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Jim Ruby, Executive Secretary
Environmental Quality Council

WATER QUALITY RULES AND REGULATIONS

Chapter 1

WYOMING SURFACE WATER QUALITY STANDARDS

Proposed Rules
July 8, 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~~⁵⁰⁷, 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. 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;~~

(ii) "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;

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

45 | (viii) "Nonpoint source" means any source of pollution other than a
46 | point source. For purposes of W.S. 16-1-201 through 16-1-207 only, nonpoint source
47 | includes leaking underground storage tanks as defined by W.S. 35-11-1415(a)(ix) and
48 | aboveground storage tanks as defined by W.S. 35-11-1415(a)(xi);
49 |

50 | (viiix) "Point source" means any discernible, confined and discrete
51 | conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well,
52 | discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel
53 | or other floating craft, from which pollutants are or may be discharged;
54 |

55 | (ix) "Pollution" means contamination or other alteration of the
56 | physical, chemical or biological properties of any waters of the state, including change in
57 | temperature, taste, color, turbidity or odor of the waters or any discharge of any acid or
58 | toxic material, chemical or chemical compound, whether it be liquid, gaseous, solid,
59 | radioactive or other substance, including wastes, into any waters of the state which
60 | creates a nuisance or renders any waters harmful, detrimental or injurious to public
61 | health, safety or welfare, to domestic, commercial, industrial, agricultural, recreational or
62 | other legitimate beneficial uses, or to livestock, wildlife or aquatic life, or which degrades
63 | the water for its intended use, or adversely affects the environment. This term does not
64 | mean water, gas or other material which is injected into a well to facilitate production of
65 | oil, or gas or water, derived in association with oil or gas production and disposed of in a
66 | well, if the well used either to facilitate production or for disposal purposes is approved
67 | by authority of the state, and if the state determines that such injection or disposal well
68 | will not result in the degradation of ground or surface or water resources;
69 |

70 | (xi) "Wastes" means sewage, industrial waste and all other liquid,
71 | gaseous, solid, radioactive, or other substances which may pollute any waters of the state;
72 |

73 | (xii) "Waters of the state" means all surface and groundwater, including
74 | waters associated with wetlands, within Wyoming;
75 |

76 | (xiii) "Wetlands" means those areas in Wyoming having all three (3)
77 | essential characteristics:
78 |

79 | (A) Hydrophytic vegetation;

80 | (B) Hydric soils; and

81 | (C) Wetland hydrology.
82 |

83 | (xiiiv) "Wetland value" means those socially significant attributes of
84 | wetlands such as uniqueness, heritage, recreation, aesthetics and a variety of economic
85 | values.
86 |
87 |
88 |

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

91 |
92 | ~~_____~~(i) “Acute value” means the one hour average concentration. The
93 | EPA has determined that this value, if not exceeded more than once every three years on
94 | average, should not result in unacceptable effects on freshwater aquatic organisms and
95 | their uses. Acute values represent a response to a stimulus severe enough to induce a
96 | rapid reaction, typically in 96 hours or less. Appendix B contains acute values for certain
97 | pollutants.

98 |
99 | ~~_____~~(ii) “Adjacent wetlands” means wetlands that are connected by a
100 | defined channel to a surface tributary system, ~~or~~ are within the 100 year flood plain of a
101 | river or stream, or occupy the fringe of any still water body which is connected by a
102 | defined channel to a surface tributary system.

103 |
104 | ~~_____~~(iii) “Ambient-based criteria” means water quality criteria that are
105 | calculated based upon actual ambient or background water body conditions.

106 |
107 | ~~_____~~(iv) “Aquatic life” means fish, invertebrates, amphibians, and other
108 | flora and fauna which inhabit waters of the state at some stage of their life cycles.
109 | Aquatic life does not include human pathogens or insect pests, ~~or exotic aquatic invasive~~
110 | species or other organisms which may be considered “undesirable” by the Wyoming
111 | Game and Fish Department or U.S. Fish and Wildlife Service within their appropriate
112 | jurisdictions ~~and identified human pathogens~~.

113 |
114 | ~~(v) “Assimilative capacity” means the increment of water quality in terms of~~
115 | ~~concentration, during the appropriate critical condition(s), that is better than the~~
116 | ~~applicable numeric criterion. The concept of assimilative capacity has no meaning in~~
117 | ~~relation to pollutants that are limited only by narrative criteria.~~

118 |
119 | ~~_____~~(vi) “Best management practices (BMPs)” means a practice or
120 | combination of practices that after problem assessment, examination of alternative
121 | practices, and in some cases -public participation, are determined to be the most
122 | technologically and economically feasible means of managing, preventing or reducing
123 | nonpoint source pollution.

124 |
125 | ~~_____~~(vii) “Chronic value” means the four day average concentration. The
126 | EPA has determined that this value, if not exceeded more than once every three years on
127 | average, should not result in unacceptable effects on freshwater aquatic organisms and
128 | their uses. Chronic values represent a response to a continuous, long-term stimulus.
129 | Appendix B contains chronic values for certain pollutants.

130 |
131 | ~~_____~~(viii) “Cold water game fish” means burbot (gGenus Lota), grayling
132 | (gGenus Thymallus), trout, salmon and char (generaGenus Salmo, *Oncorhynchus* and
133 | *Salvelinus*); and whitefish (gGenus Prosopium).

134
135 | _____(viii) “Construction-related discharge” means discharges of sediment or
136 turbidity related to construction activities in or along waters of the state. Generally, these
137 | discharges include, but are not limited to, construction site dewatering, temporary
138 diversions, runoff from construction sites, excavation or equipment operation beneath the
139 water’s surface, the discharge of dredged or fill material and placement of structural
140 members such as bridge abutments, culverts, pipelines, etc. into or across any water of
141 the state.

142
143 | _____(ix) “Designated uses” means those uses specified in water quality
144 standards for each water body or segment whether or not they are being attained.

145
146 | _____(xi) “Dissolved oxygen” means a measure of the amount of free
147 oxygen in water.

148
149 | _____(xii) “*E. coli*” means any of the bacterium in the **F**family
150 | Enterobacteriaceae named *Escherichia* (**g**Genus) *coli* (**s**Species).

151
152 | _____(xiii) “Effluent dependent water” means a water body with insufficient
153 natural flow to support aquatic life~~that would be ephemeral without the presence of~~
154 ~~permitted effluent~~, but which has perennial or intermittent flows for all or a portion of its
155 length as the result of the discharge of wastewater.

156
157 | ~~_____ (xiv) “Effluent dominated water” means a water body that would be intermittent~~
158 ~~or perennial without the presence of wastewater effluent, but for which the flow or~~
159 ~~volume of water for the majority of the year is primarily attributable to the discharge of~~
160 ~~wastewater.~~

161
162 | _____(xiii) “Effluent limitations” means any restriction established by the state
163 or by the administrator of the Environmental Protection Agency on quantities, rates and
164 concentrations of chemical, physical, biological and other constituents which are
165 discharged from point sources into waters of the state, including schedules of compliance.

166
167 | _____(xiv) “Environmental Protection Agency” means the federal
168 Environmental Protection Agency (EPA).

169
170 | _____(xv) “Ephemeral stream” means a stream which flows only in direct
171 response to a single precipitation event in the immediate watershed or in response to a
172 single snow melt event, and which has a channel bottom that is always above the
173 prevailing water table.

174
175 | _____(xvi) “Eutrophic” means the condition whereby waters or environments
176 saturated with water become nutrient enriched (especially with phosphorus or nitrogen).
177 This action leads to those waters becoming oxygen depleted or anaerobic.

