

**CTUIR
ADMINISTRATIVE RULES
AND
STANDARDS
TO THE
WATER CODE**

**Adopted by the
Water Commission**

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CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

**ADMINISTRATIVE RULES AND STANDARDS TO THE WATER CODE OF THE
UMATILLA INDIAN RESERVATION**

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SECTION 100 ADMINISTRATIVE RULES

101. GENERAL PROVISIONS

101.1 Authority

The Water Commission shall have the power and authority to promulgate rules and regulations regarding the implementation of the Water Code pursuant to Section 1.10; E; 1 of the Water Code of the Confederated Tribes of the Umatilla Indian Reservation, as amended on November 10, 2003 and following the procedures set forth in Section 1.10; G.

101.2 Purpose

The purpose of these Administrative Rules is to provide the procedures and criteria for the implementing the Water Code of the Confederated Tribes of the Umatilla Indian Reservation.

101.3 Scope

These Administrative Rules establish:

1. The form and content of all applications, permits, certification, notices, and forms;
2. Filing and processing applications;
3. Review Periods;
4. Issuance of Permits; and
5. Public Hearing Procedures.

101.4 Errata and Corrections

The Director is authorized to correct spelling, citation references, and other editorial errata which occur within these rules and standards.

102. CONTENT: PERMITS, DOCUMENTS, AND FORMS

The form, content, and style of documents utilized under this Code shall be promulgated by the Director.

102.1. Application Forms

At a minimum the application shall contain:

1. Stream Zone Alteration.
 - a) Name, mailing address, and street address of the applicant;
 - b) The date the complete application was filed;

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- c) Legal description of the project location, including allotment numbers or tax lot numbers, township, range, section, and government lots or forty-acre legal subdivision of the section;
- d) Names, mailing addresses, and street addresses of the persons who own the land at the project site;
- e) Names, and street address of the project supervisor/contractor;
- f) Name of stream or river and location (river mile);
- g) Type of project;
- h) Purpose of project;
- i) Anticipated work schedule;
- j) Fill removal information (type, kinds, amount);
- k) Duration of instream work;
- l) Project description;
- m) Maps:
 - 1) A map (scale not smaller than 2 inches per mile) clearly showing section, township, and range, and distinctly outlining the location of the proposed project site;
 - 2) A map (scale not smaller than 2 inches per mile) clearly showing tax lots and /or allotments (and their numbers) located in the project site;
 - 3) A map (plan view of project site) (scale not smaller than 1 inch per 200 feet showing the existing location of the stream channel, riparian zone, and existing structures (levees, dikes, roads, buildings, etc.) in the project area.; and
 - 4) Any other information pertinent to the Stream Zone Alteration Application requested by the Director.
- n) For stream zone projects which alter land contours in the stream channel (e.g., dike, levee, or jetty construction, gravel displacement, etc.), in addition to the maps listed above:
 - 1) A map (scale not smaller than 2 inches per mile) showing the predicted water line of the 100-year flood (if known) at the project site;
 - 2) A map (plan view, same scale as map provided under item lc) of the project site showing the proposed modifications (new channel location, dikes, levees, weirs, fences, etc.);
 - 3) Outline plans of all structures, showing plan and evolution dimension; and
 - 4) Cross sectional diagrams of the existing and final (after alteration) conditions of the stream zone at the project site.
- o) For alterations involving installations of pipelines or casings, or construction of roads, canals, flumes, or bridges in the stream zone, in addition to Maps listed above:

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- 1) Plans and profile sheets at scales not smaller than 100 feet per inch horizontal and 5 feet per inch vertical;
- 2) Existing and finish cross sections of the channel and riparian zone at intervals not greater than one hundred (100) feet, with at least three cross sections to be shown in case the total bank frontage of the proposed work site is less than one hundred (100) feet with an additional cross sections at least at every point of abrupt change in channel or bank; and
- 3) Soil data and bank stability calculations to verify the adequacy of any bankside design that might be vulnerable to slides.

2. Tribal Water Permit.

- a) Name, mailing address, and street address of the applicant;
- b) The date the complete application was filed;
- c) Legal description of the proposed point of diversion and the place of use, including allotment numbers or tax lot numbers, township, range, section, and government lots or forty-acre legal subdivision of the section;
- d) Names, mailing addresses, and street addresses of the persons who own the land at the point of diversion and place of use;
- e) Proposed beneficial use of water requested;
- f) Proposed pumping rate or flow rate of water, in cubic feet per second or gallons per minute;
- g) The total quantity of water, in acre-feet, proposed to be used per year;
- h) Proposed water source and type of diversion;
- i) Proposed schedule of construction work;
- j) The date(s) when water will be diverted for the proposed beneficial use;
- k) Other diversion works used for the same purposes or same place of use;
- l) The description of the proposed or any existing diversion works and its appurtenances;
- m) A description of any water quantity or quality problems, such as seasonal or continuous declining water levels or contamination, of the water source at the point of diversion;
- n) Whether the application is for construction of a new or alteration of an existing diversion works for a preexisting use;
- o) Drilling contractor, if the diversion is a well;
- p) Site plan; and
- q) Any other information pertinent to the Water System Development Application requested by the Director.

3. Modification of Water Permit or Water Right.

- a) Name and address of the applicant/permittee;
- b) Original permit number;
- c) Legal owners name and address;

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- d) The legal description of the permitted point of diversion;
 - e) The legal description of the permitted place of use;
 - f) Description of all existing diversions;
 - g) The beneficial use of water;
 - h) Description of proposed modifications;
 - i) Detailed reason for the proposed modification;
4. Tribal Water Use Permit Renewal.
- a) Name and address of the applicant/permittee;
 - b) Original permit number;
 - c) Expiration date of original permit,
 - d) The beneficial use of water;
 - e) The source of water;
 - f) The legal description of the permitted point of diversion;
 - g) The legal description of the permitted place of use;
 - h) If permit is for irrigation, total irrigated acres, on original permit;
 - i) If permit is for irrigation, the total acres currently irrigated;
 - j) Maximum flow rate or pumping rate in cubic feet per second or gallons per minute;
 - k) Maximum daily, seasonal, or annual use;
 - l) Months of the year when water may be diverted for beneficial use;
 - m) Authorization to cancel permit, if applicable;
 - n) Date of renewal application; and
 - o) Any conditions imposed by the Director or the Water Commission pertinent to the water system development.
5. Tribal Anti-degradation Review.
- a) Legal name and address of the Applicant;
 - b) Legal name and address of Landowner;
 - c) If the Applicant is different from the Landowner, under what authority does the Applicant propose this Project;
 - d) A legal description of the location of the proposed project site;
 - e) A complete description of the project proposal, using written discussion, maps, diagrams, and other necessary materials sufficient to indicate:
 - 1) Names or description of any involved river, stream, waterway, lake, or other body of water;
 - 2) A description of the proposed facility, project, or activity, and of any potential pollutants which may be discharged into Reservation waters resulting from the conduct of any activity including but not limited to; the clearing of landscape or alteration of land features, the activities associated with the construction of the proposed facility and/or the operation of the facility, including any biological, chemical, thermal,

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- and other characteristics of the discharge and the location or locations at which potential pollutants may enter Reservation waters;
- 3) A description of the function and operation of equipment or facilities to treat wastes or other effluents which may be discharged, including specification of the degree of treatment expected to be attained;
 - 4) The date or dates on which the activity will begin and end, if known, and the date or dates on which the discharge will take place;
 - 5) A description of the methods and means being used or proposed to monitor the quality and characteristics of the discharge and the operation of the equipment or facilities employed in the treatment or control of wastes or other effluents; and
 - 6) Copies of any environmental background information required by any licensing or permitting agency or such other environmental background information as may be necessary to demonstrate that the proposed project or activity will comply with water quality requirements.
- f) An affirmative statement that the activity will be conducted in a manner which probably will not violate applicable federal or the CTUIR Water Quality Standards; and
 - g) Documentation which identifies and describes any other requirements of Tribal law applicable to the proposed project which may have a direct or indirect relationship to water quality.
6. §401 Water Quality Certifications.
- a) Legal name and address of the project owner;
 - b) Legal name and address of owner's designated official representative, if any;
 - c) A description of the project location sufficient to locate and distinguish the proposed project facilities
 - d) Names and addresses of immediately adjacent property owners;
 - e) A complete description of the project proposal, using written discussion, maps, diagrams, and other necessary materials;
 - f) Names or description of involved rivers, stream, waterway, lake, or other body of water (using U.S. government stream identification and/or mapping.);
 - g) Copies of any environmental background information required by the federal licensing or permitting agency or such other environmental background information as may be necessary to demonstrate that the proposed project or activity will comply with water quality requirements;
 - h) Copies of any public notice or supporting information, issued by the federal licensing or permitting agency for the project or activity.
 - i) An exhibit substantially complying with 40 CFR §121.22 and which contains:

- 1) A description of the facility or activity, and of any discharge into Reservation waters which may result from the conduct of any activity including, but not limited to, the construction or operation of the facility, including the biological, chemical, thermal, and other characteristics of the discharge and the location or locations at which such discharge may enter Reservation waters;
- 2) A description of the function and operation of equipment or facilities to treat wastes or other effluents which may be discharged, including specification of the degree of treatment expected to be attained;
- 3) The date or dates on which the activity will begin and end, if known, and the date or dates on which the discharge will take place.
- 4) A description of the methods and means being used or proposed to monitor the quality and characteristics of the discharge and the operation of the equipment or facilities employed in the treatment or control of wastes or other effluents.
- 5) An affirmative statement that the activity will be conducted in a manner which will not violate applicable federal or tribal water quality standards;
- 6) A legal description of the real property impacted by the activity or facility for which a certification is sought; and
- 7) An exhibit which identifies and describes any other requirements of federal and/or tribal law applicable to the proposed project which may have a direct or indirect relationship to water quality.

102.2. Permits

At a minimum, Tribal permits shall prescribe:

1. Stream Zone Alteration Permit

- a) Permit number;
- b) Name and address of the permittee;
- c) Beginning date of work period;
- d) Ending date of work period;
- e) The legal description and other reasonable descriptions of the project site;
- f) Permitted activities (description of allowed project)
- g) Permit conditions (description of restrictions and conditions on allowed activities);
- h) Any conditions imposed by the Director or the Water Commission pertinent to the stream zone alterations.

2. Tribal Water System Development Permit

- a) Name, mailing address, and street address of the Permittee;
- b) The permit number;

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- c) Validation date of the permit;
- d) Legal description of project site, including allotment numbers or tax lot numbers, township, range, section, and government lots or forty-acre legal subdivision of the section;
- e) The beneficial use of water permitted;
- f) The water source;
- g) The legal description and other reasonable descriptions of the permitted point or points of diversion;
- h) The permitted pumping rate or flow rate of water, in cubic feet per second or gallons per minute;
- i) The permitted total quantity of water, in acre-feet, to be used per year;
- j) The permit expiration date at which time the construction must be completed; and
- k) Any conditions imposed by the Director or the Water Commission pertinent to the water system development.

3. Tribal Water Use Permits

- a) Name and address of the permittee;
- b) Date of issuance of permit;
- c) Permit number;
- d) The Water Management Region where the point of diversion and place of use are located.
- e) The legal description and other reasonable descriptions of the permitted point of diversion;
- f) The legal description of the place of use;
- g) The beneficial use of water;
- h) The water source;
- i) Maximum flow rate or pumping rate in cubic feet per second or gallons per minute;
- j) Maximum daily, seasonal, or annual use;
- k) Months of the year when water may be diverted for beneficial use;
- l) Expiration, renewal, or registration date; and
- m) Any conditions imposed by the Director or the Water Commission pertinent to the water system development.

102.3. Certifications

At a minimum Tribal Certifications shall include:

1. Anti-degradation Review Certification

- a) Name and address of applicant;
- b) Project type and name;
- c) Type of project or activity;
- d) Name of water body;

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- e) General location;
- f) Findings that the proposed project or activity is consistent with regulations, standards, and policies adopted by the Board of Trustees or its Commissions;
- g) Any conditions determined necessary to maintain and protect water quality within the Reservation.
- h) Any conditions determined as necessary to comply with standards of other Tribal agencies and to comply with other appropriate requirements of Tribal law.
- i) A condition which requires the certificate holder to notify the Director of all changes in the project proposal subsequent to certification; and
- j) A statement that there is a reasonable assurance that the project or activity will be conducted in a manner which will not violate applicable water quality standards.

2. §401 Water Quality Certification:

- a) Name and address of applicant;
- b) Project's name and federal identification number, if any;
- c) Type of project or activity;
- d) Name of water body;
- e) General location;
- f) Findings that the proposed project or activity is consistent with:
 - 1) Rules and standards adopted by the Board of Trustees
 - 2) applicable provisions of the Clean Water Act.
 - 3) Any conditions determined necessary to maintain and protect water quality within the Reservation;
 - 4) Any conditions determined as necessary to comply with standards of other Tribal agencies and to comply with other appropriate requirements of Tribal law according to the Clean Water Act;
 - 5) A condition which requires the certificate holder to notify the Director of all changes in the project proposal subsequent to certification; and
 - 6) A statement that there is a reasonable assurance that the project or activity will be conducted in a manner which will not violate applicable water quality standards.
- g) If applicable, the Water Quality Certification will also contain:
 - 1) Limitations on effluent discharges;
 - 2) Requirements that the applicant monitor effluent discharge on a regular basis;
 - 3) Termination of the operation upon evidence that such operation violated or threatens to violate tribal water quality standards;
 - 4) Minimum flow conditions;
 - 5) Turbidity criterion;

- 6) Criterion and use restrictions necessary to advance the Tribes' anti-degradation policy; and
- 7) Any other established water quality standard deemed necessary by the Water Commission to maintain and protect water quality on the Reservation.

102.4 Notices

1. Public Hearing Notice

- a) At a minimum the notice shall specify the name of the applicant, the nature of the applicant's request, and the time, date, and place of the hearing.
- b) For requests for Water Use Permits, the notice will also contain the proposed beneficial use, water source, type of diversion works, point of diversion, amount of water the applicant proposes to divert

2. Tribal Water Use Renewal Notice

The notice for renewal of Tribal Water Use Permits shall contain at a minimum:

- a) The permit number;
- b) The location of use;
- c) The beneficial use;
- d) The type and location of any diversion works;
- e) The expiration date;
- f) Who to contact to renew the permit;
- g) A renewal application form;
- h) The renewal fee requirement; and
- i) An explanation of the consequences of failure to renew by a specified date.

3. Notice of abandonment.

The notice shall contain, at a minimum:

- a) The permit number;
- b) beneficial use affected by the pending cancellation;
- c) quantity of water to be lost;
- d) place of use affected by the cancellation;
- e) diversion works affected by the cancellation;
- f) point of diversion affected by the pending cancellation; and
- g) Director's evidence for cancellation.

103. APPLICATION PROCEDURES

1. Application forms shall be available at the Department of Natural Resources.
2. Any person, agency or other entity that seeks a permit or certification issued by the C.T.U.I.R. shall submit a completed application with all supporting documentation and the appropriate fee to the Director or his designated representative.
3. All applications shall be submitted with the appropriate fee and shall be reviewed for completeness prior to being accepted by the Director.
4. Incomplete applications may be refused for submittal. They may be subject to outright rejection, or may be held in suspension pending submittal of the information necessary to complete the application. The Director may request additional information, as necessary, to effectively evaluate the application.

104. DIRECTOR'S PROCEDURES

104.1 Water System Development Permits

If the application conforms to the conditions listed in Section 2.03,A, 1, 'a' through 'j' of the Water Code, the Director shall approve or deny the permit following the criteria listed in Section 2.03,A,2, 'a' through 'h' of the Water Code. The Director shall have twenty-five (25) calendar days in which to review and act on an application. The time for acting on an application may be extended another fifteen (15) calendar days at the discretion of the Director.

104.2 Water Use Permit Renewal

1. The Director shall notify the permittee of the expiration or pending expiration of a Tribal Water Use Permit issued pursuant to the Code. The notification shall be sent to the permittee via certified mail at the address last known to the Director.
2. In reviewing a request to renew a Tribal Water Use Permit, the Director shall have thirty (30) days to determine whether the request conforms to the criteria set forth below. If the request does not conform to these criteria, the Director shall deny the renewal request.
3. The renewal request shall be approved by the Director provided that the request:
 - a) Does not change the permitted beneficial use of the water;
 - b) Does not increase the allocation or the pumping rate at the point of diversion;
 - c) Does not move the point of diversion or change the place of use; and

- d) Conforms to all applicable conditions required by the original permit.
- 4. The Director shall renew a Water Use Permit for a term in accordance the provisions for the duration of permits listed in the Water Code.
- 5. Approved renewals shall be conditioned in accordance with the provisions of the Water Code and amendments thereto and the provisions of regulations and standards established under the Code.
- 6. Any person who uses water:
 - a) After sixty (60) calendar days after the expiration date on the permit; or
 - b) After the Director notifies the user, in writing, that the permit must be renewed and who fails to renew the permit shall be in violation of the Code and shall be penalized in accordance with the enforcement provisions of the Water Code.

104.3 Anti-degradation Review of Tribal Permits

- 1. Within 25 calendar days after an application is deemed complete pursuant to this chapter the Director shall serve written notice on the applicant and/or the permitting Tribal agency of his findings regarding compliance with the Tribal Water Quality Standards OR if additional time is required to complete the review of the application.
- 2. If the Director determines that additional time is needed to conduct the review, the Director may extend the review period not to exceed and additional 25 days.

104.4. Stream Zone Alteration Permits

Upon receipt of a complete application with the necessary supporting documents the Director shall make a determination whether the request qualifies as a minor or major alteration. Major alterations will be referred to the Water Commission for a public hearing. Minor alteration will be reviewed and approved or disallowed by the Director according to the procedures and criteria set forth in the Water Code.

105. PUBLIC HEARINGS PROCEDURES

105.1. Purpose of Hearings

The purpose of public hearings is to have a full factual presentation on the proposed use or activity and to provide an opportunity for public comment and testimony on the proposed action.

105.2. Hearings Body

As specified by the provisions of the Water Code, the Water Commission shall be the governmental body authorized to hold public hearings on matters regulated through the Water Code.

105.3. Hearings Schedule

The Water Commission shall schedule public hearings at least twenty-five (25) calendar days from the date of submission of a completed application.

105.4. Public Hearing Notice

1. For all public hearings:

- a) The Director shall mail a notice of the hearing to the applicant. The notice shall be accomplished through certified mail and shall be mailed at least fifteen (15) calendar days prior to the hearing date.
- b) The notice shall be placed in a newspaper of general circulation no less than ten (10) days or more than twenty (20) days prior to the hearing.
- c) The notice shall be posted in a minimum of three places of public prominence (e.g. BIA Bldg, Tribal Services Bldg, Mission Market, or Yellowhawk Clinic).
- d) In addition to the above specified places, the notice of hearing shall be sent, by regular first class mail, to the surrounding adjacent property owners which may be affected by the proposed request and any other individuals or agencies that may have a direct interest in the proposed action.
- e) Notices shall be mailed to at least ten (10) calendar days, but no more than twenty (20) calendar days, prior to the public hearing.
 - 1) Failure of an applicant, property owner, or any other interested party to receive a notice shall not impair the validity of the public hearing.
 - 2) Neither the public hearing nor a decision arising from a public hearing shall be invalid due to the failure of any individual or agency to receive a notice.
- f) The Director may give notice by other means, including radio, television, and other public media.

2. For Water System Development Requests:

In addition to the above specified notifications, notices shall be sent, by regular first class mail, to the surrounding property owners within a radius described as follows:

Proposed Withdrawal Rate (Pumping or Diversion)	Radius of Notification (Distance from Point of Diversion)
0 to 50 gal/min	0.25 mile
51 to 100 gal/min	0.50 mile

101 to 250 gal/min	0.75 mile
over 250 gal/min	1.00 mile

105.5. Nature and Conduct of Hearing

1. The Water Commission, in conducting hearings, is acting in an administrative quasi-judicial capacity and all hearings shall be conducted accordingly. Interested parties are therefore entitled to an opportunity to be heard, to be present, to rebut evidence to an impartial hearings body, to have the proceedings recorded, and to have a decision based only on evidence which is supported by findings of fact as a part of that record.
 - a) No person shall speak more than once without obtaining permission from the presiding officer;
 - b) No person shall testify without first receiving recognition from the presiding officer;
 - c) No person shall present irrelevant or repetitious testimony or evidence.
 - d) There shall be no audience demonstrations, such as applause, cheering, display or signs, or other conduct disruptive of the hearing. Such conduct may be cause for immediate termination of the hearing;
1. The presiding officer may take any appropriate action to assure the orderly conduct of the hearing;
2. Members of the hearings body may question and cross-examine any person who testifies.

105.6. Challenge for Bias, Prejudgment or Personal Interest

Any proponent or opponent of a proposal to be heard by the hearings body may challenge the qualifications of any of its members to participate in such hearing and decision. The challenge must state facts in writing, by affidavit, relied upon by the submitting party relating to a member's bias, prejudgment, personal interest, or other facts from which the party has concluded that the member will not participate and make a decision in an impartial manner. Such written challenge must be delivered by personal service to the presiding officer and to the member(s) challenged not less than 48 hours preceding the time set for public hearing. The challenge shall be incorporated into the record of the hearing. No member of the hearings body shall participate in a hearing or a decision on a proposal when he or she:

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1. Is a party to or has a direct personal or pecuniary interest in the proposal;
2. Is related to the proponent or opponent;
3. Is in business with the proponent;
4. Has determined, for any reason, that he cannot participate in the hearing and decision in an impartial manner.

105.7. Presiding Officer

The chairman of the Water Commission shall be the presiding officer at all hearings. In his absence, or with members consent, the Commission may designate the vice-chairman to act as presiding officer at any appropriate hearing. The presiding officer shall have the authority to:

1. Regulate the course and decorum of the hearing;
2. Dispose of procedural requests or similar matters;
3. Rule on offers of proof and relevancy of evidence and testimony; and
4. Take such other action authorized by the Commission which is appropriate for conduct commensurate with the nature of the hearing.

105.8. Burden of Proof

The burden of proof is upon the proponent. The greater the change, or quantity of water proposed for use, or the greater the impact of the proposal on an area, the greater is the burden upon the proponent.

105.9. Order of Procedure

The presiding officer, when conducting the hearing, shall:

1. Commence the Hearing:
Announce the nature and purpose of the hearing and the rules for the conduct of the hearing.
2. Call for Abstentions:
Inquire of the Commission whether any member thereof wishes to abstain from participation in the hearing. Any member, then announcing his abstention, shall not participate in the hearing, participate in discussion of the question, or vote on the question. Any member whose participation has been challenged by allegation of bias, prejudgment, personal interest, or partiality or who has been subject to significant ex-parte or preexisting-hearing contact with proponents or opponents may make a statement in response thereto or in explanation thereof, for the record, and his decision to abstain or not. This

statement shall not be subject to cross-examination, except upon consent of that member, but shall be subject to rebuttal by the proponent or opponent, as appropriate.

3. **Staff Report:**
Request the representative of the Department of Natural Resources to summarize the nature of the proposal, explain any graphic or pictorial displays which are a part of the record, summarize the staff report, and provide such other information as may be requested by the hearings body.
4. **Proponent's Case:**
 - a) The applicant-proponent shall first be heard, on his own behalf or by representative.
 - b) Upon failure of the applicant or his representative to appear at the hearing of his proposal, or upon his express waiver of presenting testimony and evidence, the hearings body shall consider the written application as presenting the applicant's case.
 - c) Persons in favor of the applicant's proposal shall next be heard.
5. **Cross-examination of Proponents:**
Allow opponents, upon recognition by the presiding officer, to submit questions to the proponents. Proponents shall be given a reasonable time to respond solely to the questions.
6. **Opponents Case:**
Allow opponents, upon recognition by the presiding officer, to present their case.
7. **Cross-examination of Opponents:**
Allow proponents, upon recognition by the presiding officer, to submit questions to the opponents. Opponents shall be given a reasonable time to respond solely to the questions.
8. **Statement of Neutral Parties:**
Allow neutral parties, upon recognition by the presiding officer, to provide comments relevant to the issue being heard by the hearings body for consideration and entry into the public record.
9. **Rebuttal Evidence:**
Allow the proponent to offer rebuttal evidence and testimony, and the opponents to respond to such additional statements. The scope and extent of rebuttal shall be determined by the presiding officer.
10. **Close of Hearing and Deliberation:**

Unless the hearings body chooses to recess the hearing, the presiding officer shall close the hearing when all of the testimony is given. Upon closing the hearing, the hearings body shall deliberate the proposal. Deliberations shall be open to the public. The hearings body shall either make its decision or table the deliberation to a subsequent meeting. If the deliberation is tabled, the presiding officer shall announce the time, date, and place that the deliberation will be continued. The subsequent meeting shall not allow for additional testimony, although the hearings body, during its deliberation, may ask for clarifications of testimony already received. In making its decision on the proposal, the hearings body shall state its findings that justify the decision.

11. Recessing Hearings

The hearings body may recess a hearing in order to obtain additional information or to serve further notice upon other property owners or persons it decides may be interested in the proposal being considered. Upon recessing, the time, date, and place that the hearing will be resumed shall be announced by the presiding officer.

12. Decision Criteria

After hearing all of the evidence, the Water Commission shall evaluate the applicant's request, the evidence, and the testimony in its deliberations and render a decision based upon the relevant criteria listed in the Water Code pertaining to the request.

13. Decision

After deliberations are closed, the Water Commission shall render a decision in conformance with the Water Code.

14. Record of Proceedings

- a) A designee of the presiding officer shall be present at each hearing and shall record the hearing.
- b) Written minutes of all hearings will be made which give a true reflection of matters discussed along with the views of the participants. Copies of all minutes shall be made available to the public within a reasonable time after the meeting and will include the following information: (a) Members present; (b) All motions, proposals, resolutions, and orders and their disposition; (c) The results of all votes, and upon the request of a Commission member, the vote of each member, by name; and (4) The substance of any discussion on any matter.
- c) The presiding officer shall, where applicable, cause to be received all physical and documentary evidence presented which shall be marked to show the identity of the person offering and whether presented on behalf of the proponent or opponent. Such exhibits shall be retained by the Department of Natural Resources until after any applicable appeal period

has expired, at which time the exhibit shall be released upon demand to the person identified therein.

106. FEES

106.1. Authority to Establish Fees:

The Board of Trustees hereby establishes the following schedule of fees for licenses, permits, registration statements, and the review of applications required by this Water Code. This schedule of fees shall be effective for at least one year following the adoption of this fee schedule.

106.2. Fee Schedule

1. Fees for Water System Development Permit Applications
 - a) Application for Domestic or Cultural Water Use:\$35.00
 - b) Application for any other Beneficial Water Use:
 - 1) Application that does not require a Public Hearing:\$75.00
 - 2) Application that does require a Public Hearing:\$250.00
2. Fee for Water Use Permits (Prior, Modification or Renewal):
 - a) Application for Water Permit Renewal:\$35.00
 - b) Application for Prior Use:.....\$35.00
 - c) Application for Water Permit Modification:.....\$35.00
3. Filing and Recording a Well Registration Statement:
 - a) Domestic or Cultural:.....\$10.00
 - b) Any Other Beneficial Use:.....\$50.00
4. Fees for Stream Zone Alteration Permit Applications:
 - a) Minor Stream Zone Alterations\$0.00
 - b) Major Stream Zone Alterations:\$250.00
5. Fees for Anti-degradation Review Certification Applications:
 - a) Tribal Anti-degradation Review\$50.00
 - b) §401 Water Quality Review.....\$250.00
6. Fees for Post Work Applications (after work has begun or completed)
 - a) All Permits/Certifications except
Minor Stream Zone Alterations Doubled Fee
 - b) Minor Stream Zone Alterations\$100.00
7. Fees for:
 - a) Application for Water management Region Map Amendment:\$250.00
 - b) Statement of Appeal:.....\$100.00
 - c) Copies of Code, Rules, or Regulations:\$5.00

106.3. Modification of Fee Schedule:

The Director, in consultation with the Water Commission, shall have the authority to periodically modify the fee schedule including but not limited to the establishment or deletion of fee categories and to increase or decrease the fee amounts as is necessary to carry out the administration of this Water Code.

106.1. Collection of Fees:

The Director shall prepare and maintain a current fee schedule which is available for public inspection. Prior to acting on requests for licenses, applications, permits, or other documents, the Director shall collect the specified fee, based on the fees established under the Water Code.

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SECTION 200 STANDARDS FOR THE USE OF WATER RESOURCES

201. GENERAL PROVISIONS

202.1. Authority

These standards are prepared pursuant to the authority delegated to the Water Commission under Chapter 1.10 of the Water Code, as amended on November 10, 2003.

202.2. Purpose

The standards for water use specify the quantities of water authorized for diversion for each beneficial use. The purpose of the standards is to provide consistency in the quantities of water permitted for diversion for beneficial use, to ensure the conservation of water resources for multiple beneficial uses, and to discourage the misuse and waste of the water resources of the Confederated Tribes of the Umatilla Indian Reservation.

202.3. Scope

These standards, effective on September 19, 1995 shall be applied to Tribal Water Permits issued for the development and use of all waters located within the Water Management Regions as established in the Water Code of the Confederated Tribes of the Umatilla Indian Reservation.

202. STANDARDS FOR BENEFICIAL USES

202.1. Domestic:

1. Irrigation is limited to non-commercial lawn and garden areas less than one-half (0.5) acre per dwelling unit.
2. Total annual water usage per dwelling unit shall be less than two (2) acre-feet.
3. Maximum pumping rate (gallons per minute) is limited to:
4.
 - a) One dwelling - 10 GPM
 - b) Two dwellings - 20 GPM
 - c) Three dwellings - 30 GPM

202.2. Community:

1. Irrigation is limited to non-commercial lawn and garden areas less than one-half (0.5) acre per dwelling unit.
2. Total annual water usage per dwelling unit is less than one and one-half (1.5) acre-feet.

3. Maximum pumping rate is limited to seven and one-half (7.5) gallons per minute for each dwelling unit.

202.3. Agricultural Irrigation:

1. The maximum cumulative pumping and/or diversion rate shall be:
 - a) Twenty (20) gallons per minute for four acres or less;
 - b) Five (5) gallons per minute per irrigated acre from 4.1 to 10 acres.
 - c) Fifty (50) gallons per minute plus three (3) gallons per minute for each irrigated acre over ten (10) acres.
2. Maximum pumping and/or diversion rate from any single well that obtains water from the basalt aquifer is:
 - a) Twenty-five (25) gallons per minute if the point of diversion is located in the Mission Basin Water Management Region.
 - b) Nine hundred (900) gallons per minute if the well is located in any other Water Management Region.
3. Maximum cumulative pumping or diversion rate from surface water sources and alluvial aquifer for any place of use is fifty (50) gallons per minute.
4. Maximum rate of application is limited to:
 - a) One (1) acre-foot per irrigated acre from the basalt aquifer, per calendar year.
 - b) Two and one-half (2.5) acre-feet per irrigated acre from surface water sources or alluvial aquifer, per calendar year.
5. Annual irrigation season extends from April 1 through October 31 in a calendar year.
6. Slope of the irrigated land shall not be greater than thirty-five (35%) percent.

202.4. Stock Watering:

1. A use shall be classified as stock watering if more than one-half (0.5) acre-foot is diverted annually for watering livestock from a source or diversion works, or if the primary purpose of the diversion works is to provide livestock with drinking water.

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2. Maximum cumulative diversion rate for stock watering shall be fifteen (15) gallons per minute for forty (40) or fewer head and fifty (50) gallons per minute for more than forty (40) head of livestock.

202.5. General Farm:

1. A use shall be classified as general farm if more than one-half (0.5) acre-foot is diverted annually for general farm purposes from a source or diversion works, or if the primary purpose of the diversion works is to provide water for general farm purposes.
2. Maximum cumulative pumping or diversion rate is limited to fifty (50) gallons per minute. Maximum cumulative pumping or diversion rate is limited to twenty-five (25) gallons per minute if the point of diversion is in the Mission Basin Water Management Region.
3. Maximum annual usage from any point of diversion is limited to three (3) acre-feet.

202.6. Municipal:

1. Maximum pumping or diversion rate from any single basalt well for a municipal water supply is nine hundred (900) gallons per minute.
2. Maximum pumping or diversion rate from any point of diversion from a surface water source is four hundred fifty (450) gallons per minute
3. Maximum pumping or diversion rate from any point of diversion from the alluvial aquifer is nine hundred (900) gallons per minute.

202.7. Public:

1. The following standards apply to public uses that do not utilize water from a municipal system.
2. The maximum pumping and/or diversion rate from any single well that obtains water from the basalt aquifer is:
 - a. Fifty (50) gallons per minute if the point of diversion is located in the Mission Basin Water Management Region.
 - b. One hundred fifty (150) gallons per minute if the well is located in any Water Management Region other than the Mission Basin.

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3. Maximum cumulative pumping or diversion rate from surface water sources and the alluvial aquifer for any place of use is fifty (50) gallons per minute.
4. Maximum rate of application is limited to:
 - a) Five (5) acre-feet from the basalt aquifer per calendar year.
 - b) Five (5) acre-feet from surface water sources or alluvial aquifer per calendar year.

202.8. Commercial:

1. The following standards apply to commercial uses that do not utilize water from a municipal system.
2. A use shall be classified as commercial use if more than one (1) acre foot is diverted annually for commercial purposes, or if the primary purpose of the diversion works is to provide water for commercial purposes.
3. The minimum pumping rate for a commercial development shall be ten (10) gallons per minute.
4. The maximum cumulative pumping or diversion rate for a commercial development is limited to two and one-half (2.5) gallons per minute per plumbing fixture with a maximum rate of five-hundred (500) gallons per minute per commercial development.
5. Maximum annual usage is limited to fifty (50) acre-feet per commercial development.
6. Commercial irrigation (e.g., commercial nursery, golf course, etc.) shall be developed in accordance with the standards set under Agricultural Irrigation.

202.9. Industrial:

1. The following standards apply to industrial uses that do not utilize water from a municipal system.
2. Maximum cumulative pumping or diversion rate from the diversion works is limited to two hundred (200) gallons per minute per industrial user.
3. Maximum annual usage is limited to fifty (50) acre-feet per industrial user.

202.10. Fire Protection:

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1. A use shall be classified as fire protection if more than two (2) acre-feet are diverted annually for fire protection purposes from a diversion works, or if the primary purpose of the diversion works is to provide water for fire protection purposes.
2. The maximum pumping or diversion rate from a diversion works shall be six hundred fifty (650) gallons per minute.

202.11.Cultural:

1. A use shall be classified as cultural use if more than one (1) acre foot is diverted annually for cultural purposes, or if the primary purpose of the diversion works is to provide water for cultural purposes.
2. Maximum diversion rate shall be ten (10) gallons per minute per use.
3. Maximum annual diversion per point of diversion shall not exceed two (2) acre feet per use.

202.12.Mining:

1. Maximum cumulative pumping or diversion rate is limited to two hundred (200) gallons per minute per mining development.
2. Maximum cumulative annual usage is limited to fifty (50) acre-feet per mining development.

202.13.Fish Habitat:

1. Water Commission shall reserve instream flow to meet requirements for fish habitat uses.
2. If the proposed water source is basalt ground water, the maximum cumulative pumping rate or diversion rate from basalt wells shall be fifty (50) gallons per minute per fish habitat development and a maximum diversion of ten (10) acre feet per year per development.
3. If the water source is alluvial ground water, the maximum cumulative pumping rate or diversion rate from a well(s) shall be four hundred and fifty (450) gallons per minute per fish habitat development and a maximum diversion of fifty (50) acre feet per year per development.

202.14.Wildlife Habitat:

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1. Water Commission shall reserve instream flow to meet requirements for wildlife habitat uses.
2. If the proposed water source is basalt ground water, the maximum cumulative pumping rate or diversion rate from basalt wells shall be fifty (50) gallons per minute per wildlife habitat development and a maximum diversion of ten (10) acre feet per year per development.
3. If the water source is alluvial ground water, the maximum cumulative pumping rate or diversion rate from a well(s) shall be four hundred fifty (450) gallons per minute per wildlife habitat development and a maximum diversion of fifty (50) acre feet per year per development.

202.15.Pollution Abatement:

1. Water Commission shall reserve instream flow to meet requirements for pollution abatement uses.
2. If the proposed water source is basalt ground water, the maximum cumulative pumping rate or diversion rate from basalt wells shall be twenty-five (25) gallons per minute and a maximum annual diversion of two (2) acre feet per pollution abatement development if the point of diversion is located within the Mission Basin Water Management Region or two hundred fifty (250) gallons per minute per pollution abatement development and a maximum diversion of five (5) acre feet per year per development if the point of diversion is located in a Water Management Region other than the Mission Basin.
3. If the water source is alluvial ground water, the maximum cumulative pumping rate or diversion rate from alluvial wells shall be two hundred fifty (250) gallons per minute per pollution abatement development and a maximum diversion of ten (10) acre feet per year per development.

