, individual mixing zones may be further limited or denied ~~in~~ due to concerns about ~~consideration of~~ designated and existing uses or ~~presence of~~ the following ~~concerns~~ in the area affected by the discharge:

(i)~~1.~~ ~~b~~Bioaccumulation in fish tissues or wildlife;

(ii)~~2.~~ ~~b~~Biologically important areas such as fish spawning or nursery areas;

(iii)~~3.~~ ~~l~~Low acute to chronic ratio;

(iv)~~4.~~ ~~p~~Potential human exposure to pollutants resulting from drinking water or recreational activities;

(v)~~5.~~ ~~a~~Attraction of aquatic life to the effluent plume;

(vi)~~6.~~ ~~t~~Toxicity/persistence of the substance discharged;

(vii)~~7.~~ ~~z~~Zone of passage for migrating fish or other species, including access to tributaries; and

(viii)~~8.~~ ~~c~~Cumulative effects of multiple discharges and mixing zones.

(c)~~C.~~ Within the mixing zone designated for a particular substance, the numeric water quality criteria contained in Chapter1, Appendix B ~~of the Water Quality Rules and Regulations~~ may not apply. However, all mixing zones shall be free from materials that:

(i)~~1.~~ S~~s~~ettle to form objectionable deposits~~;~~ (Chapter 1, Sections 14 ~~&~~and 15);

(ii)2. fFloat as debris, scum, oil, or other matter; (Chapter 1, Section 16);

(iii)3. Pproduce objectionable color, odor, or taste; (Chapter 1, Section 17);

(iv)4. aAre acutely lethal; (Chapter 1, Section 9); and

(v)5. pProduce undesirable aquatic life (Chapter 1, Section 28); and

(vi) Form visible sheens or deposits or damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life (Chapter 1, Section 29(b)).

(d)D. In incomplete mixing situations, permit limitations to implement acute whole effluent toxicity (WET) criteria shall be based on meeting such criteria at the end-of-pipe (i.e. without an allowance for dilution). For chemical-specific acute aquatic life criteria, discharge limitations will be based upon meeting such criteria at the edge of the zone of initial dilution (Chapter 1, Section 9).

(e)E. The dilution allowance for continuous discharges shall be based on the critical low flow of the receiving stream. Critical low flow can be determined using the methods provided in Chapter 1, Section 11.

(f)F. For controlled discharges, such as lagoon facilities that discharge only during high ambient flows, the stream flow to be used in determining a dilution allowance shall be the lowest flow expected to occur during the period of discharge.

(g)G. The requirements and concerns identified in Sections paragraphs 4(b)B. and 4(c),C. above, may be considered in deciding the portion, if any, of the critical low flow to provide as dilution. The environmental concerns listed in Section 4(b) paragraph B. are not intended to establish any bright line tests in which to make risk determinations. Rather, such decisions should be made in consideration of designated and existing uses and relevant site-specific conditions. Each of the concerns is further explained as follows:

(i)1. Bioaccumulation in fish tissues or wildlife.: Both potential and existing bioaccumulation concerns should be evaluated. As a general guideline, pollutants with bioconcentration factors (BCF) greater than 300 indicates a potential risk of downstream bioaccumulation;

(ii)2. Biologically important areas such as fish spawning or nursery areas.: Information on either the existence of spawning areas within the proposed zone of influence or a "shore hugging" effluent plume in an aquatic life segment could support a conclusion that allowing dilution or a mixing zone would pose significant risk to a biologically important area. Presence of a threatened or endangered species downstream should also be considered in light of the duration and magnitude of potential exposure of the particular species.;

(iii)3. Low acute to chronic ratio:. For substances with low acute to chronic ratios, indicating that acute affects may occur at concentrations "close" to those that have been demonstrated to result in chronic effects, restricting or denying a mixing zone or dilution allowance may be appropriate in order to avoid acutely toxic concentrations outside of the zone of initial dilution;

(iv)4. Potential human exposure to pollutants resulting from drinking water or recreational activities:. Existence of a drinking water intake or a recreational area within or near the proposed zone of influence would strongly suggest that an allowance for dilution is not appropriate for substances with established human health criteria;

(v)5. Attraction of aquatic life to the effluent plume:. Where available data support a conclusion that fish or other aquatic life are attracted to the effluent plume, it may be appropriate to set discharge limitations at the end-of-pipe;

(vi)6. Toxicity/persistence of the substance discharged:. It may be appropriate to deny dilution or a mixing zone for particularly toxic or persistent substances. This factor should be given added weight where the discharge is to an isolated aquatic system where the substance is expected to remain biologically available;

(vii)7. Zone of passage for migrating fish or other species, including access to tributaries:. Where available data suggest that allowing dilution or a mixing zone would inhibit migration of fish or other species, it may be appropriate to set discharge limitations at the end-of-pipe. This factor includes consideration of whether the effluent plume will block migration into tributary segments;

(viii)8. Cumulative effects of multiple discharges and mixing zones:. In some cases, existence of overlapping effluent plumes may necessitate denying dilution or mixing zones for discharging facilities. Any allowances for dilution should be restricted as necessary to protect the integrity of the receiving water ecosystem and designated water uses.

(h)H. The mixing zone size limits shall be implemented by calculating allowable dilution consistent with one of the following methods:

(i)1. Default Method:. In general, the default method provides a conservative level of allowable dilution and can be used where available data on potential environmental impacts suggests that a full mixing zone should not be allowed, or available data on the receiving stream or downstream uses are is insufficient to determine the appropriate mixing zone dimensions.

(A)a. Stream/River Discharges:. As a general guideline, dilution calculations which use up 10% of the critical low flow may be used to for develop ing effluent limit ats ions for chronic aquatic life chronic criteria and human health consumption criteria. For acute numeric aquatic life acute criteria, 1% of the critical low flow may be used.

(B)~~b.~~ Lake/Reservoir Discharges.~~:~~ As a general guideline, dilution up to 4:1 (20% effluent) may be provided for developing effluent limitations for ~~chronic~~ aquatic life chronic criteria and human health consumption criteria. For ~~acute~~ numeric aquatic life acute criteria, a 0.4:1 dilution ratio may be used.

(ii)~~2.~~ Modeling Method~~:~~. Mixing zones should not exceed one-half the cross-sectional area of the receiving stream or a length 10 times the stream width, whichever is less. These restrictions apply to the stream at critical low flow.

A calculation must first be performed to determine if the discharge mixes within one-half area before or after the length limit. This calculation as well as other mixing zone calculations can be performed using any number of appropriate models including, but not limited to, STREAMIX I, CORMIX, PLUMES, etc.

(iii)~~3.~~ Field Study Method.~~:~~ Field studies which document the actual field characteristics in the receiving water can be used to determine the dilution allowance at critical low flows.

Section 5. ~~I.~~ **Other Considerations**.

(a)~~1.~~ Where dilution flow is not available at critical flow conditions, neither a mixing zone or an allowance for dilution will be provided.

(b)~~2.~~ All mixing zone and dilution assumptions are subject to review and revision as information on the nature and impacts of the discharge becomes available. Mixing zone and dilution decisions are subject to review and revision along with all other aspects of the discharge permit upon expiration of the permit.

(c)~~3.~~ For certain pollutants (e.g. ammonia, dissolved oxygen, metals) that may exhibit increased toxicity after dilution and complete mixing within the receiving water, the wasteload allocation shall address such toxicity as necessary to fully protect designated and existing uses.

TURBIDITY IMPLEMENTATION POLICY
(Chapter 1, Section 23)

Section 1I. Purpose. Section 23 of the Wyoming Surface Water Quality Standards for Wyoming Surface Waters (Water Quality Division Rules and Regulations, Chapter 1) places the following limits on increases of turbidity in waters of the state:

Section 23. Turbidity.

(a) In all cold water fisheries and/or drinking water supplies (eClasses 1, 2AB, 2A, and 2B and 2D), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than ten (10) nephelometric turbidity units (NTUs).

(b) In all warm water or nongame fisheries (eClasses 1, 2AB, 2B and 2C), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than 15 NTUs.

(c) An exception to paragraphs (a) and (b) of this section shall apply to:

(i) The North Platte River from Guernsey Dam to the Nebraska line during the annual "silt run" from Guernsey Dam; and

(ii) Short-term increases of turbidity that have been determined by the administrator to have only a minimal effect on water uses. Such determinations shall be made on a case-by-case basis and shall be subject to whatever controls, monitoring, and best management practices are necessary to fully maintain and protect all water uses. The procedures used to implement this section are described in the "Turbidity Implementation Policy."

When the department is considering the regulation of any point source (through the WYPDES or 401 certification processes), compliance with the numeric turbidity criteria for the various classes of waters has always been required and will continue to be required. The departmentIt is also recognizesd that short-term, construction-related exceedeances of these standards are often unavoidable and do not necessarily result in any significant degradation of water quality or loss of existing or designatedbeneficial uses. In fact, there are many construction activities in streams and rivers thatwhich have long-term beneficial effects or provide important economic or social benefits thatbut may temporarily increase turbidity during the actual construction period. Though the department recognizes that these circumstances exist, there has not been a formal process for allowing temporary elevated levels of turbidity on projects which are otherwise in the public interest.

The 1999 revision of the surface water quality standards included a provision to allow temporary, elevated levels of turbidity in certain limited circumstances. The purpose of this

~~document is to provide a process and procedure that the department will follow to implement Section 23 (c)(2) of the Chapter 1 Surface Water Standards.~~

Section 2~~H~~. **Policy.** In accordance with Section 23(c)(ii~~2~~), the administrator ~~of the Water Quality Division~~ may authorize temporary increases in turbidity above the numeric criteria in Section 23-(a) and 23(b) ~~of the Chapter 1 Surface Water Quality Standards~~ in response to an individual application for a specific activity. It is intended that temporary increases in turbidity will be limited to construction-related activities rather than effluent or storm water discharges. Such authorization may be issued independently or included in a~~n~~ WYPDES permit or 401 water quality certification, provided that the applicant can demonstrate and accept the following conditions:

(a)~~A.~~ The activities causing the increased turbidity will be limited in time and duration;

(b)~~B.~~ All existing and designated~~water~~ uses will be fully maintained and protected throughout the duration of the activity;

(c)~~C.~~ Best available technology and/or best management practices will be employed to maintain turbidity and sedimentation at the lowest practical level;

(d)~~D.~~ The authorization for increased turbidity will specify the limits of the authorization and may include a monitoring and reporting schedule to demonstrate compliance with those limits;

(e)~~E.~~ Mitigation or stream restoration requirements may be included as conditions in conjunction with any authorization for a temporary increase in turbidity;

(f)~~F.~~ An authorization issued under this section does not relieve the applicant of any liability for damages to aquatic life, habitat, or other existing or designated~~beneficial~~ uses that may result from an increase in turbidity;

(g)~~G.~~ An authorization issued under this section does not exempt the applicant from any other -federal, state or local laws or regulations, nor does it provide exemption from legal action by private citizens for damage to property that the activity may cause.

(h)~~H.~~ The administrator shall publish a notice of intent to authorize a temporary ~~n~~ increase of turbidity -in a paper of local circulation for a minimum of fourteen days prior to authorizing the increase. Interested persons may request a public hearing on the proposed authorization. In circumstances where the activity is necessary to address unforeseen acts of nature and cannot be delayed, the administrator may authorize a temporary increase without publishing a notice of intent.

USE ATTAINABILITY ANALYSIS (UAA) IMPLEMENTATION POLICY
(Chapter 1, Sections 33 and 34)

Section 1I. Purpose. The purpose of this document is to describe the process and provide guidance relative to the development of uUse Aattainability Aanalyses (UAA) where they are required under various sections of the Wyoming Surface Water Quality Standards (the Water Quality Rules and Regulations, Chapter 1) surface water quality standards. A uUse Aattainability Aanalysis is defined in Chapter 1, the regulations Section 2(b)(li) as:

Section 2 (xlix)

> *"Use attainability analysis (UAA)" means a structured scientific assessment of the factors affecting the attainment of the use. The factors may include physical, chemical, biological, and economic factors as described in Section 33 of these regulations.*

A Uuse Aattainability Aanalysis is generally required prior to changing a water classification or designated use, or establishing site-specific criteria that is different than the adopted statewide criteria for any pollutant.

Section 2II. Concepts. Chapter 1 of the Wyoming Water Quality Rules and Regulations - Surface Water Quality Standards establishes use designations on all waters of the state and the criteria necessary to achieve and maintain those uses. Use designations are the goals set for each water and criteria are elements of the standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use. The use designations and criteria adopted in the state standards are intended to comply with the requirements of the federal Clean Water Act and related federal regulations.

At a minimum, uses must be designated in a manner which serves the purposes of the federal Clean Water Act, as defined in Sections 101(a)(2), and 303(c) of that Act. These sections provide that water quality standards should: provide wherever attainable, water quality for the protection and propagation of fish, shellfish and wildlife and recreation in and on the water (fishable/swimmable uses, Section § 101(a)(2)); and consider the use and value of state waters for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation (Section § 303(c)).

Every use is not protected on every water,; however, the Clean Water Act requires that each water be designated for those uses actually supported on the water as of November 28, 1975 (existing uses) or would be achieved by the imposition of when the effluent limits under Sections 301(b) and 306 of the Clean Water Act and best management practices for nonpoint source control. . Sections 301 (b) and 306 are imposed on point source discharges and when cost-effective and reasonable best management practices are applied to nonpoint source discharges *(attainable uses).* Furthermore, the federal regulations at 40 Code of Federal Regulations (CFR) Part 131 require that all waters be protected for the fishable/swimmable uses contained in

Section§ 101-(a)(2) of the Clean Water Act unless it is specifically demonstrated that those uses are not attainable.

The uses that are protected on Wyoming waters are listed and described in Section 3 of Chapter 1, Section 3the Surface Water Quality Standards and include drinking water, game fish, non-game fish, fish consumption, aquatic life other than fish, recreation, wildlife, agriculture, industry and scenic valueAgriculture, Fisheries, Aquatic Life other than Fish, Industry, Drinking Water, Fish Consumption, Recreation, Scenic Value and Wildlife. There are also numerous classifications for surface waters of the state. Except for Class 1, waters are classified according to their designated uses. Class 1 waters are specially designated waters on which the existing water quality is protected regardless of the uses supported by the water. The table belowthat follows shows the uses designated foron each of the use-based water classificationss.

	Drinking Water	Game Fish	Non-Game Fish	Fish Consumption	Other Aquatic Life	Recreation	Wildlife	Agriculture	Industry	Scenic Value
1*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2AB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2A	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
2B	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2C	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2D	No	When Present	When Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3A	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3B	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3C	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3D	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
4A	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
4B	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
4C	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes

*Class 1 waters are not protected for all uses in all circumstances. For example, all waters in National Parks and Wilderness are Class 1; however, all do not support fisheries or other aquatic life uses (e.g. hot springs, ephemeral waters, wet meadows, etc.). For storm water permitting, 401 certification and water quality assessment purposes, the actual uses on each particular water must be determined independently.

Use Aattainability Aanalyses are required under the following circumstances:

(a)A. Use Aattainability Aanalyses are required prior to designating any water as Class 4 since these waters are not protected for all the uses specified in Section 101-(a)(2) of the

~~federal~~ Clean Water Act.

(b)~~B.~~ A ~~U~~use ~~A~~attainability ~~A~~analysis is required prior to reclassifying a~~ny~~ water ~~to a new classification~~ by ~~involving~~ the addition, removal or modification of a use designation. Most classification changes generally result in a corresponding change in use designations, but not necessarily. For example, a reclassification from 2B to 2A would involve the removal of the fisheries use and would~~,~~ therefore~~,~~ ~~-~~require a UAA. Changes completely within the Class 3 or Class 4 subcategories, however, do not always involve a ~~-~~change in use protection and ~~-~~may not require a UAA~~s~~. For example, a change in classification from Class 3A to 3B does not involve a change in use designations, applicable criteria or antidegradation protections; ~~. I~~it is ~~instead~~ simply a correction based on information that the water is part of a surface tributary system rather than ~~not~~ an isolated water ~~and is part of a surface tributary system~~.

(c)~~C.~~ A u~~U~~se ~~A~~attainability a~~A~~nalysis is required prior to ~~-~~modifying use designations even if ~~when~~ the action does not result in a change in classification. For example, the removal of an agricultural, ~~or~~ wildlife or recreation use from any water would not involve a classification change but does need to be based on a UAA. Also, a UAA is required when changing from a primary contact recreation designation to secondary contact.

(d)~~D.~~ A u~~U~~se a~~A~~ttainability ~~A~~analysis is required prior to establishing a site-specific criterion or water body condition that is ~~-~~different than the established statewide standards associated with the water's classification. For example, background concentrations of particular pollutants may exceed the established aquatic life criteria, however, aquatic life may still exist in the water. In these circumstances it would be appropriate to adjust the criteria to be at or near the background conditions rather ~~not be appropriate to~~ than remove all aquatic life protections ~~but may be sensible to adjust the criteria to be at or near the background conditions~~. Because criteria are generally established under laboratory conditions, these situations may ~~be found to~~ occur for any designated use in natural settings. This circumstance occurs on all Class 2D and 3D designations. A UAA is required to demonstrate that a water body is effluent depend~~a~~ent, whether or no~~t~~ ~~r~~ it supports a resident fish population and whether there are potential bioconcentrating or bio~~-~~accumulating hazards associated with the ~~quality of the~~ discharge. Ambient-based criteria may then be established for those waters that are shown to be effluent dependea~~a~~nt with no associated hazard.

(e) Use attainability analyses are not required when assigning or removing a Class 1 designation.

Section 3~~III~~. Process. Each ~~U~~use a~~A~~ttainability ~~A~~analysis involves a site-specific or categorical evaluation with varying information requirements. Depending upon individual circumstances and public interest ~~issues~~, one may involve an exhaustive study while another may only require simple and cursory information. For example, Class 4A waters are ~~applies to~~ man-made canals and ditches, yet a UAA is required prior to classification because these waters are not protected for aquatic life uses. This type of classification change would normally involve a minimal amount of information, often as little as ~~All that may be required in this instance is~~ a demonstration that a waterway is an artificially constructed conveyance for ~~an~~ agricultural or

industrial uses ~~and would normally involve only a minimal amount of information~~. On the other hand, a use may be removed because natural levels of pollution or human caused pollution that cannot be remedied prevent the attainment of the use. In either of those cases, ~~making a~~ showing that pollution~~ant~~ levels are ~~indeed~~ natural or cannot be remedied may involve a detailed assessment and evaluation of watershed conditions and an economic analysis. In all circumstances the following general administrative procedures will apply:

(a)~~A.~~ A petition is made for ~~a~~ change in classification, designated use~~,~~ or criteria~~.~~ Th~~is~~e petition may be made by a~~ny~~ person~~,~~ ~~or~~ entity or may originate with Water Quality Division~~DEQ/WQD~~ based on information available to the administrator. If the proposal would result in a removal of a designated use, t~~T~~he petition must address one or more of the factors listed in Chapter 1, Section 33~~(~~b)~~,~~ (i) through Section 33(b)(vi)~~.~~ ~~if the proposal would result in a removal of a designated use or the establishment of less stringent criteria.~~

(b)~~B.~~ The Water Quality Division reviews the petition for completeness and provides feedback to the petitioner on the status of the petition and may make requests for additional information or studies if necessary. Petitioners are encouraged to contact the Water Quality Division early in the process to ensure the UAA, study design, data collection, etc. are appropriate and consistent with Chapter 1 and this policy.

(c)~~C.~~ Once a petition has been accepted as complete, the Water Quality Division evaluates the petition and approves or disapproves the proposed ~~c~~change in use designation, classification ~~o~~r site-specific criteria. In instances where a petition is disapproved, the decision may be appealed to the Wyoming Environmental Quality Council pursuant to the provisions of the Wyoming Administrative Procedures Act, ~~W~~Wyoming Statutes (~~W~~W.S.) 16-3-101 through 16-3-115~~)~~.

(d)~~D.~~ In instances where a petition for a revised classification or use is approved, the administrator shall prepare a public notice proposing to authorize and implement the proposed change. The public notice shall provide a 45-day public review period, contain the rationale supporting the decision and ~~will also~~ be submitted to EPA ~~for a 30-day review period for~~~~requesting~~ comment and recommendations. The Water Quality Division~~WQD~~ may modify its initial ~~approval~~ determination based on public comments and EPA recommendations and issue a final administrative decision ~~relative to the petition~~.~~.~~

(e)~~E.~~ If the final administrative decision is substantially changed from that which was proposed, the administrator shall prepare a second ~~30~~45-day public notice. Otherwise, the administrative decision shall be considered ~~f~~final and submitted to EPA for approval as a revised standard for Clean Water Act purposes as provided in Chapter 1, Section 34. This decision may be appealed to the Wyoming Environmental Quality Council pursuant to the provisions of the Wyoming Administrative Procedures Act, (~~W~~W.S. 16-3-101 through 16-3-115) and Rules of Practice and Procedure, Chapter 1, Section 16.

~~F.~~ (f) In instances where a petition for revised water quality criteria is approved, the d~~D~~epartment ~~shall~~ may initiate formal rule making procedures to amend the appropriate

section(s) of ~~the~~ Chapter 1, include the revised criteria in an ongoing rule revision ~~Water Quality Rules and Regulations~~ or include the revised criteria in a subsequent rule revision. Changes in criteria shall not become effective until adopted by the Environmental Quality Council and filed with the Secretary of State. This administrative process does not apply to the establishment of site-specific criteria on Class 2D and 3D waters.

(g)~~G.~~ Site-specific criteria may be established by the ~~Water Quality Division A~~administrator on Class 2D and 3D waters without additional rule making procedures, as provided in Chapter 1, Section 36.

