UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE PRESIDING OFFICER

In the Matter	)	Docket No. 40-3453-MLA-3
	)	
ATLAS CORPORATION	)	ASLBP No. 99-761-04-MLA
	)	

NUCLEAR REGULATORY COMMISSION
STAFF'S REPLY TO THE PRESIDING
OFFICER'S ORDER OF OCTOBER 5, 1999

In the Order issued October 5, 1999, the Presiding Officer noted that the last sentence on page 4-93 of the Final Environmental Impact Statement Related to Reclamation of the Uranium Mill Tailings at the Atlas Site, Moab, Utah (March 1999), states "Relevant standards shall include the ammonia concentrations as identified below as well as other constituents regulated by the NRC and surface water standards quality standards for the protection of aquatic life as identified in Utah Administrative Code 51-317". The Staff has been directed to either file a copy of the reference cited or file a copy of the correct code provision.

The Staff has determined that the citation identified by the Presiding Officer is in fact incorrect. The provisions of the Utah Administrative Code concerning water quality are contained in R317. Environmental Quality, Water Quality. Standards of Quality for Waters

of the State are contained in R317-2, and the Numeric Criteria are found in R317-2-14. Within R317-2-14, the Numeric Criteria for Aquatic Wildlife are contained in Table 2.14.2. A copy section R317-2 is attached.

Respectfully submitted,

Lisa Clark

Lisa B. Clark
Counsel for NRC Staff

Dated at Rockville, Maryland
this 12th day of October, 1999

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In the Matter of	)	
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ATLAS CORPORATION	)	
	)	ASLBP No. 99-761-04-MLA
(Moab, Utah)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "NUCLEAR REGULATORY COMMISSION STAFF'S REPLY TO THE PRESIDING OFFICER'S ORDER OF OCTOBER 5, 1999" in the above-captioned proceeding have been served on the following by deposit into the United States mail, or through deposit in the Nuclear Regulatory Commission's internal mail system and as indicated by asterisk via e-mail, this 12th day of October 1999.

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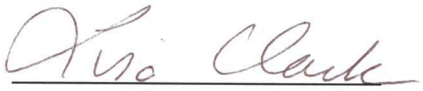

Lisa B. Clark
Counsel for NRC Staff

R317. Environmental Quality, Water Quality.
R317-2. Standards of Quality for Waters of the State.
R317-2-1A. Statement of Intent.

Whereas the pollution of the waters of this state constitute a menace to public health and welfare, creates public nuisances, is harmful to wildlife, fish and aquatic life, and impairs domestic, agricultural, industrial, recreational and other legitimate beneficial uses of water, and whereas such pollution is contrary to the best interests of the state and its policy for the conservation of the water resources of the state, it is hereby declared to be the public policy of this state to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; to provide that no waste be discharged into any waters of the state without first being given the degree of treatment necessary to protect the legitimate beneficial uses of such waters; to provide for the prevention, abatement and control of new or existing water pollution; to place first in priority those control measures directed toward elimination of pollution which creates hazards to the public health; to insure due consideration of financial problems imposed on water polluters through pursuit of these objectives; and to cooperate with other agencies of the state, agencies of other states and the federal government in carrying out these objectives.

R317-2-1B. Authority.

These standards are promulgated pursuant to Sections 19-5-104 and 19-5-110.

R317-2-2. Scope.

These standards shall apply to all waters of the state and shall be assigned to specific waters through the classification procedures prescribed by Sections 19-5-104(5) and 19-5-110 and R317-2-6.

R317-2-3. Antidegradation Policy.

3.1 Maintenance of Water Quality

Waters whose existing quality is better than the established standards for the designated uses will be maintained at high quality unless it is determined by the Board, after appropriate intergovernmental coordination and public participation in concert with the Utah continuing planning process, allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. However, existing instream water uses shall be maintained and protected. No water quality degradation is allowable which would interfere with or become injurious to existing instream water uses.

In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Federal Clean Water Act.

3.2 High Quality Waters - Category 1

Waters of high quality which have been determined by the Board to be of exceptional recreational or ecological significance or have been determined to be a State or National resource requiring protection, shall be maintained at existing high quality through designation, by the Board after public hearing, as High Quality Waters - Category 1. New point source discharges of wastewater, treated or otherwise, are prohibited in such segments after the effective date of

designation. Protection of such segments from pathogens in diffuse, underground sources is covered in R317-5 and R317-7 and the Regulations for Individual Wastewater Disposal Systems (R317-501 through R317-515). Other diffuse sources (nonpoint sources) of wastes shall be controlled to the extent feasible through implementation of best management practices or regulatory programs.

Projects such as, but not limited to, construction of dams or roads will be considered where pollution will result only during the actual construction activity, and where best management practices will be employed to minimize pollution effects.

Waters of the state designated as High Quality Waters - Category 1 are listed in R317-2-12.1.

3.3 High Quality Waters - Category 2

High Quality Waters - Category 2 are designated surface water segments which are treated as High Quality Waters - Category 1 except that a point source discharge may be permitted provided that the discharge does not degrade existing water quality. Waters of the state designated as High Quality Waters - Category 2 are listed in R317-2-12.2.

3.4 High Quality Waters - Category 3

High Quality Waters-Category 3 are designated surface water segments where a point source discharge may be permitted under the conditions and following the review outlined in this section. The High Quality Waters Category 3 designation may be applied to waters with quality higher than that necessary to support the designated beneficial uses of those waters.

Drinking water sources or waters with special value for recreation or fisheries are candidates to be designated as High Quality Waters - Category 3. Before new point source discharges, or increases to existing point source discharges, may be allowed, the State shall assure that (1) there shall be achieved all statutory and regulatory requirements for all new and existing point sources and there shall be achieved all required cost-effective and reasonable best management practices for nonpoint source control in the immediate area of the discharge, (2) there are no reasonable non-degrading or less degrading alternatives to the discharge (based on information provided by the discharger), (3) the proposed activity has economic and social importance, and (4) water quality standards will not be violated by the discharge.

In addition, depending upon the location of the discharge and its proximity to downstream drinking water diversions, additional treatment or more stringent effluent limits or additional monitoring, beyond that which may otherwise be required to meet minimum technology standards or instream water quality standards, may be required in order to adequately protect public health and the environment. Such additional treatment may include additional disinfection, suspended solids removal to make the disinfection process more effective, and/or nutrient removal to reduce the organic content of raw water used as a source for domestic water systems. Additional monitoring may include analyses for viruses, cryptosporidium, or other pathogenic organisms. The additional treatment/effluent limits/monitoring which may be required will be determined in consultation with the Division of Drinking Water and the downstream drinking water users.

The review required by this section may be waived by the Executive Secretary where the volume of the discharge is small compared to the flow of the receiving stream. In general, this waiver would be considered where the ratio of the average stream flow to the discharged flow is expected to be greater than 100:1, and the ratio of the 7Q10 (7 day-10 year) low flow to the discharge flow is expected to be greater than 25:1 where the increase in concentration of pollutants in the stream at 7Q10 is low flow is expected to be less than 10%, or based on other site specific criteria.

Waters of the state designated as High Quality Waters -- Category 3 are listed in R317-2-12.3

R317-2-4. Colorado River Salinity Standards.

In addition to quality protection afforded by these regulations to waters of the Colorado River and its tributaries, such waters shall be protected also by requirements of "Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975" and a supplement dated August 26, 1975, entitled "Supplement, including Modifications to Proposed Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975", as approved by the seven Colorado River Basin States and the U.S. Environmental Protection Agency, as updated by the 1978 Revision and the 1981, 1984, 1987, 1990, 1993, and 1996 Reviews of the above documents.

R317-2-5. Mixing Zones.

A mixing zone is a limited portion of a body of water, contiguous to a discharge, where dilution is in progress but has not yet resulted in concentrations which will meet certain standards for all pollutants. At no time, however, shall concentrations within the mixing zone be allowed which are acutely lethal as determined by bioassay or other approved procedure. Mixing zones may be delineated for the purpose of guiding sample collection procedures and to determine permitted effluent limits. The size of the chronic mixing zone shall not to exceed 2500 feet and the size of an acute mixing zone shall not exceed 50% of stream width nor have a residency time of greater than 15 minutes. Streams with a flow equal to or less than twice the flow of a point source discharge may be considered to be totally mixed. Domestic wastewater effluents discharged to mixing zones shall meet effluent requirements specified in R317-1-3.

R317-2-6. Use Designations.

The Board as required by Section 19-5-110, shall group the waters of the state into classes so as to protect against controllable pollution the beneficial uses designated within each class as set forth below. Surface waters of the state are hereby classified as shown in R317-2-13.

6.1 Class 1 -- Protected for use as a raw water source for domestic water systems.

a. Class 1A -- Reserved.

b. Class 1B -- Reserved.

c. Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water

6.2 Class 2 -- Protected for recreational use and aesthetics.

a. Class 2A -- Protected for primary contact recreation such as swimming.

b. Class 2B -- Protected for secondary contact recreation such as boating, wading, or similar uses.

6.3 Class 3 -- Protected for use by aquatic wildlife.

a. Class 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

b. Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.

c. Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

d. Class 3D -- Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.

e. Class 3E -- Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.

6.4 Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

6.5 Class 5 -- The Great Salt Lake. Protected for primary and secondary contact recreation, aquatic wildlife, and mineral extraction.

R317-2-7. Water Quality Standards.

7.1 Application of Standards

The numeric criteria listed in R317-2-14 shall apply to each of the classes assigned to waters of the State as specified in R317-2-6. It shall be unlawful and a violation of these regulations for any person to discharge or place any wastes or other substances in such manner as may interfere with designated uses protected by assigned classes or to cause any of the applicable standards to be violated, except as provided in R317-1-3.1. The Board may allow site specific modifications based upon bioassay or other tests performed in accordance with standard procedures determined by the Board.

7.2 Narrative Standards

It shall be unlawful, and a violation of these regulations, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures.

R317-2-8. Protection of Downstream Uses.

All actions to control waste discharges under these regulations shall be modified as necessary to protect downstream designated uses.

R317-2-9. Intermittent Waters.

Failure of a stream to meet water quality standards when stream flow is either unusually high or less than the 7-day, 10-year minimum flow shall not be cause for action against persons discharging wastes which meet both the requirements of R317-1 and the requirements of applicable permits.

R317-2-10. Laboratory and Field Analyses.

10.1 Laboratory Analyses

All laboratory examinations of samples collected to determine compliance with these regulations shall be performed in accordance with standard procedures as approved by the Utah Division of Water Quality by the Utah Office of State Health Laboratory or by a laboratory certified by the Utah Department of Health.

10.2 Field Analyses

All field analyses to determine compliance with these regulations shall be conducted in accordance with standard procedures specified by the Utah Division of Water Quality.

R317-2-11. Public Participation.

Public hearings will be held to review all proposed revisions of water quality standards, designations and classifications, and public meetings may be held for consideration of discharge requirements set to protect water uses under assigned classifications.

R317-2-12. High Quality Waters.

12.1 High Quality Waters - Category 1.

In addition to assigned use classes, the following surface waters of the State are hereby designated as High Quality Waters - Category 1:

12.1.1 All surface waters geographically located within the outer boundaries of U.S. National Forests whether on public or private lands with the following exceptions:

All High Quality Waters - Category 2 as listed in R317-2-12.2.

Weber River, a tributary to the Great Salt Lake, in the Weber River Drainage from Uintah to Mountain Green.