202.16.Recreation:

1. Water Commission shall reserve instream flow to meet requirements for recreational uses.
2. If the proposed water source is basalt ground water, the maximum cumulative pumping rate or diversion rate from basalt wells shall be fifty (50) gallons per minute per recreation development and a maximum diversion of five (5) acre feet per year per development.
3. If the water source is alluvial ground water, the maximum cumulative pumping rate or diversion rate from alluvial wells shall be two hundred fifty

(250) gallons per minute per recreation development and a maximum diversion of ten (10) acre feet per year per development.

202.17. Power Generation:

1. Power generation use shall be a lower priority use for surface water sources than all other beneficial uses except mining. Power generation use may be allowed provided the use does not reduce the quantity or impair the quality of water required or reserved for fish habitat, wildlife habitat, and recreation beneficial uses.
2. If the proposed water source is basalt ground water, the maximum cumulative pumping rate or diversion rate from basalt wells shall be thirty (30) gallons per minute per power generation development and a maximum diversion of five (5) acre feet per year per development.
3. If the water source is alluvial ground water, the maximum cumulative pumping rate or diversion rate from alluvial wells shall be two hundred fifty (250) gallons per minute per power generation development and a maximum diversion of ten (10) acre feet per year per development.

202.18. Fish Hatcheries:

1. Surface water developments for fish hatchery use shall be planned and constructed to be non-consumptive uses. Stream reaches shall not be dewatered by the diversion of water for fish hatchery use. Fish hatchery use may be allowed provided the use does not reduce the quantity or impair the quality of water required or reserved for fish habitat, wildlife habitat, and recreation beneficial uses.
2. If the proposed water source is basalt ground water, the maximum cumulative pumping rate or diversion rate from basalt wells shall be fifty (50) gallons per minute per fish hatchery development and a maximum diversion of five (5) acre feet per year per development.
3. If the water source is alluvial ground water, the maximum cumulative pumping rate or diversion rate from alluvial wells shall be two hundred fifty (250) gallons per minute per fish hatchery development and a maximum diversion of ten (10) acre feet per year per development.

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SECTION 300 STREAM ZONE ALTERATION STANDARDS

301. GENERAL PROVISIONS

301.1 Title and Authority

These standards shall be entitled "Stream Zone Alteration Standards of the Confederated Tribes of the Umatilla Indian Reservation," and are enacted by the Water Commission pursuant to authority delegated by the Board of Trustees through the Tribal Water Code.

301.2 Purpose

The purpose of these Standards are to establish procedures and guidelines for development activities within the defined riparian zone that will protect the quality and quantity of the waters of the Umatilla Indian Reservation and to conserve the natural and cultural resources located within the stream zone.

301.3 Work Plans and Dates

The approved construction or work plans and the specified beginning and ending dates for performing alterations are the essence of a Stream Zone Alteration Permit. It is a violation of these standards for any person, without a written permit amendment issued by the Director, to:

1. Perform any work prior to the beginning date stated on the permit;
2. Perform any work after the expiration date stated on the permit; or
3. Deviate from the final form of any plans, specifications, and drawings accepted as supporting or auxiliary documents with the application for a permit.

301.4 Conduct of Work

All stream zone alteration work shall be performed in a manner that minimizes damage, both temporary and permanent, to water quality and fish and wildlife habitat. The following limitations are in effect:

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1. During the period of in-water work, a project inspector shall monitor construction activities periodically to ensure that the following provisions are met.
2. Passage shall be provided for both adult and juvenile forms of all salmonid species throughout the construction period.
3. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.
4. During project design and construction, every effort will be made to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Placement will be from above the bank line and not “end-dumped.”
5. The diversion or withdrawal of any water from natural streams and used for construction or for riparian plantings will comply with Tribal law regarding temporary water use and any other applicable regulation.
6. All construction or alteration work performed in the channel of any perennial or intermittent stream or reach of stream, shall conform to the instream work periods and related procedures specified in the Water Code.
7. Operation of equipment below the water surface in any actively flowing stream shall be minimized in duration and extent. Permits may include conditions:
 - a) Restricting the types and duration of equipment operating in the flowing stream;
 - b) Restricting the type and extent of alteration by the equipment;
 - c) Requiring the temporary or permanent diversion of stream flow away from in-channel work;
 - d) Requiring the installation of silt barriers and/or other structures to reduce stream turbidity;
 - e) Requiring the in-channel deployment or the on-site availability of petroleum absorbent material for emergency cleanup of releases of petroleum based substances into the stream zone.
8. Any temporary crossing, bridge centering or shoring, cofferdams, or other in-channel structures that will be needed during the period of construction shall be designed for passage of any high flows that can reasonably be expected to occur during the construction period.

9. All temporary structures and cofferdams shall be completely removed at the conclusion of construction, and the area shall be restored in accordance with the conditions and terms of the permit.
10. Riparian vegetation shall be unaltered except where its removal is absolutely necessary for completion of the work or alteration.
11. Any vegetation, debris, or other material removed during construction shall be disposed of at a location where it cannot re-enter the channel during high stream flows, and in accordance with any conditions or terms of the permit.
12. All new cut or fill slopes that will not be protected with some form of revetment shall be seeded with grass or other perennial plants to minimize erosion.
13. All fill material shall be placed and compacted in horizontal lifts. Areas to be filled shall be cleared of all vegetation, debris, and other materials that would be objectionable in the fill.
14. Alterations of the stream channel shall be performed in such a manner that the water depth in the low-flow channel is not decreased as a result of project work.

302. ALTERATION STANDARDS

302.1 Construction Supervision

1. The permittee shall allow the Director or his designee to enter upon the project site and perform inspections at any time.
2. The Director may require the permittee to notify the Department of Natural Resources one full working day prior to the time any of the following stages of work (if applicable) is initiated:
 - a) Brush removal;
 - b) Trench construction;
 - c) Cofferdam construction;
 - d) In reinforced concrete pours, placement of reinforcing bars;
 - e) In reinforced concrete pours, placement of concrete mix;
 - f) Placement of pipe or casing;
 - g) Revetment sub-base construction;
 - h) Placement of revetment courses;
 - i) Placement of revetment facing;
 - j) Completion of construction.

3. The Director may require the permittee to assemble a full color photographic record of all stages of construction named in Section 302.1;2 above (where applicable to the project) and to supply prints of photographs to the Department of Natural Resources at the time of completion of the project. Photographs shall be taken from multiple viewpoints in a sequence that obtains complete over-lapping coverage of all parts of the project at each stage. Photographs shall be identified preferably by signs included in the field of view, or failing that, by notes written on the backs of the prints. Identification shall included the Stream Zone Alteration Permit number and permittee name. Each photograph shall include a legible measuring element that will establish the scale of the photograph.

302.2 Bank and Channel Realignment

1. Shall be designed to lead water in a manner that minimizes subsequent erosion and that maintains consistency with fisheries requirements.
2. Shall be designed to blend smoothly into line of channel at the exit from realigned section.
3. Shall be designed in accordance with fisheries requirements in order to maintain sufficient depth and resting pools to provide fish passage at minimum flows.
4. Shall be designed and constructed to preserve shading effects of riparian vegetation wherever possible.
5. Shall be restricted to the minimum length necessary, since experience has shown clearly that nearly all modified streambeds and banks are less suitable for fish and wildlife, recreational use, and maintenance of clean water than natural beds and banks.

302.3 Brush Removal, Tree Removal, or Eradication of Native Vegetation

1. Within 200 feet of a streambank or within the zone of riparian vegetation, whichever distance is lesser, no removal of brush or trees or eradication of native vegetation shall be done without a Stream Zone Alteration Permit.
2. If the brush, tree, or vegetation removal is incidental to the performance of a construction project for which a valid Stream Zone Alteration Permit is issued, the extent of removal shall not exceed that needed for clearing of the actual site of construction and minimum feasible area of access lanes. At such sites, the area shall be revegetated as much as and as soon as possible.

3. If the brush, tree, or vegetation removal is for the purpose of wood harvesting or of clearing the area for agriculture, only specifically indicated vegetation shall be removed. Damage to vegetation on adjacent ground, or to species not included in the permit statement in the case of wood harvesting, caused by equipment passage or other causes, shall constitute a violation of this regulation.

302.4 Bridge Piers and Abutments

1. Shall be located so that danger of ice jam will be minimized;
2. Shall be built on a deep enough foundation to protect against scour;
3. Shall not constrict the channel;
4. Shall be of strong enough construction to withstand stresses imposed by ice movement or by the 100-year flood, whichever is greater.

302.5 Piling

1. If treated to prevent rot, shall be dry to prevent running or bleeding of toxic materials into water.
2. Plans for work shall show all cofferdams, pits, temporary pump installations and associated dewatering methods.
3. If pumping to dewater is considered likely to cause turbidity, the Director may require that a temporary sedimentation basin be employed. Such temporary basin shall conform to the requirements stated in Section 302.14; 6; b. of these standards.

302.6 Culvert Construction

1. Culvert shall be sized to pass a project design flood without overtopping.
2. Placed in a manner that does not impede fish passage, where applicable.
3. Outlets to be at grade to present no obstruction to fish passage, where applicable.
4. If the culvert is of multiple-passage construction, it shall be set with one inlet lower than all others in order to concentrate low flows in a single channel.

5. Low-flow channel shall be designed to maintain minimum depth for fish passage. Means of controlling depth can include use of low-profile baffles.
6. For all sites in areas near human habitations, culvert backwater at peak of 100-year flood shall be plotted on an appropriate contour map, along with the 100-year flood that would exist if the channel were unobstructed. If the increase in flood hazard is found to be excessive by the Director, a design modification will be required.

302.7 Dams and Diversion Structures

1. 1.Shall be designed to permit passage of minimum stream flows through out the year;
2. 2.Diversion checks shall be constructed in such fashion that no water can be diverted when stream flow is minimum or less;
3. Shall be equipped with fish passage structures, where applicable;
4. Shall be equipped with fish screens to prevent entry of adult or juvenile fish into any ditch, canal or pipeline, where applicable;
5. If variation in water level is to be greater than the natural variation of the river, an annual schedule shall be submitted showing how operation of the structure will accommodate passage of all existing and anticipated anadromous fish runs;
6. In all the dams storing water, provision shall be made for dead storage to carry over fish populations.

302.8 Cofferdams and Site Dewatering

1. Slope shall not be steeper than 2 to 1 from shoulder of dam to toe of excavation.
2. Shall be totally removed as soon as the specific site work requiring cofferdams has been finished.
3. Manner of removal shall minimize creation of turbidity in the stream.
4. Discharge from dewater pumps shall be controlled or passed through sedimentation basin in order to eliminate or minimize turbidity.

5. Shall be constructed and removed by a placement method that does not require sliding or pushing of material except for blading to smooth the finished surface.

302.9 Revetments

1. Where practicable, revetments shall be of a type that will allow re-growth of perennial plant species, unless a special use such as boat launching ramp, bridge abutment, etc., requires a clear reach of bank.
2. Revetments shall be constructed of clean rock material only. The Director may also allow the construction of revetments containing synthetic rope networks or other large-area fibrous networks.
3. The Director or Water Committee may impose the following standards on revetments that are constructed or reconstructed in association with a major alteration or that are designed to protect roads, bridges, public utility facilities, water or sewer works, pipelines or buildings:
 - a) Design shall be based on preventing damage by 100-year flood;
 - b) Channel flow velocity shall be determined by application of manning formula, assuming design flood flow and assuming that the slope is equal to the average slope of a reach running twenty times the channel width upstream from the section in question, unless a more exact analysis is made over a reach which is bounded by natural hydraulic control sections (sections at which critical flow can be shown to exist).
 - c) Bank stability analysis shall be based on the assumption of a saturated soil condition and empty channel, to predict the effect of a rapid drop of water level flowing a surge of high water.
 - d) Revetments designed as retaining walls shall be designed to resist the effects of a rapid fall of the water level. To this end, they shall withstand the full hydrostatic pressure of the equivalent weight of the soil plus a column of water equal in weight to design high water lines. No passive pressure or buoyant force shall be assumed to exist on the streamside of the wall.
 - e) Revetment design shall be based on applied forces due to impinging flow of water, applying hydrodynamic analysis and safety factors of 4 against plucking and 2 against sliding (assuming a coefficient of friction that is appropriate for the material in question).

302.10 Dikes and Levees

1. Shall be located to landward of a line connecting the outer extremities of the stream's beds, so that downstream migration of meanders according to the prevailing long-reach pattern of the stream will not lead to breaching of the

dike or levee, or shall have competent revetments extending to a depth lower than the streambed.

2. Shall be constructed to maintain not less than three (3) feet of freeboard at the predicted crest of the 100-year flood.
3. Shall be provided with culverts to maintain the grade of all existing drainage. Such culverts shall be fitted with flap gates or manually operated control gates; if manually operated, the gates shall be padlocked and the keys held by the Department of Natural Resources.
4. If of compacted-fill construction:
 - a) Shall have a top width not less than ten (10) feet;
 - b) Shall be constructed on a base from which all organic and vegetation-bearing soil has been stripped;
 - c) Shall have stream-side bank slope not less than 2.5 to 1 and land-side bank slope not less than 2 to 1;
 - d) Shall be constructed in horizontal lifts not more than six (6) inches thick, and compacted 95% of optimum or denser;
 - e) Shall be constructed of soil that is free of extraneous material, organic material, and frost;
 - f) Shall be planted to a suitable mixture of grasses and forbs to control erosion.
5. If of dumped-fill construction:
 - a) Shall not be constructed of dumped fill except by special permission granted by the Director;
 - b) Shall be constructed of non-organic materials with streamward slope not less than 3 to 1 and landward slope not less than 2.5 to 1;
 - c) Shall be constructed on a base from which any trees and shrubs have been removed;
 - d) Shall be constructed with top width not less than 15 feet;
 - e) Shall be constructed to a sufficient height such that embankments satisfy the freeboard requirements (in Section 302.10;2 above) after an anticipated settlement of 30% of the total thickness of the embankment;
 - f) Shall be smoothed with a bulldozer or grader blade to present a neat appearance;
 - g) Shall be planted to grasses and forbs for erosion control.

302.11 Construction of Streamside Roadways, Utility Lines, Canals and Ditches

1. Design shall be performed by a registered professional engineer. Computations and soil test data shall be submitted as well as plans and specifications, with the following information particularly required:
 - a) Location and extent of any existing or potential slides or areas of critical bank slope;
 - b) Method to be used to stabilize slides (where such exist) and areas of critical or super-critical bank slope (where such exist) or will be created by the construction of the ditch and subsequent aeration of a modified subsoil pore-water distribution, and documentation sufficient to demonstrate the effectiveness of such proposed method of stabilization;
 - c) Design of land-side drainage to protect against breaching by local flash floods up to the 100-year floods for minor drainage intercepted.
2. Access roads for construction shall utilize the final roadway or ditch channel way as much as possible. Where separate access is necessary, it shall be clearly detailed on the design submittal and subject to review and modification.
3. Access must be clearly shown in the submittal documents. In no case shall excess materials be placed within the channel of any stream.

302.12 Construction of Infiltration Galleries, Drain Tiles or Other Underflow Collectors

1. Shall not be constructed except in accordance with plans and specifications prepared by a registered professional engineer.
2. Shall be equipped with manholes or lampholes to permit visual inspection of all collector elements.
3. Shall be constructed at a time of year chosen to minimize danger of flooding of construction sites. The beginning and ending dates for construction shall be stated in the application for permit and approved by the Water Commission.
4. If dewatering is required, all turbid water shall be passed through a sedimentation basin conforming to the requirements of Section 302.14; 6; b of these standards, in order to prevent turbidity in the stream.

302.13 Buried Pipe and Cable Crossings

1. Shall be of metal pipe or in metal casing.
2. Casing shall be corrosion-resistant; galvanized if steel (or of material more corrosion resistant than galvanized steel).

3. Shall be buried with sufficient cover, concrete or riprap anchorage, or combination of both, to prevent scouring of stream bottoms thus exposing casing.
4. Shall be fully detailed on as-built plans, and copies of the as-built plans shall be submitted to the Department of Natural Resources.

302.14 Gravel Extraction

1. Methods for calculating quantities of removal shall be based on in site quantities, as determined from contour maps of initial and final conditions prepared by a registered professional engineer from field measurements. Contour map preparation shall be subject to the following conditions:
 2. The initial condition map shall show the contours existing prior to construction of any cofferdams or access lanes, and prior to any disturbance of the streambed by equipment.
 3. The final-conditions map shall show the contours existing at the completion of gravel removal, prior to obliteration (if any) of cofferdams, settling basins, and access roads.
 4. Maps shall be prepared to a planimetric scale no smaller than 100 feet to the inch, and to a contour interval no smaller than either two (2) feet or one-fifth of the average thickness of the gravel bed, whichever is less.
 5. Maps shall bear the stamp of a registered professional engineer, together with a statement by him certifying that they are accurate and are prepared from measurements made by him or under his supervision.
 6. All gravel removal activities shall be performed in a manner that will minimize creation of downstream turbidity. In particular, the following practices shall be adhered to:
 - a) Downstream flow shall be diverted from areas from which gravel is being taken. Gravel shall not be removed from any areas in which it is not feasible to divert stream flow.
 - b) Turbid water removed by dewatering pumps, and water used for gravel washing shall be passed through a sedimentation basin having a detention time of not less than two (2) hours and a maximum flowing-through velocity no greater than 0.5 feet per second. The settling basin may be constructed of local soils, but shall have bottom and banks at least as impervious as sound 4-mil polyethylene sheeting laid on compacted soil

with two (2) foot overlaps and sufficient gravel cover to prevent any shifting.

7. At the end of any season's extracting activities, all cofferdams shall be removed and the banks of all excavated pits shall be smoothed to a slope not greater than 3 horizontal to 1 vertical. In the stream channel all removal sites shall be left in a condition that prevents braiding of the stream or ponding of stream flow.

302.15 Grazing

In any stream zone where livestock grazing degrades water quality, destabilizes stream banks, or alters vegetation structure, fences shall be constructed to limit livestock to intermittent access to the stream zone.

302.16 Debris Removal

1. Removal of debris from the stream channel shall be performed only during stream low-flow periods as established in Section 4.06 of the Tribal Water Code. In case of emergency, special permission may be granted by the Director to remove debris at other times.
2. Location, preparation and rehabilitation of access to the stream zone for the purpose of debris removal shall be subject to approval by the Director.

302.17 Livestock Feedyards

1. Within the zone of riparian vegetation, livestock feedyards shall not be located within 200 feet of a stream bank.
2. Outside the zone of riparian vegetation, livestock feedyards shall be located outside the stream channel and at least 50 feet from the stream bank.
3. Livestock feedyards shall be situated and constructed or reconstructed such that:
 - a) surface runoff from the feedyard will not discharge into a stream channel and;
 - b) subsurface drainage from the feedyard will not discharge untreated animal waste into any stream channel.

302.18 Stream Fords

1. Streams shall be forded only at locations properly prepared as a ford.
2. All fords shall have both stream banks sloped at a grade not to exceed 15%.

3. All driving surfaces of a ford, including the streambed, shall be prepared with the surface material and graded in such a manner that traffic or surface water run-off will not cause rutting and trenching of tracks.
4. Temporary fords shall be reclaimed in such a manner that stream banks at the site are protected against erosion and scour.

302.19 Buildings

Buildings, excepting certain buildings as determined by the Director to be essential for fisheries management or for research or the collection of data for stream management,, shall be located more than one hundred (100) feet from the bank of a stream or outside the zone or riparian vegetation, whichever distance is lesser.

302.20 Subsurface and Surface Sewage Disposal Systems

Sewage disposal systems shall be located more than one hundred (100) feet from the bank of any stream.

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

SECTION 400 WATER QUALITY STANDARDS, BENEFICIAL USES, AND TREATMENT CRITERIA

401. GENERAL PROVISIONS

401.1 Introduction

1. The Walla Walla, Cayuse and Umatilla Indians exercise inherent sovereignty which includes governing, regulating and managing our affairs, and protecting and using our natural resources. Knowing that without good quality flowing water that nothing will survive, we exercise our rights to protect the water quality of the Reservation. Acknowledging that water is the giver of life, food, and the spirit and upon recommendation of the Water Commission, the Board of Trustees adopts the water quality standards to provide a mechanism for managing and regulating the quality and uses of waters of the Reservation by establishing water quality goals for specific water bodies, and providing a legal basis for regulatory controls. The exercise of this governmental function is critical to the Tribes' self-governing principles.
2. On August 5, 1981, the Board of Trustees approved and adopted the Interim Water Code. The purposes of the Interim Water Code include protecting the water resources of the Reservation from over appropriation, pollution, contamination or other acts injurious to the quantity or quality of waters of the Reservation. The Water Code was amended most recently on November 10, 2003.
3. These water quality standards are adopted pursuant to the Tribes' inherent sovereign authority, the Treaty of 1855, and Sections 303 and 518 of the Federal Clean Water Act. The standards will protect the Tribes' public health and welfare, treaty resources, political well-being, and economic viability; enhance the quality of waters of the Reservation; serve the purposes of the Federal Clean Water Act and assist in fulfilling the trust responsibilities of the United States to the Tribes.
4. Purposes of the water quality standards are to maintain or restore the chemical, physical, biological conditions, and cultural integrity of the surface waters of the Reservation for the Tribes, its people, and residents of the Reservation. The Tribes plan to achieve a level of water quality that provides for the protection and propagation of fish and wildlife, for recreation in and on the water, and for all existing and designated beneficial uses of the water. The Tribes will promote a holistic watershed approach to management of the surface waters of the Reservation and will protect cultural and spiritual uses of water and threatened and endangered species.

5. As described in this chapter, these water quality standards support the existing and designated beneficial uses of the surface waters of the Reservation, ensure that these uses will be protected, set the water quality standards to sustain the designated beneficial uses, and protect existing water quality.
6. The designated beneficial water uses and water quality criteria conform with water uses of the surface waters of the Reservation, the policies and regulations in the Interim Tribal Water Code, and considers the natural water quality potential and limitations of the same.
7. These water quality standards will be reviewed at least once every three years where full participation will be publicly requested from tribal members and the general public.

401.2 Area of Application

The provisions of these water quality standards shall apply to all surface waters within the boundaries of the Reservation, the trust lands restored to reservation status by the 1940 Secretarial Order, and any future territory that may come within Tribal jurisdiction. See Map 1

401.3 Applicability and Administration

1. The water quality standards shall be used by the EPA Regional Administrator for establishing any water quality based National Pollutant Discharge Elimination System (NPDES) Permit for point sources on the Reservation.
2. In conjunction with the issuance of Section 402 or Section 404 permits, the Tribes may designate mixing zones in the waters of the Reservation on a case-by-case basis. The size of mixing zones and the in-zone water quality in the mixing zones shall be consistent with applicable procedures and guidelines in EPA's Water Quality Standards Handbook and the Technical Support Document for Water Quality based Toxics Control and subsequent updates of the handbook and technical support documents (see Section 403.).
3. In conjunction with the issuance of Federal licenses or permits to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the surface waters of the Reservation, the licensing or permitting agency must apply for certification from the Tribes under Section 401 of the Clean Water Act. The Tribes will approve or deny certification of any federally licensed or permitted activity to ensure compliance with applicable water quality standards.
4. The Tribes may further apply these water quality standards to protect the integrity of the surface waters within the boundaries of the Reservation. As such, the Tribes may apply these water quality standards to any activity

including, but not limited to the construction or operation of industrial or commercial facilities, which may result in discharge from point and non-point sources into the surface waters of the Reservation.

401.4 Definitions

These definitions are applicable to all surface waters of the Reservation and are intended to facilitate the use of this chapter.

1. “Acute Toxicity” is a relatively short-term lethal or other adverse effect to an organism caused by pollutants, and usually occurs within 4 days for fish and large invertebrates and shorter times for smaller organisms.
2. “Anthropogenic” when used to describe “sources” or “warming”, means that which results from human activity.
3. “Appropriate Reference Site or Region” means a site on the same water body or within the same basin or eco-region that has similar habitat conditions and which is expected to represent the water quality and biological community attainable within the area(s) of concern.
4. “Aquatic Species” means any plant or animal that lives at least part of their life cycle in water.
5. “Background Conditions” means the biological, chemical, and physical conditions of a water body, outside and up-gradient of the area of influence of the point source discharge, non-point source, or instream activity under consideration. If several sources to any water body exist, background sampling would be undertaken immediately upstream from each source.
6. “Best Management Practices” means physical, structural, and/or managerial practices that, when used singularly or in combination prevent or reduce pollution.
7. “Biological Assessment” evaluates the biological condition of a water body using surveys of aquatic community structure, function, diversity, presence or absence, or other direct measurements of resident biota in surface waters.
8. “Biological Criteria” means numerical values or narrative expressions that describe the biological integrity or aquatic communities inhabiting waters of a given designated aquatic life use. Biological criteria serve as an index of aquatic community health.
9. “Board of Trustees” means the governing body of the Confederated Tribes of the Umatilla Indian Reservation exercising the Tribes’ inherent authority and

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

those powers granted by the Treaty of 1855 and the Constitution and By-Laws of the Confederated Tribes of the Umatilla Indian Reservation.

10. "BOD" means 5-day 20°C. biochemical oxygen demand and is a measure of the readily degraded organic constituents in a water sample.
11. "Carcinogen" or "carcinogenic" means any substance or agent that produces or tends to produce cancer in humans. The term carcinogen will apply to substances on the EPA lists of A (known human), B (probable human), and C (possible human) carcinogens.
12. "Chapter" means the Water Quality Standards of the Confederated Tribes of the Umatilla Indian Reservation as set forth within the Interim Tribal Water Code.
13. "Chlorophyll a" means a primary pigment in all oxygen evolving photosynthetic organisms and is present in all algae and photosynthetic organisms other than bacteria.
14. "Chronic Toxicity" means a fairly long-term adverse effect to an organism (when compared to the life span of the organism) caused by or related to changes in feeding, growth, metabolism, reproduction, a pollutant, genetic mutation, etc. Short-term test methods for detecting chronic toxicity may be used.
15. "Critical Conditions" means the physical, chemical, and biological characteristics of the receiving water and point source discharge, non-point source, or instream activity that interact to produce the greatest potential adverse impact on aquatic biota and designated beneficial uses.
16. "Critical Habitat" means those areas, which support rare, threatened or endangered species, or serve as sensitive spawning and rearing areas for aquatic life.
17. "Cultural Water Use" means waters which are used to support and maintain the way of life and traditional activities involving the people of the Reservation. These activities include, but are not limited to, spiritual practices which involve, among other things, primary or (direct) contact with water; uses of a water body to fulfill cultural, traditional, spiritual or religious uses; and preservation of habitat for berries, roots, medicines and other vegetation significant to the values and treaty rights of the Tribes. Water quality standards for this purpose will be numerically identical to water contact recreation standards.

18. "CWA" means the Federal Clean Water Act (33 USC 1251 et seq.), as amended.
19. "Damage to the Ecosystem" means any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms which the Director concludes may interfere with the health or survival success or natural structure and functioning of such populations. The stress may be due to alteration in habitat or changes in water, temperature, chemistry, turbidity, or other causes. In determining ecosystem damage, the Director shall consider the cumulative effects of pollutants or incremental changes in habitat which may create stress over the long term.
20. "Department" means the Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
21. "Director" means the Director of the Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
22. "Designated Beneficial Use" means the purpose or benefit to be derived from a water body, as designated by the Tribes, whether or not it is currently being attained.
23. "E. coli" means that portion of the coliform bacteria group which is present in the intestinal tracts and feces of warm-blooded animals as detected by the product of acid or gas from lactose in a suitable culture medium within twenty-four hours at 44.5 plus or minus 0.2 degrees Celsius.
24. "Emergency" means a situation of any kind, normally unforeseeable and unpreventable by ordinary prudence, in which either human life or health is endangered, or there is a clear threat of damage to or destruction of houses, buildings, roads, bridges, sewer works, waterworks, public facilities of any kind, livestock, or growing crops or such nature that only immediate action can prevent such loss of life, threat to public health, or damage to property.
25. "EPA" means the United States Environmental Protection Agency.
26. "Existing Uses" means uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards or presently exist.
27. "Geometric Mean" means either the nth root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

28. “Hardness” means a measure of the calcium and magnesium salts present in water. For the purpose of this chapter, hardness is measured in milligrams per liter and expressed as calcium carbonate (CaCO₃).
29. “High Quality Waters” means those waters, which meet or exceed those levels that are necessary to support the propagation of fish, shellfish and wildlife, and recreation in and on the water, and other existing and designated beneficial uses.
30. “Instream Water Uses” means cultural, fish and aquatic life habitat, salmonid fish rearing, salmonid fish spawning, anadromous fish passage and wildlife habitat uses.
31. “Intergravel Dissolved Oxygen” (IGDO) means the concentration of oxygen measured in the stream gravel pore water. For compliance purposes with criteria, the DO concentration should be measured within a redd or artificial redd, down-gradient of the egg pocket. Measurements should be taken within a limited time period, i.e., prior to emergence of fry, generally during the month of March.
32. “Intermittent Stream” means a waterway which flows only at certain times of the year or does not flow continuously.
33. “Mean Detention Time” is the mean amount of time that water remains in a basin. The time is computed by dividing a reservoir’s mean annual minimum total storage by the thirty-day, ten-year, low flow from the reservoir.
34. “mg/L” means parts per million, a measure of concentration.
35. “Mixing Zone” means that portion of water body adjacent to an effluent outfall where mixing results in the dilution of the effluent with the receiving water. Water quality numeric criteria may be exceeded in a mixing zone as conditioned and provided for in Section 405.
36. “Mutagenic” means having the characteristics of a chemical agent that can induce or increase the frequency of mutation in an organism.
37. “Natural Causes” refers to non-anthropogenic situations or not due to manmade sources.
38. “Natural Condition” means surface water quality that existed before human-caused influence on, discharge to, or addition of material to the water body.

39. “Near Instantaneous and Complete Mix” means no more than a 10 percent difference in bank-to-bank concentrations within a longitudinal distance not greater than 2 stream/river widths.
40. “Non-point Source” means diffuse or unconfined sources of pollution where waste can enter into or be conveyed by the movement of water into the surface waters of the Reservation.
41. “NPDES” means National Pollutant Discharge Elimination System, the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA.
42. “Outstanding Tribal Waters” means those waters designated by the Tribes where high quality waters constitute an outstanding Tribal resource based on extraordinary water quality or ecological values, or where special water quality protection is needed to maintain critical habitat areas.
43. “ppm” means a concentration measure designating parts per million.
44. “Permit” means a document issued pursuant to tribal code or federal laws (i.e., NPDES, CWA, Section 401; CWA, Section 404) specifying the waste treatment and control requirements and waste discharge conditions.
45. “Persistent Pollutant” means a pollutant which is slow to or does not decay, degrade, transform, volatilize, hydrolyze, or photolyze.
46. “Person” means any individual or group or combination thereof acting as a unit, however associated.
47. “Pesticides” includes insecticides, herbicides, fungicides, piscicides and all other substances intended to prevent, repel, destroy or mitigate the damage from insects, rodents, bacteria, fungi or weeds capable of infesting or harming vegetation, humans, or animals.
48. “pH” means the negative logarithm of the hydrogen ion concentration.
49. “Point Sources” means a stationary location or fixed facility (e.g. a pipe, ditch, concentrated animal feeding operation) from which pollution is discharged into surface waters of the Reservation.
50. “Pollutant” includes dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat,

wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

51. "Pollution" includes such contamination, or other alteration of the physical, chemical or biological properties, of any waters of the Reservation including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the tribe as will or is likely to create a nuisance or impair any beneficial use of such waters.
52. "Primary Contact Recreation" means any recreational or other water use in which there is prolonged and intimate contact with the water body, such as swimming and tribal traditional or ceremonial purposes involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard. This contact may include but is not limited to ingestion or immersion.
53. "Primary Treatment" is the separation of suspended solids from wastewater through screening or sedimentation.
54. "Receiving Waters" means any water course or water body that receives treated or untreated wastewater.
55. "Reservation" means all lands within the diminished boundaries of the Confederated Tribes of the Umatilla Indian Reservation and Trust lands located outside the diminished boundary but within the original treaty boundary.
56. "Reservoir" means an artificial lake where water is collected as a water supply.
57. "Secondary Contact Recreation" means any recreational or cultural use of the water where contact with the water need not occur and the probability of ingesting water is minimal, i.e., fishing or boating.
58. "Secondary Treatment" may be monitored in the following context:
 - a) "Sewage Wastes" means the minimum level of treatment mandated by EPA regulations pursuant to Public Law 92-500.
 - b) "Industrial and other waste sources" apply controls equivalent to best practicable treatment (BPT).
59. "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments, or other places, together with such groundwater infiltration and surface waters as may be present.

60. “Stormwater” means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.
61. “Surface Waters of the Reservation” includes lakes, bays, rivers, ponds, streams (including intermittent and ephemeral streams), wetlands, inland waters, ponds, impounding reservoirs, canals, saltwater, and all other surface water, natural or artificial, and water courses within the exterior boundaries of the Reservation.
62. “Teratogenic” means substances or agents that can interfere with normal embryonic development.
63. “Thermal Discharge” means the introduction of a heated effluent into surface waters.
64. “Threatened or Endangered Species (listed species)” means any species of fish, wildlife, or plant which has been determined to be endangered or threatened under Section 4 of the Endangered Species Act. Listed species are found in 50 CFR 17.11.-17.12.
65. “Toxicity” means acute or chronic toxicity.
66. “Toxicity Test” means a test using selected organisms to determine the acute or chronic effects of a chemical pollutant or whole effluent.
67. “Toxic Pollutant” means those pollutants, or combinations of pollutants, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to EPA or the Director, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.
68. “Treaty of 1855” means the Treaty of June 9, 1855, 12 Stat. 945, ratified March 8, 1859, proclaimed April 11, 1859, between the Tribes and the U.S. Federal Government.
69. “Tribes” means the Confederated Tribes of the Umatilla Indian Reservation of Oregon (Walla Walla, Cayuse and Umatilla Indians.).
70. “Triennial Review Process” refers to Section 303(c)(1) of the Clean Water Act, which requires the Tribes shall, from time to time, but at least once every

three years, hold public hearings to review applicable water quality standards and, as appropriate, to modify and adopt revised or new standards. The Tribes will follow guides provided in Chapter 6 “Procedures for Review and Revision of Water Quality Standards” from EPA’s Water Quality Standards Handbook to conduct all triennial reviews.

71. “Water Commission” means the governmental body of the Confederated Tribes of the Umatilla Indian Reservation charged by the Board of Trustees to adopt the Administrative Rules and Standards to the Water Code and to implement the Tribal Water Code and the Administrative Rules and Standards to the Tribal Water Code which contains the provisions of the Water Quality Standards of the Confederated Tribes of the Umatilla Indian Reservation.
72. “Turbidity” means the clarity of water or a measure of the transmission of light through a column of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.
73. “ug/L means a concentration unit of measure designating micrograms per liter.
74. “Wastes” include sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any surface waters of the Reservation.
75. “Water Quality” means the chemical, physical, biological, radiological, and cultural characteristics of a water body.
76. “Wetland” means any area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.
 - a) “Constructed Wetland” means those wetlands intentionally created from non- wetland sites for the sole purpose of wastewater or stormwater treatment.
 - b) “Created Wetlands” means those wetlands intentionally created from non-wetland site to produce or replace natural wetland habitat.
74. “Wildlife habitat” means the waters of the Reservation used by, or that directly or indirectly provide food support to, fish, other aquatic life, and wildlife for any life history stage or activity.

75. “Zone of initial dilution” means the region of initial mixing surrounding or adjacent to the outfall diffuser port, in which dilution is caused by the momentum and buoyancy of the discharge.

402. GENERAL CONSIDERATIONS APPLICABLE TO THE RESERVATION

402.1 General Policy

The General Policy of the Tribes is to restore and protect the quality of waters of the Reservation and includes:

1. Anti-degradation Policy for Surface Waters.
The purpose of the Anti-degradation Policy is to guide decisions that affect water quality such that degradation from point and non-point sources of pollution is prevented, and to protect, maintain and enhance surface water quality to protect all existing and designated beneficial uses listed in Table 1.
2. The Anti-degradation Policy consists of:
 - a) Tier 1: Existing instream water uses and the water quality necessary to support designated beneficial uses, shall be maintained and protected.
 - b) Tier 2: Where the actual water quality exceeds levels necessary to support the propagation of fish and wildlife and recreation in and on the water, that quality shall be maintained or protected unless the Tribes find, after full satisfaction of the public participation provisions of the Tribes’ planning process, that
 - 1) allowing lower water quality is necessary to accommodate important economic or social development where the water is located and outweighs the environmental costs of lowered water quality,
 - 2) lowering of water quality for economic or social development purposes does not authorize other users to increase their loading;
 - 3) lowering of the water quality will not violate the applicable criteria in Table 3 or site specific criteria established in Section 407.
 - 4) the resulting water quality will fully protect existing and designated beneficial uses,
 - 5) all wastes and other substances discharged will be treated and controlled to achieve:
 - i. the highest statutory and regulatory requirements for new or existing point sources and
 - ii. approved, cost-effective, and reasonable best management practices for non-point sources.