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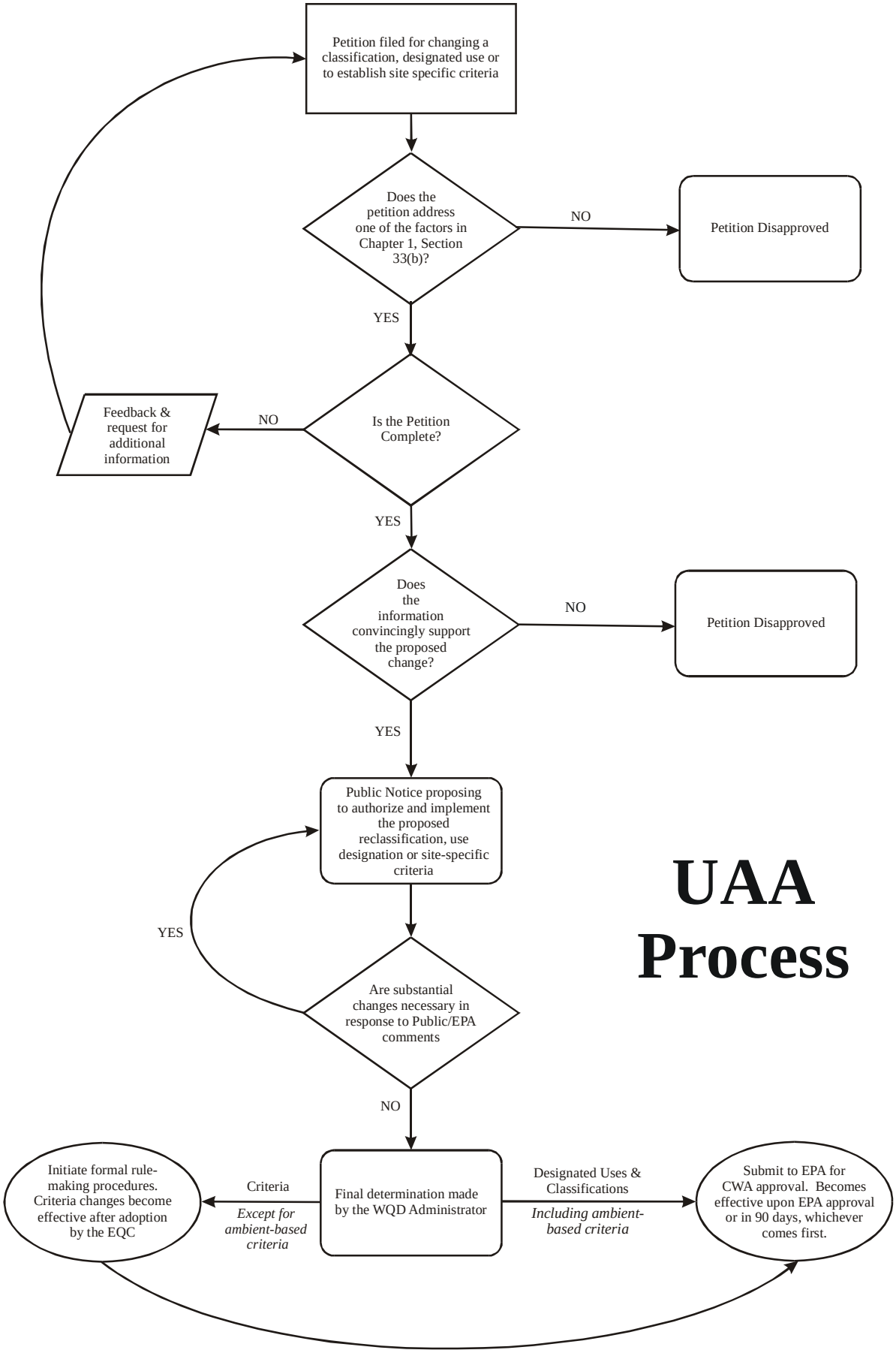


UAA Process

Section 4~~IV~~. Petitions. Except for Class ~~-~~1 designations, all petitions for water reclassifications must be made in accordance with the provisions of ~~Section 33 of the~~ Chapter 1, Section 33 ~~Surface Water Standards~~.

(a)~~A.~~ Lowering Protections. Those petitions that involve lowering a classification, removing a use designation or establishing site-specific criteria that are less stringent than the adopted statewide standards must contain a ~~U~~use a~~A~~ttainability ~~A~~analysis (UAA) addressing one or more of the factors listed in Section 33-(b)~~, paragraphs~~ (i) through (vi), which states:

~~*(Section 33. Reclassifications)...*~~

~~*(b)*~~ *The ~~Water Quality A~~administrator may lower a classification, remove a designated use which is not an existing use nor ~~an~~ attainable use, establish ambient-based criteria on effluent dependent waters,~~or~~ make a recommendation to the ~~Environmental Quality C~~council to establish sub-categories of a use~~,~~ or establish site-specific criteria if it can be demonstrated through a u~~U~~se a~~A~~ttainability a~~A~~nalysis (UAA) that the original classification, ~~and/or~~ designated use or water quality criteria are not feasible because:*

(i) Naturally occurring pollutant concentrations prevent the attainment of the classification or use; or

(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

(iii) 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

(iv) Dams, diversions~~,~~ or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use; or

(v) 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 ~~the~~an aquatic life ~~classification or~~ use; or

(vi) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water~~Federal~~ Act would result in substantial and widespread economic and social impact. This subsection shall not apply to the derivation of site-specific criteria.

(b)~~B.~~ Increasing Protections. Those petitions that involve adding a use designation or establishing ~~-~~site-specific criteria that are more stringent than the established standards are not

subject to the Section 33 (b) factors listed above. Instead, the UAA must demonstrate that the proposed new designated uses are either existing uses or may be attained with the imposition of more stringent controls or management practices. In order to establish more stringent site-specific criteria, a petition should demonstrate that the approved statewide criteria are not sufficiently protective of the currently designated uses.

Section 5V. Completeness. Prior to evaluating a petition on its merits, the Water Quality Division must conclude that a petition is complete and contains the necessary water quality data and other information to make a valid determination. As mentioned in Section 3III. above, the degree of information necessary will depend upon the nature of the petition and if necessary, the associated Section 33 (b) factor. In most cases, petitions should contain the following general information to be considered complete.

(a)A. Petition Contents – General Requirements.

(i)1. A narrative explaining the nature and purpose of the petition. As mentioned in Section 4IV above, if the proposal would result in the lowering of protections, the narrative must address one of the factors listed in Chapter 1, Section 33 (b). The petitionIt should explain the reasons for the requested use removal, classification change, or site-specific criteria and includeing any adverse effects that would occur if the petition is denied. Adverse effects could include any harm to business operations, commerce, private property rights, development opportunities, the environment, or any other public or private interest. Adverse effects should be tangible rather than speculative. For example, an unattainable water quality criterion that obstructs a proposed private or public action or causes unnecessary delay or expense is a tangible adverse effect. Speculative adverse effects would be associated with activities that are neither proposed nor have a reasonable potential to be proposed in the foreseeable future.

This step is necessary to help prioritize the department's actions and resources. Wyoming's The approach taken in the water quality standards is to designate aquatic life uses and recreation uses on all waters by default. It is possible to modify or These uses would be removed these uses as appropriate following upon the completion of the required use attainability analyses. Though it is not necessary to have a "tangible adverse effect" in order to make an appropriate designation, those with tangible effects will need to be addressed with more urgency.

(ii)2. The name and general description of the subject water body(s). This may be a single stream segment or a collection of stream segments making up a watershed or sub-watershed, lake, pond, or other still water body, or isolated water.

(iii)3. The specific location of the subject water body(s). Legal descriptions should be provided for the beginning and end of stream segments. Stream segments may also be described from tributary confluence to tributary confluence. Generally, the Water Quality Division will not approve criteria or use designation changes on small segments of main stem streams.

(iv)~~4.~~ Maps of the subject water body containing the necessary features and adequate detail to support the proposal. For example, if the intent of the petition is to show that normal stream flows are not sufficient to support aquatic life, National Wetlands Inventory, 7.5 minute quad maps depicting wetland occurrences along the entire water body should be used. However, if the intent of the petition is to remove a fisheries use, a more general map depicting the stream reach and its tributaries may be adequate. The maps should also indicate sample locations, photo points and any other features relevant~~that are germane~~ to the petition.

(v)~~5.~~ Photographs that adequately characterize the water body for the purposes of the petition. These should be taken at points along the water body where there are changes in flow volumes or pattern, springs, wetlands, tributaries, diversions, etc. in a sufficient number to clearly illustrate the resource. Each photo point should also be indicated on the maps submitted under Section (a)(iv)~~(4)~~ above. Each photograph should be accompanied by information including a photo ID number, name of photographer, date and time taken, location and direction from which the photo was taken and a narrative describing what the photo is intended to depict.

(b)~~B.~~ ~~Petition Contents –~~ Specific Requirements. In addition to the General Requirements outlined in Section 5(a) of this policy, each UAA must contain information and or data that are~~is~~ specific to the petition being made, including ~~and to~~ the associated Section 33~~.~~(b) factor, when necessary ~~where relevant~~. The required detail and quality of this information will vary on a case-by-case basis; therefore, ~~and~~ it is not the purpose of this section to provide guidance on every possible situation. The basic requirement is that the UAA contains defensible information that convincingly supports the purpose~~s~~ of the petition.

Except when increasing protections, a u~~U~~se a~~A~~ttainability a~~A~~nalysis must ~~make a~~ demonstrate~~ion~~ that ~~a~~ certain condition(s) exist~~s~~ and that the reason the condition(s) ~~it~~ exist~~s~~ is due to one of the factors in Chapter 1, Section 33~~.~~(b). Most commonly, UAAs will ~~be developed to support a petition to~~ lower a water classification by ~~involving the~~ removing~~al of~~ a use designation and/or establish a site-specific adjustment to ~~the applicable~~ water quality criteria. The list that follows shows examples of classification changes involving the removal of a use and the general demonstration that must be made. The list presents common examples and ~~It~~ is not intended ~~meant~~ to be exhaustive ~~since there may be other situations, but these are the most common~~.

(i) Common Classification and Use Designation C~~c~~hanges:

(A) 2AB to 2A~~:.~~ ~~—~~ Demonstration that the source water for an existing drinking water supply does not and cannot support fish for one or more of the reasons provided in Chapter 1, Section 33(b).

(B) 2AB to 2B. ~~:~~ ~~—~~Demonstration that a known game fishery or perennial water that is tributary to a known game fishery does ~~can~~not ~~reasonably~~ support a drinking water supply for one or more of the reasons provided in Chapter 1, Section 33(b).

(C) 2AB to 2C. ~~:~~ ~~—~~Demonstration that the water is known to support only non-game fish species or is a perennial tributary to a water known only to support non-game species; and cannot reasonably support a drinking water supply for one or more of the reasons provided in Chapter 1, Section 33(b).

(D) 2B to 2C. ~~:~~ ~~—~~Demonstration that the overwhelming composition of fish species is non-game ~~-~~for one or more of the reasons provided in Chapter 1, Section 33(b). Incidental or occasional use of the water by game species does not require the 2B classification.

(E) Class 2 *(all)* to Class 3A or Class 3B. ~~:~~ ~~———~~Demonstration that the water is either isolated or is an intermittent or ephemeral tributary; and is not capable of supporting fish for one or more of the reasons provided in Chapter 1, Section 33(b).

(F) Class 2 *(all)* to Class 3C. ~~:~~ ~~—~~Demonstration that the water is a perennial tributary stream that cannot support fish or drinking water supplies for one or more of the reasons provided in Chapter 1, Section 33(b).

(G) Class 2D ~~&~~and 3D ~~d~~Designations. More detailed guidance is provided in Section 6, Effluent Dependant Waters (Classes 2D and 3D).

~~;~~

1. (I) Demonstration that there is insufficient natural flow to support aquatic life and aquatic life that is present is ~~100% of the flow or standing water is~~ attributable to permitted effluent discharge(s) ~~except for occasional snow melt and storm events~~ *(Chapter 1, Section 33~~*(b)(iii))*;

~~2.~~ (II) There is a ~~"N~~net ~~E~~environmental b~~B~~enefit~~"~~ (NEB) associated with the created water body;

~~3.~~ (III) The quality of the water does not pose a hazard to humans, wildlife or livestock that may be exposed to it; and

~~4.~~ (IV) There is a credible threat to remove the discharge.

~~More detailed guidance is provided in Section VI "Effluent Dependant Waters" (Classes 2D and 3 D).~~

(H) All Class 4 ~~d~~Designations.~~:~~

(I) 4A.~~:~~ ~~—~~ Demonstration that the water body is an artificially constructed conveyance for an agricultural or industrial water supply.

(II) 4B.~~:~~ ~~—~~ Demonstration that the water is not capable of supporting aquatic life because natural, ephemeral, intermittent or low flow conditions or water

levels prevent the attainment of the use *(Chapter 1, Section 33 (b)(ii))*.

(III) 4C. Demonstration that the water is an isolated water and 100% of the flow or standing water is attributable to permitted effluent discharges except for occasional snow melt and storm events *(Chapter 1, Section 33 (b)(iii))*.

(I) Recreation Use Classes. The Chapter 1 regulations establishes 2two categories of recreational use protection applicable to all waters in the state; "primary" and "secondary" contact. Chapter 1, Section 27 outlines that during the recreation season, May 1 through September 30, waters may be designated for primary or secondary contact recreation and during the non-recreation season, October 1 through April 30, all waters are protected for secondary contact recreation. Section 27(b) establishes that waters are designated for secondary contact recreation through the reclassification and use attainability analysis process outlined in Chapter 1, Sections 33 and 34 and are identified in the *Wyoming Surface Water Classification List*. All waters in Table A of the Wyoming Surface Classification List are designated for primary contact recreation unless identified as a secondary contact water by an "(s)" notation. Waters not listed on Table A are assigned a secondary contact use designation by default. A Use Attainability Analysis is required in order to change any of the default designations. Because changing waters to secondary contact recreation this may be a very common practice, a Section 7 of this policy separate policy (Section VII) describes regarding the implementation of Chapter 1, Section 27 has been developed.

(J) Site-Specific Criteria. A Uuse aAttainability Aanalysis is also required prior to establishing site-specific criteria that are less stringent thant the adopted statewide criteria for aany particular use designation or classification without removing the use or changing the classification. Demonstrations relative to this action must show that the adopted criteria cannot be attained for one or more of the reasons provided in Chapter 1, Section 33 (b). Additionally, each specific criterion must be evaluated separately. In order to establish more stringent site-specific criteria, the UAA must demonstrate that the approved statewide criteria are not sufficiently protective of the currently designated uses.

(K) Increasing Protections. Use Attainability Analyses intended to add a designated use must contain sufficient information to conclude that a use is an existing use or otherwise attainable by the imposition of more stringent controls on pollutant sources.

In order to establish more stringent site-specific criteria, the UAA must demonstrate that the approved statewide criteria are not sufficiently protective of the currently designated uses.

(ii) Section 33(b) Factors. Chapter 1, Section 33 (b), paragraphs (i) through (vi) provide the allowable rationale for removing a use designation or establishing less stringent water quality criteria on a site-specific basis. Except when related to a Class 4A designation, all UAAs must address one or more of these factors. A 4A classification is based solely on the fact that the water body is an artificial canal or ditch that is not known to support fish populations and it is not necessary to establish the 33(b) factor beyond that finding. Each factor is discussed

below and guidance provided as to the current thinking of the department~~DEQ~~ on what type of information is needed to justify a determination.

(A) ~~—————~~Naturally occurring pollutant concentrations prevent the attainment of the classification or use;

The UAA must establish that ambient water quality exceeds the adopted criteria and that the source of the pollution is not attributable to human activities. The natural source of pollution or natural condition that prevents the attainment of the designated use needs to be identified and quantified. Human activities in the area such as land uses, developments, discharges, etc. need to be examined and reasonably eliminated as a cause of non-attainment.

A designated use may be removed on the basis of a single pollutant constituent or condition. For example, naturally occurring levels of copper in the water may prevent the attainment of a fisheries use and when demonstrated, may be sufficient cause to remove that use. A UAA would not necessarily have to evaluate all other potential constituents that might also contribute to the non-attainment. Information on other constituents, however, would help to support a final determination.

The establishment of this factor needs to be supported by sufficient data to characterize pollutant concentrations and water body conditions on a year-round or seasonal basis, depending on the use being evaluated. Consideration must be given to seasonal variations in flow, temperature, climate, land uses, non~~-~~point sources of pollution and ~~any~~ other pertinent factors.

(B) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met;

The establishment of this factor needs to be supported by sufficient data to characterize ~~actual~~ flow conditions on a year-round or seasonal basis, depending on the use being evaluated. When flow data are not available, surrogate measures such as the presence of wetlands may be used. Consideration must be given to seasonal variations in flow, climate and consumptive water use(s).

In general, this factor applies to the removal of drinking water, fisheries, primary contact recreation or aquatic life uses. In relation to fisheries, it may serve as the basis for establishing seasonal criteria on waters that support fish only part of the year or for removing the fishery designation on intermittent and ephemeral waters that have been "misclassified" in relation to the provisions of Chapter 1, Section 4~~-~~(b). In relation to drinking water, the UAA needs to demonstrate that water availability is not sufficient to support community or non-community drinking water supplies as defined under the federal Safe Drinking Water Act. In relation to recreation uses, it is an important factor in determining whether a primary or secondary recreation use designation is appropriate.

Most commonly, this is the factor relied on to classify waters as 4B. As provided in Chapter 1, Section 4, the occurrence of wetlands in or adjacent to stream channels will be used as an indicator of whether or not normal flow conditions are sufficient to support aquatic life. In general, areas that are inundated or saturated to the surface for as little as 7 days during the growing season will develop wetland characteristics. Stream channels that lack a significant wetland component may be considered to have insufficient hydrology to support aquatic life.

In order to establish this factor, the UAA should address entire stream reaches, not just isolated segments. The objective is to show that wetlands are either non-existent or occur so infrequently that the hydrologic potential of the stream to support aquatic life is insignificant. Significance is not precisely defined and will be determined on a case-by-case basis after consideration of the ratio of wetland acres to stream length in addition to wetland functions and values.

National Wetland Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service may be used to identify wetland occurrences and to calculate acreages. Wetlands are defined in Wyoming statute as areas having all 3 essential characteristics including hydrophytic vegetation, hydric soils and wetland hydrology. The NWI maps depict and classify both wetlands and deep water habitats and all of the features shown on the maps do not necessarily delineate as wetlands under the Wyoming definition or the delineation methods used by the U.S. Army Corps of Engineers for Clean Water Act purposes. When identifying wetlands using the NWI maps, unvegetated systems need to be separated from the vegetated ones since unvegetated systems are not wetlands. Unvegetated sub-classes may be found in both the lacustrine and riverine systems classified on the NWI maps. All sub-classes of the palustrine system should be considered wetlands. Interpretation of the Cowardin classification system, photographs and/or on site-delineations may all be used to differentiate between riverine and lacustrine subclasses that are wetlands and those that are not.

After the amount of wetlands has been identified, the significance of that amount needs to be determined. If no wetlands have been identified, the UAA may conclude that aquatic life uses are not attainable. In all other cases, the UAA must present the rationale for determining that the amount of wetlands that are present are of such minor consequence that the stream system as a whole cannot be considered to sustain aquatic life.

When using wetland occurrence to establish this factor, it must be remembered that wetlands are used as a surrogate ~~measurement~~ to determine actual hydrologic conditions over an extended period of time. Wetland occurrence is~~Its~~ best used ~~is~~ to identify~~separate truly~~ dry stream channels ~~from those that are not~~ without ~~having to~~ directly measuring~~e~~ flows through all seasons of the year. This method~~The extent of wetland occurrence~~ cannot be used to remove aquatic life protections from water bodies that are known to normally contain water for extended periods even though they do not exhibit a significant amount of wetlands. Examples of these water bodies would be bedrock stream channels and steep-sided rivers, lakes and ponds that have the hydrology to support aquatic life, but not the substrate

necessary for wetlands to establish.

(C) 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;

This factor is relevant when non-attainment of a designated use is known to be caused by human activities or simply when the cause of non-attainment cannot be shown to be natural in origin. It contains two tests, either of which can be used to justify the removal of a designated use.

The first test is to show that a use is not an existing use and the reason(s) for its non-attainment cannot be remedied. An analysis of economic and technological factors must be conducted in order to make a determination under this factor. Other legal, social and cultural factors can also be considered and used as supporting information. The level of analysis and information required may vary from one situation to another depending upon the nature and severity of the source pollution and the overall environmental benefit of restoring the use.

The second test is to show that the available remedy would cause more environmental harm than to leave the pollution source in place. Most commonly, this is the factor relied on to classify waters as 2D, 3D or 4C. These categories of waters are comprised of essentially 100% effluent discharges. Without the discharge, a stream channel would not support aquatic life and would be classified 4B and in the case of isolated ponds, would not exist at all. Since the effluent is the only available water, it is roughly analogous to a natural background condition. It can be assumed that any aquatic life that colonizes the water is tolerant to the chemical and physical conditions that prevail even if they exceed the adopted aquatic life criteria for particular constituents. Requiring full aquatic life protections in these circumstances would often result in a loss of the discharge and of the aquatic community it supports. Non-aquatic wildlife and livestock are often the greatest beneficiary of these types of systems in the arid areas of Wyoming and these uses would also be lost. Unless there is convincing evidence to the contrary, it will be assumed that removing discharges in effluent dependeant waterssituations does result in greater environmental harm than leaving the discharge in place without requiring full aquatic life protection.

The information necessary to establish this factor for the purpose of classifying an isolated pond as 4C or a stream channel as 2D or 3D should consist of sufficient data to show that except for occasional snowmelt and precipitation runoff, 100% of the available water consists of a permitted effluent discharge and there is no environmental hazard associated with the quality of the discharge.

(D) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use;

This factor applies to dams, diversions~~,~~ or other hydrologic modifications that were constructed prior to November 28, 1975 and resulted in the loss of a fisheries, aquatic life or recreational use in the waters on which they were constructed. Uses that existed on the waters after that date would be considered "existing uses" and would still have to be designated. It is not necessary to protect waters for the applicable uses that were lost if it can be shown that restoration is not feasible. The information required to establish this factor is similar to what is required for human caused sources of pollution that cannot be remedied. An analysis of economic and technological factors must be conducted in order to make a determination. Other legal, social and cultural factors can also be considered and used as supporting information. The level of analysis and information required may vary from one situation to another depending upon the nature of the hydrologic modification and the overall environmental benefit of restoring the use.

(E) 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 an~~the~~ aquatic life classification or use;

This factor applies ~~-~~mainly to the removal of fisheries ~~,~~and aquatic life ~~and primary contact recreation~~ uses since these are normally the only uses where the expressed physical habitat parameters are relevant. The critical point that must be established by the information in the UAA is that the lack of habitat ~~or recreational opportunity~~ is a natural condition and not caused by hydrologic modifications, land uses~~,~~ or other human activities. In this respect the requirements are similar to those used to establish that naturally occurring pollution prevents the attainment of the use. The basic difference is that one refers primarily to chemical parameters and the other to physical parameters.

(F) Controls more stringent than those required by Sections 301(b) and 306 of the ~~federal~~Clean Water Act would result in substantial and widespread economic and social impact.

~~-~~This is probably the most difficult factor to establish and has the most limited application. The referenced controls required by Sections 301 and 306 of the Clean Water Act are industry-specific effluent limitations and treatment technologies. They establish basic levels of required water quality treatment that are~~is~~ based on ~~more related to~~ best available technology rather than ~~to~~ water quality and water uses. This factor is intended to be applied in circumstances where it is known that the application of the technology-based requirements will not achieve the water quality standards applicable to the receiving water and additional requirements to meet the water quality standards will result in unacceptable social or economic impacts.

The essence of a determination under this factor is that the activity causing the impact is of such great economic or social importance that it supersedes the goal of maintaining the water use. The UAA must establish that the imposition of the water quality standards would result in "widespread" social and economic impacts. This is an extremely subjective term and can only be defined on a case-by-case basis after full public participation.

An economic impact analysis must be completed that includesing an examination of alternatives that would lessen or mitigate both economic and environmental impacts. The level of analysis and information required must be comprehensive since the object is to quantify "widespread" economic or social impact in relation to the value of the water use that would be removed.