12.1.2 Other surface waters, which may include segments within U.S. National Forests as follows:

12.1.2.1 Colorado River Drainage

Calf Creek and tributaries, from confluence with Escalante River to headwaters.

Sand Creek and tributaries, from confluence with Escalante River to headwaters.

Mamie Creek and tributaries, from confluence with Escalante River to headwaters.

Deer Creek and tributaries, from confluence with Boulder Creek to headwaters (Garfield County).

Indian Creek and tributaries, through Newspaper Rock State Park to headwaters.

12.1.2.2 Green River Drainage

Fish Creek from confluence with White River to Scofield Dam.

Range Creek and tributaries, from confluence with Green River to headwaters.

Strawberry River and tributaries, from confluence with Red Creek to headwaters.

Avintaquin Creek, from confluence with Strawberry River to confluence with Cottonwood Creek.

Ashley Creek and tributaries, from Steinaker diversion to headwaters.

Jones Hole Creek and tributaries, from confluence with Green River to headwaters.

Green River, from state line to Flaming Gorge Dam.

Tollivers Creek, from confluence with Green River to headwaters.

Allen Creek, from confluence with Green River to headwaters.

12.1.2.3 Virgin River Drainage

North Fork Virgin River and tributaries, from confluence with East Fork Virgin River to headwaters.

East Fork Virgin River and tributaries from confluence with North Fork Virgin River to headwaters.

12.1.2.4 Kanab Creek Drainage

Kanab Creek and tributaries, from irrigation diversion at confluence with Reservoir Canyon to headwaters.

12.1.2.5 Bear River Drainage

Swan Creek and tributaries, from Bear Lake to headwaters.

North Eden Creek, from Upper North Eden Reservoir to headwaters.

Big Creek and tributaries, from Big Ditch diversion to headwaters.

Woodruff Creek and tributaries, from Woodruff diversion to headwaters.

12.1.2.6 Weber River Drainage

Burch Creek and tributaries, from Harrison Boulevard in Ogden to headwaters.

Hardscrabble Creek and tributaries, from confluence with East Canyon Creek to headwaters.

Chalk Creek and tributaries, from U.S. Highway 189 to headwaters.

Weber River and tributaries, from U.S. Highway 189 near Oakley to headwaters.

12.1.2.7 Jordan River Drainage

City Creek and tributaries, from City Creek Water Treatment Plant to headwaters (Salt Lake County).

Emigration Creek and tributaries, from Hogle Zoo to headwaters (Salt Lake County).

Red Butte Creek and tributaries, from Foothill Boulevard in Salt Lake City to headwaters.

Parley's Creek and tributaries, from 13th East in Salt Lake City to headwaters.

Mill Creek and tributaries, from Wasatch Boulevard in Salt Lake City to headwaters.

Big Cottonwood Creek and tributaries, from Wasatch Boulevard in Salt Lake City to headwaters.

Little Willow Creek and tributaries, from diversion to headwaters (Salt Lake County.)

Bell Canyon Creek and tributaries, from Lower Bells Canyon Reservoir to headwaters (Salt Lake County).

South Fork of Dry Creek and tributaries, from Draper Irrigation Company diversion to headwaters (Salt Lake County).

12.1.2.8 Provo River Drainage

Upper Falls drainage above Provo City diversion (Utah County).

Bridal Veil Falls drainage above Provo City diversion (Utah County).

Lost Creek and tributaries, above Provo City diversion (Utah County).

12.1.2.9 Sevier River Drainage

Chicken Creek and tributaries, from diversion at canyon mouth to headwaters.

Pigeon Creek and tributaries, from diversion to headwaters.

East Fork of Sevier River and tributaries, from Kingston diversion to headwaters.

Parowan Creek and tributaries, from Parowan City to headwaters.

Summit Creek and tributaries, from Summit City to headwaters.

Braffits Creek and tributaries, from canyon mouth to headwaters.

Right Hand Creek and tributaries, from confluence with Coal Creek to headwaters.

12.1.2.10 Raft River Drainage

Clear Creek and tributaries, from state line to headwaters (Box Elder County).

Birch Creek (Box Elder County), from state line to headwaters.

Cotton Thomas Creek from confluence with South Junction Creek to headwaters.

12.1.2.11 Western Great Salt Lake Drainage

All streams on the south slope of the Raft River Mountains above 7000' mean sea level.

Donner Creek (Box Elder County), from irrigation diversion to Utah-Nevada state line.

Bettridge Creek (Box Elder County), from irrigation diversion to Utah-Nevada state line.

Clover Creek, from diversion to headwaters.

All surface waters on public land on the Deep Creek Mountains.

12.1.2.12 Farmington Bay Drainage

Holmes Creek and tributaries, from Highway US-89 to headwaters (Davis County).

Shepard Creek and tributaries, from Height Bench diversion to headwaters (Davis County).

Farmington Creek and tributaries, from Height Bench Canal diversion to headwaters (Davis County).

Steed Creek and tributaries, from Highway US-89 to headwaters (Davis County).

12.2 High Quality Waters - Category 2.

In addition to assigned use classes, the following surface waters of the State are hereby designated as High Quality Waters - Category 2:

12.2.1 Green River Drainage

Deer Creek, a tributary of Huntington Creek, from the forest boundary to 4800 feet upstream

12.3 High Quality Waters - Category 3.

In addition to assigned use classes, the following surface waters of the State are hereby designated as High Quality Waters - Category 3:

12.3.1 Provo River Drainage

Provo River and tributaries from Murdock Diversion to U.S. Forest Boundary, including Deer Creek Reservoir and Jordanelle Reservoir.

12.13 Statewide

All surface waters geographically located within the outer boundaries of U.S. National Forests whether on public or private lands.

R317-2-13. Classification of Waters of the State.

13.1 Upper Colorado River Basin

a. Colorado River Drainage

TABLE

Paria River and tributaries, from state line to headwaters		2B	3C	4
All tributaries to Lake Powell, except as listed separately	2B	3B	4	
Escalante River and tributaries, from Lake Powell to confluence with Boulder Creek		2B	3C	
Escalante River and tributaries, from confluence with Boulder Creek, including Boulder Creek, to headwaters		2B	3A	4
Deer Creek and tributaries, from confluence with Boulder Creek to headwaters		2B	3A	4

Dirty Devil River and tributaries, from Lake Powell to Fremont River		2B	3C	
Fremont River and tributaries, from confluence with Muddy Creek to Capitol Reef National Park		2B	3C	4
Fremont River and tributaries, through Capitol Reef National Park to headwaters	1C	2B	3A	4
Pleasant Creek and tributaries, from confluence with Fremont River to East boundary of Capitol Reef National Park		2B	3C	
Pleasant Creek and tributaries, from East boundary of Capitol Reef National Park to headwaters		1C	2B	3A
Muddy Creek and tributaries, from confluence with Fremont River to Highway U-10 crossing		2B	3C	4
Muddy Creek and tributaries, from Highway U-10 crossing to headwaters			2B 3A	4
Quitchupah Creek and tributaries, from Highway U-10 crossing to headwaters			2B 3A	4
Ivie Creek and tributaries, from Highway U-10 to headwaters			2B 3A	4
San Juan River and tributaries, from Lake Powell to state line except				

as listed below: 1C 2B 3B 4

Johnson Creek and tributaries, from confluence with Recapture Creek to headwaters 1C 2B 3A 4

Verdure Creek and tributaries, from Highway US-191 crossing to headwaters 2B 3A 4

North Creek and tributaries, from confluence with Montezuma Creek to headwaters 1C 2B 3A 4

South Creek and tributaries, from confluence with Montezuma Creek to headwaters 1C 2B 3A 4

Spring Creek and tributaries, from confluence with Vega Creek to headwaters 2B 3A 4

Montezuma Creek and tributaries, from U.S. Highway 191 to headwaters 1C 2B 3A 4

Colorado River and tributaries, from Lake Powell to state line except as listed separately 1C 2B 3B 4

Indian Creek and tributaries, from confluence with Colorado River to Newspaper Rock State Park 2B 3B 4

Indian Creek and tributaries, through Newspaper Rock State Park to headwaters 1C 2B 3A 4

Kane Canyon Creek and tributaries, from confluence with Colorado River to headwaters 2B 3C 4

Mill Creek and tributaries, from confluence with Colorado River to

headwaters	2B	3A		4
Dolores River and tributaries, from confluence with Colorado River to state line	2B		3C	4
Roc Creek and tributaries, from confluence with Dolores River to headwaters	2B	3A		4
LaSal Creek and tributaries, from state line to headwaters		2B	3A	4
Lion Canyon Creek and tributaries, from state line to headwaters	2B	3A		4
Little Dolores River and tributaries, from confluence with Colorado River to state line		2B	3C	4
Bitter Creek and tributaries, from confluence with Colorado River to headwaters			3C	4

b. Green River Drainage

TABLE

Green River and tributaries, from confluence with Colorado River to state line except as listed below:	1C	2B	3B		4
Thompson Creek and tributaries from Interstate Highway 70 to headwaters	2B		3C	4	
San Rafael River and tributaries, from confluence with Green River to confluence with Ferron Creek		2B		3C	4
Ferron Creek and tributaries, from confluence with San Rafael River to Millsite					

Reservoir		2B	3C	4
Ferron Creek and tributaries, from Millsite Reservoir to headwaters	1C	2B	3A	4
Huntington Creek and tributaries, from confluence with Cottonwood Creek to Highway U-10 crossing		2B	3C	4
Huntington Creek and tributaries, from Highway U-10 crossing to headwaters	1C	2B	3A	4
Cottonwood Creek and tributaries, from confluence with Huntington Creek to Highway U-57 crossing		2B	3C	4
Cottonwood Creek and tributaries, from Highway U-57 crossing to headwaters	1C	2B	3A	4
Cottonwood Canal, Emery County	1C	2B		4
Price River and tributaries, from confluence with Green River to Carbon Canal Diversion at Price City Golf Course		2B	3C	4
Price River and tributaries, from Carbon Canal Diversion at Price City Golf Course to Price City Water Water Treatment Plant intake.		2B	3A	4
Price River and tributaries, from Price City Water Treatment Plant intake to headwaters	1C	2B	3A	4
Grassy Trail Creek and tributaries, from Grassy Trail Creek Reservoir to headwaters	1C	2B	3A	4

Range Creek and tributaries, from confluence with Green River to Range Creek Ranch		2B	3C	4
Range Creek and tributaries, from Range Creek Ranch to headwaters	1C	2B	3A	4
Rock Creek and tributaries, from confluence with Green River to headwaters		2B	3A	4
Nine Mile Creek and tributaries, from confluence with Green River to headwaters		2B	3A	4
Pariette Draw and tributaries, from confluence with Green River to headwaters		2B	3B	3D 4
Willow Creek and tributaries (Uintah County), from confluence with Green River to headwaters		2B	3A	4
Bitter Creek and Tributaries from White River to Headwaters		2B	3A	4
White River and tributaries, from confluence with Green River to state line		2B	3B	4
Duchesne River and tributaries, from confluence with Green River to Myton Water Treatment Plant intake		2B	3B	4
Duchesne River and tributaries, from Myton Water Treatment Plant intake to headwaters	1C	2B	3A	4
Uinta River and tributaries, from confluence with Duchesne River to Highway US-40 crossing		2B	3B	4