- c) Tier 3: Outstanding Tribal Waters. Where high quality waters constitute an outstanding resource of the Reservation such waters shall be maintained and protected. These high quality waters may include wild and scenic areas, wildlife refuges and waters of exceptional recreational, ecological, cultural or religious significance. The Department may require water quality controls, maintenance of natural flow regimes, protection of instream habitats, and land use practices protective of the watershed.
3. In cases where potential water quality impairments associated with thermal discharge are involved, the Antidegradation Policy and implementing methods shall be consistent with Section 316 of the Clean Water Act, as amended.
4. When a distinction cannot be made between classifications of surface water, wetlands, or groundwater, the applicable standards will depend on the existing and designated beneficial use that may be adversely affected. At the boundary between waters of different classifications, the more stringent water quality criteria shall prevail. If the designated beneficial uses of more than one resource are affected, the most protective criteria shall apply.

403. DESIGNATED BENEFICIAL WATER USES TO BE PROTECTED IN THE UMATILLA BASIN ON THE RESERVATION

1. Water quality in the surface waters of the Reservation shall be managed to protect the existing and designated beneficial uses listed in Table 1, and Table 4. Within Table 1, the Tribes have made a general designation of beneficial uses within specified watershed areas. Within Table 4, and appropriate maps, the Tribes have designated beneficial uses specifically for individual streams. This table also includes the most significant fish species associated with each stream and the most critical life history for the species within the water body.
2. The tables listed above may be revised in the future to include additional designated beneficial uses as long as existing uses are protected and after full satisfaction of the Tribes' intergovernmental coordination and public participation process.
3. Any revisions to this document including tables constitute changes to the water quality standards regulations and will be submitted to EPA for review and approval after adoption by the Tribes.

404. WATER QUALITY STANDARDS

The following criteria apply to surface waters of the Reservation and their tributaries as identified in Table 4.

- 404.1 Water Quality Standards not to be Exceeded in the Surface Waters of the Reservation

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1. Notwithstanding the water quality standards listed below, the highest and best practicable treatment and control of wastes, activities, and flows shall be provided in order to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels.
2. Wastes shall not be discharged and activities will not be conducted where either alone or in combination with other wastes or activities they will violate the following standards in the surface waters of the Reservation. The Tribes have designated specific water bodies in Table 4 indicating the designated beneficial use, fish species, life history and temperature regime. In Table 7, the Tribes have established the period of time for native salmonid spawning, egg incubation, fry emergence and rearing periods.
3. As additional information is developed, the Tribes may revise Table 4 and Table 7 based on site specific data for streams, water bodies, fishes and their associated life histories. Changes will be made after full public involvement. Any revisions constitute changes to the Tribes' water quality standards and will be submitted to EPA for review and approval following adoption by the Tribes.
4. The goal of the Tribes is that the surface waters of the Reservation will be free from substances attributable to point source discharge, non-point source discharge, or instream activities that produce adverse effects to human health and safety, aquatic life, and federally listed threatened and endangered species except as allowed for under Mixing Zones.
5. Best management practices shall be applied to activities generating nonpoint source pollution such that water quality standards are not violated with best management practices in place, the discharger shall modify existing practices or apply further water pollution control measures selected or approved by the Tribe. When applicable best management practices are not being implemented the Tribe may conclude activities are causing pollution and issue orders, directives, or sanctions to gain compliance.

404.2 Bacteria Standard

1. Upon adoption of the water quality standards, the Tribes will adopt the Ambient Water Quality Criteria for Bacteria - 1986 and Recommended National Water Quality Criteria.

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2. **Numeric Criteria:** Organisms of the coliform group commonly associated with fecal sources (MPN or equivalent membrane filtration using a representative number of samples) shall not exceed the criteria described below for freshwaters:
 - a) 30 day log mean of 126 E. coli organisms per 100 ml, based on a minimum of five (5) samples.
 - b) No single sample shall exceed 406 E. coli organisms per 100 ml.
3. **Raw Sewage Prohibition:** No sewage shall be discharged into or in any other manner be allowed to enter the surface waters of the Reservation unless such sewage has been treated in a manner approved by the Tribes or otherwise allowed by these standards.
4. **Animal Waste:** Runoff contaminated with domesticated animal wastes shall be minimized and treated to the maximum extent practicable before it is allowed to enter the surface waters of the Reservation.
 - a) All livestock wastes shall be regulated pursuant to Section 14.065 of the Tribes' Environmental Health and Safety Code.
 - b) Section 14.070 of the Tribes' Environmental Health and Safety Code will apply to environmental degradation by livestock.
5. **Confined animal feeding operations** shall be regulated pursuant to the Tribes' Land Development Code, the Tribes' Environmental Health and Safety Code and the NPDES program to ensure the water quality standards of this chapter are attained and that potential adverse effects on water quality are minimized.
6. **Bacteria pollution or other conditions deleterious to waters used for domestic purposes, cultural or spiritual use, livestock watering, irrigation, bathing or otherwise injurious to public health shall not be allowed.**

404.3 Dissolved Oxygen

1. For waters identified by the Tribes in Table 4 as providing salmonid spawning (see Tables 5 & 6 for indigenous and introduced species list), during the periods from spawning until fry emergence from the gravels, listed in Table 7, the following criteria apply:
 - a) The seven-day mean minimum dissolved oxygen shall not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is determined to be 8.0 mg/l or greater, then the dissolved oxygen criteria is 9.0 mg/l (Table 2);

- b) Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels shall not be less than 95 percent of saturation.
 - c) Periods of native salmonid spawning, egg incubation, and fry emergence from the gravel are flow and temperature dependent and tend to vary with elevation. If necessary, site specific dates for these periods may be established by the Tribes after satisfaction of the Tribes' intergovernmental coordination and public participation provisions. Changes to Table 4, and Table 7 constitute changes to the water quality standards regulations and will be submitted to EPA for review and approval following adoption by the Tribes.
2. For water bodies identified in Table 4, as providing salmonid spawning during the period from spawning until fry emergence from the gravels (Table 7), the spatial median intergravel dissolved oxygen concentration shall not be less than 6.0 mg/L. An intergravel dissolved oxygen level of 8.0 shall be used by the Director to determine where the beneficial use of salmonid spawning, egg incubation and fry emergence from the egg and from the gravel may be impaired and require action by the Director.
 3. For water bodies identified in Table 4 as providing cold-water aquatic life, the dissolved oxygen shall not be less than 8.0 mg/L or 90% of saturation as an absolute minimum.
 4. For water bodies identified in Table 4 as providing cool-water aquatic life, the dissolved oxygen shall not be less than 6.5 mg/L as an absolute minimum.

404.4 Temperature

1. No measurable surface water temperature increase resulting from anthropogenic activities is allowed unless a management plan has been reviewed and approved by the Tribes. The Tribes may allow short-term modifications or variances according to Section 408 and Section 409. Variance standards will be set using the best available data and reviewed every three years as part of the triennial review process. The plan will show how the thermal load is (or will be) minimized and how the activity does not (or will not) interfere with attainment of numeric criteria within the watershed in question (See attached Table 4, and appropriate maps for locations). This standard applies to the following:
 - a) In a water body where salmonid fish rearing (Table 4) is a designated beneficial use, and in which surface water temperatures exceed 64.0° F (17.8° C) (7day moving average of daily maximum value); or
 - b) In waters and periods of the year listed in Table 4 and Table 7 that support salmonid spawning, egg incubation and fry emergence from the egg and

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- from the gravels in a basin which exceeds 55.0° F (12.8°C) (7day moving average of daily maximum value); or
- c) In waters listed in Table 4 and Table 7 that support or maintain the viability of bull trout when surface water temperatures exceed 50.0° F (10.0° C)) (7day moving average of daily maximum value); or
 - d) In stream segments containing federally listed Threatened and Endangered species if the increase would impair the biological integrity of the Threatened and Endangered population; or
 - e) In any surface waters of the Reservation when the dissolved oxygen levels are within 0.5 mg/l or 10 percent saturation of the water column or intergravel dissolved oxygen criterion for a given stream or subbasin;
2. Exceeding the numeric criteria identified in subparagraph (1) (a) through (c) of this subsection will not be deemed a temperature standard exceedence if it occurs when the air temperature during the warmest seven-day period of the year exceeds the 90th percentile of the seven-day average daily maximum air temperature calculated in a yearly series over the historic record (local weather stations will be used to calculate air temperatures). All thermal sources must continue to meet permit or management plan requirements.
 3. Any person may petition the Tribes for a variance to subparagraph (1) (a through e) of this subsection (in accordance with Section 409) for discharge above the identified criteria if:
 - a) The person provides credible scientific information to describe how the designated beneficial uses would not be adversely impacted;
 - b) The person is implementing all reasonable management practices or measures; its activity will not significantly affect the beneficial uses; and the environmental cost of treating the parameter to the level necessary to assure full protection would outweigh the risk to the resource.

404.5 Turbidity (Nephelometric Turbidity Units, NTU)

1. Shall not be at a level to potentially impair designated beneficial uses or aquatic biota.
2. More than a ten per cent cumulative increase in natural stream turbidities as measured relative to a control point immediately upstream of any or all turbidity causing activities will not be allowed.
3. Limited duration activities necessary to address an emergency or to accommodate permitted dredging, construction or other legitimate activities which cause the standard to be exceeded may be authorized if all practicable turbidity control techniques have been applied and one of the following has been granted.

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- a) Emergency activities: approval by the Tribes under prescribed conditions to accommodate a response to emergencies or to protect public health and welfare.
- b) Dredging, Construction or other Legitimate Activities: Permit or certification authorized under Section 401 or 404 (Permits and Licenses, Federal Water Pollution Control Act), and the Tribes' Streamzone Alteration Regulations with limitations and conditions governing the activity set forth in the permit or certificate.

404.6 pH (hydrogen ion concentration):
pH values shall not fall outside the range of 9.0 units.

404.7 Total Dissolved Gas:
The concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection shall not exceed 110 percent of saturation, except when stream flow exceeds the ten-year, seven-day average flood. However, for hatchery receiving waters and waters of less than two feet in depth, the concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection shall not exceed 105 percent of saturation.

404.8 Toxic Substances Criteria
Toxic substances criteria shall apply to surface waters of the Reservation and their tributaries as identified in Table 4.

1. Toxic substances shall not be introduced into the surface waters of the Reservation in amounts, concentrations or combinations which may singularly or cumulatively adversely affect existing and designated beneficial water uses, cause acute or chronic toxicity to the most sensitive biota and federally listed threatened and endangered species dependent upon those waters, or adversely affect public health and safety, as determined by the Director, except as allowed for under Mixing Zones.
2. All surface waters of the Tribe shall at all places be free from any substance which is carcinogenic, mutagenic, or teratogenic to human beings or to significant, locally occurring wildlife or aquatic species.
3. Levels of toxic substances shall not exceed the criteria listed in Table 3. Levels for substances not listed may also be established with consideration of other relevant information as appropriate. Human health criteria were revised using EPA's latest methodology, Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (EPA-822-B-00-004, October 2000) using a fish consumption rate of 389 grams per day.

4. The criteria in paragraph (3) of this subsection shall apply unless data from scientifically valid studies demonstrate that the most sensitive designated beneficial uses will not be adversely affected by exceeding a criterion or that a more restrictive criterion is warranted to protect designated beneficial uses, as accepted by the Tribes on a site specific basis in accordance with Section 407. after the Tribes' intergovernmental coordination and public participation process. Where no published EPA criteria exist for a toxic substance, public health advisories and other published scientific literature may be considered and used, if appropriate, to set guidance values.
5. Application of pesticides in or adjacent to Reservation surface waters must be in strict compliance with the labeled directions for use of the pesticide and other relevant requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and other Federal or Tribal laws that apply. Pesticide application should target noxious species and must not impact the structure or function of indigenous aquatic or wildlife communities.
6. Monitoring of toxic chemicals present in effluent shall be required of all permitted dischargers who wish to discharge into tribal waters.
7. Within any allowed mixing zone there shall be no acute toxicity and at the edge of the mixing zone there shall be no chronic toxicity.
8. Bio-assessment studies such as laboratory bioassays or instream measurements of indigenous biological communities, shall be conducted, as the Tribes deem necessary, to monitor the toxicity of complex effluent, other suspected discharges or chemical substances without numeric criteria, to aquatic life. These studies, properly conducted in accordance with standard testing procedures, may be considered as scientifically valid data for the purposes of paragraph (1) of this subsection. If toxicity occurs, the Tribes shall evaluate and implement measures necessary to reduce toxicity on a case-by-case basis.
9. Risk-based criteria for carcinogenic substances shall be applied such that the upper-bound excess cancer risk is less than or equal to one in one million.
10. Criteria for metals shall be applied as total recoverable values based on criteria published in the Code of Federal Regulations, 57 FR 60848, December 22, 1992.

404.9 Narrative Criteria

The following Narrative Criteria apply to surface waters of the Reservation and their tributaries as identified in Table 4.

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1. Objectionable discoloration, scum, oily slick or floating solids, or coating of aquatic life with oil films shall not be allowed.
2. The liberation of dissolved gases, such as carbon dioxide, hydrogen sulfide, or other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, cultural, recreation, or other uses made of such waters shall not be allowed.
3. The development of fungi, algae or other growths having a deleterious effect on stream bottoms, fish, or other aquatic life, or which are injurious to health, cultural and spiritual uses, recreation or industry shall not be allowed.
4. The creation of tastes, odors, toxics or other organoleptic effects that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shall not be allowed.
5. The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, cultural uses, recreation, or industry shall not be allowed.
6. Aesthetic conditions offensive to the human senses of sight, taste, smell or touch shall not be allowed.
7. There may be no concentrations of substances in water that singly or in combination cause toxic effects on aquatic life.

404.10 Naturally Occurring Water Quality Parameters

Where the naturally occurring water quality parameters of waters of the Reservation are outside the numerical limits of the above assigned water quality standards, the natural background water quality shall be the standard. Where no historical or background data exists, data collection and analysis will be used to determine the standard. Data from an appropriate reference site, which reflects the natural condition, may also be used for this purpose. The Tribes will establish interim standards on a site specific basis.

404.11 Lake Class

1. Water quality of lakes shall meet or exceed the requirements for all or substantially all uses, particularly cultural, fish, wildlife habitat, recreation, stock watering, and domestic water supply uses.
2. Water Quality Criteria:

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- a) coli organism levels shall not exceed a monthly mean value of 126 organisms/100 m/L (based on a minimum of five samples) and no single sample shall have more than 406 E. coli organisms per 100 m/L.
- b) Dissolved oxygen – no measurable decrease from natural conditions.
- c) Total dissolved gas shall not exceed 100 percent of saturation at any point of sample collection.
- d) Temperature – no measurable change from natural conditions.
- e) pH – no measurable change from natural conditions.

404.12 Radioactive Substances

1. Radioisotope concentrations shall not exceed maximum permissible concentrations which result in a significant hazard to public health in drinking water in accordance with the Federal Safe Drinking Water Act, or which may cause acute or chronic toxic conditions to aquatic biota, edible fishes, wild life, irrigated crops, livestock, dairy products or pose an external radiation hazard or which may adversely affect existing and designated beneficial uses.
2. Concentrations of radioactive materials for all waters of the Reservation shall not exceed the following:
 - a) Gross Alpha Particle Activity - 15 pCi/L
 - b) Gross Beta Particle Activity - 50 pCi/L
 - c) Tritium - 20,000 pCi/L
 - d) Strontium 90 - 8 pCi/L
 - e) Radium 226 & 228 - 5 pCi/L
 - f) Radium 226 - 3 pCi/L
 - g) Radon - 300 pCi/L

404.13 Biological Criteria

1. Surface waters of the Reservation shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.
2. The goal of the Tribes is that surface waters of the Reservation will be free from substances, whether attributable to point source discharges, nonpoint sources, or instream activities, in concentrations or combinations which impair the structure or limit the function of the resident aquatic community as it naturally occurs.
3. The structure and function of the resident aquatic community shall be measured by biological assessment methods approved by the Director.

4. Determination of impairment or limitation of the resident aquatic community shall be based on a comparison with the aquatic community found at an appropriate reference site or region.

404.14 Wildlife Criteria

All surface waters of the Reservation shall be of sufficient quality to protect and support all life stages of resident and/or migratory wildlife species which live in, on, or near the surface waters of the Reservation.

404.15 Wetlands

1. All wetlands within the Reservation which are not constructed wetlands shall be subject to the Antidegradation Policy (Section 401.1), the Toxic Substances Criterion (Section 404.6), Narrative Criteria (Section 404.7) provisions within this chapter.
2. Water quality in wetlands shall be maintained at naturally occurring levels, within the natural range of variation for the individual wetland.
3. Physical and biological characteristics shall be maintained and protected by:
 - a) Maintaining hydrological conditions, including hydroperiod, hydrodynamics, and natural water temperature variations;
 - b) Maintaining the natural hydrophytic vegetation;
 - c) Maintaining substrate characteristics necessary to support designated beneficial uses.
4. Wetlands shall not be used in lieu of stormwater treatment, except as specified by (7) below. Stormwater shall be treated before discharge to a wetland.
5. Point and nonpoint sources of pollution shall not cause destruction or impairment of wetlands except where authorized under Section 404 of the CWA.
6. Wetlands shall not be used as repositories or treatment systems for wastes from human sources, except as specified by (7), below.
7. Wetlands intentionally created from non-wetland sites for the sole purpose of wastewater or stormwater treatment (constructed wetlands) are not considered "surface waters of the Reservation" and are not subject to the provisions of this section.

404.16 Nuisance Phytoplankton Growth

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The following values and implementation program shall be applied to lakes, reservoirs, and streams except for ponds and reservoirs less than 10 acres in surface area and marshes:

1. The following average Chlorophyll a values shall be used to identify water bodies where phytoplankton may impair the recognized beneficial uses:
 - a) Natural Lakes which thermally stratify: 0.01 mg/l.
 - b) Natural Lakes and reservoirs which do not thermally stratify, reservoirs, and rivers: 0.015 mg/l.
2. Average Chlorophyll a values shall be based on the following methodology: A minimum of three samples collected over any three consecutive months at a minimum of one representative location (e.g., above the deepest point of a lake or reservoir or at the thalweg of a river channel) from samples integrated from the surface to a depth equal to twice the Secchi depth or the bottom (the lesser of the two depths); analytical and quality assurance methods shall be in accordance with the most recent edition of Standard Methods for the Examination of Water and Wastewater, and other methods approved by EPA or the Tribes.
3. If the Tribes determine that the values in subsection (1) of this standard are exceeded the Tribes may:
 - a) Approve a schedule for completion and authorize studies to describe present water quality; determine the impacts on beneficial use impact; and develop a proposed control strategy for attaining compliance where technically and economically practicable. Proposed strategies may include standards for additional pollutant parameters, pollutant discharge load limitations, and any other appropriate provisions. Where natural conditions are responsible for exceedance of the values in subsection (1) of this standard or beneficial uses are not impaired, the values in subsection (1) of this standard may be modified to an appropriate value for that water body;
 - b) Conduct necessary public hearings preliminary to adoption of a control strategy, standards or modified values; and
 - c) Implement the strategy upon adoption by the Tribes.
4. In cases where waters exceed the values in subsection (1) and the necessary studies are not completed, the Tribes may approve new activities or new and additional discharge loading from point sources, if it is determined that designated beneficial uses would not be significantly impaired by the new activity or discharge.

405. MIXING ZONES

405.1 General Conditions

1. The Tribes may allow a designated portion of a receiving water to serve as a zone of dilution for waste waters and receiving waters to mix thoroughly and this zone will be defined as a mixing zone. Mixing zones will not have a reasonable potential to substantially interfere with the designated beneficial uses of a water body and public health. No mixing will be allowed where the presence of a mixing zone may result in any adverse affect to Threatened and Endangered Species.
2. Mixing zones may be granted for whole effluent or on a pollutant by pollutant basis.
3. The allowable size and location of a mixing zone shall be established in certifications under Section 401 of the CWA, or orders, as appropriate.
4. The Director may, as necessary, require mixing zone monitoring studies and/or bioassays and biosurveys as appropriate to be conducted to evaluate water quality or biological status within and outside of the mixing zone boundary.
5. The Director may require revision, revocation or denial of permits authorizing mixing zones upon expiration of the permit, or prior to expiration if information suggests that the nature and impacts of the mixing zone are different than the conditions used to determine mixing zone criteria.
6. Mixing zones shall not be granted for discharges to outstanding tribal waters, wetlands, or ephemeral or intermittent streams.
7. The Director shall consider prohibiting mixing zones where:
 - a) Discharges could create or foster conditions in sediments within and outside of the mixing zone that have the reasonable potential to cause damage to the ecosystem.
 - b) Discharges could cause an exceedence of the chronic criteria (WET or chemical specific) in the surface micro layer outside of the mixing zone boundary.
 - c) Aquatic life could be attracted to the plume and be harmed.
 - d) The mixing zone could impact drinking water intakes, recreation sites, cultural areas, and biologically important areas such as fish-spawning areas.
 - e) The discharge could adversely impact threatened and endangered species.
 - f) There are known or suspected carcinogens, mutagens, teratogens, or bioaccumulative or persistent pollutants.

8. Mixing zones shall not substitute for waste treatment. The applicant shall show, to the satisfaction of the Director, that all reasonable current technology for wastewater treatment, pollution control, and waste reduction have been fully applied before a mixing zone is granted.
9. Except as specified in "Narrative Water Quality Criteria" (Section 404.7) water quality standards may be exceeded within the mixing zone as provided for in a discharge permit or order. Determination of the dilution available and size of mixing zones will consider the following:
 - a) critical conditions
 - b) mixing characteristics of the receiving water
 - c) characteristics of the effluent
 - d) impacts to use designations of the receiving water
10. Mixing zones shall be as small as feasible, and in no case shall be larger than specified in subsection 2, Mixing Zone Specifications.
11. Where mixing zones are overlapping or adjacent, the total size of all mixing zones shall not exceed the size allowed for one mixing zone, as described in subsection 2, Mixing Zone Specifications.
12. The Tribes may change mixing zone limits or require the relocation of an outfall if it determines that the water quality within the mixing zone adversely affects any use in the receiving waters.
13. The water outside the boundary of the mixing zone shall:
 - a) Be free of materials in concentrations that will cause chronic (sub-lethal) toxicity. Chronic toxicity is measured as the concentration that causes long-term sub-lethal effects, such as significantly impaired growth or reproduction in aquatic organisms, during a testing period based on test species life cycle. Procedures and end points will be specified in wastewater discharge permits.
 - b) Meet all other water quality standards during low flow conditions as specified in EPA's National Toxics Rule – 7Q10 for chronic toxicity
 - c) and the harmonic mean flow for carcinogens. There shall be no acute toxicity within mixing zones.

405.2 Mixing Zone Specifications

1. Where mixing is near instantaneous and complete and the pollutants are not persistent or bio-accumulative, the permittee may be allowed the following flows for dilution:

- a) Chronic criteria: the 7Q10 flow which is the lowest average 7 consecutive day low flow with an average recurrence frequency of once in 10 years, determined hydrologically.
 - b) Acute criteria: at the point of discharge.
 - c) Human health criteria - carcinogens: harmonic mean flow which is the long term mean flow value calculated by dividing the number of daily flows analyzed by the sum of the reciprocals of those daily flows.
 - d) Health criteria - non-carcinogens: the 30Q5 flow which is the lowest average 30 consecutive day low flow with an average recurrence frequency of once in 5 years determined hydrologically.
2. Where mixing is not near instantaneous and complete, or for the discharge of persistent or bio-accumulative pollutants the following apply:
- a) In rivers and streams, criteria shall be met at the following locations:
 - 1) Chronic criteria: a point not to exceed 50 percent of the length of any given cross- section of the water body, and a distance of 200 feet downstream from the point of discharge.
 - 2) Acute criteria: at the point of discharge.
 - 3) Human health criteria - carcinogens: at the point of discharge.
 - 4) Human health criteria - non-carcinogens: the edge of the zone of initial dilution.
 - b) In reservoirs with a mean detention time of greater than 15 days, and lakes, criteria shall be met at the following locations:
 - 1) Chronic criteria: at a point not to exceed 1% percent of the volume of the water body or percent of the surface area or 0.5% percent of the width of the water body, whichever is most stringent.
 - 2) Acute criteria: at the point of discharge.
 - 3) Human health criteria – carcinogens: at the point of discharge.
 - 4) Human health criteria - non-carcinogens: the edge of the zone of initial dilution.

406. ALLOWANCE FOR COMPLIANCE SCHEDULES

1. All permits, orders and directives of the Department issued under Tribal authority, for existing discharges or activities may include a schedule for achieving compliance with water quality criteria contained in this Chapter. Schedules of compliance will be developed to ensure final compliance with all water quality criteria in the shortest practicable time, but not to exceed five years. Decisions regarding whether to issue schedules of compliance will be made on a case-by-case basis by the permitting agency and must be approved

by the Department. Schedules of compliance may not be issued for new discharges or activities. Schedules of compliance may be issued for:

- a) construction of necessary treatment capability;
 - b) implementation of necessary best management practices;
 - c) implementation of additional best management practices for sources determined not to meet water quality criteria following implementation of an initial set of best management practices; and,
 - d) completion of necessary water quality studies.
2. During the period of time where compliance with water quality criteria is deferred, interim limitations and/or other conditions may be formally established, based on the best professional judgment of the permitting agency and the Department.
 3. Prior to establishing a schedule of compliance, the permitting agency shall require the permittee to evaluate the possibility of achieving water quality criteria via non-construction changes (e.g. facility operation, pollution prevention).

407. SITE SPECIFIC CRITERIA AND CRITERIA BASED ON NATURAL CONDITIONS

1. The Tribes may revise criteria based on a reservation-wide or water-body specific basis as needed to protect aquatic life, including sensitive life stages, habitat, and human health; to protect designated beneficial uses; and to increase the technical accuracy of the criteria being applied.
2. Whenever the natural conditions of the surface waters of the Reservation are of a lower quality or higher quality than the criteria assigned, the Tribes may determine that the natural conditions shall constitute the water quality criteria.
3. If the natural condition varies with time, the natural condition will be determined as the prevailing highest quality natural condition measured during an annual, seasonal, or shorter period of time prior to human caused influence. The Tribes may, in its discretion, determine a natural condition for one or more seasonal or shorter time periods to reflect variable ambient conditions.
4. Historical data or data from an appropriate reference site, that represent natural condition, may be used to determine the criterion.
5. The Tribes shall formally adopt any revised criteria following public review and comment. Any modifications to the criteria in Table 3 will be adopted in regulation.

6. Revised criteria will be submitted to EPA, after adoption by the Tribes, for review along with any information that will aid EPA to determine the adequacy of the scientific basis of the revised criteria.

408. SHORT-TERM MODIFICATIONS

1. The criteria established in these water quality standards may be modified for a specific water body on a short-term basis in order to respond to emergencies, to accommodate essential activities, or to otherwise protect the public health and welfare, even though such activities may result in a temporary reduction of water quality conditions below criteria established by this regulation. The Director will issue such modifications in writing subject to any terms and conditions prescribed by the Director.
2. Short-term modifications shall not exceed a six-month period and shall be kept as short as feasible. Short-term modifications will not be repeatedly authorized at one site. If necessary, the Director may consider a permanent change to the criteria at the site or to the designated beneficial uses.
3. Degradation of water quality or aquatic habitat will not be allowed if the degradation could interfere with, or becomes injurious to, designated beneficial uses or causes long-term harm to the environment, biota, or cultural resources. No short-term modification may be issued where it could adversely impact threatened or endangered species or their critical habitat.
4. A written request for a short-term modification shall be made to the Director. Such requests shall be made at least thirty days prior to the start of the activity impacting water quality, unless the modification is in response to an emergency requiring immediate attention in which case notification shall be provided within twenty-four hours of the response decision. Baseline monitoring during and after the modification period may be required.
5. Requests for short-term modifications must meet public participation requirements unless the request is responding to emergencies.
6. Aquatic application of all pesticides shall require a granting of a short-term modification prior to application. These modifications shall include, at a minimum, the following conditions:
 - a) The pesticide application shall be in accordance with all Federal and Tribal regulations.
 - b) The application shall be in accordance with label provisions promulgated by EPA under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136, et seq.).

- c) The application shall not result in conditions injurious to indigenous aquatic biota, wildlife, humans, cultural resources, or other designated beneficial uses of the water body.
 - d) Public notice, including identification of the pesticide, applicator, location where the pesticide will be applied, proposed timing and method of application, and any water use restrictions shall be provided by the applicator.
 - e) The Director shall be notified 72 hours prior to pesticide application.
 - f) Any additional conditions required by the Director.
7. In the event of any fish kills or other harm to indigenous aquatic dependent resources, the Director or the Umatilla Tribal Police Communications Center shall be notified within two (2) hours.

409. VARIANCES FROM WATER QUALITY STANDARDS

- 1. Degradation of water quality or aquatic habitat will not be allowed if the degradation could interfere with or becomes injurious to designated beneficial uses or causes long term harm to the environment, biota, or cultural resources. No variance may be issued where it could adversely impact threatened or endangered species or their critical habitat.
- 2. The Tribes may grant variances from meeting certain water quality standards provided they are consistent with the following requirements.
 - a) When granted by the Tribes, individual variances are to be pollutant and source specific, and will be included as part of this section.
 - b) To obtain a variance from a water quality standard, the discharger will demonstrate that meeting the standard is unattainable based on one or more of the following grounds:
 - 1) Naturally occurring pollutant concentrations prevent attainment of the standard, or
 - 2) Natural, ephemeral, intermittent, or low flow conditions of water levels prevent attainment of the standard, or
 - 3) Human caused conditions or sources of pollutants prevent attainment of the standard and cannot be remedied or would cause more environmental damage to correct than to leave in place.
 - 4) Dams, diversions, or other type of hydrologic modifications preclude attainment of the standard, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in attainment of the standard, or
 - 5) Physical conditions related to the natural features of the water body, unrelated to water quality such as lack of proper substrate cover, depth, pools, or riffles preclude attainment of the standard, or

- 6) Controls more stringent than technology-based effluent limitations would result in substantial and widespread economic and social impact.
- c) The discharger must submit to the Tribes documentation that treatment more advanced than required by technology-based effluent limitations were considered and that alternative effluent control strategies were evaluated.
- d) A variance shall not exceed a five (5) year period and shall be kept as short as feasible.
 - 1) Upon expiration of the five-year time period or permit, the discharger must either meet the standard or must re-apply for the variance according to these rules.
 - 2) In considering a re-application for a variance, the Tribes will require the discharger to demonstrate reasonable progress toward meeting the standard.
- e) Any variance will be adopted under Tribal regulation following public review and comment.
- f) Any Tribal adopted variance will be submitted to EPA for review and approval.

410. MINIMUM DESIGN CRITERIA FOR TREATMENT AND CONTROL OF WASTES FOR THE UMATILLA RIVER BASIN ON THE RESERVATION

Prior to any discharge of wastes from any new or modified facility to waters of the Reservation, the wastes must be treated and controlled in facilities designed with the following minimum criteria. (In designing treatment facilities, average conditions and a normal range of variability are generally used in establishing design criteria. A facility if completed and placed in operation should operate at or near the design limit most of the time but may operate below the design criteria limit at times due to variables, which are unpredictable or uncontrollable. This is particularly true for biological treatment facilities. Actual operating limits are intended to be established by permit and recognize that the actual performance level may at times be less than the design criteria.)

410.1 Sewage Wastes

1. Umatilla River and tributaries within the Reservation boundary:
 - a) During periods of low stream flow (approximately April 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 10 mg/l of BOD (5-day 20°C. biochemical oxygen demand) and 10 mg/l of suspended solids or equivalent control.
 - b) During periods of high stream flow (approximately November 1 to March 31): A minimum of secondary treatment or equivalent control unless

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specifically authorized by the Director, operation of all wastes treatment and control facilities will be at a maximum practicable efficiency and effectiveness so as to minimize waste discharges to public waters.

2. Effluent BOD concentrations in mg/l, divided by the dilution factor (ratio of receiving stream flow) shall not exceed one unless specifically approved by the Tribes.
3. Sewage wastes shall be disinfected after treatment equivalent to thorough mixing with sufficient chlorine to provide a residual of at least one part per million after 60 minutes of contact time unless specifically authorized by permit. If chlorine is used as the disinfectant, effluent chlorine concentrations in ug/l, divided by the dilution factor (ratio of receiving stream flow to effluent flow) shall not exceed eleven.
4. Positive protection shall be provided to prevent bypassing raw or inadequately treated sewage to public waters unless otherwise approved by the Tribes where elimination of inflow and infiltration would be necessary but not presently practicable;
5. More stringent waste treatment and control requirements may be imposed where special conditions may require.

410.2 Industrial wastes:

1. After maximum practicable in-plant control and primary treatment, a minimum of secondary treatment or equivalent control (reduction of suspended solids and organic material where present in significant quantities, effective disinfection where bacterial organisms of public health significance are present, and control of toxic or other deleterious substances) is required.
2. Specific industrial waste treatment requirements shall be determined on an individual basis in accordance with the provisions of this plan, applicable federal requirements, and the following:
 - a) The uses, which are or may likely be made of the receiving stream;
 - b) the size and nature of flow of the receiving stream;
 - c) the quantity and quality of wastes to be treated; and
 - d) the presence or absence of other sources of pollution in the same watershed.
1. Where industrial, commercial, or agricultural effluents contain significant quantities of potentially toxic elements, treatment requirements shall be determined utilizing appropriate bioassays.

2. Industrial cooling waters containing significant heat loads shall be subjected to offstream cooling or heat recovery prior to discharge to public waters.
3. Positive protection shall be provided to prevent bypassing of raw or inadequately treated industrial wastes to any waters of the reservation.
4. Facilities shall be provided to prevent and contain spills of potentially toxic or hazardous materials and a positive program for containment and cleanup of such spills should they occur shall be developed and maintained.

411. PUBLIC INVOLVEMENT

1. At least once every three years, the Director and the Water Commission shall hold public Triennial Reviews for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards.
2. The Director and the Water Commission will issue public notice of all proposed changes and make them available to the public prior to the public hearings in order to provide an opportunity for meaningful public comment. Adopted revisions to the water quality standards will be submitted to the EPA Regional Administrator with supporting analyses of public participation.

412. ANALYTICAL METHODS

1. The analytical testing methods for determining compliance with the water quality standards contained in this code shall be in accordance with the most recent edition of Standard Methods for the Examination of Water and Waste Water published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation and other methods approved by EPA or the Tribes. Additionally, the Tribes will use the methods found in the Code of Federal Regulations 40 Part 136.
2. Support Documents: The publication(s) referred to or incorporated by reference in this document are available from the Office of the Department of Natural Resources.

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APPENDIX A – TABLES

Table 1	Designated Beneficial Uses for Water Quality Standards
Table 2	Dissolved Oxygen Criteria
Table 3	Water Quality Criteria for Toxic Pollutants
Table 4	Water Quality Streams, Designated Beneficial Use Codes, Fish Species, Life History & Temperature
Table 5	Indigenous Fish Species in the Umatilla River Basin on the Umatilla Indian Reservation
Table 6	Introduced Fish Species in the Umatilla River Basin on the Umatilla Indian Reservation
Table 7	Generally Accepted Periods of Salmonid Spawning, Egg Incubation, Fry Emergence, and Juvenile Rearing for Water Bodies on the Umatilla Indian Reservation

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**Table 1 Designated Beneficial Uses for Water Quality Standards
In Surface Waters of the Umatilla Indian Reservation***

Use No	Beneficial Uses	Mid Umatilla River Drainage	Upper Umatilla River Drainage	Wildhorse Creek Drainage	McKay Creek Drainage	Tutuilla Creek Drainage	Lake Hum-Te-Pin Drainage
1	Domestic, Commercial, Community, Municipal/Public Water Supply						
2	Agricultural or Farm Water Supply	X	X	X	X	X	X
3	Stock Watering	X	X	X	X	X	X
4	Industrial Water Supply	X					
5	Cultural	X	X	X	X	X	X
6	Fish & Aquatic Life Habitat**	X	X	X	X	X	X
	(a) Salmonid Fish Rearing	X	X	X	X	X	
	(b) Salmonid Fish Spawning	X	X	X	X	X	
	(c) Resident Fish & Aquatic Life	X	X	X	X	X	X
	(d) Anadromous Fish Passage	X	X	X	X		
7	Wildlife Habitat	X	X	X	X	X	X
8	Recreation	X	X	X	X	X	X
9	Power Generation						
10	Fish Hatcheries	X	X				
11	Pollution Abatement						
12	Mining						
13	Fire Protection						

* Table does not limit beneficial uses for permitting water use.

**Salmonid Fish Rearing, Salmonid Fish Spawning, Anadromous Fish Passage. Beneficial uses (table 4) and appropriate water shed maps) associated with these fisheries and cold and cool water depend upon species and life stages of species.