Section 6. UAA Pprocedures for Effluent Dependeant Waters (Classes 2D and 3D) . The justification for classifying a water as either 2D or 3D and assigning ambient-based criteria is based on the Section 33(b)(iii) factor described above in Section 5(b)(ii)(C). The specific rationale is that effluent dependaent waters create environmental benefits that would be lost if the discharge is discontinued. Since there is no natural source of water, there would be no pre-existing aquatic life that could be damaged by the quality of the discharge. As a result, Aany aquatic life that develops because of the effluent discharge is necessarily tolerant of the ambient conditions.

Though the habitats that are created in effluent dependaent circumstances pose no real threat to the species of aquatic life that colonize them, there is a potential that they may pose a hazard to terrestrial and semi-aquatic wildlife species that may be attracted to them. The greatest concern is the possibility of bioconcentrating or bioaccumulating chemicals moving through the food chain at levels that create a risk to livestock, wildlife or humans. Therefore, part of the process of classifying a water body as 2D or 3D involves assessing a discharge for the presence of those types of pollutants and establishing appropriate criteria.

Therefore, the complete process for designating a water as either class 2D or 3D contains three parts. The first is completing a Uuse aAttainability aAnalysis (UAA) that demonstrates that the subject water body is in fact effluent dependaent and eligible for site-specific, ambient-based criteria. This part includes a demonstration that there is an environmental benefit associated with the discharge and a credible threat to remove the discharge. The second part is a hazard analysis that includes a specific screening of the discharge for the presence of bioaccumulating and bioconcentrating pollutants and a more general analysis to identify the pollutants for which ambient-based criteria will be established. The final part is to calculate and establish site-specific ambient-based criteria for those parameters that exceed the otherwise adopted statewide criteria (Chapter 1, Appendix B).

(a) Part 1 Effluent Dependency. The basic point is to show convincingly, through a weight of evidence approach, that a water body is comprised of essentially 100% permitted effluent and that without the effluent there would be no significant aquatic resource. There is no one best way to make this demonstration, although but the determination will be most convincing if multiple factors are assessed. These can include direct flow measurements, vegetation and wetland analysis upstream and downstream of the discharge, precipitation information, paired watershed analysis, historic information, & testimony, etc.

This part also involves demonstrating an environmental benefit. It shall be presumed that water on the surface does have an environmental benefit for the aquatic life that colonizes it and for the habitat and food sources that surface water bodies provide to semi-aquatic and terrestrial wildlife species. Other consumptive uses such as livestock watering, irrigation and

industrial uses are also important benefits along with non-consumptive recreational and scenic values. Because these benefits are presumed, it is not mandatory that the UAA exhaustively identifies and measures each actual benefit that occurs associated with the water body but should make an effort to generally characterize the natural and human uses of the water.

This presumption of environmental benefits, however, is not absolute and may be overridden where the quality or condition of the effluent- dependeant water body poses a threat or hazard to non-aquatic wildlife, livestock or industrial uses, or human health.

There is also a requirement to show a credible threat to remove the discharge. The basis for this requirement is in the concept of "Nnet Eenvironmental Bbenefit" (NEB) that weighs the potential for loss of a permitted effluent against the benefits of instream flow. NEBIt infers that there is some possibility that the discharge could be discontinued.

The demonstration of a credible threat to remove the discharge from oil and gas production operations is presumed to be satisfied based on 1) consideration that alternatives to surface discharge is the norm for the industry with an exemption applicable only west of the 98th meridian; and 2) an economic analysis done by EPA Headquarters showing that available treatment options for this industry are, as a general matter, more expensive than available non-discharge options.

For other types of discharges, the credible threat demonstration would have to be made either on a case-by-case basis or on a categorical basis as with the oil and gas industry.

(b)Part 2 Hazard Analysis and Chemical Screening. In order to be certain that there are in fact "net environmental benefits" associated with the creation or continued existence of an effluent- dependaent water body, the UAA must evaluate actual or probable hazards to wildlife, livestock and human health. This evaluation shall address the potential that the pollutants contained in the effluent may for accumulateion of pollutants contained in the effluent discharge to levels considered to be hazardous in the environment or hazardous to wildlife, livestock or humans by means of bio-accumulation through the food chain.

The evaluation of hazards should focus on the level of pollutant (actual or modeled), R risk of exposure to the target user (e.g. wildlife, livestock, and humans); e.g. mercury in 2D waters may be a greater hazard than in 3D waters because of potential exposure to humans through fish consumption), and Bbackground concentration of the contaminant.

The first step in the hazard evaluation shall consist of an initial screening of the permitted effluent for pollutants of concern. The screening parameters may be different from one type of discharge to another because of differences in the relative probability of the occurrence of bio-accumulatingve materials associated with the industry or activity. For example, the vast majority of waters in Wyoming that would be candidates for an effluent- dependeant classification are created by the discharge of groundwater to the surface as a result of oil and gas production or mining activities. The types of pollutants that could reasonably be expected to occur are

inorganic metals and salts. Of these, only selenium and mercury need to be investigated to determine the hazard potential to wildlife, livestock or humans.

A relatively small number of 2D and 3D candidate waters may be created from municipal wastewater treatment plants, industrial facilities such as oil refineries or power generating facilities, and various types of manufacturing operations. Depending upon the circumstances of the discharge, effluents from these facilities may have a higher probability of containing synthetic and organic bio-accumulating~~ve~~ materials. In these situations, initial screening parameters will be determined on a case-by-case basis. Because effluent- dependa~~a~~ent waters created by these types of discharges will be relatively uncommon and addressed on a case-by-case basis, the remainder of this guidance will focus on those circumstances involving the discharge of groundwater to the surface.

(i) ~~—~~Selenium.~~:~~ The hazards associated with selenium bio-accumulation are related to mortality and impaired reproduction in waterfowl, shorebirds and piscivorous birds and selenium poisoning in livestock and terrestrial wildlife. Exposure to humans is not a consideration because Class 2D and 3D waters are not designated and protected as drinking water supplies.

(A) Birds.~~:~~ Where the initial screening indicates that the effluent concentration of selenium exceeds the Appendix B aquatic life chronic value, whole body fish and/or macroinvertebrate tissue analysis will be required. If whole body tissue concentrations are less than or equal to 7.9 µg/g dry weight, the water shall not be considered a hazard to waterfowl, shorebirds and piscivorous birds. A whole body tissue criterion of 7.9 µg/g dry weight selenium will be established for the stream segment along with an ambient-based water column value calculated as provided in Section 6(c)~~Part 3~~ of this procedure.

Where the effluent water column concentration exceeds the Appendix B chronic aquatic life criterion and whole body tissue concentrations are greater than 7.9 µg/g dry weight, the water shall be considered a hazard to waterfowl, shorebirds and piscivorous birds. A whole body tissue criterion of 7.9 µg/g dry weight selenium will be established for the stream segment and site-specific ambient-based criteria for selenium shall not be established. The stream segment shall be listed as impaired on the state 303(d) list and a TMDL developed to address the tissue based criterion.

(B) Livestock and~~&~~ Wildlife. ~~:~~ The hazard of selenium poisoning shall be considered to be the same for livestock and wildlife and one group is not considered to be more tolerant or susceptible than the other. This hazard analysis is intended to address the use of the water by mammals.

Selenium poisoning can occur in livestock raised on vegetation grown in selenium bearing soils which are common in Wyoming and in some areas contain up to 30 mg/kg of selenium. "In water, 400 to 500 µg/L of selenium is believed to be non-toxic to cattle. Such water may contribute to selenium poisoning, but the selenium content of the feed is a more

critical factor.” (McKee and& Wolf, 1963)[1].

Water used for irrigation may contain up to 10,000 µg/L of selenium with no anticipated toxicity to plants.

Clearly, the identification of environmental hazards associated with selenium in effluent dependaent water bodies can be focused on an evaluation of impacts to birds. It can be assumed that where there is little or no hazard to birds, the water is safe for all other designated uses.

(ii) Mercury. : Mercury in trace amounts is acutely toxic to aquatic life and also presents a significant health hazard to human populations. The primary exposure pathway to humans is through the consumption of mercury contaminated fish. Most other human exposure pathways such as through drinking water or general environmental exposure are considered negligible, although a safe drinking Water Act Maximum Contaminant Level (MCL) of 2 µg/L has been established for the protection of drinking water supplies. The identification of mercury-related hazards in effluent dependeant waters needs to consider the following:

(A)1. The likelihood of bio-accumulation in fish tissue in the immediate Class 2D receiving waters and downstream cClass 2 waters;

(B) 2. The contamination of groundwater aquifers to levels above 2 µg/L; and

3.(C) The accumulation of mercury in sediments to levels above the State’s guidelines for remediation of contaminated soils.

Where the initial screening indicates that the effluent concentration of mercury exceeds the Appendix B aquatic life chronic value and the discharge can be expected to reach a fish bearing water, whole body fish tissue analysis will be required. If whole body tissue concentrations are less than or equal to 0.3 mg methylmercury/kg fish, the water shall not be considered a hazard to fish or fish consumption. A whole body tissue criterion of to 0.3 mg methylmercury/kg fish will be established for the stream segment along with an ambient-based water column value calculated as provided in Section 6(c)Part 3 of this procedure.

Where the effluent water column concentration exceeds the Appendix B chronic aquatic life criterion and whole body tissue concentrations are greater than 0.3 mg methylmercury/kg fish, the water shall be considered a hazard to fish, wildlife and fish consumption. A whole body tissue criterion of 0.3 mg methylmercury/kg fish will be established for the stream segment and site-specific ambient-based criteria for mercury shall not be established. The stream segment shall be listed as impaired on the state 303(d) list and a TMDL developed to address the tissue based criterion.

[1] McKee, J.E. and H.W. Wolf. 1963. Water quality criteria (second edition). State Water Quality Control Board, Sacramento, CA. Pub. No. 3-A.,

Where the initial screening indicates that the effluent concentration of mercury exceeds the Appendix B aquatic life chronic value and the discharge is not expected to reach a fish bearing water, sediment analysis may be required. Ambient-based water quality criteria may be established where sediment concentrations are less than or equal to 23 mg/kg inorganic mercury and 26 mg/kg methylmercury. In no circumstance shall an ambient-based water column criterion exceed 2 µg/L total recoverable mercury.

In addition to hazard screening for bioaccumulative constituents, a more general screening of all parameters that could reasonably be expected to be found in the discharge should also be conducted. This information will be used in the subsequent procedure for establishing ~~the~~ ambient criteria. Site-specific ambient criteria will only be established for those parameters that exceed the statewide criteria listed in Chapter 1, Appendix B. This screening is important to identify which pollutants require a site-specific modification. The exact list of screening parameters will depend upon the type of discharge. For oil and~~&~~ gas produced water discharges, the following list should be used:

Arsenic
Cadmium
Chromium (III)
Copper
Lead
Mercury*
Nickel
Selenium*
Silver
Zinc
Aluminum (pH 6.5-9.0 only)*
Chloride
Iron
Manganese
~~Sulfide~~ Undissociated Hydrogen Sulfide (~~S2-~~, H_2S)
Hhardness (CaCO3) m~~M~~g/L

* *Required for hazard analysis*

(c) ~~Part 3~~ Establishing Ambient–B~~b~~ased Criteria. Chapter 1, Section 36 provides a procedure by which the adopted statewide numeric criteria may be modified to reflect ambient conditions on effluent dependaent waters. Ambient-based criteria can be established only for those parameters where the discharge effluent quality exceeds the values in Chapter 1, Appendix B.

(i) Criteria modification based on a finding of net environmental benefit is authorized where a UAA described in parts 1 and 2 above satisfactorily demonstrates that:~~:~~

(A1). The water body is effluent dependaent;

(B)2. The discharge has been shown to create an environmental benefit and removal of the discharge would cause more environmental harm than leaving it in place;

(C)3. There is a credible threat to remove the discharge; and

(D)4. Appropriate safeguards are in place, ensuring that downstream uses will be protected and the discharge will pose no health risk or hazard to humans, livestock or wildlife.

(ii) Pursuant to an approved UAA and reclassification to either Class 2D or 3D, site-specific criteria for eligible constituents shall be calculated to be equal to the background concentration for each constituent plus a margin of error.

(A) 1. The background concentration shall be the highest concentration recorded over the course of a one year period where samples have been taken at least once in each month. In circumstances where water is not present 12 months out of the year, additional samples must be collected in the months when water is present to obtain a minimum data set of at least 12 samples.

(B)2. The margin of error shall be one standard deviation calculated from the same data set used to establish background.

(C)3. Depending upon the circumstances, samples may be collected either at the discharge outfall or from a representative point in the stream channel downstream from the permitted outfall. For example, where the effluent dependent water is created by a single discharge, it is acceptable to sample the outfall for this analysis. Where an effluent dependent water is created from multiple outfalls, samples should be collected in-stream at a representative point after mixing of the various outfalls has occurred.

(D)4. End-of-pipe sampling and analysis shall complybe done in conformance with WYPDES analytical requirements for the particular constituents and in-stream sampling and analysis shall be complyconducted in conformance with the "*Wyoming Manual of Standard Operating Procedures for Sample Collection and Analysis*".

(E) The WYPDES permittee responsible for the discharge shall be required to collect and submit the water quality data necessary to make the above calculations.

Section 7VII. UAA Pprocedures for Recreation Designations.

(a) Purpose. **Chapter 1,** Section 27 of Chapter 1 of the Wyoming Water Quality Rules and Regulations (Surface Water Standards) identifiescreates two recreational use

categories for all bodies of surface water in the state. ~~A "~~Primary ~~C~~contact r~~R~~ecreation~~"~~ ~~designation~~ is intended to apply to those waters where there is a reasonable potential for people to engage in full body contact with the water and/or a potential to ingest small quantities. ~~The "~~Secondary c~~C~~ontact ~~R~~recreation~~" designation~~ is intended to apply to all other waters where those circumstances do not occur.

The purpose of this policy is to provide guidance on how to appropriately designate specific waters as either primary or secondary contact waters.

(b) Concepts. The basic concept of recreational use protection is to ensure that surface waters of the state are maintained at a quality that does not pose a significant risk of disease to human populations that may be exposed to them. The factors contributing to human health risk include the concentration of disease causing organisms in the water and the relative level of human exposure to that water.

Along with the use classification categories, Section 27 also provides the criteria that apply to each. The criteria are based on concentrations of *E.coli* bacteria which serve as an indicator of the probability that the water may also contain populations of other waterborne disease causing bacteria and viruses. These criteria are used as the basis for effluent limits on permitted discharges (WYPDES permits) and Section 303(d) listings and subsequent TMDL or watershed planning targets.

All surface waters are designated for primary contact recreation during the summer recreation season (May 1 through September 30) unless the water has been designated for secondary contact recreation through a use attainability analysis. Recreational use designations are identified in the *Wyoming Surface Water Classification List*. ~~assigned either a primary or secondary contact recreation designation. By default, waters that appear on Table A of the "Wyoming Surface Water Classification List" are primary contact waters and those that do not appear on Table A are secondary contact waters. In general, Table A is a listing of waters that are named on the USGS 1:500,000 hydrologic map of Wyoming. These are the larger mainstem streams, lakes and reservoirs that have a higher probability of having persistent flows and some attraction for recreational use. Most of the waterbodies not listed on Table A exhibit intermittent or ephemeral flows and are less likely to provide primary contact recreational opportunity. This is not a perfect system for classification but it is a manageable one. Its usefulness is contingent upon having clear and simple procedures for making appropriate adjustments to the default designations.~~

~~Though primary contact is the default designation for Table A waters, some listed waters will be specifically designated as secondary contact waters. All of these, however, must be supported by a Use Attainability Analysis that provides the rationale for the lower designation. Similarly, waters not currently listed on Table A will be added based on UAAs demonstrating that primary contact is the appropriate designation for the previously unlisted water.~~

The decision as to whether a water body is most appropriately designated for primary or secondary recreation protection is not intended to be a difficult one. ~~It is based solely on the~~

~~relative potential of exposure to human populations.~~ There are only a few factors relating to water availability, access and recreational opportunity that need to be considered. The entire UAA process will in most cases be very simple and will not require any special expertise to complete.

It is ~~also~~ important to note that a recreational use designation is not intended to imply that the owner of property adjacent to any water body would allow access for any kind of recreational use. The application of recreation classifications does not create any rights of access on or across private property for purposes of recreation on such waters. The classification is intended only to affect the~~which~~ water quality criteria that will be used in the implementation of the pollution control programs required under the ~~federal~~ Clean Water Act and the Wyoming Environmental Quality Act.

(c) Factors Affecting Recreational Use Designations.

(i) All waters, regardless of flow regime, located within federal, state or local parks and recreation areas will be designated for primary contact recreation. Federal, state or local parks should not be construed to mean all public lands, but rather specifically developed and/or designated recreational use areas such as campgrounds, picnic grounds, trailheads, greenways, etc.

(ii) Waters known to be used for primary contact activities such as swimming, rafting, floating, canoeing ~~,~~ or kayaking shall be designated as primary contact waters.

(iii) All lakes and reservoirs located in the state ~~are~~ already used or have the potential to be used for primary recreation ~~and~~ will be designated as such.

(iv) Waters located within or flow through municipalities or high density housing areas will generally be designated as primary contact waters.

(v) Larger perennial streams and game fisheries will generally be designated for primary contact because of their potential to attract sportsmen and other recreationists.

(vi) Except for waters located in or flowing through parks, recreation areas or urban areas, intermittent and ephemeral waters will generally be designated for secondary contact uses.

(vii) Segmentation of streams into multiple primary and secondary designations is possible but will only be approved where the benefits of more specific segmentation outweigh the drawbacks of an increasingly segmented system.

~~**Variances**~~

~~Section 27(d) provides an ability to grant variances to the numeric criteria in instances where the source of bacterial contamination is found to be natural in origin (wildlife), unavoidable (off-~~

~~channel stock watering pits) or when less stringent criteria is shown to be in the public interest. An approval of a variance does not change the use designation of the affected water. It may change the limits and conditions of an WYPDES permit, TMDL or watershed plan. The process for granting a variance is a site-specific action and does not require a Use Attainability Analysis. The rationale for a variance will be documented in either the statement of basis on an associated WYPDES permit action or in an associated TMDL or watershed plan document.~~

Recreational Use Designations
Use Attainability Analysis (UAA) Worksheet

A recreational ~~U~~use ~~A~~attainability ~~A~~analysis (UAA) is required to support any change in the recreational use designation of a surface water of the state, either to a more stringent or less stringent classification. Completion of a UAA is recommended in cases where there is significant uncertainty about whether or not the current classification is appropriate~~. As a procedural matter, the Water Quality Division will compile all completed UAAs and make the appropriate classification determination and required submittal to EPA on a semi-annual basis~~.

~~There are three circumstances where it makes sense to complete a UAA and revise the recreation use classification. The first is whenever a stream is currently listed or proposed to be listed as impaired or threatened on the state's 303(d) list. This is to ensure that the proposed listing is based on an assessment using the appropriate pathogen criteria. The Water Quality Division will routinely complete a UAA as part of the listing documentation.~~

~~The second reason is to raise the classification from secondary contact to primary contact on waters that are not currently listed on Table A of the Wyoming Surface Water Classification List but are currently being used or have a high potential to be used for recreational purposes.~~

~~The third reason is to ensure that pathogen limits on new or revised WYPDES permits are based upon the appropriate criteria for the receiving water.~~

~~I.~~ **I. Name & Location~~:~~.** Identify where the stream segment starts and ends.

Water body name: _____ Watershed (HUC): _____

~~_____~~Upstream Location: ¼, ¼ Section _____; SEC ____; TWP ____; RNG ____

~~II. _____~~Downstream Location: ¼, ¼ Section _____; SEC ____; TWP ____; RNG ____

II.
~~III.~~ **Maps & Photographs.**

~~_____~~Attach a map of adequate scale and detail to accurately depict the water body that is the subject of the reclassification proposal. Also attach photographs that adequately characterize the water body for the purposes of the petition. These should be taken at points that are typical of the stream channel or lake in a sufficient number to clearly illustrate the resource. Each photo point location should also be indicated on the UAA map. The photographs should be accompanied by information including a photo ID number, name of photographer, date and time taken, location and direction from which the photo was taken, and a narrative describing what the photo is intended to depict.

~~IV.~~

~~V.~~ **III. Primary U~~u~~se Factors.~~:~~** If any of the following factors apply, the water should be designated for primary contact recreation. If none of the factors apply, the water is a candidate for a secondary use designation.

Check all that apply:

_____ Water is located within or flows through a federal, state, or local park or recreation area. Federal, state or local parks should not be construed to mean all public lands, but rather specifically developed and/or designated recreational use areas such as campgrounds, picnic grounds, trailheads, greenways, etc.~~.~~

_____ Water is a lake, reservoir or other still body of water. (*Exclude small stock watering ponds*).

_____ Water is within or flows through a municipality or unincorporated high density housing area.

_____ Water is a larger perennial stream or game fishery ~~-~~known to be used by sportsmen or other recreationists.

_____ Water is used or can be used for primary contact activities such as swimming, floating, rafting, canoeing or kayaking.

IV. ~~_____~~**Use Removal Factors** *(only necessary when downgrading from a primary to a secondary use designation)*.

Chapter 1, Section 33(b) requires that all petitions to lower a classification or criteria must be based on one or more of the use removal factors listed in Section 33(b)(i) through (vi). Most commonly, the factor~~s~~ that apply to reclassifying a water from a primary to a secondary contact designation is~~are~~ 33(b)(ii), ~~or (v)~~ though there may be unique circumstances where one of the other factors is most appropriate.

Those petitions intending to raise a classification from secondary to primary contact are not subject to the Section 33~~-~~(b) factors. Instead, the UAA should demonstrate that primary contact recreation is either an existing use or may be attained with the imposition of more stringent controls or management practices.

Check one or more of the following use removal factors and attach a brief narrative and/or additional information explaining why each checked factor applies to the subject water. If the purpose of the UAA is to raise a classification from secondary to primary, do not check any factor but still provide a narrative explanation of the justification for the increased level of protection.

~~_____~~(i) Naturally occurring pollutant concentrations prevent the attainment of the classification or use; or

~~———~~(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

~~———~~(iii) 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

~~———~~(iv) Dams, diversions~~,~~ or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use; or

~~———(v) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of the classification or use; or~~

~~———~~(v~~i~~) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water ~~Federal~~ Act would result in substantial and widespread economic and social impact. This subsection shall not apply to the derivation of site-specific criteria.

Explanation *(attach additional sheets if necessary)*:

V. Additional Information. Include additional information such as a description of the existing recreational use of the water body, description of or data representative of the flow regime, landowner surveys, etc. that may be useful to the petition~~,~~.

_____ _____

Petitioner Date

Section 8~~VIII~~. Implementation~~.~~.

(a)~~A.~~ Classifications and Use Designations.

Upon ~~a~~ final approval by the ~~A~~administrator for changes in classifications or use designations, the results of a u~~U~~se a~~A~~ttainability ~~A~~analysis ~~-~~will be submitted to EPA for approval as a revised water quality standard for Clean Water Act purposes. The revised standard will become effective upon EPA approval or 90 days after submittal, whichever comes first. ~~–~~The final determination by the ~~A~~administrator is an action that may be appealed to the Environmental Quality Council pursuant to Chapter 1, Section 16 of the Rules of Practice and Procedure.