Uinta River and tributaries, from Highway US-40 crossing to headwaters		2B	3A	4
Power House Canal from confluence with Uinta River to headwaters		2B	3A	4
Lake Fork River and tributaries, from confluence with Duchesne River to headwaters	1C	2B	3A	4
Lake Fork Canal from Dry Gulch Canal Diversion to Moon Lake	1C	2B		4
Dry Gulch Canal, from Myton Water Treatment Plant to Lake Fork Canal		1C	2B	4
Whiterocks River and Canal, from Tridell Water Treatment Plant to headwaters	1C	2B	3A	4
Ashley Creek and tributaries, from confluence with Green River to Steinaker diversion		2B	3B	4
Ashley Creek and tributaries, from Steinaker diversion to headwaters	1C	2B	3A	4
Big Brush Creek and tributaries, from confluence with Green River to Tyzack (Red Fleet) Dam		2B	3B	4
Big Brush Creek and tributaries, from Tyzack (Red Fleet) Dam to headwaters	1C	2B	3A	4

Jones Hole Creek and tributaries, from confluence with Green River to headwaters	2B	3A	
Diamond Gulch Creek and tributaries, from confluence with Green River to headwaters	2B	3A	4
Pot Creek and tributaries, from Crouse Reservoir to headwaters	2B	3A	4
Green River and tributaries, from Utah-Colorado state line to Flaming Gorge Dam except as listed below:	2B	3A	4
Sears Creek and tributaries, Daggett County	2B	3A	
Tolivers Creek and tributaries, Daggett County	2B	3A	
Red Creek and tributaries, from confluence with Green River to state line	2B	3C	4
Jackson Creek and tributaries, Daggett County	2B	3A	
Davenport Creek and tributaries, Daggett County	2B	3A	
Goslin Creek and tributaries, Daggett County	2B	3A	
Gorge Creek and tributaries, Daggett County	2B	3A	
Beaver Creek and tributaries, Daggett County	2B	3A	
O-Wi-Yu-Kuts Creek and tributaries, County	2B	3A	

Tributaries to Flaming Gorge Reservoir, except as listed below	2B	3A		4
Birch Spring Draw and tributaries, from Flaming Gorge Reservoir to headwaters	2B		3C	4
Spring Creek and tributaries, from Flaming Gorge Reservoir to headwaters	2B	3A		
All Tributaries to the Green River above Flaming Gorge Reservoir from Utah-Wyoming state line to headwaters	2B	3A		4
Van Tassel Creek from Utah-Wyoming state line to headwaters		3A		4

13.2 Lower Colorado River Basin

a. Virgin River Drainage

TABLE

Virgin River and tributaries (except as listed below), from state line to Quail Creek diversion	2B	3B		4
Santa Clara River and tributaries, from Gunlock Reservoir to headwaters	1C	2B	3A	4
Santa Clara River from confluence with Virgin River to Gunlock Reservoir	1C	2B	3B	4
Leed's Creek, from confluence with Quail Creek to headwaters		2B	3A	4
Quail Creek from Quail Creek Reservoir to headwaters	1C	2B	3A	4
Ash Creek and tributaries,				

from confluence with Virgin River to Ash Creek Reservoir		2B	3C	4
Ash Creek and tributaries, From Ash Creek Reservoir to headwaters		2B	3A	4
Virgin River and tributaries (except as listed below), from the Quail Creek diversion to headwaters	1C	2B	3C	4
North Fork Virgin River and tributaries	1C	2B	3A	4
East Fork Virgin River, from town of Glendale to headwaters		2B	3A	4
Kolob Creek, from confluence with Virgin River to headwaters		2B	3A	4
Beaver Dam Wash and tributaries, from Motoqua to headwaters		2B	3A	4

b. Kanab Creek Drainage

TABLE

Kanab Creek and tributaries, from state line to irrigation diversion at confluence with Reservoir Canyon		2B	3C	4
Kanab Creek and tributaries, from irrigation diversion at confluence with Reservoir Canyon to headwaters		2B	3A	4
Johnson Wash and tributaries, from state line to confluence with Red Wash		2B	3C	4
Johnson Wash and tributaries, from confluence with Red Wash to headwaters		2B	3A	4

13.3 Bear River Basin
a. Bear River Drainage

TABLE

Bear River and tributaries, from Great Salt Lake to Utah-Idaho border, except as listed below:	2B	3B	3D	4
Willard Creek, from Willard Bay Reservoir to headwaters	2B	3A		4
Perry Canyon Creek from U.S. Forest boundary to headwaters	2B	3A		4
Box Elder Creek from confluence with Black Slough to Brigham City Reservoir (the Mayor's Pond)	2B		3C(*)	4
Box Elder Creek, from Brigham City Reservoir (the Mayor's Pond) to headwaters	2B	3A		4
Malad River and tributaries, from confluence with Bear River to state line	2B	3C		
Little Bear River and tributaries, from Cutler Reservoir to headwaters	2B	3A	3D	4
Logan River and tributaries, from Cutler Reservoir to headwaters	2B	3A	3D	4
Blacksmith Fork and tributaries, from confluence with Logan River to headwaters	2B	3A		4
Newton Creek and tributaries, from Cutler Reservoir to Newton Reservoir	2B	3C		4
Clarkston Creek and tributaries,				

from Newton Reservoir to headwaters 2B 3A 4

Birch Creek and tributaries, from confluence with Clarkston Creek to headwaters 2B 3A 4

Summit Creek and tributaries, from confluence with Bear River to headwaters 2B 3A 4

Cub River and tributaries, from confluence with Bear River to state line, except as listed below: 2B 3B 4

High Creek and tributaries, from confluence with Cub River to headwaters 2B 3A 4

Swan Springs tributary to Swan Creek 1C 2B

All tributaries to Bear Lake from Bear Lake to headwaters 2B 3A 4

Swan Creek and tributaries, from Bear Lake to headwaters 2B 3A 4

Big Creek and tributaries, from Bear Lake to headwaters 2B 3A 4

Bear River and tributaries in Rich County 2B 3A 4

Bear River and tributaries, from Utah-Wyoming state line to headwaters (Summit County) 2B 3A 4

Mill Creek and tributaries, from state line to headwaters (Summit County) 2B 3A 4

* Special case numeric criteria for Total Residual Chlorine. See Table 2.14.2, Footnote (7).

13.4 Weber River Basin
a. Weber River Drainage

TABLE

Weber River, from Great Salt Lake to Slaterville diversion, except as listed below:	2B		3C	3D	4
Four Mile Creek from I-15 to headwaters	2B	3A			4
Weber River and tributaries, from Slaterville diversion to Stoddard diversion	2B	3A			4
Weber River and tributaries, from Stoddard diversion to headwaters	1C	2B	3A		4
Strongs Canyon Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A		4
Burch Creek and tributaries, from Harrison Boulevard in Ogden to headwaters	1C	2B	3A		
Spring Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A		4
Ogden River and tributaries, from confluence with Weber River to Pineview Dam	2B	3A			4
Wheeler Creek from confluence with Ogden River to headwaters	1C	2B	3A		4
All tributaries to Pineview Reservoir	1C	2B	3A		4

13.5 Utah Lake-Jordan River Basin
a. Jordan River Drainage

TABLE

Jordan River, from Farmington Bay to North Temple Street, Salt Lake City	2B	3B *	3D	4	
Jordan River, from North Temple Street in Salt Lake City to confluence with Little Cottonwood Creek	2B	3B *		4	
Surplus Canal from Great Salt Lake to the diversion from the Jordan River	2B	3B *	3D	4	
Jordan River from confluence with Little Cottonwood Creek to Narrows Diversion	2B	3A		4	
Jordan River, from Narrows Diversion to Utah Lake	1C	2B	3B	4	
City Creek, from Memory Park in Salt Lake City to City Creek Water Treatment Plant	2B	3A			
City Creek, from City Creek Water Treatment Plant to headwaters	1C	2B	3A		
Parley's Creek and tributaries, from 1300 East in Salt Lake City to Mountain Dell Reservoir	2B	3A			
Parley's Creek and tributaries, from Mountain Dell Reservoir to headwaters	1C	2B	3A		
Emigration Creek and tributaries, from Foothill Boulevard in Salt Lake City to headwaters	2B	3A			
Red Butte Creek and tributaries, from Red Butte Reservoir to headwaters	1C	2B	3A		
Mill Creek (Salt Lake County) from confluence with Jordan					

River to Interstate Highway 15		2B	3C	4
Mill Creek (Salt Lake County) and tributaries from Interstate Highway 15 to headwaters		2B	3A	4
Big Cottonwood Creek and tributaries, from confluence with Jordan River to Big Cottonwood Water Treatment Plant		2B	3A	4
Big Cottonwood Creek and tributaries, from Big Cottonwood Water Treatment Plant to headwaters	1C	2B	3A	
Deaf Smith Canyon Creek and tributaries	1C	2B	3A	4
Little Cottonwood Creek and tributaries, from confluence with Jordan River to Metropolitan Water Treatment Plant		2B	3A	4
Little Cottonwood Creek and tributaries, from Metropolitan Water Treatment Plant to headwaters	1C	2B	3A	
Bell Canyon Creek and tributaries, from lower Bell's Canyon reservoir to headwaters	1C	2B	3A	
Little Willow Creek and tributaries, from Draper Irrigation Company diversion to headwaters	1C	2B	3A	
Big Willow Creek and tributaries, from Draper Irrigation Company diversion to headwaters	1C	2B	3A	
South Fork of Dry Creek and tributaries, from Draper Irrigation Company diversion to				

headwaters	1C	2B	3A	
All permanent streams on east slope of Oquirrh Mountains (Coon, Barney's, Bingham, Butterfield, and Rose Creeks)		2B	3D	4
Kersey Creek from confluence of C-7 Ditch to headwaters			3D	

* Site specific criteria for total ammonia and dissolved oxygen. See Table 2.14.5.

b. Provo River Drainage

TABLE

Provo River and tributaries, from Utah Lake to Murdock diversion		2B	3A	4
Provo River and tributaries, from Murdock Diversion to headwaters	1C	2B	3A	4
Upper Falls drainage above Provo City diversion	1C	2B	3A	
Bridal Veil Falls drainage above Provo City diversion	1C	2B	3A	
Lost Creek and tributaries above Provo City diversion	1C	2B	3A	

c. Utah Lake Drainage

TABLE

American Fork Creek and tributaries, from diversion at mouth of American Fork Canyon to headwaters		2B	3A	4
Spanish Fork River and tributaries, from Utah Lake to diversion at Moark Junction		2B	3B	3D 4

Spanish Fork River and tributaries, from diversion at Moark Junction to headwaters	2B	3A		4
Spring Creek and tributaries, from Utah Lake near Lehi to headwaters	2B	3A		4
Lindon Hollow Creek and tributaries, from Utah Lake to headwaters	2B	3B		4
Mill Race (except from Interstate Highway 15 to the Provo City WWTP discharge) and tributaries from Utah Lake to headwaters	2B	3B		4
Mill Race from Interstate Highway 15 to the Provo City wastewater treatment plant discharge	2B	3B *		4
Spring Creek and tributaries from Utah Lake (Provo Bay) to 50 feet upstream from the east boundary of the Industrial Parkway Road Right-of-way	2B	3B		4
Tributary to Spring Creek (Utah County) which receives the Springville City WWTP effluent from confluence with Spring Creek to headwaters	2B		3D	4
Spring Creek and tributaries from 50 feet upstream from the east boundary of the Industrial Parkway Road right-of-way to the headwaters	2B	3A		4
Ironton Canal from Utah Lake (Provo Bay) to the east boundary of the Denver and Rio Grande Western Railroad right-of-way	2B		3C *	4
Ironton Canal from the east boundary of the Denver and Rio				

Grande Western Railroad right-of-way to the point of diversion from Spring Creek	2B	3A	4
Hobble Creek and tributaries, from Utah Lake to headwaters	2B	3A	4
Dry Creek and tributaries from Utah Lake (Provo Bay) to Interstate Highway 15	2B	3C	4
Dry Creek and tributaries from Interstate Highway 15 to headwaters	2B	3A	4
Benjamin Slough and tributaries (except Beer Creek) from Utah Lake to headwaters	2B	3B	4
Beer Creek (Utah County) from 4850 West (in NE1/4NE1/4 sec. 36, T.8 S., R.1 E.) to headwaters	2B	3C *	4
All other permanent streams entering Utah Lake	2B	3B	4
Salt Creek, from Nephi diversion to headwaters	2B	3A	4
Currant Creek, from mouth of Goshen Canyon to Mona Reservoir	2B	3B	4
Burriston Creek, from Mona Reservoir to headwaters	2B	3A	4
Peteetneet Creek and tributaries, from irrigation diversion above Maple Dell to headwaters	2B	3A	4
Summit Creek and tributaries (above Santaquin), from U.S. National Forest boundary to			

headwaters	2B	3A	4
Rock Canyon Creek and tributaries (East of Provo) from U.S. National Forest boundary to headwaters	1C	2B 3A	4
Dry Creek and tributaries (above Alpine), from U.S. National Forest boundary to headwaters		2B 3A	4

* Special case numeric criteria for Total Residual Chlorine. See Table 2.14.2, Footnote (7).