Note: The Tribal Water Code (as amended July 28, 1999) lists eighteen (18) Beneficial Uses of Water. Table 1 combines domestic, commercial, community, municipal and public water supply into #1; and agricultural and farm water supply into #2.

Table 2 Dissolved Oxygen Criteria

Class	Concentration and Period ¹ (All units are mg/l)				Use/Level of Protection
	30-D	7-D	7-Mi	Min	
Salmonid Spawning		11.0 ^{2,3}		9.0 ³	Principal use of salmonid spawning and incubation of embryos until emergence from the gravels. Low risk of impairment to cold-water aquatic life, other native fish and invertebrates. The IDGO criteria represents an acute threshold for survival based on field studies.
				8.0 ⁴ 6.0 ⁵	
Cold Water	8.0		6.5	6.0	Principally cold-water aquatic life. Salmon, trout, cold-water invertebrates, and other native cold-water species exist throughout all or most of the year. Juvenile anadromous salmonids may rear throughout the year. No measurable risk level for these communities.
Cool Water	6.5			5.5	Mixed native cool-water aquatic life, such as sculpins and lampreys. Water bodies includes estuaries. No measurable risk to cool-water species, slight risk to cold-water species present.
No Risk	No Change from Background				The only DO criterion that provides no additional risk is no change from background. Water bodies accorded this level of protection include natural and conditional use areas (i.e. Wilderness areas).

1 30-D = 30-day minimum as defined.
 7-D = 7-day mean minimum as defined.
 7-mi = 7-day minimum as defined.
 Min = Absolute minimums for surface samples when applying the averaging period spatial median of IGDO.

2 When Intergravel DO levels are 8.0 mg/l or greater, DO levels may be as low as 9.0 mg/l as an absolute minimum and still be in compliance with the water quality standards.

3 If conditions of barometric pressure, altitude and temperature preclude achievement of the footnoted criteria, then 95 percent saturation applies.

4 Intergravel DO action level, spatial median minimum.

5 Intergravel DO criterion, spatial median minimum.

Notes: Shaded values represent the absolute minimum criteria, unless the Tribes believe that adequate data exists to apply the multiple criteria and associated periods. Periods of salmonid spawning, egg incubation, and fry emergence are detailed in figure 1.

Table 3 Water Quality Criteria for Toxic Pollutants

WATER QUALITY CRITERIA FOR TOXIC POLLUTANTS							
Risk (Unitless) =		<u>0.000001</u>					
Fish Consumption (g/day) =		<u>389</u>					
	Priority Pollutant	CAS Number	Freshwater		Human Health For Consumption of:		FR Cite/Source
			CMC (Φg/L)	CCC (Φg/L)	Water + Organism (Φg/L)	Organism Only (Φg/L)	
1	Antimony	7440360			4.69E+00 B	2.88E+01 B	65FR66443
2	Arsenic	7440382	340 A,D,K	150 A,D,K	2.09E-03 C,M,S	2.34E-03 C,M,S	65FR31682 57FR60848
3	Beryllium	7440417			Z		65FR31682
4	Cadmium	7440439	4.3 D,E,K	2.2 D,E,K	Z		EPA822-R-01-001 65FR31682
5a	Chromium (III)	1606583 1	570 D,E,K	74 D,E,K	Z Total		EPA820/B-96-001 65FR31682
5b	Chromium (VI)	1854029 9	16 D,K	11 D,K	Z Total		65FR31682
6	Copper	7440508	13 D,E,K,cc	9.0 D,E,K,cc	1,300 U		65FR31682
7	Lead	7439921	65 D,E,bb,gg	2.5 D,E,bb,gg			65FR31682
8	Mercury	7439976	1.4 D,K,hh	0.77 D,K,hh	0.050 B	0.051 B	62FR42160
9	Nickel	7440020	470 D,E,K	52 D,E,K	6.90E+01 B	7.66E+01 B	65FR31682
10	Selenium	7782492	L,R,T	5.0 T	9.05E+01 Z	1.87E+02	62FR42160 65FR31682 65FR66443
11	Silver	7440224	3.4 D,E,G				65FR31682
12	Thallium	7440280			2.02E-02	2.11E-02	68FR75510
13	Zinc	7440666	120 D,E,K	120 D,E,K	1.04E+03 U	1.15E+03 U	65FR31682 65FR66443
14	Cyanide	57125	22 K,Q	5.2 K,Q	1.17E+02 jj	1.17E+02 jj	EPA820/B-96-001 57FR60848 68FR75510
15	Asbestos	1332214			7mil fibers/L I		57FR60848
16	2,3,7,8-TCDD (Dioxin)	1746016			2.30E-10 C	2.31E-10 C	65FR66443
17	Acrolein	107028			1.28E+01	1.31E+01	65FR66443
18	Acrylonitrile	107131			9.48E-03 B,C	1.11E-02 B,C	65FR66443
19a	Benzene	71432			3.16E-01	6.29E-01	IRIS 01/19/00

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					B,C,II	B,C,II	65FR66443
19b	Benzene	71432			1.14E+00 B,C,II	2.28E+00 B,C,II	IRIS 01/19/00 65FR66443
20	Bromoform	75252			2.56E+00 B,C	6.07E+00 B,C	65FR66443
21	Carbon Tetrachloride	56235			5.79E-02 B,C	7.38E-02 B,C	65FR66443
22	Chlorobenzene	108907			4.66E+01 Z,U,	6.99E+01 U	68FR75510
23	Chlorodibromomethane	124481			2.41E-01 B,C	5.71E-01 B,C	65FR66443
24	Chloroethane	75003					
25	2-Chloroethylvinyl Ether	110758					
26	Chloroform	67663			3.32E+00 C,P	7.87E+00 C,P	62FR42160
27	Dichlorobromomethane	75274			3.26E-01 B,C	7.74E-01 B,C	65FR66443
28	1,1-Dichloroethane	75343					
29	1,2-Dichloroethane	107062			3.12E-01 B,C	1.65E+00 B,C	65FR66443
30	1,1-Dichloroethylene	75354			1.68E+02	3.21E+02	68FR75510
31	1,2-Dichloropropane	78875			2.91E-01 B,C	6.55E-01 B,C	65FR66443
32	1,3-Dichloropropene	542756			2.56E-01 C	9.47E-01 C	68FR75510
33	Ethylbenzene	100414			8.44E+01	9.60E+01	68FR75510
34	Methyl Bromide	74839			2.83E+01 B	6.72E+01 B	65FR66443
35	Methyl Chloride	74873					65FR31682
36	Methylene Chloride	75092			3.97E+00 B,C	2.67E+01 B,C	65FR66443
37	1,1,2,2-Tetrachloroethane	79345			8.87E-02 B,C	1.80E-01 B,C	65FR66443
38	Tetrachloroethylene	127184			1.27E-01 C	1.48E-01 C	65FR66443
39	Toluene	108883			4.54E+02 Z	6.73E+02	68FR75510
40	1,2-Trans-Dichloroethylene	156605			1.07E+02 Z	4.56E+02	68FR75510
41	1,1,1-Trichloroethane	71556			Z		65FR31682
42	1,1,2-Trichloroethane	79005			3.27E-01 B,C	7.02E-01 B,C	65FR66443
43	Trichloroethylene	79016			9.07E-01 C	1.35E+00 C	65FR66443
44	Vinyl Chloride	75014			2.04E-02 C,kk	1.10E-01 C,kk	68FR75510
45	2-Chlorophenol	95578			6.47E+00 B,U	6.71E+00 B,U	65FR66443
46	2,4-Dichlorophenol	120832			1.18E+01 B,U	1.33E+01 B,U	65FR66443
47	2,4-Dimethylphenol	105679			3.64E+01 B	3.84E+01 B,U	65FR66443
48	2-Methyl-4,6-Dinitrophenol	534521			6.59E+00	1.28E+01	65FR66443
49	2,4-Dinitrophenol	51285			5.42E+01 B	2.40E+02 B	65FR66443
50	2-Nitrophenol	88755					
51	4-Nitrophenol	100027					

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52	3-Methyl-4-Chlorophenol	59507			U	U	
53	Pentachlorophenol	87865	19 F,K	15 F,K	9.29E-02 B,C	1.36E-01 B,C,H	65FR31682 65FR66443
54	Phenol	108952			1.65E+04 B,U	7.71E+04 B,U	65FR66443
55	2,4,6-Trichlorophenol	88062			1.05E-01 B,C	1.09E-01 B,C,U	65FR66443
56	Acenaphthene	83329	1700	520	4.37E+01 B,U	4.46E+01 B,U	65FR66443
57	Acenaphthylene	208968					
58	Anthracene	120127			1.54E+03 B	1.80E+03 B	65FR66443
59	Benzidine	92875			8.45E-06 B,C	8.94E-06 B,C	65FR66443
60	Benzo(a)Anthracene	56553			7.01E-04 B,C	8.22E-04 B,C	65FR66443
61	Benzo(a)Pyrene	50328			7.01E-04 B,C	8.22E-04 B,C	65FR66443
62	Benzo(b)Fluoranthene	205992			7.01E-04 B,C	8.22E-04 B,C	65FR66443
63	Benzo(ghi)Perylene	191242					
64	Benzo(k)Fluoranthene	207089			7.01E-04 B,C	8.22E-04 B,C	65FR66443
65	Bis(2-Chloroethoxy) Methane	111911					
66	Bis(2-Chloroethyl)Ether	111444			1.36E-02 B,C	2.37E-02 B,C	65FR66443
67	Bis(2-Chloroisopropyl) Ether	108601			9.46E+02 B	2.91E+03 B	65FR66443
68	Bis(2-Ethylhexyl) Phthalate ^x	117817			9.51E-02 B,C	9.89E-02 B,C	65FR66443
69	4-Bromophenyl Phenyl Ether	101553					
70	Butylbenzyl Phthalate ^w	85687			8.59E+01 B	8.69E+01 B	65FR66443
71	2-Chloronaphthalene	91587			6.95E+01 B	7.13E+01 B	65FR66443
72	4-Chlorophenyl Phenyl Ether	7005723					
73	Chrysene	218019			7.01E-04 B,C	8.22E-04 B,C	65FR66443
74	Dibenzo(a,h)Anthracene	53703			7.01E-04 B,C	8.22E-04 B,C	65FR66443
75	1,2-Dichlorobenzene	95501			5.33E+01	5.83E+01	68FR75510
76	1,3-Dichlorobenzene	541731			3.97E+01	4.34E+01	65FR66443
77	1,4-Dichlorobenzene	106467			7.94E+00	8.67E+00	68FR75510
78	3,3'-Dichlorobenzidine	91941			1.26E-03 B,C	1.28E-03 B,C	65FR66443
79	Diethyl Phthalate ^w	84662			1.84E+03 B	1.97E+03 B	65FR66443
80	Dimethyl Phthalate ^w	131113			4.37E+04	5.00E+04	65FR66443
81	Di-n-Butyl Phthalate ^w	84742			1.91E+02 B	2.02E+02 B	65FR66443
82	2,4-Dinitrotoluene	121142			6.47E-02 C	1.52E-01 C	65FR66443
83	2,6-Dinitrotoluene	606202					
84	Di-n-Octyl Phthalate	117840					
85	1,2-Diphenylhydrazine	122667			7.49E-03	9.03E-03	65FR66443

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					B,C	B,C	
86	Fluoranthene	206440			6.23E+00 B	6.26E+00 B	65FR66443
87	Fluorene	86737			2.05E+02 B	2.40E+02 B	65FR66443
88	Hexachlorobenzene	118741			1.29E-05 B,C	1.29E-05 B,C	65FR66443
89	Hexachlorobutadiene	87683			2.91E-01 B,C	8.30E-01 B,C	65FR66443
90	Hexachlorocyclopentadiene	77474			2.28E+01 U	4.98E+01 U	68FR75510
91	Hexachloroethane	67721			1.40E-01 B,C	1.48E-01 B,C	65FR66443
92	Ideno(1,2,3-cd)Pyrene	193395			7.01E-04 B,C	8.22E-04 B,C	65FR66443
93	Isophorone	78591			1.99E+01 B,C	4.32E+01 B,C	65FR66443
94	Naphthalene	91203					
95	Nitrobenzene	98953			1.12E+01 B	3.11E+01 B,H,U	65FR66443
96	N-Nitrosodimethylamine	62759			6.83E-04 B,C	1.36E-01 B,C	65FR66443
97	N-Nitrosodi-n-Propylamine	621647			4.10E-03 B,C	2.27E-02 B,C	65FR66443
98	N-Nitrosodiphenylamine	86306			2.60E-01 B,C	2.70E-01 B,C	65FR66443
99	Phenanthrene	85018					
100	Pyrene	129000			1.54E+02 B	1.80E+02 B	65FR66443
101	1,2,4-Trichlorobenzene	120821			3.02E+00	3.16E+00	68FR75510
102	Aldrin	309002	3.0 G		2.26E-06 B,C	2.27E-06 B,C	65FR31682 65FR66443
103	alpha-BHC	319846			2.11E-04 B,C	2.20E-04 B,C	65FR66443
104	beta-BHC	319857			7.40E-04 B,C	7.69E-04 B,C	65FR66443
105	gamma-BHC (Lindane)	58899	0.95 K		7.99E-02	8.31E-02	65FR31682 68FR75510
106	delta-BHC	319868					
107	Chlordane	57749	2.4 G	0.0043 G,aa	3.65E-05 B,C	3.65E-05 B,C	65FR31682 65FR66443
108	4,4'-DDT	50293	1.1 G,ii	0.001 G,aa	9.87E-06 B,C	9.87E-06 B,C	65FR31682 65FR66443
109	4,4'-DDE	72559			9.87E-06 B,C	9.87E-06 B,C	65FR66443
110	4,4'-DDD	72548			1.40E-05 B,C	1.40E-05 B,C	65FR66443
111	Dieldrin	60571	0.24 K	0.056 K,O	2.41E-06 B,C	2.41E-06 B,C	65FR31682 65FR66443
112	alpha-Endosulfan	959988	0.22 G,Y	0.056 G,Y	3.92E+00 B	4.00E+00 B	65FR31682 65FR66443
113	beta-Endosulfan	33213659	0.22 G,Y	0.056 G,Y	3.92E+00 B	4.00E+00 B	65FR31682 65FR66443
114	Endosulfan Sulfate	1031078			3.92E+00 B	4.00E+00 B	65FR66443
115	Endrin	72208	0.086 K	0.036 K,O	2.72E-03	2.72E-03	65FR31682 68FR75510
116	Endrin Aldehyde	7421934			1.36E-02 B	1.36E-02 B,H	65FR66443

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117	Heptachlor	76448	0.52 G	0.0038 G,aa	3.57E-06 B,C	3.57E-06 B,C	65FR31682 65FR66443
118	Heptachlor Epoxide	1024573	0.52 G,V	0.0038 G,V,aa	1.76E-06 B,C	1.77E-06 B,C	65FR31682 65FR66443
119	Polychlorinated Biphenyls PCBs:			0.014 N,aa	2.88E-06 B,C,N	2.88E-06 B,C,N	65FR31682 65FR66443
120	Toxaphene	8001352	0.73	0.0002 aa	1.25E-05 B,C	1.25E-05 B,C	65FR31682 65FR66443

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A	This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.
B	This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.
C	This criterion is based on carcinogenicity of 10 ⁻⁶ risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10 ⁻⁵ , move the decimal point in the recommended criterion one place to the right).
D	1) Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs.) 2) See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria," October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource Center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR'31.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble-Conversion Factors for Dissolved Metals.
E	The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated from the following: CMC (dissolved) = exp{mA [ln(hardness)]+ bA} (CF), or CCC (dissolved) = exp{mC [ln (hardness)]+ bC} (CF) and the parameters specified in Appendix B- Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent.
F	Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.8.
G	This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

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H	No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.
I	This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA).
K	This recommended criterion is based on a 304(a) aquatic life criterion that was issued in the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water, (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.
L	The $CMC = 1/[(f1/CMC1) + (f2/CMC2)]$ where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 Fg/l and 12.82 Fg/l, respectively.
M	EPA is currently reassessing the criteria for arsenic.
N	This criterion applies to total pcbs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses).
O	The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.
P	Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.
Q	This recommended water quality criterion is expressed as Fg free cyanide (as CN)/L.
R	This value for selenium was announced (61FR58444-58449, November 14, 1996) as a proposed GLI 303(c) aquatic life criterion. EPA is currently working on this criterion and so this value might change substantially in the near future.
S	This recommended water quality criterion for arsenic refers to the inorganic form only.
T	This recommended water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996- CMC or 0.922- CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.
U	The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.
V	This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

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W	Although EPA has not published a completed criteria document for butylbenzyl phthalate it is EPA's understanding that sufficient data exist to allow calculation of aquatic criteria. It is anticipated that industry intends to publish in the peer reviewed literature draft aquatic life criteria generated in accordance with EPA Guidelines. EPA will review such criteria for possible issuance as national WQC.
X	There is a full set of aquatic life toxicity data that show that DEHP is not toxic to aquatic organisms at or below its solubility limit.
Y	This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
Z	A more stringent MCL has been issued by EPA. Refer to drinking water regulations (40 CFR 141) or Safe Drinking Water Hotline (1-800-426-4791) for values.
aa	This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.
bb	This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA-822-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87-003).
cc	When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.
dd	The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 Fg/L in saltwater because the saltwater CCC does not take into account uptake via the food chain.
ee	This recommended water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.
ff	This recommended water quality criterion was derived in Ambient Water Quality Criteria Saltwater Copper Addendum (Draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60FR22228-222237, May 4, 1995).
gg	EPA is actively working on this criterion and so this recommended water quality criterion may change substantially in the near future.

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hh	This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.
jj	This recommended water quality criterion is expressed as total cyanide, even though the IRIS RFD we used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no 'bioavailability' to humans. 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 over conservative.
kk	This recommended water quality criterion was derived using the cancer slope factor of 1.4 (LMS exposure from birth).
ll	Benzene calculations represent the range of the criteria for water and organisms (0.61-2.2 $\Phi\text{g/L}$) and organisms only (14-51 $\Phi\text{g/L}$).

Table 4 Water Quality Streams, Designated Beneficial Use Codes, Fish Species, Life History & Temperature

Stream Name	x Map	*Beneficial Use Codes	% Fish Species	Life History	Temp.
Mainstem Upper Res. To Meacham C.	4	2,3,5-11,13	SS, RT, SC, BT, MT. Whitefish	Spawn/Incub Emerg/Rear	Cold
Main-Stem Meacham C to Lower Res. Bndry	4	2-11, 13	SS, RT,SC, FC, Coho, BT, MT. Whitefish	Spawn/Incub Emerg/Rear	Cold
Meacham C –Mouth to Line C.	4	3,5,6-9,10	SS, RT, SC, BT, MT. Whitefish	Spawn/Incub Emerg/Rear	Cold
Squaw Creek	4	3,5,6,7,8,10,11	SS, RT, SC,BT, Coho	Spawn/Incub Emerg/Rear	Cold
Buckaroo Creek	4	3,5,6,7,8,10,11	SS, RT, SC, Coho	Spawn/Incub Emerg/Rear	Cold
Mission Creek	5	5,6,7,8,10	SS, RT, SC, Coho	Spawn/Incub	Cold
Cottonwood Creek	5	6,7,8,10	SS, RT, SC, Coho	Spawn/Incub	Cold
Coonskin Creek	5	6,7,8,10	SS, RT, SC, Coho	Spawn/Incub	Cold
Moonshine Creek	5	6,7,8,10	SS, RT, SC, Coho	Spawn/Incub	Cold
Main-Stem Wildhorse	3	2,3,5,6,10,11	SS, RT		
Eagle Creek	3	5,6,10	SS, RT		
Spring Hollow Creek	3	5,6,10	SS, RT		
Main-Stem McKay C	7	2.3.5.6.7.8.10,11	SS, RT, Coho	Spawn/Incub.	Cool
South Fork McKay C	7	2,6,10	RT		
North Fork McKay C	7	5,6,10	RT		
Johnson Creek	8	3,6,10,11	RT		
Little Johnson Creek	8	5,6,10	RT		
Tutuilla Creek	6	2,3,5,6,7,8,10,11	RT, Coho	Spawn/Incub	Cool
North Coyote Creek	6	5,6,7,8,10	RT	Spawn/Incub	Cool
South Coyote Creek	6	5,6,7,8,10	RT	Spawn/Incub	Cool
Main-stem Patawa C.	6	5,6,7,8,10	RT	Spawn/Incub	Cool
Lake Hum-Te-Pin	8	6,7,8,10,11	BR.T	Spawn/Incub	Cool
Jennings Creek	8	6,10	BR.T		Cool
Ensign Creek	8	6,10	BR.T		Cool

X Map: Refers to map where this water body is located.

* Beneficial Use Codes: See Table 1 for Beneficial Use associated with number.

% Fish Species: See Table 5 and ^ for additional fish species that may exist in these water bodies.

Fish Species Definitions – The water body will be managed for the species listed in the table.

SS	--	Summer Steelhead	(Oncorhynchus mykiss)
RT	--	Rainbow Trout	(Oncorhynchus mykiss)
SC	--	Spring Chinook	(Oncorhynchus tshawytscha)
FC	--	Fall Chinook	(Oncorhynchus tshawytscha)
Coho	--	Coho Salmon	(Oncorhynchus kisutch)
BT	--	Bull Trout	(Salvelinus confluentus)
BrT	--	Brook Trout	(Salvelinus fontinalis)
Pac lamp	--	Pacific Lamprey	(Lampetra tridentate)
Mt. Whitefish	--	Mountain Whitefish	(Prosopius williamsoni)

Life History Definitions

Spawn/incub	--	Adult spawning and egg incubation for the identified Fish Species occur within that water body
Emerg.	--	Emergence period
Rear	--	Juveniles of the identified Fish Species rear in the water body

*See also Table 7 for generally accepted periods of salmonid spawning, egg incubation, fry emergence, and juvenile rearing for water bodies of the Umatilla Indian Reservation.

Table 5 Indigenous Fish Species in the Umatilla River Basin on the Umatilla Indian Reservation

Common name	Scientific Name	Historical Status	Current Status
Spring Chinook	<i>Oncorhynchus tshawytscha</i>	Present	Extinct - Reintroduced
Fall Chinook	<i>Oncorhynchus tshawytscha</i>	Present	Extinct - Reintroduced
Coho	<i>Oncorhynchus kisutch</i>	Present	Extinct - Reintroduced
Chum	<i>Oncorhynchus keta</i>	Present	Extinct
Pacific Lamprey	<i>Lampetra tridentata</i>	Present	Extinct - Reintroduced
Summer Steelhead	<i>Oncorhynchus mykiss</i>	Present	Present
Rainbow	<i>Oncorhynchus mykiss</i>	Present	Present
Bull Trout	<i>Salvelinus confluentus</i>	Present	Present
Mountain Whitefish	<i>Prosopium williamsoni</i>	Present	Present
Largescale Sucker	<i>Catostomus macrocheilus</i>	Present	Present
Bridgelip Sucker	<i>Catostomus columbianus</i>	Present	Present
Bigmouth Minnow	<i>Ptychocheilus oregonensis</i>	Present	Present
Chiselmouth	<i>Acrocheilus alutaceus</i>	Present	Present
Redside Shiner	<i>Richardsonius balteatus</i>	Present	Present
Dace Species	<i>Rhinichthys species</i>	Present	Present
Sculpin Species	<i>Cottus species</i>	Present	Present

Table 6 Introduced Fish Species in the Umatilla River Basin on the Umatilla Indian Reservation

Common Name	Scientific Name	Historical Status	Current Status
Brook Trout	<i>Salvelinus fontinalis</i>		Hum-Te-Pin and tributaries
Catfish Species	<i>Ictalurus species</i>		Hum-te-Pin

Table 7 Generally Accepted Periods of Salmonid Spawning, Egg Incubation, Fry Emergence, and Juvenile Rearing for Water Bodies on the Umatilla Indian Reservation.

Species	Main-Upper Res. To Meacham Cr.	Mainstem-Meacham Cr to Lower Res Boundary	Meacham Cr. Mouth to Line Creek	Squaw and Buckaroo Cr.	Mission, Cottonwood, Coonskin Moonshine	Wildhorse Drainage	McKay Cr. Drainage	Tutuilla Cr Drainage	Lake Hum-Te-Pin & Jennings
Summer Steelhead	S=March-May I=March-June E=May-June R=Jan-Dec	S=March-May I=March-June E=May-June R=Jan-Dec	S=March-May I=March-June E=May-June R=Jan-Dec	S=March-May I=March-June E=May-June R=Jan-Dec	S=March-May I=March-June E=May-June R=Jan-Dec	N/A	N/A	N/A	N/A
Rainbow Trout	S=Feb-May I=Feb-June E=Jan-March R=Jan-Dec	S=Feb-May I=Feb-June E=Jan-March R=Jan-Dec	S=Feb-May I=Feb-June E=Jan-March R=Jan-Dec	S=Feb-May I=Feb-June E=Jan-March R=Jan-Dec	S=Feb-May I=Feb-June E=Jan-March R=Jan-Dec	S=Feb-May I=Feb-June E=Jan-March R=Oct-May	S=Feb-May I=Feb-June E=Jan-March R=Jan-Dec	S=Feb-May I=Feb-June E=May-June R=Oct-May	Stocked
Spring Chinook	S=Aug-Sept I=Aug=March E=Jan-March R=Jan-Dec	S=Aug-Sept I=Aug=March E=Jan-March R=Jan-Dec	S=Aug-Sept I=Aug=March E=Jan-March R=Jan-Dec	S=N/A I=N/A E=N/A R=Jan-Dec	S=N/A I=N/A E=N/A R=Jan-Dec	N/A	N/A	N/A	N/A
Fall Chinook	N/A	S=Nov-Dec I=Nov-April E=March-April R=Jan-Dec	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Coho	N/A	S=Nov-Dec I=Nov-April E=March-April R=Jan-Dec	N/A	S=Nov-Dec I=Nov-April E=March-April R=Jan-Dec	S=N/A I=N/A E=N/A R=Jan-Dec	N/A	N/A	N/A	N/A
Bull Trout	S=N/A I=N/A E=N/A R=Jan-Dec	S=N/A I=N/a E=N/a R=Jan-Dec	S=N/A I=N/a E=N/a R=Jan-Dec	N/A	N/A	N/A	N/A	N/A	N/A
Brook Trout	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pacific Lamprey	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mountain Whitefish	S=Nov-Dec I=Nov-March E=Feb-march R=Jan-Dec	S=Nov-Dec I=Nov-March E=Feb-march R=Jan-Dec	S=Nov-Dec I=Nov-march E=Feb-march R=Jan-Dec	N/A	N/A	N/A	N/A	N/A	N/A

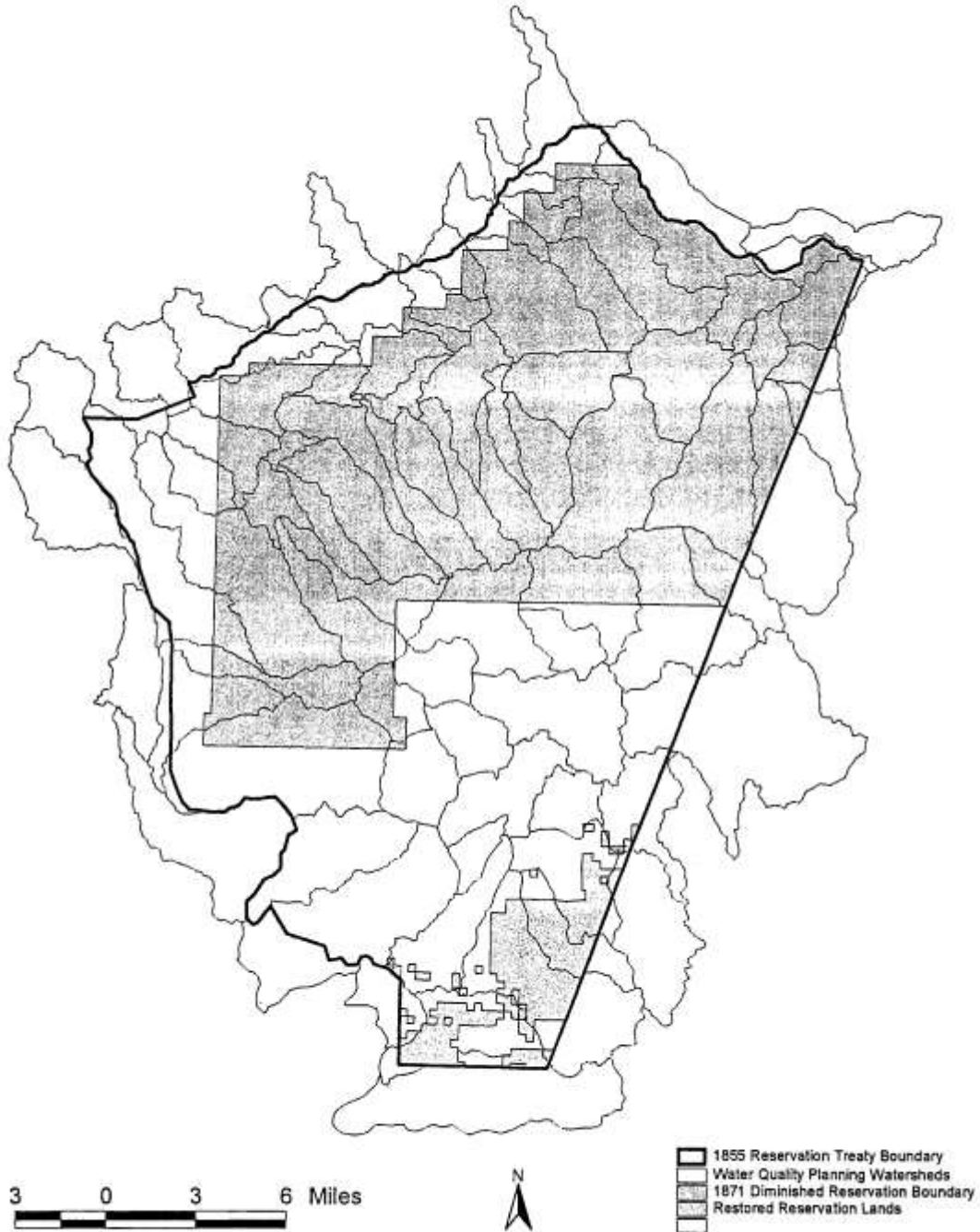
Notes: S= Spawning Period I= Incubation Period E= Emergence Period R= Rearing Period

APPENDIX B – MAPS

- Map 1. Water Quality Planning Watersheds for the Umatilla Indian Reservation
- Map 2. Watersheds on the Northern Portion of the Umatilla Indian Reservation
- Map 3. Wildhorse Watershed Area
- Map 4. Upper Umatilla Watersheds
- Map 5. Mid Umatilla Watersheds
- Map 6. Tutuilla and Patawa Watersheds
- Map 7. McKay Creek Watersheds
- Map 8. Watersheds on the Southern Portion of the Umatilla Indian Reservation