(b)~~B.~~ Criteria.

Site-specific changes in water quality criteria can only be implemented administratively by the Water Quality Division on effluent dependent waters. On all other waters where an approved u~~U~~se a~~A~~ttainability a~~A~~nalysis ~~which would~~ results in the establishment of site-specific criteria for a~~ny~~ pollutant ~~has been approved~~, the department~~DEQ~~ shall recommend such revised criteria to the Wyoming Environmental Quality Council for adoption pursuant to formal rule-making procedures. The revised criteria shall not become effective until adopted by the ~~C~~council and filed with the Secretary of State as revised rules.

LP/rm/13-0425

AGRICULTURAL USE PROTECTION POLICY
(Chapter 1, Section 20)

PurposeAll surface waters in Wyoming are protected to some extent for agricultural uses. "Agricultural uses" are described in Chapter 1, Section 3 as being either stock watering or irrigation. The standard that applies to the protection of these uses is contained in Chapter 1, Section 20 which states:

Section 20. Agricultural Water Supply. All Wyoming surface waters which have the natural water quality potential for use as an agricultural water supply shall be maintained at a quality which allows continued use of such waters for agricultural purposes.

Degradation of such waters shall not be of such an extent to cause a measurable decrease in crop or livestock production.

Unless otherwise demonstrated, all Wyoming surface waters have the natural water quality potential for use as an agricultural water supply.

All water quality standards are established for two reasons. The first is to provide a benchmark against which a determination can be made as to whether a waterbody is impaired and requires some kind of corrective action. The second is to provide a basis for establishing permit limits on regulated activities (WYPDES & Section 404 permits). The purpose of this policy is to provide guidelines to be used by the Water Quality Division when translating the narrative goals expressed in the Section 20 standard into appropriate WYPDES permit limits where maintaining agricultural use of the receiving waters is an issue.

Agricultural use of surface water is an opportunistic endeavor. The varying uses as well as the different qualities of the water found in the state are many and the farming and ranching industries have always had to make do with what water is available. The goal expressed in the Section 20 standard is simply to maintain surface water quality at a level that will continue to support the local agricultural uses that have developed around it.

Though the goal is simple, achieving it is not. For the most part, managing water quality for continued agricultural support requires managing the concentration and chemical makeup of dissolved solids. Because of local differences in crop types, soil types and natural water quality and availability, it isn't possible to establish simple numeric criteria for pollutants such as TDS and SAR that will allow an efficient use of surface water for irrigation purposes. The determination of what is acceptable water quality for irrigation must necessarily involve an evaluation of local agricultural practices and background water quality conditions. For livestock watering uses, it is somewhat less complicated because there are fewer variables to consider.

"Measurable Decrease. The first part of translating the standard is defining what is meant by *"measurable decrease in crop or livestock production"*. The phrase implies that there is a pre-existing agricultural use of a stream or drainage prior to an application for aWYPDES discharge permit. For livestock watering purposes, a pre-existing use will always be assumed. For

irrigation purposes, there needs to be either a current irrigation structure or mechanism in place for diverting water from the stream channel, or a substantial acreage of naturally sub-irrigated pasture within a stream floodplain. Where neither of these conditions exist, there can be no irrigation use, nor loss in crop production attributable to water quality.

Where there are pre-existing agricultural uses, it may often be impossible to measure a loss in crops or livestock that can be attributed to water quality because of the many other factors that will affect actual production. It is also important to be able to predict the probability of a measurable decrease in production rather than relying solely on after-the-fact measurements. Therefore, the implementation of the narrative criteria through WYPDES permits will always involve making reasonable judgments and assumptions.

Effluent limits on historic discharges of produced water will not be affected by this policy in relation to the protection of agricultural uses. Where discharges have been occurring for many years, the permitted quality of those discharges shall be considered to be "background" conditions and be fully protective of the agricultural uses that have developed around them. Therefore, it is not necessary to modify those discharges in order to achieve the goal of "no measurable decrease" in crop or livestock production. It would only be necessary to maintain the existing quality of the discharge. It is important to note, however, that effluent limits on historic discharges may be made where the quality of the discharge is shown to constitute a hazard to humans, livestock or wildlife.

II. Livestock Watering

(a) The basic concept in protecting a livestock watering use is to ensure that water quality is not acutely toxic to livestock or does not contain pollutants in concentrations that would affect growth or reproduction. There are basic effluent limitations provided in the WYPDES permit regulations (Chapter 2 of the Water Quality Rules and Regulations) that are intended to ensure that the water is safe for livestock to drink. These limits are:

5000 mg/L TDS;
3000 mg/L Sulfate;
2000 mg/L Chloride;

and each must be achieved at the end-of-pipe prior to mixing with the receiving stream. In addition to the basic effluent limitations the following limits for livestock protection may be incorporated into WYPDES permits when there is reason to believe they may be associated with a discharge:

Selenium	50 µg/L	Total Recoverable
Fluoride	4000 µg/L	Dissolved
Arsenic	20 µg/L	Total Recoverable
Copper	500 µg/L	Dissolved
Cadmium	50 µg/L	Dissolved
Boron	5000 µg/L	Dissolved

Chromium	1000 µg/L	Dissolved
Lead	100 µg/L	Dissolved
Mercury	10 µg/L	Dissolved
Zinc	2500 µg/L	Dissolved

Livestock watering waverAn exception to the limits above may be made whenever the background water quality of the receiving water is worse than the value listed for the associated pollutant or when the livestock producer requests use of the water and thereby accepts any potential risk to his livestock.

III. IrrigationThe interpretation of the Section 20 standard for irrigation is more complex than for livestock watering because there are more variables than just the quality of the water to consider. However, after considering the local circumstances relative to irrigation and crop production, effluent limits can be established on WYPDES permits that will be protective of the pre-existing irrigation uses. The goal is to ensure that pre-existing irrigated crop production will not be diminished as a result of the lowering of water quality.

The basic water quality parameters of concern in regard to irrigation are electrical conductivity (EC) and sodium adsorption ratio (SAR). Protection of irrigation uses where WYPDES permits are involved amounts to deriving appropriate effluent limits for EC and SAR in each instance.

Identification and Protection of Irrigation Uses. Implementation of the Section 20 standard through the WYPDES permitting program involves a sequence of decisions based upon the amount and quality of data that is available to the permit writer. The most basic question is whether a proposed discharge will reach irrigated lands. If the discharge will not reach an irrigated field, either because of natural conditions or water management techniques, it could not affect crop production on that field. For the purposes of this policy, irrigated lands include the following:

1. Artificially Irrigated Lands: Artificially irrigated lands are those where water is intentionally applied for agricultural purposes. Artificially irrigated lands will be identified by the presence of canals, ditches, spreader dikes, spray irrigation systems or any other constructed mechanism intended to divert water from a stream channel for application on adjacent lands.

2. Naturally Irrigated Lands: Naturally irrigated lands are areas of land along stream channels that have enhanced vegetative production due to periodic natural flooding or sub-irrigation. Naturally irrigated lands are those lands where a stream channel is underlain by unconsolidated material and on which the combination of stream flow and channel geometry provides for enhanced productivity of agriculturally significant plants. Naturally irrigated lands may be identified by an evaluation of infra-red aerial photography, surficial geologic maps, wetland mapping, landowner testimony or any combination of that information.

Appropriate effluent limits for EC and SAR will be calculated and applied to WYPDES discharge permits in all instances where the produced water discharge may reach any artificially irrigated lands.

~~EC and SAR limits will also be applied to WYPDES permits where the produced water discharge may reach stream segments containing sufficient acreage of naturally irrigated land to be considered agriculturally significant. In general, stream segments containing single parcels of naturally irrigated land greater than 20 acres in size or multiple parcels in near proximity that total more than 20 acres shall be considered agriculturally significant. In making this estimation, small drainage bottoms may be excluded from consideration. Two specific criteria which may be used to exclude lands include lack of a persistent active channel and unconsolidated floodplain deposits which are generally less than 50 feet in width.~~

~~If there are no pre-existing diversions within reach of a discharge or if the water will be impounded or managed so as not to reach a diversion during the irrigation season, there would be no potential to adversely affect crop production. Likewise, if there are no agriculturally significant, naturally irrigated lands within reach of a discharge there would be no potential to adversely affect crop production. In these circumstances, permit limits would be established to protect other relevant water uses (e.g. livestock watering, wildlife, aquatic life etc.).~~

~~Data and InformationThere is a minimum amount of data that must be collected in every circumstance in order to identify existing irrigation uses and to appropriately set effluent limits on discharges that may affect those uses. Additional information that is beyond the minimum requirements can also be considered to fine tune the permitting decisions in a way that best addresses the various interests for the water.~~

~~At a minimum the following information must be obtained:~~

- ~~Location(s) of irrigation diversions and/or naturally irrigated acreage;~~
- ~~Crops grown under irrigation;~~
- ~~Published tolerance values for the most sensitive crop;~~
- ~~Season of use~~
- ~~Description of Irrigation Practices~~

~~C. Establishing Effluent Limits A 3-tiered decision making process will be used to establish appropriate effluent limits for EC and SAR whenever a proposed discharge will likely reach irrigated lands. Tier 1 refers to a procedure for setting default EC and SAR limits and is useful in situations where the irrigated crops are salt-tolerant and/or the discharge water quality is relatively good. Tier 2 refers to a process whereby the default limits may be refined to equal background water quality conditions and is intended to be used in situations where the background EC and SAR is worse than the effluent quality. As a final measure, Tier 3 applies where background EC and SAR is better than the effluent quality. The purpose of a Tier 3 analysis is to provide sufficient justification to establish effluent limits that are of a lower quality than the pre-discharge background conditions. Under Tier 3, effluent limits may be established based upon local site conditions and irrigation practices to a level that can be demonstrated to cause no harm to the existing irrigation uses.~~

1. Tier 1 -Default EC and SAR limitsDefault limits for EC and SAR may be used where the quality of the discharge water is relatively good or the irrigated crops are salt-tolerant. The default values shall be based upon the published soil EC tolerance values for the most sensitive crop and shall be calculated as follows:

a. Default EC limits will be based upon 100 percent yield threshold values for soil EC reported by the USDA Agricultural Research Service (ARS) Salt Tolerance Database. In the event that the species of interest is not included in the ARS Salt Tolerance Database, then the following alternative references can be consulted:

(1) Hanson et al. 1999. Agricultural Salinity and Drainage. DANR Pub. 3375, Univ. of Calif. Davis;

(2) Ayers and Westcot. 1985. Water Quality for Agriculture. UN FAO Irrigation and Drainage Pager 29 (revised); and

(3) CPHA. 2002. Western Fertilizer Handbook. 9th Edition. Interstate Pub., Inc., Danville, IL.

The relationship between soil EC values and irrigation water EC values will be: EC (soil) = 1.5 EC (water), i.e., the published soil EC threshold obtained from the appropriate reference will be divided by the soil concentration factor of 1.5 to establish the discharge EC limit.

However, in circumstances where the background water quality of the receiving water(s) is known to be significantly better than would otherwise be required based on a theoretical 100% yield, effluent limits may be set to maintain that higher quality.

(B) Default SAR values will be extrapolated from the Hanson et al. (1999) Chart (see Figure 1 attached) based upon the default EC value in each circumstance up to a maximum default value of 10. The effluent limit for SAR will be determined in conjunction with EC so that the relationship of SAR to EC remains within the "no reduction in rate of infiltration" zone of Figure 1. The maximum SAR limit is, therefore, set below the line separating the "no reduction in rate of infiltration" zone from the "slight to moderate reduction in infiltration" zone in the Hanson et al. diagram, which is represented by the following equation: SAR < (7.10 x EC) – 2.48. It must be noted that SAR values are tied to the EC concentration and might need to be adjusted to correlate to the actual EC concentration rather than the theoretical maximum.

Use of the Hanson diagram to extrapolate default effluent limits for SAR is capped at a maximum SAR of 10 to minimize the potential for sodium build-up in poorly drained soils. This 10 SAR cap is only intended to apply when utilizing the default procedure and may be modified according to the provisions of section C.2 "Refining EC and SAR Limits", described below.

b. At a minimum, the EC and SAR limits will apply during the irrigation season and when flows are sufficient to support the use. On sub-irrigated lands and passively irrigated lands such as those under spreader dike systems, the irrigation season shall generally be considered to be

~~year-round.~~

~~2. Refining EC and SAR limits (Tiers 2&3)Establishing EC and SAR limits based simply on the most sensitive crop is the most stringent approach and would be protective of the irrigation use in all circumstances. It may be possible to refine those values if additional information is available showing that less stringent effluent limits would be adequately protective. This type of showing can be made by demonstrating that background water quality conditions are of a lower quality than the default values or by demonstrating that because of local soil conditions and irrigation practices there would be no harm to crop production from less stringent EC and SAR limits.~~

~~a. Tier 2 - Background Water QualityIf sufficient data is available to demonstrate or calculate that the pre-existing background water quality at the point(s) of diversion is worse than the effluent quality, EC and SAR effluent limits may be based upon those background conditions rather than tolerance values for the most sensitive crop.~~

~~(1). Measured Data: Background water quality may be established based upon published pre-discharge historic data. Generally, this data only exists on larger, perennial, mainstem stream channels where historic gauging has taken place. Actual measured data is the most reliable means of establishing background and must be considered on those waters where it is available.~~

~~(2). Calculated Background: On intermittent and ephemeral stream channels, pre-discharge water quality data is usually scarce or non-existent and very difficult to collect. In these circumstances, background water quality can be estimated by conducting soil surveys on land that has been historically irrigated from the subject stream.~~

~~In the event that soil studies are used as a means to estimate baseline water quality for a given drainage, the following requirements apply:~~

~~(i) Sample Site Selection: Soil samples shall be taken at semi-random sites within each contiguous irrigated segment downstream of the proposed discharge. "Semi-random" in this case is intended to mean that the applicant will identify the various major distinguishing terrain zones within each irrigated segment and select sample sites randomly within each terrain zone. For example, the channel bottom may constitute one terrain zone, the first small terrace above the channel bottom may be another terrain zone, and the adjacent meadow or field may be a single remaining terrain zone, or that meadow / field may actually be comprised of several other known zones such as discharge-affected soils vs. non-affected soils, sub-irrigated reaches vs. non-sub-irrigated reaches, etc..~~

~~(ii) Number of Sample Sites: Listed below are the minimum number of soil sample sites required for each of the identified terrain zones (based on zone area) within a contiguous irrigated segment:~~

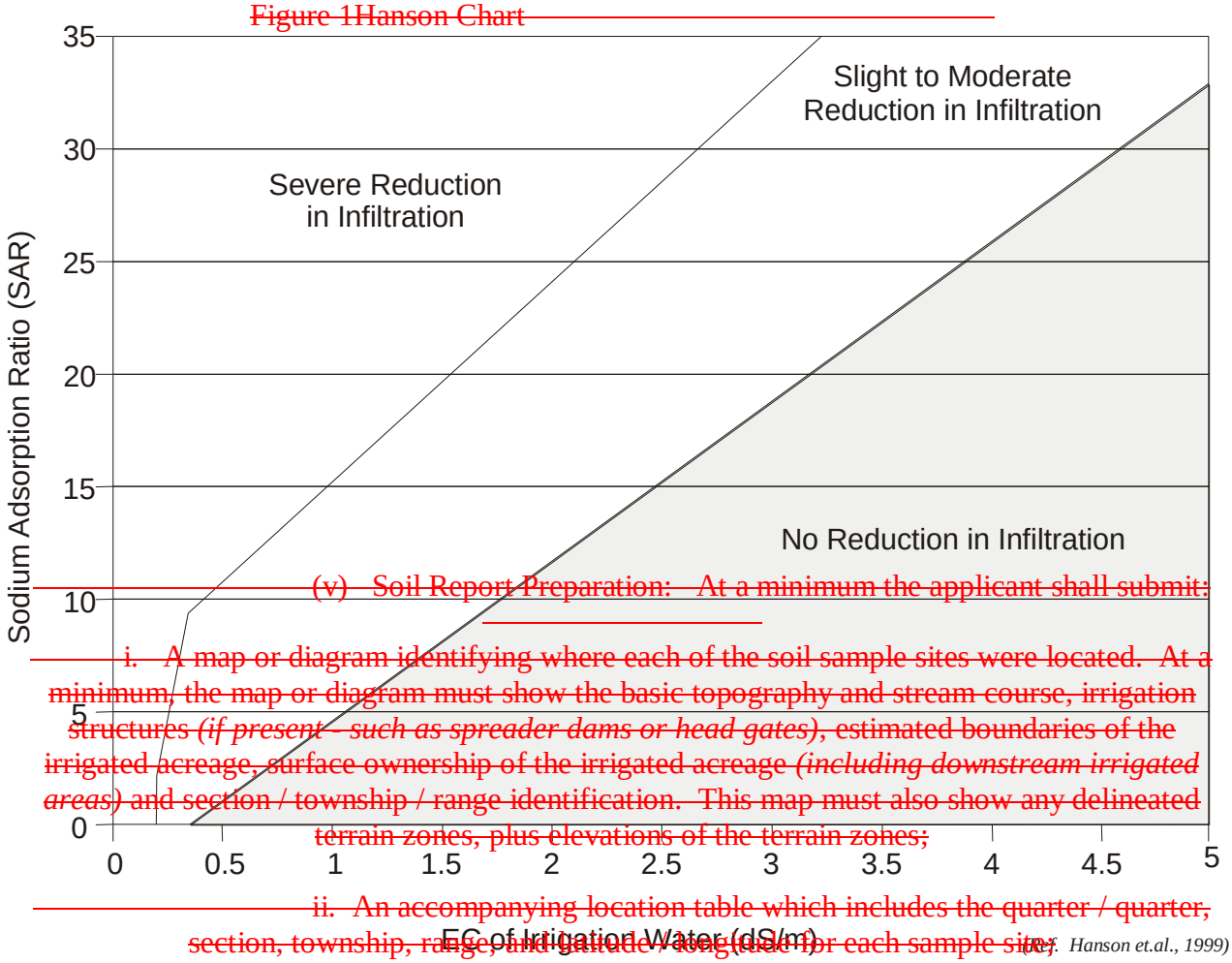
~~Zone Area~~	~~Minimum Number of Sample Sites~~

0 – 5 acres	3
5 - 10 acres	5
10 + acres	7

(iii) Sample Collection: Sample sites must be located a minimum of 50 feet apart from one another. Each sample site shall be sampled at a minimum of four depths (0-12", 13-24", 25-36", 37-48"). If alfalfa is present within the terrain zone, each sample site within that terrain zone must be sampled at a total of 6 depths (at the above-noted depths, plus 49-60" and 61-72"). Each 12-inch depth sample must be analyzed either individually or combined (composited) with other corresponding depth samples from the other sample sites within the same terrain zone (i.e., all 0-12" samples from a given terrain zone bulked together and analyzed as a single composite sample).

(iv) Sample Analysis: At a minimum, a saturated paste extract for each sample shall be analyzed for EC. Though not necessary for the estimation of background water conductivity, it is advisable to also analyze the soil samples for pH, SAR, soil texture and exchangeable sodium percentage (ESP) to avoid having to duplicate the sampling if the results indicate that a "no harm analysis" *(item b. below)* needs to be completed. Percent organic matter shall be analyzed in the surface 0-12 inch samples only. In addition, analyses to identify the clay mineralogy types present in the soils may also be warranted.

Figure 1Hanson Chart



(ref. *Hanson et.al., 1999)*

(v) Soil Report Preparation: At a minimum the applicant shall submit:

i. A map or diagram identifying where each of the soil sample sites were located. At a minimum, the map or diagram must show the basic topography and stream course, irrigation structures *(if present - such as spreader dams or head gates)*, estimated boundaries of the irrigated acreage, surface ownership of the irrigated acreage *(including downstream irrigated areas)* and section / township / range identification. This map must also show any delineated terrain zones, plus elevations of the terrain zones;

ii. An accompanying location table which includes the quarter / quarter, section, township, range, and latitude / longitude for each sample site;

iii. Summary data table showing the analytical results for each of the soil parameters listed above, for each depth, at each sample site.

iv. All associated lab sheets.

b. Tier 3 - No Harm Analysis (Tier 3). The actual effects of EC and SAR on crop production are variable based upon soil type and chemistry and may be mitigated to some extent by managing irrigation practices. EC and SAR effluent limits may also be established based upon a scientifically defensible site specific study that examines local soil characteristics, natural water quality, expected crop yield, irrigation practices and/or any other relevant factor related to crop production.

Because of the very site-specific nature of this approach and the number and complexity of variables that may need to be considered, it is not very useful to specify any particular type of analysis in this policy. When taking this approach, however, there is a burden of proof placed upon the applicant to demonstrate through a comprehensive study that levels of EC and/or SAR higher than either the default values or estimated background water

quality would most likely not measurably harm an existing irrigation use. This approach will allow a degree of creativity regarding landowner preferences and management. Refined limits for EC and SAR resulting from a "no harm" analysis should incorporate a reasonable margin of safety to account for variables that cannot be precisely measured or modeled.

c. Irrigation WaiverAn exception to EC or SAR limits established under the Tier 1, 2 or 3 procedures may be made when affected landowners request use of the water and thereby accept any potential risk to crop production on their lands. Irrigation waivers will only be granted in association with an irrigation management plan that provides reasonable assurance that the lower quality water will be confined to the targeted lands.

d. Reasonable Access RequirementThe procedure for establishing default EC and SAR limits is intended to provide the ability to permit the discharge of high quality water without an obligation to conduct site specific studies. In practice, the use of the default procedure will only apply where permitted discharges are of exceptionally high quality. In many applications, appropriate limits for EC and SAR will have to be based on refined procedures rather than default. Because the refined procedures require the acquisition of site-specific data, it is necessary that permit applicants and/or the DEQ have reasonable access to obtain the required information. In circumstances where a landowner chooses to deny access for the purpose of developing a Section 20 analysis, EC and SAR limits will be based upon the best information that can be reasonably obtained and may be less stringent than Tier 1 default limits.