13.6 Sevier River Basin

a. Sevier River Drainage

TABLE

Sevier River and tributaries from Sevier Lake to Gunnison Bend Reservoir to U.S.National Forest boundary except the following		2B 3C	4
Beaver River and tributaries from Minersville City to headwaters		2B 3A	4
Tributaries to Sevier River from Sevier Lake to Gunnison Bend Reservoir from U.S. National Forest boundary to headwaters, including:		2B 3A	4
Pioneer Creek and tributaries, Millard County		2B 3A	4
Chalk Creek and tributaries, Millard County		2B 3A	4
Meadow Creek and tributaries, Millard County		2B 3A	4
Corn Creek and tributaries, Millard County		2B 3A	4
Tributaries to Sevier River			

from Gunnison Bend Reservoir to Annabella Diversion from U.S. National Forest boundary to headwaters	2B	3A		4
Sevier River and tributaries from Gunnison Bend Reservoir to Annabella Diversion except the following tributaries:	2B	3B		4
Oak Creek and tributaries, Millard County	2B	3A		4
Round Valley Creek and tributaries, Millard County	2B	3A		4
Chicken Creek and tributaries, Juab County	2B	3A		4
San Pitch River and tributaries, from confluence with Sevier River to Highway U-132 crossing except the following tributaries:	2B		3C 3D	4
Twelve Mile Creek and tributaries, from U.S. Forest Service boundary to headwaters	2B	3A		4
Six Mile Creek and tributaries, Sanpete County	2B	3A		4
Manti Creek and tributaries, from U.S. Forest Service boundary to headwaters	2B	3A		4
Ephraim Creek and tributaries, from U.S. Forest Service to headwaters	2B	3A		4
Oak Creek and tributaries, from U.S. Forest Service boundary near Spring City to headwaters	2B	3A		4

Fountain Green Creek and tributaries, from U.S. Forest Service boundary to headwaters	2B	3A		4
San Pitch River and tributaries, from Highway U-132 crossing to headwaters	2B	3A		4
Judd Creek and tributaries, Juab County	2B	3A		4
Meadow Creek and tributaries, Juab County	2B	3A		4
Cherry Creek and tributaries, Juab County	2B	3A		4
Tanner Creek and tributaries, Juab County				4
Baker Hot Springs, Juab County		2B	3D	4
Sevier River and tributaries, from Annabella diversion to headwaters	2B	3A		4
Monroe Creek and tributaries, from diversion to headwaters		2B	3A	4
Little Creek and tributaries, from irrigation diversion to headwaters	2B	3A		4
Pinto Creek and tributaries, from Newcastle Reservoir to headwaters	2B		3C	4
Coal Creek and tributaries		2B	3C	4
Summit Creek and tributaries		2B	3A	4
Parowan Creek and tributaries		2B	3A	4
Duck Creek and tributaries	1C	2B	3A	4

13.7 Great Salt Lake Basin
a. Western Great Salt Lake Drainage

TABLE

Grouse Creek and tributaries, Box Elder County	2B	3C	4
Muddy Creek and tributaries, Box Elder County	2B	3C	4
Dove Creek and tributaries, Box Elder County	2B	3C	4
Pine Creek and tributaries, Box Elder County	2B	3A	4
Rock Creek and tributaries, Box Elder County	2B	3A	4
Fisher Creek and tributaries, Box Elder County	2B	3A	4
Dunn Creek and tributaries, Box Elder County	2B	3A	4
Donner Creek and tributaries, from irrigation diversion to Utah-Nevada state line	2B	3A	4
Bettridge Creek and tributaries, from irrigation diversion to Utah-Nevada state line	2B	3A	4
Indian Creek and tributaries, Box Elder County	2B	3A	4
Tenmile Creek and tributaries, Box Elder County	2B	3A	4
Curlew (Deep) Creek, Box Elder County	2B	3A	4
Blue Creek and tributaries, from			

Great Salt Lake to Blue Creek Reservoir	2B	3D	4	
Blue Creek and tributaries, from Blue Creek Reservoir to headwaters	2B	3B	4	
All perennial streams on the east slope of the Pilot Mountain Range	1C	2B	3A	4
North Willow Creek and tributaries, Tooele County	2B	3A	4	
South Willow Creek and tributaries, Tooele County	2B	3A	4	
Hickman Creek and tributaries, Tooele County	2B	3A	4	
Barlow Creek and tributaries, Tooele County	2B	3A	4	
Clover Creek and tributaries, Tooele County	2B	3A	4	
Faust Creek and tributaries, Tooele County	2B	3A	4	
Vernon Creek and tributaries, Tooele County	2B	3A	4	
Ophir Creek and tributaries, Tooele County	2B	3A	4	
Settlement Canyon Creek and tributaries, Tooele County	2B	3A	4	
Middle Canyon Creek and tributaries, Tooele County	2B	3A	4	
Tank Wash and tributaries, Tooele County	2B	3A	4	
Basin Creek and tributaries, Juab and Tooele Counties	2B	3A	4	

Thomas Creek and tributaries, Juab County	2B	3A	4
Indian Farm Creek and tributaries, Juab County	2B	3A	4
Cottonwood Creek and tributaries, Juab County	2B	3A	4
Red Cedar Creek and tributaries, Juab County	2B	3A	4
Granite Creek and tributaries, Juab County	2B	3A	4
Trout Creek and tributaries, Juab County	2B	3A	4
Birch Creek and tributaries, Juab County	2B	3A	4
Deep Creek and tributaries, from Rock Spring Creek to headwaters, Juab and Tooele Counties	2B	3A	4
Cold Spring, Juab County	2B	3C	3D
Cane Spring, Juab County	2B	3C	3D
Lake Creek, from Garrison (Pruess) Reservoir to Nevada state line	2B	3A	4
Snake Creek and tributaries, Millard County	2B	3B	4
Salt Marsh Spring Complex, Millard County	2B	3A	
Twin Springs, Millard County	2B	3B	
Tule Spring, Millard County	2B	3C	3D
Coyote Spring Complex, Millard			

County	2B	3C	3D	
Hamblin Valley Wash and tributaries, from Nevada state line to headwaters (Beaver and Iron Counties)	2B		3D	4
Indian Creek and tributaries, Beaver County, from Indian Creek Reservoir to headwaters	2B	3A		4
Shoal Creek and tributaries, Iron County	2B	3A		4

b. Farmington Bay Drainage

TABLE

Corbett Creek and tributaries, from Highway to headwaters	2B	3A		4
Kays Creek and tributaries, from Farmington Bay to U.S. National Forest boundary	2B	3B		4
North Fork Kays Creek and tributaries, from U.S. National Forest boundary to headwaters	2B	3A		4
Middle Fork Kays Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
South Fork Kays Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
Snow Creek and tributaries	2B		3C	4
Holmes Creek and tributaries, from Farmington Bay to U.S. National Forest boundary	2B		3B	4
Holmes Creek and tributaries, from U.S. National Forest				

boundary to headwaters	1C	2B	3A	4
Baer Creek and tributaries, from Farmington Bay to Interstate Highway 15		2B	3C	4
Baer Creek and tributaries, from Interstate Highway 15 to Highway US-89		2B	3B	4
Baer Creek and tributaries, from Highway US-89 to headwaters	1C	2B	3A	4
Shepard Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
Farmington Creek and tributaries, from Farmington Bay Waterfowl Management Area to U.S. National Forest boundary		2B	3B	4
Farmington Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
Rudd Creek and tributaries, from Davis aqueduct to headwaters		2B	3A	4
Steed Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
Davis Creek and tributaries, from Highway US-89 to headwaters		2B	3A	4
Lone Pine Creek and tributaries, from Highway US-89 to headwaters		2B	3A	4
Ricks Creek and tributaries, from Highway I-15 to headwaters	1C	2B	3A	4
Barnard Creek and tributaries, from Highway US-89 to headwaters		2B	3A	4

Parrish Creek and tributaries, from Davis Aqueduct to headwaters		2B	3A	4
Deuel Creek and tributaries, from Davis Aqueduct to headwaters		2B	3A	4
Stone Creek and tributaries, from Farmington Bay Waterfowl Management Area to U.S. National Forest boundary		2B	3A	4
Stone Creek and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
Barton Creek and tributaries, from U.S. National Forest boundary to headwaters		2B	3A	4
Mill Creek (Davis County) and tributaries, from confluence with State Canal to U.S. National Forest boundary		2B	3B	4
Mill Creek (Davis County) and tributaries, from U.S. National Forest boundary to headwaters	1C	2B	3A	4
North Canyon Creek and tributaries, from U.S. National Forest boundary to headwaters		2B	3A	4
Hobart Slough		2B	3C	4
Hooper Slough		2B	3C	4
Willard Slough			3C	4
Willard Creek to Headwaters	1C	2B	3A	4
Chicken Creek to Headwaters	1C	2B	3A	4
Cold Water Creek to Headwaters	1C	2B	3A	4

One House Creek to Headwaters	1C	2B 3A	4
Garner Creek to Headwaters	1C	2B 3A	4

13.8 Snake River Basin

a. Raft River Drainage (Box Elder County)

TABLE

Raft River and tributaries		2B 3A	4
Clear Creek and tributaries, from Utah-Idaho state line to headwaters	2B	3A	4
Onemile Creek and tributaries, from Utah-Idaho state line to headwaters	2B	3A	4
George Creek and tributaries, from Utah-Idaho state line to headwaters	2B	3A	4
Johnson Creek and tributaries, from Utah-Idaho state line to headwaters	2B	3A	4
Birch Creek and tributaries, from state line to headwaters		2B 3A	4
Pole Creek and tributaries, from state line to headwaters		2B 3A	4
Goose Creek and tributaries		2B 3A	4
Hardesty Creek and tributaries, from state line to headwaters		2B 3A	4
Meadow Creek and tributaries, from state line to headwaters		2B 3A	4

