State of Oregon
Department of Environmental Quality Memorandum

Date: April 13, 2012

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda item I, Rulemaking: Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon
April 25-27, 2012, EQC meeting

Why this is important

The proposed rule amendment corrects the water quality standards for an irrigation canal to protect the beneficial uses appropriate for the West Division Main Canal in the Umatilla Basin. The amendment revises water quality criteria in accordance with designated use revisions. In addition, the rule change will affect the municipal discharge options potentially available to the city of Hermiston.

DEQ recommendation and EQC motion

DEQ recommends that the commission adopt the proposed amendments to OAR 340-041-0310 and OAR 340-041-0315, which are the basin specific water quality standards for the Umatilla Basin, and to OAR 340-041-0002 (Definitions), as shown in attachment A.

Background and need for rulemaking

During consideration of wastewater treatment plant discharge alternatives, the city of Hermiston pointed out that the water quality standards applicable to the West Division Main Canal, an irrigation water diversion and conveyance, were inappropriate and asked DEQ to review those standards. DEQ agreed that the canal's standards were incorrect and agreed to conduct a rulemaking to revise them. Please see the Standards Revision Report provided in attachment D for additional information.

This rulemaking will affect the city's evaluation of the potential option to discharge to the canal, as described further below.

Background on proposed water quality standards revisions

The water quality standards that apply to a given waterbody consist of the designated beneficial uses of the waterbody and the water quality criteria needed to protect those uses. In the past, DEQ designated beneficial uses broadly, including fish and aquatic life, fishing and domestic water supply as designated uses for whole basins. As a result, all the beneficial uses and water quality criteria for the Umatilla River and its tributaries also apply to the West Division Main Canal, a man-made irrigation canal, though it was not an intentional policy goal that

the canal support all of these uses. In addition, when DEQ adopted fish use maps in 2003, the agency had to lump large areas of streams due to the short court-ordered timeline DEQ was given to map all waters in the state. DEQ did not have time to investigate the appropriate uses for individual waters, such as canals, and DEQ recognized that there would be errors that would need to be corrected.

DEQ proposes to remove five uses (next page). Of these, three are identified in Section 101(a) of the Clean Water Act: fish and aquatic life, fishing and boating (recreation). Because DEQ proposes to remove uses specified in Section 101(a), a *use attainability analysis* is required. A use attainability analysis is "a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g)." This is the first time DEQ has completed a use attainability analysis.

Background on the potential discharge to the canal

The city of Hermiston's wastewater treatment plant is about 30 years old and cannot meet the water quality standards and TMDL requirements for the Umatilla River (particularly temperature). The plant is currently permitted to discharge to the Umatilla River year round, but effluent limits for temperature and ammonia are at times exceeded. The city is currently under a mutual agreement and order with DEQ that includes scheduled objectives for compliance with permit requirements. Under the same permit, the city may land apply their effluent at a local ranch during the irrigation season. Because the city's permit expires Aug. 31, 2012, they have been conducting facility planning and evaluating discharge alternatives. The city has concluded that the most reliable, sustainable and affordable alternative over time is to upgrade their treatment plant, treat the effluent to Class A water reuse levels using a membrane bioreactor, and discharge to the irrigation canal during the growing season. The treatment plant will continue to discharge to the Umatilla River from about Nov. 1 through mid-March. This plan would eliminate direct land application, as well as warm season discharge to the river. The city’s wastewater would comprise roughly 2.5 percent of the total flow in the canal. Class A is the highest quality of reuse water and may be used for any agricultural or horticultural purpose.

Because the revised standards for the canal are less stringent than the Umatilla River for the pollutants of greatest concern, the potential for the city to discharge to the canal rather than the Umatilla River during the irrigation season becomes a more feasible option. The treatment plant would eliminate their discharge to the Umatilla River during much of the year, when the water quality of the river is impaired for temperature

and TMDL targets have yet to be achieved.

Effect of rule

The proposed rule revises water quality standards for the West Division Main Canal and identifies two segments to the canal, the constructed channel and the overflow channels. The rule removes the following beneficial uses for both segments of the canal:

- Fish and aquatic life
- Fishing
- Boating
- Public domestic water supply
- Private domestic water supply

For the overflow channel segment, DEQ proposes to designate a subcategory of fish and aquatic life called *modified aquatic habitat* to replace the more general *fish and aquatic life* designation. This use designation recognizes the presence of limited habitat qualities in the highly modified overflow channels.

The following current beneficial uses remain in place for both segments of the canal:

- Irrigation
- Livestock watering
- Water contact recreation
- Wildlife and hunting
- Aesthetic quality
- Industrial water supply
- Hydropower

To protect the irrigation and livestock watering uses, DEQ proposes numeric and narrative water quality criteria. Additional criteria are proposed for the overflow channels segment to protect the *modified aquatic habitat* use. DEQ is not revising the existing bacteria standard associated with water contact recreation. The proposed suite of numeric and narrative criteria are also sufficient to protect the other, less-sensitive uses of the canal.

New numeric criteria are established to protect irrigation and livestock watering, as shown in attachment A. DEQ based the criteria on available U.S. Environmental Protection Agency recommendations. EPA's water quality criteria recommendations for agriculture date from 1972, and water quality data for the canal is sparse. Therefore, DEQ's approach to ensure water quality standards are appropriately set and implemented uses a combination of numeric and narrative criteria. To protect the *modified aquatic habitat* use, DEQ proposes to apply the existing dissolved oxygen criterion associated with warm-water aquatic

life and the existing pH criterion for the Umatilla basin to the overflow channels, in addition to the numeric and narrative criteria that apply to the entire canal. See the Standards Revision Report in attachment D for information regarding the proposed criteria.

If the commission adopts the proposed amendments, DEQ will use the revised criteria to permit any proposed discharge to the canal. The permit would require monitoring to ensure its effluent is of sufficient quality to meet water quality standards. Permits are re-visited on a five-year cycle.

Commission authority

The commission has authority to take this action under ORS 468.020, 468B.030, 468B.035 & 468B.048

Key issues

1. How existing and attainable uses were determined.

   Federal regulations specify that states may not remove existing uses, defined as those uses actually attained in the waterbody on or after Nov. 28, 1975. DEQ's proposed standards do not remove existing uses. One issue is the level of rigor and data needed to document this determination, given that most of the canal was never a natural waterbody, was never intended to support uses other than agriculture and is inappropriate and unsafe for fish and recreation. While fish are actively prevented from entering the canal, there are likely incidental and accidental aquatic life in the canal at times, such as amphibians and insects.

   DEQ determined that fish and aquatic life is not an existing or attainable use of the constructed channel, which is 27 miles of the canal's total 29 mile length. This is based on the following findings:
   - The physical characteristics and operations of this man-made concrete structure render it unsuitable as habitat that could support a self sustaining or propagating population of fish or other aquatic life;
   - The canal's flow is highly managed and variable, including the fact that the canal is devoid of flowing water for substantial periods each year;
   - The presence of fish barriers on both ends of the canal; and
   - The legal ownership and purpose of the canal to provide water to irrigators, as evidenced by U.S. Bureau of Reclamation authorization for the project and water rights.

   DEQ determined that a subcategory of fish and aquatic life, defined as *modified aquatic habitat*, is appropriate for the overflow channels segment, which comprises the lower approximately two

miles of the canal. This segment has some limited habitat features not present in the constructed channel, though it has been highly modified. It is possible that a limited aquatic life use is supported by the existing modified conditions. Water flow in the overflow channels is present primarily due to the irrigation system, and the fish barriers also exclude fish from this segment.

DEQ relied on historical records, personal communications and the professional judgment of Oregon Department of Fish and Wildlife, the US Bureau of Reclamation, the city and the irrigation district for much of the documentation and analysis contained in the Standards Revision Report.

2. How DEQ determined the new criteria for the designated uses of irrigation and livestock watering and modified aquatic habitat.

   DEQ primarily relied on available EPA criteria recommendations for the agricultural water supply uses and sought additional studies on salinity. It is impractical for DEQ to generate its own research to develop criteria for irrigation and livestock watering. The available recommendations are contained in EPA's 1972 "Blue Book." While the Blue Book does provides EPA's most up-to-date numeric criteria recommendations for agricultural water uses, they date from 1972, some are based on limited information, and the effects of the pollutants can vary widely based on the local water and soil chemistry, climate, crop types and irrigation practices. Therefore, DEQ proposes a combination of numeric and narrative criteria to protect the proposed uses. The narrative criteria enable DEQ to regulate pollutants based on information that may become available indicating that pollutants are present at potentially harmful levels.

   DEQ initially proposed numeric criteria from EPA's 1972 Blue Book for an array of metals and anions. Following public comment and further review, DEQ narrowed its proposal to include numeric criteria for the priority pollutants only. DEQ concludes that numeric criteria are not needed for non-priority pollutants given that they are not likely to be present in the canal at levels of concern. Given that DEQ is proposing site-specific criteria for one particular canal and agricultural area and that the impacts of the pollutants on agriculture vary based on the factors noted above, DEQ concludes that a narrative criterion is a more appropriate and efficient way to regulate the non-priority pollutants and will sufficiently protect these uses. Should a pollutant discharge be proposed, DEQ will use Blue Book values and other information and consult with local experts to determine whether it is a concern for the local irrigation and livestock watering uses or downstream waters and to develop

appropriate permit requirements.

For the modified aquatic habitat use in the overflow channels segment, DEQ also proposes to apply the existing warm-water aquatic life dissolved oxygen criterion and the pH criterion that applies in the Umatilla basin to protect aquatic life. This segment does not contain salmon or trout (cold water fish) and it is reasonable to conclude that the warm-water aquatic life definition in the current dissolved oxygen criterion is the best fit given the modified conditions and local climate. The proposed pH criterion, which protects higher aquatic life uses, may be more conservative than needed to protect this use. While this may be the case, information indicates the criterion is attainable, and developing a more tailored criterion for this two mile reach would not the best use of DEQ resources.

3. This rulemaking demonstrates the use of a valid Clean Water Act tool to implement the state's water quality standards and associated point source permitting programs in a reasonable and appropriate manner. This is Oregon's first standards change that relies on a use attainability analysis, which is a tool available to revise standards where they are unattainable for one or more of the factors listed in the federal regulations.

4. The proposed rules will facilitate the ability of DEQ to permit and regulate the discharge of highly treated city wastewater to the canal where it can be used for irrigation.

Please see the public comments and responses in attachment C for additional comments received on the proposed rulemaking.

Public outreach

A formal advisory committee was not assembled. DEQ, the city of Hermiston, the West Extension Irrigation District and the U.S. Bureau of Reclamation all provided outreach associated with either this rule change or the proposed wastewater treatment plant discharge to the irrigation canal. DEQ convened representatives of the environmental community to describe this proposed revision and other water quality standards projects. DEQ also discussed the rule change with various agencies and the Confederated Tribes of the Umatilla Indian Reservation. DEQ asked individuals participating in these discussions for their level of interest and type of involvement they would wish to have. Generally, the parties DEQ spoke with viewed the proposed rule change as a straightforward administrative correction. None of the individuals contacted expressed interest in forming an advisory group. Accordingly, DEQ kept potentially interested parties apprised and sought public and professional input throughout, without forming a

formal advisory group.

A public comment period was held during Oct. 1 through Nov. 15, 2011. DEQ held a public hearing Nov. 2, 2011 in Hermiston. Attachment B is the report from the hearing officer. The text and transcripts of public comment, and DEQ's responses, are included as attachment C.

Next steps

If the proposed rules are adopted by the commission, DEQ will file the rule record with the Oregon Secretary of State. The rules will be submitted to the EPA for their review. The new standards will not be applicable for Clean Water Act implementation until they are approved by EPA.

No implementation steps, planning or training is needed in conjunction with this revision to standards.

Attachments

A. Proposed rules (redline)
B. Report of the hearing officer
C. Response to public comment
D. Standards revision report
E. Relationship to federal requirements questions
F. Statement of need and fiscal and economic impact
G. Land use evaluation statement

Available upon request

1. Citations referenced in attachment D

Approved:

Division: _____

Section: _____

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DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER POLLUTION

DIVISION 41

WATER QUALITY STANDARDS: BENEFICIAL USES, POLICIES, AND CRITERIA FOR OREGON

340-041-0002

Definitions

Definitions in this rule apply to all basins unless context requires otherwise.

(1) "401 Water Quality Certification" means a determination made by DEQ that a dredge and fill activity, private hydropower facility, or other federally licensed or permitted activity that may result in a discharge to waters of the state has adequate terms and conditions to prevent an exceedance of water quality criteria. The federal permit in question may not be issued without this state determination in accordance with the Federal Clean Water Act, section 401 (33 USC 1341).

(2) "Ambient Stream Temperature" means the stream temperature measured at a specific time and place. The selected location for measuring stream temperature must be representative of the stream in the vicinity of the point being measured.

(3) "Anthropogenic," when used to describe "sources" or "warming," means that which results from human activity;

(4) "Applicable Criteria" means the biologically based temperature criteria in OAR 340-041-0028(4), the superseding cold water protection criteria in OAR 340-041-0028(11), or the superseding natural condition criteria as described in OAR 340-041-0028(8). The applicable criteria may also be site-specific criteria approved by U.S. EPA. A subbasin may have a combination of applicable temperature criteria derived from some or all of these numeric and narrative criteria.

(5) "Appropriate Reference Site or Region" means a site on the same water body or within the same basin or ecoregion that has similar habitat conditions and represents the water quality and biological community attainable within the areas of concern.

(6) "Aquatic Species" means plants or animals that live at least part of their life cycle in waters of the state.

(7) "Basin" means a third-field hydrologic unit as identified by the U.S. Geological Survey.

(8) "BOD" means 5-day, 20°C Biochemical Oxygen Demand.

(9) "Cold-Water Aquatic Life" means aquatic organisms that are physiologically restricted to cold water, including but not limited to native salmon, steelhead, mountain whitefish, char (including bull trout), and trout.

(10) "Cold Water Refugia" means those portions of a water body where or times during the diel temperature cycle when the water temperature is at least 2 degrees Celsius colder than the daily maximum temperature of the adjacent well-mixed flow of the water body.

(11) "Commission" means the Oregon Environmental Quality Commission.

(12) "Cool-Water Aquatic Life" means aquatic organisms that are physiologically restricted to cool waters, including but not limited to native sturgeon, Pacific lamprey, suckers, chub, sculpins, and certain species of cyprinids (minnows).

(13) "Core Cold-Water Habitat Use" means waters that are expected to maintain temperatures within the range generally considered optimal for salmon and steelhead rearing, or that are suitable for bull trout migration, foraging, and sub-adult rearing that occurs during the summer. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Figures 130A, 151A, 160A, 170A, 180A, 201A, 220A, 230A, 271A, 286A, 300A, 310A, 320A, and 340A.

(14) "Critical Habitat" means those areas that support rare, threatened, or endangered species or serve as sensitive spawning and rearing areas for aquatic life as designated by the U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration-Fisheries pursuant to the Endangered Species Act (16 USC 1531).

(15) "Daily Mean" for dissolved oxygen means the numeric average of an adequate number of data to describe the variation in dissolved oxygen concentration throughout a day, including daily maximums and minimums. For the purpose of calculating the mean, concentrations in excess of 100 percent of saturation are valued at the saturation concentration.

(16) "Department" or "DEQ" means the Oregon State Department of Environmental Quality.

(17) "Designated Beneficial Use" means the purpose or benefit to be derived from a water body as designated by the Water Resources Department or the Water Resources Commission.

(18) "DO" means dissolved oxygen.

(19) "Ecological Integrity" means the summation of chemical, physical, and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.

(20) "Epilimnion" means the seasonally stratified layer of a lake or reservoir above the metalimnion; the surface layer.

(21) "Erosion Control Plan" means a plan containing a list of best management practices to be applied during construction to control and limit soil erosion.

(22) “Estuarine Waters” means all mixed fresh and oceanic waters in estuaries or bays from the point of oceanic water intrusion inland to a line connecting the outermost points of the headlands or protective jetties.

(23) "High Quality Waters" means those waters that meet or exceed levels that are necessary to support the propagation of fish, shellfish, and wildlife; recreation in and on the water; and other designated beneficial uses.

(24) "Hypolimnion" means the seasonally stratified layer of a lake or reservoir below the metalimnion; the bottom layer.

(25) "Industrial Waste" means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources.

(26) "In Lieu Fee" means a fee collected by a jurisdiction in lieu of requiring construction of onsite stormwater quality control facilities.

(27) "Intergravel Dissolved Oxygen" (IGDO) means the concentration of oxygen measured in the water within the stream bed gravels. Measurements should be taken within a limited time period before emergence of fry.

(28) "Jurisdiction" means any city or county agency in the Tualatin River and Oswego Lake subbasin that regulates land development activities within its boundaries by approving plats or site plans or issuing permits for land development.

(29) "Land Development" means any human-induced change to improved or unimproved real estate, including but not limited to construction, installation or expansion of a building or other structure; land division; drilling; and site alteration such as land surface mining, dredging, grading, construction of earthen berms, paving, improvements for use as parking or storage, excavation, or clearing.

(30) "Load Allocation (LA)" means the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading that may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting loading. Whenever possible, natural and nonpoint source loads should be distinguished.

(31) "Loading Capacity (LC)" means the greatest amount of loading that a water body can receive without violating water quality standards.

(32) "Low Flow Period" means the flows in a stream resulting primarily from groundwater discharge or base flows augmented from lakes and storage projects during the driest period of the year. The dry weather period varies across the state according to climate and topography. Wherever the low flow period is indicated in Water Quality Management Plans, this period has been approximated by the inclusive months. Where applicable in a waste discharge permit, the low flow period may be further defined.

(33) "Managed Lakes" refers to lakes in which hydrology is managed by controlling the rate or timing of inflow or outflow,

(34) “Marine Waters” means all oceanic, offshore waters outside of estuaries or bays and within the territorial limits of the State of Oregon.

(35) "mg/l" or "mg/L" means milligrams per liter.

(36) "Metalimnion" means the seasonal, thermally stratified layer of a lake or reservoir that is characterized by a rapid change in temperature with depth and that effectively isolates the waters of the epilimnion from those of the hypolimnion during the period of stratification; the middle layer.

(37) "Migration Corridors" mean those waters that are predominantly used for salmon and steelhead migration during the summer and have little or no anadromous salmonid rearing in the months of July and August. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Tables 101B, and 121B, and Figures 151A, 170A, 300A and 340A.

(38) "Minimum" for dissolved oxygen means the minimum recorded concentration including seasonal and diurnal minimums.

(39) “Modified Aquatic Habitat” means waters in which cool or cold-water aquatic communities are absent, limited or substantially degraded due to modifications of the physical habitat, hydrology or water quality. The physical, hydrologic or chemical modifications preclude or limit the attainment of cool or cold water habitat or the species composition that would be expected based on a natural reference stream, and cannot feasibly or reasonably be reversed or abated.

(~~39~~40) "Monthly (30-day) Mean Minimum" for dissolved oxygen means the minimum of the 30 consecutive-day floating averages of the calculated daily mean dissolved oxygen concentration.

(~~40~~41) "Natural Conditions" means conditions or circumstances affecting the physical, chemical, or biological integrity of a water of the state that are not influenced by past or present anthropogenic activities. Disturbances from wildfire, floods, earthquakes, volcanic or geothermal activity, wind, insect infestation, and diseased vegetation are considered natural conditions.

(~~41~~42) "Natural Thermal Potential" means the determination of the thermal profile of a water body using best available methods of analysis and the best available information on the site-potential riparian vegetation, stream geomorphology, stream flows, and other measures to reflect natural conditions.

(~~42~~43) "Nonpoint Sources" means any source of water pollution other than a point source. Generally, a nonpoint source is a diffuse or unconfined source of pollution where wastes can either enter into or be conveyed by the movement of water to waters of the state.

(~~43~~44) "Ocean Waters" means all oceanic, offshore waters outside of estuaries or bays and within the territorial limits of Oregon.

(~~44~~45) "Outstanding Resource Waters" means those waters designated by the commission where existing high quality waters constitute an outstanding state or national resource based on their extraordinary water quality or ecological values or where special water quality protection is needed to maintain critical habitat areas.

(~~45~~46) "Pollution" means such contamination or other alteration of the physical, chemical, or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any water of the state that either by itself or in connection with any other substance present can reasonably be expected to create a public nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare; to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wildlife, fish, other aquatic life or the habitat thereof.

(~~46~~47) "Point Source" means a discernable, confined, and discrete conveyance, including but not limited to a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or leachate collection system from which pollutants are or may be discharged. Point source does not include agricultural storm water discharges and return flows from irrigated agriculture.

(~~47~~48) "Public Water" means the same as "waters of the state".

(~~48~~49) "Public Works Project" means any land development conducted or financed by a local, state, or federal governmental body.

(~~49~~50) "Reserve Capacity" means that portion of a receiving stream's loading capacity that has not been allocated to point sources or to nonpoint sources and natural background as waste load allocations or load allocations, respectively. The reserve capacity includes that loading capacity that has been set aside for a safety margin and is otherwise unallocated.

(~~50~~51) "Resident Biological Community" means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin, or water body are met. This must be established by accepted biomonitoring techniques.

(~~51~~52) "Salmon" means chinook, chum, coho, sockeye, and pink salmon.

(~~52~~53) "Salmon and Steelhead Spawning Use" means waters that are or could be used for salmon and steelhead spawning, egg incubation, and fry emergence. These uses are designated on the following subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Tables 101B, and 121B, and Figures 130B, 151B, 160B, 170B, 220B, 230B, 271B, 286B, 300B, 310B, 320B, and 340B.

(~~53~~54) "Salmon and Trout Rearing and Migration Use" means thermally suitable rearing habitat for salmon, steelhead, rainbow trout, and cutthroat trout as designated on subbasin maps set out at OAR 340-041-0101 to 340-041-0340: Figures 130A, 151A, 160A, 170A, 220A, 230A, 271A, 286A, 300A, 310A, 320A, and 340A.

(~~54~~55) "Salmonid or Salmonids" means native salmon, trout, mountain whitefish, and char (including bull trout). For purposes of Oregon water quality standards, salmonid does not include brook or brown trout since they are introduced species.

(~~55~~66) "Secondary Treatment" means the following depending on the context:

(a) For "sewage wastes," secondary treatment means the minimum level of treatment mandated by EPA regulations pursuant to Public Law 92-500.

(b) For "industrial and other waste sources," secondary treatment means control equivalent to best practicable treatment (BPT).

(~~56~~57) "Seven-Day Average Maximum Temperature" means a calculation of the average of the daily maximum temperatures from seven consecutive days made on a rolling basis.

(~~57~~58) "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments, or other places together with such groundwater infiltration and surface water as may be present. The admixture with sewage of industrial wastes or wastes, as defined in this rule, may also be considered "sewage" within the meaning of this division.

(~~58~~59) "Short-Term Disturbance" means a temporary disturbance of six months or less when water quality standards may be violated briefly but not of sufficient duration to cause acute or chronic effects on beneficial uses.

(~~59~~60) "Spatial Median" means the value that falls in the middle of a data set of multiple intergravel dissolved oxygen (IGDO) measurements taken within a spawning area. Half the samples should be greater than and half the samples should be less than the spatial median.

(~~60~~61) "SS" means suspended solids.

(~~61~~62) "Stormwater Quality Control Facility" means any structure or drainage way that is designed, constructed, and maintained to collect and filter, retain, or detain surface water runoff during and after a storm event for the purpose of water quality improvement. It may also include

but is not be limited to existing features such as wetlands, water quality swales, and ponds that are maintained as stormwater quality control facilities.

(~~62~~63) "Subbasin" means a fourth-field hydrologic unit as identified by the U.S. Geological Survey.

(~~63~~64) "Summer" means June 1 through September 30 of each calendar year.

(~~64~~65) "Threatened or Endangered Species" means aquatic species listed as either threatened or endangered under the federal Endangered Species Act (16 USC 1531 et seq. and Title 50 of the Code of Federal Regulations).

(~~65~~66) "Total Maximum Daily Load (TMDL)" means the sum of the individual waste load allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and background. If receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.

(~~66~~67) "Toxic Substance" means those pollutants or combinations of pollutants, including disease-causing agents, that after introduction to waters of the state and upon exposure, ingestion, inhalation, or assimilation either directly from the environment or indirectly by ingestion through food chains will cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in any organism or its offspring.

(~~67~~68) "Wasteload Allocation (WLA)" means the portion of receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation.

(~~68~~69) “Warm-Water Aquatic Life” means the aquatic communities that are adapted to warm-water conditions and do not contain either cold- or cool-water species.

(~~69~~70) "Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances that may cause or tend to cause pollution of any water of the state.