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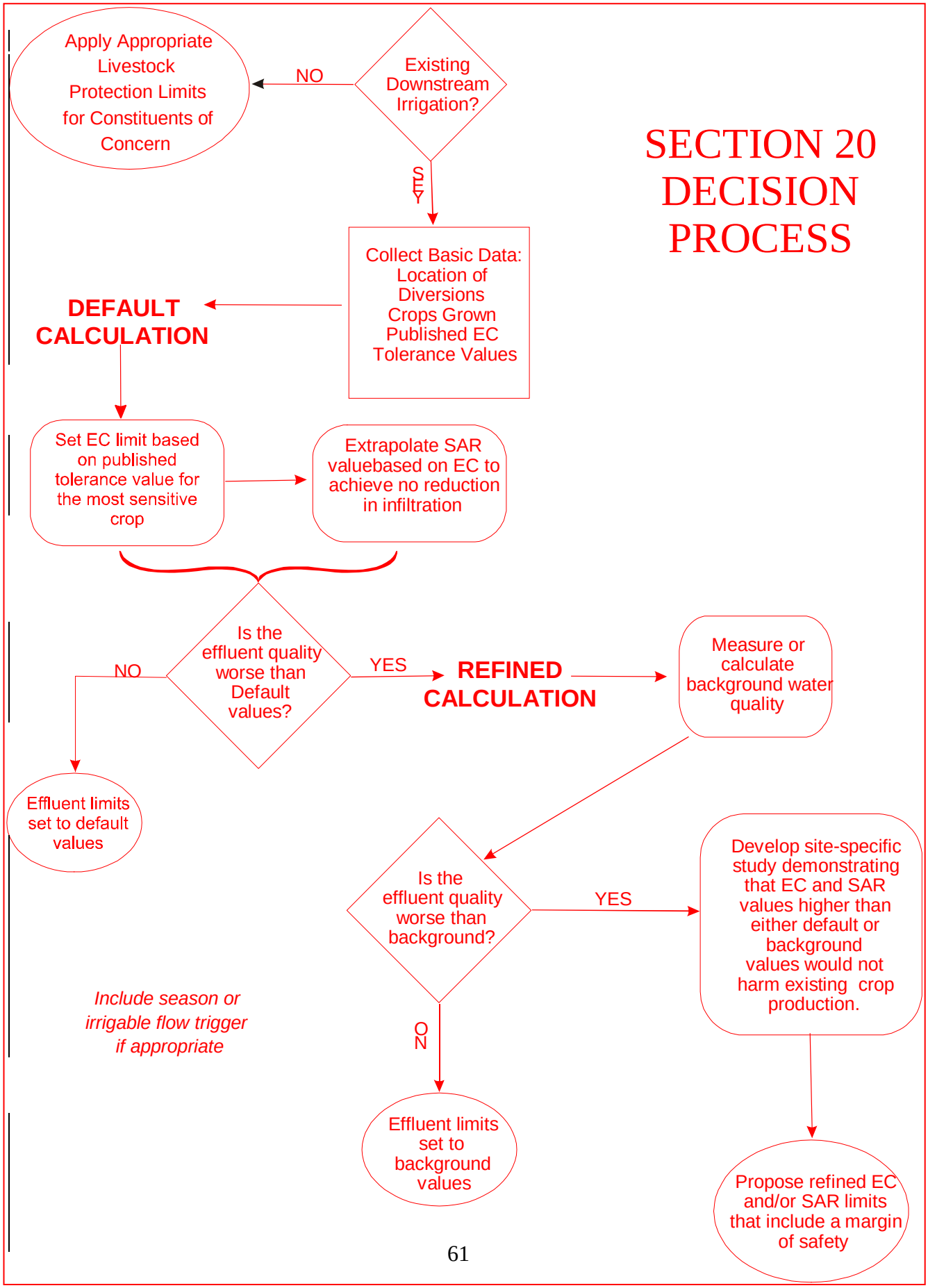
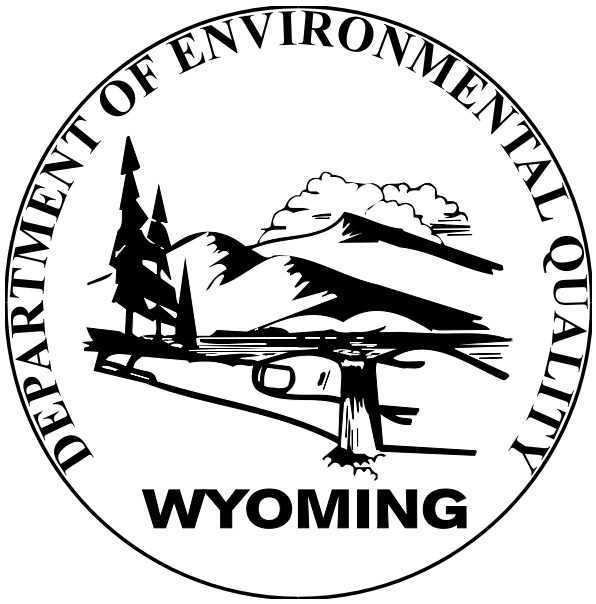
SECTION 20 DECISION PROCESS



Wyoming
Surface Water Quality Standards



Implementation Policies
for

Antidegradation
Mixing Zones and Dilution Allowances
Turbidity
Use Attainability Analysis

May 13, 2013

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ANTIDEGRADATION IMPLEMENTATION POLICY
(Chapter 1, Section 8)

Section 1. Purpose. Section 8 of the Wyoming Surface Water Quality Standards (Water Quality Rules and Regulations, Chapter 1) establishes a regulatory policy concerning antidegradation. Section 8 provides:

(a) Water uses in existence on or after November 28, 1975 and the level of water quality necessary to protect those uses shall be maintained and protected. Those surface waters not designated as Class 1, but whose quality is better than the standards contained in these regulations, shall be maintained at that higher quality. However, after full intergovernmental coordination and public participation, the department may issue a permit for or allow any project or development which would constitute a new source of pollution, or an increased source of pollution, to these waters as long as the following conditions are met:

(i) The quality is not lowered below these standards;

(ii) All existing water uses are fully maintained and protected;

(iii) The highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved; and

(iv) The lowered water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

(b) The Water Quality Administrator (administrator) may require an applicant to submit additional information, including, but not limited to, an analysis of alternatives to any proposed discharge and relevant economic information before making a determination under this section.

(c) The procedures used to implement this section are described in the Antidegradation Implementation Policy.

Antidegradation protection is one of the essential elements of state surface water quality standards programs and is required under Section 303(d)(4)(B) of the Clean Water Act. The purpose of this implementation procedure is to disclose the decision-making and public participation processes that will be employed by the Water Quality Division in order to ensure compliance with Section 8.

A secondary purpose of this implementation policy is to ensure federal approval of Wyoming's surface water quality standards. Although Wyoming has primary authority to establish standards, the EPA has a responsibility to determine whether such standards meet the goals and requirements of the Clean Water Act. To a large extent, approval of the standards relies on approval of an antidegradation implementation procedure.

Section 2. Concepts. Water quality standards designate the uses which are protected on waters of the state and establish criteria that describe the maximum pollutant concentrations and other water quality conditions necessary to maintain those uses. Many waters in the state have an existing level of water quality that is better than the criteria established to support designated uses. The antidegradation requirements are designed to maintain water quality at the higher levels unless there are good reasons for lowering the water quality.

Federal regulations (40 CFR 131.12) require state standards programs to address 3 levels or "tiers" of antidegradation protection. "Tier 1" is the basic level of protection which applies to all waters. Waters which are afforded tier 1 protection are waters not generally considered to be high quality, are not currently supporting designated uses, or where assimilative capacity does not exist for parameters that would be affected by a proposed activity.

"Tier 2" protections apply to high quality waters. These are waters which have an existing quality that is better than the established use-support criteria and where an assimilative capacity exists for parameters that would be affected by a proposed activity. Under tier 2, a lowering of water quality may be allowed if it is determined that the amount of degradation is insignificant or if the lowered water quality is necessary to accommodate important economic or social development in the area. Under no circumstances, however, may water quality be lowered below the criteria established in the standards or below a level that would impair an existing use.

"Tier 3" protections apply to waters that constitute "outstanding national resource waters" (ONRWs)[1]. Tier 3 requires maintenance of existing quality with no consideration of assimilative capacity or economic or social development. In certain circumstances, temporary lowering of water quality is allowable; however, the general rule is that no new point sources or increased pollutant loading from existing point sources is allowed.

The antidegradation implementation procedures that follow shall apply to the review of regulated activities involving new or increased discharges of pollution. Regulated activities include individual Wyoming Pollution Discharge Elimination System (WYPDES) effluent discharge permits, WYPDES storm water permits for industrial and construction activities and Section 401 water quality certifications. The procedure is organized starting with the highest level of protection applied to Class 1 waters to the basic minimum level applicable to all waters.

Section 3. Outstanding Aquatic Resources (Class 1). The qualification requirements for Class 1 waters are listed in Chapter 1, Section 4(a). In addition, the general categories of waters (e.g. waters in national parks, etc.) and specific waters designated as Class 1 are listed in Chapter 1, Appendix A.

[1]The Wyoming water quality protection program has no provision for designating waters that have "national" significance; however, waters designated as Class 1 under the surface water standards are considered to be outstanding resources. Though not designated as ONRWs, Class 1 waters are afforded a level of antidegradation protection which is a functional equivalent of EPA's tier 3 concept.

Class 1 waters are designated by the Environmental Quality Council in rulemaking hearings. Both the Wyoming Administrative Procedures Act and the department's continuing planning process (CPP) provide for public input during regulatory and planning processes. Any interested person may nominate a water for Class 1 designation through the procedures outlined in those documents.

(a) Point Source Discharges. The Wyoming surface water quality standards prohibit new or increased "end-of-the-pipe" effluent discharges of pollution to Class 1 waters but allow limited discharges associated with storm water runoff and temporary discharges associated with construction activities. Permits issued by the department for storm water or construction-related discharges will contain the following safeguards: changes in water quality will be limited to temporary increases in turbidity; turbidity increases will be limited to those allowed in Chapter 1, Section 23, unless a temporary turbidity waiver as been granted by the administrator; and necessary controls and monitoring will be required to ensure existing water quality and uses are maintained and protected.

Furthermore, the department will impose whatever controls are necessary on regulated point source discharges to tributaries of Class 1 waters to the extent that the existing quality and uses of the downstream Class 1 segment will be protected and maintained. It is the department's interpretation that "tributary" means any waters feeding the mainstem and any upstream mainstem segments.

The following procedures and decision-making processes will be used for each of the Water Quality Division's discharge permitting authorizations on Class 1 waters:

(i) WYPDES End Of The Pipe Permits. Permits for new or increased effluent discharges to Class 1 waters will not be issued. This prohibition is not intended to include temporary construction-related discharges or industrial storm water permits for which effluent limits have been established where there is no reasonable potential for a discharge of the associated effluent limitations.

(ii) WYPDES Storm Water Permits *(Industrial Activities)*.

(A) Storm water permits for industrial activities may be issued with appropriate conditions and monitoring requirements on a case-by-case basis on Class 1 waters. An application for an industrial storm water permit must contain:

(I) A list of all pollutants which can reasonably be expected to occur on-site and be exposed to runoff events; and

(II) A map showing the location of the industrial facility in relation to the Class 1 receiving water and/or tributaries; and

(III) Water quality data that characterizes the existing quality of the receiving Class 1 water and/or its tributaries in relation to the potential on-site pollutants; and

(IV) A storm water pollution prevention plan that provides:

(1.) Runoff from the industrial site resulting from up to a 100-year storm event will not discharge to a Class 1 water; or

(2.) Runoff which may discharge to a Class 1 water as the result of any storm event will be of equal or better quality than the receiving water; and

(V) A monitoring plan designed to ensure compliance with item (IV).

(B) Prior to issuing an industrial storm water permit, the department will make a determination based upon the information submitted in the application that the potential effects on the Class 1 receiving stream, if any, will be temporary in nature and limited to discharges of clean sediment and turbidity. The department may also include any additional construction practices, treatment processes, monitoring and reporting requirements or other special conditions as necessary to achieve and demonstrate that existing water quality and uses will be maintained.

(C) The department will conduct a 30-day public notice and comment period prior to the issuance of any industrial storm water permit on Class 1 waters disclosing its intent to issue a permit for industrial storm water discharges. Information received as a result of the public notice will be considered by the department and may affect the final determination regarding permit approval.

(D) Existing general storm water permits for industrial activities will remain in effect for the remainder of their terms. The reauthorization of these permits, however, is not guaranteed and will be subject to the provisions of the revised rule and the implementation policy described above.

(iii) WYPDES Storm Water Permits *(Construction Activities)*.

(A) General storm water permits for construction activities may be issued with appropriate conditions and monitoring requirements on Class 1 waters. Public comment is solicited prior to establishment of general permits and at each subsequent renewal (at least once every five years). Small construction general permits (SCGP) cover construction projects that disturb between one and five acres (includes sum of disturbed acres that are part of a common plan of development or sale) and large construction general permits (LCGP) cover construction projects that disturb five acres or more (includes sum of disturbed acres that are part of a common plan of development or sale). The SCGP is a "no application" permit, where a project is automatically covered when the operator complies with the provisions of the SCGP. An application for a LCGP must contain a notice of intent (NOI) to discharge storm water prepared according to the provisions of the Wyoming General Permit to Discharge Storm Water Associated with Large Construction Activities. The applicant must submit along with the NOI, a detailed storm water pollution prevention plan (SWPPP) that includes sufficient controls on all potential sources of pollution. The SWPPP must demonstrate that the only types of pollution

that could reasonably be expected to reach a Class 1 water during a runoff event are turbidity and sediment. Although the SCGP does not require an application, the requirements are generally identical to those in the LCGP.

(B) Runoff from ancillary, construction-related facilities such as borrow areas, gravel processing areas, asphalt processing plants, concrete mixing, fuel and solvent storage areas, equipment staging and maintenance areas, and any area which may be a source of pollutants other than turbidity and sediment must be controlled so as not to discharge to any Class 1 water. This provision applies to runoff resulting from up to a 100-year storm event.

(C) The department shall conduct an in-house review of the NOI and pollution control plan prior to approving coverage under the LCGP. The department may also include any additional construction practices, monitoring and reporting requirements, or other special conditions that may be necessary to achieve and demonstrate that existing water quality and uses will be maintained. Upon issuance, the department accepts comments on all general permit authorizations for a period of 30 days following the authorization. Any aggrieved party may appeal an authorization under a general permit pursuant to W.S. 35-11-801(d). Parties considering an appeal should provide comments to the department. Upon review of any application for a construction storm water permit, the department may also choose to deny authorization under the general permit and require an individual permit. In such instances, a 30-day public notice will be conducted.

(b) Clean Water Act Section 401 Water Quality Certifications. This section outlines procedures used by the department to ensure the protection of existing quality and uses of Class 1 waters for activities subject to 401 certifications. Certifications are required for federal licenses or permits to discharge and include Section 404 permits issued by the U.S. Army Corps of Engineers and hydropower licenses issued by the Federal Energy Regulatory Commission (FERC).

(i) Federal licenses or permits can be certified by the department if activities authorized by the license or permit meet the following requirements:

(A) Any resultant water quality degradation shall be temporary and all potential negative effects cease at the end of the construction period;

(B) Potential contaminants are limited to turbidity and sediment. Increases in downstream turbidity are limited to 10 NTUs above the upstream condition at all times on streams that support cold water game fisheries and/or drinking water supplies and 15 NTUs on streams that support warm water fisheries, unless a temporary turbidity waiver has been granted by the administrator. Sediment cannot be discharged in amounts that will adversely affect existing or designated uses as described in Chapter 1, Sections 15 and 16;

(C) Long term or permanent degradation of stream channel stability and aquatic habitat will not occur;

(D) Long-term or permanent degradation of aesthetic properties will not occur; and

(E) Process water from construction activities (e.g. hydrostatic testing, gravel washing, etc.) will not discharge to a Class 1 water.

(ii) 401 Certification shall be denied for federal licenses or permits authorizing discharge to Class 1 waters if any of the following apply:

(A) The activity may result in degradation of water chemistry or long-term or permanent loss or reduction of: channel stability, aquatic habitat, or existing or designated uses;

(B) Sediment will be discharged in amounts that settle to form sludge, bank or bottom deposits;

(C) Existing ambient conditions will be degraded by the activity; or

(D) Any surface discharge of process water to a Class 1 water will occur.

(iii) The applicant may be asked to consider multiple reasonable alternatives for accomplishing the project objectives and justify the chosen alternative with consideration of environmental, economic and social factors. The chosen alternative may not have significant adverse affects to existing or designated uses.

(iv) Wyoming Game and Fish Department (WGFD) must be consulted for comments prior to certification of the activity. If evidence of consultation with WGFD is not provided with the application materials, the department may consult with WGFD on behalf of the applicant. Results of the consultation will be considered in the decision to approve, approve with conditions or deny certification;

(v) In addition to the general requirements above, the following measures apply on an activity-specific basis on Class 1 waters:

(A) Aquatic Habitat Improvement Activities.

(I) Projects shall maintain existing and designated uses and should generally not convert one habitat type to another unless all aquatic habitat functions are retained (e.g. instream habitat structures may not impede movement of resident fish species; existing wetlands may not be excavated or inundated to create deep water habitat; spawning, rearing or feeding habitat may not be converted to holding areas for adult fish);

(II) Project plans must be based on sound scientific principles, data and analyses that are commensurate with project complexity and risk of degradation; and

(III) The department shall use discretion and professional judgment in determining whether existing and designated uses will be degraded by the activity.

(B) Repair/Maintenance Activities. Currently serviceable structures may be repaired, rehabilitated or replaced, provided that the proposed work does not deviate from the original plans, purpose or use of the structure and the general requirements for certification on Class 1 waters are met.

(C) Streambed and Streambank Stabilization and Flood Control Activities. Streambank stabilization and flood control structures can be approved if the objectives are to reduce existing environmental degradation, protect human health and safety, or prevent substantial loss of property.

(iv) Public Notice. A joint WDEQ/Corps of Engineers public notice is issued by the Corps prior to the issuance of all individual Section 404 permits. The department shall conduct a separate public notice and comment period prior to certifying all FERC or other federal licenses. With the exception of minor projects with minimal effects, the department shall conduct a separate public notice and comment period prior to certifying all nationwide or regional general Section 404 permits.

(c) Nonpoint Sources. Nonpoint sources of pollution are not regulated by permits issued by the department, but are controlled by the voluntary application of cost effective and reasonable best management practices. For Class 1 waters, best management practices will maintain existing quality and water uses.

Section 4. High Quality Waters (Class 2AB, 2A, 2B and 2C). Waters classified as 2AB, 2A, 2B or 2C are known to support populations of fish and/or drinking water supplies and are considered to be high quality waters. The Water Quality Division may issue a permit or certification for new or increased discharges to these waters upon making a finding that the amount of resultant degradation is insignificant or that the discharge is necessary to accommodate important economic or social development in the area where the waters are located. The Department must also ensure that the highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved. For purposes of antidegradation implementation these may be referred to as "reviewable waters".

Where there are existing regulated point or nonpoint sources located in the area, the Water Quality Division will ensure that compliance with the required controls has been or will be achieved prior to authorizing the proposed regulated activity. This requirement is primarily intended to ensure that proposed activities that will result in water quality degradation for a particular parameter will not be authorized where there are existing unresolved compliance problems involving the same parameter in the zone of influence of the proposed activity. The "zone of influence" is determined as appropriate for the parameter of concern, the characteristics of the receiving water (e.g. lake versus river, etc.) and other relevant factors. Where available, a Total Maximum Daily Load (TMDL) analysis or other watershed-scale plan will be the basis for

identifying the appropriate zone of influence. The Division may conclude that such compliance has not been assured where existing sources are violating their WYPDES permit requirements. However, the existence of schedules of compliance for purposes of WYPDES permit requirements may be taken into consideration in such cases. In other words, required controls on existing regulated sources need not be finally achieved prior to authorizing a proposed activity provided there is reasonable assurance of future compliance.

(a) WYPDES Effluent Permits and Storm Water Permits (Industrial and Construction Activities). The antidegradation review under this part consists of three sequential evaluations: determination of significance; economic evaluation; and examination of alternatives.

(i) Determination of Significance.

(A) Based on information submitted in an application for a water quality permit, the administrator shall make a determination of whether the proposed discharge will result in a significant lowering of water quality with respect to adopted numeric water quality criteria. The significance determination will be based on the chronic numeric standard and flow for the pollutant of concern except for those pollutants which have only acute numeric standards in which case the acute standard and flow will be used. Significance determination shall be made with respect to the net effect of the new or increased water quality impacts of the proposed activity, taking into account any environmental benefits resulting from the activity and any water quality-enhancing mitigation measures impacting the segment or segments under review, if such measures are incorporated with the proposed activity. The activity shall be considered not to result in significant degradation if:

(I) The activity may be permitted under a general permit established by the state for discharges regulated under section 402; or

(II) The new or increased loading from the source under review is less than 10 percent of the existing total load to that segment for critical constituents (e.g. those for which there are stream standards and which are present in the discharge), provided that the cumulative impact of increased loadings from all sources does not exceed 10 percent of the baseline total load established for the segment (the baseline total load shall be determined at the time of the first proposed new or increased water quality impacts to the reviewable waters); or

(III) The new or increased loading from the source under review will consume, after mixing, less than 20 percent of the available increment between low flow pollutant concentrations and the relevant standards (assimilative capacity), for critical constituents; or

(IV) The activity will result in only temporary or short term changes in water quality.

(B) If an activity is considered not to result in significant degradation, no further review will be conducted. General WYPDES permits will be issued at this point. In the case of individual WYPDES permits, the Water Quality Division shall prepare a draft permit

and provide opportunity for public comment before the permit is issued. Such public notices shall contain a statement describing the rationale for the determination of non-significance. If the permit is issued, the determination may be appealed to the Environmental Quality Council under the provisions of the Wyoming Administrative Procedures Act.

(C) If a determination is made that a proposed activity is likely to result in significant degradation of reviewable waters, an evaluation shall be made as to whether the degradation is necessary to accommodate important economic or social development in the area in which the waters are located.

(ii) Economic Evaluation.

(A) The "area in which the waters are located" shall be determined from the facts on a case-by-case basis. The area shall include all areas directly impacted by the proposed activity.

(B) A determination shall be made on the facts on a case-by-case basis whether the proposed activity is important economic or social development. If the applicant submits evidence that the activity is an important development, it shall be presumed important unless information to the contrary is submitted in the public review process. The determination shall take into account information received during the public comment period and shall give substantial weight to any applicable determinations by local governments or land use planning authorities.

(C) If the proposed activity is determined not to be important for economic or social development, authorization for the associated discharge(s) will be denied.

(D) If the proposed activity is determined to be important economic or social development, a determination shall be made whether the degradation that would result from such activity is necessary to accommodate that development.

(iii) Examination of Alternatives. The degradation shall be considered acceptable if there are no other water quality control alternatives available that:

(A) Would result in no degradation or less degradation of state waters; and

(B) Are determined to be economically, environmentally and technologically reasonable.

(C) Determination of whether such alternatives are available shall be based upon a reasonable level of analysis by the project proponent, consistent with accepted engineering practices, and information submitted by the public or otherwise available to the administrator. The assessment shall, at a minimum, address practical water quality control technologies, the feasibility and availability of which has been demonstrated under field

conditions similar to those of the activity under review. The scope of alternatives considered shall be limited to those that would accomplish the proposed activity's purpose.

(D) In determining the economic reasonableness of water quality control alternatives, the administrator may use some of the following factors to weigh the reasonableness of the various alternatives.

(I) Whether the costs of the alternative significantly exceed the costs of the proposal;

(II) For publicly owned treatment works (POTWs), whether user charges resulting from the alternative would significantly exceed user charges for similarly situated POTWs or public water supply projects;

(III) For any discharger into waters of the state, whether the treatment alternative represents costs that significantly exceed costs for other similar dischargers to similar stream classes, or standard industry practices.