13.9 All irrigation canals and ditches statewide, except as otherwise designated 4

13.10 All drainage canals and ditches statewide, except as otherwise designated 3E

13.11 National Wildlife Refuges and State Waterfowl Management Areas

TABLE

Bear River National Wildlife Refuge, Box Elder County	3B 3D
Brown's Park Waterfowl Management Area, Daggett County	3A 3D
Clear Lake Waterfowl Management Area, Millard County	3C 3D
Desert Lake Waterfowl Management Area, Emery County	3C 3D
Farmington Bay Waterfowl Management Area, Davis and Salt Lake Counties	3C 3D
Fish Springs National Wildlife Refuge, Juab County	3C 3D
Harold Crane Waterfowl Management Area, Box Elder County	3C 3D
Howard Slough Waterfowl Management Area, Weber County	3C 3D
Locomotive Springs Waterfowl Management Area, Box Elder County	3B 3D
Ogden Bay Waterfowl Management Area, Weber County	3C 3D
Ouray National Wildlife Refuge, Uintah County	3B 3D
Powell Slough Waterfowl Management Area, Utah County	3C(*)3D
Public Shooting Grounds Waterfowl Management Area, Box Elder County	3C 3D

Salt Creek Waterfowl Management Area, Box Elder County	3C 3D
Stewart Lake Waterfowl Management Area, Uintah County	3B 3D
Timpie Springs Waterfowl Management Area, Tooele County	3B 3D

* See Table 2.14.2, Footnote (7)

13.12 Lakes and Reservoirs (20 Acres or Larger). All lakes not listed in 13.12 are assigned by default to the classification of the stream with which they are associated.

a. Beaver County

TABLE

Anderson Meadow Reservoir	2B 3A 4
Manderfield Reservoir	2B 3A 4
LaBaron Reservoir	2B 3A 4
Middle Kent's Lake	2B 3A 4
Minersville Reservoir	2B 3A 3D 4
Puffer Lake	2B 3A
Three Creeks Reservoir	2B 3A 4

b. Box Elder County

TABLE

Cutler Reservoir (including portion in Cache County)	2B 3B 3D 4
Etna Reservoir	3A 4
Lynn Reservoir	3A 4
Mantua Reservoir	2B 3A 4

Willard Bay Reservoir 1C 2A 2B 3B 3D 4

c. Cache County

TABLE

Hyrum Reservoir 2A 2B 3A 4

Newton Reservoir 2B 3A 4

Porcupine Reservoir 2B 3A 4

Pelican Pond 2B 3B 4

Tony Grove Lake 2B 3A 4

d. Carbon County

TABLE

Grassy Trail Creek Reservoir 1C 2B 3A 4

Olsen Pond 2B 3B 4

Scofield Reservoir 1C 2B 3A 4

e. Daggett County

TABLE

Browne Reservoir 2B 3A 4

Daggett Lake 2B 3A 4

Flaming Gorge Reservoir (Utah portion) 1C 2A 2B 3A 4

Long Park Reservoir 2B 3A 4

Sheep Creek Reservoir 2B 3A 4

Spirit Lake 2B 3A 4

Upper Potter Lake 2B 3A 4

f. Davis County

	TABLE
Farmington Ponds	2B 3A 4
Kaysville Highway Ponds	2B 3A 4
Holmes Creek Reservoir	2B 3B 4

g. Duchesne County

	TABLE
Allred Lake	2B 3A 4
Atwine Lake	2B 3A 4
Atwood Lake	2B 3A 4
Betsy Lake	2B 3A 4
Big Sandwash Reservoir	1C 2B 3A 4
Bluebell Lake	2B 3A 4
Brown Duck Reservoir	2B 3A 4
Butterfly Lake	2B 3A 4
Cedarview Reservoir	2B 3A 4
Chain Lake #1	2B 3A 4
Chepeta Lake	2B 3A 4
Clements Reservoir	2B 3A 4
Cleveland Lake	2B 3A 4
Cliff Lake	2B 3A 4
Continent Lake	2B 3A 4
Crater Lake	2B 3A 4

Crescent Lake	2B	3A	4
Daynes Lake	2B	3A	4
Dean Lake	2B	3A	4
Doll Lake	2B	3A	4
Drift Lake	2B	3A	4
Elbow Lake	2B	3A	4
Farmer's Lake	2B	3A	4
Fern Lake	2B	3A	4
Fish Hatchery Lake	2B	3A	4
Five Point Reservoir	2B	3A	4
Fox Lake Reservoir	2B	3A	4
Governor's Lake	2B	3A	4
Granddaddy Lake	2B	3A	4
Hoover Lake	2B	3A	4
Island Lake	1C	2B 3A	4
Jean Lake	2B	3A	4
Jordan Lake	2B	3A	4
Kidney Lake	2B	3A	4
Kidney Lake West	2B	3A	4
Lily Lake	2B	3A	4
Midview Reservoir (Lake Boreham)	2B	3B	4
Milk Reservoir	2B	3A	4
Mirror Lake	2B	3A	4

Mohawk Lake	2B 3A	4
Moon Lake	1C 2A 2B 3A	4
North Star Lake	2B 3A	4
Palisade Lake	2B 3A	4
Pine Island Lake	2B 3A	4
Pinto Lake	2B 3A	4
Pole Creek Lake	2B 3A	4
Potter's Lake	2B 3A	4
Powell Lake	2B 3A	4
Pyramid Lake	2A 3A	4
Queant Lake	2B 3A	4
Rainbow Lake	2B 3A	4
Red Creek Reservoir	2B 3A	4
Rudolph Lake	2B 3A	4
Scout Lake	2A 2B 3A	4
Spider Lake	2B 3A	4
Spirit Lake	2B 3A	4
Starvation Reservoir	1C 2A 2B 3A	4
Superior Lake	2B 3A	4
Swasey Hole Reservoir	2B 3A	4
Taylor Lake	2B 3A	4
Thompson Lake	2B 3A	4
Timothy Reservoir #1	2B 3A	4

Timothy Reservoir #6	2B 3A	4
Timothy Reservoir #7	2B 3A	4
Twin Pots Reservoir	1C 2B 3A	4
Upper Stillwater Reservoir	1C 2B 3A	4
X - 24 Lake	2B 3A	4

h. Emery County

TABLE

Cleveland Reservoir	2B 3A	4
Electric Lake	2B 3A	4
Huntington Reservoir	2B 3A	4
Huntington North Reservoir	2A 2B 3B	4
Joe's Valley Reservoir	2A 2B 3A	4
Millsite Reservoir	1C 2A 2B 3A	4

i. Garfield County

TABLE

Barney Lake	2B 3A	4
Cyclone Lake	2B 3A	4
Deer Lake	2B 3A	4
Jacob's Valley Reservoir	2B 3C 3D	4
Lower Bowns Reservoir	2B 3A	4
North Creek Reservoir	2B 3A	4
Panguitch Lake	2B 3A	4
Pine Lake	2B 3A	4

Oak Creek Reservoir (Upper Bowns)	2B 3A	4
Pleasant Lake	2B 3A	4
Posey Lake	2B 3A	4
Purple Lake	2B 3A	4
Raft Lake	2B 3A	4
Row Lake #3	2B 3A	4
Row Lake #7	2B 3A	4
Spectacle Reservoir	2B 3A	4
Tropic Reservoir	2B 3A	4
West Deer Lake	2B 3A	4
Wide Hollow Reservoir	2B 3A	4

j. Iron County

TABLE

Newcastle Reservoir	2B 3A	4
Red Creek Reservoir	2B 3A	4
Yankee Meadow Reservoir	2B 3A	4

k. Juab County

TABLE

Chicken Creek Reservoir	2B 3C 3D	4
Mona Reservoir	2B 3B	4
Sevier Bridge (Yuba) Reservoir	2A 2B 3B	4

l. Kane County

TABLE

Navajo Lake 2B 3A 4

m. Millard County

TABLE

DMAD Reservoir 2B 3B 4

Fools Creek Reservoir 2B 3C 3D 4

Garrison Reservoir (Pruess Lake) 2B 3B 4

Gunnison Bend Reservoir 2B 3B 4

n. Morgan County

TABLE

East Canyon Reservoir 1C 2A 2B 3A 4

Lost Creek Reservoir 1C 2B 3A 4

o. Piute County

TABLE

Barney Reservoir 2B 3A 4

Lower Boxcreek Reservoir 2B 3A 4

Manning Meadow Reservoir 2B 3A 4

Otter Creek Reservoir 2B 3A 4

Piute Reservoir 2B 3A 4

Upper Boxcreek Reservoir 2B 3A 4

p. Rich County

TABLE

Bear Lake (Utah portion) 2A 2B 3A 4

Birch Creek Reservoir 2B 3A 4

Little Creek Reservoir	2B	3A		4
Woodruff Creek Reservoir	2B	3A		4

q. Salt Lake County

TABLE

Decker Lake	2B	3B	3D	4
Lake Mary	1C	2B	3A	
Little Dell Reservoir	1C	2B	3A	
Mountain Dell Reservoir	1C			

r. San Juan County

TABLE

Blanding Reservoir #4	1C	2B	3A	4
Dark Canyon Lake	1C	2B	3A	4
Ken's Lake	2B	3A		4
Lake Powell (Utah portion)	1C	2A	2B 3B	4
Lloyd's Lake	1C	2B	3A	4
Monticello Lake	2B	3A		4
Recapture Reservoir	2B	3A		4

s. Sanpete County

TABLE

Duck Fork Reservoir	2B	3A		4
Fairview Lakes	1C	2B	3A	4
Ferron Reservoir	2B	3A		4
Lower Gooseberry Reservoir	1C	2B	3A	4

Gunnison Reservoir	2B	3C	4
Island Lake	2B	3A	4
Miller Flat Reservoir	2B	3A	4
Ninemile Reservoir	2B	3A	4
Palisade Reservoir	2A	2B 3A	4
Rolfson Reservoir	2B	3C	4
Twin Lakes	2B	3A	4
Willow Lake	2B	3A	4

t. Sevier County

TABLE

Annabella Reservoir	2B	3A	4
Big Lake	2B	3A	4
Farnsworth Lake	2B	3A	4
Fish Lake	2B	3A	4
Forsythe Reservoir	2B	3A	4
Johnson Valley Reservoir	2B	3A	4
Koosharem Reservoir	2B	3A	4
Lost Creek Reservoir	2B	3A	4
Redmond Lake	2B	3B	4
Rex Reservoir	2B	3A	4
Salina Reservoir	2B	3A	4
Sheep Valley Reservoir	2B	3A	4

u. Summit County

TABLE

Abes Lake	2B 3A	4
Alexander Lake	2B 3A	4
Amethyst Lake	2B 3A	4
Beaver Lake	2B 3A	4
Beaver Meadow Reservoir	2B 3A	4
Big Elk Reservoir	2B 3A	4
Blanchard Lake	2B 3A	4
Bridger Lake	2B 3A	4
China Lake	2B 3A	4
Cliff Lake	2B 3A	4
Clyde Lake	2B 3A	4
Coffin Lake	2B 3A	4
Cuberant Lake	2B 3A	4
East Red Castle Lake	2B 3A	4
Echo Reservoir	1C 2A 2B 3A	4
Fish Lake	2B 3A	4
Fish Reservoir	2B 3A	4
Haystack Reservoir #1	2B 3A	4
Henry's Fork Reservoir	2B 3A	4
Hoop Lake	2B 3A	4
Island Lake	2B 3A	4
Island Reservoir	2B 3A	4