178

179 _____(xvii~~x~~) “Existing quality” as used in these regulations refers only to Class
180 1 waters and means the established chemical, physical, and biological water quality as of
181 the date the specific water segment was designated Class 1 with recognition ~~of the fact~~
182 that water quality will ~~tend to~~ fluctuate on a seasonal and year-to-year basis depending
183 upon natural ~~variations~~ ~~fluctuations~~ in water quantity.
184

185 _____(xviii~~x~~) “Existing use” means those uses actually attained in the water body
186 on or after November 28, 1975, whether or not they are included in the water quality
187 standards.
188

189 ⊕

191 _____(xix~~i~~) “Federal Act” means the Federal Water Pollution Control Act
192 (Clean Water Act) and amendments as of ~~November 27, 2002~~ ~~June 21, 2001~~.
193

194 _____(xxii) “Full body contact water recreation” means any recreational or
195 other surface water use in which there is contact with the water sufficient to pose a
196 significant health hazard (i.e., water skiing, swimming).
197

198 _____(xxiii) “Game fish” means bass (~~Genus~~ ~~genera~~ *Micropterus* and
199 *Ambloplites*), catfish and bullheads (~~genera~~ ~~Genus~~ *Ameiurus*, *Ictalurus* ~~and~~ *Noturus* ~~and~~
200 *Pylodietis*), crappie (~~G~~ ~~genus~~ *Pomoxis*), freshwater drum (~~G~~ ~~genus~~ *Aplodinotus*), grayling
201 (~~g~~ ~~Genus~~ *Thymallus*), burbot (~~g~~ ~~Genus~~ *Lota*), pike (~~g~~ ~~Genus~~ *Esox*), yellow perch (~~g~~ ~~Genus~~
202 *Perca*), sturgeon (~~G~~ ~~genus~~ *Scaphirhynchus*), sunfish (~~g~~ ~~Genus~~ *Lepomis*), trout, salmon and
203 char (~~Genus~~ ~~genera~~ *Salmo*, *Oncorhynchus*, and *Salvelinus*), walleye and sauger (~~G~~ ~~genus~~
204 *Sander* ~~Stizostedion~~); and whitefish (~~g~~ ~~Genus~~ *Prosopium*).
205

206 _____(xxii~~v~~) “Historic data” means scientifically valid data that ~~are~~ ~~is~~ more than
207 five years old, or qualitative information that adds some factual information on the
208 historic conditions of a water body. This historic qualitative information may include
209 photographs, journals and factual testimony of persons who have lived near or relied
210 upon the water body, and old records on water use and water conditions.
211

212 _____(xxiii~~v~~) “Hydric soil” means a soil that formed under conditions of
213 saturation, flooding or ponding long enough during the growing season to develop
214 anaerobic conditions in the upper part.
215

216 _____(xxiv~~i~~) “Hydrophytic vegetation” means a community of plants where,
217 under normal circumstances, more than 50 percent of the composition of the dominant
218 species from all strata are obligate wetland (OBL), facultative wetland (FACW), and/or
219 facultative (FAC) species; or a frequency analysis of all species within the community
220 yields a prevalence index value of less than 3.0 (where OBL = 1.0, FACW = 2.0, FAC =
221 3.0, FACU (facultative upland) = 4.0, and UPL (upland species) = 5.0).
222

223 | _____(xxvii) “Intermittent stream” means a stream or part of a stream where the
224 | channel bottom is above the local water table for some part of the year, but is not a
225 | perennial stream.

226 |
227 | _____(xxviii) “Isolated water” means any surface water of the state which is not
228 | connected by a defined channel to a surface tributary system, ~~and~~ is not within the 100
229 | year flood plain of any river or stream and does not occupy the fringe of any still water
230 | body which is connected by a defined channel to a surface tributary system.

231 |
232 | _____(xxviii) ~~“Main stem” means the major channel of a river or stream~~
233 | ~~as shown on the latest and most detailed records of the Wyoming State Engineer.~~

234 |
235 | _____(xxviii) ~~“Micrograms per liter (µg/L)” means micrograms of~~
236 | ~~solute per liter of solution equivalent to parts per billion (ppb) in liquids, assuming unit~~
237 | ~~density.~~

238 |
239 | _____(xxix) “Milligrams per liter (mg/L)” means milligrams of solute per liter
240 | of solution equivalent to parts per million (ppm) in liquids, assuming unit density.

241 |
242 | _____(xxxii) “Mixing zone” means limited area or volume of a surface water
243 | body within which an effluent becomes thoroughly mixed with the water body.

244 |
245 | ~~_____ (xxxiii) “Nanograms per liter (ng/L)” means nanograms of solute per liter of~~
246 | ~~solution equivalent to parts per trillion in liquids, assuming unit density.~~

247 |
248 | (xxxiv) “Natural” means that condition which would exist without the ~~measurable~~
249 | ~~effects or~~ measurable influence of man's activities.

250 |
251 | _____(xxxii) “Natural biotic community” means the population struc-
252 | tures which were historically or normally present under a given set of chemical and
253 | physical conditions or which would potentially exist without the ~~measurable effects or~~
254 | measurable influence of man's activities had ~~not~~ the habitat not been altered.

255 |
256 | _____(xxxii) “Natural water quality” means that quality of water which
257 | would exist without the ~~measurable effects or~~ measurable influence of man's activities.

258 |
259 | _____(xxxiv) “Nephelometric turbidity unit (NTU)” means the standard
260 | unit used to measure the optical property that causes light to be scattered and absorbed
261 | rather than transmitted in straight lines through water, as measured by a nephelometer.

262 |
263 | _____(xxxv) “Net environmental benefit (NEB)” means a risk
264 | management approach to derive site-specific criteria for effluent dependent water bodies
265 | that weighs the potential for loss of a permitted effluent discharge against the benefits of
266 | augmented flow. A net environmental benefit is demonstrated where there is a credible
267 | threat to remove the permitted discharge, ~~and~~ the discharge has been shown to create an

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

271

272 | _____(xxxvix) “Nongame fish” means all fish species except those listed
273 | in Section 2-(b)(xxi) above.

274

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

278

279 | _____(xxxviii) “Perennial stream” means a stream or part of a stream that
280 | flows continually during all of the calendar year as the result of a groundwater discharge
281 | or surface runoff.

282

283 | _____(xxxlix) “pH” means a term used to express the intensity of acidic
284 | or alkaline conditions. pH is a measure of the hydrogen ion activity in a water sample. It
285 | is mathematically related to hydrogen ion activity according to the expression: $\text{pH} = -\log$
286 | $10 (\text{H}^+)$, where (H^+) is the hydrogen ion activity. A pH value of 7 at 25 degrees Celsius is
287 | neutral, with pHs of less than 7 progressively more acidic and pHs of greater than 7
288 | progressively more basic (alkaline).

289

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

293

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

296

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

300

301 | _____(xliii) “Salinity” means the total mineral dissolved constituents,
302 | after carbonates have been converted to oxides, organics have been oxidized and bromine
303 | and iodine have been replaced by chloride. This term is often used interchangeably with
304 | the term total dissolved solids.

305

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

312

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

316 |
317 | _____(xlvix) “Storm water”, for the purposes of Section 7 of these regulations is
318 | ~~chapter~~, means surface runoff from construction sites or industrial activities which are
319 | regulated under Section 402-(p) of the ~~federal~~ Clean Water Act and Chapter 2 ~~or Chapter~~
320 | ~~18~~ of the Wyoming Water Quality Rules and Regulations. Excluded from this definition
321 | are those storm water discharges associated with industrial activities which are subject to
322 | an existing federal effluent limitation guideline addressing storm water and where the
323 | constituents listed in the federal effluent limitations have a reasonable potential to affect
324 | the receiving waters.

325 |
326 | _____(xlvi) “Surface waters of the state” means all perennial, intermittent and
327 | ephemeral defined drainages, lakes, reservoirs, and wetlands which are not man-made
328 | retention ponds used for the treatment of municipal, agricultural or industrial waste; and
329 | all other bodies of surface water, either public or private which are wholly or partially
330 | within the boundaries of the state. Nothing in this definition is intended to expand the
331 | scope of the Environmental Quality Act, as limited in W.S. 35-11-1104.