(IV) Any other environmental benefits, unrelated to water quality which may result from each of the alternatives examined.

(E) Upon conclusion of the alternatives analysis, the administrator shall select a preferred alternative and prepare a draft permit and public notice proposing to authorize the selected alternative. The selected alternative shall be the least degrading, reasonable alternative consistent with the social and economic benefits. The public notice shall contain a statement describing the results of the antidegradation review. If the permit is issued, all administrative decisions relating to the antidegradation review or permit issuance may be appealed to the Environmental Quality Council under the provisions of the Wyoming Administrative Procedures Act.

(b) Clean Water Act Section 401 Certifications. This section outlines procedures used by the department to fulfill antidegradation requirements on high quality waters for activities subject to 401 certifications. Certifications are required for federal licenses or permits to discharge and include Section 404 permits issued by the Army Corps of Engineers and hydropower licenses issued by the Federal Regulatory Commission (FERC).

(i) Certification of Nationwide and Regional General 404 Permits Issued by the U.S. Army Corps of Engineers. Section 404 nationwide general permits are reissued by the Corps every five years. At the time of reissuance, the department will review the permit to determine if certification can be categorically granted or whether project-specific certification review is necessary. When categorical certification is granted for a specific permit, the department will consider the terms and conditions of the permit to ensure they comply with the antidegradation provisions of Wyoming’s Surface Water Quality Standards. The department may add conditions to the certifications that apply broadly to all nationwide permits or add conditions that are permit-specific.

(ii) For certification of FERC and other federal licenses, individual section 404 permits and nationwide or regional general 404 permits with project-specific requirements, the following requirements must be met:

(A) Any resultant water quality degradation shall be temporary and all potential negative effects cease at the end of the project;

(B) Potential contaminants are limited to turbidity and sediment. Increases in downstream turbidity are limited to 10 NTUs above the upstream condition on streams that support cold water game fisheries and/or drinking water supplies and 15 NTUs on streams that support warm water fisheries, unless a temporary waiver is granted by the administrator. Sediment cannot be discharged in amounts that will adversely affect existing and designated uses as described in Chapter 1, Sections 15 and 16;

(C) Stream channel stability and aquatic habitat are not significantly degraded; and

(D) Aesthetic properties are not significantly degraded.

(iii) 401 Certification Shall Be Denied on Class 2 waters if any of the following apply:

(A) The project results in more than minimal degradation of water chemistry;

(B) Sediment will be discharged in amounts that settle to form sludge, bank or bottom deposits;

(C) The project may result in channel instability or more than minimal permanent loss of aquatic habitat; or

(D) The project may result in degradation of existing or designated uses. The department shall use discretion and professional judgment to determine whether existing or designated uses will be degraded by the activity.

(iv) For activities that require an individual certification review by the department, evidence of consultation with WGFD should be included with preconstruction notification documents. If evidence of the consultation is not included, the department may consult with WGFD on behalf of the applicant. Results of the consultation will be considered in the decision to approve, approve with conditions or deny certification.

Section 5. Use Protected Waters (Classes 2D, 3 and 4). In general, Class 2D, 3 and 4 waters do not warrant the special protection provided to high quality waters and shall be afforded a basic level of antidegradation protection (EPA tier 1 equivalent). This level of protection is focused on maintaining existing uses and may allow lowering water quality as long as the established criterion for any parameter is not exceeded. The issuance of water quality

permits and certifications shall not normally involve an examination of economic necessity or alternatives to the proposed activity; however, the administrator may determine on a case-by-case basis that special circumstances exist and a High Quality Water (See Section 4, above) review of the proposed discharge may be conducted prior to authorizing the activity. Special circumstances may include, but are not limited to, exceptional recreational or ecological significance (e.g. location in a park or urban greenway, presence of rare or sensitive plant and animal species, contains unique aquatic features such as wetland fens or geothermal springs, etc.).

Section 6. Existing Use Protection (All Wyoming Surface Waters). Except for the special considerations provided in Chapter 1 and regulations regarding Class 2D, 3D and 4C waters, existing in-stream water uses shall be maintained and protected in all Wyoming surface waters. For Class 1 waters, existing uses will be protected by implementing the requirements described in Section 3 of this implementation policy. For high quality and use protected waters, this implementation policy assumes that attainment of the criteria assigned to protect the current water body classification will serve to maintain and protect all existing uses. In some cases, however, water quality may have improved in the segment since the classifications were assigned, resulting in an existing use that is higher than the current classification. In other cases, the classifications may have been assigned based on inadequate information, resulting in classifications that do not fully encompass the existing uses of the segment. Where the antidegradation review results in the identification of an existing use that has protection requirements that are clearly defined, but are not addressed in the current classification and criteria, the division will ensure that such existing uses are fully protected based on implementation of appropriate numeric or narrative water quality criteria or criteria guidance. For example, where a proposed activity will result in the discharge of a substance for which sufficient data to derive appropriate criteria are available (e.g. Clean Water Act Section 304(a) criteria), but numeric criteria have not been adopted in the Chapter 1, the division will develop effluent limitations that will protect the existing use. In cases where there is a proposed discharge where federally-listed threatened or endangered species are present (i.e. aquatic species), the division will work with the U.S. Fish and Wildlife Service and EPA to gather available information and evaluate whether special existing use protection requirements are necessary to protect the listed species. Where there is a question regarding the appropriate classification of a segment, the applicant may be required to provide information regarding existing uses.

MIXING ZONES AND DILUTION ALLOWANCES IMPLEMENTATION POLICY (Chapter 1, Section 9)

Section 1. Purpose . Section 9 of the Wyoming Surface Water Quality Standards (Water Quality Rules and Regulations, Chapter 1) provides for the establishment of a zone of dilution in the vicinity of point source discharges where acute and chronic aquatic life criteria and human health criteria may be exceeded. Section 9 provides:

Except for acute whole effluent toxicity (WET) values and Sections 14, 15, 16, 17, 28 and 29(b) of these regulations, compliance with water quality standards shall be determined after allowing reasonable time for mixing. Except for the zone of initial dilution, which is the initial 10% of the mixing zone, the mixing zone shall not contain pollutant concentrations that exceed the aquatic life acute values (see Appendix B). In addition, there shall be a zone of passage around the mixing zone which shall not contain pollutant concentrations that exceed the aquatic life chronic values (see Appendix B). Under no circumstance may a mixing zone be established which would allow human health criteria (see Appendix B) to be exceeded within 500 yards of a drinking water supply intake or result in acute lethality to aquatic life. The procedures used to implement this section are described in the Mixing Zones and Dilution Allowances Implementation Policy.

This policy addresses how mixing and dilution of point source discharges in receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations for point sources. In all cases, mixing zone and dilution allowances shall be limited as necessary to protect the integrity and designated uses of the receiving water.

Section 2. Concepts. A mixing zone is a limited area within the receiving water body where initial dilution of a point source discharge of pollution takes place. The establishment of a mixing zone is not appropriate in all circumstances. For example, in non-perennial or low flow streams, there may not be any dilution available to mix with the discharge. Also, there may be instances where background concentrations of specific pollutants in the receiving stream provide no assimilative capacity. In circumstances like these, acute and chronic criteria would have to be met in the discharge itself.

Where the establishment of a mixing zone is appropriate and possible, the design needs to be based on the following 3 concepts:

(a) The size and configuration of the mixing zone shall not impair the integrity of the water body as a whole;

(b) There shall be no lethality to aquatic organisms through the mixing zone; and

(c) There shall be no significant health risks to human populations associated with the mixing zone *(e.g. proximity to recreation areas or drinking water intakes)*.

The size, configuration and other relevant design considerations shall be based on critical flow conditions for both the receiving water and the effluent. Effluent critical conditions include

effluent flow and pollutant concentrations; receiving water critical conditions include receiving water flow, background pollutant concentrations and other characteristics of the receiving water that affect pollutant concentrations (e.g. temperature, pH, reaction rates, etc.) This policy addresses mixing zones and dilution allowances where mixing is complete and near instantaneous at the point of discharge (Section 3) and mixing is incomplete at the point of discharge (Section 4).

Section 3. Complete Mixing.

(a) Where the discharge is to a river or stream and available information is sufficient to conclude that there is near instantaneous and complete mixing of the discharge with the receiving water at critical conditions, an appropriate dilution allowance may be provided in calculating chemical-specific discharge limitations. An assumption of complete mixing may be based on any of the following:

(i) Mean daily flow of the discharge exceeds the critical in-stream flow;

(ii) An effluent diffuser covers the entire stream width at critical flow;

(iii) Demonstration by the permittee, based on in-stream studies. that shows no more than a 10% difference in bank to bank concentrations within a longitudinal distance not greater than 2 stream/river widths; or

(iv) Other defensible discharge outlet designs and configurations provided by the permittee.

(b) The basis for concluding that complete mixing occurs will be documented in the rationale for the discharge permit.

(c) The dilution allowance for continuous discharges shall be based on the critical low flow of the receiving stream. Critical low flow can be determined using the methods provided in Chapter 1, Section 11.

(d) For controlled discharges, such as lagoon facilities that discharge only during high ambient flows, the stream flow to be used in determining a dilution allowance shall be the lowest flow expected to occur during the period of discharge.

(e) Where a discharger has installed a diffuser in the receiving stream, that portion of the stream flow affected by the diffuser may be used to calculate a dilution allowance. For example, 50% of the 7Q10 low flow may be used for a diffuser extending halfway across the stream bottom.

Section 4. Incomplete Mixing.

(a) Where dilution is available at critical conditions and the discharge does not mix at a near instantaneous and complete rate, an appropriate mixing zone may be designated for purposes of implementing aquatic life and human health criteria in the receiving stream. Where a mixing zone is allowed, its size and shape will be determined on a case-by-case basis as follows:

(i) Mixing zones for streams and rivers shall not exceed one-half of the cross-sectional area or a length 10 times the stream width at critical low flow, whichever is more limiting; and

(ii) Mixing zones in lakes shall not exceed 5% of the lake surface area or 200 feet in radius, whichever is more limiting.

(b) The above limits are intended to establish the maximum allowable size of mixing zones; however, individual mixing zones may be further limited or denied due to concerns about designated and existing uses or the following in the area affected by the discharge:

(i) Bioaccumulation in fish tissues or wildlife;

(ii) Biologically important areas such as fish spawning or nursery areas;

(iii) Low acute to chronic ratio;

(iv) Potential human exposure to pollutants resulting from drinking water or recreational activities;

(v) Attraction of aquatic life to the effluent plume;

(vi) Toxicity/persistence of the substance discharged;

(vii) Zone of passage for migrating fish or other species, including access to tributaries; and

(viii) Cumulative effects of multiple discharges and mixing zones.

(c) Within the mixing zone designated for a particular substance, the numeric water quality criteria contained in Chapter1, Appendix B may not apply. However, all mixing zones shall be free from materials that:

(i) Settle to form objectionable deposits (Chapter 1, Sections 14 and 15);

(ii) Float as debris, scum, oil or other matter (Chapter 1, Section 16);

(iii) Produce objectionable color, odor or taste (Chapter 1, Section 17);

(iv) Are acutely lethal (Chapter 1, Section 9);

(v) Produce undesirable aquatic life (Chapter 1, Section 28); and

(vi) Form visible sheens or deposits or damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life (Chapter 1, Section 29(b)).

(d) In incomplete mixing situations, permit limitations to implement acute whole effluent toxicity (WET) criteria shall be based on meeting such criteria at the end-of-pipe (i.e. without an allowance for dilution). For chemical-specific acute aquatic life criteria, discharge limitations will be based upon meeting such criteria at the edge of the zone of initial dilution (Chapter 1, Section 9).

(e) The dilution allowance for continuous discharges shall be based on the critical low flow of the receiving stream. Critical low flow can be determined using the methods provided in Chapter 1, Section 11.

(f) For controlled discharges, such as lagoon facilities that discharge only during high ambient flows, the stream flow to be used in determining a dilution allowance shall be the lowest flow expected to occur during the period of discharge.

(g) The requirements and concerns identified in Sections 4(b) and 4(c), above, may be considered in deciding the portion, if any, of the critical low flow to provide as dilution. The environmental concerns listed in Section 4(b) are not intended to establish any bright line tests in which to make risk determinations. Rather, such decisions should be made in consideration of designated and existing uses and relevant site-specific conditions. Each of the concerns is further explained as follows:

(i) Bioaccumulation in fish tissues or wildlife. Both potential and existing bioaccumulation concerns should be evaluated. As a general guideline, pollutants with bioconcentration factors (BCF) greater than 300 indicate a potential risk of downstream bioaccumulation;

(ii) Biologically important areas such as fish spawning or nursery areas. Information on either the existence of spawning areas within the proposed zone of influence or a "shore hugging" effluent plume in an aquatic life segment could support a conclusion that allowing dilution or a mixing zone would pose significant risk to a biologically important area. Presence of a threatened or endangered species downstream should also be considered in light of the duration and magnitude of potential exposure of the particular species;

(iii) Low acute to chronic ratio. For substances with low acute to chronic ratios, indicating that acute affects may occur at concentrations "close" to those that have been demonstrated to result in chronic effects, restricting or denying a mixing zone or dilution allowance may be appropriate in order to avoid acutely toxic concentrations outside of the zone of initial dilution;

(iv) Potential human exposure to pollutants resulting from drinking water or recreational activities. Existence of a drinking water intake or a recreational area within or near the proposed zone of influence would strongly suggest that an allowance for dilution is not appropriate for substances with established human health criteria;

(v) Attraction of aquatic life to the effluent plume. Where available data support a conclusion that fish or other aquatic life are attracted to the effluent plume, it may be appropriate to set discharge limitations at the end-of-pipe;

(vi) Toxicity/persistence of the substance discharged. It may be appropriate to deny dilution or a mixing zone for particularly toxic or persistent substances. This factor should be given added weight where the discharge is to an isolated aquatic system where the substance is expected to remain biologically available;

(vii) Zone of passage for migrating fish or other species, including access to tributaries. Where available data suggest that allowing dilution or a mixing zone would inhibit migration of fish or other species, it may be appropriate to set discharge limitations at the end-of-pipe. This factor includes consideration of whether the effluent plume will block migration into tributary segments;

(viii) Cumulative effects of multiple discharges and mixing zones. In some cases, existence of overlapping effluent plumes may necessitate denying dilution or mixing zones for discharging facilities. Any allowances for dilution should be restricted as necessary to protect the integrity of the receiving water ecosystem and designated water uses.

(h) The mixing zone size limits shall be implemented by calculating allowable dilution consistent with one of the following methods:

(i) Default Method. In general, the default method provides a conservative level of allowable dilution and can be used where available data on potential environmental impacts suggest that a full mixing zone should not be allowed, or available data on the receiving stream or downstream uses are insufficient to determine the appropriate mixing zone dimensions.

(A) Stream/River Discharges. As a general guideline, dilution calculations which use up 10% of the critical low flow may be used to develop effluent limits for aquatic life chronic criteria and human health consumption criteria. For numeric aquatic life acute criteria, 1% of the critical low flow may be used.

(B) Lake/Reservoir Discharges. As a general guideline, dilution up to 4:1 (20% effluent) may be provided for developing effluent limitations for aquatic life chronic criteria and human health consumption criteria. For numeric aquatic life acute criteria, a 0.4:1 dilution ratio may be used.

(ii) Modeling Method. Mixing zones should not exceed one-half the cross-sectional area of the receiving stream or a length 10 times the stream width, whichever is less. These restrictions apply to the stream at critical low flow.

A calculation must first be performed to determine if the discharge mixes within one-half area before or after the length limit. This calculation as well as other mixing zone calculations can be performed using any number of appropriate models including, but not limited to, STREAMIX I, CORMIX, PLUMES, etc.

(iii) Field Study Method. Field studies which document the actual field characteristics in the receiving water can be used to determine the dilution allowance at critical low flows.

Section 5. Other Considerations.

(a) Where dilution flow is not available at critical flow conditions, neither a mixing zone or an allowance for dilution will be provided.

(b) All mixing zone and dilution assumptions are subject to review and revision as information on the nature and impacts of the discharge becomes available. Mixing zone and dilution decisions are subject to review and revision along with all other aspects of the discharge permit upon expiration of the permit.

(c) For certain pollutants (e.g. ammonia, dissolved oxygen, metals) that may exhibit increased toxicity after dilution and complete mixing within the receiving water, the wasteload allocation shall address such toxicity as necessary to fully protect designated and existing uses.

TURBIDITY IMPLEMENTATION POLICY
(Chapter 1, Section 23)

Section 1. Purpose. Section 23 of the Wyoming Surface Water Quality Standards (Water Quality Rules and Regulations, Chapter 1) places the following limits on increases of turbidity in waters of the state:

(a) In all cold water fisheries and/or drinking water supplies (Classes 1, 2AB, 2A and 2B), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than ten (10) nephelometric turbidity units (NTUs).

(b) In all warm water or nongame fisheries (Classes 1, 2AB, 2B and 2C), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than 15 NTUs.

(c) An exception to paragraphs (a) and (b) of this section shall apply to:

(i) The North Platte River from Guernsey Dam to the Nebraska line during the annual "silt run" from Guernsey Dam; and

(ii) Short-term increases of turbidity that have been determined by the administrator to have only a minimal effect on water uses. Such determinations shall be made on a case-by-case basis and shall be subject to whatever controls, monitoring and best management practices are necessary to fully maintain and protect all water uses. The procedures used to implement this section are described in the Turbidity Implementation Policy.

When the department is considering the regulation of any point source (through the WYPDES or 401 certification processes), compliance with the numeric turbidity criteria for the various classes of waters has always been required and will continue to be required. The department also recognizes that short-term, construction-related exceedances of these standards are often unavoidable and do not necessarily result in significant degradation of water quality or loss of existing or designated uses. In fact, there are many construction activities in streams and rivers that have long-term beneficial effects or provide important economic or social benefits that may temporarily increase turbidity during the construction period.

Section 2. Policy. In accordance with Section 23(c)(ii), the administrator may authorize temporary increases in turbidity above the numeric criteria in Section 23(a) and 23(b) in response to an individual application for a specific activity. It is intended that temporary increases in turbidity will be limited to construction-related activities rather than effluent or storm water discharges. Such authorization may be issued independently or included in a WYPDES permit or 401 water quality certification, provided that the applicant can demonstrate and accept the following conditions:

(a) The activities causing the increased turbidity will be limited in time and duration;

(b) All existing and designated uses will be fully maintained and protected throughout the duration of the activity;

(c) Best available technology and/or best management practices will be employed to maintain turbidity and sedimentation at the lowest practical level;

(d) The authorization for increased turbidity will specify the limits of the authorization and may include a monitoring and reporting schedule to demonstrate compliance with those limits;

(e) Mitigation or stream restoration requirements may be included as conditions in conjunction with any authorization for a temporary increase in turbidity;

(f) An authorization issued under this section does not relieve the applicant of any liability for damages to aquatic life, habitat, or other existing or designated uses that may result from an increase in turbidity;

(g) An authorization issued under this section does not exempt the applicant from any other federal, state or local laws or regulations, nor does it provide exemption from legal action by private citizens for damage to property that the activity may cause.

(h) The administrator shall publish a notice of intent to authorize a temporary increase of turbidity in a paper of local circulation for a minimum of fourteen days prior to authorizing the increase. Interested persons may request a public hearing on the proposed authorization. In circumstances where the activity is necessary to address unforeseen acts of nature and cannot be delayed, the administrator may authorize a temporary increase without publishing a notice of intent.

USE ATTAINABILITY ANALYSIS (UAA) IMPLEMENTATION POLICY
(Chapter 1, Sections 33 and 34)

Section 1. Purpose. The purpose of this document is to describe the process and provide guidance relative to the development of use attainability analyses (UAA) where they are required under various sections of the Wyoming Surface Water Quality Standards (Water Quality Rules and Regulations, Chapter 1). A use attainability analysis is defined in Chapter 1, Section 2(b)(li) as:

> *"Use attainability analysis (UAA)" means a structured scientific assessment of the factors affecting the attainment of the use. The factors may include physical, chemical, biological and economic factors as described in Section 33 of these regulations.*

A use attainability analysis is generally required prior to changing a water classification or designated use or establishing site-specific criteria that is different than the adopted statewide criteria for any pollutant.

Section 2. Concepts. Chapter 1 establishes use designations on all waters of the state and the criteria necessary to achieve and maintain those uses. Use designations are the goals set for each water and criteria are elements of the standards, expressed as constituent concentrations, levels or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use. The use designations and criteria adopted in state standards are intended to comply with the requirements of the Clean Water Act and related federal regulations.

At a minimum, uses must be designated in a manner which serve the purposes of the Clean Water Act, as defined in Sections 101(a)(2) and 303(c). These sections provide that water quality standards should: provide wherever attainable, water quality for the protection and propagation of fish, shellfish and wildlife and recreation in and on the water (fishable/swimmable uses, Section 101(a)(2)); and consider the use and value of state waters for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation (Section 303(c)).

Every use is not protected on every water; however, the Clean Water Act requires that each water be designated for those uses actually supported on the water as of November 28, 1975 (existing uses) or would be achieved by the imposition of effluent limits under Sections 301(b) and 306 of the Clean Water Act and best management practices for nonpoint source control. Furthermore, the federal regulations at 40 Code of Federal Regulations (CFR) 131 require that all waters be protected for the fishable/swimmable uses contained in Section 101(a)(2) of the Clean Water Act unless it is specifically demonstrated that those uses are not attainable.

The uses that are protected on Wyoming waters are listed and described in Chapter 1, Section 3 and include drinking water, game fish, non-game fish, fish consumption, aquatic life other than fish, recreation, wildlife, agriculture, industry and scenic value. There are also numerous classifications for surface waters of the state. Except for Class 1, waters are classified according to their designated uses. Class 1 waters are specially designated waters on which the

existing water quality is protected regardless of the uses supported by the water. The table below shows the uses designated for each classification.

	Drinking Water	Game Fish	Non-Game Fish	Fish Consumption	Other Aquatic Life	Recreation	Wildlife	Agriculture	Industry	Scenic Value
1*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2AB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2A	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
2B	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2C	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2D	No	When Present	When Present	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3A	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3B	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3C	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3D	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
4A	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
4B	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
4C	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes

*Class 1 waters are not protected for all uses in all circumstances. For example, all waters in National Parks and Wilderness are Class 1; however, all do not support fisheries or other aquatic life uses (e.g. hot springs, ephemeral waters, wet meadows, etc.). For storm water permitting, 401 certification and water quality assessment purposes, the actual uses on each particular water must be determined independently.

Use attainability analyses are required under the following circumstances:

(a) Use attainability analyses are required prior to designating any water as Class 4 since these waters are not protected for all the uses specified in Section 101(a)(2) of the Clean Water Act.