(~~70~~71) "Water Quality Limited" means one of the following:

(a) A receiving stream that does not meet narrative or numeric water quality criteria during the entire year or defined season even after the implementation of standard technology;

(b) A receiving stream that achieves and is expected to continue to achieve narrative or numeric water quality criteria but uses higher than standard technology to protect beneficial uses;

(c) A receiving stream for which there is insufficient information to determine whether water quality criteria are being met with higher-than-standard treatment technology or a receiving stream that would not be expected to meet water quality criteria during the entire year or defined season without higher than standard technology.

(~~71~~72) "Water Quality Swale" means a natural depression or wide, shallow ditch that is used to temporarily store, route, or filter runoff for the purpose of improving water quality.

(~~72~~73) "Waters of the State" means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters) that are located wholly or partially within or bordering the state or within its jurisdiction.

(~~73~~74) "Weekly (seven-day) Mean Minimum" for dissolved oxygen means the minimum of the seven consecutive-day floating average of the calculated daily mean dissolved oxygen concentration.

(~~74~~75) "Weekly (seven-day) Minimum Mean" for dissolved oxygen means the minimum of the seven consecutive-day floating average of the daily minimum concentration. For purposes of application of the criteria, this value will be used as the reference for diurnal minimums.

(~~75~~76) "Without Detrimental Changes in the Resident Biological Community" means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.

Stat. Auth.: ORS 468.020, 468B.010, 468B.015, 468B.035, 468B.048
Stats. Implemented: ORS 468B.035, 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03; DEQ 3-2004, f. & cert. ef. 5-28-04; DEQ 2-2007, f. & cert. ef. 3-15-07

Basin-Specific Criteria (Umatilla)

340-041-0310

Beneficial Uses to Be Protected in the Umatilla Basin

(1) Water quality in the Umatilla Basin (see Figure 1) must be managed to protect the designated beneficial uses shown in Table 310A (~~November 2003~~April 2012).

(2) Designated fish uses to be protected in the Umatilla Basin are shown in Figures 310A and 310B (November 2003).

Stat. Auth.: ORS 468.020, 468B.030, 468B.035 & 468B.048
Stats. Implemented: ORS 468B.030, 468B.035 & 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03

Table 310A

Designated Beneficial Uses
Umatilla Basin
(340-41-0310)

Beneficial Uses	Umatilla Subbasin	Willow Creek Subbasin	West Division Main Canal – constructed channel[3]	West Division Main Canal – overflow channels[3]
Public Domestic Water Supply[1]	X	X		
Private Domestic Water Supply[1]	X	X		
Industrial Water Supply	X	X	X	X
Irrigation	X	X	X	X
Livestock Watering	X	X	X	X
Fish & Aquatic Life[2]	X	X		
Modified Aquatic Habitat				X
Wildlife & Hunting	X	X	X	X
Fishing	X	X		
Boating	X	X (at mouth)		
Water Contact Recreation	X	X	X	X
Aesthetic Quality	X	X	X	X
Hydro Power	X	X	X	X
Commercial Navigation & Transportation				

[1]With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.

[2]See also Figures 310A and 310B for fish use designations for this basin. Note: The fish & aquatic life use designations for the West Division Main Canal in this table supersede Figure 310A, which incorrectly identifies Redband trout use in the canal.

[3]The West Division Main Canal extends from the point of diversion from the Umatilla River to the confluence with the Columbia River. The canal consists of two segments. The constructed channel segment extends from the Umatilla River 27 miles down gradient to the flow control gate at the end of the concrete structure as it was originally built (concrete-lining was later added to parts of the overflow channels). The overflow channels segment extends from the lower end of the constructed channel to the outflow to the Columbia River.

Table ~~produced November, 2003~~ revised April 2012

340-041-0315

Water Quality Standards and Policies for this Basin

(1) pH (hydrogen ion concentration). pH values may not fall outside the following range: all Basin streams (other than main stem Columbia River and the West Division Main Canal): 6.5-9.0. When greater than 25 percent of ambient measurements taken between June and September are greater than pH 8.7, and as resources are available according to priorities set by the Department, the Department will determine whether the values higher than 8.7 are anthropogenic or natural in origin.

(2) The following criteria apply to the West Division Main Canal and supersede the water quality standards in OAR 340-041-0011 through 340-041-0036:

(a) Canal waters may not exceed the numeric criteria shown in Table 310B. These criteria apply from the uppermost irrigation withdrawal to the confluence with the Columbia River;

(b) Toxic substances shall not be present in canal waters in amounts that are likely to singularly or in combination harm the designated beneficial uses of the canal or downstream waters. The presence of substances at naturally occurring levels shall not be considered harmful to the designated uses;

(c) Sediment load and particulate size shall not exceed levels that interfere with irrigation or the other designated beneficial uses of the canal;

(d) The dissolved oxygen criteria contained in OAR 340-041-0016 (4) apply to "overflow channels" segment of the canal to protect the "modified aquatic habitat" use.

(e) pH values in the "constructed channel" segment of the canal may not fall outside the range of 4.5 to 9.0.

(f) pH values in the "overflow channels" segment of the canal may not fall outside the range of 6.5 to 9.0 in order to protect the "modified aquatic habitat" use.

(~~2~~3) Minimum Design Criteria for Treatment and control of Sewage Wastes in this Basin:

(a) During periods of low stream flows (approximately April 1 to October 31): Treatment resulting in monthly average effluent concentrations not to exceed 20 mg/l of BOD and 20 mg/l of SS or equivalent control;

(b) During the period of high stream flows (approximately November 1 to April 30): A minimum of secondary treatment or equivalent control and unless otherwise specifically authorized by the Department, operation of all waste treatment and control facilities at maximum practicable efficiency and effectiveness so as to minimize waste discharges to public waters.

Stat. Auth.: ORS 468.020, 468B.030, 468B.035 & 468B.048
Stats. Implemented: ORS 468B.030, 468B.035 & 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03; DEQ 2-2007, f. & cert. ef. 3-15-07

Table 310B

Water Quality Criteria
West Division Main Canal, Umatilla Basin

Parameter	For Irrigation (mg/l, metals as dissolved)	For Livestock Watering (mg/l, metals as dissolved)
Total dissolved solids	450	
Arsenic (inorganic)	0.1	0.2
Beryllium	0.1	
Cadmium	0.01	0.05
Chromium	0.1	1
Copper	0.2	0.5
Lead	5	0.1
Mercury		0.01
Nickel	0.2	
Selenium	0.02	0.05
Zinc	2	25

The following figures are included for reference only and are not being amended with this rulemaking.

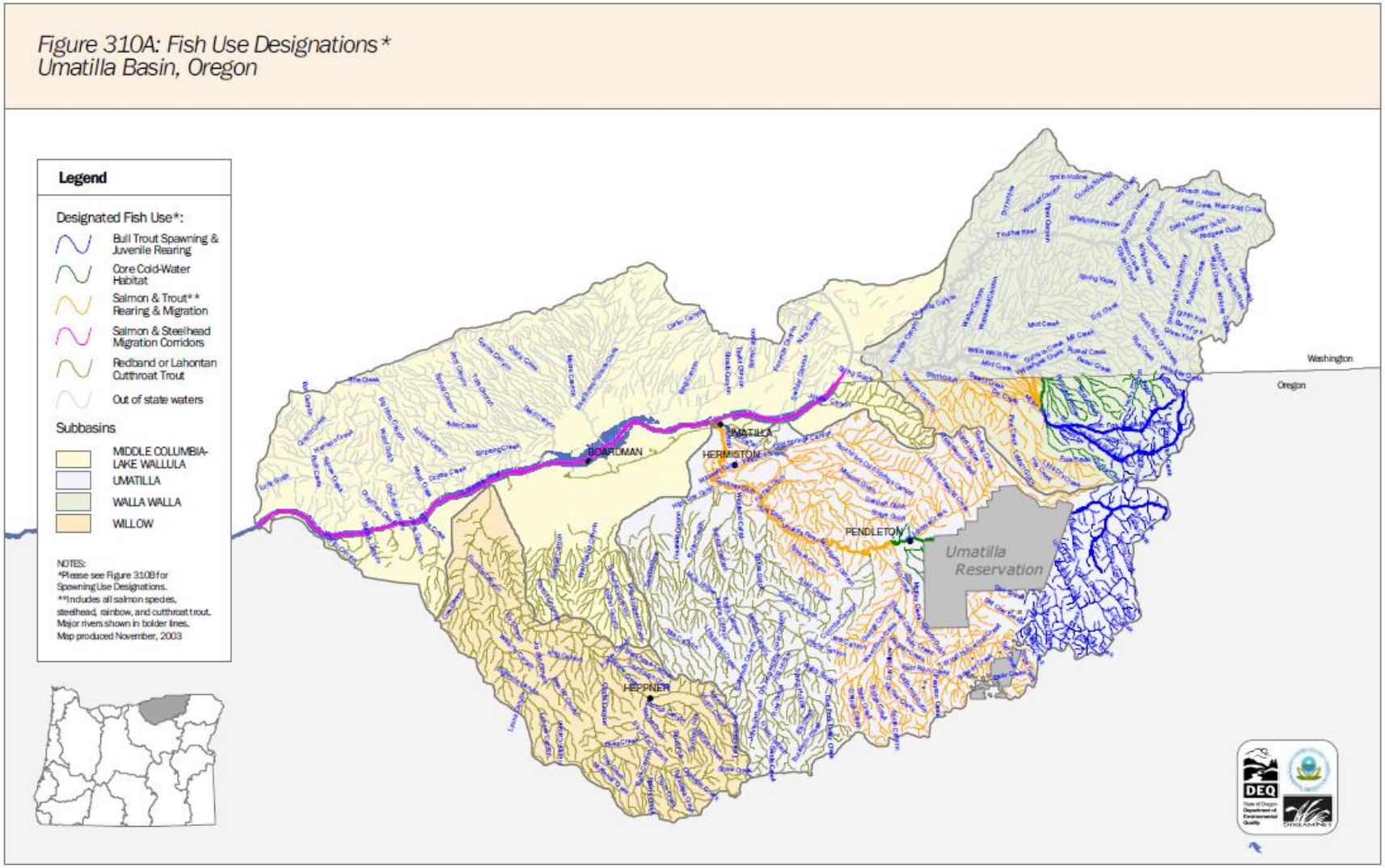
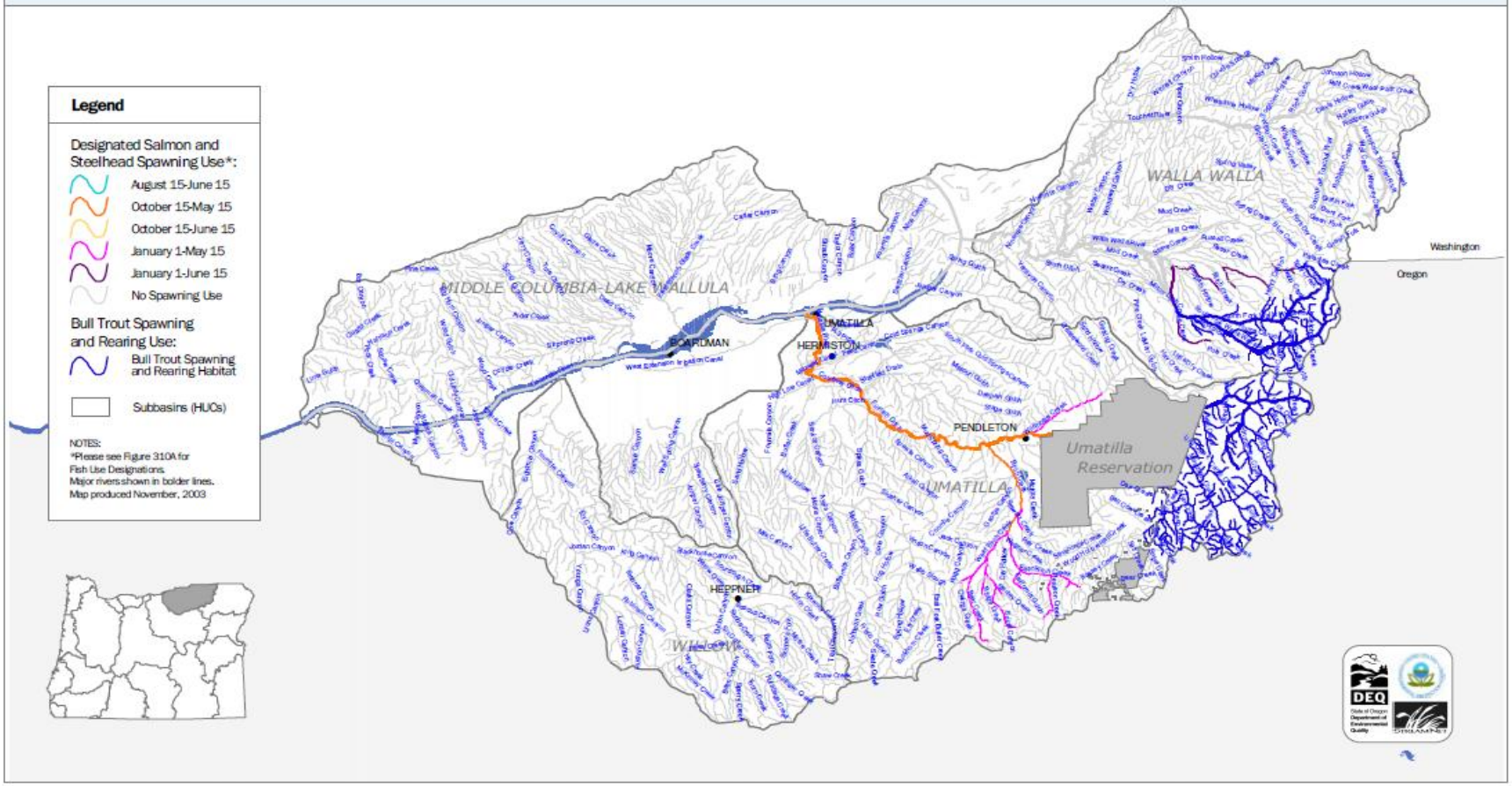


*Figure 310B: Salmon and Steelhead Spawning Use Designations**
Umatilla Basin, Oregon



State of Oregon
Department of Environmental Quality **Memorandum**

Presiding Officer's Report

Date: Nov. 15, 2011

To: Environmental Quality Commission

From: Debra Sturdevant, DEQ

Subject: Presiding Officer's Report for Rulemaking Hearing
Title of Proposal: Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon
Hearing date and time: Nov. 2, 2011; 6 p.m.
Hearing location: Good Shepherd Hospital, Hermiston, Oregon

The Department of Environmental Quality convened this rulemaking hearing at 6 p.m., began the formal hearing at 7 p.m. and closed it at 7:10 p.m. DEQ staff requested that participants sign registration forms if they wished to present comments and informed them that the hearing was being recorded.

Sixteen people attended the hearing; two testified.

Before taking comments, Debra Sturdevant explained the rulemaking proposal and procedures for the hearing. Don Butcher gave a presentation on the rulemaking proposal and answered questions. The formal hearing opened at 7p.m. Debra explained the procedure for giving comment. Two people testified and Sturdevant closed the hearing at 7:10 pm.

The following is a summary of written and oral comments received at the hearing. DEQ will include these comments in the *Summary of Comments and Agency Responses* for this rulemaking.

Summary of oral testimony:

1. Kathy Bissonette is a canal water user upstream from where Columbia River water enters the canal. Because they use water above where it is mixed with Columbia River water, she does not want the water to be full of contaminants from the sewer plant.

2. John Kirwin submitted a petition with eighteen signatures. The petitioners oppose the wastewater from the treatment plant going into the canal. He pointed out that there are

small water users that use the water for domestic irrigation; a couple of acres or lawns. These people are concerned that water from the canal could potentially contaminate children playing in the grass or through other exposure. Kirwin also asked how many small water users with less than twenty acres are using the canal.

Summary of written testimony submitted at the hearing:

1. Submitted by John Kirwan: A statement signed by 18 people opposing the dumping of city wastewater into the canal, with the following concerns:
    a. The city wastewater is 75 degrees and with additional heating in the canal between Hermiston and Irrigon and Boardman, which will impact the growth of moss.
    b. Additional chemicals will be needed to retard moss growth. The most significant is Acrolein, which has a detrimental impact on salmon and other aquatic life, such as lamprey eels.
    c. Adding city water will overload the capacity of the canal water system to dilute these chemicals.
    d. People in Irrigon and Boardman will be watering their lawns with agriculturally exempt water and place their families at risk for coming in contact with solvents, herbicides and numerous unknown and untested chemicals from surrounding processing plants, hospital, clinics and unclaimed drug labs.
    e. The plan has too many unanswered questions and unproven processes with unknown consequences to the environment and public health and safety.

Public comment and agency response

Water Quality Standards Revision, West Division Main Canal Near Hermiston, Oregon

Prepared by: Don Butcher, Debra Sturdevant **Date:** April 13, 2012

Comment period

DEQ held a public comment period Oct. 1 through 6 p.m. Nov. 15, 2011. DEQ also held public hearing Nov 2, 2011, at 6 p.m. at the Good Shepherd Hospital in Hermiston, Oregon. Sixteen people attended and two testified. One commenter provided an 18-person petition with written comments. These were the only written comments received during the hearing.

Organization of comments and responses

Comments and responses are organized by categories and then in the order received. Where comments have resulted in DEQ making changes to the draft standards revision report, this is noted with a single asterisk. A double asterisk indicates that DEQ is changing the proposed Oregon Administrative Rules in response to comments.

The comments are numbered and those who provided each comment are identified in parentheses, with the commenter reference number of the following table. Where DEQ has summarized comments or the comments are general in nature, this is noted. Otherwise, comments are directly excerpted from the text or transcription of the comment. The full text and transcripts of all comment received are also appended.

Background

DEQ is proposing to change the water quality standards that apply to a constructed canal in northern Oregon. DEQ has asked for public input to a draft standards revision proposal, and this document describes the comments received and DEQ's responses. Information regarding why DEQ is proposing to revise the standards, the policies and procedures for revising water quality standards, the physical and functional setting of the canal, and the proposed changes to the standards is provided in the report titled - *Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon (Standards Revision Report or SRR)*. This document includes information that will assist with understanding the comments and DEQ's responses. DEQ has revised the report to incorporate changes DEQ made to the proposed rules based on the input received during the public comment period. The report and DEQ's response to comments are available at DEQ's website [http://www.deq.state.or.us/regulations/proposedrules.htm]. For questions, please call Don Butcher (DEQ Pendleton) at 541-278-4603 or Debra Sturdevant (DEQ Portland Headquarters) at 503-229-6691.

Abbreviations and terms used in this text

EPA: US Environmental Protection Agency
NPDES: National Pollutant Discharge Elimination System (Clean Water Act Section 402)
OWRD: Oregon Water Resources Department
SRR: Standards Revision Report (this is the report cited above, describing the revision and its basis, entitled *Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon*. This report constitutes a *use attainability analysis* as defined in the Clean Water Act.)
TMDL: Total Maximum Daily Load
USBR: U.S. Bureau of Reclamation
Constructed Channel: The West Division Main Canal *constructed channel* extends from the Umatilla River 27 miles down gradient to the flow control gate at the end of the concrete-lined channel as it was originally built (concrete-lining was later added to parts of the overflow).
Overflow Channels: The West Division Main Canal *overflow channels* extend from the lower end of the constructed channel to the outflow to the Columbia River.

List of commenters and reference numbers

Reference Number	Name	Organization	Address	Date on comments
001	Donald Horneck	Oregon State University	Hermiston Agricultural Research and Extension Center, 2121 S 1st St., Hermiston, OR 97838	10/25/2011
002	Jennifer McKinnis	Toxic Injury Awareness, "MCS" Beacon of Hope Foundation	79980 Prindle Loop Rd., Hermiston, OR 97838	10/31/2011
003	Gerald Breazeale	City of Irrigon	PO Box 428 Irrigon, OR 97844	11/1/2011
004	Cathy Bissonette	Canal water user	500 Canal Umatilla, OR 97882	11/2/2011
005	John Kirwin	Concerned citizen	664 East Oregon Ave. Hermiston, OR 97838	11/2/2011, 11/3/2011, 11/10/2011
006	Boris Belchoff	U.S. Bureau of Reclamation	Umatilla Field Office, 32871 Diagonal Rd., Hermiston, OR 97838	11/10/2011
007	Wayne Reffett	P.O. Box 1785 Umatilla, OR 97882	P.O. Box 1785, Hermiston, OR 97882	11/13/2011
008	Dan Tuinstra		81585 Apricot Lane, Umatilla OR 97882	11/14/2011
009	Bev Bridgewater	West Extension Irrigation District	P.O. Box 100, Irrigon, OR 97844-0100	11/15/2011
010	Joint submittal: Sean Silverstein, Alon Mark, Ryan Bax, McKenzie Joslin-Snyder	Oregon State University		11/15/2011
011	Ed Brookshier	City of Hermiston	Administrative Offices, 180 NE 2nd St., Hermiston, OR 97838-1860	11/15/2011
012	Jannine Jennings	US Environmental Protection Agency	1200 Sixth Ave, Suite 900, Seattle, WA 98101-3140	11/15/2011
013	Nina Bell	Northwest Environmental Advocates	P.O. Box 12187, Portland, OR 97212-0187	11/15/2011

Section 1: Comments affirming the proposed revisions

Comment 1	Various comments supported DEQ's proposed revisions and agreed that the proposed rule revisions were needed and appropriate. These comments referenced socioeconomic benefits and environmental protection that would accrue through correcting the standards to focus on the actual uses of the canal; and credited the effort to re-evaluate over-generalized standards. Commenter numbers: 002, 003, 006, 009, 010, 011
DEQ's response	DEQ acknowledges these comments in support of the proposal.

Comment 2	The City of Hermiston is considering discharging highly treated wastewater to the West Division Main Canal, in agreement with the West Extension Irrigation District. This is part of the impetus for revising canal standards. The possible discharge of municipal wastewater to the canal is a separate action from this proposed standards revision, though they are linked. One commenter stated that while they agree with the concept, wastewater discharge to a canal is precedent setting. Similar concerns are shared by others that encourage DEQ to carefully consider public and ecologic protection via this standards revision and in wastewater permitting; and that responsible parties should be assigned for the implementation of the revised standards. Commenter numbers: 002 (primary), 010, 012, 013
DEQ's response	DEQ agrees that it is important to consider standards revisions carefully and that the proposed beneficial use revision and discharge to the canal would be firsts in Oregon. DEQ periodically revises standards through a process known as a triennial review. Another mechanism, applied to this standards revision, is a use attainability analysis. A use attainability analysis is necessary when a state removes certain designated beneficial uses that water quality standards are based upon. Refer to the response to comment 9 for more on use attainability analyses. The establishment of responsible parties is accomplished outside of water quality standards development. First, standards are established, and then they are implemented through a variety of mechanisms including discharge permits for wastewater treatment plants, total maximum daily loads (Clean Water Act Section 303) and associated water quality management plans, septic and clean-up programs and a variety of other mechanisms. With regard to the proposed wastewater discharge to a canal, the USBR has stated that this is the first canal project that they are permitting to receive wastewater. However, recycling municipal effluent to irrigate crops is not a fundamentally new concept. It is common for treated wastewater to be applied directly to feed crops such alfalfa, and it is not uncommon for irrigation canals to divert water from rivers downstream from wastewater outfalls. If the city treatment plant does discharge to the canal, the city will be required to comply with a DEQ-administered discharge permit designed to meet water quality standards. This permit is referred to as an NPDES permit and is not part of this action. Also, refer to the responses to comments 49, 52 and 63.

	DEQ has limited discussion of the treatment plant discharge in these responses in order to focus on the topic of the proposed rulemaking. However, the topics are related and so this document addresses the discharge proposal to a limited extent (refer to the responses to comments 49, 52 and 63). DEQ will provide opportunity for comment, specific to the municipal wastewater permit, through the permit development process.

Comment 3	I believe that this project can be a tremendous blessing to this community as long as it's done with accountability, forethought and planning for environmental issues. Commenter number: 002
DEQ's response	This comment references the proposed wastewater discharge to the canal. DEQ recognizes the potential benefits of this project and the need for careful and thorough consideration. For further discussion of this topic, please refer to the responses to comments 49, 52 and 63. DEQ will seek public comment on the city discharge permit as part of the permit renewal process.