Jesson Lake	2B 3A	4
Kamas Lake	2B 3A	4
Lily Lake	2B 3A	4
Lost Reservoir	2B 3A	4
Lower Red Castle Lake	2B 3A	4
Lyman Lake	2A 2B 3A	4
Marsh Lake	2B 3A	4
Marshall Lake	2B 3A	4
McPheters Lake	2B 3A	4
Meadow Reservoir	2B 3A	4
Meeks Cabin Reservoir	2B 3A	4
Notch Mountain Reservoir	2B 3A	4
Red Castle Lake	2B 3A	4
Rockport Reservoir	1C 2A 2B 3A	4
Ryder Lake	2B 3A	4
Sand Reservoir	2B 3A	4
Scow Lake	2B 3A	4
Smith Moorehouse Reservoir	1C 2B 3A	4
Star Lake	2B 3A	4
Stateline Reservoir	2B 3A	4
Tamarack Lake	2B 3A	4
Trial Lake	1C 2B 3A	4
Upper Lyman Lake	2B 3A	4

Upper Red Castle	2B	3A	4
Wall Lake Reservoir	2B	3A	4
Washington Reservoir	2B	3A	4
Whitney Reservoir	2B	3A	4

v. Tooele County

TABLE

Blue Lake	2B	3B	4
Clear Lake	2B	3B	4
Grantsville Reservoir	2B	3A	4
Horseshoe Lake	2B	3B	4
Kanaka Lake	2B	3B	4
Rush Lake	2B	3B	
Settlement Canyon Reservoir	2B	3A	4
Stansbury Lake	2B	3B	4
Vernon Reservoir	2B	3A	4

w. Uintah County

TABLE

Ashley Twin Lakes (Ashley Creek)	1C	2B	3A	4
Bottle Hollow Reservoir	2B	3A		4
Brough Reservoir	2B	3A		4
Calder Reservoir	2B	3A		4
Crouse Reservoir	2B	3A		4
East Park Reservoir	2B	3A		4

Fish Lake	2B 3A	4
Goose Lake #2	2B 3A	4
Matt Warner Reservoir	2B 3A	4
Oaks Park Reservoir	2B 3A	4
Paradise Park Reservoir	2B 3A	4
Pelican Lake	2B 3B	4
Red Fleet Reservoir	1C 2A 2B 3A	4
Steinaker Reservoir	1C 2A 2B 3A	4
Towave Reservoir	2B 3A	4
Weaver Reservoir	2B 3A	4
Whiterocks Lake	2B 3A	4
Workman Lake	2B 3A	4

x. Utah County

TABLE

Salem Pond	2A 3A	4
Silver Flat Lake Reservoir	2B 3A	4
Tibble Fork Resevoir	2B 3A	4
Utah Lake	2B 3B 3D	4

y. Wasatch County

TABLE

Currant Creek Reservoir	1C 2B 3A	4
Deer Creek Reservoir	1C 2A 2B 3A	4
Jordanelle Reservoir	1C 2A 3A	4

Mill Hollow Reservoir	2B 3A	4
Strawberry Reservoir	1C 2B 3A	4

z. Washington County

TABLE

Baker Dam Reservoir	2B 3A	4
Gunlock Reservoir	1C 2A 2B 3B	4
Ivins Reservoir	2B 3B	4
Kolob Reservoir	2B 3A	4
Lower Enterprise Reservoir	2B 3A	4
Quail Creek Reservoir	1C 2A 2B 3B	4
Upper Enterprise Reservoir	2B 3A	4

aa. Wayne County

TABLE

Blind Lake	2B 3A	4
Cook Lake	2B 3A	4
Donkey Reservoir	2B 3A	4
Fish Creek Reservoir	2B 3A	4
Mill Meadow Reservoir	2B 3A	4
Raft Lake	2B 3A	4

bb. Weber County

TABLE

Causey Reservoir	2B 3A	4
Pineview Reservoir	1C 2A 2B 3A	4

13.13 Great Salt Lake

TABLE

Box Elder, Davis, Salt Lake, Tooele, and Weber County	5

13.14 Unclassified Waters

All waters not specifically classified are presumptively classified as 2B, 3D.

R317-2-14. Numeric Criteria.

TABLE 2.14.1
NUMERIC CRITERIA FOR DOMESTIC, RECREATION, AND AGRICULTURAL USES

Parameter	Domestic Source		Recreation and Aesthetics	Agri-culture
	1C	2A	2B	4
BACTERIOLOGICAL (30-DAY GEOMETRIC MEAN) (NO.)/100 ML) (7)				
Max. Total Coliforms	5000		1000	5000
Max. Fecal Coliforms	2000		200	200
PHYSICAL				
pH (RANGE)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)		10	10	
METALS (DISSOLVED, MAXIMUM MG/L) (2)				
Arsenic	0.05		0.1	
Barium	1.0			
Cadmium	0.01		0.01	
Chromium	0.05		0.10	
Copper			0.2	
Lead	0.05		0.1	
Mercury	0.002			
Selenium	0.01		0.05	
Silver	0.05			

INORGANICS (MAXIMUM MG/L)		
Boron		0.75
Fluoride (3)	1.4-2.4	
Nitrates as N	10	
Total Dissolved Solids (4)		1200
RADIOLOGICAL (MAXIMUM pCi/L)		
Gross Alpha	15	15
Radium 226, 228 (Combined)	5	
Strontium 90	8	
Tritium	20000	
ORGANICS (MAXIMUM UG/L)		
Chlorophenoxy Herbicides		
2,4-D	100	
2,4,5-TP	10	
Endrin	0.2	
Hexachlorocyclohexane (Lindane)	4	
Methoxychlor	100	
Toxaphene	5	
POLLUTION INDICATORS (5)		
Gross Beta (pCi/L)	50	50
BOD (MG/L)	5	5 5
Nitrate as N (MG/L)	4	4
Total Phosphorus as P (MG/L)(6)	0.05	0.05
Total Suspended Solids (MG/L)	90	90

FOOTNOTES:

(1) These limits are not applicable to lower water levels in deep impoundments.

(2) The dissolved metals method involves filtration of the sample in the field, acidification of the

sample in the field, no digestion process in the laboratory, and analysis by atomic absorption or inductively coupled plasma (ICP) spectrophotometry.

(3) Maximum concentration varies according to the daily maximum mean air temperature.

TEMP (C)	MG/L
12.0	2.4
12.1-14.6	2.2
14.7-17.6	2.0
17.7-21.4	1.8
21.5-26.2	1.6
26.3-32.5	1.4

(4) Total dissolved solids (TDS) limits may be adjusted if such adjustment does not impair the designated beneficial use of the receiving water.

(5) Investigations should be conducted to develop more information where these pollution indicator levels are exceeded.

(6) Total Phosphorus as P (mg/l) limit for lakes and reservoirs shall be 0.025.

(7) Exceedences of bacteriological numeric criteria from nonhuman nonpoint sources will generally be addressed through appropriate Federal, State, and Local nonpoint source programs.

TABLE 2.14.2
NUMERIC CRITERIA FOR AQUATIC WILDLIFE

Parameter	Aquatic Wildlife			
	3A	3B	3C	3D
PHYSICAL				
Total Dissolved Gases	(1)	(1)		
Minimum Dissolved Oxygen (MG/L) (2)				
30 Day Average	6.5	5.5	5.0	5.0
7 Day Average	9.5/5.0	6.0/4.0		
1 Day Average	8.0/4.0	5.0/3.0	3.0	3.0
Max. Temperature (C)	20	27	27	
Max. Temperature Change (C)	2	4	4	
pH (Range)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)	10	10	15	15
METALS (3)				

(DISSOLVED, UG/L) (4)				
Aluminum				
4 Day Average	87	87	87	87
1 Hour Average	750	750	750	750
Arsenic (Trivalent)				
4 Day Average	190	190	190	190
1 Hour Average	360	360	360	360
Cadmium (5)				
4 Day Average	1.1	1.1	1.1	1.1
1 Hour Average	3.9	3.9	3.9	3.9
Chromium (12) (Hexavalent)				
4 Day Average	11	11	11	11
1 Hour Average	16	16	16	16
Chromium (Trivalent) (5)				
4 Day Average	210	210	210	210
1 Hour Average	1700	1700	1700	1700
Copper (5)				
4 Day Average	12	12	12	
1 Hour Average	18	18	18	18
Cyanide (Free)				
4 Day Average	5.2	5.2	5.2	
1 Hour Average	22	22	22	22
Iron (Maximum)	1000	1000	1000	1000
Lead (5)				
4 Day Average	3.2	3.2	3.2	3.2
1 Hour Average	82	82	82	82
Mercury				
4 Day Average	0.012	0.012	0.012	0.012
1 Hour Average (12)	2.4	2.4	2.4	2.4
Nickel (5)				
4 Day Average	160	160	160	160
1 Hour Average	1400	1400	1400	1400
Selenium				
4 Day Average	5.0	5.0	5.0	5.0
1 Hour Average	20	20	20	20
Silver				
1 Hour Average (5)	4.1	4.1	4.1	4.1
Zinc (5)				
4 Day Average	110	110	110	110
1 Hour Average	120	120	120	120

INORGANICS

(MG/L) (3)				
Total Ammonia as N (6)				
4 Day Average	(6a)	(6a)		
1 Hour Average	(6b)	(6b)	(6b)	(6b)
Chlorine (Total Residual) (7)				
4 Day Average	0.011	0.011		
1 Hour Average	0.019	0.019	0.2	(8)
Hydrogen Sulfide (Undissociated, Max. UG/L)	2.0	2.0	2.0	2.0
Phenol (Maximum)	0.01	0.01	0.01	0.01
RADIOLOGICAL (MAXIMUM pCi/L)				
Gross Alpha (9)	15	15	15	15
ORGANICS (UG/L) (3)				
Aldrin (Maximum)	1.5	1.5	1.5	1.5
Chlordane				
4 Day Average	0.0043	0.0043	0.0043	0.0043
1 Hour Average	1.2	1.2	1.2	1.2
DDT and Metabolites				
4 Day Average	0.0010	0.0010	0.0010	0.0010
1 Hour Average	0.55	0.55	0.55	0.55
Dieldrin				
4 Day Average	0.0019	0.0019	0.0019	0.0019
1 Hour Average	1.25	1.25	1.25	1.25
Endosulfan				
4 Day Average	0.056	0.056	0.056	0.056
1 Hour Average	0.11	0.11	0.11	0.11
Endrin				
4 Day Average	0.0023	0.0023	0.0023	0.0023
1 Hour Average	0.09	0.09	0.09	0.09
Guthion (Maximum)	0.01	0.01	0.01	0.01
Heptachlor				
4 Day Average	0.0038	0.0038	0.0038	0.0038
1 Hour Average	0.26	0.26	0.26	0.26
Hexachlorocyclohexane (Lindane)				
4 Day Average	0.08	0.08	0.08	0.08

1 Hour Average	1.0	1.0	1.0	1.0
Methoxychlor (Maximum)	0.03	0.03	0.03	0.03
Mirex (Maximum)	0.001	0.001	0.001	0.001
Parathion (Maximum)	0.04	0.04	0.04	0.04
PCB's				
4 Day Average	0.014	0.014	0.014	0.014
1 Hour Average	2.0	2.0	2.0	2.0
Pentachlorophenol (10)				
4 Day Average	13	13	13	13
1 Hour Average	20	20	20	20
Toxaphene				
4 Day Average	0.0002	0.0002	0.0002	0.0002
1 Hour Average	0.73	0.73	0.73	0.73
POLLUTION INDICATORS (9)				
Gross Beta (pCi/L)	50	50	50	50
BOD (MG/L)	5	5	5	5
Nitrate as N (MG/L)	4	4	4	
Total Phosphorus as P (MG/L) (11)	0.05	0.05		
Total Suspended Solids (MG/L)(9)	35	90	90	

FOOTNOTES:

(1) Not to exceed 110% of saturation.