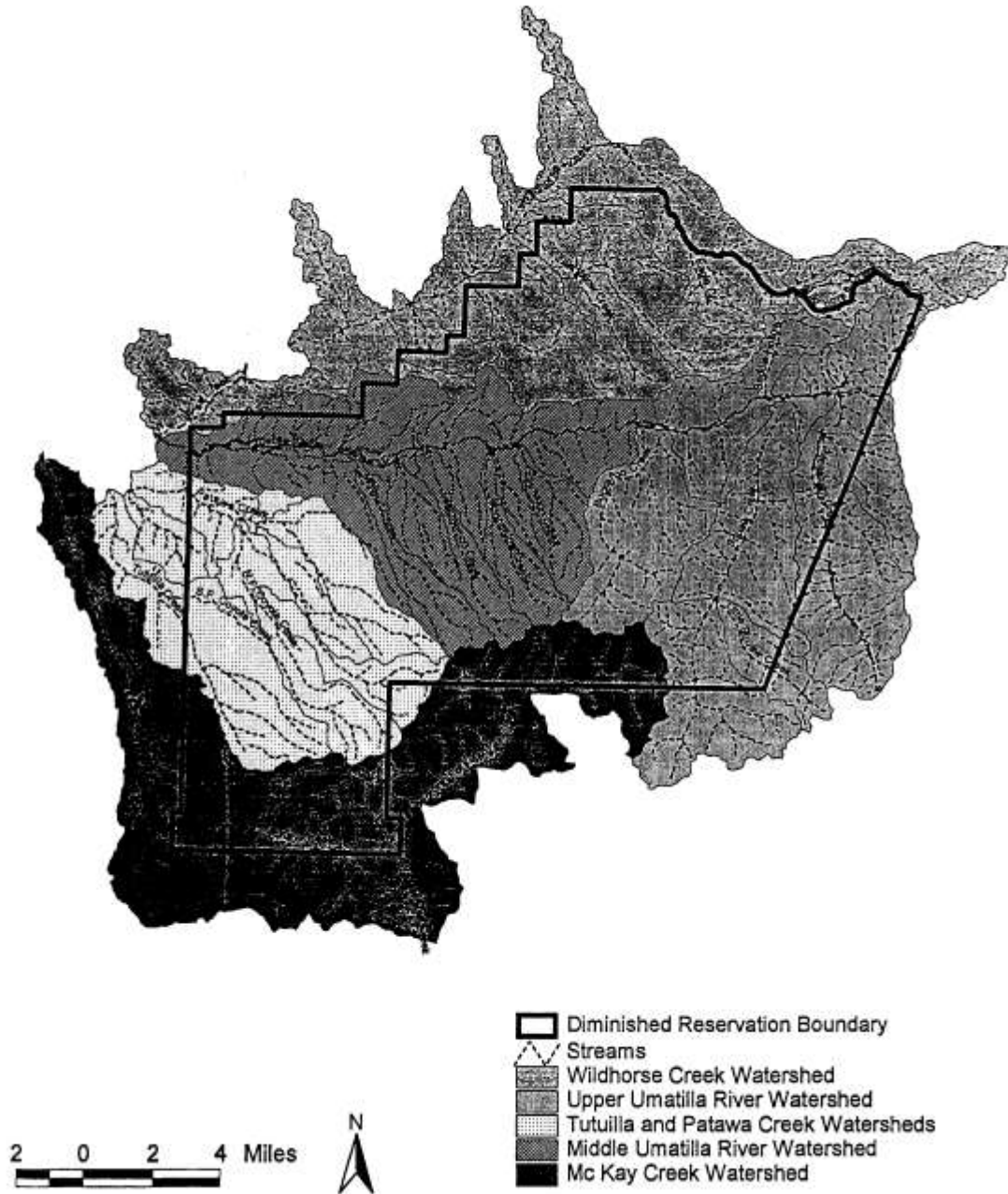
Map 1 Water Quality Planning Watersheds

Water Quality Planning Watersheds for the Umatilla Indian Reservation



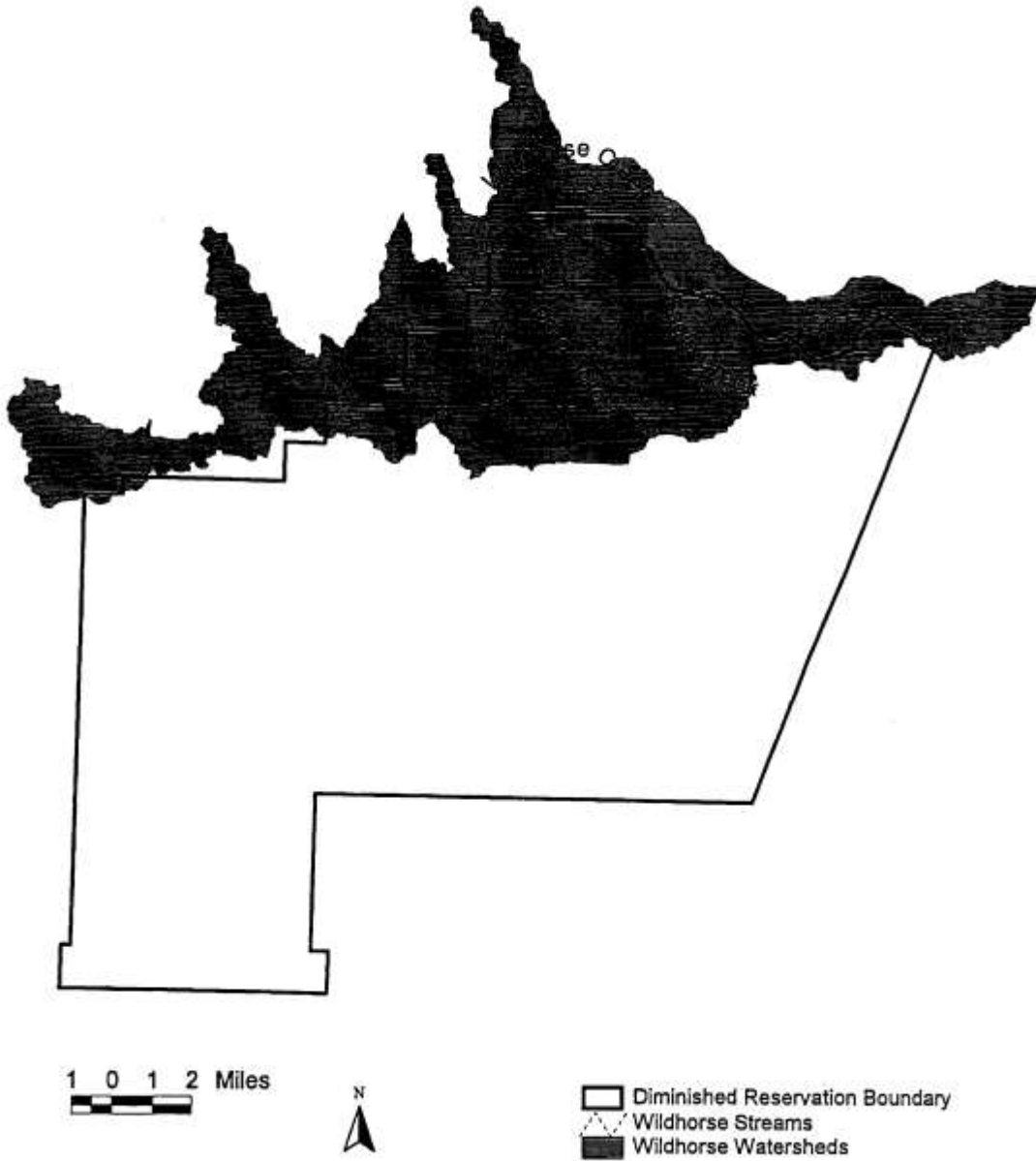
Map 2 North Reservation

Watersheds on the Northern Portion of the Umatilla Indian Reservation



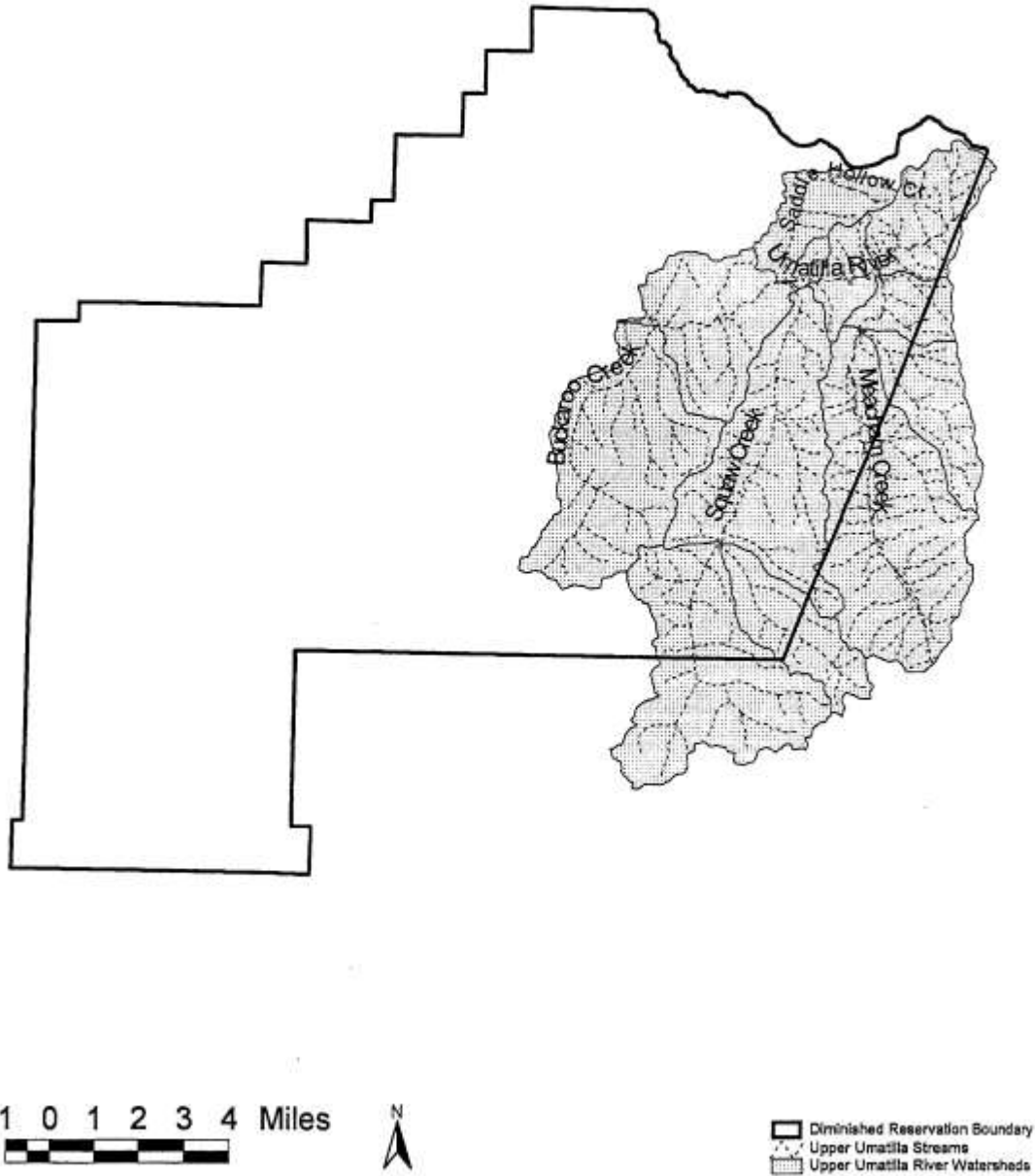
Map 3 Wildhorse Watershed

Wildhorse Watershed Area



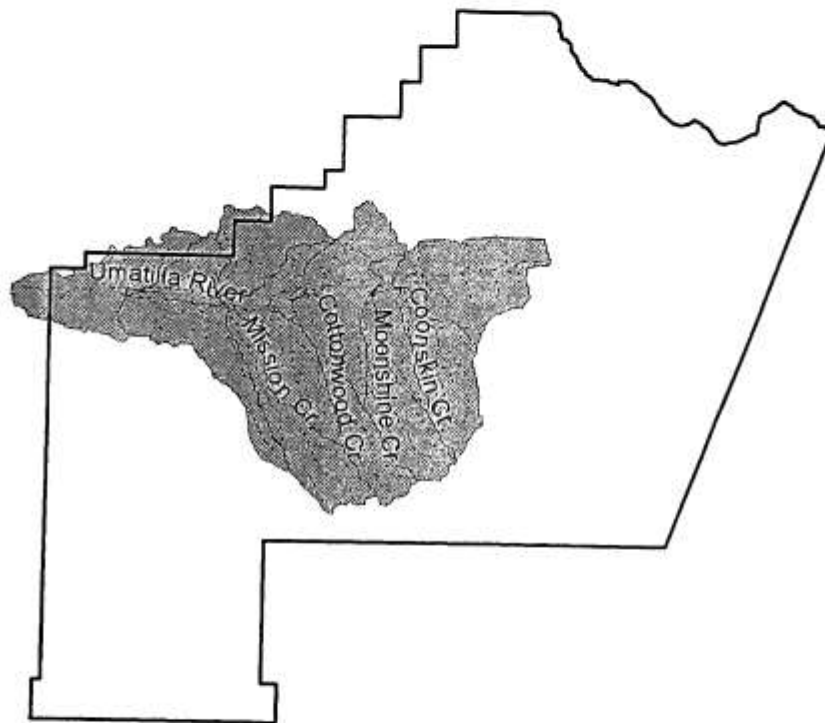
Map 4 Upper Umatilla

Upper Umatilla Watersheds



Map 5 Mid Umatilla

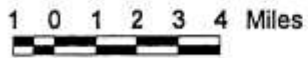
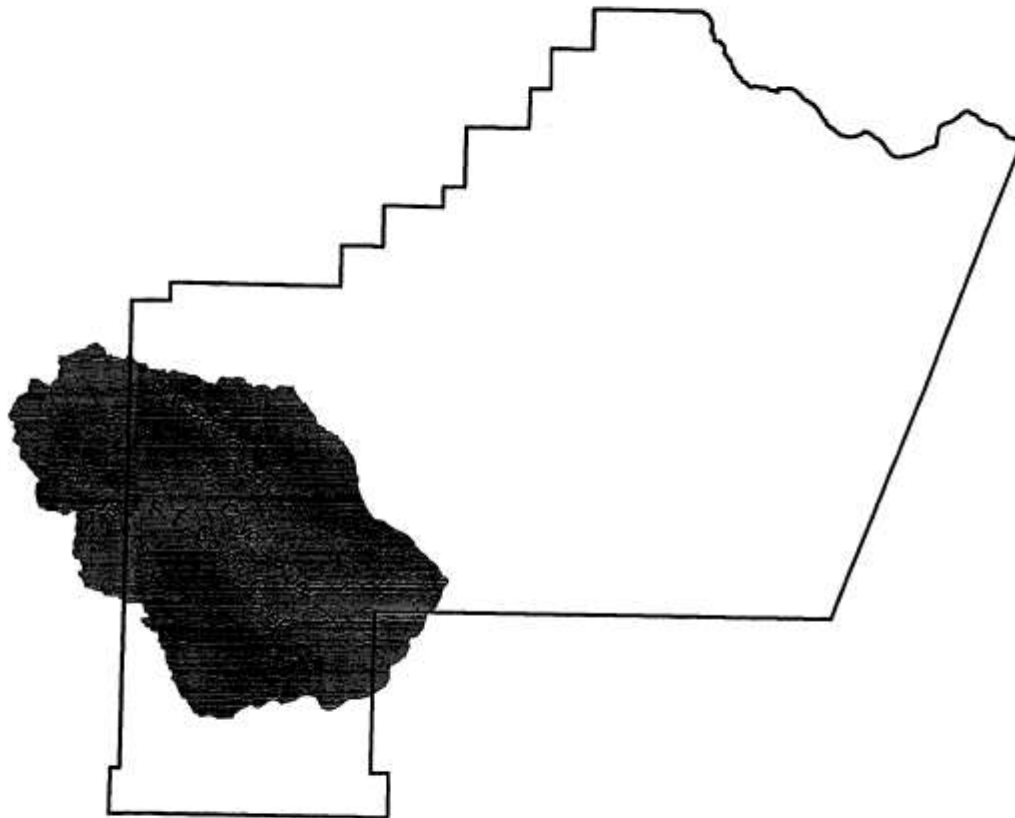
Mid Umatilla Watersheds





-  Diminished Reservation boundary
-  Mid Umatilla Streams
-  Mid Umatilla Watersheds

Map 6 Tutuilla/Patawa

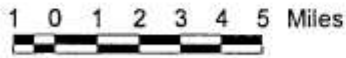
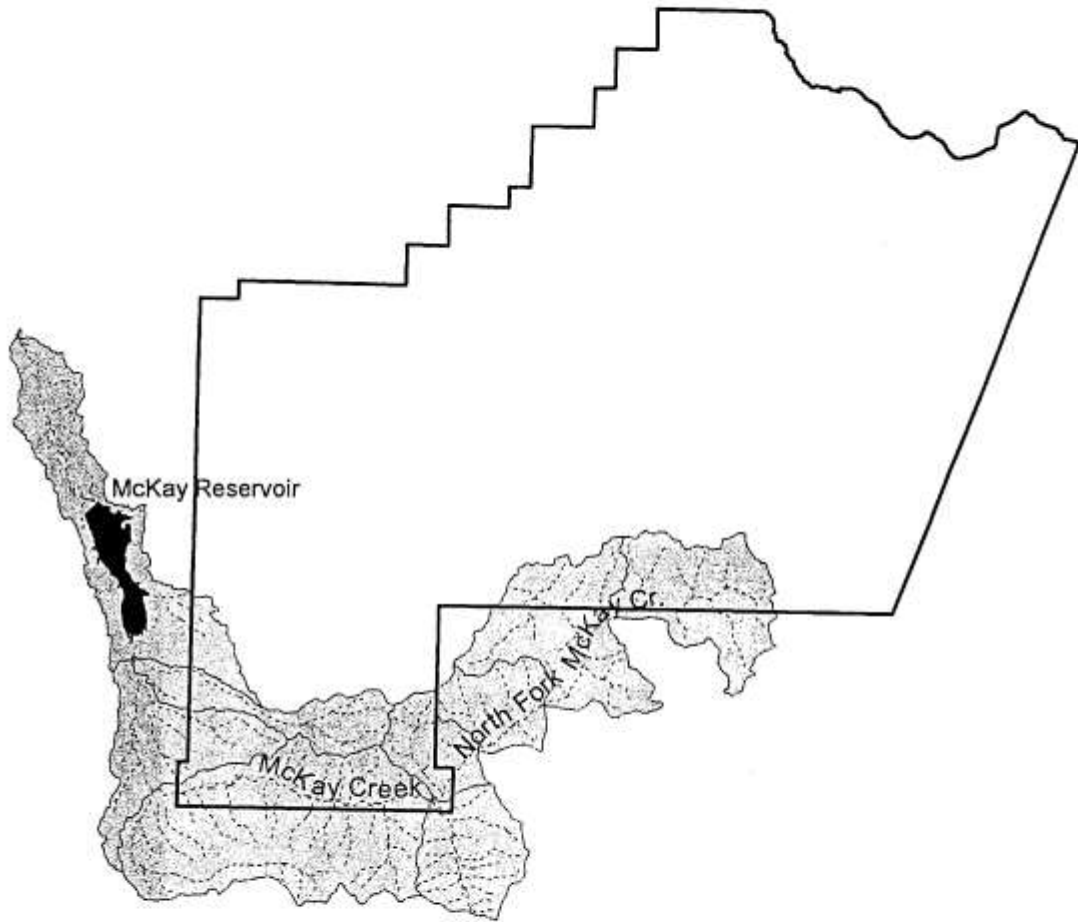
Tutuilla and Patawa Watersheds



-  Diminished Reservation Boundary
-  Tutuilla and Patawa Watershed Areas

Map 7 McKay Creek

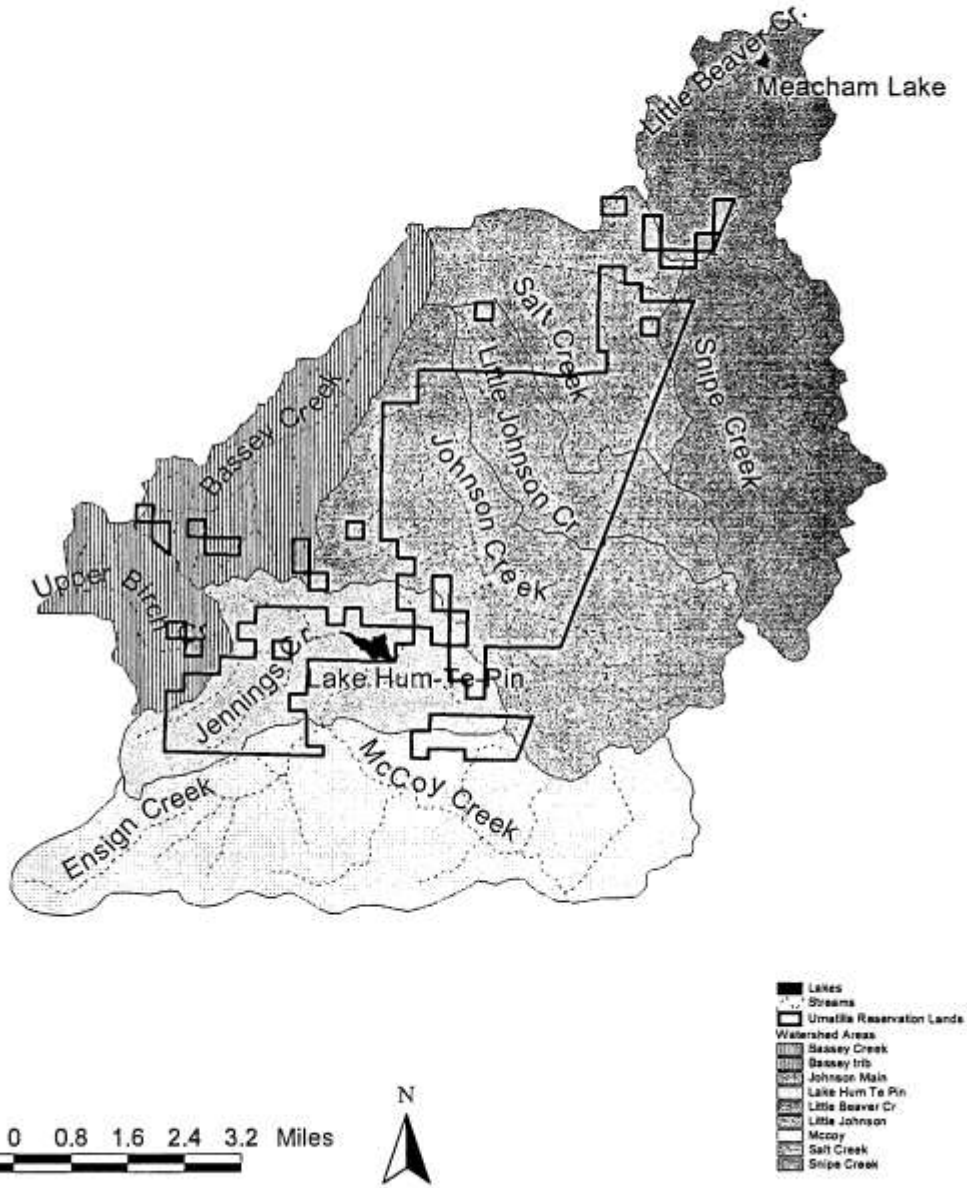
McKay Creek Watersheds



- ◻ Diminished Reservation Boundary
- ◼ McKay Reservoir
- ◻ McKay Creek streams
- ◻ McKay Creek Watersheds

Map 8 South Reservation

Watersheds on the Southern Portion of the Umatilla Indian Reservation



SECTION 500 STANDARDS FOR THE CONSTRUCTION AND MAINTENANCE OF WELLS ON THE UMATILLA INDIAN RESERVATION

501. GENERAL PROVISIONS

501.1 Authority

These Standards for Construction and Maintenance of Wells on the Umatilla Indian Reservation are prepared and approved pursuant to the authority delegated to the Water Commission in Section 1.10;E&F. of the Tribal Water Code, as amended.

501.2 Purpose

The purposes of the Standards for the Construction and Maintenance of Wells on the Umatilla Indian Reservation (herein after the Standards) are to ensure that any activity involved with construction of wells on the Reservation will be standardized to protect public health and to protect the quality and conserve the quantity of the water resources of the Umatilla Indian Reservation.

501.3 Scope

These Standards shall apply to the construction, alteration, maintenance, and abandonment of wells, whether they are drilled, bored, augured, dug, jetted, or constructed by any other means, where such well hole or bore may penetrate the aquifers of the Umatilla Indian Reservation at any stage of their construction or use. Holes and excavations which are constructed for elevator shafts, fence posts, utility poles, building foundations, septic systems, sumps, rock quarries and other similar purposes, as determined by the Director, are exempt from these standards. The construction of exempt holes may be subject to other CTUIR regulations and standards.

501.4 Definitions

1. Abandonment, Permanent - To remove a well from service permanently by methods approved within these standards.
2. Abandonment, Temporary - To remove a well from service for a specific period of time with intent to re-establish use of the well or to remove a drilling machine from a well site prior to completing work on the well or the period between completing the well and prior to the use of the well.
3. Access Port - An opening in the exposed part, above the ground surface, of a well casing that readily permits entry of water data/sampling devices into the well. This definition may include a removable well cap, provided the cap can be readily removed with hand tools and the opening permits entry of water/data sampling devices into the well.

4. Airline - A water-level measuring device consisting of a pressure gauge attached to an airtight line or pipe extending from land surface within the bore of a well to below the pumping level so that the water level may be computed by measuring the stable air pressure remaining in the line after completely evacuating water from within the line.
5. Alter - To deepen, ream, case, re-case, perforate, re-perforate a well, and the installation of liner pipe, packers, seals, and any other material change in the design or construction of a well.
6. Annular Space - The space between two cylindrical surfaces. For example, the space between a drillhole wall and a casing, or the space between an inner and outer casing.
7. Aquifer - A geologic formation, group of formations, or part of a formation that contains saturated and permeable material capable of transmitting water in sufficient quantity to supply wells or springs; and contains water that is similar in characteristics such as potential head, chemistry and temperature. The terms "water-bearing zone" or "water-bearing stratum" or "bed" are synonymous with the term aquifer.
8. Artesian – This term is synonymous with confined. An artesian well derives its water from an artesian or confined aquifer. It is ground water under sufficient head to rise above the level at which it was first encountered whether or not the water flows at land surface.
9. Bored Well - A well constructed with the use of earth augers turned either by hand or by power equipment.
10. Buried Slab Type Well - A dug well in which well casing is used to case the upper drill hole. A concrete slab, supported by the lower drillhole lining structure and sealed with cement grout, is placed between the upper and lower drillhole, with the annular space around the upper casing completely filled with concrete.
11. Casing - The outer tubing, pipe, or conduit, which is welded, screw-coupled or glued if plastic, and installed in the drillhole during or after drilling to support the sides of the well and prevent caving, or to provide a seal to shut off water, gas, or other fluids or any other foreign material from entering the hole, and to prevent waste of ground water. The term "casing" does not include slotted or perforated pipe, well screens, or liner pipe.
12. Casing Seal - The watertight seal established between the well casing and the drillhole wall or between two casings.
13. Clay - A fine-grained, inorganic material having plastic properties and with a predominant grain size of less than 0.005 mm.

14. Commingle – The transfer or leakage of water between aquifers within a well.
15. Community Well - A well, whether publicly or privately owned, which supplies, or which is intended to supply water for community beneficial use, as defined in the Tribal Water Code.
16. Confining Formation - The "impermeable" stratum, such as basalt rock or clay, immediately overlying an artesian (confined) aquifer.
17. Consolidated Formation - Materials that have become firm through natural rock-formation processes. It includes such materials as basalt, sandstone, hard claystone, conglomerate, and granite.
18. Contamination - Any impairment of soil, geologic formations, or water quality by chemicals, radionuclides, heat, or biologic organisms or other foreign material whether or not it affects the potential or intended beneficial use of water.
19. CTUIR – The Confederated Tribes of the Umatilla Indian Reservation.
20. Department – The Department of Natural Resources of the Confederated Tribes of the Umatilla Indian Reservation.
21. Director – The Director of the Department of Natural Resources of the Confederated Tribes of the Umatilla Indian Reservation.
22. Drawdown - The elevational difference between the pumping level and the static water level in a well.
23. Drive Point Well - A well, not greater than 18 feet deep, constructed by driving into the ground a drive point fitted to the end of a pipe section or series of pipe sections.
24. Dug Well – A well in which the excavation is made by the use of picks, shovels, spades or digging equipment such as backhoes, clam shell buckets, or sand buckets. A dug well shall be 18 feet or less in total depth, and the finished casing diameter shall not exceed 48 inches.
25. Field Drilling Log – A written record kept by the well constructor which record contains the information required to complete the well report for the well being constructed.
26. Filter Pack Well - A well in which the annular space between the well screen and the drillhole is filled with a material which has a controlled grading of grain size.
27. Flowing Artesian Well – A completed well in which the static water level stands above land surface. This definition includes wells in which the static water level seasonally or periodically stands above land surface.

28. Geologic Unit - A formation made up of a rock or soil stratum or a combination of several strata which exhibit similar location of origin, physical, mineral, chemical, magnetic, and crystal characteristics. The units commonly anticipated under the Umatilla Indian Reservation are alluvial and eolian deposits, basalt flows and sedimentary units interlayered with the basalt flows, and meta-sedimentary, volcanic, and intrusive rock units.
29. Geotechnical Hole - A hole constructed for the purpose of collecting samples, data, or information on subsurface soil and geologic conditions. Various classes and examples of geotechnical holes are listed in Section 300.700.070.
30. Grout - Approved Portland cement sealing material used to fill an annular space of a well or to fill a well during permanent abandonment.
31. Grout Pipe - A pipe that is used to place grout in the sealing interval of a well.
32. Hazardous Waste – By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, reactivity, corrosivity, or toxicity) or appears on special lists of the U. S. Environmental Protection Agency.
33. Head – The height to which a column of water will rise above a given reference point.
34. Horizontal Well - Any well that is intentionally constructed to deviate more than 20 degrees from true vertical.
35. Injection Well - Any well designed, intended, or actually used to deposit fluids into geologic or soil formations.
36. Jetted Well - A well, not greater than 18 feet deep, in which the drillhole excavation is made by the use of high-velocity jet of water or air.
37. Leakage - Movement of water around the well casing or seal or within the well bore.
38. Liner Pipe - The inner tubing, pipe, or conduit installed inside the well casing or lower drillhole, and used to protect against caving formations and is not permanently affixed to the drillhole wall or casing.
39. Lower Drillhole - That part of the well bore extending below the surface seal interval in a well.
40. Low Temperature Geothermal Well – A well that produces water from an aquifer that is greater than 90° degrees Fahrenheit (32°Celsius) and less than 250°Fahrenheit (121° Celsius).

41. Mineralized Water - Any ground water containing an amount of dissolved, naturally occurring chemical constituents, which limit the beneficial uses to which the water may be applied.
42. Monitoring Well - Any cased excavation or cased opening in the ground used for evaluating the physical (including water level), chemical, biological, or radiological properties of ground water.
43. Neat Cement – Portland cement without additives that has been mixed with water.
44. One Hundred Year Flood – The elevation reached by a volume of flood water that has a one percent (1%) chance of recurring in any given year (the one percent exceedance level).
45. Other Hole - A hole other than a water supply well, a monitoring well, a geothermal hole, piezometer, or geotechnical hole, however constructed, that penetrates more than ten(10)feet into the ground surface of the Umatilla Indian Reservation. Other holes include, but are not limited to, cathodic wells, injection wells, remediation wells, and any other type of hole as determined by the Director. For the purpose of these standards, other holes do not include excavations for septic tanks and septic drain fields.
46. Perched Ground Water – Unconfined ground water separated from an underlying main body of ground water by an unsaturated zone.
47. Permeability - The ability of a material to transmit fluid, usually described in units of gallons per day per square foot of cross-section area. It is related to the effectiveness with which pore spaces in a formation transmit fluids.
48. Person – Any individual, corporation, association, government agency, or any other entity authorized in regulation or through law to act or conduct business in the public/private sector.
49. Petcock Valve - A valve used to contain pressure and, when opened, to drain the line or pipe.
50. Piezometer - A type of monitoring well designed to obtain groundwater levels.
51. Pitless Adapter - A commercially manufactured unit or device designed for attachment to one or more openings through a well casing which will permit water service pipes to pass through the wall of a well casing or extension thereof and prevent entrance of contaminants into the well or water supply.
52. Pitless Unit - A commercially manufactured unit extending the upper terminal of the well casing above land surface, constructed and installed so as to prevent the entrance of contaminants into the well to which the unit is attached, and to protect

the ground water supply, conduct water from the well, and allow full access to the well and water system parts within the well.

53. Pollution - Generally, the presence of a substance in the environment that, because of its chemical composition or quality, prevents the functioning of natural processes and produces undesirable environmental and health effects. Under the Clean Water Act the term has been defined as the man-made or man-induced alteration of the physical, biological, chemical, and radiological integrity of water and other media.
54. Potable Water - Water which is sufficiently free from biologic, chemical, physical, or radiological impurities so that users thereof will not be exposed to or threatened with exposure to disease or harmful physiological effects and which has such other physical properties as to be palatable to humans for drinking purposes.
55. Potentiometric Head – The vertical distance to which ground water will rise above its aquifer.
56. Public Health Hazard - A condition where there is sufficient contamination that is likely to cause human illness, disorders, or disability. Types of contamination include, but are not limited to, pathogenic viruses, bacteria, parasites, toxic chemicals, and radioactive isotopes, where they are present in concentrations exceeding contamination levels set by the U.S. Environmental Protection Agency.
57. Pumping Level - The level or elevation of the water surface in a well while it is being pumped or bailed.
58. Pump Test - The procedure used to determine and make a record of the yield characteristics of a water well by installing and operating a pump for a specified period of time.
59. Sand - A detrital material having a prevalent grain size ranging from 2 millimeters to 0.06 millimeters.
60. Sand Point Well – See Drive Point Well.
61. Silt - An unconsolidated clastic sediment composed predominantly of particles between 0.06 and 0.005 mm in diameter.
62. Static Water Level - The stabilized level or elevation of the water surface in a well from which water is not being pumped or otherwise withdrawn.
63. Stratum - A bed or layer of a formation that consists of approximately the same type of consolidated or unconsolidated material throughout the bed or layer.

64. Sump - A hole constructed to a depth of less than 10 feet and a diameter greater than ten feet, in which groundwater is sought or encountered.
65. Surface Seal – The water-tight seal established by the application of grout into the annular space between the well bore wall and the outer casing in a impervious stratum.
66. Tremie Pipe - See Grout Pipe.
67. UIR – Umatilla Indian Reservation.
68. Unconsolidated Formation - Naturally occurring, loosely cemented, or poorly indurated materials including clay, sand, silt, and gravel.
69. Upper Drillhole – That part of the well bore extending from the top of the surface seal interval and the land surface.
70. Water Supply Well – Any well constructed or used for the purpose of diverting or withdrawing water from the aquifer for beneficial use.
71. Water Table - The upper surface of an unconfined aquifer the surface of which is at atmospheric pressure and may fluctuate seasonally.
72. Well - Any artificial opening or artificially altered natural opening, however made, which penetrates the aquifers of the Umatilla Indian Reservation. For the purposes of these regulations, the term well includes water supply wells, geotechnical holes, geothermal holes, monitoring wells, piezometers, and other holes.
73. Well Bore – The hole created by any method of the construction of a well.
74. Well Constructor - Any person who drills, bores, digs, jets, or constructs a well by any other means.
75. Well Driller – see well constructor.
76. Well Drilling Machine - Any power-driven driving, jetting, percussion, rotary, boring, digging, or augering device or equipment used in the construction or alteration of wells
77. Well Report (Log) – A written record describing the construction, alteration, or abandonment methods and characteristics of a well.

502 REGULATIONS COMMON TO ALL WELLS

502.1 Minimum Standards

The regulations set forth herein shall provide the minimum standards for the construction, alteration, maintenance, and abandonment of any well, constructed by any means, for any purpose which will penetrate the aquifers of the Reservation. Where necessary, the Director may require more stringent special standards on the construction, alteration, maintenance, and abandonment of any well.

502.2 Special Standards

1. Director's Authority - Under some circumstances, compliance with these Standards may not result in a well being free from pollution, or prevent it from being a source of surface or subsurface leakage or contamination for every conceivable well design or geologic setting. Therefore, the Director may require the well constructor to provide additional safeguards, which are needed to guard against the waste and contamination of groundwater.
2. Well Constructor's Request for Special Standards - If unusual conditions occur at a well site and compliance with these Standards will not result in a satisfactory well or protection of the groundwater, the well constructor shall request that special standards be prescribed for the particular well. The request for special standards shall be in writing and shall include:
 - a) The Water System Development Permit number or, in the absence of a permit number, all of the following:
 - 1) the purpose of well construction.
 - 2) the legal description of the well location.
 - 3) the name and address of the landowner.
 - 4) the distance of the proposed well to the nearest well and septic drain-field, with map showing these features.
 - b) The unusual condition(s) existing at the well site.
 - c) The reasons that compliance with these Standards will not result in a satisfactory well, and
 - d) The proposed special standards that the well constructor believes will be adequate for this particular well, including a diagram showing the pertinent features of the proposed well design and construction.
3. Upon receiving a complete request for special standards for the particular well under consideration, the Director shall review the request. The Director shall approve the request only if the Director finds that "b)" and "c)", above, exist and that the proposed special standards address the unusual conditions and adequately protect the quality and quantity of groundwater for the particular well under consideration.

502.3 Adapting to Local Conditions

Every well shall be designed and constructed to adapt to the existing local geologic and groundwater conditions at the well site in order to fully utilize every natural protection to the ground-water supply.

502.4 Public Safety

No well shall be constructed, altered, maintained, or abandoned in such a manner as to constitute a public health hazard or to pose a threat to public safety.

502.5 Wells Cannot be Used for Disposal of Pollutants

No well shall be used as a storage place or disposal site for sewage, industrial waste, or other materials that could pollute the ground water.

502.6 Well Constructors License

1. Any person who constructs, alters, or abandons wells, other than dug wells, shall possess a Well Constructor License issued by the Director.
2. For the licensing and bonding requirements for dug wells, refer to section 508.1 of these Standards.
3. Must carry a valid license or trainee card on the person whenever constructing, altering, or abandoning any well.

502.7 Additional Requirements by Other Agencies.

All wells constructed on the Umatilla Indian Reservation, including those to serve as a source of ground water, must be constructed in accordance with the rules and regulations prescribing general standards for the construction and maintenance of water wells on the Umatilla Indian Reservation. Such rules and regulations generally include the source of water supply to the systems and may affect well construction requirements. Additional construction standards for municipal, community, public, or public utility water supply systems may be required by other agencies.

503. WELL CONSTRUCTOR LICENSING

503.1 Director's Responsibility

The Director or his designee is responsible for:

1. Promulgating and administering Well Constructor Licensing Examinations;
2. Designing and providing Well Constructor license and trainee cards;
3. Designing and providing application forms for new and renewed licenses and trainee cards;

4. Processing applications for licenses and trainee cards and issuing such licenses and cards.

503.2 Well Constructor License Applicant Responsibilities

Any person who wishes to obtain a Well Constructors License shall:

1. Complete an application for new or renewed license;
2. Submit the completed application to the Director of Natural Resources, along with any required fees.

503.3 Well Constructor License Requirements

To qualify for a Well Constructor License, a person must meet all of the following requirements:

1. Be at least 18 years of age;
2. File a complete application as provided in Section 503.2 above.
3. Pass a written examination. The Director shall establish the passing score for such examinations.
4. Have the equivalent of one year (52 weeks) of experience on a minimum of fifteen wells during the previous three year (36 month) period. The experience shall be in well construction, alteration, or abandonment. The following are acceptable as evidence of experience:
 - a) Well reports, or rough well logs with applicant's name entered, for each of the 15 wells. The name, address and telephone number of the person responsible for the construction of each well shall be included on each report or log.
 - b) Income tax returns showing source of drilling income for a period of time, or workman's compensation account information or the equivalent may be established to satisfy the 52 weeks of active construction requirement.
 - c) Any other evidence the Director may deem suitable.
 - d) A license held other than CTUIR License shall not substitute for required evidence of experience.
5. Provide proof of well constructors bond or coverage by a bonded well constructor.

503.4 Well Constructor Trainee Card Requirements

To qualify for a Well Constructor Trainee Card, a person must meet all of the following requirements:

1. Be at least 18 years of age;

2. Be employed by a Well Constructor that is licensed and bonded by the Confederated Tribes of the Umatilla Indian Reservation;
3. Complete an application form;
4. Pay any application fees.

503.5 Licensing Examination

The Director administers the required written examination for a well constructors license. The Director will schedule the examination for the individual on a case by case basis. The examination will test the applicants' knowledge of:

1. Tribal laws and Administrative Rules on the use of groundwater, well constructor licensing requirements, the construction of wells, and preparing and filing Well Reports;
2. Groundwater geology, the occurrence and movement of groundwater, and the design, construction and development of wells; and
3. Types, uses, and maintenance of drilling tools and equipment, drilling problems, and corrective procedures, repair of faulty wells, sealing of wells and safety rules and practices.

503.6 Issuing Licenses and Trainee Cards

Persons who satisfy all requirements listed in 503.3 shall be issued a well constructor's license. Persons who satisfy all of the requirements listed in 503.4 shall be issued a Trainee Card. Persons who do not satisfy all of the requirements shall be denied a license or a trainee card by the Director.

503.7 Duration of License and Trainee Card

1. A well constructors license remains valid as long as the license holder is active in well construction on the Umatilla Indian Reservation. Any license that has been inactive for a period of five (5) years may be cancelled by the Director.
2. The duration of a trainee card is 3 years and expires on the issue date of the third year.
3. Well constructors who have not paid civil penalties which have been assessed against them, may have their license suspended until such time that the payment has been made or that satisfactory arrangements for payment have been made in writing with the Director.