(b) A use attainability analysis is required prior to reclassifying a water by the addition, removal or modification of a use designation. Most classification changes generally result in a corresponding change in use designations, but not necessarily. For example, a reclassification from 2B to 2A would involve the removal of the fisheries use and would therefore require a UAA. Changes completely within the Class 3 or Class 4 subcategories, however, do not always involve a change in use protection and may not require a UAA. For example, a change in classification from Class 3A to 3B does not involve a change in use designations, applicable criteria or antidegradation protections; it is simply a correction based on information that the water is part of a surface tributary system rather than an isolated water.

(c) A use attainability analysis is required prior to modifying use designations even if the action does not result in a change in classification. For example, the removal of an agricultural, wildlife or recreation use from any water would not involve a classification change but does need to be based on a UAA. Also, a UAA is required when changing from a primary contact recreation designation to secondary contact.

(d) A use attainability analysis is required prior to establishing a site-specific criterion or water body condition that is different than the established statewide standards associated with the water's classification. For example, background concentrations of particular pollutants may exceed the established aquatic life criteria, however, aquatic life may still exist in the water. In these circumstances it would be appropriate to adjust the criteria to be at or near the background conditions rather than remove all aquatic life protections. Because criteria are generally established under laboratory conditions, these situations may occur for any designated use in natural settings. This circumstance occurs on all Class 2D and 3D designations. A UAA is required to demonstrate that a water body is effluent dependent, whether or not it supports a resident fish population and whether there are potential bioconcentrating or bioaccumulating hazards associated with the discharge. Ambient-based criteria may then be established for those waters that are shown to be effluent dependent with no associated hazard.

(e) Use attainability analyses are not required when assigning or removing a Class 1 designation.

Section 3. Process. Each use attainability analysis involves a site-specific or categorical evaluation with varying information requirements. Depending upon individual circumstances and public interest, one may involve an exhaustive study while another may only require simple and cursory information. For example, Class 4A waters are man-made canals and ditches, yet a UAA is required prior to classification because these waters are not protected for aquatic life uses. This type of classification change would normally involve a minimal amount of information, often as little as a demonstration that a waterway is an artificially constructed conveyance for agricultural or industrial uses. On the other hand, a use may be removed because natural levels of pollution or human caused pollution that cannot be remedied prevent the attainment of the use. In either of those cases, showing that pollution levels are natural or cannot be remedied may involve a detailed assessment and evaluation of watershed conditions and an economic analysis. In all circumstances the following general administrative procedures will apply:

(a) A petition is made for a change in classification, designated use or criteria. The petition may be made by a person, entity or may originate with Water Quality Division based on information available to the administrator. If the proposal would result in a removal of a designated use, the petition must address one or more of the factors listed in Chapter 1, Section 33(b)(i) through Section 33(b)(vi).

(b) The Water Quality Division reviews the petition for completeness and provides feedback to the petitioner on the status of the petition and may make requests for additional information or studies if necessary. Petitioners are encouraged to contact the Water Quality

Division early in the process to ensure the UAA, study design, data collection, etc. are appropriate and consistent with Chapter 1 and this policy.

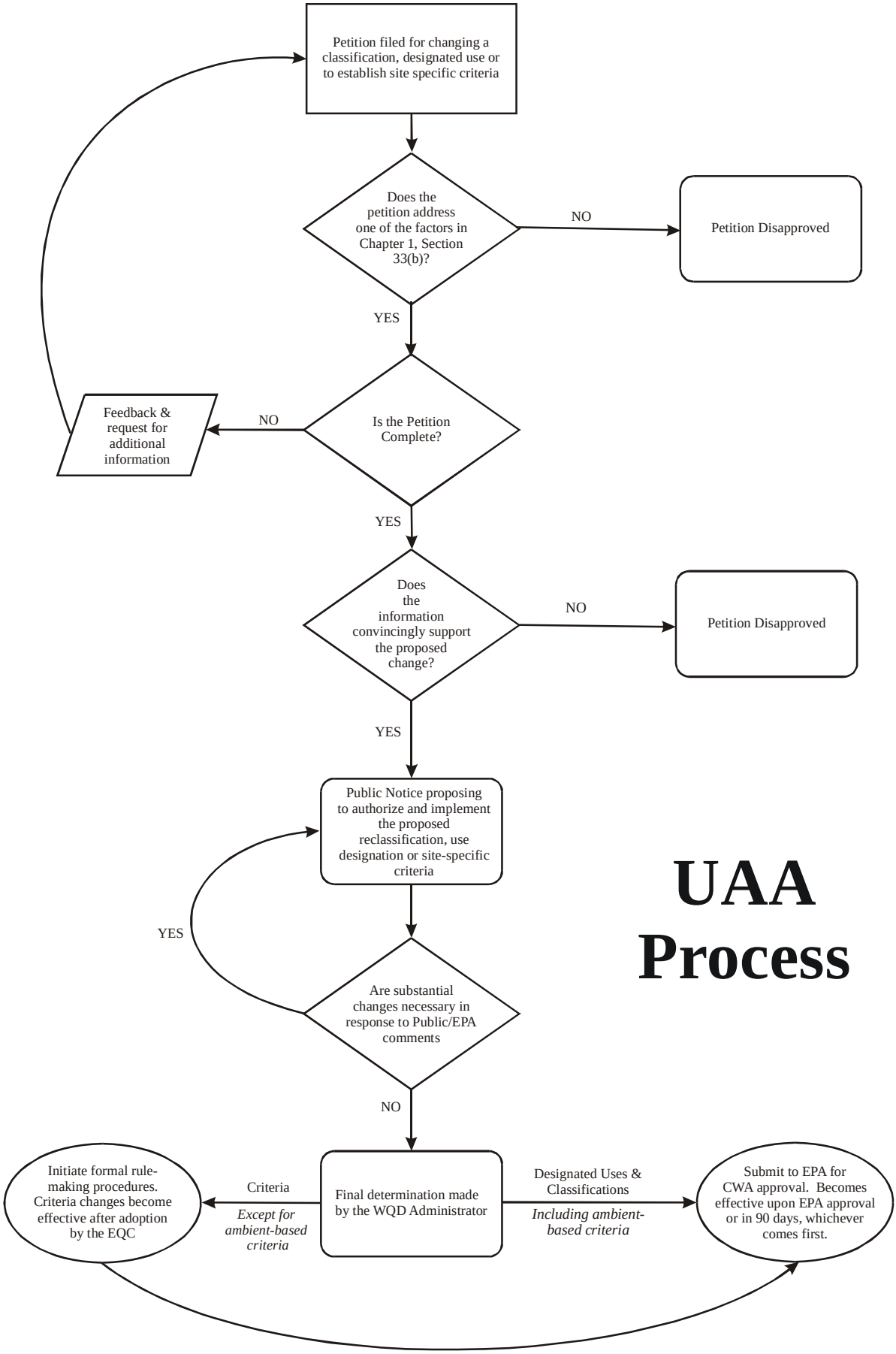
(c) Once a petition has been accepted as complete, the Water Quality Division evaluates the petition and approves or disapproves the proposed change in use designation, classification or site-specific criteria. In instances where a petition is disapproved, the decision may be appealed to the Wyoming Environmental Quality Council pursuant to the provisions of the Wyoming Administrative Procedures Act, Wyoming Statutes (W.S.) 16-3-101 through 16-3-115.

(d) In instances where a petition for a revised classification or use is approved, the administrator shall prepare a public notice proposing to authorize and implement the proposed change. The public notice shall provide a 45-day public review period, contain the rationale supporting the decision and be submitted to EPA for comment and recommendations. The Water Quality Division may modify its initial determination based on public comments and EPA recommendations and issue a final administrative decision.

(e) If the final administrative decision is substantially changed from that which was proposed, the administrator shall prepare a second 45-day public notice. Otherwise, the administrative decision shall be considered final and submitted to EPA for approval as a revised standard for Clean Water Act purposes as provided in Chapter 1, Section 34. This decision may be appealed to the Wyoming Environmental Quality Council pursuant to the provisions of the Wyoming Administrative Procedures Act, (W.S. 16-3-101 through 16-3-115) and Rules of Practice and Procedure, Chapter 1, Section 16.

(f) In instances where a petition for revised water quality criteria is approved, the department may initiate formal rule making procedures to amend the appropriate section(s) of Chapter 1, include the revised criteria in an ongoing rule revision or include the revised criteria in a subsequent rule revision. Changes in criteria shall not become effective until adopted by the Environmental Quality Council and filed with the Secretary of State. This administrative process does not apply to the establishment of site-specific criteria on Class 2D and 3D waters.

(g) Site-specific criteria may be established by the administrator on Class 2D and 3D waters without additional rule making procedures, as provided in Chapter 1, Section 36.


Petition filed for changing a classification, designated use or to establish site specific criteria
Does the petition address one of the factors in Chapter 1, Section 33(b)?
NO
Petition Disapproved
YES
Is the Petition Complete?
NO
Feedback & request for additional information
YES
Does the information convincingly support the proposed change?
NO
Petition Disapproved
YES
Public Notice proposing to authorize and implement the proposed reclassification, use designation or site-specific criteria
YES
Are substantial changes necessary in response to Public/EPA comments
NO
Final determination made by the WQD Administrator
Criteria
Except for ambient-based criteria
Initiate formal rule-making procedures. Criteria changes become effective after adoption by the EQC
Designated Uses & Classifications
Including ambient-based criteria
Submit to EPA for CWA approval. Becomes effective upon EPA approval or in 90 days, whichever comes first.

UAA Process

Section 4. Petitions. Except for Class 1 designations, all petitions for water reclassifications must be made in accordance with the provisions of Chapter 1, Section 33.

(a) Lowering Protections. Those petitions that involve lowering a classification, removing a use designation or establishing site-specific criteria that are less stringent than the adopted statewide standards must contain a use attainability analysis (UAA) addressing one or more of the factors listed in Section 33(b) (i) through (vi), which states:

(b) The administrator may lower a classification, remove a designated use which is not an existing use nor attainable use, establish ambient-based criteria on effluent dependent waters, make a recommendation to the council to establish sub-categories of a use or establish site-specific criteria if it can be demonstrated through a use attainability analysis (UAA) that the original classification, designated use or water quality criteria are not feasible because:

(i) Naturally occurring pollutant concentrations prevent the attainment of the classification or use; or

(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

(iii) 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

(iv) Dams, diversions or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use; or

(v) 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 an aquatic life use; or

(vi) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact. This subsection shall not apply to the derivation of site-specific criteria.

(b) Increasing Protections. Those petitions that involve adding a use designation or establishing site-specific criteria that are more stringent than the established standards are not subject to the Section 33(b) factors listed above. Instead, the UAA must demonstrate that the proposed new designated uses are existing uses or may be attained with the imposition of more stringent controls or management practices. In order to establish more stringent site-specific criteria, a petition should demonstrate that the approved statewide criteria are not sufficiently protective of the currently designated uses.

Section 5. Completeness. Prior to evaluating a petition on its merits, the Water Quality Division must conclude that a petition is complete and contains the necessary water quality data and other information to make a valid determination. As mentioned in Section 3 above, the degree of information necessary will depend upon the nature of the petition and if necessary, the associated Section 33(b) factor. In most cases, petitions should contain the following general information to be considered complete.

(a) General Requirements.

(i) A narrative explaining the nature and purpose of the petition. As mentioned in Section 4 above, if the proposal would result in the lowering of protections, the narrative must address one of the factors listed in Chapter 1, Section 33(b). The petition should explain the reasons for the requested use removal, classification change or site-specific criteria and include any adverse effects that would occur if the petition is denied. Adverse effects could include any harm to business operations, commerce, private property rights, development opportunities, the environment, or any other public or private interest. Adverse effects should be tangible rather than speculative. For example, an unattainable water quality criterion that obstructs a proposed private or public action or causes unnecessary delay or expense is a tangible adverse effect. Speculative adverse effects would be activities that are neither proposed nor have a reasonable potential to be proposed in the foreseeable future.

This step is necessary to help prioritize the department's actions and resources. Wyoming's water quality standards designate aquatic life uses on all waters by default. It is possible to modify or remove these uses as appropriate following completion of the required use attainability analyses. Though it is not necessary to have a "tangible adverse effect" in order to make an appropriate designation, those with tangible effects will be addressed with more urgency.

(ii) The name and general description of the water body(s). This may be a single stream segment or a collection of stream segments making up a watershed or sub-watershed, lake, pond, or other still water body, or isolated water.

(iii) The specific location of the subject water body(s). Legal descriptions should be provided for the beginning and end of stream segments. Stream segments may also be described from tributary confluence to tributary confluence. Generally, the Water Quality Division will not approve criteria or use designation changes on small segments of main stem streams.

(iv) Maps of the subject water body containing the necessary features and adequate detail to support the proposal. For example, if the intent of the petition is to show that normal stream flows are not sufficient to support aquatic life, National Wetlands Inventory, 7.5 minute quad maps depicting wetland occurrences along the entire water body should be used. However, if the intent of the petition is to remove a fisheries use, a more general map depicting the stream reach and its tributaries may be adequate. The maps should also indicate sample locations, photo points and any other features relevant to the petition.

(v) Photographs that adequately characterize the water body for the purposes of the petition. These should be taken at points along the water body where there are changes in flow volumes or pattern, springs, wetlands, tributaries, diversions, etc. in a sufficient number to clearly illustrate the resource. Each photo point should also be indicated on the maps submitted under Section (a)(iv) above. Each photograph should be accompanied by information including a photo ID number, name of photographer, date and time taken, location and direction from which the photo was taken and a narrative describing what the photo is intended to depict.

(b) Specific Requirements. In addition to the General Requirements outlined in Section 5(a) of this policy, each UAA must contain information and or data that are specific to the petition being made, including the associated Section 33(b) factor, when necessary. The required detail and quality of this information will vary on a case-by-case basis; therefore, it is not the purpose of this section to provide guidance on every possible situation. The basic requirement is that the UAA contains defensible information that convincingly supports the purpose of the petition.

Except when increasing protections, a use attainability analysis must demonstrate that certain condition(s) exist and that the reason the condition(s) exist is due to one of the factors in Chapter 1, Section 33(b). Most commonly, UAAs will lower a water classification by removing a use designation and/or establish a site-specific adjustment to water quality criteria. The list that follows shows examples of classification changes involving the removal of a use and the general demonstration that must be made. The list presents common examples and is not intended to be exhaustive.

(i) Common Classification and Use Designation Changes:

(A) 2AB to 2A. Demonstration that the source water for an existing drinking water supply does not and cannot support fish for one or more of the reasons provided in Chapter 1, Section 33(b).

(B) 2AB to 2B. Demonstration that a known game fishery or perennial water that is tributary to a known game fishery does not support a drinking water supply for one or more of the reasons provided in Chapter 1, Section 33(b).

(C) 2AB to 2C. Demonstration that the water is known to support only non-game fish species or is a perennial tributary to a water known only to support non-game species; and cannot reasonably support a drinking water supply for one or more of the reasons provided in Chapter 1, Section 33(b).

(D) 2B to 2C. Demonstration that the overwhelming composition of fish species is non-game for one or more of the reasons provided in Chapter 1, Section 33(b). Incidental or occasional use of the water by game species does not require the 2B classification.

(E) Class 2 *(all)* to Class 3A or Class 3B. Demonstration that the water is either isolated or is an intermittent or ephemeral tributary; and is not capable of

supporting fish for one or more of the reasons provided in Chapter 1, Section 33(b).

(F) Class 2 *(all)* to Class 3C. Demonstration that the water is a perennial tributary stream that cannot support fish or drinking water supplies for one or more of the reasons provided in Chapter 1, Section 33(b).

(G) Class 2D and 3D Designations. More detailed guidance is provided in Section 6, Effluent Dependant Waters (Classes 2D and 3D).

(I) Demonstration that there is insufficient natural flow to support aquatic life and aquatic life that is present is attributable to permitted effluent discharge(s)*(Chapter 1, Section 33(b)(iii))*;

(II) There is a net environmental benefit (NEB) associated with the created water body;

(III) The quality of the water does not pose a hazard to humans, wildlife or livestock that may be exposed to it; and

(IV) There is a credible threat to remove the discharge.

(H) All Class 4 Designations.

(I) 4A. Demonstration that the water body is an artificially constructed conveyance for an agricultural or industrial water supply.

(II) 4B. Demonstration that the water is not capable of supporting aquatic life because natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use *(Chapter 1, Section 33(b)(ii)).*

(III) 4C. Demonstration that the water is an isolated water and 100% of the flow or standing water is attributable to permitted effluent discharges except for occasional snow melt and storm events *(Chapter 1, Section 33(b)(iii))*.

(I) Recreation Use Classes. Chapter 1 establishes two categories of recreational use protection applicable to all waters in the state, primary and secondary contact. Chapter 1, Section 27 outlines that during the recreation season, May 1 through September 30, waters may be designated for primary or secondary contact recreation and during the non-recreation season, October 1 through April 30, all waters are protected for secondary contact recreation. Section 27(b) establishes that waters are designated for secondary contact recreation through the reclassification and use attainability analysis process outlined in Chapter 1, Sections 33 and 34 and are identified in the *Wyoming Surface Water Classification List*. Because changing waters to secondary contact recreation may be a very common practice, Section 7 of this policy describes the implementation of Chapter 1, Section 27.

(J) Site-Specific Criteria. A use attainability analysis is required prior

to establishing site-specific criteria that are less stringent than the adopted statewide criteria for a particular use designation or classification. Demonstrations relative to this action must show that the adopted criteria cannot be attained for one or more of the reasons provided in Chapter 1, Section 33(b). Additionally, each specific criterion must be evaluated separately. In order to establish more stringent site-specific criteria, the UAA must demonstrate that the approved statewide criteria are not sufficiently protective of the currently designated uses.

(K) Increasing Protections. Use Attainability Analyses intended to add a designated use must contain sufficient information to conclude that a use is an existing use or otherwise attainable by the imposition of more stringent controls on pollutant sources.

(ii) Section 33(b) Factors. Chapter 1, Section 33(b), paragraphs (i) through (vi) provide the allowable rationale for removing a use designation or establishing less stringent water quality criteria on a site-specific basis. Except when related to a Class 4A designation, all UAAs must address one or more of these factors. A 4A classification is based solely on the fact that the water body is an artificial canal or ditch that is not known to support fish populations and it is not necessary to establish the 33(b) factor beyond that finding. Each factor is discussed below and guidance provided as to the current thinking of the department on what type of information is needed to justify a determination.

(A) Naturally occurring pollutant concentrations prevent the attainment of the classification or use;

The UAA must establish that ambient water quality exceeds the adopted criteria and that the source of the pollution is not attributable to human activities. The natural source of pollution or natural condition that prevents the attainment of the designated use needs to be identified and quantified. Human activities in the area such as land uses, developments, discharges, etc. need to be examined and reasonably eliminated as a cause of non-attainment.

A designated use may be removed on the basis of a single pollutant constituent or condition. For example, naturally occurring levels of copper in the water may prevent the attainment of a fisheries use and when demonstrated, may be sufficient cause to remove that use. A UAA would not necessarily have to evaluate all other potential constituents that might also contribute to the non-attainment. Information on other constituents, however, would help to support a final determination.

The establishment of this factor needs to be supported by sufficient data to characterize pollutant concentrations and water body conditions on a year-round or seasonal basis, depending on the use being evaluated. Consideration must be given to seasonal variations in flow, temperature, climate, land uses, nonpoint sources of pollution and other pertinent factors.

(B) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met;

The establishment of this factor needs to be supported by sufficient data to characterize flow conditions on a year-round or seasonal basis, depending on the use being evaluated. When flow data are not available, surrogate measures such as the presence of wetlands may be used. Consideration must be given to seasonal variations in flow, climate and consumptive water use(s).

In general, this factor applies to the removal of drinking water, fisheries, primary contact recreation or aquatic life uses. In relation to fisheries, it may serve as the basis for establishing seasonal criteria on waters that support fish only part of the year or for removing the fishery designation on intermittent and ephemeral waters that have been "misclassified" in relation to the provisions of Chapter 1, Section 4(b). In relation to drinking water, the UAA needs to demonstrate that water availability is not sufficient to support community or non-community drinking water supplies as defined under the federal Safe Drinking Water Act. In relation to recreation uses, it is an important factor in determining whether a primary or secondary recreation use designation is appropriate.

Most commonly, this is the factor relied on to classify waters as 4B. As provided in Chapter 1, Section 4, the occurrence of wetlands in or adjacent to stream channels will be used as an indicator of whether or not normal flow conditions are sufficient to support aquatic life. In general, areas that are inundated or saturated to the surface for as little as 7 days during the growing season will develop wetland characteristics. Stream channels that lack a significant wetland component may be considered to have insufficient hydrology to support aquatic life.

In order to establish this factor, the UAA should address entire stream reaches, not just isolated segments. The objective is to show that wetlands are either non-existent or occur so infrequently that the hydrologic potential of the stream to support aquatic life is insignificant. Significance is not precisely defined and will be determined on a case-by-case basis after consideration of the ratio of wetland acres to stream length in addition to wetland functions and values.

National Wetland Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service may be used to identify wetland occurrences and to calculate acreages. Wetlands are defined in Wyoming statute as areas having all 3 essential characteristics including hydrophytic vegetation, hydric soils and wetland hydrology. The NWI maps depict and classify both wetlands and deep water habitats and all of the features shown on the maps do not necessarily delineate as wetlands under the Wyoming definition or the delineation methods used by the U.S. Army Corps of Engineers for Clean Water Act purposes. When identifying wetlands using the NWI maps, unvegetated systems need to be separated from the vegetated ones since unvegetated systems are not wetlands. Unvegetated sub-classes may be found in both the lacustrine and riverine systems classified on the NWI maps. All sub-classes of the palustrine system should be considered wetlands. Interpretation of the Cowardin classification system, photographs and/or on site-delineations may all be used to differentiate between riverine and lacustrine subclasses that are wetlands and those that are not.

After the amount of wetlands has been identified, the significance of that amount needs to be determined. If no wetlands have been identified, the UAA may conclude that aquatic life uses are not attainable. In all other cases, the UAA must present the rationale for determining that the amount of wetlands that are present are of such minor consequence that the stream system as a whole cannot be considered to sustain aquatic life.

When using wetland occurrence to establish this factor, it must be remembered that wetlands are used as a surrogate to determine actual hydrologic conditions over an extended period of time. Wetland occurrence is best used to identify dry stream channels without directly measuring flows through all seasons of the year. This method cannot be used to remove aquatic life protections from water bodies that are known to normally contain water for extended periods even though they do not exhibit a significant amount of wetlands. Examples of these water bodies would be bedrock stream channels and steep-sided rivers, lakes and ponds that have the hydrology to support aquatic life, but not the substrate necessary for wetlands to establish.

(C) 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;

This factor is relevant when non-attainment of a designated use is known to be caused by human activities or simply when the cause of non-attainment cannot be shown to be natural in origin. It contains two tests, either of which can be used to justify the removal of a designated use.

The first test is to show that a use is not an existing use and the reason(s) for its non-attainment cannot be remedied. An analysis of economic and technological factors must be conducted in order to make a determination under this factor. Other legal, social and cultural factors can also be considered and used as supporting information. The level of analysis and information required may vary from one situation to another depending upon the nature and severity of the source pollution and the overall environmental benefit of restoring the use.