332 |
333 | _____(xlviii) “Toxic materials” means those materials or combinations of
334 | materials including disease causing agents, which, after discharge and upon exposure,
335 | ingestion, inhalation or assimilation into any organism, either directly from the
336 | environment or indirectly by ingestion through food chains, will, on the basis of
337 | information available to the director of the Wyoming Department of Environmental
338 | Quality (~~department~~), cause death, disease, behavioral abnormalities, cancer, genetic
339 | malfunctions, ~~physiological malfunctions~~ (including malfunctions in reproduction) or
340 | physical deformations in such organisms or their offspring.

341 |
342 | _____(xlix) “Tributary” means those streams or stream segments which flow
343 | into or contribute water to another stream, stream segment, downstream reach of the
344 | same stream, or other water body.

345 |
346 | _____(liii) “Undesirable aquatic life” means organisms generally associated
347 | with degraded or eutrophic conditions. These may include the following organisms
348 | where they have replaced members of the natural biotic community: insect pests,
349 | aquatic invasive species or other organisms~~exotic fish, or species~~ which may be
350 | ~~considered~~are designated “undesirable” by the Wyoming Game and Fish Department or
351 | the U.S. Fish and Wildlife Service within their appropriate jurisdictions.

352 |
353 | _____(liv) “Use attainability analysis (UAA)” means a structured scientific
354 | assessment of the factors affecting the attainment of the use. The factors may include
355 | physical, chemical, biological, and economic factors as described in Section 33 of these
356 | regulations.

357 |

358 _____(liiv) “Warm water game fish” means bass (genera~~Genus~~ *Micropterus*
359 and *Ambloplites*), ~~-~~catfish and bullheads (genera~~Genus~~ *Ameiurus*, *Ictalurus*, and *Noturus*
360 and *Pylodictus*), crappie (~~G~~genus *Pomoxis*), yellow perch (~~g~~Genus *Perca*-), sunfish
361 (~~g~~Genus *Lepomis*), walleye and sauger (~~g~~Genus *Stizostedion*~~Sander~~), pike (~~g~~Genus
362 *Esox*), sturgeon (~~G~~genus *Scaphirhynchus*) and freshwater drum (~~g~~Genus *Aplodinotus*).

363
364 _____(lviii) “Wetland hydrology” means the presence of water on or near the
365 land surface at a frequency and duration to cause the formation of hydric soils and
366 support a prevalence of vegetation typically adapted to saturated and/or inundated
367 conditions.

368
369 _____(lvii) “Wyoming Continuing Planning Process (CPP)” means a planning
370 process provided for under Section 303-(e)-(1) of the Clean Water~~Federal~~ Act -developed
371 through public participation and consisting of policies, procedures and programs that
372 result in the definition and implementation of actions that lead to the prevention,
373 reduction and abatement of water pollution and for the protection and enhancement of
374 water uses in the State of Wyoming. The CPP is continuous in time and is designed to
375 respond to changes in conditions and attitudes. The CPP is adopted by resolution of the
376 Water and Waste Advisory Board and is certified by the Governor.

377
378 _____(lviii) “Wyoming surface waters” shall have the same meaning as
379 “surface waters of the state” defined in Section 2-(b)(xlvii).

380
381 _____(lvix) “Zone of passage” means a continuous water route which joins
382 segments of a surface water body above and below a mixing zone.

383
384 _____(lvix) “404 permit” means a permit issued pursuant to Section 404 of the
385 Clean Water~~Federal~~ Act to regulate the discharge of dredged or fill materials into surface
386 waters of the United States.

387
388 Section 3. **Water Uses.** The objectives of the Wyoming water pollution
389 control program are described in W.S. 35-11-102. These objectives are designed to serve
390 the- interests of the state and achieve the related goals, objectives, and policies of the
391 Clean Water~~Federal~~ Act. The objectives of the Wyoming program are to provide,
392 wherever attainable, the highest possible water quality commensurate with the following
393 uses:

394
395 (a) Agriculture. For purposes of water pollution control, agricultural uses
396 include irrigation and/or livestock watering.

397
398 (b) Fisheries. The fisheries use includes water quality, habitat conditions,
399 spawning and nursery areas, and food sources necessary to sustain populations of cold
400 water game fish, warm water game fish and nongame fish. This use does not include the
401 protection of aquatic invasive ~~exotic~~ species or other fish which may beare

402 | ~~considered~~designated “undesirable” by the Wyoming Game and Fish Department or the
403 | U.S. Fish and Wildlife Service within their appropriate jurisdictions.

404

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

407

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

411

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

416

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

420

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

428

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

431

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

435

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

444

445 | (a) Class 1, Outstanding Waters. Class 1 waters are those surface waters in
446 | which no further water quality degradation by point source discharges other than from

447 | dams will be allowed. Nonpoint sources of pollution shall be controlled through
448 | implementation of appropriate best management practices. Pursuant to Section 7 of these
449 | regulations, the water quality and physical and biological integrity which existed on the
450 | water at the time of designation will be maintained and protected. In designating Class 1
451 | waters, the Environmental Quality Council (council) shall consider water quality,
452 | aesthetic, scenic, recreational, ecological, agricultural, botanical, zoological, municipal,
453 | industrial, historical, geological, cultural, archaeological, fish and wildlife, the presence
454 | of significant quantities of developable water and other values of present and future
455 | benefit to the people.

456 |
457 | (b) Class 2, Fisheries and Drinking Water. Class 2 waters are waters, other
458 | than those designated as Class 1, that are known to support fish and/or drinking water
459 | supplies or where those uses are attainable. Class 2 waters may be perennial, intermittent
460 | or ephemeral and are protected for the uses indicated in each sub-category listed below.
461 | There are five subcategories of Class 2 waters.

462 |
463 | (i) Class 2AB. Class 2AB waters are those known to support game
464 | fish populations or spawning and nursery areas at least seasonally and all their perennial
465 | tributaries and adjacent wetlands and where a game fishery and drinking water use is
466 | otherwise attainable. Class 2AB waters include all permanent and seasonal game
467 | fisheries and can be either “cold water” or “warm water” depending upon the
468 | predominance of cold water or warm water species present. All Class 2AB waters are
469 | designated as cold water game fisheries unless identified as a warm water game fishery
470 | by a “ww” notation in the “Wyoming Surface Water Classification List”. Unless it is
471 | shown otherwise, these waters are presumed to have sufficient water quality and quantity
472 | to support drinking water supplies and are protected for that use. Class 2AB waters are
473 | also protected for nongame fisheries, fish consumption, aquatic life other than fish,
474 | recreation, wildlife, industry, agriculture and scenic value uses.

475 |
476 | (ii) Class 2A. Class 2A waters are those that are not known nor have
477 | the potential to support game fish but are used for public or domestic drinking water
478 | supplies, including their perennial tributaries and adjacent wetlands. Uses designated on
479 | Class 2A waters include drinking water, aquatic life other than fish, recreation, wildlife,
480 | industry, agriculture and scenic value.

481 |
482 | (iii) Class 2B. Class 2B waters are those known to support or have the
483 | potential to support game fish populations or spawning and nursery areas at least
484 | seasonally and all their perennial tributaries and adjacent wetlands and where it has been
485 | shown that drinking water uses are not attainable pursuant to the provisions of Section
486 | 33. Class 2B waters include permanent and seasonal game fisheries and can be either
487 | “cold water” or “warm water” depending upon the predominance of cold water or warm
488 | water species present. All Class 2B waters are designated as cold water game fisheries
489 | unless identified as a warm water game fishery by a “ww” notation in the “Wyoming
490 | Surface Water Classification List”. Uses designated on Class 2B waters include game

491 and nongame fisheries, fish consumption, aquatic life other than fish, recreation, wildlife,
492 industry, agriculture and scenic value.