(2) These limits are not applicable to lower water levels in deep impoundments. First number in column is for when early life stages are present, second number is for when all other life stages present.

(3) Where criteria are listed as 4-day average and 1-hour average concentrations, these concentrations should not be exceeded more often than once every three years on the average.

(4) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by atomic absorption spectrophotometry or inductively coupled plasma (ICP).

(5) Hardness dependent criteria. 100 mg/l used. Conversion factors for ratio of total recoverable metals to dissolved metals must also be appied. See Table 2.14.3 for complete equations for hardness and conversion factors.

(6) Un-ionized ammonia toxicity is dependent upon the temperature and pH of the waterbody. For detailed explanation refer to Federal Register, vol. 50, 30784, July 29, 1985.

The following equations are used to calculate criteria concentrations:

(6a) The 4-Day average (chronic) concentration of un-ionized ammonia in mg/l as N is (0.80 / FT / FPH / RATIO) * 0.822, where

FT = $10^{0.03(20 - TCAP)}$; T is greater than or equal to TCAP and less than or equal to 30

= $10^{0.03(20 - T)}$; T is greater than or equal to 0 and less than or equal to TCAP.

FPH = 1; pH is greater than or equal to 8.0 and less than or equal to 9.0.

= $(1 + 10^{7.4 - pH}) / 1.25$ pH is greater than or equal to 6.5 and less than 8.0

T = degrees C, and

TCAP = 15 C for salmonids or other sensitive coldwater species, or

= 20 C for salmonids and other sensitive coldwater species absent.

RATIO = 13.5; pH is greater than or equal to 7.7 and less than or equal to 9.0.

= $20(10^{7.7 - pH}) / 1 + 10^{7.4 - pH})$; pH is greater than or equal to 6.5 and less than or equal to.

(6b) The 1-Hour average (acute) concentration of un-ionized ammonia in mg/l as N is (0.52 / FT / FPH / 2) * 0.822

Where:

FT = $10^{0.03(20 - TCAP)}$; T is greater or equal to TCAP and less than or equal to 30.

= $10^{0.03(20 - T)}$; T is greater than or equal to 0 and less than or equal to TACP.

FPH = 1; pH is greater than or equal to 8.0 and less than or equal to 9.0.

= $(1 + 10^{7.4 - pH}) / 1.25$ pH is greater than or equal to 6.5 or less than

T = degrees C, and

TCAP = 20 C for salmonids or other sensitive coldwater species, or

TCAP = 25 C for salmonids and other sensitive coldwater species absent.

(6c) Total Ammonia in mg/l as N is Un-ionized Ammonia in mg/l as N x $(1 + 10^{pKa - pH})$, where:

pKa = 0.09018 + 2729.92 / T

T = Temperature (C) + 273.2

For Tables of values, see following page.

(7) Special case segments and maximum TRC concentrations as follows:

Mill Race from Interstate Highway 15 to the Provo City wastewater treatment plant discharge 0.2 mg/l

Ironton Canal (Utah County), from Utah Lake (Provo Bay) to East boundary of Denver and Rio Grande Western

Railroad right-of-way 0.05 mg/l

Beer Creek (Utah County) from 4850 West (in NE1/4NE1/4 sec. 36, T.8 S., R.1 E.) to headwaters 0.3 mg/l

Box Elder Creek from confluence with Black Slough to Brigham City Reservoir (the Mayor's Pond) 0.019 mg/l 1 day average, 0.011 mg/l 4 day average.

Powell Slough 0.019 mg/l 1 day average, 0.011 mg/l 4 day average.

(8) Numeric criteria will be established based on a site-specific assessment of potential impacts to aquatic wildlife.

(9) Investigations should be conducted to develop more information where these levels are exceeded.

(10) pH dependent criteria. pH 7.8 used in table. See Table 2.14.4 for equation.

(11) Total Phosphorus as P (mg/l) limit for lakes and reservoirs shall be 0.025.

(12) Total recoverable metals to dissolved metals conversion factors must be applied to arrive at correct dissolved metals criteria. The conversion factors are: chronic helavalent chromium criteria, 0.962; acute hexavalent chromium criteria, 0.982; acute mercury criteria, 0.850.

TABLE
1-HOUR AVERAGE (ACUTE) CONCENTRATION OF
TOTAL AMMONIA AS N (MG/L)
FOR CLASS 3A WATERS
TEMPERATURE (C)

pH	0.00	5.00	10.00	15.00	20.00	25.00	30.00
6.50	28.7	26.8	25.4	24.4	23.8	16.6	11.8
7.00	23.1	21.6	20.5	19.7	19.2	13.4	9.52
7.50	14.3	13.4	12.7	12.3	12.0	8.42	5.99
8.00	6.55	6.14	5.86	5.68	5.59	3.97	2.87
8.50	2.11	1.99	1.93	1.90	1.92	1.40	1.05
9.00	0.70	0.68	0.68	0.70	0.75	0.59	0.48

TABLE
4-DAY AVERAGE (CHRONIC)CONCENTRATION OF
TOTAL AMMONIA AS N (MG/L)
FOR CLASS 3A WATERS
TEMPERATURE (C)

pH	0.00	5.00	10.00	15.00	20.00	25.00	30.00
6.50	2.49	2.33	2.21	2.12	1.46	1.02	0.72
7.00	2.49	2.33	2.21	2.13	1.47	1.03	0.73
7.50	2.50	2.34	2.22	2.14	1.48	1.04	0.74
8.00	1.49	1.40	1.33	1.29	0.90	0.64	0.46
8.50	0.48	0.45	0.44	0.43	0.31	0.23	0.17
9.00	0.16	0.16	0.16	0.16	0.12	0.10	0.08

TABLE
1-HOUR AVERAGE (ACUTE)CONCENTRATION OF
TOTAL AMMONIA AS N (MG/L)
FOR CLASS 3B, 3C, 3D WATERS
TEMPERATURE (C)

pH	0.00	5.00	10.00	15.00	20.00	25.00	30.00
6.50	28.7	26.8	25.4	24.4	23.8	23.5	16.6
7.00	23.1	21.6	20.5	19.7	19.2	19.0	13.5
7.50	14.3	13.4	12.7	12.3	12.0	11.9	8.47
8.00	6.55	6.14	5.86	5,68	5.59	5.61	4.05
8.50	2.11	1.99	1.93	1.90	1.92	1.98	1.49

9.00	0.70	0.68	0.68	0.70	0.75	0.83	0.68

TABLE
4-DAY AVERAGE (CHRONIC) CONCENTRATION OF
TOTAL AMMONIA AS N (MG/L)
FOR CLASS 3B WATERS
TEMPERATURE (C)

pH	0.00	5.00	10.00	15.00	20.00	25.00	30.00
6.50	2.49	2.33	2.21	2.12	2.07	1.44	1.02
7.00	2.49	2.33	2.21	2.13	2.07	1.45	1.03
7.50	2.50	2.34	2.22	2.14	2.09	1.47	1.04
8.00	1.49	1.14	1.33	1.29	1.27	0.90	0.65
8.50	0.48	0.45	0.44	0.43	0.44	0.32	0.24
9.00	0.16	0.16	0.16	0.16	0.17	0.13	0.11

TABLE 2.14.3a
EQUATIONS FOR PARAMETERS WITH
HARDNESS (1) DEPENDENCE, INCLUDING CONVERSION FACTORS
FOR TOTAL RECOVERABLE TO DISSOLVED METALS

Parameter 4-Day Average (Chronic)
Concentration (UG/L)

CADMIUM $CFx\ e^{(0.7852(\ln(\text{hardness}))-3.490)}$ $CF = 1.101672 - (\ln \text{hardness})(0.041838)$

CHROMIUM (TRIVALENT) $CFx\ e^{(0.8190(\ln(\text{hardness}))+1.561)}$ $CF = 0.860$

COPPER $CFx\ e^{(0.8545(\ln(\text{hardness}))-1.465)}$ $CF = 0.960$

LEAD $CFx\ e^{(1.273(\ln(\text{hardness}))-4.705)}$ $CF = 1.46203 - (\ln \text{hardness})(0.145712)$

NICKEL $CFx\ e^{(0.8460(\ln(\text{hardness}))+1.1645)}$ $CF = 0.997$

SILVER N/A

ZINC $Cfx\ e^{(0.8473(\ln(\text{hardness}))+0.7614)}$ $CF = 0.986$

TABLE 2.14.3b
EQUATIONS FOR PARAMETERS WITH

HARDNESS (1) DEPENDENCE, INCLUDING CONVERSION FACTORS
FOR TOTAL RECOVERABLE TO DISSOLVED METALS

Parameter	1-Hour Average (Acute) Concentration (UG/L)
CADMIUM	$CFx\ e^{(1.128(\ln(\text{hardness}))-3.828)}$ $CF = 1.136672 - (\ln \text{hardness})(0.41383)$
CHROMIUM (TRIVALENT)	$CFx\ e^{(0.8190(\ln(\text{hardness}))+3.688)}$ $CF = 0.316$
COPPER	$CFx\ e^{(0.9422(\ln(\text{hardness}))-1.464)}$ $CF = 0.960$
LEAD	$CFx\ e^{(1.273(\ln(\text{hardness}))-1.460)}$ $CF = 1.46203 - (\ln \text{hardness})(0.145712)$
NICKEL	$CFx\ e^{(0.8460(\ln(\text{hardness}))+3.3612}$ $CF= 0.998$
SILVER	$CFx\ e^{(1.72(\ln(\text{hardness}))-6.52}$ $CF = 0.85$
ZINC	$CFx\ e^{(0.8473(\ln(\text{hardness}))+0.8604}$ $CF = 0.978$

FOOTNOTE:
(1) Hardness as mg/l $CaCO_3$.