Comment 4	I wish to lend my support for the change in water quality standards for the West Division Main Canal. Currently the canal does not support, nor should it be required to support, uses including domestic water, fishing, water contact recreation, fish and aquatic life and boating. I believe these designated uses for the West Division Main Canal were inappropriately applied to the water in the irrigation canal. Because these uses impair the ability of the Irrigation District to manage the water in the canal, the inappropriate uses should be removed. Commenter number: 003
DEQ's response	DEQ acknowledges this support for revising the beneficial use designations for the West Division Main Canal.

Comment 5	We appreciate the work done by DEQ on the request of the city of Hermiston for these Canal standards. We are very interested in receiving the city's reclaimed water, under the conditions described herein and in your revised standards. As an irrigation district that relies on return flows from a natural water body (the Umatilla River), we experience shortages annually and we see this as a way to help us shore up our water supply. Commenter number: 009
DEQ's response	DEQ acknowledges the irrigation district's interest in reusing the city's treated wastewater.

Comment 6	The canal is absent of habitat and appropriate water quality conditions for fish and other aquatic life, so fish barriers have been installed to help prevent fish from entering. There are no domestic supply water rights, and swimming and boating within the canal are restricted. The artificial nature of the canal makes revisions to its beneficial uses a logical decision, especially due to restrictions already imposed that make certain beneficial uses impractical, and in some cases impossible, to still be included in the water quality standards report. The most substantial, and possibly most beneficial, outcome of these revisions will be the ability for treated wastewater to be transferred directly to the canal, rather than into the Umatilla River. The revisions make it possible for the Hermiston Wastewater Treatment Plant to dump its

	treated water into the canal, as opposed to the alternative of dumping directly into the Umatilla River. It is logical and ethical to update the canal's beneficial uses to more accurately describe its purpose for the community around Hermiston, especially considering what the effects of dumping directly into the Umatilla have been in the past. Although the discharge has caused negative repercussions for the Umatilla River with regards to its TMDLs, the wastewater not only meets but also exceeds the standards for bacteria under the proposed revised beneficial uses. The Umatilla River is home to one of the most successful Salmon recovery efforts in the nation, and decreasing the amount of wastewater discharged into it will help stabilize the river and salmon habitat. At only one point does the canal pass through a small residential area, and the remaining mileage of the canal passes through agricultural plots that use the canal for irrigation. Under the proposed relaxed water standards, the canal would still be fit for irrigation and livestock watering. The revisions seem certain to optimize the canal for its intended purpose. The direct recycling of this wastewater to the West Division Main Canal will not only prove more ecologically friendly, but fiscally responsible to the small agribusiness owners along the Hermiston-Boardman stretch. The increase of flow through the canal will potentially "reduce the level of effort and costs required of small business farms." The less stringent standards will make more easily accessible water available to farms near the canal for irrigation and livestock watering, the primary uses along the canal. The town will also recycle its water responsibly and back into the community instead of just downstream. The revisions to be made to the Water Quality Standards of the canal are relatively minor changes that, in conjunction with other efforts, could provide both the residents of Hermiston and the species of the Umatilla River with better environmental quality in increased productivity. The revisions are necessary to maintain the function and increase the productivity of the canal. Of course proper monitoring of the canal and its water quality will need to be done regularly. But overall the plan is conscious one; it deals with many parties and satisfies them all. The DEQ went through the proper channels, addressing environmental groups, farmers, the townspeople, and the Native American reservation working to restore the Umatilla River. By showing the current inefficiencies of the water dumping practices and relevant alternatives the DEQ is fulfilling its duty to better the community. The farmers, the wildlife, and the native populace all benefit from this minor yet logical change, ethically and legally we have no major objections. Commenter number: 010
DEQ's response	DEQ appreciates the insights of this perspective.

Comment 7	The city of Hermiston supports and appreciates the Department of Environmental Quality's efforts to correct the original listing of beneficial uses for the West Division Main Canal. The original list of beneficial uses was assigned to the canal as a tributary of the Umatilla River as part of DEQ's overarching effort to assign uses to all waters of the state in the late 1970's. The assignment of uses was made on the watershed level irrespective of the actual condition of individual stream reaches within watersheds. In other words, the original assignment of uses was made at high altitude. As DEQ evaluates individual water bodies and stream reaches within watersheds, that original broad assignment of beneficial uses may need revisions to mesh with actual conditions in stream reaches. As explained below, the canal represents one such situation in which the

	current conditions do not support the same beneficial uses as in the balance of the Umatilla watershed. Because of those differences, it is appropriate to remove beneficial uses that do not currently exist and can never be attained. Commenter number: 011
DEQ's response	DEQ acknowledges this agreement with revising the beneficial use designation of the West Division Main Canal.

Comment 8	EPA is pleased to be able to provide comments to you during the public comment period on the draft use attainability analysis. We appreciate your efforts to date in drafting this use attainability analysis and your willingness to work with EPA staff over the course of developing this proposed rule. We are looking forward to our continued work with you over the coming months, and to that end, EPA is providing suggestions that may help to further clarify and strengthen your analysis. We appreciate the work that DEQ has done to date in characterizing the canal and the analysis of existing uses of the canal. The information provided here on the history and intended use of the canal, as well as its physical location and attributes will be very helpful to EPA in our review of your final rule. DEQ has done a good job in researching the area in order to understand the history, management, and present intentions for the canal and to apply those within the WQS decision-making process. This appears to be a good example of an area where a use attainability analysis is an appropriate tool to use to evaluate and potentially revise designated uses and the water quality criteria adopted to protect those uses. Commenter number: 012
DEQ's response	DEQ appreciates the EPA's support and commitment of resources to this effort.

Section 2: Comments on beneficial uses

Comment 9	Commenters indicated that more information is or may be needed in order to determine the existing and highest attainable uses of the canal. This could include water quality data and other forms of biological, physical and chemical assessment of the canal and its surroundings. Commenter numbers: 012, 013
DEQ's response	The basis for the canal use attainability analysis and use re-designation is the physical configuration and purpose of the canal, the absence of habitat features, and the fact that it is a diversion structure and hydrologic modification [factors 131.10(g)(4) and (5)], rather than water quality. Biological survey data is not available. In order to respond more completely, DEQ provides the following general background. Existing uses are defined as those uses actually attained in the waterbody on or after Nov. 28, 1975 [40 CFR 131.3(e)]. Because States generally may not remove designations for existing uses, we agree that the burden is on the DEQ to demonstrate that the uses proposed for removal are not existing uses. Because DEQ proposes to remove uses specified as goals in Section 101(a) of the Clean Water Act, a *use attainability analysis* is required. A "use attainability analysis is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g)." The uses DEQ proposes to remove from the canal have not existed historically within the canal. In evaluating uses, DEQ considered that the water in the canal is present because it is diverted into the canal solely for its purpose to serve water rights for irrigation and stock watering and its legal mandate as a federal irrigation project (USBR). The canal carries water from the Umatilla and Columbia Rivers to the farms that hold those water rights (water rights are discussed in the response to comment 19), where it is withdrawn from the canal to be used for irrigation or stock watering. As described in the SRR[1], the habitat potential of the canal has been limited by the inhospitable physical conditions of the canal, which include an open (i.e. lack of riparian vegetation), steep-sided, concrete-lined channel (i.e. lack of substrate, pool-riffle habitat or vegetative cover), screens that block entry of fish into the canal and lack of flow during the non-irrigation season. As such, it is reasonable to conclude that the physical conditions of the canal do not support a sustainable biological community. Further analysis of the water quality that has existed historically would not result in a different conclusion regarding "existing uses." DEQ has determined that, due to the canal's purpose, operations, physical hazards and lack of aquatic life habitat that the uses proposed for removal, which include fish and aquatic life, fishing, domestic water supply and boating, are not existing uses of the constructed channel. This determination applies to the overflow channels as well, except that upon consideration of public comments, DEQ will designate a *modified aquatic habitat* use for the overflow channels to address the possibility of limited aquatic life in these segments. See the response to comment 17. DEQ reached a similar conclusion in evaluating the *attainability* of uses. Regardless of future water quality conditions, physical features directly related to the canal's construction and operation as an irrigation canal will continue to preclude the attainability of uses. Further analysis of whether water quality could be achieved that would theoretically support uses that have already determined to be unattainable based on lack of necessary physical features is illogical. Further, federal regulations allow for removal of designated beneficial uses where "Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is

	not feasible to restore the water body to its original condition..." [40 CFR 131.10(g)(4)]. For most of its length, the canal, built in 1916, is made of concrete and does not follow a natural topographic trough. In this case, the constructed canal is the original condition and it has never supported the *protection and the propagation of fish*, one of the key uses described in Clean Water Act Section 101(a). The federal regulation provides other allowances for use removal, including "Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses..." [40 CFR 131.10 (g)(5)]. These habitat deficiencies are obviously manifest in the canal, and ascertainable with minimal analysis. In fact, in this case water quality data is irrelevant to uses such as fish presence, given that the very nature of the canal is inhospitable to fish. The canal was built for agricultural purposes and is operated to exclude fish, which are better protected if they stay in the adjacent rivers. It was built long before 1975 and has been utilized for irrigation continuously since, and is required to do so under its federal authorization. The table below lists the proposed and removed uses. The current designated uses for the canal are the same as those listed for the Umatilla Subbasin. ***(Please see next page for additional response to this comment)***

Table 310A (excerpt from proposed rule – in the revised proposal, the canal is separated into two segments and a *modified aquatic habitat* designation is added to the lower canal overflow channels)

Beneficial Uses	Umatilla Subbasin	Willow Creek Subbasin	West Division Main Canal – constructed channel[3]	West Division Main Canal – overflow channels[3]
Public Domestic Water Supply[1]	X	X		
Private Domestic Water Supply[1]	X	X		
Industrial Water Supply	X	X	X	X
Irrigation	X	X	X	X
Livestock Watering	X	X	X	X
Fish & Aquatic Life[2]	X	X		
Modified Aquatic Habitat				X
Wildlife & Hunting	X	X	X	X
Fishing	X	X		
Boating	X	X (at mouth)		
Water Contact Recreation	X	X	X	X
Aesthetic Quality	X	X	X	X
Hydro Power	X	X	X	X
Commercial Navigation & Transportation				

[1]With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.

[2]See also Figures 310A and 310B for fish use designations for this basin. Note: The fish & aquatic life use designations for the West Division Main Canal in this table supersede Figure 310A, which incorrectly identifies Redband trout use in the canal.

[3]The West Division Main Canal extends from the point of diversion from the Umatilla River to the confluence with the Columbia River. The canal consists of two segments. The constructed channel segment extends from the Umatilla River 27 miles down gradient to the flow control gate at the end of the concrete structure as it was originally built (concrete-lining was later added to parts of the overflow channels). The overflow channels segment extends from the lower end of the constructed channel to the outflow to the Columbia River.

Table ~~produced November, 2003~~ revised April 2012

When uses are removed from designation, the highest attainable use(s) must be identified. The highest attainable uses for the canal are identified based on the known usage, physical configuration and purpose of the canal. Because the canal was not constructed along a natural waterbody and has been operated as an irrigation canal since its construction, certain beneficial uses are clear – irrigation and livestock watering. DEQ concludes that this determination is a rational approach given the constructed nature of the waterbody and management of the canal for irrigation over the last 100 years. Natural waters that have been degraded or altered over time may require a more in-depth analysis of attainable uses.

DEQ added more information to the SRR to document the basis for existing and attainable use determinations.

Some comments specifically assert that because some aquatic organisms are or may have been present in the canal at some times since 1975, that *aquatic life* is an existing beneficial use and therefore must be designated as such for the canal. DEQ acknowledges that there are likely transient, tolerant non-fish organisms that temporarily use the water, but this incidental aquatic life does not equate to an aquatic life use as stated in section 101(a) of the Clean Water Act, the "protection and propagation of fish, shellfish and wildlife." Further, any aquatic organisms found within the canal system would be considered marginal populations, at best, and are not capable of sustaining a stable population due to the hazards and habitat deficiencies of the canal. The objective of the Clean Water Act, stated in Section 101(a), is "to restore and maintain the chemical, physical and biological integrity of the Nation's waters." The chemical, physical and biological integrity of the canal does not constitute habitat for a stable, balanced or indigenous biological community. This does not mean that DEQ would necessarily remove aquatic life designations from all concrete channels or highly modified systems. For instance, urban streams that have been channelized may be restorable, or may be conduits to areas of better habitat – this is not true of the canal, due to its barriers and design function of transferring water to fields, a purpose that is inherently hazardous to fish.

DEQ notes that the overflow channels, at the lower end of the canal are also operated as an irrigation system (withdrawals, cleaning, ditching, fish barriers), but may have some habitat features that allow for a modified, limited aquatic life use beyond what is expected to occur in the main constructed channel. The overflow channels are road and field ditches that would not carry water most of the year if not fed by the constructed channel (via surface and ground water). See the response comment 17).

DEQ's interpretation of aquatic life use in standards, as applied generally across the state (i.e. "fish and aquatic life"), is a self-sustaining or reproducing ("propagating") population(s) of aquatic organisms that represent natural aquatic communities and, therefore, the biological integrity of the waterbody. This is consistent with the Clean Water Act and federal regulations and policy. In addition to the Clean Water Act citations above, the following references support this interpretation:

- EPA's 1994 Water Quality Handbook (Chapter 4), states that **small marginal populations** may not constitute an existing use. Chapter 4 also provides "A use attainability analysis or other scientific assessment should be used to determine whether the aquatic life population is in fact an **artifact** or is a **stable population** requiring water quality protection.
- 40 CFR 130.7(b)(2) and (c)(2) refer to Clean Water Act objectives of "water quality criteria for protection and **propagation** of a **balanced**, **indigenous** population of shellfish, fish and wildlife..."

This interpretation is supported in the following DEQ policy and documents:

- OAR 340-041-0028 (2) Policy. It is the policy of the Commission to protect aquatic ecosystems from adverse warming and cooling cause by anthropogenic activities. The Commission intends to minimize the risk to cold-water aquatic ecosystems from

anthropogenic warming, to encourage the restoration and protection of critical aquatic habitat, and to control extremes in temperature fluctuations due to anthropogenic activities.

- From OAR 340-041-0002 Definitions

  (50) “Resident biological community” means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin or water body are met. This must be established by accepted biomonitoring techniques.

  (68) “Warm-water Aquatic Life” means the aquatic communities that are adapted to warm-water conditions and do not contain either cold- or cool-water species.

- OAR 340-041-0011 Biocriteria. Waters of the State must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.
- OAR 340-041-0016 Dissolved Oxygen. Table 21 describes uses as biological communities, made up of multiple species, characteristic of a cold, cool or warm water environment.
- From DEQ’s temperature standard internal management directive (April 2008, p.5):

  "In the case of temperature, the most sensitive beneficial use is Oregon’s native cold-water aquatic communities. Cold water fish, such as salmon and trout, indicate the presence of these communities. Several temperature criteria have been established to protect various life stages and fish species, depending on their thermal requirements."

While DEQ has not carried out a biological assessment of the canal, the unnatural and obviously hazardous setting of the canal and its fish barriers, the concrete substrate through the constructed channel portion of the canal, and lack of cover clearly do not support 'balanced, indigenous' populations . In addition, because conditions are lethal to aquatic life through de-watering, organisms that find their way into the canal will not likely be able to successfully reproduce or be sustained over time. On a final note, DEQ and EPA seem to agree that use attainability can be determined based on physical features, not necessarily on water quality, and that common sense and good judgment do play a role. This is stated in preamble to water quality standards regulations, EPA (Federal Register Vol. 48, No. 217, Nov. 8, 1983):

> "Physical factors may be important in evaluating whether uses are attainable. However, physical limitations of the stream may not necessarily be an overriding factor. Common sense and good judgment play an important role in setting appropriate uses and criteria. In setting criteria and uses, States must assure the attainment of downstream standards. The downstream uses may not be affected by the same physical limitations as the upstream uses. There are instances where non-water quality related factors preclude the attainment of uses regardless of improvements in water quality. This is particularly true for fish and wildlife protection uses where the lack of a proper substrate may preclude certain forms of aquatic life from using the stream for propagation, or the lack of cover, depth, flow, pools, riffles or impacts from channelization, dams, diversions may preclude particular forms of aquatic life from the stream altogether..."

	[1] DEQ. 2012. "Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon."

Comment 10	A few citizens brought up the fact that this canal should be fenced off to prevent the kids from playing or swimming in the canal. This canal has too much access to the public. Commenter number: 005
DEQ's response	While DEQ acknowledges this concern, the objective of water quality standards is to establish the desired water quality conditions and does not incorporate consideration of other safety concerns. However, because there may be incidental water contact resulting from people swimming or playing in the canal, even though such actions are prohibited, the proposed standards retain water contact recreation as a designated beneficial use and the bacteria criteria designed to prevent disease.

Comment 11	A petition was submitted with eighteen signatures. These people oppose the treatment plant water going into the canal. The petition states that there are small-area water users that use the water for domestic irrigation – lawns or fields of a couple of acres. These people are concerned that water from the canal could potentially contaminate children playing in the grass or through other exposure. Concern was expressed regarding "solvents, herbicides, numerous unknown and untested chemicals from the surrounding processing plants, hospitals, clinics and unclaimed drug labs." The petitioner also asked how many small water users with less than twenty acres are using the canal. Commenter number: 005
DEQ's response	DEQ believes that the proposed revisions to the water quality standards will not lessen the adequacy of pollution regulation. DEQ acknowledges that canal water is used for residential irrigation in some areas (see comment 12). The same bacteria criteria that protect full body human contact (i.e., swimming) for all waterbodies statewide will continue to apply to the canal, as stated in the response to comment 10. The domestic water supply use (drinking water) and associated criteria that DEQ is proposing to remove from the canal are based on human health effects that may result from the ingestion of water (2 liters/day) and fish (175 grams/day) over a long period of time. Exposures at these levels over this duration will not occur through a small amount of water ingested accidentally or sporadically when children are playing in a sprinkler or on a lawn recently irrigated. Water quality criteria have been developed for a limited number of toxic substances; and not all of the pollutants identified in the comment are explicitly address through either the current rules or the proposed revisions. DEQ is proposing a narrative criterion for the canal that would allow DEQ to regulate the discharge of toxic substances that could harm the designated uses of the canal, including irrigation and water contact. The water quality standards work in conjunction with other regulatory requirements to control potential sources of pollution. These include various regulations and a clean water permit issued to the irrigation district that governs the application of pesticides. Any other direct discharges to the canal would need to obtain a discharge permit, evaluate the discharge of pollutants and meet treatment requirements based on the type of facility. For more information on regulation of the treatment plant and discharge to

	canals, refer to the responses to comments 52 and 2, respectively. DEQ will seek public comment on the city discharge permit as part of the permit renewal process. People should not drink water from any irrigation system. While DEQ acknowledges that inappropriate incidental ingestion may occur, precautions guarding against this are not within the scope or capability of water quality standards for the canal or any other waterbody receiving wastewater effluent. Other comments in the petition are addressed in the responses to comments 33 and 36.

Comment 12	Section 3 (of the SRR document) addresses the revision of designated uses for the canal. We agree to these changes as they correctly identify the actual uses of the canal. We note in Section 3.3 that a word was missing in the third paragraph. That would be the word "limited" - "Swimming is prohibited and public access to the canal is very limited...". The Canal also delivers irrigation water to residential homes in Irrigon and Boardman as well as Umatilla. These homes do have a domestic source of water. District policies and annual newsletter remind folks that it is irrigation water and subject to pollutants and foreign materials. We will assure that a paragraph regarding the water is included in our annual newsletter. We find the document to correctly determine the attainable uses in the Canal. Commenter number: 009
DEQ's response	This comment concurs with our understanding of the beneficial uses of the canal. We will correct this, replacing the word "very" with "limited."

Comment 13	The proposed elimination of beneficial uses in the Canal does nothing more than recognize the legitimate water uses for the canal, based on the water rights held by the West Extension Irrigation District. The concrete-lined, man-made canal's sole beneficial use is for the irrigation of agricultural crops. The existing primary and supplemental water rights that are used to supply water to the canal are limited to irrigation and stock watering. Other incidental uses are possible, but they are not feasible given the water right restrictions and existing allocation of water to existing district customers. The district consumes their primary water right allocation every irrigation season and must rely on secondary water rights to meet their customers' irrigation demands. Because it is not a natural waterway, the aquatic habitat and riparian analyses that would normally be applied to a natural waterway are not relevant. The canal is not a waterway that has or ever could be expected to provide habitat for fish. Indeed, if fish did make their way into the canal, they would not survive. In recognition of that fact, the West Extension Irrigation District, USBR and Oregon Department of Fish and Wildlife have gone to great effort and expense to construct structures that screen fish from this canal. The canal would be lethal to fish no matter the water quality. The city supports the removal of the following two beneficial uses as protected uses in the canal: 1) fish and aquatic life; and 2) drinking water. Commenter number: 011
DEQ's response	This comment is consistent with the DEQ's basis for proposing to re-designate beneficial uses for the canal.

Comment 14	In reviewing this draft use attainability analysis, EPA considered the definition in 40 Code of Federal Regulations (CFR) 131.3(g) that states that a "use attainability analysis is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g)." 131.10(g) states that "States may remove a designated use which is not an existing use, as defined in 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because" [of one or more of the six factors under 131.10(g)]. (1) Naturally occurring pollutant concentrations prevent the attainment of the use. (2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met. (3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place. (4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modifications in a way that would result in the attainment of the use. (5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses. (6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact. Commenter number: 012
DEQ's response	This comment is consistent with the DEQ's basis for proposing to re-designate beneficial uses for the canal.

Comment 15	The twelve (12) currently designated beneficial uses for the canal apply broadly to the entire Umatilla sub-basin: Public Domestic Water Supply Private Domestic Water Supply Industrial Water Supply Irrigation Livestock Watering Fish and Aquatic Life (Redband or Lahontan cutthroat trout sub-category) Wildlife and Hunting Fishing Boating Primary water contact recreation Aesthetic quality Hydropower The proposed revisions to the beneficial uses for the canal in the draft use attainability analysis remove five (5) of the twelve (12) uses currently designated: Public Domestic Water Supply Private Domestic Water Supply

	Fish and Aquatic Life Fishing Boating Of the seven (7) remaining designated beneficial use categories, DEQ identified irrigation, livestock watering, and primary water contact recreation as the beneficial uses for the canal. These three uses identified are to be protected by revised numeric criteria for some pollutants and new narrative criteria to address other pollutants for which numeric criteria would no longer exist Commenter number: 012
DEQ's response	DEQ agrees that seven current uses will continue to be designated beneficial uses of the canal, and that DEQ proposes numeric and narrative water quality criteria to protect the most sensitive uses: irrigation, livestock watering and contact recreation. In addition, DEQ proposes to designate a *modified aquatic habitat*** use for the overflow channels segment of the canal, the lower two miles, and to establish additional criteria to protect that use. (See also the response to comment 9).

Comment 16	In reviewing the draft use attainability analysis and developing the recommendations provided in these comments, EPA has focused on three basic questions: (1) what, according to the physical, chemical, and biological data submitted in the use attainability analysis or otherwise obtained by EPA, are the existing uses in the water body, (2) whether it has been adequately demonstrated by the state that the designated uses proposed for removal are not attainable and (3) whether the new and revised criteria protect the proposed revised uses? Our recommendations are focused on additional information that would be helpful in strengthening DEQ's analysis and supporting the state's determinations pertaining to these three questions mentioned above. Commenter number: 012
DEQ's response	This comment states three general questions guiding EPA's review. As a general matter, DEQ concludes that the SRR includes the necessary information (which serves as a use attainability analysis) for this action, which is to correct uses that have been designated for the canal, and establish criteria appropriate to the revised set of uses. Related to question (1) above, DEQ notes that 40 Code of Federal Regulations (CFR) 131.3(g) that states that a "use attainability analysis is a structured scientific assessment of the factors affecting the attainment of the use which **may** include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g)." It is not required that all three types of data be submitted. The state may demonstrate that use attainment is not feasible based on "**one or more**" of six factors as stated in 40 CRF 131.10(g). DEQ is basing our proposed use change on factors 4 and 5, which pertain primarily to the purpose and characteristics of the canal, and the fact that most of the canal is a constructed concrete structure and the remaining two-mile segment is highly modified.