493

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

500

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

509

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

521

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

525

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

535

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

540
541 (iv) Class 3D. Effluent dependent waters which are known to support
542 communities of aquatic life other than fish and where the existing aquatic habitat would
543 be significantly reduced in terms of aerial extent, habitat diversity or ecological value if
544 the effluent flows are removed or reduced. Class 3D waters are protected to the extent
545 that the existing aquatic community, habitat and other designated uses are maintained and
546 the water quality does not pose a health risk or hazard to humans, livestock or wildlife.

547
548 (d) Class 4, Agriculture, Industry, Recreation and Wildlife. Class 4 waters are
549 waters, other than those designated as Class 1, where it has been determined that aquatic
550 life uses are not attainable pursuant to the provisions of Section 33 of these regulations.
551 Uses designated on Class 4 waters include recreation, wildlife, industry, agriculture and
552 scenic value.

553
554 (i) Class 4A. Class 4A waters are artificial canals and ditches that are
555 not known to support fish populations.

556
557 (ii) Class 4B. Class 4B waters are intermittent and ephemeral stream
558 channels that have been determined to lack the hydrologic potential to normally support
559 and sustain aquatic life pursuant to the provisions of Section 33(b)(ii) of these
560 regulations. In general, 4B streams are characterized by only infrequent wetland
561 occurrences or impoundments within or adjacent to the stream channel over its entire
562 length. Such characteristics will be a primary indicator used in identifying Class 4B
563 waters.

564
565 (iii) Class 4C. Class 4C waters are isolated waters that have been
566 determined to lack the potential to normally support and sustain aquatic life pursuant to
567 the provisions of Section 33(b)(i), (iii), (iv), (v), or (vi) of these regulations. Class 4C
568 includes, but is not limited to, off-channel effluent dependent ponds where it has been
569 determined under Section 33(b)(iii) that removing a source of pollution to achieve full
570 attainment of aquatic life uses would cause more environmental damage than leaving the
571 source in place.

572
573 (e) Specific stream segment classifications are contained in a separate
574 document entitled "[Wyoming Surface Water Classification List](#)" which is published by
575 the department and periodically revised and updated according to the provisions of
576 Sections 4, 33, 34, 35 and Appendix A of this chapter. Class 1 waters are those waters
577 that have been specifically designated by the [Environmental Quality Council](#). Class
578 2AB, 2A, 2B and 2C designations are based upon the fisheries information contained in
579 the Wyoming Game and Fish Department's "[Streams and Lakes](#)" [inventory database](#) as
580 submitted to the [Department of Environmental Quality](#) in June, 2000. This database

581 represents the best available information and is considered conclusive. Class 2D and 3D
582 | designations are based upon ~~u~~Use ~~a~~Attainability ~~a~~Analyses demonstrating that the waters
583 are effluent dependent and do not pose a hazard to humans, wildlife or livestock. Class 4
584 | designations are based upon knowledge that a water body is an artificial, man-made
585 conveyance, or has been determined not to support aquatic life uses through an approved
586 | ~~U~~se ~~a~~Attainability ~~a~~Analysis. All other waters are designated as Class 3A, ~~or~~ 3B ~~or~~ 3C.
587 ~~New information made available to the department may be cause to amend the~~
588 ~~classifications. Additionally,~~ Section 27 of these ~~regulations is chapter~~ describes how
589 recreation use designations are made for specific water bodies.
590

591 Section 5. **Standards Enforcement.** The numerical and narrative standards
592 contained within these regulations shall be used to establish effluent limitations for those
593 discharges requiring control via permits to discharge in the case of point sources and best
594 management practices in the case of nonpoint sources. If no permit or best management
595 practice has been issued or implemented for a pollution source the state may, in addition
596 to other appropriate legal action, take direct action to enforce these standards.
597

598 The processes used to implement the standards are described in various
599 implementation documents adopted by the department. Such documents are adopted with
600 | full public participation and include, but are not limited to, the ~~Implementation p~~Policies
601 ~~for A~~ntidegradation, ~~M~~ixing ~~Z~~ones and ~~D~~ilution Allowances, ~~T~~urbidity, ~~and U~~se
602 ~~A~~ttainability ~~A~~nalysis ~~and agricultural use protection~~, the Wyoming Continuing
603 | Planning Process (CPP), and best management practices.
604

605 These regulations shall not be interpreted to preclude the establishment of
606 appropriate compliance schedules for permitting purposes nor shall compliance with the
607 conditions of these regulations exempt any discharger from the penalty provisions of
608 W.S. 35-11-901.
609

610 Section 6. **Interstate Compacts, Court Decrees and Water Rights.** The
611 department shall, after review and conference with the State Engineer, make
612 recommendations to the State Engineer concerning proposed new diversions which could
613 cause violations of these regulations.
614

615 | Section 7. **Class 1 Waters.**
616

617 | (a) Except as authorized in ~~Section 7 paragraph (b) of these regulations,~~ no
618 | new point sources other than dams, may discharge, and no existing point sources, other
619 | than dams, may increase their quantity of pollution discharge, to any water designated as
620 | Class 1.
621

622 | (b) Storm water and construction-related discharges of pollution to Class 1
623 | waters may be authorized and shall be controlled through applicable water quality
624 | permits, Section 401 certifications and/or by the application of best management
625 | practices. Such discharges shall not degrade the quality of any Class 1 water below its

626 existing quality or adversely affect any existing use of the water. Temporary increases in
627 turbidity that are within the limits established in Section 23 of these regulations and that
628 do not negatively affect existing uses can be permitted. For purposes of this section,
629 temporary increases in turbidity shall not exceed the actual construction period. The
630 department shall impose whatever controls and monitoring are necessary on point source
631 discharges to Class 1 waters and their tributaries to ensure that the existing quality and
632 uses of the Class 1 water are protected and maintained.

633

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

638

639 | Section 8. Antidegradation.

640

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

649

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

651

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

653

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

657

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

660

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

665

666 (c) The procedures used to implement this section are described in the
667 | "Antidegradation Implementation Policy."

668

669 Section 9. **Mixing Zones.** Except for acute whole effluent toxicity (WET)
670 | values and Sections -14, 15, 16, 17, -28 and 29-(b) of these regulations, compliance with

671 water quality standards shall be determined after allowing reasonable time for mixing.
672 Except for the zone of initial dilution, which is the initial 10% of the mixing zone, the
673 mixing zone shall not contain pollutant concentrations that exceed the ~~acute~~-aquatic life
674 acute values (see Appendix B). In addition, there shall be a zone of passage around the
675 mixing zone which shall not contain pollutant concentrations that exceed the ~~chronic~~
676 aquatic life chronic values (see Appendix B). Under no circumstance may a mixing zone
677 be established which would allow human health criteria (see Appendix B) to be exceeded
678 within 500 yards of a drinking water supply intake or result in acute lethality to aquatic
679 life. The procedures used to implement this section are described in the "Mixing Zones
680 and Dilution Allowances Implementation Policy."

681
682 Section 10. **Testing Procedures.** For determination of the parameters
683 involved in the standards, analyses will be in accordance with test procedures defined
684 pursuant to: Title 40, Code of Federal Regulations, Part 136, or any modifications
685 thereto. For test procedures not listed in the Code of Federal Regulations, test procedures
686 outlined in the latest editions of: *EPA Methods for Chemical Analysis of Water and*
687 *Wastes*; ~~or~~; *Standard Methods for the Examination of Water and Wastewaters*; ~~or~~; *ASTM*
688 *Standards, Part 31, Water* shall be used.

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

694
695 ———Where standard methods of testing have not been established, the suitability of
696 testing procedures shall be determined by the department and the EPA using defensible
697 scientific methods.

698
699 Numeric criteria included in the standards represent levels necessary to protect
700 designated uses and do not necessarily reflect detection limits that can be achieved using
701 standard analytical techniques. Standard analytical techniques are considered during
702 development of discharge permits and evaluation of water quality data. Sampling entities
703 should consult with the department to determine reporting limit needs to ensure that
704 adequate testing procedures and reporting limits are requested from the laboratory.