503.8 Trainee Special Requirements for Constructing Wells

Special conditions apply to any person who holds a Well Constructor Trainee Card:

1. Endorsement of Trainee Card - For a trainee to operate a drilling machine without a licensed well constructor present, the trainee's card must be endorsed with the name of the bonded well constructor responsible for the construction of the well.
2. Operating Cable Tool Drilling Machines
 - a) A trainee may operate a cable tool drilling machine without a licensed well constructor physically present at the site only if:
 - 1) The licensed constructor can reach the well site within one (1) hour if so requested by an authorized representative of the Director; and
 - 2) The licensed well constructor has signed the field drilling log within eight (8) working hours prior to the representative's visit.
 - b) A licensed well constructor must be physically on the site at all times when a cable tool drilling machine is:
 - 1) Drilling within a flowing artesian well;
 - 2) Setting or advancing casing;
 - 3) Setting liner pipe;
 - 4) Perforating casing;
 - 5) Setting well screens;
 - 6) Placing packers;
 - 7) Constructing casing seals;
 - 8) Placing grout for surface seals.
 - c) Operating Non-Cable Tool Drilling Machines
 - 1) A trainee may operate a non-cable tool drilling machine without a licensed well constructor physically present at the well site only during the following events:
 - i) Air test or pump test of the well;
 - ii) Gravel packing operations;
 - iii) Developing a completed water well
 - iv) Removal of the drill stem from the well.
 - 2) A trainee may operate the drilling machine for the events listed in C(1) above only if:
 - i) The licensed well constructor can reach the site within one (1) hour if so requested by an authorized representative of the Director and
 - ii) The licensed well constructor has signed the field drilling log within eight (8) working hours prior to the representative's visit.

d) Director's Authority - The Director or his representative has the authority to:

- 1) Grant an extension to the time limits stated above when a request, showing good cause, is received from the bonded well constructor in advance for each particular well.
- 2) Place additional restrictions on the trainee, including requiring the constructor to be on site at all times while the drilling machine is operating, when the Director or his representative determines either the drilling environment or the knowledge and/or experience of the trainee warrant closer supervision.

503.9 Display Proof of Eligibility

Representatives of the Director may ask any person constructing, altering, or abandoning a well to present his/her license or trainee card as proof of eligibility to construct, alter, or abandon wells on the Umatilla Indian Reservation. Upon the representative asking for person to present the license or card, the person shall immediately display the license or card to the representative.

503.10 License and Card Fees

Fees for licenses and trainee cards are established in Section 1.14.of the Water Code .

504 BONDING AND CONTRACTING FOR SERVICES

504.1 Well Constructor Bond Required

If a person advertises services and/or enters into contracts for the construction, alteration, or abandonment of a well for another person, the person who enters into contracts shall furnish a Well Constructor Bond, as provided in the Tribal Water Code, to the Confederated Tribes of the Umatilla Indian Reservation. Well constructors and trainees must be bonded in accordance with Section 207. of the Tribal Water Code or be an employee of a bonded well constructor.

504.2 Contracting for Services

Only bonded well constructors may advertise services or enter into a contract, either written or verbal, to construct, alter, or abandon a well. Any written bid for a project, which includes the construction, alteration, or abandonment of a well, must provide:

1. A bid estimate for the work associated with well construction signed by a bonded well constructor, licensed by the Confederated Tribes of the Umatilla Indian Reservation, and bonded to the Confederated Tribes of the Umatilla Indian Reservation; and

2. A statement by the well constructor that the work will be completed in accordance with the Standards for the Construction and Maintenance of Wells on the Umatilla Indian Reservation.

505 CONSTRUCTION OF WELLS

505.1 Well Construction Notice Required

1. Each bonded well constructor licensed to operate on the UIR and each landowner holding a Water System Development Permit for a dug well, shall provide notice to the Director prior to the commencement of construction, alteration, or abandonment of any well.
2. The well constructor, or landowner in the case of a dug well, shall submit all notices to the Director no sooner than 5 days prior to, and no later than twenty-four (24) hours prior to, the commencement of well construction activities.
3. The notice may be either mailed or faxed to the Director and shall contain the Permit number, the name of the landowner or permittee, the street address or quarter/quarter sectional location of the well; and the date on which construction will commence.
4. If there is a delay in the construction start date or a change in the notification, the well constructor may notify the Director of the change by telephone no later than twenty-four(24) hours prior to the start of construction.
5. The Director shall furnish forms for notification of well construction activities.
6. Any well constructor who fails to properly notice the Director, as provided in this section, may be assessed a one hundred dollar (\$100.00) fee by the Director for expedited inspection requirements.
7. The Director may temporarily suspend well construction activities until the well constructor furnishes proper notice as required in this section.

505.2 Well Drilling Machine Markings

1. All well drilling machines being operated on the Umatilla Indian Reservation shall be conspicuously marked with the business name of the licensed, bonded well constructor in permanent, legible figures on each side of the machine as well as the license number issued by the appropriate authority in which the place of business is located.
2. In all cases, the license number of the bonded well constructor shall be revised on the drilling machine immediately upon change of ownership or change of

control of the drilling machine. Good quality paint or commercial decal numbers shall be used in placing each identification number on the drilling rig. In no case shall the constructor's license number be inscribed with crayon, chalk, marking keel, pencil, or other temporary markings.

505.3 Well Report Required

1. A well report (well log) shall be prepared whenever a well is altered or abandoned, including unsuccessful wells. The log shall be certified as correct by signature of the well constructor constructing the well. The bonded well constructor, responsible for construction of the well, shall also certify the completed well report. A well report must be submitted by each constructor (if more than one) or each bonded constructor (if drilling responsibility is shifted to a different bonded constructor) showing work performed by each constructor or bonded constructor.
2. The log shall be prepared on forms furnished by the Director. The well report shall include:
 - a) The name of the well owner,
 - b) Location of well,
 - c) Nature of work,
 - d) Well drilling method,
 - e) Well construction methods,
 - f) Water level data,
 - g) Well test data,
 - h) Litho-logic log,
 - i) Driller certification with signature, and
 - j) Any other information deemed necessary by the Director.
3. The bonded well constructor shall file the well log with the Director within fifteen (15) days after the completion of the construction, abandonment, or alteration.
4. The trainee or well constructor operating the well drilling machine shall maintain a rough log of all geologic strata encountered and all materials used in the construction of the well. This log shall be available for inspection by an authorized agent of the Director any time before the well report is received by the Director. The rough drilling log shall be handwritten or in electronic form, or a voice recording.
5. In the event a constructor shall leave any equipment or tools in a well, the bonded constructor shall enter this fact on the well report.
6. A copy of any special authorizations or temporary special standards issued by the Director shall be attached to the well report.

505.4 Disinfection

Every new, altered, or reconditioned water supply well including pumping equipment, sand, or gravel used in filter pack wells and a well casing standing above the water table, shall be thoroughly hosed or sluiced with water, and shall be disinfected with a solution containing at least fifty (50) parts per million, by weight, of chorine before being placed in the well. All water introduced into a well during construction shall be cleaned and potable. The well and its equipment, including the interior of the well casing, shall be thoroughly swabbed and cleaned to remove all oil, grease, and foreign substances upon completion of the well's construction. Following the completion of a well, and again after the pumping equipment has been installed, a well and its equipment shall be disinfected by thoroughly agitating and mixing, with a solution containing enough chlorine to leave a residual of twenty-five (25) parts per million throughout the well after a period of twenty-four (24) hours. (See Recommendations for Disinfection of Water Wells, Appendix "A".) A ground water sample of the newly constructed or completed well may be conducted pre and post chlorination of the well. A designee of the Director, solely, will conduct the sampling.

505.5 Mineralized or Polluted Groundwater

All formations that yield polluted or highly mineralized water shall be adequately cased or cemented off so as to prevent pollution or contamination of the overlying or underlying water-bearing zones. Once a water zone has been encountered and test pumped, a water quality test shall be performed to determine its suitability for the intended beneficial use. This testing will be the responsibility of the Well Constructor. The water samples will be submitted to a USEPA certified laboratory. These results shall be provided to the Director or his designee prior to the development of the water system.

505.6 Perched Groundwater

Wells drawing from perched ground water shall incorporate the drilling construction practices and facilities that will prevent the waste of this type of ground water, including prevention of leakage to aquifers below the perched ground water.

505.7 Commingling of Waters

In no case shall wells be constructed to allow commingling or leakage of ground water from different ground-water bodies associated with different geological units. However, ground water entering from different depths in the same geological unit may be combined provided the waters are similar as to potentiometric head, temperature and mineral content.

505.8 Explosives

Explosives shall not be detonated inside the well casing or liner pipe except that commercially developed perforators may be used. In no case shall an explosive charge be used to create or excavate a well or dropped down a well or used to sever installed well casing or liner pipe.

505.9 Unattended Wells

All wells when unattended during construction shall be securely covered to prevent foreign material from being introduced into the well.

505.10 Organic Materials

Organic materials that foster or promote undesired organic growth shall not be employed in the construction of any well. This includes but is not limited to brans, hulls, grains, starches and proteins.

505.11 Well Casing

All casing installed, other than plastic casing set forth in Section 505.15, 505.16, shall be of steel, in new or like new condition, being free of pits or breaks, and shall meet American Society of Testing Materials (ASTM A-120) specifications for pipe, for the following sizes:

(Minimum Specifications For Steel Well Casing)			
Nominal Size (in)	Outside Dia. (in)	Wall Thickness (in)	Weight per foot (lbs)
2	2.375	0.154	3.56
2.5	2.875	0.203	5.79
3	3.500	0.216	7.58
3.5	4.000	0.226	9.11
4	4.500	0.237	10.79
5	5.563	0.244	13.70
6	6.625	0.250	17.02
8	8.625	0.250	22.36
10	10.750	0.250	28.04
12	12.750	0.312	41.45
14	14.000	0.312	45.68
16	16.000	0.312	52.27
18	18.000	0.375	70.59
20	20.000	0.375	78.60

All casing having a diameter larger than twenty (20) inches shall have a wall thickness of at least 0.375 inch. Well casing with a nominal diameter greater than ten (10) inches, having a wall thickness of 0.250 inch and meeting ASTM A-120 specifications may be installed in a well, but with the following depth limitations:

Diameter	Maximum Depth
12 inches	250 feet
14-16 inches	150 feet
8-20 inches	100 feet

Steel casings of other ASTM specifications may be considered under the provisions of Special Standards (502.2).

505.12 Liner Pipe

Liner pipe installed without driving, may be of lighter weight than specified by the table under Section 505.11. Such lightweight pipe shall have a wall thickness equal to or greater than a minimum wall thickness of .188 inch. All liner pipe shall be of steel, in new or like new condition, being free of pits or breaks; or shall

be of polymerized vinyl chloride (PVC) type 1220 or 1120, SDR 21 (Class 200), or SDR 26 (Class 160). Liner pipe installed in a well shall be a continuous string. Liner pipe shall not be permanently fixed to a well casing below land surface except by the use of cement grout, packers, or similar sealing materials, placed in the annular space between the liner and well casing.

505.13 Casing Joint (Steel Casing)

All casing joints shall be welded or screw-coupled and shall be watertight. If welded casing joints are used, the weld shall be a full penetrating weld at least equal in thickness to the wall thickness of the casing. Casing joints shall have a tensile strength equal to or greater than that of the casing.

505.14 Steel Casing Shoe

In all drilled wells, permanent well casing that is driven shall be equipped with a standard drive shoe at its lower end, welded or threaded onto the lower end of the string of casing. The shoe shall have a beveled cutting edge of metal forged, cast, or fabricated for this special purpose.

505.15 Plastic Casing

All plastic casing shall be installed only in an oversized drill hole without driving. Such casing shall be of polymerized vinyl chloride (PVC), type 1120 or 1220, SDR 21 (Class 200) or SDR 26 (Class 180), meeting the standards of the "National Sanitation Foundation" and the specifications of ASTM F-480 or ASTM D-2241-73 and ASTM D-1784-69. The well casing must be clearly marked by the manufacturer showing: nominal size, type plastic material, Standard Dimension Ratio (SDR), ASTM designation, and National Sanitation Foundation seal of certified approval. The maximum depth to which this plastic casing may safely resist collapsing forces is a function of the "Standard Dimension Ratio" (SDR), i.e., the ratio of the outside diameter to the casing wall thickness. The maximum depths have been computed for readily available SDR and are cited as:

SDR	Maximum Depth
21	150 feet
26	100 feet

NOTE: Plastic casing is not permitted for use in any water supply wells.

505.16 Casing Joints (Plastic Casing)

All casing joints shall be water tight. Either "bell" type or coupling hubs are allowed. Hub couplings shall be of material meeting the specifications for plastic casings as set forth in Section 300.500.150 Joints shall be made by solvent cement in accordance with manufacturer's directions. Newly assembled joints require careful handling until the initial set has taken place, which varies with the temperature and the pipe size. The following recommended initial set times are from manufacturer's recommendations:

Temperature Range During Initial Set Time	Set Time for Various Pipe Sizes in Hours						
	3"	4"	5"	6"	8"	10"	12"
60° F – 100°	½	½	½	¾	¾	¾	1
40° F – 60°	2	2	4	4	4	4	4
0° F -- 40°	6	6	8	10	12	12	12

NOTE: After the initial set, the joints will withstand the stress of a normal installation. However, considerable care should be employed in handling the drill string.

505.17 Casing Installation

1. Top Terminal Height - The casing head or pitless unit of any well shall extend not less than twelve (12) inches above the finished ground surface or pump house floor, and not less than twelve (12) inches above the local surface runoff level. No casing shall be cut off below land surface except to install a basement offset or a pitless unit, or during permanent abandonment of a well. The ground surface immediately surrounding the top of the well casing or pitless unit should be graded so as to drain surface water away from the well. The water tight casing of any water supply well shall extend not less than twelve (12) inches above the finished land surface or pump house floor, and not less than twelve (12) inches above the established 100 year flood elevation.
2. Casing Openings - There shall be no opening in the casing wall between the top of the casing and the bottom of the required casing seal except for pitless adapters, measurement access ports, and grout nipples installed in conformance with these standards. In no case shall holes be cut in the casing wall for the purpose of lifting or lowering casing into the well bore unless such holes are properly welded closed and are water tight prior to placement into the well bore.

505.18 Temporary Casing

Temporary outer surface casing used in the construction of a well shall be withdrawn as sealing material is placed.

505.19 Pitless Well Adapters

Surface seal requirements for well casing set forth herein shall also apply when a pitless adapter or unit is installed in a well and shall cover that sealing interval occupied by the pitless case from the point of casing connection to land surface. A cement grout seal shall not be required within the pitless unit sealing interval. The pitless adapter or unit, including the cap or cover, pitless case and other attachments, shall be designed and constructed to be water tight and prevent the entrance of contaminants into the well from surface or near-surface sources. Pitless units shall be vented to the atmosphere.

505.20 Cement Grout

Cement grout sealing material shall meet ASTM C-150 Type II or Type III specifications. The following requirements shall be used to construct the required casing seal in the well:

1. Mixing Proportions -- Cement grout used to seal a well shall be composed of a uniformly mixed slurry of Portland cement or High Early Strength Type III Portland cement, and potable water, or High-alumina cement, and potable water mixed in the following proportion:

Type of Dry Cement	Gallons of Water*
Portland Cement	4½ to 6
High Early Strength Type III Portland Cement	5½ to 6½
High-Alumina Cement	4½ to 6

*per cubic foot or 1 U.S. sack (94 lbs.)

2. Additives - Additives to increase fluidity, reduce shrinkage, or control time of set may be used in a cement grout mixture. Expanding agents such as aluminum powder may be used at a rate not exceeding .075 ounce (1 level teaspoon) per sack of dry cement. The powder shall not contain polishing agents. The addition of bentonite clay to a grout mixture is permissible but shall not in any case exceed five (5) percent by weight of dry cement. Sand shall not be added to grout seal mixtures. Calcium chloride may be added to a Portland cement grout to accelerate the set but shall not exceed two (2) pounds per sack of dry cement. High-alumina cement and Portland cement of any type shall not be mixed together for use in a water well.
3. Alternative Types of Cement - Cement types other than those set forth herein shall not be used as a sealing material in a well except upon approval of the Director .
4. Casing Centralizers – Well casing to be sealed into an oversize drill hole shall be equipped with centering guides to ensure the proper centering of a casing. In all events, casings shall be centered in the sealed interval. Guides should be of steel, at least one-fourth (1/4) inch in thickness, evenly spaced in groups of three (3) or four (4) in twenty (20) foot intervals or less.
(See Appendix C, Figure 1)
5. Methods of Placement of Cement Grout - Cement grout to be used as a sealing material in a well shall be placed or forced upward from the bottom of the space to be grouted and shall be placed in one continuous operation without significant interruption. (For acceptable methods of procedure, see Appendix B & Appendix C, Fig 2).

505.21 Resumption of Construction

1. The time of the final set of the cement grout mixture varies greatly in accordance with cement-water ratio and temperature. Cement grout emplaced in a well for sealing purposes should not be disturbed in any way until the final set of the cement grout mixture. Performance of all cement grout seals shall be the responsibility of the well constructor and drilling machine operator.

Recommended periods of time of final set are:

If Portland Cement is used	72 hours
If High early Strength Type III Portland Cement is used	48 hours
If High-alumina Cement is used	6 hours

2. In no case shall the permanent well casing be moved or driven following the placement and initial set of the cement grout.

505.22 Drill Cuttings or Chips

In no case shall drill cuttings and drill chips be used or allowed to fill, partially fill, or fall into the required sealing interval of a well during the construction or the completion of a well.

505.23 Sealing of Wells in Unconsolidated Formations Without Significant Clay Beds

1. Wells drilled into unconsolidated water-bearing strata overlain by unconsolidated materials, such as sand, silt, or sand and gravel, without significant clay beds, shall have a watertight, unperforated well casing extending at least five (5) feet below the top of the water table. If the water table is thirteen (13) feet or less below land surface, a watertight, unperforated, permanent well casing shall extend to a minimum depth of eighteen (18) feet. An upper oversize drill hole, four (4) inches greater in diameter than the nominal diameter of the casing, shall be constructed to five (5) feet below the water table with a minimum depth of eighteen (18) feet. To prevent caving, a temporary surface casing, at least eighteen (18) feet in length, shall be used throughout the construction of the annular seal space.
2. The annular space between the permanent well casing and the temporary surface casing or drill hole wall shall be completely filled and sealed from the full depth of the temporary casing to the land surface with cement grout in accordance with Section 505.20;5 after the permanent well casing is set into its final position. The temporary surface casing shall be removed as the annular space is filled with cement grout.

(See Appendix C, Figure 3)

505.24 Sealing of Wells in Unconsolidated Formations With Significant Clay Beds

Wells drilled into water-bearing strata overlain by unconsolidated deposits of clay, or sand and gravel in which significant interbeds of clay are present, shall

have a watertight, unperforated permanent well casing extending at least five (5) feet into a clay or other impermeable stratum overlying the water bearing zone. In all cases, an upper, oversize drill hole, at least four (4) inches greater in diameter than the nominal diameter of the permanent well casing shall be constructed to this same depth. In the event that the subsurface materials penetrated by the upper drill hole cave, or tend to cave, an outer, temporary surface casing shall be used to case out caving materials throughout the construction of the oversize drill hole. If the clay or other impermeable stratum is thirteen (13) feet or less below land surface, the watertight, unperforated well casing and the upper, oversize drill hole shall extend to a minimum depth of eighteen (18) feet below land surface. If necessary to complete the well, the single, permanent well casing may be extended below the required sealing depth prior to sealing the well with cement grout. If preferred, a smaller diameter casing, perforated liner, or well screen may be installed. The annular space between the permanent well casing and the upper, oversize drill hole shall be completely filled with cement grout in accordance with Sections 505.20;5 after the permanent well casing is set into final position. The temporary surface casing shall be removed from the well as the annular space is filled.

(See Appendix C, Figure 4)

505.25 Sealing of Wells in Consolidated Formations

Wells drilled into a water bearing rock formation overlain by clay, sand, or gravel, or similar materials, shall be constructed in accordance with one of the following methods:

1. Method 1 - An upper drill hole, four (4) inches greater in diameter than the nominal diameter of the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into sound, uncreviced, consolidated rock below a depth of thirteen (13) feet. Unperforated permanent well casing shall extend to this same depth. The annular space between the casing and the drill hole wall within the rock formations shall be filled with cement grout and the upper annular space between the casing and the drill hole wall shall be filled with cement grout in accordance with Sections 505.20;5 from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. The annular space between the upper and lower required cement grout sealing intervals shall be filled with a bentonite sealing material or cement grout. If necessary to complete the well, a smaller diameter well casing, liner pipe, or well screen may be installed.

(See Appendix C, Figure 5)

2. Method 2 - An upper drill hole, four (4) inches greater in diameter than the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. Unperforated, permanent well casing shall extend to and shall be driven into sound, uncreviced, consolidated rock overlying the water-bearing rock formation. A lower drill hole, equal in diameter to the inside diameter of the upper permanent well casing, shall be constructed at least five (5) feet into

sound uncreviced rock overlying the water-bearing formation. A smaller diameter casing or liner pipe, at least two (2) inches smaller in diameter than the diameter of the upper permanent well casing, shall extend at least five (5) feet into the lower drill hole and at least eight (8) feet into the overlying permanent well casing. The annular space between the upper oversize drill hole and the permanent well casing, and the annular space between the smaller diameter lower casing or liner pipe and the lower drill hole, shall be completely filled with cement grout in accordance with Sections 505.20;5 after the permanent well casing and the lower casing or liner pipe are set into final position.

(See Appendix C, Figure 6)

3. Method 3 –An upper drill hole, four (4) inches greater in diameter than the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into an impermeable clay stratum below a depth of (13) feet. Unperforated, permanent well casing shall extend to and shall be driven into sound, uncreviced, consolidated rock overlying the water-bearing formation. A lower drill hole, at least two inches greater in diameter than the diameter of the upper permanent well casing shall be constructed at least five (5) feet into sound, uncreviced, consolidated rock by under-reaming methods. The upper permanent well casing shall be lowered to the full depth of the lower oversize drill hole. The annular space between the upper oversize drill hole and the upper permanent well casing, and the annular space between the lower under-reamed drill hole and the permanent well casing, shall be completely filled with cement grout applied under pressure in accordance with the appropriate Methods A, B, C, or D, in Appendix "B".

(See Appendix C, Figure 7)

4. In all cases, (Methods 1, 2, or 3 above), should materials penetrated by the upper oversize drill hole cave, or tend to cave, an outer temporary surface casing shall be used to case out all caving material throughout construction of the oversize, drill hole. The temporary surface casing shall be withdrawn as the annular space is filled with cement grout.

505.26 Access Port

All water supply wells and other wells as determined by the Director, shall be equipped with a usable access port with a minimum diameter of ½ inch. In addition, an airline with a pressure gauge adequate to determine the water level in the well at any time may be installed. If an airline is installed, it must enter the well in a location other than the access port. If the well constructor does not install a pump in the well, the landowner will be required to provide the access port.

(See Appendix C, Figure 17)

505.27 Well Test

Every water supply well shall be tested for yield and drawdown for a period of not less than one hour either by bailing, pumping or air testing. Any testing

method that does not provide for drawdown measurements during testing is not an accurate or reliable test of yield.

505.28 Completion of Wells

A well constructor, drilling machine operator, or landowner constructing his own well shall not remove the drilling machine from a water well site unless the drilling machine is immediately replaced by another drilling machine in operating condition prior to:

1. Completion of the well in compliance with Section 505.3 through 505.27 and a watertight seal, threaded or welded cap placed on the well; or
2. Completion of the well in compliance with Section 505.3 through 505.27 and a pump installed; or
3. Abandonment of the well in compliance with Section 512.

505.29 Sealing of Filter Pack Wells With Surface Casing

A permanent surface casing must be installed in the construction of a filter pack well. A watertight, welded, steel plate at least 3/16 of an inch in thickness shall be installed between the inner production casing and the outer surface casing at the well head. A watertight fill port 4 inches in diameter with threaded cap shall be installed for the purpose of placing additional filter pack material in the well.

(See Appendix C, Figure 9)

506. FLOWING ARTESIAN WELLS

506.1 Flowing Artesian Well Construction

Wells penetrating into a flowing artesian aquifer shall be constructed in conformance with the methods and standards in Section 505.

(See Appendix C, Figure 10)

506.2 Commingling of Water

In no case shall the casing in a flowing artesian well be constructed in a manner that will allow the commingling of water from an artesian zone with other water-bearing zones representing different aquifers. All flowing artesian wells shall be adequately cased and sealed into the confining stratum. Surface or subsurface leakage leading to a water loss or decay of artesian pressures will not be allowed.

506.3 Control Valves

If a well flows at land surface, the well shall be equipped with a watertight mechanical cap, threaded or welded, and a control valve, so that all flow of water from the well can be completely stopped.

506.4 Pressure Gauge

All flowing artesian wells shall be equipped with a pressure gauge and a petcock valve between the gauge and well casing so that the artesian head can be determined at any time.

(See Appendix C, Figure 17)

506.5 Well Test

All flowing artesian wells shall be tested for artesian, shut-in pressure in pounds per square inch and rate of flow in cubic feet per second, or gallons per minute, under free discharge conditions. This data shall be reported on the well report.

507. DRIVEN OR JETTED WELLS

507.1 Drive Pipe

All drive point wells or jetted wells shall be constructed with drive pipe meeting the following minimum specifications:

Nominal Size	Outside Diameter	Wall Thickness	Weight Per Foot
1 ½	1.900	0.145	2.72
2	2.375	0.154	3.55
2 ½	2.875	0.203	5.79
3	3.500	0.216	7.58
3 ½	4.000	0.226	9.11

507.2 Construction of Drive-Point or Jetted Wells

All drive-point wells or jetted wells shall have unperforated, watertight pipe extending a maximum depth of eighteen (18) feet below land surface. An upper drill hole at least four (4) inches greater in nominal diameter than the permanent production pipe shall extend at least five(5) feet below land surface. The annular space shall be filled with cement grout after the permanent pipe is set into final position. The top of the finished permanent production pipe shall extend at least one (1) foot above the ground surface.

(See Appendix C, Figure 11)

507.3 Additional Standards

When constructing drive-pipe or jetted wells:

1. The wells shall not penetrate the basalt formation;
2. The well construction must use potable water with no additives; and
3. The diameter of the casing shall not exceed 4 inches (outside diameter).

NOTE: Wells constructed by the above driving or jetting methods may not produce water of suitable quality for use as domestic, community, municipal or public supplies.

508. DUG WELLS

508.1 Dug Water Supply Wells Construction Permit, Fee, and Bond Requirements

1. A Water System Development Permit, payment of the permit fee, and a bond are required for each dug well constructed, altered, or abandoned by a landowner.
2. To receive a Water System Development Permit to construct a dug well, a person must submit to the Director a completed application form, as provided in the Tribal Water Code, and obtain a well bond, in favor of the CTUIR as provided in the Tribal Water Code

508.2 Construction of Dug Wells

No dug well may exceed a depth greater than 18 feet. All dug wells shall be constructed with a watertight surface curbing extending from a minimum of twelve (12) inches above land surface to a maximum of fifteen (15) feet below the surface. The surface curbing shall extend to within three (3) feet from the bottom of the well. Open pits, sometimes called sumps, which exceed ten feet in average diameter are exempt from these construction requirements, but are subject to all the requirements covering the use of groundwater.

(See Appendix C, Figure 12)

NOTE: Wells constructed by the above methods may not produce water of suitable quality for use as domestic, community, municipal or public utility supplies.

(See Appendix "A", II)

508.3 Surface Curbing

The surface curbing required for dug wells shall be of concrete, concrete tile, or steel.

1. If concrete is used, the concrete curb thickness shall not be less than six (6) inches.
2. In the case of buried slab type well, well casing meeting the minimum specifications given in Sections 505.11 through 505.16 shall be used.
3. If pre-cast concrete tile or steel casing is used for the surface curbing, the well-bore diameter to the bottom of the surface curbing shall be eight (8) inches greater than the outside diameter of the tile or steel, and the annular space shall be completely filled with concrete or cement grout meeting the requirements of Section 505.20.

508.4 Buried Slab Construction

In a buried slab type well, the slab shall be at least three (3) inches in thickness. The slab shall be reinforced to withstand all anticipated stresses. The slab shall be sealed with cement grout at least one (1) foot thick, and the well bore backfilled with cement grout or concrete. The slab shall be supported on a structure adequate to support the superimposed load of concrete in the upper bore hole.

508.5 Concrete

Concrete for use in the construction of a dug well, or for filling the annular space or well bore of a well, shall consist of clean, hard, and durable aggregate, and not less than six (6) sacks of Portland cement per cubic yard of concrete. The maximum diameter of aggregate particles shall not exceed one and one-half (1 1/2) inches, but, in any case, shall not exceed one-fifth (1/5) or twenty (20) percent of the minimum width of the space to be filled. The ratio of coarse aggregate to fine aggregate (Passing No. 5, U.S. Standard Sieve) shall be approximately one and one-half (1 1/2) to one (1) by volume, but, in any case, shall not exceed two (2) to one (1) nor be less than one (1) to two (2).

508.6 Bored Wells

Sections 505.1 through 505.17 apply to all bored wells.

NOTE: Wells constructed by the above boring methods may not produce water of suitable quality for use as domestic, community, municipal or public supplies.

508. DEEPENING OR REPAIR OF WELLS

508.1 Casing

All casing or liner pipe used in the repair or deepening of wells shall meet the minimum standards in Sections 505.11 through 505.16.

508.2 Sealing of Casing

If in the repair of a well the old casing is withdrawn, the well shall be re-cased in accordance with the rules set forth in Sections 505.11 through 505.26.

508.3 Inner Casing

If an inner casing is installed to prevent leakage of undesirable water into a well, the space between the two well casings shall be pressure grouted with cement grout so as to prevent the movement of water between the two casings.

508.4 Artesian Well

If upon deepening of an existing well, an artesian zone is encountered, the well shall be cased and completed as set forth in Section 506.

508.5 Drilling in a Dug Well

In no case shall drilling methods deepen a dug well.

509. MAINTENANCE OF WELLS

509.1 Prevention of Contamination

All wells shall be maintained in a condition whereby they are not a hazard to life or property or a source of contamination to the ground-water supply.

509.2 Valves and Casing on Artesian Wells

Valves and casing on all artesian wells shall be maintained in a condition so that the flow of water can be completely stopped when the water is not being put to

beneficial use. All casing, liner pipe, and casing seals shall be maintained in a condition that will prevent surface or subsurface leakage of ground water. Valves shall be closed when water is not being put to beneficial use.

509.3 Access Port or Airline

The access port or airline on all wells shall be maintained in a condition that will prevent contamination of the water body. Access ports and airlines shall be maintained so that the position of the water table can be determined at any time, and the airline shall be fitted with a pneumatic valve stem.

509.4 Pressure Gauge

The pressure gauge and petcock valve required by Section 506.4 shall be maintained so that the artesian pressure can be accurately determined at any time.

510. LOW TEMPERATURE GEOTHERMAL WELLS

510.1 Construction of Low-Temperature Geothermal Production Wells

1. Low-temperature geothermal production wells shall be constructed in conformance with all applicable rules (505.) with specific additions and modifications as described in this section.
2. Low-temperature geothermal production wells shall be constructed in a manner that protects groundwater from contamination, waste and loss of artesian pressure, and substantial thermal alteration.
3. If utilization of the well causes heating or cooling of the casing resulting in thermal expansion or contraction of the casing to the point that adherence to the minimum well construction standards will not prevent or eliminate groundwater contamination, groundwater waste or loss of artesian pressure, or substantial thermal alteration, then the licensed well constructor shall submit a written request to the Director to use alternate construction methods and/or materials to prevent groundwater contamination, groundwater waste, loss of artesian pressure, and substantial thermal alteration. Written approval from the Director must be obtained prior to the commencement of the well.
4. Prior to construction of the well, a well constructor or owner of a low-temperature geothermal production well shall submit construction plans to the Director for assistance and review of construction details in accordance with Section 502.2. Special Standards.

510.2 Identification of Intended Well Use

Any low-temperature geothermal production well shall be clearly identified as such on the well permit application form filed with the Director

510.3 Well-Head Protection Equipment

Adequate well-head equipment to insure public safety and the protection of the groundwater resource shall be immediately installed on any low-temperature geothermal production well when the temperature of the fluid being withdrawn from, being pumped from, or flowing from the well bore exceeds 50 degrees C (122 degrees F). A variance from the requirement for well-head protection equipment may be granted if a written request demonstrates that the equipment is not necessary to safely complete the well.

510.4 Disposal of Low-Temperature Geothermal Fluids Produced During Drilling and Testing

Low-temperature geothermal fluids produced during drilling or testing of a low-temperature geothermal production well shall be disposed of in a manner that minimizes hazards to public health and safety and contamination of surface and ground waters. For additional requirements on the disposal of low-temperature geothermal fluids produced during well drilling or testing, contact the Director.

510.5 Water Temperature Measurement

The well report prepared for any low-temperature geothermal well that is tested by pumping water from the well, shall include the temperature of the fluid as measured at the discharge point at the beginning and end of a timed production test as well as the maximum fluid temperature attained during the test. Bailing or pumping the well are acceptable methods of withdrawing water from the well during the test. Air testing is not acceptable.

510.6 Reporting Temperature Data

The well constructor shall provide the temperature data on the water well report. The Director may use other temperature data in making the final determination of the bottom-hole temperature.

510.7 Low Temperature Geothermal Effluent Disposal

Before commencement of any discharge from the well, the constructor shall submit to the Director a plan for disposal of all effluent from the well which will show the following:

1. Geological information of the area;
2. Depth of the well;
3. Water well reports from nearby wells;
4. Static water level from the well;
5. Water quality data;
6. Show how the aquifers will be protected from contamination by the effluent;

7. Show how surface water, flora, and fauna will be protected.

511. CONSTRUCTION AND MAINTENANCE OF MONITORING WELLS, GEOTECHNICAL HOLES, AND OTHER HOLES

511.1 Introduction

1. Monitoring wells and geotechnical holes used for groundwater and geologic investigation are constructed in a variety of environments and under a variety of conditions. Improper construction, maintenance, operation, and abandonment can allow deterioration of groundwater quality and supply. Although enforcement actions may be exercised against other parties, the landowner of the property where the monitoring well or geotechnical hole is constructed is ultimately responsible for the condition and use of the monitoring well or geotechnical hole.
2. Holes other than monitoring wells, water supply wells, or geotechnical holes which are drilled, excavated, or otherwise constructed in the earth's surface can also provide an avenue for deterioration of groundwater quality. Improper construction, maintenance, use, and abandonment of other holes can pose a significant risk to groundwater quality.
3. The Water Committee may develop additional rules as needed prescribing standards for the construction, operation, maintenance, and abandonment of other specific types of wells and holes to protect groundwater.
4. Monitoring wells are defined in Section 501.4;42 A license and fee, bond, examination, well report, and notice of construction are required for construction, conversion, alteration or abandonment.
5. Construction of geotechnical holes requires either a well constructor's license or Oregon registration as a registered professional geologist or civil engineer. If the criteria in Section 511.7 are met, a geotechnical hole report must also be submitted.

511.2 Special Area Standards

If at any time, the Water Commission finds that different or supplemental standards are required to protect the groundwater of any aquifer, the Committee may adopt special area standards for the construction and maintenance of monitoring wells, geotechnical holes or other holes for that area.

511.3 Public Safety

No monitoring well or geotechnical hole shall be constructed, maintained, or abandoned in such a manner as to constitute a health threat, or health hazard, or a menace to public safety.

511.4 Wells Cannot be Used for Disposal of Contaminants

No monitoring well, geotechnical hole, or other hole shall be used as a disposal pit for sewage, industrial waste, household waste, or any other foreign materials that could contaminate the groundwater supply.

511.5 Clean-up After Completion of Wells

1. All drill cuttings and fluids from drilling, cleaning and development shall be properly managed during construction, alteration, or abandonment to protect groundwater from contamination.
2. The landowner or the landowner's agent is responsible for management and disposal of drill cuttings and fluids left on site after well construction, alteration or abandonment is completed.
3. To prevent cross-contamination between wells, the drill rig and all drilling equipment shall be cleaned before and after well construction by methods described in Section 505.4.

511.6 Other Holes: General Performance Requirements

1. Other holes are constructed for a variety of purposes that may or may not encounter groundwater. Other holes are constructed using a wide variety of equipment and are not typically designed to access water or to collect subsurface information. Other holes include, but are not limited to: cathodic wells, injection wells, remediation wells, and any other type of hole as determined by the Director
2. Although enforcement actions may be exercised against other parties, the landowner of the property where the other hole is constructed is ultimately responsible for the condition and use of the other hole.
3. Excavations greater than ten (10) feet in depth that are dug to evaluate subsurface data are classified as temporary or permanent geotechnical holes.
4. In order to protect groundwater, all other holes, when abandoned, shall be abandoned in such a manner that water cannot move vertically in them with any greater facility than in the undisturbed condition prior to construction of the other hole.
5. If the other hole is an excavation for removal of an underground storage tank, the hole may be constructed and water samples may be taken without adhering to the licensing, well report and monitoring well conversion requirements.
6. Any "other hole" which penetrates any aquifer must comply with the applicable provisions of these well construction standards.