The second test is to show that the available remedy would cause more environmental harm than to leave the pollution source in place. Most commonly, this is the factor relied on to classify waters as 2D, 3D or 4C. These categories of waters are comprised of essentially 100% effluent discharges. Without the discharge, a stream channel would not support aquatic life and would be classified 4B and in the case of isolated ponds, would not exist at all. Since the effluent is the only available water, it is roughly analogous to a natural background condition. It can be assumed that any aquatic life that colonizes the water is tolerant to the chemical and physical conditions that prevail even if they exceed the adopted aquatic life criteria for particular constituents. Requiring full aquatic life protections in these circumstances would often result in a loss of the discharge and of the aquatic community it supports. Non-aquatic wildlife and livestock are often the greatest beneficiary of these types of systems in the arid areas of Wyoming and these uses would also be lost. Unless there is convincing evidence to the contrary, it will be assumed that removing discharges in effluent dependent waters does result in greater environmental harm than leaving the discharge in place.

The information necessary to establish this factor for the purpose of classifying an isolated pond as 4C or a stream channel as 2D or 3D should consist of sufficient data to show that aquatic life is present due to the permitted effluent discharge and there is no environmental hazard associated with the quality of the discharge.

(D) Dams, diversions or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use;

This factor applies to dams, diversions or other hydrologic modifications that were constructed prior to November 28, 1975 and resulted in the loss of a fisheries, aquatic life or recreational use in the waters on which they were constructed. Uses that existed on the waters after that date would be considered "existing uses" and would still have to be designated. It is not necessary to protect waters for the applicable uses that were lost if it can be shown that restoration is not feasible. The information required to establish this factor is similar to what is required for human caused sources of pollution that cannot be remedied. An analysis of economic and technological factors must be conducted in order to make a determination. Other legal, social and cultural factors can also be considered and used as supporting information. The level of analysis and information required may vary from one situation to another depending upon the nature of the hydrologic modification and the overall environmental benefit of restoring the use.

(E) 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 an aquatic life classification or use;

This factor applies mainly to the removal of fisheries and aquatic life uses since these are normally the only uses where the expressed physical habitat parameters are relevant. The critical point that must be established by the information in the UAA is that the lack of habitat is a natural condition and not caused by hydrologic modifications, land uses or other human activities. In this respect the requirements are similar to those used to establish that naturally occurring pollution prevents the attainment of the use. The basic difference is that one refers primarily to chemical parameters and the other to physical parameters.

(F) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact.

This is probably the most difficult factor to establish and has the most limited application. The referenced controls required by Sections 301 and 306 of the Clean Water Act are industry-specific effluent limitations and treatment technologies. They establish basic levels of required water quality treatment that are based on best available technology rather than water quality and water uses. This factor is intended to be applied in circumstances where it is known that the application of the technology-based requirements will not achieve the water

quality standards applicable to the receiving water and additional requirements to meet the water quality standards will result in unacceptable social or economic impacts.

The essence of a determination under this factor is that the activity causing the impact is of such great economic or social importance that it supersedes the goal of maintaining the water use. The UAA must establish that the imposition of the water quality standards would result in "widespread" social and economic impacts. This is an extremely subjective term and can only be defined on a case-by-case basis after full public participation. An economic impact analysis must be completed that includes an examination of alternatives that would mitigate both economic and environmental impacts. The level of analysis and information required must be comprehensive since the object is to quantify "widespread" economic or social impact in relation to the value of the water use that would be removed.

Section 6. UAA Procedures for Effluent Dependent Waters (Classes 2D and 3D). The justification for classifying a water as either 2D or 3D and assigning ambient-based criteria is based on the Section 33(b)(iii) factor described above in Section 5(b)(ii)(C). The specific rationale is that effluent dependent waters create environmental benefits that would be lost if the discharge is discontinued. Since there is no natural source of water, there would be no pre-existing aquatic life that could be damaged by the quality of the discharge. As a result, any aquatic life that develops because of the effluent discharge is tolerant of the ambient conditions.

Though the habitats that are created in effluent dependent circumstances pose no real threat to the species of aquatic life that colonize them, there is a potential that they may pose a hazard to terrestrial and semi-aquatic wildlife species that may be attracted to them. The greatest concern is the possibility of bioconcentrating or bioaccumulating chemicals moving through the food chain at levels that create a risk to livestock, wildlife or humans. Therefore, part of the process of classifying a water body as 2D or 3D involves assessing a discharge for the presence of those types of pollutants and establishing appropriate criteria.

Therefore, the complete process for designating a water as either 2D or 3D contains three parts. The first is completing a use attainability analysis (UAA) that demonstrates that the water body is in fact effluent dependent and eligible for site-specific, ambient-based criteria. This part includes a demonstration that there is an environmental benefit associated with the discharge and a credible threat to remove the discharge. The second part is a hazard analysis that includes a specific screening of the discharge for the presence of bioaccumulating and bioconcentrating pollutants and a more general analysis to identify the pollutants for which ambient-based criteria will be established. The final part is to calculate and establish site-specific ambient-based criteria for those parameters that exceed the otherwise adopted statewide criteria (Chapter 1, Appendix B).

(a) Effluent Dependency. The basic point is to show convincingly, through a weight of evidence approach, that a water body is comprised of essentially 100% permitted effluent and that without the effluent there would be no significant aquatic resource. There is no one best way to make this demonstration, although the determination will be most convincing if multiple factors are assessed. These can include direct flow measurements, vegetation and wetland analysis upstream and downstream of the discharge, precipitation information, paired watershed

analysis, historic information, testimony, etc.

This part also involves demonstrating an environmental benefit. It shall be presumed that water on the surface does have an environmental benefit for the aquatic life that colonizes it and for the habitat and food sources that surface water bodies provide to semi-aquatic and terrestrial wildlife species. Other consumptive uses such as livestock watering, irrigation and industrial uses are also important benefits along with non-consumptive recreational and scenic values. Because these benefits are presumed, it is not mandatory that the UAA exhaustively identifies and measures each actual benefit that occurs associated with the water body but should make an effort to generally characterize the natural and human uses of the water.

This presumption of environmental benefits, however, is not absolute and may be overridden where the quality or condition of the effluent dependent water body poses a threat or hazard to non-aquatic wildlife, livestock or industrial uses, or human health.

There is also a requirement to show a credible threat to remove the discharge. The basis for this requirement is in the concept of net environmental benefit (NEB) that weighs the potential for loss of a permitted effluent against the benefits of instream flow. NEB infers there is some possibility that the discharge could be discontinued.

The demonstration of a credible threat to remove the discharge from oil and gas production operations is presumed to be satisfied based on consideration that alternatives to surface discharge is the norm for the industry with an exemption applicable only west of the 98th meridian and an economic analysis done by EPA Headquarters showing that available treatment options for this industry are, as a general matter, more expensive than available non-discharge options.

For other types of discharges, the credible threat demonstration would have to be made either on a case-by-case basis or on a categorical basis as with the oil and gas industry.

(b) Hazard Analysis and Chemical Screening. In order to be certain that there are in fact net environmental benefits associated with the creation or continued existence of an effluent dependent water body, the UAA must evaluate actual or probable hazards to wildlife, livestock and human health. This evaluation shall address the potential that the pollutants contained in the effluent may accumulate to levels considered hazardous in the environment or hazardous to wildlife, livestock or humans by means of bioaccumulation through the food chain.

The evaluation of hazards should focus on the level of pollutant (actual or modeled), risk of exposure to the user (e.g. wildlife, livestock and humans; mercury in 2D waters may be a greater hazard than in 3D waters because of potential exposure to humans through fish consumption) and background concentration of the contaminant.

The first step in the hazard evaluation shall consist of an initial screening of the permitted effluent for pollutants of concern. The screening parameters may be different from one type of discharge to another because of differences in the relative probability of the occurrence of bioaccumulating materials associated with the industry or activity. For example, the vast

majority of waters in Wyoming that would be candidates for an effluent dependent classification are created by the discharge of groundwater to the surface as a result of oil and gas production or mining activities. The types of pollutants that could reasonably be expected to occur are inorganic metals and salts. Of these, only selenium and mercury need to be investigated to determine the hazard potential to wildlife, livestock or humans.

A relatively small number of 2D and 3D candidate waters may be created from municipal wastewater treatment plants, industrial facilities such as oil refineries or power generating facilities, and various types of manufacturing operations. Depending upon the circumstances of the discharge, effluents from these facilities may have a higher probability of containing synthetic and organic bioaccumulating materials. In these situations, initial screening parameters will be determined on a case-by-case basis. Because effluent dependent waters created by these types of discharges will be relatively uncommon and addressed on a case-by-case basis, the remainder of this guidance will focus on those circumstances involving the discharge of groundwater to the surface.

(i) Selenium. The hazards associated with selenium bioaccumulation are related to mortality and impaired reproduction in waterfowl, shorebirds and piscivorous birds and selenium poisoning in livestock and terrestrial wildlife. Exposure to humans is not a consideration because Class 2D and 3D waters are not designated and protected as drinking water supplies.

(A) Birds. Where the initial screening indicates that the effluent concentration of selenium exceeds the Appendix B aquatic life chronic value, whole body fish and/or macroinvertebrate tissue analysis will be required. If whole body tissue concentrations are less than or equal to 7.9 µg/g dry weight, the water shall not be considered a hazard to waterfowl, shorebirds and piscivorous birds. A whole body tissue criterion of 7.9 µg/g dry weight selenium will be established for the stream segment along with an ambient-based water column value calculated as provided in Section 6(c) of this procedure.

Where the effluent water column concentration exceeds the Appendix B chronic aquatic life criterion and whole body tissue concentrations are greater than 7.9 µg/g dry weight, the water shall be considered a hazard to waterfowl, shorebirds and piscivorous birds. A whole body tissue criterion of 7.9 µg/g dry weight selenium will be established for the stream segment and site-specific ambient-based criteria for selenium shall not be established. The stream segment shall be listed as impaired on the state 303(d) list and a TMDL developed to address the tissue based criterion.

(B) Livestock and Wildlife. The hazard of selenium poisoning shall be considered to be the same for livestock and wildlife and one group is not considered to be more tolerant or susceptible than the other. This hazard analysis is intended to address the use of the water by mammals.

Selenium poisoning can occur in livestock raised on vegetation grown in selenium bearing soils which are common in Wyoming and in some areas contain up to 30 mg/kg of selenium. "In water, 400 to 500 µg/L of selenium is believed to be non-toxic to cattle.

Such water may contribute to selenium poisoning, but the selenium content of the feed is a more critical factor" (McKee and Wolf 1963)[1].

Water used for irrigation may contain up to 10,000 µg/L of selenium with no anticipated toxicity to plants.

Clearly, the identification of environmental hazards associated with selenium in effluent dependent water bodies can be focused on an evaluation of impacts to birds. It can be assumed that where there is little or no hazard to birds, the water is safe for all other designated uses.

(ii) Mercury. Mercury in trace amounts is acutely toxic to aquatic life and also presents a significant health hazard to human populations. The primary exposure pathway to humans is through the consumption of mercury contaminated fish. Most other human exposure pathways such as through drinking water or general environmental exposure are considered negligible, although a safe drinking Water Act Maximum Contaminant Level (MCL) of 2 µg/L has been established for the protection of drinking water supplies. The identification of mercury-related hazards in effluent dependent waters needs to consider the following:

(A) The likelihood of bioaccumulation in fish tissue in the immediate Class 2D receiving waters and downstream Class 2 waters;

(B) The contamination of groundwater aquifers to levels above 2 µg/L; and

(C) The accumulation of mercury in sediments to levels above the State's guidelines for remediation of contaminated soils.

Where the initial screening indicates that the effluent concentration of mercury exceeds the Appendix B aquatic life chronic value and the discharge can be expected to reach a fish bearing water, whole body fish tissue analysis will be required. If whole body tissue concentrations are less than or equal to 0.3 mg methylmercury/kg fish, the water shall not be considered a hazard to fish or fish consumption. A whole body tissue criterion of 0.3 mg methylmercury/kg fish will be established for the stream segment along with an ambient-based water column value calculated as provided in Section 6(c) of this procedure.

Where the effluent water column concentration exceeds the Appendix B chronic aquatic life criterion and whole body tissue concentrations are greater than 0.3 mg methylmercury/kg fish, the water shall be considered a hazard to fish, wildlife and fish consumption. A whole body tissue criterion of 0.3 mg methylmercury/kg fish will be established for the stream segment and site-specific ambient-based criteria for mercury shall not be established. The stream segment shall be listed as impaired on the state 303(d) list and a TMDL developed to address the tissue based criterion.

[1] McKee, J.E. and H.W. Wolf. 1963. Water quality criteria (second edition). State Water Quality Control Board, Sacramento, CA. Pub. No. 3-A.,

Where the initial screening indicates that the effluent concentration of mercury exceeds the Appendix B aquatic life chronic value and the discharge is not expected to reach a fish bearing water, sediment analysis may be required. Ambient-based water quality criteria may be established where sediment concentrations are less than or equal to 23 mg/kg inorganic mercury and 26 mg/kg methylmercury. In no circumstance shall an ambient-based water column criterion exceed 2 µg/L total recoverable mercury.

In addition to hazard screening for bioaccumulative constituents, a more general screening of all parameters that could reasonably be expected to be found in the discharge should also be conducted. This information will be used in the subsequent procedure for establishing ambient criteria. Site-specific ambient criteria will only be established for those parameters that exceed the statewide criteria listed in Chapter 1, Appendix B. This screening is important to identify which pollutants require a site-specific modification. The exact list of screening parameters will depend upon the type of discharge. For oil and gas produced water discharges, the following list should be used:

Arsenic
Cadmium
Chromium (III)
Copper
Lead
Mercury*
Nickel
Selenium*
Silver
Zinc
Aluminum (pH 6.5-9.0 only)*
Chloride
Iron
Manganese
Undissociated Hydrogen Sulfide (H_2S)
Hardness (CaCO3) mg/L
** Required for hazard analysis*

(c) Establishing Ambient–Based Criteria. Chapter 1, Section 36 provides a procedure by which the adopted statewide numeric criteria may be modified to reflect ambient conditions on effluent dependent waters. Ambient-based criteria can be established only for those parameters where the discharge effluent quality exceeds the values in Chapter 1, Appendix B.

(i) Criteria modification based on a finding of net environmental benefit is authorized where a UAA described in parts 1 and 2 above satisfactorily demonstrates that:

(A) The water body is effluent dependent;

(B) The discharge has been shown to create an environmental benefit and removal of the discharge would cause more environmental harm than leaving it in place;

(C) There is a credible threat to remove the discharge; and

(D) Appropriate safeguards are in place, ensuring that downstream uses will be protected and the discharge will pose no health risk or hazard to humans, livestock or wildlife.

(ii) Pursuant to an approved UAA and reclassification to either Class 2D or 3D, site-specific criteria for eligible constituents shall be calculated to be equal to the background concentration for each constituent plus a margin of error.

(A) The background concentration shall be the highest concentration recorded over the course of a one year period where samples have been taken at least once in each month. In circumstances where water is not present 12 months out of the year, additional samples must be collected in the months when water is present to obtain a minimum data set of at least 12 samples.

(B) The margin of error shall be one standard deviation calculated from the same data set used to establish background.

(C) Depending upon the circumstances, samples may be collected either at the discharge outfall or from a representative point in the stream channel downstream from the permitted outfall. For example, where the effluent dependent water is created by a single discharge, it is acceptable to sample the outfall for this analysis. Where an effluent dependent water is created from multiple outfalls, samples should be collected in-stream at a representative point after mixing of the various outfalls has occurred.

(D) End-of-pipe sampling and analysis shall comply with WYPDES analytical requirements for the particular constituents and in-stream sampling and analysis shall comply with the *Wyoming Manual of Standard Operating Procedures for Sample Collection and Analysis*.

(E) The WYPDES permittee responsible for the discharge shall be required to collect and submit the water quality data necessary to make the above calculations.

Section 7. UAA Procedures for Recreation Designations.

(a) Purpose. Chapter 1, Section 27 identifies two recreational use categories for all bodies of surface water in the state. Primary contact recreation is intended to apply to those waters where there is a reasonable potential for people to engage in full body contact with the water and/or a potential to ingest small quantities. Secondary contact recreation is intended to apply to all other waters where those circumstances do not occur.

The purpose of this policy is to provide guidance on how to appropriately designate specific waters as either primary or secondary contact waters.

(b) Concepts. The basic concept of recreational use protection is to ensure that surface waters of the state are maintained at a quality that does not pose a significant risk of disease to human populations that may be exposed to them. The factors contributing to human health risk include the concentration of disease causing organisms in the water and the relative level of human exposure to that water.

Along with the use classification categories, Section 27 also provides the criteria that apply to each. The criteria are based on concentrations of *E.coli* bacteria which serve as an indicator of the probability that the water may also contain populations of other waterborne disease causing bacteria and viruses. These criteria are used as the basis for effluent limits on permitted discharges (WYPDES permits) and Section 303(d) listings and subsequent TMDL or watershed planning targets.

All surface waters are designated for primary contact recreation during the summer recreation season (May 1 through September 30) unless the water has been designated for secondary contact recreation through a use attainability analysis. Recreational use designations are identified in the *Wyoming Surface Water Classification List*.

The decision as to whether a water body is most appropriately designated for primary or secondary recreation protection is not intended to be a difficult one. There are only a few factors relating to water availability, access and recreational opportunity that need to be considered. The entire UAA process will in most cases be very simple and will not require any special expertise to complete.

It is important to note that a recreational use designation is not intended to imply that the owner of property adjacent to any water body would allow access for any kind of recreational use. The application of recreation classifications does not create any rights of access on or across private property for purposes of recreation on such waters. The classification is intended only to affect the water quality criteria that will be used in the implementation of the pollution control programs required under the Clean Water Act and the Wyoming Environmental Quality Act.

(c) Factors Affecting Recreational Use Designations.

(i) All waters, regardless of flow regime, located within federal, state or local parks and recreation areas will be designated for primary contact recreation. Federal, state or local parks should not be construed to mean all public lands, but rather specifically developed and/or designated recreational use areas such as campgrounds, picnic grounds, trailheads, greenways, etc.

(ii) Waters known to be used for primary contact activities such as swimming, rafting, floating, canoeing or kayaking shall be designated as primary contact waters.

(iii) All lakes and reservoirs located in the state already used or have the potential to be used for primary recreation will be designated as such.

(iv) Waters located within or flow through municipalities or high density housing areas will generally be designated as primary contact waters.

(v) Larger perennial streams and game fisheries will generally be designated for primary contact because of their potential to attract sportsmen and other recreationists.

(vi) Except for waters located in or flowing through parks, recreation areas or urban areas, intermittent and ephemeral waters will generally be designated for secondary contact uses.

(vii) Segmentation of streams into multiple primary and secondary designations is possible but will only be approved where the benefits of more specific segmentation outweigh the drawbacks of an increasingly segmented system.

Section 8. Implementation.

(a) Classifications and Use Designations. Upon final approval by the administrator for changes in classifications or use designations, the results of a use attainability analysis will be submitted to EPA for approval as a revised water quality standard for Clean Water Act purposes. The revised standard will become effective upon EPA approval or 90 days after submittal, whichever comes first. The final determination by the administrator is an action that may be appealed to the Environmental Quality Council pursuant to Chapter 1, Section 16 of the Rules of Practice and Procedure.

(b) Criteria. Site-specific changes in water quality criteria can only be implemented administratively by the Water Quality Division on effluent dependent waters. On all other waters where an approved use attainability analysis results in the establishment of site-specific criteria for a pollutant, the department shall recommend such revised criteria to the Wyoming Environmental Quality Council for adoption pursuant to formal rule-making procedures. The revised criteria shall not become effective until adopted by the council and filed with the Secretary of State as revised rules.

LP/rm/13-0428

Recreational Use Designations
Use Attainability Analysis (UAA) Worksheet

A recreational use attainability analysis (UAA) is required to support any change in the recreational use designation of a surface water of the state, either to a more stringent or less stringent classification. Completion of a UAA is recommended in cases where there is significant uncertainty about whether or not the current classification is appropriate.

I. Name & Location. Identify where the stream segment starts and ends.

Water body name: _____ Watershed (HUC): _____

Upstream Location: ¼, ¼ Section _____; SEC ____; TWP ____; RNG ____

Downstream Location: ¼, ¼ Section _____; SEC ____; TWP ____; RNG ____

II. Maps & Photographs. Attach a map of adequate scale and detail to accurately depict the water body that is the subject of the reclassification proposal. Also attach photographs that adequately characterize the water body for the purposes of the petition. These should be taken at points that are typical of the stream channel or lake in a sufficient number to clearly illustrate the resource. Each photo point location should also be indicated on the UAA map. The photographs should be accompanied by information including a photo ID number, name of photographer, date and time taken, location and direction from which the photo was taken, and a narrative describing what the photo is intended to depict.

III. Primary Use Factors. If any of the following factors apply, the water should be designated for primary contact recreation. If none of the factors apply, the water is a candidate for a secondary use designation.

Check all that apply:

_____ Water is located within or flows through a federal, state, or local park or recreation area. Federal, state or local parks should not be construed to mean all public lands, but rather specifically developed and/or designated recreational use areas such as campgrounds, picnic grounds, trailheads, greenways, etc.

_____ Water is a lake, reservoir or other still body of water. (*Exclude small stock watering ponds*).

_____ Water is within or flows through a municipality or unincorporated high density housing area.

_____ Water is a larger perennial stream or game fishery known to be used by sportsmen or other recreationists.

_____ Water is used or can be used for primary contact activities such as swimming, floating, rafting, canoeing or kayaking.

IV. **Use Removal Factors** *(only necessary when downgrading from a primary to a secondary use designation)*.

Chapter 1, Section 33(b) requires that all petitions to lower a classification or criteria must be based on one or more of the use removal factors listed in Section 33(b)(i) through (vi). Most commonly, the factor that apply to reclassifying a water from a primary to a secondary contact designation is 33(b)(ii), though there may be unique circumstances where one of the other factors is most appropriate.

Those petitions intending to raise a classification from secondary to primary contact are not subject to the Section 33(b) factors. Instead, the UAA should demonstrate that primary contact recreation is either an existing use or may be attained with the imposition of more stringent controls or management practices.

Check one or more of the following use removal factors and attach a brief narrative and/or additional information explaining why each checked factor applies to the subject water. If the purpose of the UAA is to raise a classification from secondary to primary, do not check any factor but still provide a narrative explanation of the justification for the increased level of protection.

_____(i) Naturally occurring pollutant concentrations prevent the attainment of the classification or use; or

_____(ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or

_____(iii) 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

_____(iv) Dams, diversions or other types of hydrologic modifications preclude the attainment of the classification or use, and it is not feasible to restore the water body to its original condition or to operate such modification in such a way that would result in the attainment of the classification or use; or

_____(v) Controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact. This subsection shall not apply to the derivation of site-specific criteria.

Explanation *(attach additional sheets if necessary)*:

V. Additional Information. Include additional information such as a description of the existing recreational use of the water body, description of or data representative of the flow regime, landowner surveys, etc. that may be useful to the petition.

_____ _____

Petitioner Date