705
706 Section 11. **Flow Conditions.**

707
708 (a) Numeric water quality standards shall be enforced at all times except
709 during periods below low flow. Low flow can be determined by the following methods:
710 ~~Whatever method is selected for a specific situation, application of the standards will~~
711 ~~conform to the magnitude, frequency, and duration provisions as described in these~~
712 ~~regulations.~~

713
714 (i) Using the 7Q10 (the minimum seven (7) consecutive day flow
715 which has the probability of occurring once in ten (10) years);

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(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.

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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 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 “Human Health 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 established ~~determined by using~~ of the site-specific procedures outlined in the references listed in Appendix E ~~of these regulations~~ or other scientifically defensible methods.

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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, ~~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 "Aquatic Life ~~A~~acute ~~V~~value" and "Aquatic Life ~~C~~chronic ~~V~~value" columns in Appendix B of these regulations. These standards apply to all Class 1, ~~2A, 2B, 2AB, 2C, 3A, 3B~~ and 3C 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.

851
852 (c) Others. For those pollutants not listed in Appendix B or C of these
853 regulations, maximum allowable concentrations on Class 1, 2 and 3 -waters shall be
854 determined through the bioassay procedures outlined in the references listed in Appendix
855 E of these regulations.

856
857 (d) In certain waters, the criteria listed in Appendix B or C of these
858 regulations may not be appropriate due to unique physical or chemical conditions. In
859 such cases, acute and chronic values may be determined ~~by using~~ of the site-specific
860 procedures outlined in ~~sections 33 or 36 or in~~ the references listed in Appendix E ~~or other~~
861 ~~scientifically defensible methods of these regulations.~~

862
863 (e) Aquatic pesticides specifically designed to kill, repel or mitigate aquatic
864 pest problems (~~e.g. such as~~ mosquito larvae or heavy plant growth in irrigation ditches)
865 may be added to surface waters of the state if the use and application is in compliance
866 with the following:

867
868 (i) The ~~pesticide~~~~chemical~~~~toxicant~~ used is a product which has been
869 registered ~~with~~by the -EPA and ~~approved by~~ the Wyoming Department of Agriculture for
870 use in the state, in accordance with W.S. 35-7-356;

871
872 (ii) The application is conducted by a person licensed by the Wyoming
873 Department of Agriculture to purchase and apply restricted use pesticides~~such toxicants~~
874 in the state;

875
876 (iii) All applications of aquatic pesticides must be administered in
877 accordance with label directions. However, compliance with label directions shall not
878 exempt any person or agency from the penalty provisions of W.S. 35-11-901 should non-
879 target species or non-target areas be affected.

880
881 (f) This section shall not apply to the use of fish toxicants if the use and
882 application is in compliance with the following:

883
884 (i) The ~~pesticide~~~~chemical~~~~toxicant~~ used is a product which has been
885 registered ~~with~~by the -EPA and ~~approved by~~ the Wyoming Department of Agriculture for
886 use in the state, in accordance with W.S. 35-7-356;

887
888 (ii) The application is conducted by a person licensed by the Wyoming
889 Department of Agriculture to purchase and apply restricted use pesticides~~such toxicants~~
890 in the state;

891
892 (iii) All applications of fish toxicants must be administered in
893 accordance with label directions. However, compliance with label directions shall not
894 exempt any person or agency from the penalty provisions of W.S. 35-11-901 should non-
895 target species or non-target areas be affected.

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(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.

941
942 (c) In all Wyoming surface waters, radioactive materials attributable or
943 influenced by the activities of man shall not be present in the water or in the sediments in
944 amounts which could cause harmful accumulations of radioactivity in plant, wildlife,
945 livestock, or aquatic life.

946
947 | Section 23. **Turbidity.**

948
949 (a) In all cold water fisheries and/or drinking water supplies (Classes 1,
950 2AB, 2A, and 2B), the discharge of substances attributable to or influenced by the
951 activities of man shall not be present in quantities which would result in a turbidity
952 increase of more than ten (10) nephelometric turbidity units (NTUs).

953
954 (b) In all -warm water or nongame fisheries (Classes 1, 2AB, 2B and 2C), the
955 discharge of substances attributable to or influenced by the activities of man shall not be
956 present in quantities which would result in a turbidity increase of more than 15 NTUs.

957
958 (c) An exception to paragraphs (a) and (b) of this section shall apply to:

959
960 (i) The North Platte River from Guernsey Dam to the Nebraska line
961 during the annual "silt run" from Guernsey Dam; and

962
963 (ii) Short-term increases of turbidity that have been determined by the
964 administrator to have only a minimal effect on water uses. Such determinations shall be
965 made on a case-by-case basis and shall be subject to whatever controls, monitoring, and
966 best management practices are necessary to fully maintain and protect all water uses.
967 The procedures used to implement this section are described in the "*Turbidity*
968 *Implementation Policy*."

969
970 Section 24. **Dissolved Oxygen.** In all Class 2A, 2D and 3 waters,
971 pollutionwastes attributable to ~~or influenced by~~ the activities of man shall not deplete
972 dissolved oxygen amounts to a level which will result in harmful acute or chronic effects
973 to aquatic life, or which would not fully support existing and designated uses.

974
975 In all Class 1, 2AB, 2B and 2C waters, pollutionwastes attributable to ~~or~~
976 ~~influenced by~~ the activities of man shall not ~~be present in amounts which will~~ result in a
977 dissolved oxygen content of less than that presented on the chart in Appendix D of these
978 regulations.

979
980 Section 25. **Temperature.**

981
982 (a) For Class 1, 2 and 3 waters, pollutioneffluent attributable to ~~or influenced~~
983 ~~by~~ the activities of man shall not ~~be discharged in amounts which~~ change ambient water
984 temperatures to levels which result in harmful acute or chronic effects to aquatic life, or
985 which would not fully support existing and designated uses.

986
987 (b) When ambient temperatures are above 60 degrees Fahrenheit (15.6
988 degrees Celsius) in all Class 1, 2AB, and 2B waters which are cold water fisheries,
989 ~~pollution effluent~~ attributable to ~~or influenced by~~ the activities of man shall not be
990 ~~discharged in amounts which will~~ result in an increase of more than 2 degrees Fahrenheit
991 (1.1 degree Celsius) in existing temperatures.

992
993 (c) When ambient temperatures are above 60 degrees Fahrenheit (15.6
994 degrees Celsius) in all Class 1, 2AB, 2B and 2C waters, which are warm water fisheries,
995 ~~pollution effluent~~ attributable to ~~or influenced by~~ the activities of man shall not be ~~dis-~~
996 ~~charged in amounts which will~~ result in an increase of more than 4 degrees Fahrenheit
997 (2.2 degrees Celsius) in existing temperatures.

998
999 (d) Except on Class 2D, 3 and ~~Class~~ 4 waters, the maximum allowable stream
1000 temperature will be the maximum natural daily stream temperature plus the allowable
1001 change, provided that this temperature is not lethal to existing fish life and under no
1002 circumstance shall ~~pollution attributable to the activities of man result in this a maximum~~
1003 temperature ~~that exceeds~~ 68 degrees Fahrenheit (20 degrees Celsius) in the case of cold
1004 water fisheries and 86 degrees Fahrenheit (30 degrees Celsius) in the case of warm water
1005 fisheries.

1006
1007 (e) With the exception of the provisions of Sections 9 and 11 of these
1008 regulations ~~and other natural conditions~~, temperature standards shall apply at all times
1009 and at all depths of the receiving water and may not be violated at any time or at any
1010 depth.

1011
1012 (f) The various requirements of this section may be waived only under the
1013 provisions of Section 316-(a) of the ~~Clean Water~~ Federal Act.

1014
1015 Section 26. pH.

1016
1017 (a) For all Wyoming surface waters, ~~pollution wastes~~ attributable to ~~or~~
1018 ~~influenced by~~ the activities of man shall not be present in amounts which will cause the
1019 pH to be less than 6.5 or greater than 9.0 standard units.