511.7 Geotechnical Holes: General Performance Requirements

1. Geotechnical holes may be either cased or uncased and are constructed to evaluate subsurface data or information (geologic, hydrogeologic, chemical, or other physical characteristics). Geotechnical holes are a special case of "wells" because their construction and/or duration of use are different than water supply or monitoring wells and therefore are not subject to the same requirements as these wells. Geotechnical holes are divided into the following types:
 - a) temporary geotechnical holes;
 - b) cased permanent geotechnical holes;
 - c) uncased permanent geotechnical holes; and
 - d) slope stability geotechnical holes.
2. If a geotechnical hole in (1) through (4) above:
 - a) penetrates the water table;
 - b) is within 50 feet of a water supply or monitoring well;
 - c) is used to make a determination of water quality; or
 - d) is constructed in an area of known or reasonable suspected contamination, then:
 - 1) A geotechnical hole report must be filed with the Director and the registered geologist, or civil engineer responsible for the hole must sign the geotechnical hole report.
3. Although enforcement actions may be exercised against other parties, the landowner of the property where the geotechnical hole is constructed is ultimately responsible for the condition and use and abandonment of the geotechnical hole.
4. Any person (professional) who is responsible for the construction, alteration or abandonment of a geotechnical hole shall have a current Tribal Well Constructor License, or be registered by the State of Oregon as a Geologist or Civil Engineer. The professional shall show proof of license or registration to Department employees upon request.
5. In order to protect the groundwater resource, all geotechnical holes shall be constructed, operated, used, maintained, and abandoned in such a manner as to prevent contamination or waste of groundwater.
6. If the geotechnical hole is completed above ground, it shall have a minimum casing height of one foot above finished grade and a lockable cap shall be attached to the top of the casing.

7. A Well Report shall be prepared for each geotechnical hole constructed, altered, or abandoned including unsuccessful holes if it meets the requirements of Section 2 above.
 - a) The Well Report for geotechnical holes shall be filed with the Director within fourteen(14) days of the completion of the geotechnical hole.
 - b) The Well Report shall be prepared in triplicate on forms furnished or previously approved in writing by the Director. The original shall be furnished to the Director, the professional constructing the geotechnical hole shall retain the first copy, and the second copy shall be given to the customer who contracted for the construction of the geotechnical hole.
 - c) In the event any equipment or tools are left in a geotechnical hole, the professional responsible for the construction of the geotechnical hole shall enter this fact on the Well Report.
 - d) A copy of any special authorizations or special standards issued by the Director shall be attached to the Geotechnical Hole Report.
 - e) The Well Report of geotechnical hole construction shall include, as a minimum, the following:
 - 1) Owner/Project name (as appropriate);
 - 2) Start/Completed Date;
 - 3) Location of hole by county, township, range, section, and either quarter/quarter section, tax lot/allotment number, or nearest street address. If a global positioning system (GPS) is used, the information must be converted to township, range, section and quarter/quarter section and the latitude and longitude measurements included;
 - 4) Use of geotechnical hole;
 - 5) Type of geotechnical hole;
 - 6) Map showing location of geotechnical hole on site must be attached and shall include an appropriate scale and a north arrow;
 - 7) General hydrologic and geologic information as indicated on the Well Report;
 - 8) Such additional information as required by the Director.
8. Temporary Geotechnical Holes:
 - a) Temporary geotechnical holes include, but are not limited to: drive points, soil and rock borings, temporary sample holes, permeability test holes and soil vapor holes.
 - b) Temporary geotechnical holes shall be permanently abandoned within 72 hours of completion of the purpose for which the hole was intended.
 - c) Any temporary casing that has been installed shall be removed as part of the abandonment.

9. Cased Permanent Geotechnical Holes:

- a) Cased Permanent geotechnical holes include, but are not limited to: gas migration holes, cathodic protection holes, vapor extraction holes, and piezometers.
- b) If permanent casing is installed in a geotechnical hole, it shall meet the casing requirements in Sections 505.11 through 505.16 and the sealing requirements in Sections 505.17 through 505.26.

10. Uncased Permanent Geotechnical Holes:

- a) Uncased permanent geotechnical holes include, but are not limited to: Pneumatic and electrical piezometers.
- b) Temporary casing can be used during the construction of the uncased permanent geotechnical hole but must be removed prior to completion. Surface casing extending a maximum for five feet below the land surface may be installed for placement of logging or recording equipment.

11. Slope Stability Holes:

All holes constructed for studying or dewatering landslides or other mass-wasting features shall be considered slope stability holes. Such holes shall be constructed, operated, used, maintained, and abandoned in such a manner as to prevent contamination or waste of groundwater. Slope stability holes in areas of known or reasonably suspected contamination shall be constructed to meet monitoring well standards.

511.8 Monitoring Wells: General Performance Requirements

1. A Well Constructors license is required to construct monitoring wells. See all of Section 503. - Licensing.
2. A well constructor shall provide notice as required in Section 505.1 before commencing the construction, alteration, conversion or abandonment of any monitoring well.
3. A Well Report shall be prepared for each monitoring well constructed, altered or abandoned, including unsuccessful monitoring wells. The report shall be certified as correct by signature of the monitoring well constructor constructing the monitoring well. The bonded well constructor responsible for construction of the monitoring well shall also certify the completed report. A well report must be submitted by each constructor (if more than one) or each bonded constructor (if drilling responsibility is shifted to a different bonded constructor), showing the work performed by each constructor or bonded constructor.
 - a) The report shall be prepared in triplicate on forms furnished or previously approved in writing by the Director. The original shall be furnished to the

- Director, the monitoring well constructor shall retain the first copy, and the second copy shall be given to the customer who contracted for the construction of the monitoring well.
- b) The bonded well constructor shall file the well report with the Director within fourteen(14) days after the completion of the construction, abandonment, or alteration of the monitoring well.
 - c) The trainee or well constructor operating the well drilling machine shall maintain a rough log of all geologic strata encountered and all materials used in the construction of the monitoring well. This log shall be available for inspection by the Director or an authorized agent of the Director at any time before the well report is received by the Director. The rough drilling log shall be in handwritten or electronic form, or a voice recording.
 - d) In the event a constructor shall leave any equipment or tools in a monitoring well, the bonded constructor shall enter this fact on the well report.
 - e) A copy of any special authorizations or temporary special standards issued by the Director shall be attached to the well report.
4. The report of monitoring well construction required in this rule shall be recorded on a form provided by the Director. The form shall include, at a minimum, the following:
- a) Owner/Project name (as appropriate);
 - b) Started/Completed date;
 - c) Location of well by county, township, range, section and quarter/quarter section, and either tax lot/allotment number, or street address. If a global positioning system (GPS) is used, the information must be converted to township, range, section and quarter/quarter section, and the latitude and longitude measurements included;
 - d) Purpose of well;
 - e) Construction method;
 - f) Type and amount of sealant used and measured weight of the grout slurry;
 - g) Map showing location of monitoring well on site, must be attached and shall include an approximate scale and a north arrow;
 - h) Such additional information as requested or required by the Director.

511.9 Monitoring Well Construction: General

1. Monitoring well components, including well screens, casings and annular sealant should be selected based on known site characteristics to ensure the well will last for the duration of the monitoring program.
2. No monitoring well shall be used as a water supply well unless it meets the minimum construction standards for water supply wells.
3. No completed monitoring well shall interconnect aquifers.

4. No monitoring well shall be constructed as a multiple completion well without prior special standard approval.
5. Remediation and horizontal wells shall be constructed with special standard approval and only as specified in Section 502.2.
6. The drill hole diameter shall be at least four inches (4") larger than the nominal casing diameter except as noted in Section 511.16 concerning piezometers. If the monitoring well is constructed using a hollow stem auger drilling machine, the inside diameter of the auger must be at least four inches (4") larger than the nominal diameter of the casing to be installed except as noted in Section 511.16, concerning piezometers.
7. Piezometers constructed in areas of known or reasonably suspected contamination or constructed for the purpose of investigating water quality conditions, shall be constructed to meet current monitoring well standards. See Section 511.16 for special construction standards.
8. Materials that foster or promote undesirable organic growth or have the potential to degrade water quality shall not be employed in the construction of any monitoring well.
9. After well completion, the landowner is responsible for maintaining the well in an approved condition. If the well is damaged, the well protection system and casing shall be restored as prescribed by these standards. If the well is damaged beyond repair, the well shall be permanently abandoned in accordance with Section 512.
10. Any deviation from these standards requires special standard approval as specified under Section 502.2.

511.10 Monitoring Well Protection

1. Every monitoring well shall be capped and protected using one of the following methods:
 - a) If the well is cased with steel pipe and completed above the ground surface, a lockable cap shall be attached to the top of the casing;
 - b) If the well is not cased with steel pipe and not completed above the ground surface, a metal protective casing shall be installed around the well. The protective casing shall extend at least six inches above the top of the well casing and at least two (2) feet into the ground. A lockable cap shall be attached to the top of the protective casing; and
 - c) If the top of the well is completed below ground surface, a watertight cap or seal shall be attached to the top of the casing. A protective cover, level with the ground surface, shall be installed with a waterproof seal to

prevent the inflow of surface water. The cover must be designed to withstand the maximum expected loading.

2. All wells completed above ground shall have a minimum casing height of one foot above finished grade and shall be protected from damage by three (3) metal posts at least three (3) inches in diameter, set in and filled with concrete, shall be installed in a triangular array around the casing and at least two (2) feet from it. Each post shall extend at least three (3) feet above and below the ground surface.
3. If the well is to be protected by other surface protection methods, the well constructor shall obtain special standards as described in Section 502.2.

511.11 Monitoring Well Casing

1. All monitoring wells shall have casing.
2. The constructor shall consider the following factors when selecting monitoring well casing:
 - a. The casing installed shall not be readily reactive with the subsurface environment according to best available information;
 - b. The casing installed shall not adversely affect or interfere with the chemical, physical, radiological, or biological constituents of interest according to best available knowledge;
 - c. The collapse strength of all casing used in monitoring well construction must be great enough to withstand the pressure exerted by the annular seal during seal placement, including heat of hydration.
3. All monitoring well casing shall conform to at least 304 or 316 stainless steel, polytetrafluoroethylene PTFE, Schedule 40 PVC casing.
4. All casing installed shall be in new or like new condition, being free of pits or breaks, and shall be cleaned of foreign materials and contaminants prior to installation.

511.12 Additional Standards for Artesian Monitoring Wells

1. Monitoring wells penetrating into an artesian aquifer shall have an upper drill hole at least four (4) inches greater in diameter than the nominal diameter of the permanent well casing. Watertight unperforated casing shall extend and be sealed, according to Section 506., at least five (5) feet into the confining formation immediately overlying the artesian water-bearing zone.
2. If an artesian monitoring well flows at land surface, the well shall be equipped with a control valve and a watertight mechanical cap, so that all flow of water from the well can be completely stopped.

3. All flowing artesian monitoring wells shall be equipped with a pressure gauge placed on a dead-end line. A petcock valve shall be placed between the gauge and well casing.
4. All flowing artesian monitoring wells shall be tested for artesian shut-in pressure in pounds per square inch and rate of flow in cubic feet per second, or gallons per minute, under free discharge conditions. This data shall be reported on the well report.

511.13 Monitoring Well Screen and Filter Pack

- 1) The screen and filter pack, when properly designed and installed, allows a water quality sample to be collected that is representative of water in the formation.
- 2) The well screen shall:
 - a) Be commercially fabricated and constructed of material that is not knowingly readily reactive with the subsurface environment;
 - b) Have a collapse strength great enough to withstand the pressures exerted during construction, development, and use of the monitoring well;
 - c) Be in new or like new condition, being free of pits or breaks;
 - d) Be cleaned using methods outlined in Section 505.4;
 - e) Be centered in the drillhole.
- 3) The use of lead packers with the screen sections is prohibited.
- 4) A bottom cap or end plug shall be installed in each monitoring well casing.
- 5) The filter pack shall:
 - a) Consist of clean, chemically inert, well rounded material;
 - b) Extend at least three (3) feet above the top but not more than one foot below the bottom of the well screen; and
 - c) Be placed in such a manner as to ensure placement opposite the well screen without bridging or size segregation.
- 6) A filter pack seal shall consist of:
 - a) A two-foot thick layer of fine grained sand above the filter pack if a grout or grout slurry is used; and
 - b) A minimum of a three (3) foot thick layer of cement grout.

511.14 Monitoring Well Seals

Well seals shall be constructed consistent and in conformance with the standards set forth in Section(s) 505.23 through 505.25.

511.15 Monitoring Well Development

1. A monitoring well constructor shall not remove the drilling machine from a monitoring well site, unless it is immediately replaced by another monitoring well drilling machine in operating condition, prior to completion or abandonment of the well in compliance with Section 505.28.
2. Installation of the protective metal posts does not require a monitoring well constructor's license, providing the surface seal is not disturbed.
3. Installation of the protective measures described in Section 511.10 shall be completed within one week of placement of the seal.
4. If proper protective measures as described in Section 511.10 are not completed with 24 hours of seal placement, the monitoring well shall be marked, temporarily, using one of the following methods:
 - a) Placement of three (3) stakes around the well connected with fluorescent survey tape;
 - b) Placement of construction barricades around the well; or
 - c) Use of other protective measures as approved by the Director.

511.16 Piezometers

1. A piezometer is a special case of a monitoring well and shall be constructed to meet current monitoring well rules except for the following:
 - a) Drill hole size with depth requirements for non-artesian applications.
 - 1) For piezometers with a sealing depth less than 50 feet deep, the bore hole diameter shall be at least two and one half (2½) inches larger than the nominal casing diameter. If the piezometer is constructed using hollow stem auger drilling machine, the inside diameter of the auger must be at least two and one half (2½) inches larger than the nominal diameter of the casing to be installed.
 - 2) piezometers with a sealing depth greater than 50 feet deep, the bore hole diameter shall be at three (3) inches larger than the nominal casing diameter. If the piezometer is constructed using a hollow stem auger drilling machine, the inside diameter, of the auger must be at least three(3) inches larger than the nominal diameter of the casing to be installed.
 - b) Piezometers penetrating the basalt formation or artesian aquifers shall be constructed and sealed in conformance with Section 506.
 - c) Surface completion.

- 1) If the piezometer is completed above ground, it shall have a minimum casing height of one foot above finished grade and a lockable cap shall be attached to the top of the casing. If vulnerable to damage, the piezometer shall be protected as described in Section 511.10.
 - 2) If the piezometer is completed below ground surface, a cap shall be attached to the top of the casing. A protective cover, level with the ground surface, shall be installed with a waterproof seal to prevent the inflow of surface water. The cover must be designed to withstand the maximum expected loading.
- d) If an artesian piezometer flows at land surface, it shall be equipped with a control valve or a watertight mechanical cap with a petcock, so that all flow of water from the well can be completely stopped.
 - e) Use of commercially fabricated screens are not required for piezometers. The screens installed shall be in new or like new condition, being free of pits or breaks, and shall be free of foreign materials and contaminants prior to installation.

512. ABANDONMENT OF WELLS

512.1 Temporary Abandonment

Any well to be temporarily removed from service, temporarily abandoned due to a recess in construction, or any well to be temporarily abandoned before commencing service, shall be capped with a watertight seal, watertight welded steel cap, or threaded cap. In the event that temporary abandonment is to be of a short duration, or less than ninety (90) days from the date of removal of the drilling machine from the well site, a temporary steel cap may be welded to the well casing with at least four (4) separate welds, evenly spaced, each at least one-half (1/2) of an inch in length. In all cases, caps shall be of steel or cast iron of at least three-sixteenths (3/16) of an inch in thickness.

512.2 Casing, Sealing, and Capping of Temporarily Abandoned Wells

Any well to be temporarily abandoned for any reason shall be capped in conformance with Section 512.1 above and shall be cased and sealed in conformance with Section 505.11 through 505.25.

512.3 Permanent Abandonment

Any well that is to be permanently abandoned shall be completely filled in such a manner that vertical movement of water within the well bore, including vertical movement of water within the annular space surrounding the well casing, is effectively and permanently prohibited. All fluids within a well are to be permanently confined to the specific strata in which they were originally encountered.

512.4 Abandonment of Uncased Wells in Unconsolidated Formations

Uncased wells to be abandoned that extend only into unconsolidated materials shall be completely filled with the excavated material or with material of particle gradation similar to the excavated material.

(See Appendix C, Figure 13)

512.5 Abandonment of Uncased Wells in Consolidated Formations

Uncased wells to be abandoned that penetrate a water-bearing rock formation shall be filled with concrete or cement grout, or alternating layers of cement grout or concrete and clean gravel throughout the water-producing horizon. A concrete or cement grout plug shall be constructed from the top of the basalt or consolidated formation to a depth of at least twenty (20) feet below the top of the rock formation. The remainder of the well above the rock formation shall be filled to land surface with cement grout or concrete. Plugs of cement grout or concrete, at least three (3) feet in length, shall be placed in non-producing zones between all water-bearing zones. In all cases, a cement grout or concrete plug, at least five (5) feet in length, shall be constructed in a non-producing stratum immediately above the uppermost water-bearing zone. The grout shall be applied through a grout pipe extending to the bottom of the well. The grout pipe shall be gradually removed during the grouting process, and the bottom of the pipe shall be submerged in grout at all times during the period the grout is being placed. The grout pipe shall be withdrawn before the initial set of the grout.

(See Appendix C, Figure 14)

512.6 Abandonment of Cased Wells

If the well casing or the liner pipe is not removed during the abandonment of a well, the casing or liner shall be thoroughly ripped or perforated throughout the water-producing zones and throughout all non-producing zones between the aquifers. The annular space between the casing or liner and the drill hole wall shall be effectively and completely filled with cement grout applied under pressure. The remainder of the well shall be filled with cement grout or concrete. Uncased horizons in a cased well to be abandoned shall be filled in accordance with Section 512.5. The casing of wells to be abandoned may be severed below land surface and removed.

(See Appendix C, Figure 15)

512.7 Abandonment of Artesian Wells

The flow of artesian wells to be abandoned shall be confined or restricted by cement grout applied under pressure, or by the use of a suitable well packer, or a wooden plug placed at the bottom of the confining formation immediately above the artesian water-bearing zone. Cement grout or concrete shall be used to effectively fill the well to land surface in accordance with Section 505.20.

(See Appendix C, Figure 16)

512.8 Abandonment of Filter Pack Wells

Appropriate methods of abandonment of filter pack or gravel enveloped wells, or other wells in which coarse material has been added around the inner casing

should be determined individually by the responsible well constructor. Variance and approval should be obtained from the Director prior to abandonment.

512.9 Abandonment of Geotechnical Holes

Any geotechnical hole that has completed the purpose for which it was constructed shall be permanently abandoned consistent with the procedures and standards of this Section (512).

512.10 Abandonment of Monitoring Wells

Proper abandonment of monitoring wells shall prevent both vertical movement of water within the well bore and infiltration of surface water into the well. Abandonment procedures shall meet all of Section 512., including the following:

1. In areas where groundwater contamination has been identified, abandonment shall require the drill hole to be completely reamed or redrilled to a minimum of the original diameter. All casing, screen, annular sealing material, drill cuttings, debris, and filter pack material shall be removed prior to sealing.
2. In areas where groundwater contamination has not been identified, if it can be verified that the monitoring well was constructed in accordance with these standards, it shall be abandoned by filling the well from the bottom up with an approved sealant as described in Section 300.500.200. The casing shall then be removed below grade, as compatible with local land use. The following are acceptable methods of original well construction verification:
 - a) A well report acceptable to the Director;
 - b) Well construction information submitted to the Director;
 - c) Information obtained through down-hole geophysical logging; or
 - d) Other information as approved by the Director.
3. In areas where groundwater contamination is not present, if the monitoring well construction cannot be verified by means listed in sub-section (B) of this standard, the well shall be abandoned according to sub-section (A) of this standard.
4. Grout slurries shall be placed from the bottom up by a grout pipe to avoid segregation or dilution of the sealant. The discharge end of the grout pipe shall be submerged in the grout to avoid breaking the seal while filling the well space. Grout slurries used to abandon monitoring wells shall conform to the requirements of Section 505.20.
5. The abandonment procedure shall be recorded on a form provided by, or previously approved in writing by, the Director. The form shall include, as a minimum, the following:
 - a) Owner/Project name (as appropriate);
 - b) Start/Completed date;

- c) Location of well by county, township, range, section and quarter/quarter section and either tax lot or street address. If a global position system is used, the information must be converted to township, range, section and quarter/quarter section and the latitude and longitude measurements included;
 - d) Permit number and/or well identification number;
 - e) Type of work;
 - f) Method of abandonment;
 - g) Type and amount of sealant used and measured weight of the grout slurry as required in Section 505.20;
 - h) A map showing location of the monitoring well on site must be attached and shall include an approximate scale and north arrow;
 - i) Such additional information as required by the Director;
6. The well abandonment shall be recorded and reported to the Director within seven (7) days of abandonment.
 7. When abandoning artesian monitoring wells, in addition to sections (A)-(F) of this sub-section, the flow shall be confined or restricted by cement grout applied under pressure, or by the use of a suitable well packer, or a plug placed in the bottom of the confining formation immediately above the artesian water bearing zone. An approved sealant shall be used to fill the well to land surface as specified in Section 505.20.

512.11 Special Standards For Abandonment of Temporary Monitoring Wells

1. Specific site conditions may require design, construction, and abandonment procedures to adapt to the existing local geologic and groundwater conditions to fully utilize every natural protection to the aquifers. Specific site conditions may require different design, construction, or abandonment standards than required by the Monitoring Well or Geotechnical Hole construction standards. Alternate technologies not addressed in these standards may also exist which could be utilized in the construction or abandonment of a monitoring well or geotechnical hole. The constructor must request in writing, and receive, written approval from the Director to use methods or materials that do not meet monitoring well construction standards prior to completion or abandonment of the well or hole. The proposed methods or materials shall prevent or eliminate contamination or waste of groundwater or loss of artesian pressure.
2. The written request shall include:
 - a) The purpose of well or hole construction or abandonment;
 - b) Location of well or hole by township, range and section;
 - c) Name and address of the project site;
 - d) The distance to the nearest well or hole and septic drain field;

- e) The reasons that conformance to the rules and regulations for monitoring wells or geotechnical holes cannot be met;
- f) A diagram showing the proposed monitoring well or geotechnical holes design, construction, or abandonment; and
- g) The start/card well identification number for monitoring wells.

512.12 Removal of Well Casing During Abandonment

If the casing of a well is removed during abandonment, the well shall be plugged and sealed in accordance with Section 512.4 through 512.5 and shall be filled with sealing materials as the casing is removed.

512.13 Obstructions

All obstructions or debris that may interfere with effective sealing operation shall be removed from the well to be abandoned.

512.14 Cement Grout

Cement grout for use in abandonment operations shall conform to the requirements of Section 505.20.

512.15 Concrete

Concrete for use in abandonment operations shall conform to the requirements of Section 508.5.

512.16 Method of Placement of Concrete or Cement Grout

Concrete or cement grout used as a sealing material in abandonment operations shall be introduced at the bottom of the well or required sealing interval and placed progressively upward to the top of the well. All such sealing materials shall be placed by the use of a grout pipe, in order to avoid segregation or dilution of the sealing materials.

512.17 Report on Abandonment

A well report, fully describing all abandonment procedures, shall be submitted to the Director.

513. ENFORCEMENT

513.1 Investigation of Alleged Violations

The Director, upon the Director's own initiative, or upon complaint alleging violation of these standards or rules governing licensing, construction, alteration, or abandonment of water supply wells, monitoring wells, geotechnical wells or other holes may cause an investigation to determine whether a violation has occurred. If the investigation indicates that a violation has occurred, the Director shall notify the persons believed responsible for the violation including but not limited to:

1. Any well constructor or well constructor trainee involved;

2. The landowner, if the violation involves construction, alteration, operation or abandonment of a well;
3. Any registered geologist or civil engineer involved in construction, alteration, or abandonment of a geotechnical hole.

513.2 Evidence of Failure to Comply With Special Standards

Evidence of failure to comply with the requirements of special standards as described in Section 502.2, includes, but is not limited to, the following:

1. A specific standard to which the Director has agreed is violated;
2. Evidence that contamination is occurring as a result of the well construction;
3. Evidence that wasteful use of groundwater is occurring.

513.3 Enforcement Actions

Enforcement of the Well Construction Standards shall be carried out through the violation procedures established in the Tribal Water Code.

513.4 Change in Enforcement Status

1. In the interest of achieving compliance, the Director at any time may reevaluate the status of the violation(s) and take appropriate action, including but not limited to reduction of the enforcement level.
2. The Director may terminate proceedings against a well constructor if the constructor provides acceptable evidence that:
 - a) The landowner does not permit the constructor to be present at any inspection made by the Director; or
 - b) That the constructor is capable of complying with requirements imposed by the Director, but the landowner does not permit the constructor to comply. In such cases, the landowner is responsible for bringing the well into compliance and if the landowner was not a party to the original enforcement proceeding the Director may initiate a proceeding to ensure that the landowner brings the well site into compliance at the expense of the landowner.

APPENDIX A – RECOMMENDATIONS FOR DISINFECTING WATER WELLS

Every newly constructed well or modified well should be assumed to be contaminated by microorganisms. Before the initiation of use, each well must be thoroughly and carefully cleaned and treated to ensure that all disease carrying organisms are eliminated. Care should be exercised to make certain that all areas of a well come into intimate contact with a solution containing enough available chlorine to completely destroy all harmful bacteria. An initial chlorine concentration of 50 parts per million (ppm) with a residual chlorine requirement of 25 ppm after 24 hours is considered adequate for this purpose. Either domestic laundry bleaches containing sodium hypochlorite, such as Clorox or Purex, or calcium hypochlorite in powder or tablet form (Olin HTH) may be used.

Hypochlorite solutions should be thoroughly mixed throughout the well either by the use of drilling tools, a pump, or by placing a calculated number of HTH tablets at regular intervals on a nylon string and dissolving them in place throughout the well. In all cases, the well casing and pump column standing above the water table should be thoroughly cleaned of all grease and oil and should be carefully washed down with the hypochlorite solution.

The well should be allowed to remain undisturbed after the treatment for a period of 24 hours and then tested for residual chlorine (at least 25 ppm must remain). After successful treatment, all water remaining in the well and supply system should be run to waste and a sample of fresh water from the well tested by the local county sanitarian for bacteriological purity.

Solutions Containing Hypochlorite

Laundry Bleach

Common domestic laundry bleaches contain from 5.25 percent to 6.00 percent sodium hypochlorite. These amounts are equivalent to approximately 2.5 percent available chlorine or about 25,000 ppm as originally purchased. A one gallon container of liquid bleach mixed with 500 gallons of water will dilute the original solution to approximately 50 ppm available chlorine.

High-Test Hypochlorite Compounds

Calcium hypochlorite (Olin HTH) in powder or tablet form contains about 50 percent active chlorine. One ounce of dry HTH powder mixed with 75 gallons of water will result in a solution containing approximately 50 ppm available chlorine. Eight tablets (1/8 oz.) of HTH are equivalent to one ounce of dry powder or granules.

Quantity of Hypochlorite Needed to Provide 50 PPM Active Chlorine in Well Water

If using liquid bleaches, the following formula is applicable:

Feet of water in well X Gallons per foot / 62 = Pints of Bleach needed

Feet of water = Total depth of well minus static water level from the top of the well multiplied by gallons per foot (See Table D.)

If using HTH compounds, the following formula is applicable:

Feet of water X Gallons per foot / 1.75 = Ounces HTH needed

If HTH tablets are used:

Feet of Water X Gallons per foot / 9 = Number of 1/8 oz. tablets needed

Table I
Capacity of Drillhole or Casing

Normal Size (inches)	Gallons per linear foot
2	0.163
4	0.653
5	1.020
6	1.469
7	1.999
8	2.611
9	3.305
10	4.080
11	4.937
12	5.875
14	7.997
16	10.445
18	13.219
20	16.320
24	23.501

APPENDIX B-- RECOMMENDED METHODS OF PLACEMENT OF CEMENT GROUT

Method A –

The well bore shall be plugged with a drillable plug or bridge at the lowest point to be sealed. A well casing with a float shoe at its lower end shall be placed in the well and suspended slightly above the point of bearing. A grout pipe fitted with a check valve shall be run inside the casing to a drillable packer at the bottom of the casing. The grout pipe shall be connected to a suitable pump and water or drilling fluid shall first be circulated to clear the annular space. Grout shall be pumped through the grout pipe until clean grout completely fills the interval to be sealed. The grout pipe shall then be removed and the cement allowed to set. (Figure 2)

Method B –

Grout shall be placed by pumping or air pressure injection through a grout pipe installed inside the casing from the casing head to a point five (5) feet above the bottom of the casing. The grout pipe shall extend through an airtight sealed cap on the head of the well casing. The casing head shall be equipped with a relief valve and the grout pipe shall be equipped at the top with a valve permitting injection. The lower end of the grout pipe and the casing shall be open. Clean water shall be injected down the grout pipe until it returns through the casing head's relief valve. The relief valve is then closed and injection of water is continued to clean the hole until it flows from the drill hole outside the casing to be grouted in place. Without significant interruption grout shall be substituted for water and, in a continuous manner, injected down the grout pipe until it returns to the surface outside of the casing. A small amount of water may be used to flush the grout pipe, but the pressure should remain constant on the inside of the grout pipe and the inside of the casing until the grout has set. Pressure shall be maintained for at least twenty-four (24) hours, or until such time as a sample of the grout indicates a satisfactory set. Neat cement grout shall be used for this procedure with a minimum annular space of three (3) inches completely surrounding the casing. (Figure 2)

Method C –

The drill hole shall be plugged with a drillable packer or bridge at the lowest point to be sealed. The well casing shall be firmly seated at the bottom of the drill hole. A grout pipe shall be run to the bottom of the hole through the annular space between the casing and the well bore. After water or any other drilling fluid has been circulated in the annular space sufficiently to clear obstructions, the grout pipe shall be connected to a suitable pump and grout shall be pumped through the grout pipe until clean grout is circulated to land surface, or until grout completely fills the interval to be sealed. The lower end of the grout pipe shall remain submerged in grout at all times during the period that grout is being placed. The grout pipe shall be withdrawn before the initial set of the grout. (Figure 2)

Method D –

The drill hole shall be plugged with a drillable packer or bridge at the lowest point to be sealed. After the casing is run and landed, a casing plug, having a length greater than the diameter of the casing, shall be placed in the casing. If the drill hole is free of mud or water, this lower separation plug may be eliminated. A measured amount of cement grout necessary to completely fill the annular space of the interval to be grouted is pumped or placed by bailer in the casing. A second casing plug, having a length greater than the diameter of the casing, shall be placed in the casing above the grout, and the casing shall be capped with a pressure cap and shut-off valve, and shall be connected to a suitable pump. The casing shall then be raised far enough above the point of bearing to clear the first separation plug. Water or drilling mud shall then be pumped under pressure into the casing, forcing the grout and upper casing plug down the casing. A measuring line should be run behind the upper plug so that the position of the plug may be known at all times. A small amount of the grout shall be allowed to remain in the lower end of the casing. When the plug reaches the point desired above the bottom of the casing, the pump shall be stopped and the casing seated. (Figure 2)

Method E –

The drill hole shall be plugged with a drillable packer or bridge at the lowest point to be sealed. A sufficient amount of cement grout to completely fill the interval of the well to be sealed shall be placed at the bottom of the drill hole by dump bailer, grout pipe, or tremie pipe. The bottom of the well casing shall be fitted with a tight drillable plug and shall be lowered into the drill hole forcing the grout upward into the annular space. Gravity installation without the aid of a tremie or grout pipe shall not be used. In no instance shall this method be used beyond a depth of thirty (30) feet and in no case for a municipal, community, or public water supply well. (Figure 2)

APPENDIX C - FIGURES

1. Recommended Use of Centering Guides.
2. Cement Grout Placement.
3. Sealing of Drilled Well in Unconsolidated Formations Without Significant Clay Beds.
4. Sealing of Drilled Well in Unconsolidated Formations With Significant Clay Beds.
5. Sealing of Drilled Well in Consolidated Formations – Method 1.
6. Sealing of Drilled Well in Consolidated Formations – Method 2.
7. Sealing of Drilled Well in Consolidated Formations – Method 3.
8. Sealing of Filter-Packed Well With Surface Casing.
9. Sealing of Filter-Packed Well Without Surface Casing.
10. Sealing of an Artesian Well.
11. Sealing of Driven or Jetted Well.
12. Sealing of Dug Wells.
13. Abandonment of Uncased Well in an Unconsolidated Formation.
14. Abandonment of Uncased Well in a Consolidated Formation.
15. Abandonment of a Cased Well.
16. Abandonment of Artesian Well.
17. Suggested Methods for Installing Access Ports, Pressure Gauges, and Air Lines for Measuring Water Levels in Wells.