Comment 17	II. General characterization of the canal. DEQ did an extensive job to research and understand the history of the canal, the geographical location and limitations, the management intentions, the mechanics of the Columbia Basin Exchange Project through the USBR, and the proximity and impact on neighboring communities. The following information would help EPA in its upcoming review by bolstering and reinforcing the record supporting our action on this rulemaking: 1. Please describe how the physical, chemical, and biological properties of the water in

	the approximately 2-mile unlined overflow channel area compare with the physical, chemical and biological properties of the cement-lined canal area. From our discussions with you, we understand that the two areas may be characterized as two distinct segments. This additional characterization would help EPA to better understand the waterbody and the existing and attainable uses in these different segments of the canal. 2. Please provide any available data that characterizes the water quality in the canal at different times of the year (i.e. when the water is coming in from the Umatilla River vs. when the water is coming in from the Columbia River). Any samples taken in the canal, or in the Umatilla and Columbia Rivers over the course of the year at monitoring stations, would help EPA to better understand the chemical and perhaps biological characteristics of the canal. This could assist us as we evaluate whether the proposed changes to the criteria applicable to the canal will still protect the designated uses of the canal, consistent with the Clean Water Act and EPA's regulations. Commenter number: 012
DEQ's response	1. The chemical and biological properties of the waters in the constructed and overflow channels have not been assessed. Water quality data is very limited and biological data is not available. The physical properties of the canal are described in the SRR (size, shape, flow, concrete-lined, map pattern, fish barriers), including illustrations. EPA's comments suggest the possibility of splitting the canal into segments. DEQ has decided to differentiate two segments of the canal. The "constructed channel" segment is the constructed, concrete lined structure, which is 27 miles long. The overflow channels segment consists of highly modified channels that are partially lined and dug, but for the most part follow a natural drainage for the last approximately two miles of the canal. DEQ's final proposed rule designates a *modified aquatic habitat* use and associated criteria to address the possibility of limited aquatic life in the overflow channels segment. DEQ notes that the overflow channels are also operated as an irrigation system (withdrawals, cleaning, ditching, fish barriers). They are road and field ditches that would not carry water most of the year if not fed by the constructed channel and irrigation (via surface and ground water). The canal, for most purposes, generally functions as a single unit for the following reasons: a) The entire waterbody has been used as a conveyance for irrigation water supply and return flow and livestock watering since 1916. b) Although the overflow channels, which comprise the last two miles of a 29-mile system, occupy a natural topographic trough, the morphology and climate indicate that pre-canal runoff would be rare. The flow pattern that exists now is due to the irrigation system. c) The fish barrier is near the outlet (800 feet) of the final overflow channel such that fish are also excluded from the overflow channels. However the overflow channels have some habitat features that may allow for a modified, limited aquatic life use beyond what is expected to occur in the main constructed channel. These features include earthen substrate rather than concrete lining for much of this segment, and vegetated banks. In addition, most of the overflow channels follow a topographic drainage way. Due to the presence of some limited habitat features in the overflow channels, DEQ is designating a subcategory of aquatic life use for this segment, "modified aquatic habitat." This designation recognizes the potential that the existing conditions may allow for limited aquatic life use, which should be maintained. *In support of this conclusion, DEQ added more detail to the SRR about the

	physical nature of the overflow channels, including descriptions of rainfall, channel morphology and area hydrography. 2. Please refer to response 1 of this comment and the responses to comments 9 and 16. As described in the SRR, DEQ relied upon the factors described at 40 CFR 131.10(g)(4) and (5). The SRR has been revised to improve the canal description and DEQ's conclusions about the appropriate existing and attainable uses. This basis for determining non-attainability relies upon the physical characteristics and artificial nature of the waterbody, as well as its purpose and operations. As such, additional data characterizing the water quality or biology in the canal at different times of year is not necessary. DEQ's approach to this rulemaking is consistent with EPA's preamble to 1983 regulation, which states "There are instances where non-water quality related factors preclude the attainment of uses regardless of improvements in water quality... diversions may preclude particular forms of aquatic life from the stream altogether..."

Comment 18	III. Demonstration of existing uses. DEQ provided information on page 18 of the use attainability analysis that the existing uses were evaluated, and it was concluded that existing uses for the canal are limited to irrigation, livestock watering, wildlife and hunting, water contact recreation, and aesthetic quality. EPA would like to understand better how DEQ arrived at those conclusions. Given that Table 310A includes industrial water supply and hydropower as designated beneficial uses for the canal, should they also be mentioned on page 18 and discussed? DEQ states on page 18 that irrigation, livestock watering, wildlife and water contact recreation have been attained in the canal on and after Nov. 28, 1975, and that aesthetic qualities are also present. Following are two additional information requests that may help support EPA's review and determination under Clean Water Act Section 303: 1. Please provide the data and information that DEQ may have reviewed that supports the determinations on these existing uses for the canal mentioned above. For example, as stated in the April 2007 DEQ internal management directive on use attainability analyses, "Are there sources of information available from Oregon Department of Fish and Wildlife databases, monitoring results, OWRD basin plans, tribal and/or watershed councils, other federal and state agencies (Forest Service, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration – National Marine Fisheries Service, Oregon Parks and Recreation Department) and other local or regional governments, etc.?" 2. Please provide information on whether it may be possible to operate this waterbody, now or in the future, in a manner that could support the uses proposed for removal. Commenter number: 012
DEQ's response	1. DEQ does not propose to remove or revise the current use designations for industrial water supply, hydropower, wildlife and hunting, water contact recreation, or aesthetic quality and therefore is not required to evaluate the extent to which these are existing uses. However, for context, DEQ does discuss the fact that industrial water supply and hydropower are not existing uses in Section 3.4 (Historically Designated Beneficial Uses that are not Existing Uses) of the SRR. DEQ also notes in Section 3.3 of the SRR that the existing wildlife use is limited to temporary and intermittent use.

	2. DEQ proposes to remove fish and aquatic life, fishing, boating and domestic water supply as designated uses of the canal and to designate a *modified aquatic habitat* use for the overflow channels segment (refer to the response to comments 9 and 17and to the revised SRR). This is a highly established irrigation system. Given the canal's physical limitations, it is not feasible to operate it in a manner that provides sustainable and appropriate habitat for aquatic life, while maintaining its design-purpose as an irrigation canal. The constructed channel segment of the canal cannot be restored to a natural waterbody because it is a constructed channel built on the hill slope and does not follow a natural drainage way or topographic low. The overflow channels segment has been highly modified since well before 1975 and cannot feasibly be restored to a natural condition using cost effective and reasonable BMPs and maintaining the function of the overflow channels as part of the existing irrigation system. Refer to Sections 3.4 and 3.6.2 of the SRR for discussion of the hazards of an irrigation system to aquatic life due to conditions other than water quality. In addition, it is not a policy goal of DEQ or the canal managers that the canal be used for drinking or domestic (household) water supply [refer to the response to comment 19 (1a)]. For the purpose of beneficial use designation, DEQ is not aware of any additional information that would sensibly fulfill this request. The canal is not authorized to be operated for purposes other than irrigation. Refer to SRR, Section 2.2: "The East and West Divisions (West Division Main Canal), which originally comprised all the project, were authorized by the Secretary of the Interior on Dec. 4, 1905, under provisions of the original Reclamation Act, section 4, (32 Stat. 388). The authorized project purpose of the original project was irrigation."

Comment 19	IV. Demonstration that Current Uses are Not Attainable. EPA is requesting additional information below that will enable EPA to complete a review and determine if the proposed revisions are consistent with Clean Water Act Section 303: 1. Please share any available data that DEQ may have used in determining that currently designated uses are not attainable. a. For Public and Private Domestic Water Supply: The use attainability analysis states on page 19 that "The canal has never been used for either public or private domestic water supply or industrial water supply…there are no water rights providing for such use, nor is it feasible that they would be granted. Therefore, these are not existing uses." Please provide any data and information supporting this statement and please identify which of the 6 factors listed in 40 CFR 131.10(g) is to be used to support the removal of these water supply uses from the canal. b. For aquatic life: Please provide any data and information supporting the use of 40 CFR 131.10(g)(4) to demonstrate that a fish and aquatic life use is not attainable. For example, how was it determined that aquatic life and fish in the canal may not be attained in the future? Are there control strategies and management practices that could address the impairments identified in the canal? Are there alternatives to the way the canal is currently being managed that would allow it to serve as habitat for fish and aquatic life? c. For Fishing and Boating: Please provide any data and information supporting the use of 40 CFR 131.10(g)(4) to demonstrate that fishing and boating uses are not attainable.

	Commenter number: 012
DEQ's response	1a: Federal regulations at 40 CFR 131.10 do not explicitly require a use attainability analysis to remove the domestic water supply use designation because it is not a statutory goal under the Clean Water Act 101(a)(2). Accordingly, DEQ did not identify a 131.13(g) factor to justify the removal of this designation. Were DEQ required to justify removal of domestic water supply, however, factors 3 and 6 would both be supported given the lack of water rights and the operational modifications that would be required to allow such an unorthodox use of an irrigation canal. Note that DEQ is not proposing to remove industrial water supply as a use. DEQ has added information to the SRR to document the basis for the statement in question, as follows: *DEQ's review of the water right certificates for the irrigation district, and personal communications with the district manager and the OWRD area Water Master, confirm that domestic water supply (i.e. drinking water) is not an existing use of the canal and has not been a allowed use by law since 1973 and earlier. All of the rights to use water from the canal are held by the irrigation district, and these rights are exclusively for irrigation and livestock use. The District's water rights have been in place since 1973 and well before (dating back to 1893), so they were established prior to the Clean Water Act date of 1975 for identifying existing uses. One certificate (79932) with1893 priority date had allowed domestic use, but it was never used for that purpose and is no longer valid.* *Future use of canal water for non-agricultural purposes is highly improbable as well (2011 personal communication with Water Master). Further, it is common knowledge that irrigation canals are not used for domestic water supply and would not be safe for drinking. It is not a policy objective of the State of Oregon to establish the irrigation canal as a source of domestic (drinking) water supply.* *The water rights certificates are available on-line in OWRD's Water Resources Information System. The certificates for the West Extension Irrigation District are as follows:*

Certificate Number	***Use***	***Priority Date***
79924	Irrigation, Livestock	1893
79925	Irrigation, Livestock	1906
79926	Irrigation	1909
79927	Irrigation	1962
79928	Irrigation	1968
79929	Supplemental Irrigation	1968
79930	Irrigation	1969
79931	Supplemental Irrigation	1973
79932	Irrigation, Domestic Use, Stock Water	1893
79933	Irrigation, Stock Water	1906
79934	Irrigation	1909

1b. It is not a policy objective of the State, the USBR or the irrigation district, to transform the canal into aquatic life habitat. That is not the purpose of the canal. It is far

	more protective and productive to exclude fish from the canal and restore and maintain the natural streams in the sub-basin to support fish and aquatic life. Refer to the responses to comments 9, 16, 17(1) and 18(2). According to 40 CFR 131.10(d), "At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301 (b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control." Imposing effluent limits and employing cost-effective and reasonable best management practices would not transform the canal into viable aquatic life habitat. 1c. Fishing is not an attainable use of the canal because the canal does not and will not contain game fish. Boating is not safe due to egress limitations, pumps and equipment, and the canal water flows underground through a siphon at one point (under Interstate I-84). Boating and fishing are not consistent with the purpose the canal and are prohibited. Allowing public access and recreational use of the canal would create liability concerns for the irrigation district and the Bureau of Reclamation. DEQ believes this is sufficiently described in Sections 3.4 and 3.6.2 of the SRR. Refer to the response to comment 9for further discussion of the basis for the proposed use change.

Comment 20	We are troubled at the outset by the Report's misleading reference to "existing uses" as if the meaning of "existing" is a common dictionary definition rather than a legal term defined at 40 C.F.R. § 131.3(e). Report at ii. After the executive summary, the phrase as used seems to mean 'actual' or 'current.' See, e.g., Report at 1. While eventually DEQ cites the legal definition and tries to apply it, the Report is littered with references to "existing uses" frequently without its being clear precisely what type of uses are being discussed. We urge DEQ to never, including in document summaries, refer to existing uses in such a confusing manner. This problem carries over into Section 2.1 which purports to describe the canal but does not even mention when the canal was constructed. Given the importance of the date Nov. 28, 1975 to the conclusions of a use attainability analysis, it is essential that this information be provided, which it is later in the document. Commenter: 013
DEQ's response	DEQ agrees that the reader should understand the regulatory definition of existing uses and the timing context. DEQ revised Section 2.1 of the SRR to include the canal's date of construction. We will modify the executive summary of the SRR, third paragraph, as follows: *Existing uses (<u>those attained on or after Nov. 28, 1975</u>) are not being removed. This action corrects uses that DEQ designated for the canal as part of its broad designations for all waters of the Umatilla subbasin.* In addition, we will modify the introduction of the SRR, first paragraph, as follows: *The document also describes DEQ's analysis of the current designated beneficial uses, the extent to which those are existing or attainable uses, and DEQ's proposed revisions to beneficial uses based on that analysis. <u>Existing uses must be protected and are defined as "... those uses actually attained in the waterbody on or after Nov. 28, 1975, whether or not they are included in the water quality standards." [40 CFR 131.3(e)]</u>. Finally, the document identifies the water quality criteria DEQ proposes to protect the revised uses*

	of the canal and the supporting information for those criteria

Comment 21	Although the construction date of the canal is established as 1916, the use attainability analysis mentions that irrigators "partly lined" the western overflow branch, which was one of two overflow channels that "may have been an ephemeral drainage-ways" "after the original canal was built." No date is established for the addition of concrete to what was a natural streambed which would support some level of aquatic life. DEQ cannot treat the constructed portion of the canal and what was an ephemeral water body as if they are the same thing. Not only is it not clear that aquatic life in the formerly ephemeral waters was not an existing use, as discussed further below, but a natural streambed would support a different level of aquatic life than a concrete-lined streambed. Therefore, DEQ should evaluate the canal as three types of waters: (1) concrete-lined since 1916, (2) partly concrete-lined, and (3) natural streambed, unless it can demonstrate they are all the same. And it should define the meaning of "partly lined." There is no evidence, one way or the other, whether there is a level of aquatic life in any one of these types of canals, even on a seasonal basis, whether amphibians, reptiles, resident fish, or worms. There is no discussion of what human uses may occur such as by farm workers or teenagers. But why is fishing prohibited if there are no fish in the canals? See Report at 20. DEQ restricts its analysis to salmon, steelhead, and trout but those fish are not the definition of existing uses or attainable uses. It is certainly possible that there are minnows in the canals, for example, as they are known to exist in many irrigation systems. See, e.g., Fishes in the Middle and Lower Rio Grande Irrigation Systems of New Mexico, Circular 653, New Mexico State College of Agricultural, Consumer and Environmental Sciences, viewed at http://aces.nmsu.edu/pubs/_circulars/CR-653.pdf. In sum, there is no survey of what exists now, if anything, what might have existed in 1975 or thereafter, nor what might be achievable if the NPDES permit issued by DEQ that allows admittedly toxic levels of Acrolein and copper sulfate were to become more restrictive or if their use were to be terminated altogether and some other approach to managing aquatic weeds be used. Commenter number: 013
DEQ's response	These comments, with regard to the constructed and overflow channels, are addressed in the responses to comments 9 and 17(1). A new use designation, *modified aquatic habitat*, will be adopted for the overflow channels to better address this concern. Regarding use by farm workers and teenagers, fishing as a use, and presence of minnows, refer to the responses to comments 9, 10 and 11. Please note that DEQ proposes to maintain water contact as a beneficial use and the same bacteria criteria that apply to all streams in Oregon to protect for water contact, and even swimming (full body contact) use. Regarding acrolein and copper sulfate, please refer to the responses to comments 47 and 50.

Comment 22	There is no evidence that DEQ has spoken to anybody other than the interested party, the future discharger, and ODFW. Yet ascertaining existing use should require some effort to look for it. EPA rules leave no room for doubt where the burden falls and that is squarely on DEQ. Federal regulations prohibit the removal of lack of protection of existing uses in no fewer than four references: 40 C.F.R. § 131.10(g) ("States may remove a designated use which is not an existing use."); 40 C.F.R. § 131.10(h)(1) ("States may not removed uses if: they are existing uses."); 40 C.F.R. § 131.12(a)(I) ("Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."); 40 C.F.R. § 131.12(a)(2) ("[T]he State shall assure water quality adequate to protect existing uses fully."). Yet DEQ makes no effort to ascertain what

	uses have been made of the canals over the last 36 years. Without discussing what existing uses may have been present from Nov. 28, 1975 onward, DEQ simply concludes that it is "not removing existing uses from the use designation." Commenter number: 013
DEQ's response	The basis for determining which uses are existing uses is included in Sections 3.3 and 3.4 of the SRR, and this will be expanded upon as stated in the response to comment 9. Further discussion of this topic can be found in the responses to comments 9, 17, 18 and 19. DEQ believes that the SRR, as revised, will sufficiently address the existing use determination.

Comment 23	DEQ cannot, as it does in the Report, merely state that under an NPDES permit issued by itself, sufficient quantities of toxic chemicals (Acrolein and copper sulfate) are dumped into the entire canal as to negate any possible aquatic life. Such an argument is inconsistent with the goals of the Clean Water Act – among them, "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985" – as well as the requirements of evaluating attainability, which includes the "imposition of effluent limits required under sections 301(b) and 306 of the Act." 40 C.F.R. § 131.10(d). DEQ appears to cynically dismiss the requirements of 301(b)(1)(C) that effluent limits are required to meet water quality standards by using the effluent limits it has already established for Acrolein and copper in order to limit its definition of the uses that are attainable. Moreover, such an approach comes dangerously close to violating the prohibition on adopting "waste transport or waste assimilation as a designated use." See 40 C.F.R. § 131.10(a). It is difficult to see how DEQ's reliance on the ongoing dumping of Acrolein and copper sulfate to kill aquatic life is not the same as adopting uses for waste assimilation. Commenter number: 013
DEQ's response	The commenter suggests that DEQ is relying on the permitted use of pesticides to conclude that there is no possible aquatic life in the canal and to limit the definition of attainable uses. That is not the case. Rather, DEQ relies principally on the man-made nature (hydrologic modification), the physical nature (habitat conditions) and the operation of the canal (which includes dewatering, fish screening, pumping of water into and out of the canal), which serve its purpose as an agricultural water supply, to conclude that the constructed channel segment of the canal does not and cannot support the propagation and protection of aquatic life and, therefore, that aquatic life is not an existing nor an attainable use. The chemical, physical and biological integrity of the canal does not constitute habitat for a sustainable population or community of aquatic organisms. See the SRR for additional explanation. The commenter also suggests that DEQ is dismissing permit requirements under Clean Water Act sections 301(b) (C) and 306 as they relate to DEQ's evaluation of whether the current designated uses are attainable. DEQ disagrees. The DEQ-issued NPDES permit governing the irrigation district's pesticide application meets these and other applicable requirements of state and federal law. DEQ is basing its use determination on factors other than water quality and associated point source controls. The commenter concludes that DEQ's analysis and conclusion are "dangerously close" to designating waste transport or assimilation as a use. DEQ disagrees. As stated throughout the rulemaking documentation, the revised standards for the canal more accurately reflect

	existing and attainable uses, regardless of pesticide applications.

Comment 24	An approximate date – "the 1980's" – is established for the start of the use of the "exchange," a process whereby water in the canal enters from the Columbia River rather than the Umatilla, when the latter falls below target flows. In other words, the use of the "exchange" falls after the date defining existing uses. Report at 5. Yet the use attainability analysis does not discuss how the existing uses pre- and post-exchange although they are likely different and, in both cases, relevant to findings concerning existing uses under federal requirements. Commenter number: 013
DEQ's response	The Congressionally authorized Umatilla Basin Exchange does not affect DEQ's analysis of existing uses, nor DEQ's analysis of the attainability of uses. As described in the response to comment 9 and 23 the purpose, configuration, operation and artificial nature of the canal remain the same and the exchange did not have an effect on the uses of the canal before and after the water exchange. The effect of the Umatilla Basin Exchange in the use attainability analysis context is that it changes the source of the water to the canal, not the uses in the canal. *DEQ will clarify in the SRR that the pumped water of the exchange does not provide an avenue for fish passage to the canal.

Comment 25	The use attainability analysis states that at the head of the canal where it diverts from the Umatilla a fish screen was in place "dating back to the 1960's and earlier." Report at 9. DEQ appears to deliberately ignore the statement made in the Oregon Department of Fish and Wildlife letter that is set out in full in Section 8.3 of the Report that "[b]efore 1988 there was the possibility of fish being diverted into the canal, however, in the fall of 1988 a fish screen and bypass facilities were constructed at the canal diversion point to prevent fish from entering the irrigation canal system." Report at 38. In other words, after Nov. 28, 1975 and before 1988 fish could and did enter the canal at the point of diversion from the Umatilla. This is the definition of an existing use. Commenter number: 013
DEQ's response	DEQ disagrees that incidental numbers of fish that managed to sporadically cross through an earlier generation of fish screen constitutes an existing aquatic life use as discussed in the responses to comments 9, 17, 18, 19 and 23. Exclusion of fish in some manner has occurred consistent with available technology and materials since well before 1975 and the habitat of the canal has never been suitable, also an important factor in determining whether a use has "existed." Any such fish would not likely have survived very long and would not have been able to reproduce successfully.

Comment 26	At the end of the final overflow channel the use attainability analysis claims that prior to 2002, when a fish barrier was installed, "fish were prevented from entering the drainage system [from the Columbia] by a large concrete irrigation box that blocked passage." Id. While part of the original construction, DEQ notes that the box deteriorated over the years, irrigation ceased in the area, and "a few fish were noted above the Interstate-84 rest area (below the end of the concrete-lined portion)." Id. The ensuing discussion is focused not on what use has occurred by fish since 1975 but, rather, what fish use have taken place since the 2002 installation of a fish barrier (none). The trouble is that the actual use since 2002 is irrelevant to the evaluation of "existing uses" pursuant to federal regulations because there is evidence that there was, in fact, fish use of the canal prior to

	2002 and after 1975. This is confirmed by the Oregon Department of Fish and Wildlife letter which states that the fish barrier was installed "[t]o prevent entry of fish." As such, fish use up to "above the Interstate-84 rest area" is an existing use and cannot be removed through this proposed use change. Commenter number: 013
DEQ's response	Please refer to the response to comment 25.

Comment 27	Oddly, however, DEQ in discussing the attainability requirements of 40 C.F.R. § 131.10(d) – including that uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices (BMPs) for nonpoint source control – DEQ then states "[a]t this point in time, there are no point source discharges to the canal." Why then has DEQ pointed out that copper and Acrolein are discharged under an NPDES permit to the canal as a rationale for why the canal should not be designated for aquatic life? Commenter number: 013
DEQ's response	The SRR (Section 2.4.1.2) is in error in stating that there are no point source discharges to the canal at this time. This will be corrected as follows: *At this point in time, there are no point source discharges to the canal, other than the herbicide residual from applications to the canal, for which the irrigation district holds an NPDES permit. The imposition of effluent limits required under section 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control would not be expected to achieve fish and aquatic life use in the canal, where the physical configuration and canal operations are the limiting factor. This is true of boating and domestic water supply as well.* Also, please refer to the response to comment 23.

Comment 28	DEQ's citation to its own Internal Management Directive is unpersuasive because its IMD is riddled with legal errors. For example, in the section quoted, DEQ states that a use attainability analysis may be less than thorough if "the proposed changes to a designated use are corrections to the water quality standards." Report at 15. All proposed changes to designated uses can be described as "corrections to the water quality standards." Whether the canal has a "known and intended use and operations" is really irrelevant to whether federal requirements have been met. Commenter number: 013
DEQ's response	Rather than stating "less than thorough," in the SRR DEQ states: "DEQ anticipates that there will be situations in which the use attainability analysis will not require all of the technical information described in this chapter [for a more exhaustive use attainability analysis]. This may be the case if: the designated use is not an existing use, the designated use is not necessary as a goal for the waterbody, the proposed changes to a designated use are corrections to the water quality standards..." The level of analysis should be appropriately tailored to the situation. In this case, the waterbody was wrongly designated and that designation is being corrected. The current

	uses were not intentional policy goals for the canal specifically, and were not based on a site-specific determination of uses in the canal. Rather, they were established broadly for the Umatilla sub-basin when DEQ's first water quality standards were adopted in the 1970's. A longstanding goal of the agency is to revisit and correct those designations as resources and information allow. Refer also to the responses to comments 9.