1020
1021 (b) For all Class 1, 2 and 3 waters, ~~pollution effluent~~ attributable ~~to the or~~
1022 ~~influenced by human~~ activities ~~of man~~ shall not be ~~discharged in amounts which~~ change
1023 the pH to levels which result in harmful acute or chronic effects to aquatic life, directly or
1024 in conjunction with other chemical constituents, or which would not fully support
1025 existing and designated uses.

1026
1027 Section 27. *E. coli* Bacteria.

1028
1029 (a) ~~—~~ Primary Contact Recreation. ~~—~~ In all waters designated for primary contact
1030 recreation, during the summer recreation season (May 1 through September 30),

1031 concentrations of *E. coli* bacteria shall not exceed a geometric mean of 126 organisms per
1032 100 milliliters ~~based on a minimum of not less than 5 samples obtained during separate~~
1033 ~~24 hour periods for~~ during any consecutive 630-day period. ~~All waters in Table A of the~~
1034 ~~Wyoming Surface Water Classification List are designated for primary contact recreation~~
1035 ~~unless identified as a secondary contact water by a "(s)" notation. Waters not~~
1036 ~~specifically listed in Table A of the Wyoming Surface Water Classification List shall be~~
1037 ~~designated as secondary contact waters. During the period October 1 through April 30,~~
1038 ~~all waters are protected for secondary contact recreation only.~~ Primary contact waters are
1039 identified in the Wyoming Surface Water Classification List.

1040
1041 (b) ~~_____~~ -Secondary Contact Recreation. -In all waters designated for secondary
1042 contact recreation, and in waters designated for primary contact recreation during the
1043 winter recreation season (October 1 through April 30), concentrations of *E. coli* bacteria
1044 shall not exceed a geometric mean of 630 organisms per 100 milliliters ~~based on a~~
1045 ~~minimum of not less than 5 samples obtained during separate 24 hour periods for~~
1046 ~~any consecutive 360-day period.~~ Waters will be designated for secondary contact
1047 recreation through the reclassification and use attainability analysis process outlined in
1048 Sections 33 and 34 of these regulations. Secondary contact waters are identified in the
1049 Wyoming Surface Water Classification List.

1050
1051 (c) ~~_____~~ -Single-sample Maximum Concentrations. During the summer recreation
1052 season, on all waters designated for primary contact recreation, the following single-
1053 sample maximum concentrations of *E. coli* bacteria shall apply:

- 1054
1055 | ~~_____~~ (i) High use swimming areas -- 235 organisms per 100 milliliters
1056 |
1057 | ~~_____~~ (ii) Moderate full body contact - 298 organisms per 100 milliliters
1058 |
1059 | ~~_____~~ (iii) Lightly used full body contact - 410 organisms per 100 milliliters
1060 |
1061 | ~~_____~~ (iv) Infrequently used full body contact - 576 organisms per 100
1062 milliliters

1063
1064 | ~~_____~~ Single-sample maximum values may be used to post recreational use advisories in
1065 public recreation areas and to derive single-sample maximum effluent limitations on
1066 point source discharges. An exceedance of the single-sample maxima shall not be cause
1067 for listing a water body on the State 303(d) list or development of a TMDL or watershed
1068 plan. The appropriate recreational use category (i through iv, above) shall be determined
1069 by the administrator as needed, on a case by case basis. In making such a determination,
1070 the administrator may consider such site-specific circumstances as type and frequency of
1071 use, time of year, public access, proximity to populated areas, and local interests.

1072
1073 | ~~(d) Variances. Temporary and/or permanent variances to the E. coli values~~
1074 ~~provided in (a) through (c) above may be granted in instances where the primary source~~

1075 | of bacterial contamination is found to be natural in origin (wildlife), unavoidable (off-
1076 | channel stock watering pits), or otherwise in the public interest.

1077 |
1078 | ——— Section 28. **Undesirable Aquatic Life.** All Wyoming surface waters shall be
1079 | free from substances and conditions or combinations thereof which are attributable to or
1080 | influenced by the activities of man, in concentrations which produce undesirable aquatic
1081 | life.

1082 |
1083 | Section 29. **Oil and Grease.** In all Wyoming surface waters, substances
1084 | attributable to or influenced by the activities of man shall not be present in amounts
1085 | which would cause:

1086 |
1087 | (a) The oil and grease content to exceed 10 mg/L; or

1088 |
1089 | (b) The formation of a visible sheen or visible deposits on the bottom or
1090 | shoreline, or damage or impairment of the normal growth, function or reproduction of
1091 | human, animal, plant or aquatic life.

1092 |
1093 | Section 30. **Total Dissolved Gases.** In all Class 1, 2AB, 2B and 2C waters,
1094 | the total dissolved gas concentration below man-made dams shall not exceed 110 percent
1095 | of the saturation value for gases at the existing atmospheric and hydrostatic pressures.

1096 |
1097 | Section 31. **Colorado Basin Salinity.** The State of Wyoming is a member of
1098 | the Colorado River Basin Salinity Control Forum, which includes all states in the
1099 | Colorado River Basin. This forum has adopted a salinity control program for the basin
1100 | which has been adopted as Chapter 6 of the Wyoming Water Quality Rules and Regula-
1101 | tions.

1102 |
1103 | Section 32.— **Biological Criteria.** Class 1, 2 and 3 waters of the state must be
1104 | free from substances, whether attributable to human-induced point source discharges or
1105 | nonpoint source activities, in concentrations or combinations which will adversely alter
1106 | the structure and function of indigenous or intentionally introduced aquatic communities.

1107 |
1108 | Section 33. **Reclassifications and Site-Specific Criteria.**

1109 |
1110 | (a) Any person at any time may petition the department or the **Environmental**
1111 | **Quality Council** (~~Council~~) to change the classification, add or remove a designated use
1112 | or establish site-specific criteria on any surface water.

1113 |
1114 | (b) The ~~Water Quality Administrator~~ may lower a classification, remove a
1115 | designated use which is not an existing use nor an attainable use, establish ambient-based
1116 | criteria on effluent dependent waters, or make a recommendation to the **Environmental**
1117 | **Quality Council** ~~council~~ to establish sub-categories of a use, or establish site-specific
1118 | criteria if it can be demonstrated through a Use Attainability Analysis (UAA) that the

1119 | original classification, ~~and/or~~ designated use or water quality criteria are not feasible
1120 | because:

1121

1122 | (i) Naturally occurring pollutant concentrations prevent the attainment
1123 | of the classification or use; or

1124

1125 | (ii) Natural, ephemeral, intermittent or low flow conditions or water
1126 | levels prevent the attainment of the use, unless these conditions may be compensated for
1127 | by the discharge of sufficient volume of effluent discharges without violating state water
1128 | conservation requirements to enable uses to be met; or

1129

1130 | (iii) Human caused conditions or sources of pollution prevent the
1131 | attainment of the use and cannot be remedied or would cause more environmental
1132 | damage to correct than to leave in place; or

1133

1134 | (iv) Dams, diversions, or other types of hydrologic modifications
1135 | preclude the attainment of the classification or use, and it is not feasible to restore the
1136 | water body to its original condition or to operate such modification in such a way that
1137 | would result in the attainment of the classification or use; or

1138

1139 | (v) Physical conditions related to the natural features of the water
1140 | body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like,
1141 | unrelated to water quality, preclude attainment of ~~the aquatic life classification or use~~;
1142 | or

1143

1144 | (vi) Controls more stringent than those required by Sections 301(b) and
1145 | 306 of the Clean Water~~Federal~~ Act would result in substantial and widespread economic
1146 | and social impact. This subsection shall not apply to the derivation of site-specific
1147 | criteria.

1148

1149 | (c) The ~~Water Quality A~~administrator may raise a classification, add a
1150 | designated use, or make a recommendation to the ~~c~~Environmental Quality Council to
1151 | establish sub-categories of a use or site-specific criteria, if it can be demonstrated through
1152 | a Use aAttainability aAnalysis (UAA) that such uses are existing uses or may be
1153 | attained with the imposition of more stringent controls or management practices.