TABLE 2.14.4
EQUATIONS FOR PENTACHLOROPHENOL
(pH DEPENDENT)

4-Day Average (Chronic) Concentration (UG/L)	1-Hour Average (Acute) Concentration (UG/L)
$e^{(1.005(pH))-5.290}$	$e^{(1.005(pH))-4.830}$

TABLE 2.14.5
SITE SPECIFIC CRITERIA FOR TOTAL AMMONIA AND
DISSOLVED OXYGEN FOR JORDAN RIVER AND SURPLUS CANAL SEGMENTS
(SEE SECTION 2.13)

DISSOLVED OXYGEN:

May-July	
7-day average	5.5 mg/l
30-day average	5.5 mg/l

Instantaneous minimum 4.5 mg/l

August-April
30-day average 5.5 mg/l
Instantaneous minimum 4.0 mg/l

Total Ammonia as N:

(1) The maximum concentration of unionized ammonia should not exceed the numerical value given by the following:

0.15 X (f(T) / f(pH)) X 2.989

where:

f(T) = 1; T greater than or equal to 10C

$= (1 + 10^{(9.73 - pH)} / 1 + 10^{(pKt - pH)})$; T less than 10C

$f(pH) = 1 + 10^{(1.03(7.32 - pH))}$

pkt = 0.090 + (2730 / (T + 273.2))

(2) The average concentration of unionized ammonia over any 30 consecutive days should be less than the value given by the following:

0.031 X (f(T) / f(pH)) X 2.10

where:

f(pH) = 1; pH greater than or equal to 7.7

$= 10^{(0.74(7.7 - pH))}$; pH less than 7.7

f(T) = 1; T greater than or equal to 10C

$= (1 + 10^{(9.73 - pH)}) / (1 + 10^{(pKt - pH)})$; T less than 10C

(3) Total Ammonia in mg/l as N is Un-ionized Ammonia in mg/l as N x $(1 + 10^{pKa - pH})$, where:

pKa = 0.09018 + 2729.92 / T

T = Temperature (C) + 273.2

TABLE
MAXIMUM CONCENTRATION (ACUTE)
TOTAL AMMONIA AS N (MG/L)
TEMPERATURE (C)

pH	0.00	5.00	10.00	15.00	20.00	25.00	30.00
6.50	95.3	95.3	95.3	64.9	44.7	31.2	22.1
6.75	88.1	88.1	88.1	60.0	41.4	28.9	20.4
7.00	76.9	76.9	76.9	52.4	35.1	25.3	17.9
7.25	62.3	62.3	62.3	42.4	29.3	20.5	14.6
7.50	46.3	46.3	46.3	31.6	21.9	15.4	10.9
7.75	31.8	31.8	31.8	21.7	15.1	10.6	7.60
8.00	20.5	20.5	20.4	14.0	9.79	6.94	5.01
8.25	12.6	12.6	12.6	8.70	6.12	4.40	3.22
8.50	7.60	7.60	7.60	5.30	3.79	2.77	2.08
8.75	3.75	3.75	3.75	2.69	1.99	1.52	1.20

9.00	2.80	2.80	2.80	2.05	1.55	1.21	0.99

TABLE
30-DAY AVERAGE CONCENTRATION (CHRONIC)
TOTAL AMMONIA AS N (MG/L)
TEMPERATURE (C)

pH	0.00	5.00	10.00	15.00	20.00	25.00	30.00
6.50	14.3	14.3	14.3	9.74	6.72	4.69	3.32
6.75	12.3	12.3	12.3	8.40	5.79	4.05	2.86
7.00	10.6	10.6	10.6	7.24	5.00	3.49	2.47
7.25	9.17	9.72	9.16	6.24	4.31	3.02	2.14
7.50	7.91	7.91	7.91	5.40	3.73	2.62	1.86
7.75	6.29	6.29	6.28	4.30	2.98	2.10	1.50
8.00	3.56	3.56	3.56	2.44	1.71	1.21	0.87
8.25	2.03	2.03	2.03	1.40	0.99	0.71	0.52
8.50	1.17	1.17	1.17	0.82	0.58	0.43	0.32
8.75	0.56	0.56	0.56	0.40	0.30	0.23	0.18
9.00	0.41	0.41	0.41	0.30	0.23	0.18	0.15

TABLE 2.14.6

List of Human Health Criteria Included in the
1992 National Toxics Rule (NTR)
(Published in the Federal Register)
(For Arsenic, the Maximum Contaminate Level (MCL) applies
instead of the NTR Criteria

	Parameter	CAS No.	Class 1C	Class 3
			Maximum Conc., ug/L	
	Toxic Organics			
1	Acenaphthene	83-32-9	1200	2700
2	Acrolein	107-02-8	320	780
3	Acrylonitrile	107-13-1	0.059	0.66
4	Benzene	71-43-2	1.2	71
5	Benzidine	92-87-5	0.00012	0.00054
6	Carbon tetrachloride	56-23-5	0.25	4.4
7	Chlorobenzene	108-90-7	680	21000
8	1,2,4-Trichlorobenzene	120-82-1	-	-
9	Hexachlorobenzene	118-74-1	0.00075	0.00077
10	1,2-Dichloroethane	107-06-2	0.38	99
11	1,1,1-Trichloroethane	71-55-6	-	-

12	Hexachloroethane	67-72-1	1.9	8.9
13	1,1-Dichloroethane	75-34-3	-	-
14	1,1,2-Trichloroethane	79-00-5	0.61	42
15	1,1,2,2-Tetrachloro-ethane	79-34-5	0.17	11
16	Chloroethane	75-00-3	-	-
17	Bis(2-chloroethyl) ether	111-44-4	0.031	1.4
18	2-Chloroethyl vinyl ether	110-75-8	-	-
19	2-Chloronaphthalene	91-58-7	1700	4300
20	2,4,6-Trichlorophenol	88-06-2	2.1	6.5
21	p-Chloro-m-cresol	59-50-7	-	-
22	Chloroform (HM)	67-66-3	5.7	470
23	2-Chlorophenol	95-57-8	120	400
24	1,2-Dichlorobenzene	95-50-1	2700	17000
25	1,3-Dichlorobenzene	541-73-1	400	2600
26	1,4-Dichlorobenzene	106-46-7	400	2600
27	3,3'-Dichlorobenzidine	91-94-1	0.04	0.077
28	1,1-Dichloroethylene	75-35-4	0.057	3.2
29	1,2-trans-Dichloroethylene1	56-60-5	700	-
30	2,4-Dichlorophenol	120-83-2	93	790
31	1,2-Dichloropropane	78-87-5	0.52	39
32	1,3-Dichloropropylene	542-75-6	10	1700
33	2,4-Dimethylphenol	105-67-9	540	2300
34	2,4-Dinitrotoluene	121-14-2	0.11	9.1
35	2,6-Dinitrotoluene	606-20-2	-	-
36	1,2-Diphenylhydrazine	122-66-7	0.040	0.54
37	Ethylbenzene	100-41-4	3100	29000
38	Fluoranthene	206-44-0	300	370
39	4-Chlorophenyl phenyl ether	7005-72-3	-	-
40	4-Bromophenyl phenyl ether	101-55-3	-	-
41	Bis(2-chloroisopropyl) ether	39638-32-9	1400	170000
42	Bis(2-chloroethoxy) methane	111-91-1	-	-
43	Methylene chloride (HM)	75-09-2	4.7	1600
44	Methyl chloride (HM)	74-87-3	-	-
45	Methyl bromide (HM)	74-83-9		
46	Bromoform (HM)	75-25-2	4.3	360
47	Dichlorobromomethane (HM)	75-27-4	0.27	22

48	Chlorodibromomethane (HM)	124-48-1	0.41	34
49	Hexachlorobutadiene(c)	87-68-3	0.44	50
50	Hexachlorocyclo-pentadiene	77-47-4	240	17000
51	Isophorone	78-59-1	8.4	600
52	Naphthalene	91-20-3	-	-
53	Nitrobenzene	98-95-3	17	1900
54	2-Nitrophenol	88-75-5	-	-
55	4-Nitrophenol	100-02-7	-	-
56	2,4-Dinitrophenol	51-28-5	70	14000
57	4,6-Dinitro-o-cresol	534-52-1	13	765
58	N-Nitrosodimethylamine	62-75-9	0.00069	8.1
59	N-Nitrosodiphenylamine	86-30-6	5.0	16
60	N-Nitrosodi-n-propylamine	621-64-7	0.005	1.4
61	Pentachlorophenol	87-86-5	0.28	8.2
62	Phenol	108-95-2	21000	4600000
63	Bis(2-ethylhexyl) phthalate	117-881-7	1.8	5.9
64	Butyl benzyl phthala	5-68-7	3000	5200
65	Di-n-butyl phthalate	84-74-2	2700	12000
66	Di-n-octyl phthlate	117-84-0	-	-
67	Diethyl phthalate	84-66-2	23000	120000
68	Dimethyl phthlate	131-11-3	313000	2900000
69	Benzo(a)anthracene (PAH)	56-55-3	0.0028	0.031
70	Benzo(a)pyrene (PAH)	50-32-8	0.0028	0.031
71	Benzo(b)fluoranthene (PAH)	205-99-2	0.0028	0.031
72	Benzo(k)fluoranthene (PAH)	207-08-9	0.0028	0.031
73	Chrysene (PAH)	218-01-9	0.0028	0.031
74	Acenaphthylene (PAH)	208-96-8	-	-
75	Anthracene (PAH)	120-12-7	9600	-
79	Dibenzo(a,h)anthracene (PAH)	53-70-3	0.0028	0.031
80	Indeno(1,2,3-cd)pyrene (PAH)	193-39-5	0.0028	0.031
81	Pyrene (PAH)	129-00-0	960	11000
82	Tetrachloroethylen	127-18-4	0.80	8.9
83	Toluene	108-88-3	6800	200000
84	Trichloroethylene	79-01-6	2.7	81
85	Vinyl chloride	75-01-4	2.0	525

	Pesticides			
86	Aldrin	309-00-2	0.00013	0.00014
87	Dieldrin	60-57-1	0.00014	0.00014
88	Chlordane	57-74-9	0.00057	0.00059
89	4,4'-DDT	50-29-3	0.00059	0.00059
90	4,4'-DDE	72-55-9	0.00059	0.00059
91	4,4'-DDD	72-54-8	0.00083	0.00084
92	alpha-Endosulfan	115-29-7	0.93	2.0
93	beta-Endosulfan	115-29-7	0.93	2.0
94	Endosulfan sulfate	1031-07-8	0.93	2.0
95	Endrin	72-20-8	0.76	0.81
96	Endrin aldehyde	7421-93-4	0.76	0.81
97	Heptachlor	76-44-8	0.00021	0.00021
98	eptachlor epoxide		-	-
	PCB's			
103	PCB 1242 (Arochlor 1242)	1336-36-3	0.000044	0.000045
104	PCB-1254 (Arochlor 1254)	1336-36-3	0.000044	0.000045
105	PCB-1221 (Arochlor 1221)	1336-36-3	0.000044	0.000045
106	PCB-1232 (Arochlor 1232)	1336-36-3	0.000044	0.000045
107	PCB-1248 (Arochlor 1248)	1336-36-3	0.000044	0.000045
108	PCB-1260 (Arochlor 1260)	1336-36-3	0.000044	0.000045
109	PCB-1016 (Arochlor 1016)	1336-36-3	0.000044	0.000045
	Pesticide			
110	Toxaphene	8001-35-2	0.00073	0.00075
	Metals			
111	Antimony	7440-36-0	14	4300
112	Arsenic	7440-38-2	50	-
113	Asbestos	1332-21-4	7000000 f/l	-
114	Beryllium	7440-41-7	-	-
115	Cadmium	7440-43-9	-	-
116	Chromium (III)	440-47-3	-	-
	Chromium (VI)	-	-	-
117	Copper	7440-50-8	1300	-
118	Cyanide	57-12-5	700	220000
119	Lead	7439-92-1	-	-

120	Mercury	7439-97-6	0.14	0.15
121	Nickel	7440-02-0	610	4600
122	Selenium	7782-49-2	-	-
123	Silver	7440-22-4	-	-
124	Thallium	7440-28-0	1.7	6.3
125	Zinc	7440-66-6	-	-
	Dioxin			
126	Dioxin (2,3,7,8-TCDD)	1746-01-6	0.000000013	0.000000014

KEY: water pollution, water quality standards
December 19, 1997 **19-5**
Notice of Continuation December 12, 1997