Comment 29	Wildlife protection is glossed over by DEQ. While it remains a designated use, DEQ has not provided any analysis of whether the remaining applicable criteria "support the most sensitive use" as required by federal regulations. 40 C.F.R. § 131.11(a). While we disagree with Oregon's approach of protecting wildlife through aquatic life criteria and human health criteria (based on consumption of fish and drinking water, both uses proposed to be removed along with their associated criteria), DEQ cannot remove these two uses and not consider that wildlife is now the most sensitive use left. Regardless of the level of pollution found in the canal – a point repeatedly stressed by DEQ which, ironically, is in charge of reducing pollution – the wildlife use must be protected as both an existing and designated use. There is, however, no data on current water quality and no analysis on how criteria will protect wildlife. There is no discussion of what wildlife use the canals. For example, if there are fish in the canals and birds and mammals feed upon those fish, the level of protection will likely need to be higher than other wildlife uses. But it's impossible to tell from the complete lack of information provided in the use attainability analysis. Commenter number: 013
DEQ's response	DEQ disagrees with the commenter's assertion that Oregon protects wildlife through the application of the numeric aquatic life and human health criteria. DEQ has added discussion to the SRR regarding wildlife use and why DEQ does not propose additional numeric criteria to protect wildlife.* The canal is actively managed to prevent fish from entering the canal, so it is not a significant source of food for fish eating wildlife. It is reasonable to expect that if there is wildlife use of the canal, it is incidental and transitory. The canal is accessible and any water in a semi-arid setting will likely attract some use. However, the canal has no riparian vegetation, the surroundings are not natural or optimal wildlife habitat and given the lack of native fish and plant species in the canal, it reasonable to expect that if the canal is a source of food or water for wildlife, it is a very limited source. EPA does not have recommended criteria for wildlife and it is beyond the state's priorities or resources to develop a suite of numeric criteria for this purpose at this time. DEQ has proposed narrative criteria that provide for regulation of pollutants if information is available indicating that water pollution is affecting a designated use of the canal, which includes wildlife. DEQ will rely on these narrative toxics criteria as well as the numeric criteria for livestock watering, irrigation and water contact, to protect the limited wildlife use.

Comment 30	Nowhere in the use attainability analysis does DEQ provide any water quality data. Instead, the use attainability analysis cites EPA as saying that "the definition of 'existing use' can consider the available data and information on both the actual use and water quality." Report at 16 (emphasis added). This seems to be a poor paraphrase of the federal requirement that a state's antidegradation policy ensure that "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be

	maintained and protected." 40 C.F.R. § 131.12(a)(emphasis added). The regulation does not say "or," it says "and." DEQ has discussed, with limitations, the issue of uses but has failed utterly to discuss the issue of water quality. Consistency with the antidegradation policy is required by Section 303(d)(4) of the Clean Water Act when a water quality standard is being revised. Moreover, DEQ should establish a baseline of current water quality rather than removing uses and taking the position that the discharge from the canal cannot be regulated because even some of it contains exempt agricultural return flows. The logical extension of this argument is that with the exception of the handful of new toxic criteria established to protect livestock, there are no limits on the toxic effluent that can be discharged to the canals or from the canals to the Columbia River. That is with the exception of a narrative criterion similar to one already on the books that has never been applied in a regulatory context. Finally, it is not clear how DEQ can establish the highest attainable uses without any form of water quality data. Commenter number: 013
DEQ's response	The commenter asserts than any revision to water quality standards requires an antidegradation analysis. DEQ disagrees. Rather, the intent of both the federal and state regulations cited by the commenter is to ensure that the water quality and associated uses that have been attained are protected. Revisions to water quality standards in and of themselves do not result in degraded water quality. Therefore, DEQ does not agree that the antidegradation rule's reference to existing uses is appropriate in this instance. Rather, the federal requirement regarding the consideration of existing uses in revising or removing designated uses is the applicable requirement, which simply states that states generally may not remove uses that are existing uses (40 CFR 131.10(g)), which is defined as those uses actually attained in the water body on or after Nov. 28, 1975 (40 CFR 131.3). A reasonable interpretation is that "actually attained" refers to both the use and the water quality necessary to support the use as described in the SRR. In the instance of the canal, physical limitations have prevented attainment of the uses being removed, so DEQ does not need to further evaluate whether the water quality has also been achieved to conclude that those uses are not existing (also, see responses to comments 9 and 17). The commenter also interprets DEQ's discussion in the SRR regarding the irrigation return flows present in the canal as a statement that the canal cannot be regulated. Rather, DEQ is emphasizing that water quality standards continue to apply and DEQ proposes to make them more appropriate. The context of the statements noted by the commenter is that the Oregon Department of Justice has determined that the water within the canal continues to meet the Clean Water Act exemption from NPDES permitting for irrigation return flows. DEQ does not agree that "there are no limits on the toxic effluent that can be discharged to the canals or from the canals to the Columbia River." If DEQ becomes aware of pollutants present in the canal at levels sufficient to cause toxic effects that are not addressed through the proposed numeric criteria or an NPDES permit, the narrative criterion addressing toxic pollutants can be used to implement appropriate controls on identified sources.

Section 3: Comments on criteria

Comment 31	Why are there iron and manganese standards? Commenter number: 001
DEQ's response	Based on a review of public comments, DEQ decided not to propose numeric water quality criteria for the canal for iron or manganese. Please see the response to comment 44 and the SRR for additional information.

Comment 32	Why is there not an electrical conductivity or total salt standard? Total dissolved solids is much more difficult to measure. A total dissolved solids of 750 is awfully high. Commenter number: 001
DEQ's response	DEQ proposes a total dissolved solids criterion for the canal rather than electrical conductivity or total salt in order to maintain consistency with criteria for other Oregon waters. Monitoring is typically required of permitted dischargers who have a limit for total dissolved solids in their permit. It may be possible for others interested in monitoring the canal to measure electrical conductivity as a surrogate. Based on public comment, DEQ has re-evaluated total dissolved solids. DEQ has revised the proposed criterion based on USBR recommendation of irrigation-protective levels published in Ayers and Westcot[2]. The revised proposed criterion is a total dissolved solids concentration of 450 mg/l, which will be included in Table 310B and the following rule language: *(a) Canal waters may not exceed the numeric criteria shown in Table 310B. These criteria apply from the uppermost irrigation withdrawal to the confluence with the Columbia River;* [2]Ayers, R.S. and Westcot, D.W. 1985. "Water Quality for Agriculture." Food and Agriculture Organization of the United Nations. FAO Irrigation and Drainage Paper 29, Rev. 1.

Comment 33	I realize the premise for reducing the standard for water temperatures, is that no fish exist within the canal. So standards for fish habitat don't appear to be a bona fide beneficial use. On the surface, that may seem to be true, but to assume that the purposed alterations to the water within the canal will have NO impact on fish habitat and food sources is unrealistic. In fact, based on research published in the journal, Frontiers in Ecology and the Environment, by Dr. Sujay Kausal, of the University of Maryland Center for Environmental Science (UMCES), on rising temperature of rivers around the country. She says, "Warming waters can impact the basic ecological processes taking place in our nation's rivers and streams," and "Long-term temperature increases can impact aquatic biodiversity, biological productivity, and the cycling of contaminants through the ecosystem." In a report from the US Forest Service on Pacific NW salmon, "Rising stream temperatures will likely reduce the quality and extent of freshwater salmon habitat...The greatest increases in thermal stress (including diseases and parasites which thrive in warmer waters) would occur in the Interior Columbia River Basin..." The city of Hermiston is seeking to reduce the standard to allow warmer water to enter

	the canal, in order to make the project more affordable for the city. It's already clearly established that rising temperatures adversely impact-fish habitats and ecosystems, and the Columbia is at risk. This will add to the already rising temperature of the Columbia. To continue to deny that this deliberate addition of warmer than allowable water for fish, which will run through a concrete lined canal, gathering solar heat (not dissipating it), will arrive in the Columbia warmer than when added, and will adversely impact the ecosystem, would be short sighted and willfully ignorant. The canal cannot be viewed separately from the larger ecosystem. While reducing the standard to allow warmer water may cost Hermiston less in the short term, can all of us really afford the long-term costs? The increase in temperatures will adversely impact insect habitat, and food sources for many controlled species of fish, as well as, increased diseases and parasites, and diminish other vital aspects of the aqua culture. Reducing the standards for the canal will still harm fish populations, a major source of economic industry in our region. Watering livestock is a listed beneficial use for this water. Increasing disease and parasite growth would result in a corresponding rise is increasing disease and parasites in livestock and in the costs of treatment and replacement of stock losses. The burden of those costs will fall to the grower, and they could be substantial. Reducing the standard is in direct conflict with this beneficial use. Commenter number: 002
DEQ's response	DEQ agrees that high water temperature is detrimental to aquatic life and is a pervasive problem in the region. However, it is reasonable to conclude that the canal has minimal, if any, effect on the temperature of the Columbia River now and a potential discharge from Hermiston's wastewater treatment plant to the canal will have minimal, if any, effect on the temperature of the Columbia River and is not expected to be detrimental to canal uses (discussed subsequently in this response). Regarding the effect of the canal on Columbia River temperature, the length of the canal (29 miles) and the withdrawal of most of the water for irrigation use are likely to dissipate or remove most or all of any heat added by the treatment plant's discharge before the return flow reaches the Columbia River (should the proposed discharge take place). Canal return flow to the Columbia River is generally low, with the canal targeting three to six cubic feet per second. This can be compared to a typical upper flow level of 150 cubic feet per second diverted into the canal from the Umatilla and Columbia Rivers. Summer flow in the Columbia River normally exceeds 120,000 cubic feet per second. Thermal cumulative effects were analyzed for the Umatilla River, at similar flows to those in mid-lower canal, and it was found that cumulative effects from point sources, roughly 20 miles apart, are minimal[3]. Added heat dissipates in relatively short distances, and temperature increases of a few degrees are unlikely to sustain through the length of the canal (see also the response to comment 53). Regarding the treatment plant's potential effect on canal temperature, water in the Umatilla River just upstream from the canal's intake ranges from 72-78 ºF in the warmest summer afternoons and the un-shaded canal water likely warms downstream until it equilibrates with its new surroundings. During this time, treatment plant effluent temperature ranges from 73-76 ºF. As often as not during the summer, the treatment plant

	effluent would be cooler than the water in the canal. In the lower canal, flow is slight and diminishes downstream. At low flow, moving water more rapidly equilibrates with its surroundings. DEQ does not expect that if there is any temperature increase in the canal due to the treatment plant, it would carry 27 miles downstream to the overflow channels. When discharging to the Umatilla River, the treatment plant must not cause the river to exceed the summer maximum water quality criterion (calculated natural condition criterion) of 70 ºF. The city has not sought alternatives to river discharge because their effluent is heating the river, but rather due to the difficulty in lowering the treatment plant effluent temperature *enough* for the river to meet this criterion after mixing with the effluent. [3] DEQ. 2007. "Coordinating the Temperature Water Quality Standard and Umatilla Subbasin TMDL: Practical Considerations and Cumulative Effects Analysis."

Comment 34	The amount of leakage that is coming from the canal, the concern here is that all of the houses that are below the canal are using water that is already high in nitrates and that their wells will further be contaminated, not only with nitrates but also what the contaminates are in the wastewater. Making their wells virtually unusable. Commenter number: 005
DEQ's response	DEQ is not proposing a nitrate criterion for the West Division Main Canal. DEQ acknowledges that nitrate groundwater concentrations are a concern in the area. Groundwater standards exist independently of surface water standards and the water quality standards for surface water bodies are based on the designated beneficial uses of those water bodies. This is a difficult issue because nitrate is both helpful and harmful in agricultural landscapes. DEQ will continue to rely on the lower Umatilla Basin Groundwater Management Area and other regulatory measures to improve and protect groundwater and its uses. In addition, DEQ does not expect that the proposed removal of numeric nitrate criteria for the canal will lead to high nitrate concentrations in ground water. DEQ expects that the proposed treated discharge would meet groundwater target concentrations (7.0 mg/l nitrate-N) after mixing with Umatilla and Columbia River delivered to the canal near its upper end. Canal leakage is expected to be relatively slight, as the primary purpose of the canal is to deliver as much of the available water as possible to crops.

Comment 35	There is serious concern that this wastewater going in the canal will increase the Salt levels in the soil to a level that is so high that some of the ground would not be able to support the crops that are currently being grown. There should also be some preliminary testing done to determine the levels of salt that are being discharged into the canal from the Umatilla and the Columbia River to establish a baseline. There should also be some soil testing to determine the current levels of salt in the soil of this sensitive farm ground to determine how much salt should be allowed in the water and have no adverse effect on the soil. Commenter number: 005

DEQ's response	Based on comments herein and additional literature review, DEQ is reducing the proposed total dissolved solids criterion from 750 to 450 mg/l to address salts and their impact on crops. DEQ notes that any discharge to the canal would need to address this criterion. Refer to the response to comment 32. DEQ will seek public comment on the city discharge permit as part of the permit renewal process. In addition, we note that DEQ assessments indicate that groundwater in the canal area has total dissolved solids levels that typically range from 400-850 mg/l (Lower Umatilla Basin Groundwater Management Area monitoring).

Comment 36 ***Summary***	The petition referenced in comment 11 expressed concern regarding temperature, and associated excess moss growth, which could lead to increased applications of herbicides for controlling aquatic weeds. The upper most canal user expressed concern regarding odor and moss growth associated with treatment plant effluent. Commenter number: 005
DEQ's response	Refer to the responses to comments 33 addressing thermal concerns. In the Umatilla Basin, nutrients are generally not a limiting factor for aquatic weeds and algae. Moss and algae flourish in streams where water temperature is elevated. Accordingly, the discussion of thermal effects in the response to comment 33 addresses the issue of moss and odors associated with algal decay, as well as temperature.

Comment 37	Reclamation suggests that the proposed total dissolved solids target of 750 mg/l would be better set at 450 mg/l as measured at points of delivery to the water users, because recent studied indicate that the total dissolved solids begins to detrimentally affect sensitive crops at about the 450-500 mg/l level. Higher concentrations elsewhere in the canal would be of little consequence as long as mixing with other water diluted the concentration to 450 mg/l by the time irrigation water reached the points of delivery to water users. Reclamation supports the other proposed revisions. Commenter number: 006
DEQ's response	Refer to the responses to comments 32 and 35.

Comment 38	The changes in standards must not be more stringent than the existing Umatilla River and Columbia River water quality standards. We discharge water to the Umatilla River, Columbia River, and to the groundwater aquifer in the vicinity of the Canal, especially through flood irrigation. The proposed standards must have no detrimental impact on the ability of the irrigation district to store, treat, transmit and supply irrigation water to its users. Commenter number: 009
DEQ's response	DEQ acknowledges that it is not logical for the canal to have water quality standards that are more stringent than the standards for the Umatilla River and other area water bodies that have the same beneficial uses and additional uses. DEQ has reviewed and revised the proposed criteria for the canal. The newly proposed canal standards are generally not more stringent than area rivers. Refer to response to comment 44. This comment refers to discharge of canal water to the Umatilla River. Based on conversations with the District, DEQ notes that this refers to the once per year-end canal maintenance. With regard to groundwater, while most of the canal is hydrologically pre-disposed to lose water to the subsurface, the District has observed areas where

	groundwater enters the canal during the non-irrigation season.

Comment 39	The limits that are set on the various constituents in the canal water should be no less restrictive than the NPDES Permit (permit number 102567) already held by the irrigation district for our aquatic herbicide application. We currently use the aquatic herbicides copper sulfate and acrolein (propenal). We may use endothal in the future, so want to be sure that these and any other chemicals (past or future) are allowable under the proposed criteria, if applied in accordance with their FIFRA label. We specifically note that the proposed standard for copper is much less than would be in our canal during treatment times, but reasonable at normal operation. Commenter number: 009
DEQ's response	The District may apply the pesticides in accordance with the District's NPDES permit (DEQ permit for aquatic herbicide use). The proposed criterion for copper is less stringent (i.e. a higher concentration) than the current criterion that applies to the canal. The irrigation district's requirements are contained in its permit for aquatic herbicide use, which allows exceedance of the applicable criteria within the times and spatial boundaries of permitted application. For these reasons, the proposed criterion should not lead to more stringent requirements. Please refer to the response to comment 47 as well.

Comment 40	The city must de-chlorinate the Class A water or agree on suitable operational guidelines, specifically at irrigation season turn-on and shutdown, so that chlorine residual concentration is within acceptable limits for agricultural delivery and/or return flows to the Umatilla River, Columbia River, and the groundwater. The city must assure that other chemicals of concern such as ammonia and nitrates must be below river water standards under the above guidelines. Commenter number: 009
DEQ's response	DEQ will seek public comment on the permit as part of the city discharge permit renewal process. Please refer also to the response to comment 52. We also note that this topic is discussed in comment 45.

Comment 41	There will be no mixing zone required for the introduction of Class A water into the Canal. The water will be useable for all purposes immediately upon being discharged to and diluted with the canal water. This comment particularly addresses the total dissolved standard limit. We propose that limit be set at 500 ppm rather than the 750 proposed in the revised standards. This number appears to be supported through other research done by DEQ. Commenter number: 009
DEQ's response	A mixing zone for the treatment plant is a topic outside of the scope of this standards revision, though related. It would be addressed through treatment plant permit development, a process that will provide for public involvement. With regard to total dissolved solids, DEQ agrees that the criterion should be reduced. The revised proposed criterion is 450 mg/l total dissolved solids, to be met at the point of withdrawal from the canal for irrigation use (response to comment 32). This is based on concern about impacts to salt-sensitive crops via irrigation.

Comment 42	The proposed total dissolved solids water quality criterion is appropriate to protect all but the most salt-sensitive crops. In actual practice the city has committed to discharging high-quality Class A Recycled Water to the canal. The discharge from the city will be

	mixed with either Umatilla or Columbia River water before it is used for irrigation. The total dissolved solids of the city's discharge ranges from 500 to 750 mg/L, resulting from the naturally high total dissolved solids in the city's source drinking water. The sources of irrigation water (Columbia and Umatilla Rivers) have total dissolved solids values that range from 100 to 120 mg/L. After the irrigation supply is blended with the discharge, the resulting total dissolved solids will range from 150 to 200 mg/L. The blended irrigation supply and the discharge will be well below the standard that has been proposed. During the later portion of the irrigation season when the district is using the Columbia River supply, the discharge will be undiluted for approximately two miles until it blends with the irrigation supply. This will not be a concern for the district since the first customer is downstream of the point where the discharge is blended with the irrigation supply. Commenter number: 011
DEQ's response	Refer to the response to comment 32.

Comment 43	The proposed nitrate standard is a narrative standard designed to protect drinking water supplies. The city is aware that this area is within the Lower Umatilla Basin Groundwater Management Area due to high nitrate levels in the local aquifers. Groundwater management areas of nitrate concern are triggered by levels greater than 7 mg/L (as N) in groundwater. The proposed treatment plant is designed to achieve total nitrogen levels less than 20 mg/L. Both of the irrigation supply sources have nitrate levels less than 1mg/L (as N). Once the discharge is blended with the irrigation supplies the resulting blended water will have a nitrate level less than the target 7 mg/L (as N). The city is concerned that DEQ is considering establishing water quality criteria for a surface water discharge based on groundwater protection standards. Commenter number: 011
DEQ's response	Refer to the response to comment 34.

Comment 44	The existing standards for the Umatilla River do not include water quality criteria for aluminum, beryllium, boron, cadmium, cobalt, lead, lithium, molybdenum, or vanadium. The city believes these metals should not be regulated in the canal. The city does not have industrial dischargers to their sewage collection system, and based on previous priority pollutant scans; there is no reason to expect these metals to be above these proposed standards. Beryllium, cadmium, and lead were below the detection limit in the effluent samples in the previous priority pollutant scans (2009). Aluminum, boron, cobalt, lithium, molybdenum, and vanadium were not part of the priority pollutant scan. Commenter number: 011
DEQ's response	DEQ initially proposed for public comment numeric criteria recommended by EPA (1973, the "Blue Book") for toxic substances in livestock waters (primarily metals) (pp.309-317) and for trace elements in irrigation waters (p.339, Table V-13). Following public comment and further review, DEQ agrees that numeric criteria are not needed for aluminum, boron, cobalt, iron, lithium, manganese, molybdenum and vanadium. Similarly, DEQ concludes that numeric criteria are not warranted for fluorides and nitrite. These metals and anions are non-priority pollutants and DEQ has no reason to believe that canal waters will reach levels that would harm the designated uses of the canal or downstream waters. Impacts of these substances on crops or livestock are variable depending on climate, soil and water chemistry, crop type and agricultural

	practices. Should DEQ become aware of a discharge or concern related to one of these substances, DEQ can regulate the discharge using the proposed narrative criterion. The SRR contains additional information on the revisions to the proposed numeric criteria. DEQ's final proposed rule continues to include the numeric criteria for arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc; which are identified by EPA as priority pollutants. DEQ does not have the resources at this time to do a scientific re-evaluation of the Blue Book (1973) recommendations and therefore is relying on EPA's most recent recommendations to protect against potential impacts from these pollutants for the specified uses. With regard to the commenter's concern regarding the attainability of these levels, for all the metals and anions discussed in this response, priority and otherwise, DEQ expects that the EPA recommended values can be attained before the water is withdrawn from the canal for irrigation or livestock water use.

Comment 45	The city will continue to discharge to the Umatilla River during months when the canal is empty, and as such the treatment plant will be required to de-chlorinate their discharge to the river. The city is prepared to de-chlorinate their discharge to the canal if they are required to by DEQ. However, there may be benefits to maintaining a residual chlorine level in the discharge to the canal, in order to manage algal growth in the canal and to allay concerns about bacterial re-growth. Commenter number: 011
DEQ's response	Note the response to comment 40.

Comment 46	V. Other suggested information that would help to clarify the draft use attainability analysis document: Looking at draft Table 310A, primary water contact recreation is proposed to be retained. In this case, the current bacteria criteria (Single Sample 406 organisms per 100 milliliters of water and 30-day log mean (minimum of 5 samples) of 126 organisms per 100 milliliters of water) would continue to apply to the canal. EPA recommends that this criterion could be listed in Table 310B as one of the water quality criteria remaining applicable to the canal, in order to clearly communicate with the public. In addition, along those lines, it may also be helpful to include a table in the use attainability analysis showing all of the water quality criteria applicable to the canal concomitant with the proposed use changes, compared to the water quality criteria that apply currently to the canal, in order to be clear with the public and the canal water users on the levels of protection afforded to the canal. Commenter number: 012
DEQ's response	DEQ will clarify for readers of the water quality rules that the bacteria criteria in OAR 340-041-0009 continue to apply to the canal. In addition, DEQ will clarify the differences between existing and proposed criteria.

Comment 47	DEQ proposes to rely on narrative criteria where previously there were numeric criteria. Report at 23. Specifically, despite the fact that DEQ has never to our knowledge applied its general narrative on toxics, it proposes to add another narrative criterion that "[t]oxic substances may not be introduced to the canal in amounts, concentrations or combinations that are likely to harm the designated beneficial uses of the canal."

	Proposed OAR 340-041-0315(2)(b). At a minimum DEQ is aware of two toxic contaminants that are dumped into the canals at admittedly toxic levels pursuant to a DEQ-issued NPDES permit. Yet the use attainability analysis does not explain how DEQ intends to interpret and apply its new narrative criterion in setting the effluent limits for Acrolein. And copper sulfate in future such NPDES permits, or how it intends to do so for the expected new NPDES permit for which this exercise is designed. It does not explain how this narrative will afford protection of the downstream Columbia River. It does not discuss or explain how toxic inputs into the canals will be restricted to protect the Columbia River from common toxic chemicals – current and past – that run off from agricultural operations. Protection of the Columbia River Estuary, and depositional areas along the Columbia, depend upon restrictions throughout the Columbia River Basin yet DEQ proposes to allow an increase of toxic levels. Moreover, the plain language of the new narrative criterion applies to restricting toxics on the basis for their effects on "designated beneficial uses of the canal" and fails to address the requirement to protect downstream uses. In this way it is simply inconsistent with federal requirements because as applied in a regulatory context it does not allow for consideration of downstream effects. Commenter number: 013
DEQ's response	The proposed narrative criterion for toxics gives DEQ the ability to regulate the discharge of a toxic pollutant for which there are no numeric criteria. If the source of pollution can be identified and regulated under DEQ authority, such as a discharge that requires an NPDES permit, controls may be required based on information that the pollutant is impacting or has the potential to impact a designated use of the canal. Permits must consider all applicable water quality standards, including narrative criteria [40 CFR 122.44(d)(1)(i)], and this has been interpreted to include downstream standards as well – in this case, standards applicable to the Columbia River. Regarding the District's NPDES permit for aquatic herbicides, the current limits are still in place and when the permit is renewed or replaced, herbicide residual limits would be assessed with consideration of the canal narrative criteria and any influence of the canal regarding attainment of Columbia River water quality standards. For pesticide application, please note that any degradates and residuals are pollutants, not the pesticide applied under the West Division Main Canal NPDES permit. *DEQ has added discussion to the SRR on implementing narrative toxics criterion. Water quality standards vary spatially. This is because beneficial uses differ across a stream network and a water quality standard consists of the beneficial use and the criteria designed to protect that use. In addition, DEQ establishes standards with consideration of downstream waters as required by 40 CFR 131.10(b): "In designating uses of a waterbody and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters." The requirement to protect downstream waters does not dictate that upstream water quality standards match those of downstream waters. Rather, DEQ needs to establish and implement standards to adequately protect downstream uses. **DEQ has revised the proposed narrative criterion for the canal to clarify that downstream uses must also be

	considered.