1154

1155 | (d) The procedures used to implement this section are described in the *"Use*
1156 | *Attainability Analysis Implementation Policy."*

1157

1158 | (e) The provisions of subsections (b) and (c) above are not applicable to Class
1159 | 1 designations. Class 1 designations may be added or removed in accordance with the
1160 | provisions of the Environmental Quality Act, the Wyoming Administrative Procedures
1161 | Act and Section 4-(a) of these regulations.

1162

1163 | Section 34. **Use Attainability Analysis.** The ~~Water Quality~~-administrator
1164 | shall review all petitions submitted under Section 33 of these regulations and make a
1165 | determination based upon the technical merits of the ~~u~~Use a ~~A~~Attainability ~~A~~analysis.
1166 | Public notice and opportunity for comment shall be provided prior to making this
1167 | determination.

1168 |
1169 | (a) Any changes in water classifications or use designations resulting from the
1170 | administrator's determination shall be submitted to EPA for approval as revised water
1171 | quality standards for Clean Water Act purposes and shall become effective either upon
1172 | EPA approval or 90 days after submittal, whichever comes first. ~~-~~If within 90 days of
1173 | submittal, the EPA determines that any such revised or new standard is not consistent
1174 | with the applicable requirements of the ~~Clean Water~~Federal Act and specifies the changes
1175 | needed to meet such requirements, the administrator may consider EPA's
1176 | recommendations and publish a revised final determination. All determinations made
1177 | under this subsection are considered final actions of the administrator and may be
1178 | appealed pursuant to Chapter 1, Section 16 of the Rules of Practice and Procedure.

1179 |
1180 | (b) Except for ambient-based criteria on effluent dependent waters, ~~-~~proposed
1181 | changes in water quality criteria that result from the administrator's findings shall be
1182 | recommended to the ~~c~~Environmental ~~Quality~~Council for adoption as revised rules.
1183 | Ambient-based criteria for effluent dependent waters shall be established according to the
1184 | provisions of Section 36 of these rules. If adopted by the ~~c~~Council, the revised rules shall
1185 | be filed with the secretary of state and shall become effective 90 days after filing. ~~_~~The
1186 | revised rules shall also be concurrently submitted to EPA for approval as revised water
1187 | quality standards for Clean Water Act purposes. If within 90 days of submittal, the EPA
1188 | determines that any such revised or new standard is not consistent with the applicable
1189 | requirements of the ~~Clean F~~Water~~ederal~~ Act and specifies the changes needed to meet
1190 | such requirements, the department may recommend a new standard incorporating EPA's
1191 | specifications to the ~~c~~Environmental ~~Quality~~Council for adoption.

1192 |
1193 | Section 35. **Credible Data.**

1194 |
1195 | (a) Development of scientifically valid chemical, physical and biological
1196 | monitoring data shall:

1197 |
1198 | (i) Consist of data collection using accepted referenced laboratory and
1199 | field methods employed by a person who has received specialized training and has field
1200 | experience in developing a monitoring plan, a quality assurance plan, and employing the
1201 | methods outlined in such plans; or works under the supervision of a person who has these
1202 | qualifications. Specialized training includes a thorough knowledge of written sampling
1203 | protocols and field methods such that the data collection and interpretation are
1204 | reproducible, scientifically defensible; and free from preconceived bias; and
1205 |

1206 (ii) Includes documented quality assurance consisting of a plan that
1207 | details how environmental data operations are planned, implemented, and assessed with
1208 | respect to quality during the duration of the project.
1209

1210 (b) Credible data shall be collected on each water body, as required in this
1211 | section, and shall be considered for purposes of characterizing the integrity of the water
1212 | body including consideration of soil, geology, hydrology, geomorphology, climate,
1213 | stream succession and the influences of man upon the system. These data in combination
1214 | with other available and applicable information shall be used through a weight-of-
1215 | evidence approach to designate uses and determine whether those uses are being attained.
1216 | In those instances where numerical standards contained in these rules are exceeded or on
1217 | ephemeral and intermittent water bodies where chemical and biological sampling may
1218 | not be practical or feasible, less than a complete set of data may be used to make a
1219 | decision on attainment.
1220

1221 (c) All changes to use designations after the effective date of this rule shall
1222 | include the consideration of credible data relevant to the decision. Changes which
1223 | involve the removal of a use designation or the replacement of a designation shall be
1224 | supported by a use attainability analysis (UAA).
1225

1226 (d) After the effective date of this rule, credible data shall be utilized in
1227 | determining a water body's attainment of designated uses.
1228

1229 Section 36. Effluent Dependent Criteria. In addition to the provisions of
1230 | Section 33 of these regulations, the ~~Water Quality A~~Administrator may make
1231 | modifications to the numeric ~~criteria~~values for pollutants listed in Appendix B on Class
1232 | 2D and 3D waters. These modifications may be made on a categorical or site-specific
1233 | basis by application of the following process:
1234

1235 | (a) The adopted statewide numeric criteria may be modified on Class 2D and
1236 | 3D waters to reflect ambient conditions by developing a UAA demonstrating that the
1237 | water body is effluent dependent and that continued discharge of a permitted effluent to
1238 | the water body has been shown to create a net environmental benefit. Criteria
1239 | modification based on a finding of net environmental benefit is authorized where:
1240

1241 | ~~(i)1.~~ The water body is effluent dependent;
1242

1243 | ~~(ii)2.~~ The discharge has been shown to create an environmental benefit
1244 | and removal of the discharge would cause more environmental harm than leaving it in
1245 | place;
1246

1247 | ~~(iii)3.~~ There is a credible threat to remove the discharge; and
1248

1249 | ~~(iv)4.~~ Appropriate safeguards are in place, ensuring that downstream
1250 | uses will be protected and the discharge will pose no health risk or hazard to humans,
1251 | livestock or wildlife.
1252 |
1253 | ~~(b).~~ Where the above factors have been satisfied, site-specific criteria may be
1254 | set equal to the background concentration plus a margin of error for each parameter
1255 | where the highest background concentration exceeds the statewide numeric criteria. Such
1256 | site-specific criteria will be implemented as instantaneous maximum values.
1257 |
1258 | ~~(i)1.~~ The background concentration shall be the highest concentration
1259 | recorded over the course of a one year period where samples have been taken at least
1260 | once in each month.
1261 |
1262 | ~~(ii)2.~~ The margin of error shall be one standard deviation calculated
1263 | from the same data set used to establish background.
1264 |
1265 | ~~(iii)3.~~ In addition to water column values, aquatic life tissue criteria shall
1266 | also be established for all parameters known to be bio-accumulating and where
1267 | recommended criteria have been developed by EPA. Such ~~criteria values~~ shall be at least
1268 | equal to the nationally recommended tissue criteria published by EPA under ~~s~~Section
1269 | 304(a) of the Clean Water Act.
1270 |
1271 | ~~(c)~~ The procedures used to implement this section are described in the ~~"Use~~
1272 | ~~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 ~~m~~Main ~~s~~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 Kortez 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 the Tongue River above the U.S. Forest Service ~~b~~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 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. ~~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~~ 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 ~~D~~department ~~of Environmental Quality~~ 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 ~~D~~department ~~of Environmental Quality~~ in June, 2000 are classified as 2C;

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

(IA) 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;