Figure 1. Recommended Use of Centering Guides

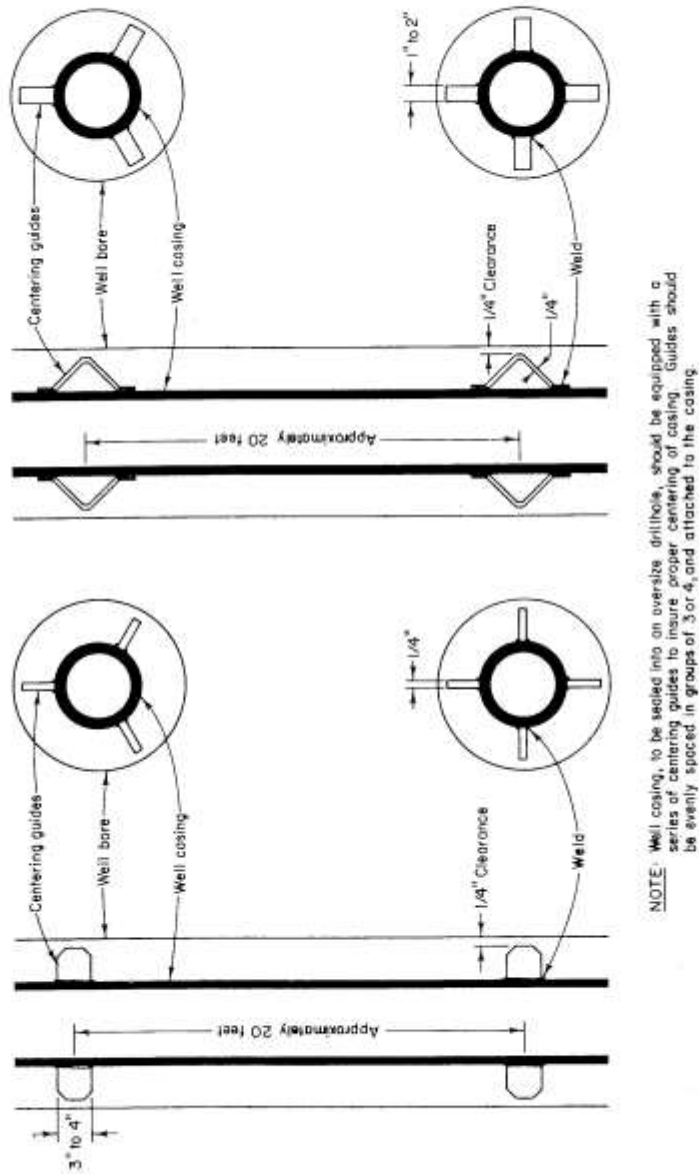
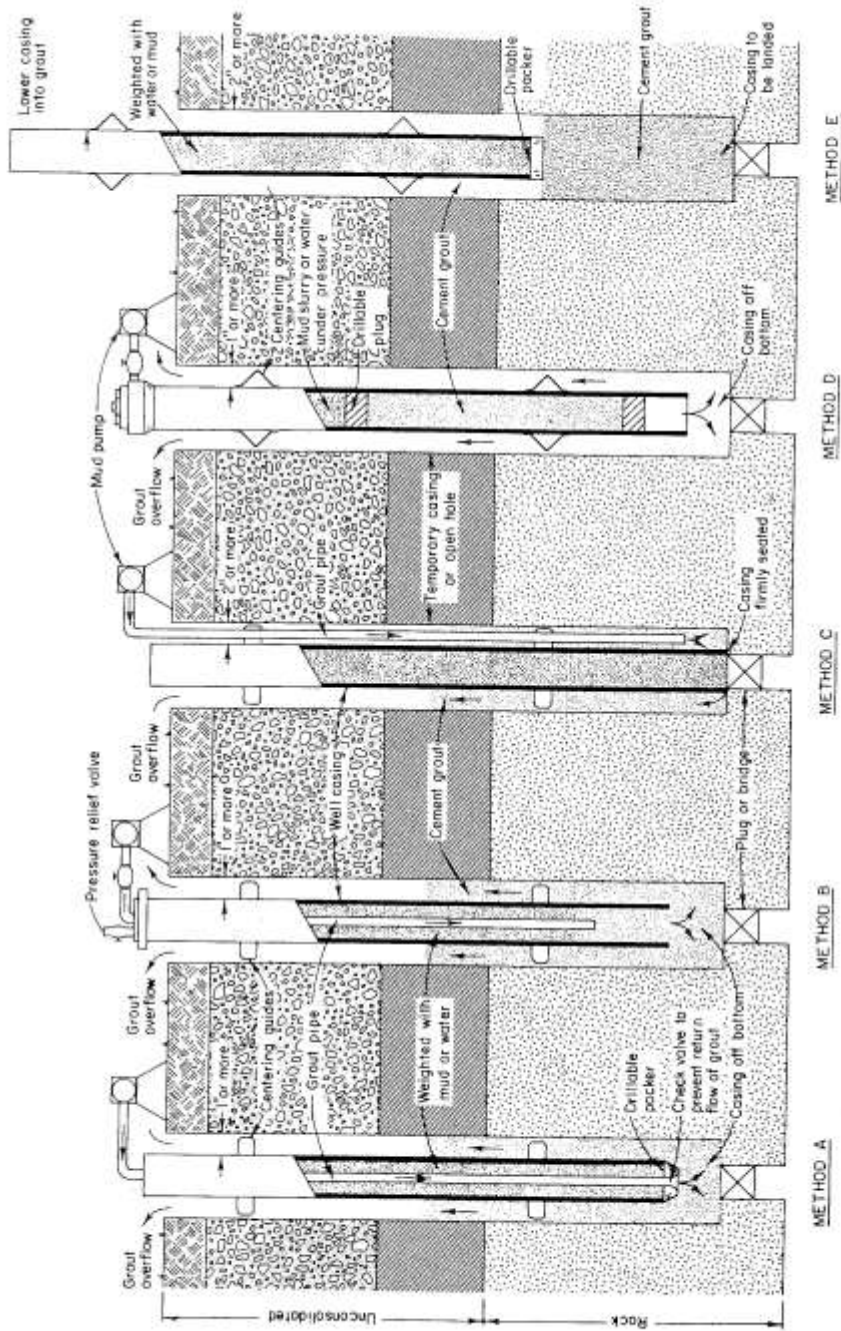


Figure 2. Cement Grout Placement



Note: If Method E is used to place the seal, centering guides must be attached to the casing

Figure 3. Sealing of a Drilled Well in Unconsolidated Formation Without Significant Clay Beds

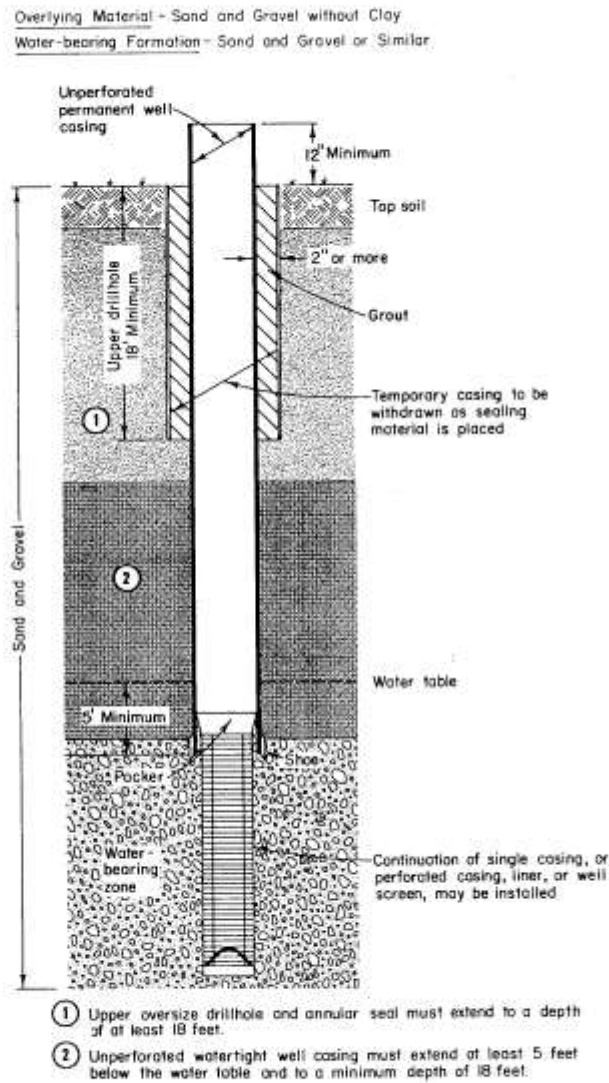


Figure 4. Sealing of a Drilled Well in Unconsolidated Formation With Significant Clay Beds

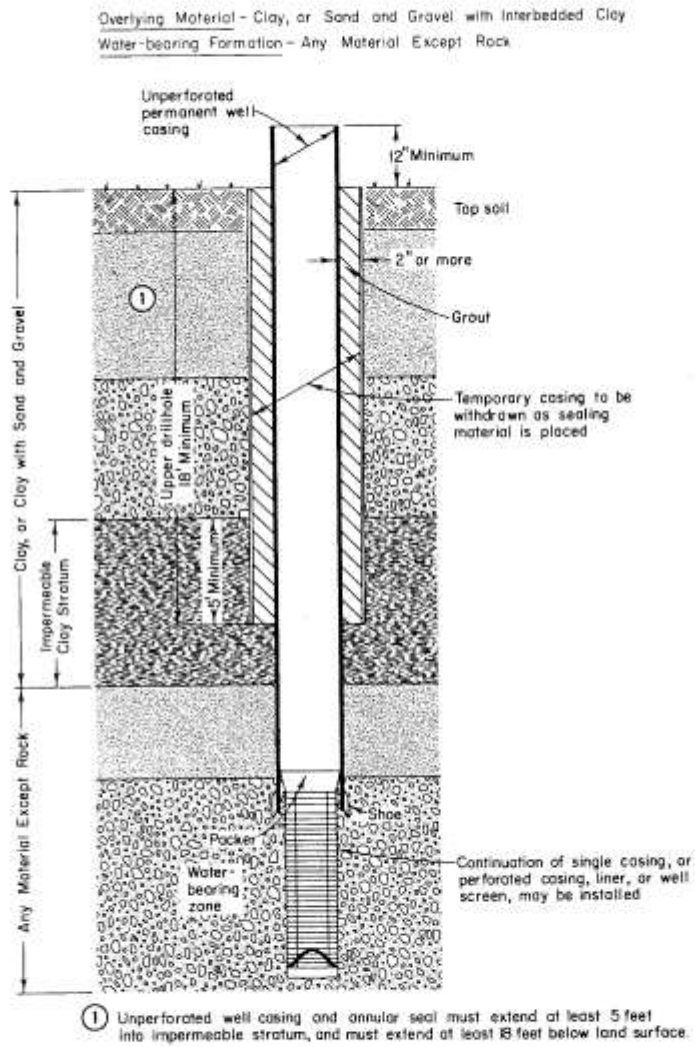


Figure 5. Sealing of a Drilled Well in consolidated Formation – Method #1

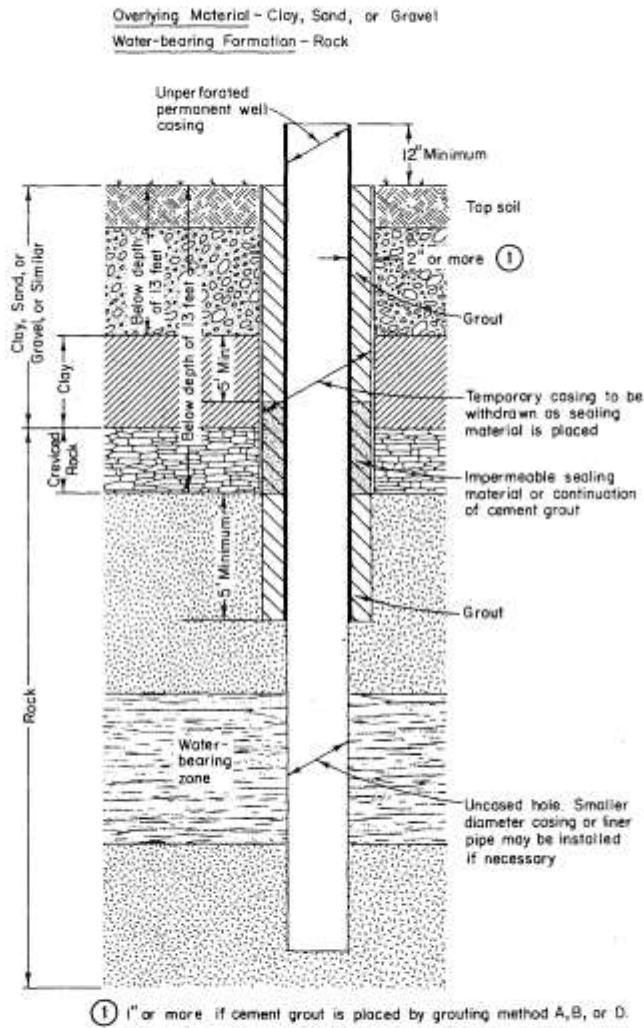


Figure 6. Sealing of a Drilled Well in Consolidated Formation – Method #2

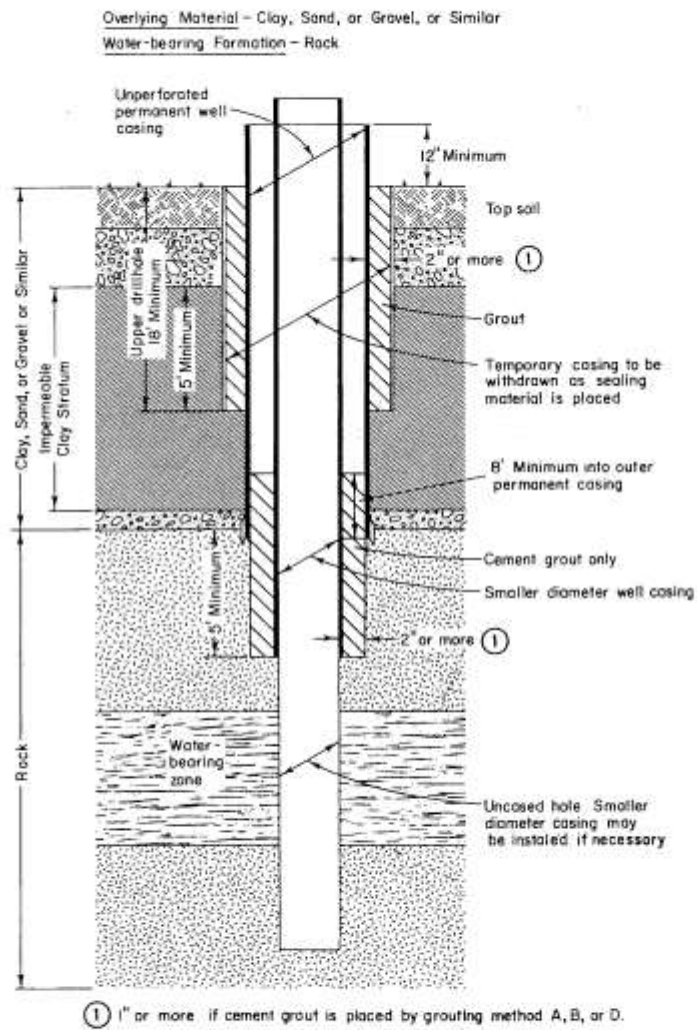


Figure 7. Sealing of a Drilled Well in Consolidated Formation – Method #3

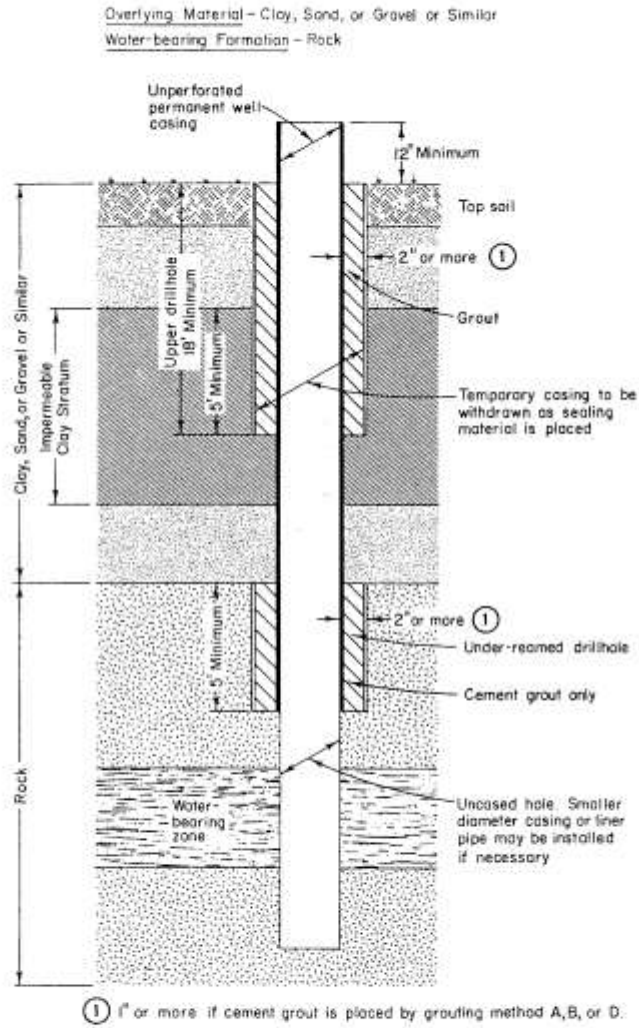


Figure 8. Sealing of Filter-Pack Well With Surface Casing

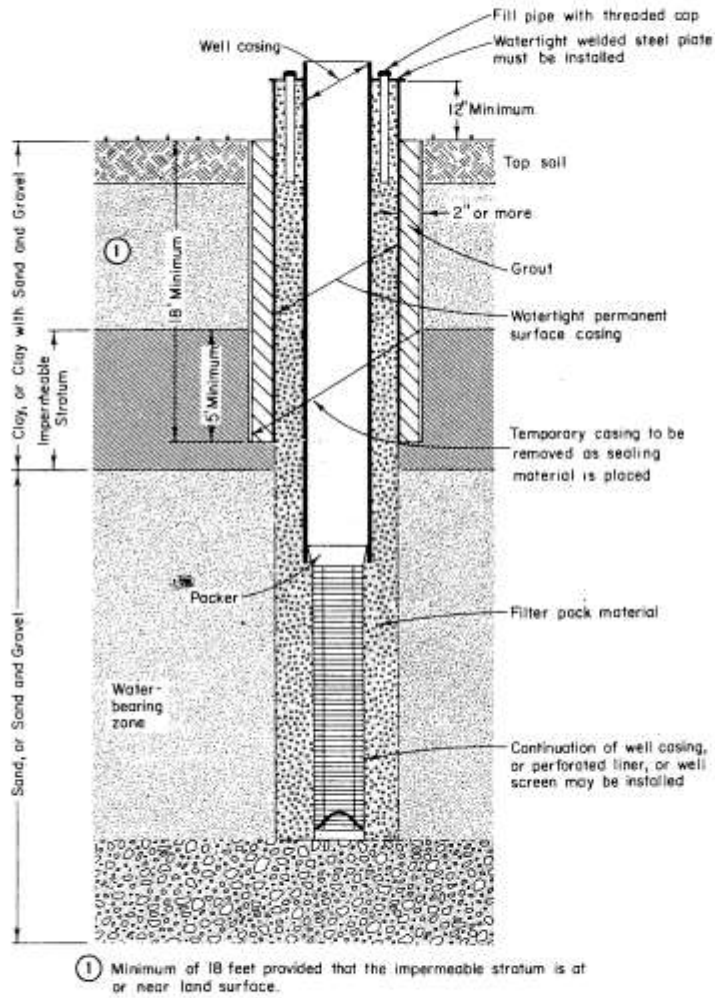


Figure 9. Sealing of Filter-Pack Well Without Surface Casing

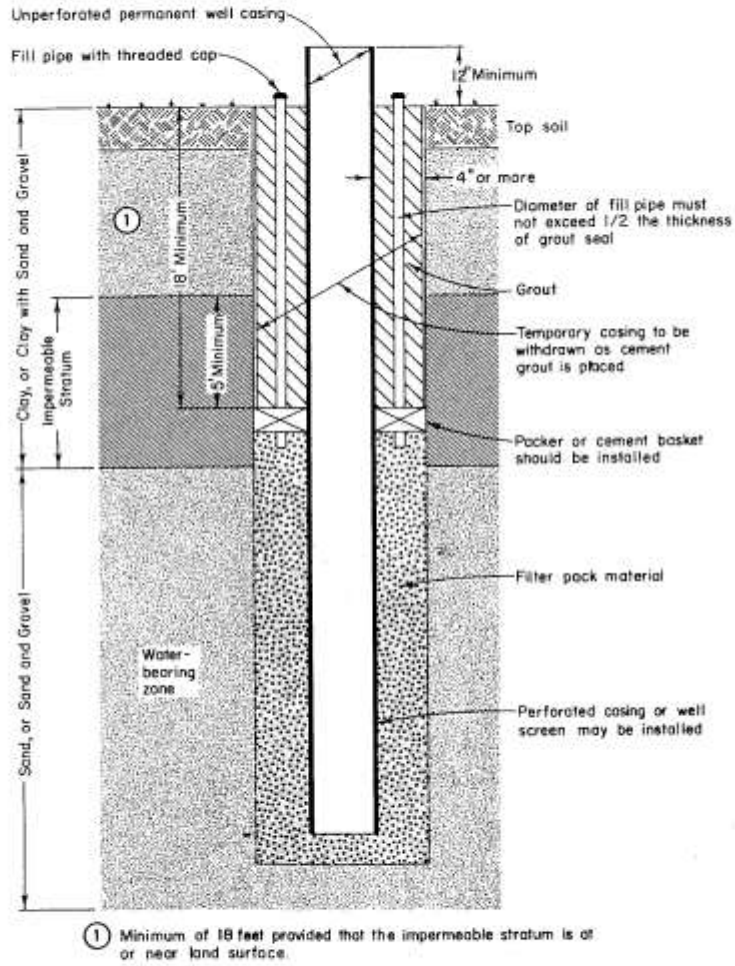


Figure 10. Sealing of Artesian Well

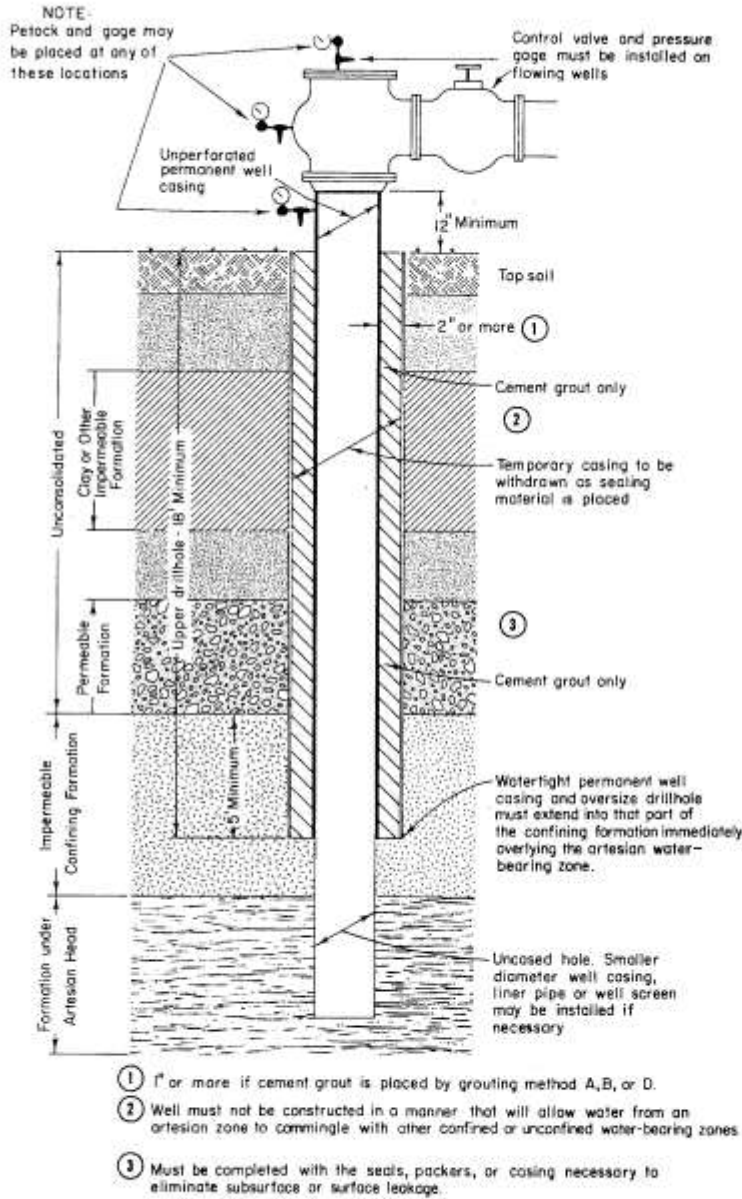


Figure 11. Sealing of Driver of Jetted Wells

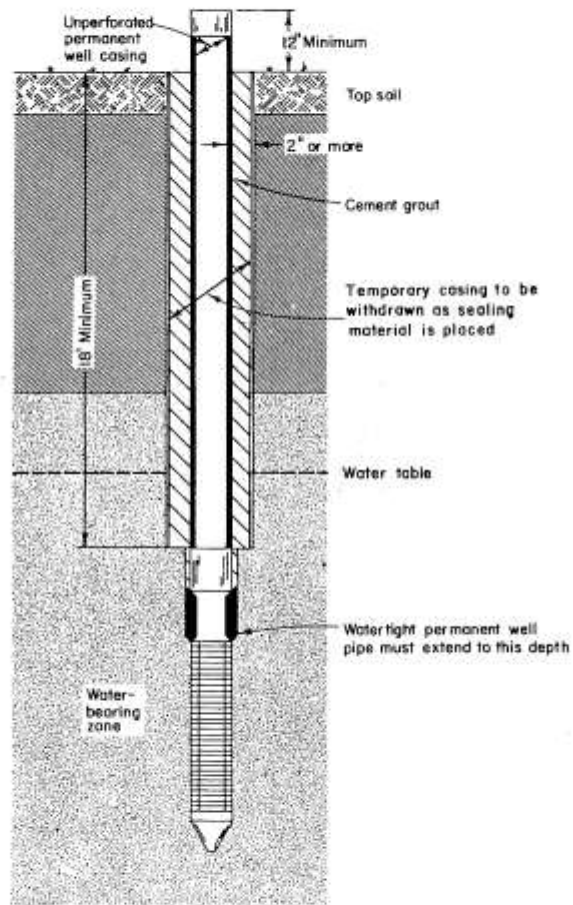


Figure 12. Sealing of Dug Wells

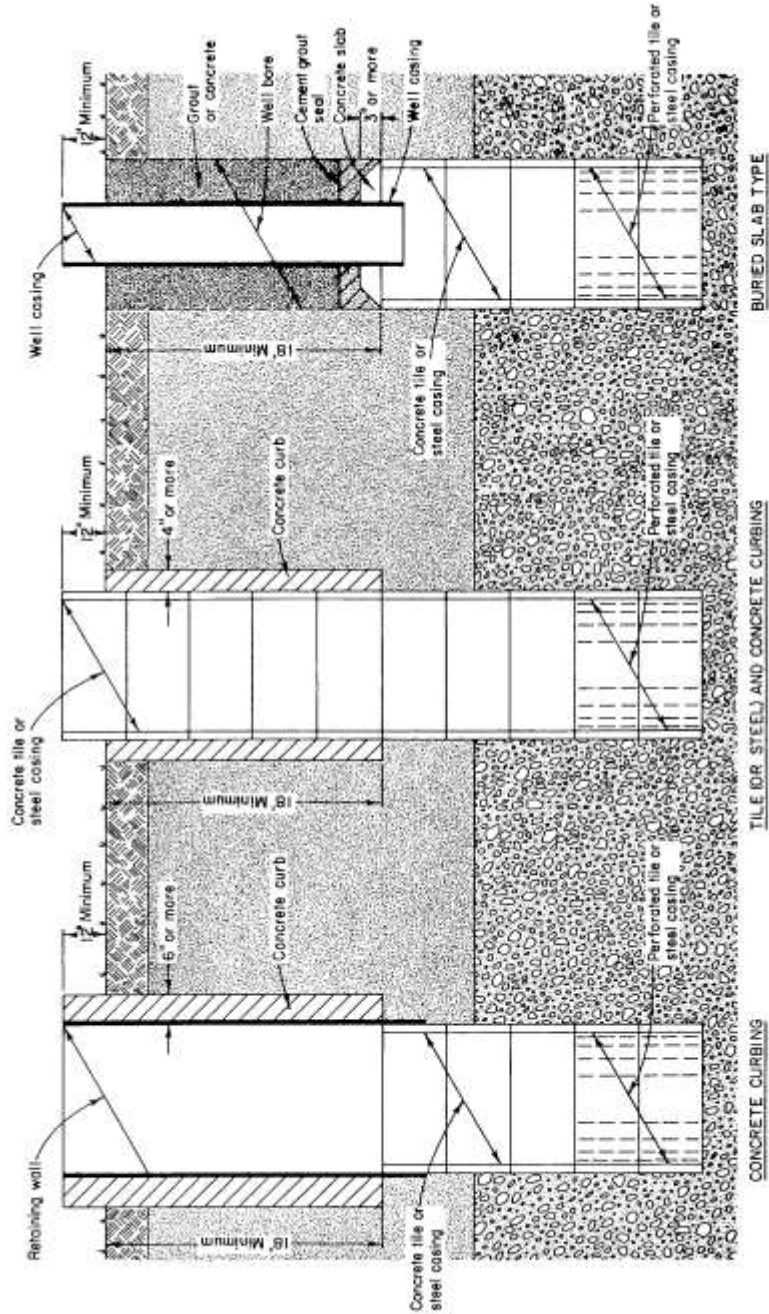


Figure 13. Abandonment of Uncased Well in Unconsolidated Formation

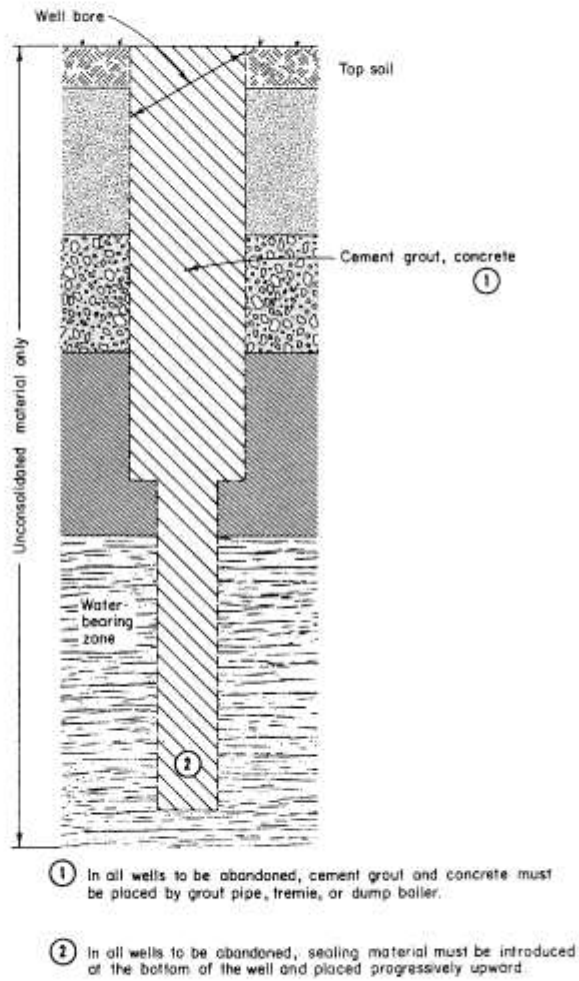


Figure 14. Abandonment of Uncased Well in Consolidated Formation

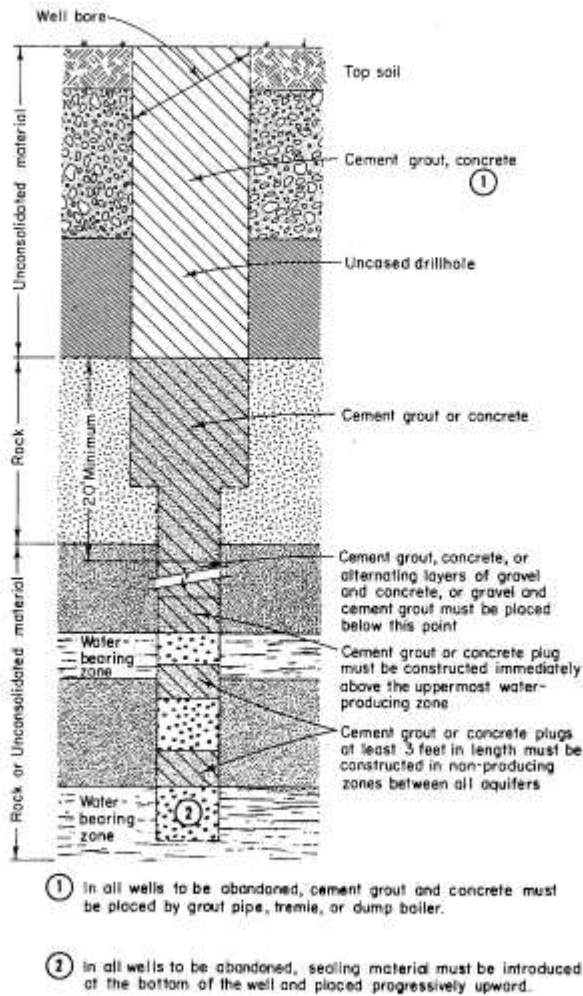
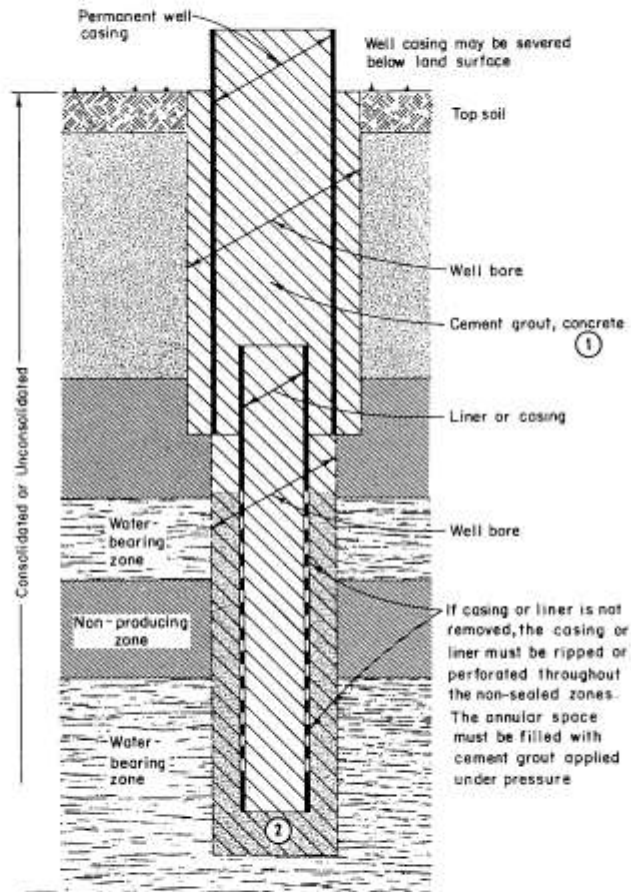
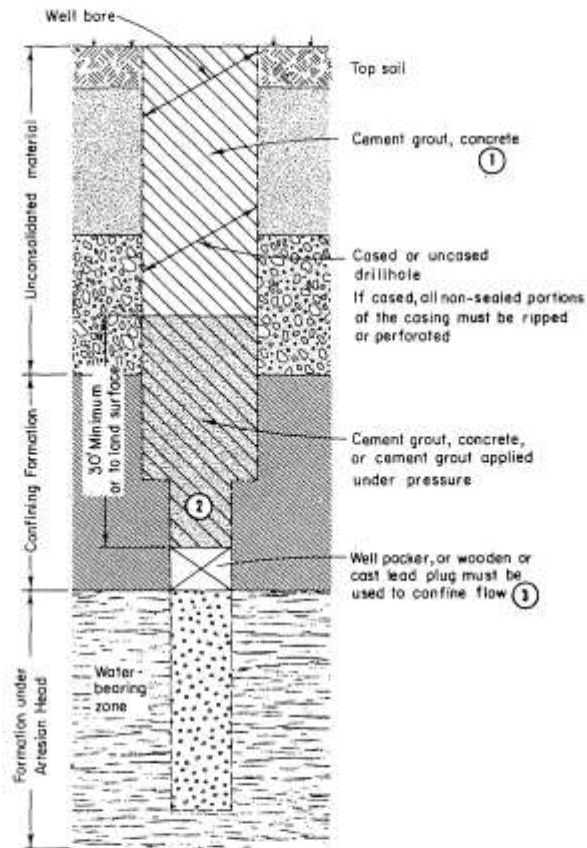


Figure 15. Abandonment of Cased Well



- ① In all wells to be abandoned, cement grout and concrete must be placed by grout pipe, tremie or dump bailer.
- ② In all wells to be abandoned, sealing material must be introduced at the bottom of the well and placed progressively upward.

Figure 16. Abandonment of Artesian Well

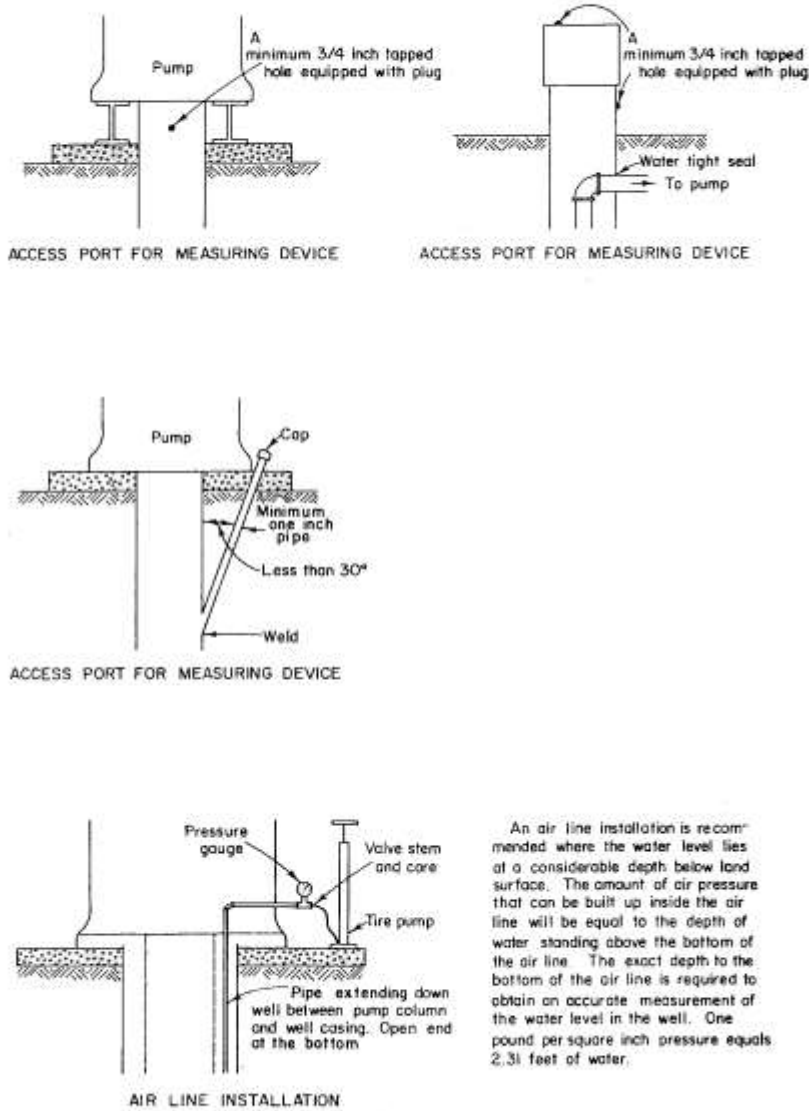


① In all wells to be abandoned, cement grout and concrete must be placed by grout pipe, tremie or dump boiler.

② In all wells to be abandoned, sealing material must be introduced at the bottom of the well and placed progressively upward.

③ Preshaped or precast plugs should be several times longer than the diameter of the well to prevent tilting.

Figure 17. Suggested Methods of Installing Access Ports, Pressure Gauges and Air Lines



LEGISLATIVE HISTORY:

1) ADMINISTRATIVE RULES AND STANDARDS TO THE WATER CODE:

Adopted by the Water Commission March 02, 2004 – Water Commission Resolution 04-001

***2) ADMINISTRATIVE RULES AND STANDARDS TO THE WATER CODE,
Water Quality Section, amended***

Section 401.4

Section 405.1; a, 13, b,

Section 404.1:5

Section 405.2; a,1,b; 2,a,2; 2,a,3; 2,b,2; 2,b,3

Section 404.4,2

Appendix A Table 2 Footnote “2”

Section 404.8; 2; 404.8; 3; 404.8; 5; 404.8; 6, 404.8; 7,

Appendix A Table 3 in its entirety

Adopted by the Water Commission September 7th, 2010 – Water Commission Resolution 10-001