Comment 48	And, last, there is a lack of clarity in the proposed rule changes. Proposed OAR 340-041-0315(2) states that the criteria in Table 310B supersede the standards in OAR 340-041-0011 through 340-041-0036. Conveniently the bacteria criteria, which still apply, are outside this group of standards but it would be better if they were called out specifically as still applying under OAR 340-041-0010 or put into the new Table 310B. It is unclear why DEQ is nullifying the total dissolved solids and Biocriteria criteria. DEQ similarly has not explained why as a source of toxics to the Columbia River downstream, the otherwise applicable toxic criteria should be superseded. Likewise, as Oregon still does not have nutrient criteria and relies upon a variety of other criteria to meet that need, the removal of the dissolved oxygen, Chlorophyll a, and pH criteria result in no limits on nutrient pollution in the canals. The proposed narrative criterion on toxics does not afford the same level of protection to wildlife as the superseded narrative criterion which provides that "[t]oxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses." OAR 340-041- 0033. DEQ has not explained why wildlife using the canals should obtain less stringent protection than they have heretofore. Commenter number: 013
DEQ's response	DEQ is setting a site-specific numeric total dissolved solids criterion for the canal. This supersedes the general criterion in OAR 340-041-0032, which refers the reader to the basin specific criteria because the total dissolved solids criteria generally vary by basin. Biocriteria and chlorophyll a criteria are not proposed for the canal because they are not necessary to protect the designated uses of the canal. Dissolved oxygen criteria are not proposed for the constructed channel for the same reason. Please note that pH criteria are proposed for the canal. In addition, after consideration of public comment, DEQ revised its proposed rule to include dissolved oxygen and pH criteria to address *modified aquatic habitat* in the overflow channels. Regarding downstream uses, refer also to the response to comment 47and the following section. Regarding bacteria refer to the response to comment 46. The absence of wildlife-based criteria is discussed in the response to comment 29.

Section 4: Comments on downstream effects

In addition to the comments and responses of this section, refer to the responses to comment 33 (thermal effects) and 47 (permits and standards requirements) for additional discussion of downstream effects.

Comment 49	One concern we have is the exemption of return flow from the canal to the Columbia from NPDES permitting. While the new proposal might ease environmental degradation in the Umatilla by diverting wastewater into the canal, that wastewater might ultimately flow directly into the Columbia without proper regard for the uses of the larger river. Then again, this effect might not be so harsh considering the generally negligible amount of return flow expected to the Columbia (0.5 to 30 cubic feet per second for the canal compared to the 120,000 cubic feet per second for the Columbia during low flow). We wonder whether the return flow to the Columbia might increase once the regulations are changed so that the treatment plant is allowed to discharge wastewater into the canal. Will the downstream farms be able to use the surplus? Commenter number: 010
DEQ's response	The commenter raises several issues regarding the prospective discharge of the city of Hermiston treatment plant discharge to the canal and potential impacts to the Columbia River. Please see also the response to comment 47. The specific details of the proposed discharge will be addressed at a later date and are not part of this rulemaking; however, for purposes of better understanding potential future outcomes, DEQ provides the following information: The manager of the Irrigation District has stated that they welcome the additional water from the city and anticipate fully using the additional water, which is needed by irrigators (comment 5). The tail water outflow to the Columbia River is not anticipated to change. In addition, refer to the responses to comments 52 and 53. Please also note: • The city's discharge would not increase the total flow in the canal by very much; the treatment plant maximum discharge would be about 4.5 cubic feet per second, and the typical upper flow level of the canal is about 150 cubic feet per second. • Typical return flow from the canal to the Columbia River is targeted at 3 to 6 cubic feet per second (the range is 0-30 cubic feet per second). • The city would only discharge to the canal during the growing season, when most of the water is withdrawn from the canal for irrigation use. During the winter (i.e. non-irrigation season), the city will discharge to the Umatilla River. • The Umatilla River also flows into the Columbia River, five miles below the treatment plant.

Comment 50	The use attainability analysis also comments that: In addition, the canal is maintained by routine application of aquatic pesticides, consistent with the District's individual NPDES permit for pesticide application. Both Acrolein and copper sulfate are used in the canal to minimize nuisance aquatic weeds. These pesticides lead to toxic conditions for fish, one important reason that the District actively manages the canal to exclude fish from the system. The District has used Acrolein and copper sulfate in the canal since 1958. Report at 11. If the levels of these two toxic contaminants, allowed by DEQ's own

	NPDES permit, are toxic to fish, DEQ needs to explain how not regulating the levels with numeric criteria will result in protecting the downstream Columbia River. What kind of toxic "mixing zone" is DEQ currently allow in the Columbia, what will it allow in the future, and with what effect on its designated uses, some of which are on the brink of extinction? Commenter number: 013
DEQ's response	The pesticide permit includes concentration limits for copper and acrolein that must be met outside of the geographic confines and time period specified in the permit. The proposed standards revision for the canal would not change the requirement for standards and permits to protect the beneficial uses of downstream waters. As the permit is periodically renewed, future permits would continue to consider Columbia River standards. Also, refer to the response to comment 47 and other comments in this section regarding protection of downstream uses.

Comment 51	The use attainability analysis purports to address the requirement that designated uses in standards be set to protect downstream waters. 40 C.F.R. § 131.10(b)("In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters."). However, the entire analysis is based on the relative flow rates of the canal and the Columbia River hinting that no toxicity could be caused in the Columbia because of dilution. Report at 22. But dilution is irrelevant when one looks as a pollutant such as DDT and its metabolites or PCBs, both of which accumulate in sediment and fish tissue regardless of how much flow there is in the Columbia or what the relative flows of the two waterways are. DEQ's response to the canal's potential contribution is to note that its attorney general has concluded that the canal would not need an NPDES permit because its discharge is exempt as agricultural return flow and, furthermore, would retain that exemption apparently no matter how much industrial or municipal waste were dumped into the canals. Report at 16. However, an NPDES permit is not a precondition for the requirements of protecting downstream waters to apply. In addition, DEQ has not demonstrated that the proposed new toxic criteria for the protection of livestock will be protective of the uses of the Columbia River upon the canal's discharge. Commenter number: 013
DEQ's response	DEQ agrees that persistent and cumulative toxics are challenging to address. However, the canal outflow is very small (generally 3-6 cubic feet per second during the irrigation season) and enters an unusually large waterbody. That does make a difference in terms of the potential impact of the canal on the river. In addition, response to comment 47 describes how downstream uses are protected as a general matter. As a result, it is reasonable to conclude that the canal outflow will not affect the ability of the Columbia River to attain the water quality standards. Also, DEQ also notes that bioaccumulation of toxins via fish would not occur in the canal, as fish are screened from the canal. In addition, the primary sources of water to the canal are the Umatilla and Columbia Rivers. The commenter refers to industrial and municipal waste – should the city discharge to the canal, the wastewater would be a small portion of the water supply to the canal and most of that water will be withdrawn from the canal for irrigation use (see also response to comment 49).

Section 5: Comments on city discharge to canal

In addition to the comments and responses of this section, refer to the comments 60 and 63 for additional discussion related to the city of Hermiston's proposed discharge to the West Division Main Canal.

Comment 52 ***General comment***	Addressing the possibility of discharge of treated effluent from the city of Hermiston wastewater treatment plant to the canal, several commenters expressed support for this action and several expressed concerns about potential risks. Commenter numbers: 002, 003, 004, 005, 007, 008, 009, 010, 011
DEQ's response	DEQ regulates what the wastewater treatment plant is allowed to discharge by setting specific conditions in an NPDES permit. These permits require the plant to meet all applicable water quality standards. The current process is an effort to ensure that the correct standards are in place before DEQ renews the city's permit for the treatment plant. DEQ will seek public comment on the permit as part of the permit renewal process. The key questions that DEQ is currently focusing on, to set water quality standards for the canal, are (1) what are the appropriate designated beneficial uses for the canal, and (2) what water quality objectives (criteria) should be established to protect these uses. However, because the topics of standards revision and permitting are related, we include the following information relating to the proposed discharge of treated effluent to the canal: • The city of Hermiston needs to improve its wastewater treatment system so that standards can be reliably met. The current treatment plant is about 30 years old and too often the effluent causes exceedances of water quality standards in the Umatilla River. • As noted in comment 2, wastewater discharge to a canal is unusual but applying recycled water to some types of crops is standard practice. • The wastewater, if discharged to the canal, will be treated to Class A levels according to the USBR permit process. • Class A wastewater is defined as water that has been oxidized, disinfected, filtered and meets very stringent bacteria and turbidity limits. Such water would be indiscernible from tap water to the human eye, and is expected to have very little odor. • In addition to meeting Class A treatment levels, the effluent would be required to meet water quality standards as laid out in DEQ rules. • Individual facility wastewater discharge permits include limits and monitoring requirements for all constituents that have reasonable potential to exceed water quality standards. This would be true whether the discharge is to a canal or river. In addition, DEQ requires that wastewater be treated through best available technology. • It is the understanding of the DEQ that the effluent will have mixed with the canal headwaters upstream from any points of withdrawal from the canal. The city has stated they plan to re-locate the diversion of the single water user that diverts canal water upstream from points of introduction of Columbia River water. • Please note also that the city of Hermiston has provided background

	information in a subsequent comment herein (Please see comment 58).

Comment 53 ***Summary***	Appreciation of the attention to pH, sediment and toxins is noted. While the commenter agrees that fish should not need protection within the canal system, they note that eliminating temperature criteria in the canal may lead to thermal harm to fish in the receiving Columbia River – and that increased temperature could result in harm to livestock via increased disease and parasites. In addition, municipal pollutants could contaminate food crops and toxins could be released to the Columbia River. Commenter number: 002
DEQ's response	In summer afternoons, when canal and effluent temperatures peak, DEQ does not anticipate that the city effluent would routinely warm the canal. A discussion of thermal effects is provided in the response to comment 33. The proposed rule includes criteria to protect for irrigation use (crops) and livestock watering. This includes a proposed narrative criterion that would address toxic pollutants. If information indicates that a pollutant is impacting, or is present at levels that have the potential to impact these uses, DEQ can control the discharge of the pollutant through the city's permit. In addition, the reader is referred to responses for comments 2, 49 and 52.

Comment 54	The uppermost canal water user is upstream from where Columbia River water enters the canal. Because they use water above where it is mixed with Columbia River water, the landowner does not want the water to be full of contaminates from the sewer plant. Commenter number: 004
DEQ's response	The proposed standards are applicable at all points of withdrawal for agricultural usage. For further discussion, refer to the response to comment 52.

Comment 55	I am concerned, that if the treated water from the Hermiston Waste Water Facility is put into the canal near The Three Mile Dam, that when the water from the Umatilla River is shut off from entering the canal the wastewater will back up behind where the Columbia River Water enters the canal and will become a two and one half mile open sewer lagoon. If the wastewater comes in at a higher temperature it will only make the situation worse. Currently the water from the Umatilla River is blocked behind the water from Columbia Water inlet and is stagnant water that grows moss and algae. I am also concerned about what happens to the wastewater if the canal has a wash out like the one this spring that went thru the Schultz's home. I believe the canal was down for over a week for repairs to be completed. The emergency release would be into the Umatilla River in that case and that is not acceptable by DEQ in a few years. At this point we would be getting our irrigation water before the wastewater mixes with the Columbia River water after the Umatilla River water stops coming into the canal. So we would be getting straight wastewater, not the mixture the rest of the canal would receive. There are clean-out areas along the canal that dump back into the rivers that leak all year long that would have to be upgraded to keep the sewer water out, and I do not want to see the burden of any special repairs to the canal so it may receive Hermiston's wastewater be passed on to the canal users and the district. It was unclear to me if Hermiston was paying the district to take their wastewater. I think the water would be safer for the public and the rivers, and better used if it were pumped onto crops and filtered thru the sand into our water sources. It seemed to work at LGW Ranch for the many years. There are other large farms across I-84 with thousands of acres and no homes or residences

	nearby. Thank you for your time and consideration of my concerns. Commenter number: 007
DEQ's response	The permitting of treated municipal effluent is outside of the scope of this standards revision. However, because the topics are related DEQ included some discussion regarding these concerns. Please refer to the responses to comments 33, 52, 54 and 56.

Comment 56	If the effluent that will be dumped into the canal from the city of Hermiston changes to below Grade A water, I strongly object to the proposal. Commenter number: 008
DEQ's response	We expect that the effluent will be treated to Class A levels. Refer to the response to comment 52.

Comment 57	Discharge limits shall be set and maintained to allow full use of the water on any variety of crops. No restrictions will be required for any crop grown within the district currently or in the future. Commenter number: 009
DEQ's response	DEQ agrees that the water quality standards for the canal and, therefore, the permit limits for any discharge to the canal, should protect irrigation water use for any crop type that could reasonably be expected to be grown in the area. The proposed standards are intended to protect, not restrict crops. Discharge limits will be established through the required NPDES permit. Please also refer to the responses to comments 38, 41, 43 and 44. Opportunity for comment on a draft discharge permit will be provided through the NPDES permit revision and approval process.

Comment 58	*Background.* The West Division Main Canal is a large concrete-lined irrigation canal. It conveys water westward from the Umatilla and Columbia Rivers to over 8,000 acres of farmland. The canal was carved out of the desert and does not follow the course of any naturally occurring drainage way. It was constructed with the sole purpose of conveying water for agricultural irrigation. The city believes that discharging to the canal would provide an exciting opportunity to beneficially reuse the city's proposed high quality Class A Recycled Water. The existing treatment plant at Hermiston currently discharges secondary effluent to the Umatilla River. The Umatilla Watershed Total Maximum Daily Load (DEQ, March 2001) developed stringent temperature and ammonia standards for the Umatilla River. Those strict standards, coupled with the low flows in the Umatilla River during the summer months, create a significantly challenging discharge scenario for the city to remain in regulatory compliance. The city has explored non-discharging alternatives, but has found those alternatives more expensive and less reliable over the long term. The city believes that discharging Class A Recycled Water to the canal is the lowest cost, most environmentally responsible alternative, and provides the greatest long-term reliability for the city's discharge. A use change for the canal allows the city the opportunity to have an environmentally responsible plan for the next 50 years. *Stakeholders.* The city has made many contacts with various stakeholders in the region to insure that the ultimate discharge of Class A Recycled Water to the canal meets the various water

	quality and water use goals in the watershed. That process began in 2008 when the city held a stakeholder's meeting at the proposed discharge site. The meeting was attended by the DEQ, the West Extension Irrigation District, National Marine Fisheries Service, US Fish and Wildlife Service, the USBR, Oregon Department of Fish and Wildlife, and local landowners. The outreach effort has continued over the course of the last three years. The Confederated Tribes of the Umatilla Indian Reservation have also been contacted and expressed support for the project. The city has gone to great effort to consult with stakeholders throughout the watershed. *Protection of Public Health.* Concerned citizens have questioned the safety of coming in inadvertent or casual contact with the Class A Recycled Water from the treatment plant. Kennedy/Jenks Consultants recently completed a study that explores the risk of inadvertent and casual contact with Class A Recycled Water. This study, although only partially applicable in this discharge scenario, examines the worst case impacts of direct contact with Class A Recycled water. The city's discharge will be diluted with irrigation flows prior to being used for irrigation, further reducing the impact of inadvertent or casual contact. A white paper based on the WateReuse Research Federation study is available online at: http://www.datainstincts.com/imaqes/pdf/Risk Assessment Study PPCPs Recycled Water.pdf 1. Kennedy, l., J. Debroux, and M. Millan. 2011. Risk Assessment Study of PPCPs in Recycled Water to Support Public Review. Final Project Report. WRF 09-07. Published by the WateReuse Research Foundation, Alexandria, Virginia. Commenter number: 011
DEQ's response	DEQ appreciates receiving this information.

Section 6: Comments on monitoring

Comment 59	Is somebody actually testing for all the constituents in the canal water? If so how often and from where and how severe are the changes from what has been observed? Commenter number: 001
DEQ's response	Please note that monitoring requirements are outside of the scope of this rulemaking. However, we can respond broadly. If the city discharges in the canal, the city will be required to monitor the effluent going into the canal. Other than this and the Irrigation District's monitoring in relation to herbicide applications, little or no water quality monitoring is required of the canal – this is standard for irrigation systems. DEQ monitors the Umatilla River (river mile 8), five miles upstream of the canal diversion, for a variety of pollutant indicators on a quarterly basis. The Columbia River is monitored as well, though at broad scales. These data sets characterize water entering the canal. In addition, the discussions for comments 52 and 58 are relevant to this comment.

Comment 60	I noticed the section on toxins doesn't stipulate any requirements or provisions for monitoring toxins, or of a list of toxins that will be monitored, like phthalates, dioxins, pharmaceuticals, industrial waste, urban runoff, by-products from treatment chemicals and other toxic substances. Nor were any provisions included requiring testing to be done to assure that toxins are removed from the wastewater before being added to the canal. Commenter number: 002
DEQ's response	Water quality standards rules do not address monitoring requirements for Oregon waters. Monitoring efforts and programs stem from the *implementation* of standards, through a variety of programs. Permittees are required to monitor their discharge. For further information, please refer to the responses to comments 2, 52, 53 and 59.

Comment 61	Has there ever been testing done with the water in canal to establish a base line before the influent gets added into the mix? Commenter number: 005
DEQ's response	Refer to the responses to comments 59 and 60. There is a rudimentary baseline, as DEQ monitors the Umatilla River five miles upstream for a wide range of constituents, and there are data for the current treatment plant effluent and will be for the future treatment system as well. Data is available for the Columbia River as well, though limited in this area. For the canal, the Irrigation District has carried out limited monitoring for herbicide applications permit compliance. Comments on permit conditions related to monitoring are outside the scope of this proposed standards rule.

Comment 62	The changes in the standards must not increase the sampling requirements for the canal. We currently sample for a limited selection of chemicals that are used for treating our canal water for aquatic weeds. Additional sampling, especially if requested as a result of introduction of city wastewater, would be a financial burden to the irrigation district. Commenter number: 009
DEQ's response	As stated previously, water quality standards rules do not address monitoring requirements for Oregon waters. Monitoring of city effluent, should it be discharged to the canal, would be the responsibility of the city. Refer to the response to comment 64.

Section 7: Miscellaneous comments

Comment 63	As there was no mention made, within the standard, as to whose responsibility it would be to prevent these toxins from being introduced into the canal, how can we be assured that the standards will be met? It would be naive of us to assume that "someone" is going to do it, perpetually, out of the goodness of their hearts... As this variance in standards is by the request of the city of Hermiston, and it sets a legal precedent for such actions all across the state, it behooves the State Department of Environmental Quality to protect the interests of all its citizens and the integrity of its public policies and designate a responsible party for execution of the duties of meeting these standards, within this proposed variance. ...the amendments should be tied to a contingency clause that states that, "only should all criteria be met, is there to be a TEMPORARY variance issued, that may be retracted, should the city fail to meet its obligations, as stated in the revised standard." Commenter number: 002
DEQ's response	The proposed rule revises the water quality standards that apply to the canal so that they are accurate and appropriate. These rules do not change or dictate how standards are implemented. If the city is granted a permit to discharge treatment plant effluent to the canal, the discharge will be regulated, monitoring will be required, and if permit conditions are not met, DEQ will require corrective action. While the standards rules do not include monitoring and implementation requirements (response to comment 60), many related programs do. Refer also to responses to comment 2, 52 and 59. Please note that the proposed rule establishes water quality standards for the canal, which will apply on an ongoing basis until revised. This is not a variance.

Comment 64	The proposed modifications must not limit our ability to discharge any water to the Columbia River, Umatilla River, or the groundwater aquifer in the vicinity of the canal. Based on written comments from DEQ, we understand that the acceptance of Class A wastewater from the city of Hermiston will not affect the Clean Water Act Section 402(l) exemption for irrigation return and agricultural storm water (return flows). This is a condition of our acceptance of the water, which will be in our Permit with the city. Commenter number: 009
DEQ's response	DEQ does not expect that the revised standards will result in the need for Irrigation District to change canal operations (response to comment 38). The Oregon Department of Justice has reviewed the legal question and determined that the discharge of wastewater to the canal will not affect the Clean Water Act exemption for (NPDES) permitting of agricultural return flows.

Comment 65	...we have no record of having been invited to a round table discussion earlier this year to discuss this use attainability analysis with DEQ and would appreciate your removing that reference from the final Report. Commenter number: 013
DEQ's response	While DEQ has record of two emails to your organization inviting participation in the round table, we acknowledge that you apparently were not be aware of them. We will remove your organization from the referenced list.

Appendix A: Transcripts of public comments

001 Text of 10/25/2011 email:

Don

Here are my comments

Don

Rule change is pretty elementary except why is there a Fe and MN standard? A hangover from TMDL?

Why is the not a EC or total salt standard? TDS is much more difficult to measure. A TDS of 750 is awfully high if you were changing my water to this all the time I would balk pretty hard.

Is somebody actually testing for all this constituents in the canal water? If so how often and from where and how severe are the changes from what has been observed?

I can't imagine you ever see 10 ppm nitrite in the water

002

Jennifer McKinnis
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541-567-2017

Don Butcher
DEQ Water Quality Division
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Oct. 31, 2011

Re: **Hearing on Proposed Reduced Wastewater Standards, Hermiston**

Dear Mr. Butcher,

I appreciate this opportunity to voice my concerns on the proposed changes to the wastewater permit reduction for Umatilla Basin, 340-041-0310. I recognize the care with which it was crafted. I liked the changes to protect PH and sediment load and noted that there was even a statement on toxins. I commend the committee for their diligence.

I realize the premise for reducing the standard for water temperatures, is that no fish exist within the canal. So standards for fish habitat don't *appear* to be a bona fide beneficial use. On the surface, that may seem to be true, but to assume that the purposed alterations to the water within the canal will have NO impact on fish habitat and food sources is unrealistic. In fact, based on research published in the journal, *Frontiers in Ecology and the Environment*, by Dr. Sujay Kausal, of the University of Maryland Center for Environmental Science (UMCES), on rising temperature of rivers around the country. She says,

"Warming waters can impact the basic ecological processes taking place in our nation's rivers and streams," and "Long-term temperature increases can impact aquatic biodiversity, biological productivity, and the cycling of contaminants through the ecosystem."

In a report from the U.S. Forest Service on Pacific NW salmon, "Rising stream temperatures will likely reduce the quality and extent of freshwater salmon habitat...The greatest increases in thermal stress *(including diseases and parasites which thrive in warmer waters)* would occur in the Interior Columbia River Basin..."

The City of Hermiston is seeking to reduce the standard to allow warmer water to enter the canal, in order to make the project more affordable for the city. It's already clearly established that rising temperatures adversely impact-fish habitats and Eco systems, and the Columbia is at risk. This will add to the already rising temperature of the Columbia.

To continue to deny that this deliberate addition of warmer than allowable water for fish, which will run through a concrete lined canal, gathering solar heat (not dissipating it), will arrive in the Columbia warmer than when added, and will adversely impact the ecosystem, would be short sighted and willfully ignorant. The WEID canal cannot be viewed separately from the larger ecosystem.

While reducing the standard to allow warmer water may cost Hermiston less in the short term, can all of us really afford the longterm costs? The increase in temperatures will adversely impact insect habitat, and food sources for many controlled species of fish, as well as, increased diseases and parasites, and diminish other vital aspects of the aqua culture. Reducing the standards for the canal will still harm fish populations, a major source of economic industry in our region.

Watering livestock is a listed beneficial use for this water. Increasing disease and parasite growth would result in a corresponding rise is increasing disease and parasites in livestock and in the costs of treatment and replacement of stock losses. The burden of those costs will fall to the grower, and they could be substantial. Reducing the standard is in direct conflict with this beneficial use.

Moving on, I noticed the section on toxins doesn't stipulate any requirements or provisions for monitoring toxins, or of a list of toxins that will be monitored, like phthalates, dioxins, pharmaceuticals, industrial waste, urban runoff, by-products from treatment chemicals and other toxic substances. Nor were any provisions included requiring testing to be done to assure that toxins are removed from the wastewater before being added to the WEID canal. I could assume that this is not the responsibility of D.E.Q. and so is not addressed here. But, it is of major concern to the citizens of our area.