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

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

(IVE) 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, PRIORITY POLLUTANTS

<u>Priority Pollutant</u>	<u>Aquatic Life</u>		<u>Human Health Consumption of</u>	
	<u>Acute Value</u> <u>($\mu\text{g/L}$)</u>	<u>Chronic Value</u> <u>($\mu\text{g/L}$)</u>	<u>Fish and</u> <u>Drinking Water⁽²⁾</u> <u>($\mu\text{g/L}$)</u>	<u>Fish⁽⁸⁾</u> <u>($\mu\text{g/L}$)</u>
	<u>Aquatic Life</u> <u>Acute Value</u> <u>Micrograms/L</u>	<u>Aquatic Life</u> <u>Chronic Value</u> <u>Micrograms/L</u>	<u>Human Health</u> <u>Value</u> <u>Fish & Drinking</u> <u>Water⁽²⁾</u> <u>Micrograms/L</u>	<u>Human Health</u> <u>Value</u> <u>Fish Only⁽⁸⁾</u> <u>Micrograms/L</u>
Acenaphthene			20 ⁽⁷⁾	-990
Acrolein	<u>3</u>	<u>3</u>	<u>-1906</u>	<u>-2909</u>
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)			<u>-20100⁽⁹⁾</u>	-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-Dichlorobenzene			420	-1,300
1,3-Dichlorobenzene			-320	-960

PRIORITY POLLUTANTS

Priority Pollutant	Aquatic Life		Human Health Consumption of	
	Acute Value ($\mu\text{g/L}$)	Chronic Value ($\mu\text{g/L}$)	Fish and Drinking Water ⁽²⁾ ($\mu\text{g/L}$)	Fish ⁽³⁾ ($\mu\text{g/L}$)
	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⁾			-3307 ⁽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 ($\mu\text{g/L}$)	Chronic Value ($\mu\text{g/L}$)	Fish and Drinking Water ⁽²⁾ ($\mu\text{g/L}$)	Fish ⁽³⁾ ($\mu\text{g/L}$)
	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⁾	170860,000
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 ($\mu\text{g/L}$)	Chronic Value ($\mu\text{g/L}$)	Fish and Drinking Water ⁽²⁾ ($\mu\text{g/L}$)	Fish ⁽³⁾ ($\mu\text{g/L}$)
	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 ($\mu\text{g/L}$)	Chronic Value ($\mu\text{g/L}$)	Fish and Drinking Water ⁽²⁾ ($\mu\text{g/L}$)	Fish ⁽³⁾ ($\mu\text{g/L}$)
	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) ⁽²⁾		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 ⁽²⁾			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⁾	610100 ⁽⁹⁾	4,600
Selenium	20 ⁽¹⁰⁾	5 ⁽¹⁰⁾	50 ⁽⁹⁾	-4,200
Silver	3.41.7 ⁽⁴⁾⁽¹⁶⁾		100 ⁽¹¹⁾	
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 ($\mu\text{g/L}$)	Aquatic Life Chronic Value Micrograms/L ($\mu\text{g/L}$)	Human Health Value Fish and & Drinking Water ⁽²⁾ Micrograms/L ($\mu\text{g/L}$)	Human Health Value Fish Only ⁽⁸⁾ Micrograms/L ($\mu\text{g/L}$)
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) ether ⁽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 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) ⁽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		
<i>E. coli</i>			See Section 27	

<u>Non-Priority</u> Pollutant	<u>Aquatic Life</u>		<u>Human Health Consumption of</u>	
	<u>Aquatic Life</u> <u>Acute Value</u> <u>Micrograms/L</u> <u>($\mu\text{g/L}$)</u>	<u>Aquatic Life</u> <u>Chronic Value</u> <u>Micrograms/L</u> <u>($\mu\text{g/L}$)</u>	<u>Human Health</u> <u>Value</u> <u>Fish and &</u> <u>Drinking</u> <u>Water</u> ⁽²⁾ <u>Micrograms/L</u> <u>($\mu\text{g/L}$)</u>	<u>Human Health</u> <u>Value</u> <u>Fish Only</u> ⁽⁸⁾ <u>Micrograms/L</u> <u>($\mu\text{g/L}$)</u>
Diquat			20 ⁽⁹⁾	
Endothall			100 ⁽⁹⁾	
Ethylene dibromide (EDB) ⁽³⁾			0.05 ⁽⁹⁾	
Fluoride			-2000 ^(11,9)	
Glyphosate			700 ⁽⁹⁾	
Guthion		0.01		
<u>Haloacetic acids</u>			60 ⁽⁹⁾	
<u>Hexachlorocyclo-hexane -</u> <u>technical</u>			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⁾
<u>N-nitrosopyrrolidene, N</u> ⁽³⁾			0.016 ⁽³⁾	-34 ⁽³⁾
<u>Nonylphenol</u>	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 ($\mu\text{g/L}$)	Aquatic Life Chronic Value Micrograms/L ($\mu\text{g/L}$)	Human Health Value Fish and & Drinking Water ⁽²⁾ Micrograms/L ($\mu\text{g/L}$)	Human Health Value Fish Only ⁽⁸⁾ Micrograms/L ($\mu\text{g/L}$)
Sulfide-Hydrogen Sulfide (H_2S ; Undissociated)(S^{2-} , HS^-)		2		
1,2,4,5-Tetrachlorobenzene			-0.97	-1.1
Tributyltin (TBT)	0.46	0.07263		
Trichlorofluoromethane			10000	860000
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 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 17.56.5 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 criteria. 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 each case must be calculated using the formulas in Appendix F.

—⁽⁵⁾— pH dependent criteria. 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. $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$), 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 17.56.5 grams per day.

~~————(9)——~~ The cCriterion is based on an EPA drinking water standard (mMaximum cContaminant level or MCL).

~~————(10)——~~ This value is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use a the conversion factor (0.996 for the acute and 0.922 for the chronic) to convert this number to a value that is expressed in terms of a dissolved metal. Using these is conversion factors, the aquatic life acute value for selenium is 19.92 $\mu\text{g/L}$ as a dissolved metal ~~chronic~~ and the aquatic life chronic value for selenium is 4.61 $\mu\text{g/L}$ as a dissolved metal.

~~————(11)——~~ The iron and manganese Criteria isare based on Safe Drinking Water Act secondary standards and isare intended to prevent undesirable cosmetic or aesthetic effects. These vValues 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 $\mu\text{g/L}$ chronic criterion for aluminum is based on information showing chronic effects on brook trout and striped bass. The studies underlying the 87 $\mu\text{g/L}$ 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 $\mu\text{g/L}$ 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 dDepartment of Environmental Quality will implement the 87 $\mu\text{g/L}$ chronic criterion for aluminum as follows: the 87 $\mu\text{g/L}$ 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 CaCO₃) is greater than or equal to ~~or greater than 50 mg/L ppm as CaCO₃ 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 CaCO₃) 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 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, (°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 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:

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

(iv) Criterion continuous concentration (CCC) when fish early life stages are absent:

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

⁽¹⁾ Criterion maximum concentration (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 continuous concentration (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.

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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 for Metals and

Equations For Parameters With Hardness⁽⁺⁾ Dependent Metals see

(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 CaCO₃-hardness (mg/L of CaCO₃) 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 Cadmium and Lead are not constant but vary with hardness (mg/L of CaCO₃) and. Conversion factors can be calculated using the following equations, although when an ambient hardness of less than 25 mg/L (as CaCO₃) is used to establish criteria for lead or cadmium, the conversion factor should not exceed one^(a):

(A) Cadmium Acute: $CF = 1.136672 - [(ln \text{ hardness})(0.041838)]$

(B) Cadmium Chronic: $CF = 1.101672 - [(ln \text{ hardness})(0.041838)]$

(C) Lead Acute and Chronic: $CF = 1.46203 - [(ln \text{ hardness})(0.145712)]$

(b) Equations for Parameters With 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 the dissolved metal values:

Parameter	Acute 1-Hour Average Concentration (µg/L)	Chronic 4-Day Average Concentration (µg/L)
Cadmium	$e^{(1.0166 [\ln(\text{hardness})] - 3.924)}(\text{CF})$	$e^{(0.7409 [\ln(\text{hardness})] - 4.719)}(\text{CF})$
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	$e^{(1.273 [\ln(\text{hardness})] - 1.460)}(\text{CF})$	$e^{(1.273 [\ln(\text{hardness})] - 4.705)}(\text{CF})$
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.

^(b)-Hardness as mg/L CaCO₃. 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 Parametersee

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

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

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