As there was no mention made, within the standard, as to whose responsibility it would be to prevent these toxins from being introduced into the canal, how can we be assured that the standards will be met? It would be naive of us to assume that "someone" is going to do it, perpetually, out of the goodness of their hearts...

As this variance in standards is by the request of the City of Hermiston, and it sets a legal precedent for such actions all across the state, it behooves the State Department of Environmental Quality to protect the interests of all its citizens and the integrity of its public policies and designate a responsible party for execution of the duties of meeting these standards, within this proposed variance.

Based on this history of the City of Hermiston's less than honorable business dealings with LGW Ranch, in this matter, the community of WEID has no actual assurance that municipal pollutants will not contaminate their irrigation water, and subsequently, their food crops. Nor does the greater community have any assurance that the municipal toxins will be prevented from reaching the Columbia River and adversely impacting fish habitats, food sources, and Eco-systems. Therefore, the amendments should be tied to a contingency clause that states that, "only should all criteria be met, is there to be a TEMPORARY variance issued, that may be retracted, should the City fail to meet its obligations, as stated in the revised standard."

I believe that this project can be a tremendous blessing to this community as long as it's done with accountability, forethought and planning for environmental issues. If we don't protect our environment now, we won't have a sustainable one in the future. Addressing and implementing programs that protect the health and prosperity of our community at the primary level yield increase and bounty. Resolving these issues makes our presence on the global market a positive one. Rather than being known as "the place where poo produce is grown," we could be "the community on the forefront of the 21st Century's green technology in sustainable agriculture." Please help us to make sure that this project is done right, not just done cheap.

Thank you for this opportunity to advance my concerns.

Sincerely,

Jennifer McKinnis
Regional Director of Toxic Injury Awareness
"MCS" Beacon of Hope Foundation

003

CITY OF IRRIGON

An equal opportunity agency

www.cityofirrigon.org

November 1, 2011

Don Butcher
DEQ Water Quality Division
700 SE Emigrant Ave., Suite 330
Pendleton, OR 97801
Waterqualitystandards@deq.state.or.us

RE: Water Quality Standards for West Division Main Canal

Dear Mr. Butcher:

I wish to lend my support for the change in water quality standards for the West Division Main Canal. Currently the canal does not support, nor should it be required to support, uses including: Domestic Water, Fishing, Water contact recreation, Fish and Aquatic Life and Boating.

I believe these designated uses for the West Division Main Canal were inappropriately applied to the water in the irrigation canal. Because these uses impair the ability of the West Extension Irrigation District to manage the water in the canal, the inappropriate uses should be removed.

Sincerely,

Gerald W. Breazeale
City Manager

500 NE MAIN AVENUE, P.O. BOX 428, IRRIGON, OR 97844
VOICE 1.541.922.3047 FAX 1.541.922.9322 Email irrigon@oregontrail.net Website www.cityofirrigon.org

004

Summary of oral testimony at Nov. 2, 2011 hearing:

Kathy Bissonette is a canal water user upstream from where Columbia River water enters the canal. Because they use water above where it is mixed with Columbia River water, she does not want the water to be full of contaminates from the sewer plant.

005

Summary of oral testimony at Nov. 2, 2011 hearing:

John Kirwin submitted a petition with eighteen signatures. These people oppose the treatment plant water going into the canal. He pointed out that there are small water users that use the water for domestic irrigation, a couple of acres or lawns. These people are concerned that water from the canal could potentially contaminate children playing in the grass or through other exposure. John also asked how many small water users with less than twenty acres are using the canal.

Text of 11/3/2011 email:

I had one other issue that I would like to get on the record and that is: Has there ever been testing done with the water in canal to establish a base line before the influent gets added into the mix.

Text of 11/10/2011 email:

I have met with several people over the last couple of days and they have asked me to submit their concerns over the waste water going into the WED canal so here they are:

Mrs Besnett. She was the person that is the first water user in the canal her concern is that the city will have to move their water pipe so far that it will not get done. When the water is coming from the Columbia river they already have problems with smell and moss growth as it is because there is a lack of mixing that the problem will only be made worse by the waste water coming in at an even higher temperature.

The amount of leakage that is coming from the canal, the concern here is that all of the houses that are below the canal are using water that is already high in nitrates and that their wells will further be contaminated, not only with nitrates but also what ever the contaminates are in the waste water. Making their wells virtually unusable.

A few citizens brought up the fact that this canal should be fenced off to prevent the kids from playing in or swimming in the canal. This canal has too much access to the public.

There is serious concern that this waste water going in the canal will increase the Salt levels in the soil to a level that is so high that some of the ground would not be able to support the crops that are currently being grown. There should also be some preliminary testing done to determine the levels of salt that are being discharged into the canal from the Umatilla and the Columbia river to establish a baseline. There should also be some soil testing to determine the current levels of salt in the soil of this sensitive farm ground to determine how much salt should be allowed in the water and have no adverse effect on the soil.

005, continued
Written testimony submitted as petition at hearing:

from John Kirwan

The following people are opposed to dumping the city wastewater into the canal. The reasons are numerous, however, we would emphasis to be placed on the following concerns:

The city wastewater is approximately 75 degrees F at its origin and with the additional impact of the suns heat along the west extension canal to Irrigon and Boardman, there will be a significant increase in the temperature which will impact the growth of moss.

With this additional growth of moss, there will be a need to add numerous chemical that will retard the growth of this moss.

The most significant chemical required is Acrolein (or other moss killers) which has a detrimental environmental impact on the salmon and other aquatic life such as the lamprey eels.

There are minimal mechanisms of control from the Umatilla to Irrigon and Boardman as it stands currently. Adding city water will not only increase the temperature of the water going through this canal, it will also overload the capacity of this water system to dilute these chemicals effectively.

If this plan is put in place, there will be people in the cities of Irrigon and Boardman that will be

watering their lawns with agriculturally exempt water and placing their families at great risk for coming in contact with solvents, herbicides and numerous unknown and untested chemicals from the surrounding processing plants, hospitals and clinics, and unclaimed drug labs.

This plan has too many unanswered questions and unproven processes that have unknown consequences to the environment and public health and safety.

Name	Address
Christiana Kenny	30089 Country Lane Hermiston
David Sinclair	3089 Countrylane Hermiston, OR, 97838
Doug Coomer	29685 Country Lane
Jess Beard	Hermiston OR
James Beard	Jordan Valley OR
Myrtle Myers	[signature]
Tina L. Orton	[signature] Orton 29682 Country Ln Hermiston
Leslie L. Conboy	Hermiston Ore
Gordon L T Berdwis	922 Nelson Drive Hermiston
Ron Buwalda	32236 E. Loop Rd. Hermiston
Glenn Chowning	[signature] 645 W. Orchard - Hermiston
Gary / Irene Arsenault	31223 Baggett / Herm-
Jess White	113 Rio Senda Umatilla, OR
Andres Gonzalez	Irrigon Oregon

Name	Address
Wayne Reffett	500 CANAL Umatilla
Justin Bissonette	P.O. Box 1785 Umatilla, OR
Andy Pittam	78502 Lloyd RD. Hermiston, OR
Cathy Bissonette	500 canal Umatilla, OR

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United States Department of the Interior

BUREAU OF RECLAMATION
Umatilla Field Office
32871 Diagonal Road
Hermiston, Oregon 97838

IN REPLY REFER TO:
UFO-4000
ENV-8.00

NOV 10 2011

Mr. Don Butcher
State of Oregon Department of Environmental Quality
Water Quality Division
700 S.E. Emigrant Ave., Suite 330
Pendleton, OR 97801

Dear Mr. Butcher:

In reply to the public hearing held November 2, 2011 regarding proposed revisions in water quality standards for the West Division Main Canal near the City of Hermiston, Reclamation suggests that the proposed Total Dissolved Solids (TDS) target of 750 mg/l would be better set at 450 mg/l as measured at points of delivery to the water users, because recent studies indicate that TDS begins to detrimentally affect sensitive crops at about the 450-500 mg/l level. Higher concentrations elsewhere in the canal would be of little consequence as long as mixing with other water diluted the concentration to 450 mg/l by the time irrigation water reached the points of delivery to water users.

Reclamation supports the other proposed revisions.

If you have any questions, please call me at 541-564-8616 extension 201.

Sincerely,

Boris S. Belchoff, Manager
Umatilla Field Office

cc: Ms. Bev Bridgewater
Manager
West Extension Irrigation District
P O Box 100 – 840 S Main
Irrigon, OR 97844

CCA-1000 (Gray)

007 Text of 11/13/2011 email:

Wayne Reffett
500 Canal
P.O. Box 1785
Umatilla, OR 97882

11/13/11
Don Butcher,
I am concerned, that if the treated water from the Hermiston Waste Water Facility is put into the canal near The Three Mile Dam, that when the water from the Umatilla River is shut off from entering the canal the waste water will back up behind where the Columbia River Water enters the canal and will become a two and one half mile open sewer lagoon. If the waste water comes in at a higher temperature it will only make the situation worse. Currently the water from the Umatilla River is blocked behind the water from Columbia Water inlet and is stagnate water that grows moss and algae. I am also concerned about what happens to the waste water if the canal has a wash out like the one this spring that went thru the Schultz's home. I believe the canal was down for over a week for repairs to be completed. The emergency release would be into the Umatilla River in that case and that is not acceptable by DEQ in a few years. At this point we would be getting our irrigation water before the waste water mixes with the Columbia River water after the Umatilla River water stops coming into the canal. So we would be getting straight waste water, not the mixture the rest of the canal would receive. There are clean-out areas along the canal that dump back into the rivers that leak all year long that would have to be upgraded to keep the sewer water out, and I do not want to see the burden of any special repairs to the canal so it may receive Hermiston's waste water be passed on to the canal users and the district. It was unclear to me if Hermiston was paying the district to take their waste water. I think the water would be safer for the public and the rivers, and better used if it were pumped onto crops and filtered thru the sand into our water sources. It seemed to work at LGW Ranch for the many years. There are other large farms across I-84 with thousands of acres and no homes or residences near by. Thank you for your time and consideration of my concerns.
Best Regards,
Wayne Reffett

008 Text of 11/14/2011 email:

West Irrigation Canal and Hermiston discharge

If the effluent that will be dumped into the canal from the City of Hermiston changes to below Grade A water, I strongly object to the proposal.

Thanks

Dan R. Tuinstra

Owner of organic land located at
81585 Apricot Lane
Umatilla Oregon

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West Extension Irrigation District

P. O. Box 100; Irrigon, OR 97844-0100
541-922-3814 (ph) 541-922-9775 (fax)
westex@oregontrail.net

November 14, 2011

Don Butcher
DEQ Water Quality Division
700 SE Emigrant Ave., Suite 330
Pendleton, OR 97801
Fax: 541-278-0168

Re: Water Quality Standards Revision, West Division Main Canal

The West Extension Irrigation District (WEID) was formed under Oregon Irrigation Law in 1919 to be the operating entity for the West End of the federal Umatilla Basin Project (Project). We deliver irrigation water to 9235 acres in Umatilla and Morrow counties. The WEID has a Repayment Contract and an Operation and Maintenance Contract with the U.S. Bureau of Reclamation for the Project.

We are pleased to offer comments to DEQ's proposal to revise the water quality standards in the West Division Main Canal (Canal).

DEQ did a very nice job of providing background about the history of the Canal and its operation. Such good work lays a foundation for the rest of the document.

Section 3 addresses the revision of designated uses for the canal. We agree to these changes as they correctly identify the actual uses of the canal. We note in Section 3.3 that a word was missing in the third paragraph. That would be the word "limited" – "Swimming is prohibited and public access to the canal is very limited...". The Canal also delivers irrigation water to residential homes in Irrigon and Boardman as well as Umatilla. These homes do have a domestic source of water. District policies and annual newsletter remind folks that it is irrigation water and subject to pollutants and foreign materials. We will assure that a paragraph regarding the water is included in our annual newsletter.

We find the document to correctly determine the attainable uses in the Canal.

Section 4 addresses the revisions to the criteria for the canal. We offer the following comments in regards to the proposed revisions:

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1) The changes in standards must not be more stringent than the existing Umatilla River and Columbia River water quality standards. We discharge water to the Umatilla River, Columbia River, and to the groundwater aquifer in the vicinity of the Canal, especially through flood irrigation. The proposed standards must have no detrimental impact on the ability of the WEID to store, treat, transmit and supply irrigation water to its users.

2) The proposed modifications must not limit our ability to discharge any water to the Columbia River, Umatilla River, or the groundwater aquifer in the vicinity of the Canal. Based on written comments from DEQ, we understand that the acceptance of Class A wastewater from the City of Hermiston (City) will not affect the Clean Water Act (CWA) Section 402(l) exemption for irrigation return and agricultural storm water (return flows). This is a condition of our acceptance of the water, which will be in our Permit with the City.

3) The changes in standards must not increase the sampling requirements for the WEID. We currently sample for a limited selection of chemicals that are used for treating our canal water for aquatic weeds. Additional sampling, especially if requested as a result of introduction of City wastewater, would be a financial burden to WEID.

4) The limits that are set on the various constituents in the canal water should be no less restrictive than the NPDES Permit (Permit No. 102567) already held by the WEID for our aquatic herbicide application. We currently use the aquatic herbicides copper sulfate and acrolein (propenal). We may use endothal in the future, so want to be sure that these and any other chemicals (past or future) are allowable under the proposed criteria, if applied in accordance with their FIFRA label. We specifically note that the proposed standard for copper is much less than would be in our canal during treatment times, but reasonable at normal operation.

5) The City must de-chlorinate the Class A water or agree on suitable operational guidelines, specifically at irrigation season turn-on and shutdown, so that chlorine residual concentration is within acceptable limits for agricultural delivery and/or return flows to the Umatilla River, Columbia River, and the groundwater. The City must assure that other chemicals of concern such as ammonia and nitrates must be below river water standards under the above guidelines.

6) There will be no mixing zone required for the introduction of Class A water into the Canal. The water will be useable for all purposes immediately upon being discharged to and diluted with the canal water. This comment particularly addresses the total dissolved standard limit. We propose that limit be set at 500 ppm rather than the 750 proposed in the revised

standards. This number appears to be supported through other research done by DEQ.

7) Discharge limits shall be set and maintained to allow full use of the water on any variety of crops. No restrictions will be required for any crop grown within the WEID currently or in the future.

We appreciate the work done by DEQ on the request of the City of Hermiston for these Canal standards. We are very interested in receiving the City's reclaimed water, under the conditions described herein and in your revised standards. As an irrigation district that relies on return flows from a natural water body (the Umatilla River), we experience shortages annually and we see this as a way to help us shore up our water supply. Please feel absolutely free to contact me or our engineer, Ben Volk of JUB Engineers in Kennewick (509-783-2144 or bvolk@jub.com), for any further discussion. Thank you.

Beverly J. Bridgewater

Beverly J. Bridgewater
District Manager

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010

To: Don Butcher, Oregon DEQ Water Quality Division,
Waterqualitystandards@deq.state.or.us

From: Sean Silverstein, Alon Mark, Ryan Bax, and McKenzie Joslin-Snyder

Date: Monday, November 14, 2011

Subject: Comments – Proposed revisions to the water quality standards for the West Division Main Canal near the City of Hermiston, OR

The West Division Main Canal (WDMC) begins near Hermiston at the Three-Mile Falls Dam on the Umatilla River and extends westward for 27 miles until it connects with the Columbia River near the city of Boardman. The WDMC is used for crop irrigation, including edible crops, as well as for livestock watering. The canal is absent of habitat and appropriate water quality conditions for fish and other aquatic life, so fish barriers have been installed to help prevent fish from entering. There are no domestic supply water rights, and swimming and boating within the canal are restricted. The artificial nature of the WDMC makes revisions to its beneficial uses a logical decision, especially due to restrictions already imposed that make certain beneficial uses impractical, and in some cases impossible, to still be included in the water quality standards report. The most substantial, and possibly most beneficial, outcome of these revisions will be the ability for treated wastewater to be transferred directly to the canal, rather than into the Umatilla River.

The revisions make it possible for the Hermiston Wastewater Treatment Plant (WWTP) to dump its treated water into the canal, as opposed to the alternative of dumping directly into the Umatilla River. It is logical and ethical to update the WDMC's beneficial uses to more accurately describe its purpose for the community around

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Hermiston, especially considering what the effects of dumping directly into the Umatilla have been in the past. Although the discharge has caused negative repercussions for the Umatilla River with regards to its TMDLs, the wastewater not only meets but also exceeds the standards for bacteria under the proposed revised beneficial uses. The Umatilla River is home to one of the most successful Salmon recovery efforts in the nation, and decreasing the amount of wastewater discharged into it will help stabilize the river and salmon habitat. At only one point does the canal pass through a small residential area, and the remaining mileage of the canal passes through agricultural plots that use the canal for irrigation. Under the proposed relaxed water standards the canal would still be fit for irrigation and livestock watering. The revisions seem certain to optimize the canal for its intended purpose.

The direct recycling of this wastewater to the WDMC will not only prove more ecologically friendly, but fiscally responsible to the small agribusiness owners along the Hermiston-Boardman stretch. The increase of flow through the canal will potentially "reduce the level of effort and costs required of small business farms." The less stringent standards will make more easily accessible water available to farms near the WDMC for irrigation and livestock watering, the primary uses along the canal. The town will also recycle its water responsibly and back into the community instead of just downstream.

One concern we have is the exemption of return flow from the canal to the Columbia from NPDES permitting. While the new proposal might ease environmental degradation in the Umatilla by diverting wastewater into the canal, that wastewater might ultimately flow directly into the Columbia without proper regard for the uses of the larger river. Then again, this effect might not be so harsh considering the generally negligible

amount of return flow expected to the Columbia (0.5 - 30 CFS for the WDMC compared to the 120,000 CFS for the Columbia during low flow). We wonder whether the return flow to the Columbia might increase once the regulations are changed so that the treatment plant is allowed to discharge wastewater into the canal. Will the downstream farms be able to use the surplus?

The revisions to be made to the Water Quality Standards of the WDMC are relatively minor changes that, in conjunction with other efforts, could provide both the residents of Hermiston and the species of the Umatilla River with better environmental quality in increased productivity. The revisions are necessary to maintain the function and increase the productivity of the WDMC. Of course proper monitoring of the canal and its water quality will need to be done regularly. But overall the plan is conscious one; it deals with many parties and satisfies them all. The EDQ went through the proper channels, addressing environmental groups, farmers, the townspeople, and even the Native American reservation working to restore the Umatilla River. By showing the current inefficiencies of the water dumping practices and relevant alternatives the EDQ is fulfilling its duty to better the community. The farmers, the wildlife, and the native populace all benefit from this minor yet logical change, ethically and legally we have no major objections.

References

City of Hermiston Wastewater Department. (2011). *Wastewater Processing*. Retrieved November 2011, from The City of Hermiston Website: http://www.hermiston.or.us/wastewater_processing

Confederated Tribes of the Umatilla Indian Reservation. (2011). *Issues: Salmon Restoration*. Retrieved November 2011, from Umatilla: http://www.umatilla.nsn.us/umariver.html

Oregon Department of Environmental Quality. (2011, September). *Statement of Need and Fiscal and Economic Impact.* Retrieved November 2011, from ODEQ: http://www.deq.state.or.us/wq/rulemaking/standards/2011/hermiston/FiscalImpact.pdf

Oregon Department of Environmental Quality. (2011, September). *Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon.* Retrieved November 2011, from ODEQ: http://www.deq.state.or.us/wq/standards/docs/HermistonCanalStdsRevRpt.pdf

011

city of Hermiston Oregon
incorporated 1907

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November 15, 2011

Don Butcher
DEQ Water Quality Division
700 SE Emigrant Ave., Suite 330
Pendleton, OR 97801

Subject: Comments on the Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon

Introduction
The City of Hermiston supports and appreciates the Department of Environmental Quality's (DEQ's) efforts to correct the original listing of beneficial uses for the West Division Main Canal (WDMC). The original list of beneficial uses was assigned to the WDMC as a tributary of the Umatilla River as part of DEQ's overarching effort to assign uses to all waters of the state in the late 1970's. The assignment of uses was made on the watershed level irrespective of the actual condition of individual stream reaches within watersheds. In other words, the original assignment of uses was made at high altitude. As DEQ evaluates individual water bodies and stream reaches within watersheds, that original broad assignment of beneficial uses may need revisions to mesh with actual conditions in stream reaches. As explained below, the WDMC represents one such situation in which the current conditions do not support the same beneficial uses as in the balance of the Umatilla watershed. Because of those differences, it is appropriate to remove beneficial uses that do not currently exist and can never be attained.

Background
The WDMC is a large concrete-lined irrigation canal. It conveys water westward from the Umatilla and Columbia Rivers to over 8,000 acres of farmland. The WDMC was carved out of the desert and does not follow the course of any naturally occurring drainage way. It was constructed with the sole purpose of conveying water for agricultural irrigation. The City believes that discharging to the WDMC would provide an exciting opportunity to beneficially reuse the City's proposed high quality Class A Recycled Water.

The existing treatment plant at Hermiston currently discharges secondary effluent to the Umatilla River. The Umatilla Watershed Total Maximum Daily Load (DEQ, March 2001) developed stringent temperature and ammonia standards for the Umatilla River. Those strict standards, coupled with the low flows in the Umatilla River during the summer months, create a significantly challenging discharge scenario for the City to remain in regulatory compliance. The City has explored non-discharging alternatives, but has found those alternatives more expensive and less reliable over the long term.

The City believes that discharging Class A Recycled Water to the WDMC is the lowest cost, most environmentally responsible alternative, and provides the greatest long-term reliability for the City's discharge. A use change for the WDMC allows the City the opportunity to have an environmentally responsible plan for the next 50 years.

Stakeholders
The City has made many contacts with various stakeholders in the region to insure that the ultimate discharge of Class A Recycled Water to the WDMC meets the various water quality and water use goals in the watershed. That process began in 2008 when the City held a stakeholder's meeting at the proposed discharge site. The meeting was attended by the DEQ, the West Extension Irrigation District (WEID)(operator of the WDMC), National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), the Bureau of Reclamation (BOR), Oregon Department of Fish and

Wildlife (ODFW), and local land owners. The outreach effort has continued over the course of the last three years. The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) have also been contacted and expressed support for the project. The City has gone to great effort to consult with stakeholders throughout the watershed.

Correction of Designated Uses

The proposed elimination of beneficial uses in the Canal does nothing more than recognize the legitimate water uses for the WDMC, based on the water rights held by the WEID. The concrete-lined, man-made WDMC's sole beneficial use is for the irrigation of agricultural crops .The existing primary and supplemental water rights that are used to supply water to the WDMC are limited to irrigation and stock watering. Other incidental uses are possible, but they are not feasible given the water right restrictions and existing allocation of water to existing WEID customers. WEID consumes their primary water right allocation every irrigation season and must rely on secondary water rights to meet their customers' irrigation demands.

Because it is not a natural waterway, the aquatic habitat and riparian analyses that would normally be applied to a natural waterway are not relevant. The WDMC is not a waterway that has or ever could be expected to provide habitat for fish. Indeed, if fish did make their way into the canal, they would not survive. In recognition of that fact, WEID, BOR and ODFW have gone to great effort and expense to construct structures that screen fish from this canal. The canal would be lethal to fish no matter the water quality.

The City supports the removal of the following two beneficial uses as protected uses in the WDMC: 1) fish and aquatic life; and 2) drinking water.

Water Quality Criteria Revisions

DEQ has developed revised water quality criteria based on the existing and protected beneficial uses in the WDMC. The City supports these proposed water quality criteria. There are four water quality criteria that are of concern to the City. These include total dissolved solids (TDS), nitrates, general metals, and chlorine.

The proposed TDS water quality criterion is appropriate to protect all but the most salt-sensitive crops. In actual practice the City has committed to discharging high-quality Class A Recycled Water to the WDMC. The discharge from the City will be mixed with either Umatilla or Columbia River water before it is used for irrigation. The TDS of the City's discharge ranges from 500 to 750 mg/L, resulting from the naturally high TDS in the City's source drinking water. The sources of irrigation water (Columbia and Umatilla rivers) have TDS values that range from 100 to 120 mg/L. After the irrigation supply is blended with the discharge, the resulting TDS will range from 150 to 200 mg/L. The blended irrigation supply and the discharge will be well below the standard that has been proposed. During the later portion of the irrigation season when WEID is using the Columbia River supply, the discharge will be undiluted for approximately two miles until it blends with the irrigation supply. This will not be a concern for WEID since the first customer is downstream of the point where the discharge is blended with the irrigation supply.

The proposed nitrate standard is a narrative standard designed to protect drinking water supplies. The City is aware that this area is within the Lower Umatilla Basin Groundwater Management Area (LUBGWMA) due to high nitrate levels in the local aquifers. Groundwater management areas of nitrate concern are triggered by levels greater than 7 mg/L (as N) in groundwater. The proposed treatment plant is designed to achieve total nitrogen levels less than 20 mg/L. Both of the irrigation supply sources have nitrate levels less than 1 mg/L (as N). Once the discharge is blended with the irrigation supplies the resulting blended water will have a nitrate level less than the target 7 mg/L (as N). The City is concerned that DEQ is considering establishing water quality criteria for a surface water discharge based on groundwater protection standards.

The existing standards for the Umatilla River do not include water quality criteria for aluminum, beryllium, boron, cadmium, cobalt, lead, lithium, molybdenum, or vanadium. The City believes these metals should not be regulated in the WDMC. The City does not have industrial dischargers to their sewage collection system, and based on previous priority pollutant scans; there is no reason to expect these metals to be above these proposed standards. Beryllium, cadmium, and lead were below the detection limit in the effluent samples in the previous priority pollutant scans (2009). Aluminum, boron, cobalt, lithium, molybdenum, and vanadium were not part of the priority pollutant scan.

The City will continue to discharge to the Umatilla River during months when the WDMC is empty, and as such the treatment plant will be required to dechlorinate their discharge to the river. The City is prepared to dechlorinate their discharge to the WDMC if they are required to by DEQ. However, there may be benefits to maintaining a residual chlorine level in the discharge to the WDMC, in order to manage algal growth in the canal and to allay concerns about

bacterial regrowth.

Protection of Public Health
Concerned citizens have questioned the safety of coming in inadvertent or casual contact with the Class A Recycled Water from the treatment plant. Kennedy/Jenks Consultants recently completed a study1 that explores the risk of inadvertent and casual contact with Class A Recycled Water. This study, although only partially applicable in this discharge scenario, examines the worst case impacts of direct contact with Class A Recycled water. The City's discharge will be diluted with irrigation flows prior to being used for irrigation, further reducing the impact of inadvertent or casual contact. A white paper based on the WateReuse Research Federation study is available online at: http://www.datainstincts.com/images/pdf/Risk_Assessment_Study_PPCPs_Recycled_Water.pdf

1. Kennedy, L., J. Debroux, and M. Millan. 2011. Risk Assessment Study of PPCPs in Recycled Water to Support Public Review. Final Project Report. WRF 09-07. Published by the WateReuse Research Foundation, Alexandria, Virginia.

The City appreciates the work done by DEQ in evaluating the existing uses of the WDMC and establishing water quality criteria to protect the beneficial uses in the canal.

Sincerely,

Ed Brookshier
City Manager

012 Cover letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
WATER AND
WATERSHEDS

Reply to
Attn Of: OWW-131

NOV 15 2011

Mr. Don Butcher
Department of Environmental Quality
Water Quality Division
700 SE Emigrant Ave., Suite 330
Pendleton, OR 97801

Re: EPA Comments on Proposed Revisions to Oregon Water Quality Standards Applicable to the West Division Main Canal near Hermiston, Oregon

Dear Mr. Butcher:

Attached please find U.S. Environmental Protection Agency (EPA) comments on the Draft Oregon Department of Environmental Quality (ODEQ) Use Attainability Analysis (UAA) supporting proposed revisions to the state water quality standards applicable to the West Division Main Canal (WDMC) near Hermiston, Oregon. If adopted, this proposed rulemaking would revise the designated beneficial uses in the Umatilla Basin (Table 310A) and the water quality criteria applicable to the West Division Main Canal (WDMC) within the Umatilla Basin (Table 310B) as well as the language of the Basin-Specific Criteria (Umatilla) at Oregon Administrative Rules (OAR) 340-041-310.

The public comment period on these proposed revisions to the water quality standards (WQS) applicable to the WDMC, and on the use attainability analysis (UAA) providing the basis for the revisions opened on September 28, 2011. The comment period will close at 6:00 pm on November 15, 2011. A public hearing was held at the Good Shepherd Hospital Conference Center in Hermiston, Oregon on November 2, 2011.

EPA is pleased to be able to provide comments to you during the public comment period on the draft UAA. We appreciate your efforts to date in drafting this UAA and your willingness to work with EPA staff over the course of developing this proposed rule. We are looking forward to our continued work with you over the coming months, and to that end, EPA is providing suggestions that may help to further clarify and strengthen your analysis.

We appreciate the work that ODEQ has done to date in characterizing the canal and the analysis of existing uses of the canal. The information provided here on the history and intended use of the canal, as well as its physical location and attributes will be very helpful to EPA in our review of your final rule. ODEQ has done a good job in researching the area in order to understand the history, management, and present intentions for the WDMC and to apply those within the WQS decision-making process. This appears to be a good example of an area where a UAA is an appropriate tool to use to evaluate and potentially revise designated uses and the water quality criteria adopted to protect those uses.

EPA recommends that before ODEQ submits regulatory language to us for CWA review that you consider providing the additional information identified in the enclosed comments that, if included in the UAA document to support the basis for the state's determinations, could provide a more complete picture of the factors affecting the attainability of the currently designated beneficial uses and the state's determinations. This additional information would help EPA in its upcoming review action on this rulemaking.

EPA remains committed to providing technical assistance as you finalize this proposed rule. If you have any questions concerning our comments, or want to discuss specific support information that may be helpful to include in your documentation of this proposed rulemaking, please feel free to contact me at (206) 553- 2724 or Jill Nogi at (206) 553-1841.

Sincerely,

Matthew Szydlowski for

Jannine Jennings, Manager
Water Quality Standards Unit

cc: Jennifer Wigal, ODEQ
Debra Sturdevant, ODEQ

012 Comment enclosure

COMMENTS REGARDING PROPOSED REVISIONS TO OREGON WATER QUALITY STANDARDS APPLICABLE TO THE WEST DIVISION MAIN/WEST EXTENSION IRRIGATION DISTRICT CANAL NEAR HERMISTON, OREGON

November 15, 2011
U.S. Environmental Protection Agency, Region 10

I. Background and Regulatory Framework

According to the September 28, 2011 Public Review Draft of the proposed revised water quality standards applicable to the West Division Main Canal (WDMC) near Hermiston, Oregon, the Oregon Department of Environmental Quality (ODEQ) is proposing to remove five (5) currently designated beneficial uses (Table 310A) and to adopt new and revised water quality criteria applicable to the WDMC (Table 310B) within the Umatilla Basin as a result of the proposed use change. In addition to revising Tables 310A and 310B, this proposed rulemaking would also revise the regulatory language of the Basin-Specific Criteria for the Umatilla Basin at Oregon Administrative Rules (OAR) 340-041-310.

When finalized by ODEQ, this document will serve as the required Use Attainability Analysis (UAA) necessary under the Code of Federal Regulations (CFR) [40 CFR 131.10(j)(2)] when a "state wishes to remove a designated use specified in Clean Water Act (CWA) section 101(a)(2) or adopt subcategories of the uses specified in section 101(a)(2) that require less stringent criteria." UAAs are required if a state wishes to revise the designated uses of a waterbody that does not meet the section 101(a)(2) goal "…that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water…".

In reviewing this draft UAA, EPA considered the definition in 40 Code of Federal Regulations (CFR) 131.3(g) that states that a "*use attainability analysis* is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g)." 131.10(g) states that "States may remove a designated use which is *not* an existing use, as defined in 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because" [of one or more of the six factors under 131.10(g)].

131.10(g)(1)	Naturally occurring pollutant concentrations prevent the attainment of the use.
131.10(g)(2)	Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met.
131.10(g)(3)	Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.
131.10(g)(4)	Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modifications in a way that would result in the attainment of the use.
131.10(g)(5)	Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.
131.10(g)(6)	Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

Water quality criteria are required to protect existing uses defined in 40 CFR 131.3(e) as "those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards." The state must also protect designated uses (in Oregon, the term "designated beneficial uses" is used) and adopt numeric or narrative criteria that protect the designated beneficial uses [40 CFR 131.10 and 131.11].

The twelve (12) currently designated beneficial uses for the WDMC apply broadly to the entire Umatilla sub-basin:

Public Domestic Water Supply	Wildlife and Hunting
Private Domestic Water Supply	Fishing
Industrial Water Supply	Boating
Irrigation	Primary water contact recreation
Livestock Watering	Aesthetic quality
Fish and Aquatic Life (Redband or Lahontan cutthroat trout sub-category)	Hydropower

The proposed revisions to the beneficial uses for the WDMC in the draft UAA remove five (5) of the twelve (12) uses currently designated:

Public Domestic Water Supply
Private Domestic Water Supply
Fish and Aquatic Life
Fishing
Boating

Of the seven (7) remaining designated beneficial use categories, ODEQ identified irrigation, livestock watering, and primary water contact recreation as the beneficial uses for the WDMC. These three uses identified are to be protected by revised numeric criteria for some pollutants and new narrative criteria to address other pollutants for which numeric criteria would no longer exist.

In reviewing the draft UAA and developing the recommendations provided in these comments, EPA has focused on three basic questions: (1) **what, according to the physical, chemical, and biological data submitted in the UAA or otherwise obtained by EPA, are the existing uses** in the water body, (2) whether it has been **adequately demonstrated by the state that the designated uses proposed for removal are not attainable and (3) whether the new and revised criteria protect the proposed revised uses?** Our recommendations are focused on additional information that would be helpful in strengthening ODEQ's analysis and supporting the state's determinations pertaining to these three questions mentioned above.

II. General Characterization of the WEID canal

ODEQ did an extensive job to research and understand the history of the canal, the geographical location and limitations, the management intentions, the mechanics of the Columbia Basin Exchange Project through the US Bureau of Reclamation, and the proximity and impact on neighboring communities. The following information would help EPA in its upcoming review by bolstering and reinforcing the record supporting our action on this rulemaking:

1. Please describe how the physical, chemical, and biological properties of the water in the approximately 2-mile unlined overflow channel area compare with the physical, chemical and biological properties of the cement-lined canal area. From our discussions with you, we understand that the two areas may be characterized as two distinct segments. This additional characterization would help EPA to better understand the waterbody and the existing and attainable uses in these different segments of the canal.
2. Please provide any available data that characterizes the water quality in the canal at different times of the year (i.e. when the water is coming in from the Umatilla River vs. when the water is coming in from the Columbia River). Any samples taken in the canal, or in the Umatilla and Columbia Rivers over the course of the year at monitoring stations, would help EPA to better understand the chemical and perhaps biological characteristics of the WDMC. This could assist us as we evaluate whether the proposed changes to the criteria applicable to the canal will still protect the designated uses of the canal, consistent with the CWA and EPA's regulations.

III. Demonstration of Existing Uses

ODEQ provided information on page 18 of the UAA that the existing uses were evaluated, and it was concluded that existing uses for the WDMC are limited to irrigation, livestock watering, wildlife and hunting, water contact recreation, and aesthetic quality. EPA would like to understand better how ODEQ arrived at those conclusions. Given that Table 310A includes industrial water supply and hydropower as designated beneficial uses for the WDMC, should they also be mentioned on page 18 and discussed? ODEQ states on page 18 that irrigation, livestock watering, wildlife and water contact recreation have been attained in the canal on and after November 28, 1975, and that aesthetic qualities are also present. Following are two additional information requests that may help support EPA's review and determination under CWA Section 303:

1. Please provide the data and information that ODEQ may have reviewed that supports the determinations on these existing uses for the canal mentioned above. For example, as stated in the April 2007 ODEQ internal management directive (IMD) on UAAs, "Are there sources of information available from ODFW databases, monitoring results, Oregon Water Resource Department basin plans, tribal and/or watershed councils, other federal and state agencies (Forest Service, USFWS, NOAA-NMFS, Oregon Parks Department) and other local or regional governments, etc.?"
2. Please provide information on whether it may be possible to operate this waterbody, now or in the future, in a manner that could support the uses proposed for removal.

IV. Demonstration that Current Uses are Not Attainable

EPA is requesting additional information below that will enable EPA to complete a review and determine if the proposed revisions are consistent with CWA Section 303:

1. Please share any available data that ODEQ may have used in determining that currently designated uses are not attainable.
    a. For Public and Private Domestic Water Supply: The UAA states on page 19 that "The canal has never been used for either public or private domestic water supply or industrial water supply…there are no water rights providing for such use, nor is it feasible that they would be granted. Therefore, these are not existing uses." Please provide any data and information supporting this statement and please identify which

of the 6 factors listed in 40 CFR 131.10(g) is to be used to support the removal of these water supply uses from the canal.

b. For Aquatic Life: Please provide any data and information supporting the use of 40 CFR 131.10(g)(4) to demonstrate that a fish and aquatic life use is not attainable. For example, how was it determined that aquatic life and fish in the canal may not be attained in the future? Are there control strategies and management practices that could address the impairments identified in the canal? Are there alternatives to the way the canal is currently being managed that would allow it to serve as habitat for fish and aquatic life?

c. For Fishing and Boating: Please provide any data and information supporting the use of 40 CFR 131.10(g)(4) to demonstrate that fishing and boating uses are not attainable.

V. Other Suggested Information that Would Help to Clarify the Draft UAA Document

Looking at draft Table 310A, primary water contact recreation is proposed to be retained. In this case, the current bacteria criteria (Single Sample 406 organisms per 100 milliliters of water and 30-day log mean (minimum of 5 samples) of 126 organisms per 100 milliliters of water) would continue to apply to the canal. EPA recommends that this criterion could be listed in Table 310B as one of the water quality criteria remaining applicable to the canal, in order to clearly communicate with the public. In addition, along those lines, it may also be helpful to include a table in the UAA showing all of the water quality criteria applicable to the canal concomitant with the proposed use changes, compared to the water quality criteria that apply currently to the canal, in order to be clear with the public and the canal water users on the levels of protection afforded to the canal.

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NORTHWEST ENVIRONMENTAL ADVOCATES

November 15, 2011

Don Butcher
DEQ Water Quality Division
700 SE Emigrant Ave., Suite 330
Pendleton, OR 97801

Via E-Mail: waterqualitystandards@deq.state.or.us

Re: **Proposed Water Quality Standards Revision for West Division Main Canal (Hermiston, Oregon)**

Dear Mr. Butcher:

Below are Northwest Environmental Advocates' comments on Oregon's proposed Use Attainability Analysis (UAA) to support proposed water quality standards revisions for the West Division Main Canal (WDMC) near Hermiston, Oregon. The rationale and UAA to support the rule changes are set out in a Report dated September 28, 2011. This letter comments on the Report as well as the proposed rule changes. The Department proposes to remove five designated uses: public and private domestic water supply, fish and aquatic life, fishing, and boating. The proposed uses to remain include: irrigation, livestock watering, wildlife and hunting, industrial water supply, hydropower, water contact recreation, and aesthetic quality. DEQ also proposes to delete numerous criteria and add a handful of new, less protective, criteria.

We are troubled at the outset by the Report's misleading reference to "existing uses" as if the meaning of "existing" is a common dictionary definition rather than a legal term defined at 40 C.F.R. § 131.3(e). Report at ii. After the Executive Summary, the phrase as used seems to mean 'actual' or 'current.' *See, e.g.*, Report at 1. While eventually DEQ cites the legal definition and tries to apply it, the Report is littered with references to "existing uses" frequently without its being clear precisely what type of uses are being discussed. We urge DEQ to never, including in document summaries, refer to existing uses in such a confusing manner. This problem carries over into Section 2.1 which purports to describe the canal but does not even mention when the canal was constructed. Given the importance of the date November 28, 1975 to the conclusions of a UAA, it is essential that this information be provided, which it is later in the document.

Although the construction date of the WDMC is established as 1916, the UAA mentions that irrigators "partly lined" the western overflow branch, which was one of two overflow channels that "may have been an ephemeral drainage-ways" "after the original canal was built." No date is established for the addition of concrete to what was a natural streambed which would support some level of aquatic life. DEQ cannot treat the constructed portion of the WDMC and what was an ephemeral water body as if they are the same thing. Not only is it not clear that aquatic life in the formerly ephemeral waters was not an existing use, as discussed further below, but a natural streambed would support a different level of aquatic life than a concrete-lined streambed. Therefore, DEQ should evaluate the WDMC as three types of waters: (1) concrete-lined since 1916, (2) partly concrete-lined, and (3) natural streambed, unless it can demonstrate they are all the same. And it should define the meaning of "partly lined." There is no evidence, one way or

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the other, whether there is a level of aquatic life in any one of these types of canals, even on a seasonal basis, whether amphibians, reptiles, resident fish, or worms. There is no discussion of what human uses may occur such as by farm workers or teenagers. But why is fishing prohibited if there are no fish in the canals? *See* Report at 20. DEQ restricts its analysis to salmon, steelhead, and trout but those fish are not the definition of existing uses or attainable uses. It is certainly possible that there minnows in the canals, for example, as they are known to exist in many irrigation systems. *See, e.g.*, Fishes in the Middle and Lower Rio Grande Irrigation Systems of New Mexico, Circular 653, New Mexico State College of Agricultural, Consumer and Environmental Sciences, viewed at http://aces.nmsu.edu/pubs/_circulars/CR-653.pdf. In sum, there is no survey of what exists now, if anything, what might have existed in 1975 or thereafter, nor what might be achievable if the NPDES permit issued by DEQ that allows admittedly[1] toxic levels of Acrolein and copper sulfate were to become more restrictive or if their use were to be terminated altogether and some other approach to managing aquatic weeds be used.

There is no evidence that DEQ has spoken to anybody other than the interested party, the future discharger, and ODFW. Yet ascertaining existing use should require some effort to look for it. EPA rules leave no room for doubt where the burden falls and that is squarely on DEQ. Federal regulations prohibit the removal of lack of protection of existing uses in no fewer than four references: 40 C.F.R. § 131.10(g) ("States may remove a designated use which is not an existing use."); 40 C.F.R. § 131.10(h)(1) ("States may not removed uses if: they are existing uses."); 40 C.F.R. § 131.12(a)(I) ("Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."); 40 C.F.R. § 131.12(a)(2) ("[T]he State shall assure water quality adequate to protect existing uses fully."). Yet DEQ makes no effort to ascertain what uses have been made of the canals over the last 36 years. Without discussing what existing uses may have been present from November 28, 1975 onward, DEQ simply concludes that it is "not removing existing uses from the use designation."

DEQ cannot, as it does in the Report, merely state that under an NPDES permit issued by itself, sufficient quantities of toxic chemicals (Acrolein and copper sulfate) are dumped into the entire WDMC as to negate any possible aquatic life. Such an argument is inconsistent with the goals of the Clean Water Act – among them, "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985" – as well as the requirements of evaluating attainability, which includes the "imposition of effluent limits required under sections 301(b) and 306 of the Act." 40 C.F.R. § 131.10(d). DEQ appears to cynically dismiss the requirements of 301(b)(1)(C) that effluent limits are required to meet water quality standards by using the effluent limits it has already established for Acrolein and copper in order to limit its definition of the uses that are attainable. Moreover, such an approach comes dangerously close to violating the prohibition on adopting "waste transport or waste assimilation as a designated use." See 40 C.F.R. § 131.10(a). It is difficult to see how DEQ's reliance on the ongoing dumping of Acrolein and copper sulfate to kill aquatic life is not the same as adopting uses for waste assimilation.

An approximate date – "the 1980's" – is established for the start of the use of the "exchange," a

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[1] "In addition, the canal is maintained by routine application of . . . . Acrolein and copper sulfate . . . [which] *lead to toxic conditions for fish*, one important reason that the District actively manages the canal to exclude fish from the system." Report at 11 (emphasis added).

process whereby water in the canal enters from the Columbia River rather than the Umatilla, when the latter falls below target flows. In other words, the use of the "exchange" falls after the date defining existing uses. Report at 5. Yet the UAA does not discuss how the existing uses pre- and post-exchange although they are likely different and, in both cases, relevant to findings concerning existing uses under federal requirements.

The UAA states that at the head of the canal where it diverts from the Umatilla a fish screen was in place "dating back to the 1960's and earlier." Report at 9. DEQ appears to deliberately ignore the statement made in the Oregon Department of Fish and Wildlife (ODFW) letter that is set out in full in Section 8.3 of the Report that "[b]efore 1988 there was the possibility of fish being diverted into the canal, however, in the fall of 1988 a fish screen and bypass facilities were constructed at the canal diversion point to prevent fish from entering the irrigation canal system." Report at 38. In other words, after November 28, 1975 and before 1988 fish could and did enter the WDMC at the point of diversion from the Umatilla. This is the definition of an existing use.

At the end of the final overflow channel the UAA claims that prior to 2002, when a fish barrier was installed, "fish were prevented from entering the drainage system [from the Columbia] by a large concrete irrigation box that blocked passage." *Id*. While part of the original construction, DEQ notes that the box deteriorated over the years, irrigation ceased in the area, and "a few fish were noted above the Interstate-84 rest area (below the end fo the concrete-lined portion)." *Id*. The ensuing discussion is focused not on what use has occurred by fish since 1975 but, rather, what fish use have taken place since the 2002 installation of a fish barrier (none). The trouble is that the actual use since 2002 is irrelevant to the evaluation of "existing uses" pursuant to federal regulations because there is evidence that there was, in fact, fish use of the WDMC prior to 2002 and after 1975. This is confirmed by the ODFW letter which states that the fish barrier was installed "[t]o prevent entry of fish." As such, fish use up to "above the Interstate-84 rest area" is an existing use and cannot be removed through this proposed use change.

The UAA also comments that

> In addition, the canal is maintained by routine application of aquatic pesticides, consistent with the District's individual NPDES permit for pesticide application. Both Acrolein and copper sulfate are used in the WDMC to minimize nuisance aquatic weeds. These pesticides lead to toxic conditions for fish, one important reason that the District actively manages the canal to exclude fish from the system. The District has used Acrolein and copper sulfate in the canal since 1958.

Report at 11. If the levels of these two toxic contaminants, allowed by DEQ's own NPDES permit, are toxic to fish, DEQ needs to explain how not regulating the levels with numeric criteria will result in protecting the downstream Columbia River. What kind of toxic "mixing zone" is DEQ currently allow in the Columbia, what will it allow in the future, and with what effect on its designated uses, some of which are on the brink of extinction?

Oddly, however, DEQ in discussing the attainability requirements of 40 C.F.R. § 131.10(d) – including that uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices (BMPs) for nonpoint source control – DEQ then states "[a]t this point in time, there are no point source discharges to the canal." Why then has DEQ pointed out that copper and Acrolein are discharged under an NPDES permit to the canal as a rationale for why

the canal should not be designated for aquatic life?

DEQ's citation to its own Internal Management Directive is unpersuasive because its IMD is riddled with legal errors. For example, in the section quoted, DEQ states that a UAA may be less than thorough if "the proposed changes to a designated use are corrections to the water quality standards." Report at 15. All proposed changes to designated uses can be described as "corrections to the water quality standards." Whether the canal has a "known and intended use and operations" is really irrelevant to whether federal requirements have been met.

Wildlife protection is glossed over by DEQ. While it remains a designated use, DEQ has not provided any analysis of whether the remaining applicable criteria "support the most sensitive use" as required by federal regulations. 40 C.F.R. § 131.11(a). While we disagree with Oregon's approach of protecting wildlife through aquatic life criteria and human health criteria (based on consumption of fish and drinking water, both uses proposed to be removed along with their associated criteria), DEQ cannot remove these two uses and not consider that wildlife is now the most sensitive use left. Regardless of the level of pollution found in the canal – a point repeatedly stressed by DEQ which, ironically, is in charge of reducing pollution – the wildlife use must be protected as both an existing and designated use. There is, however, no data on current water quality and no analysis on how criteria will protect wildlife. There is no discussion of what wildlife use the canals. For example, if there are fish in the canals and birds and mammals feed upon those fish, the level of protection will likely need to be higher than other wildlife uses. But it's impossible to tell from the complete lack of information provided in the UAA.

The UAA purports to address the requirement that designated uses in standards be set to protect downstream waters. 40 C.F.R. § 131.10(b)("In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters."). However, the entire analysis is based on the relative flow rates of the WDMC and the Columbia River hinting that no toxicity could be caused in the Columbia because of dilution. Report at 22. But dilution is irrelevant when one looks as a pollutant such as DDT and its metabolites or PCBs, both of which accumulate in sediment and fish tissue regardless of how much flow there is in the Columbia or what the relative flows of the two waterways are. DEQ's response to the WDMC's potential contribution is to note that its attorney general has concluded that the WDMC would not need an NPDES permit because its discharge is exempt as agricultural return flow and, furthermore, would retain that exemption apparently no matter how much industrial or municipal waste were dumped into the canals. Report at 16. However, an NPDES permit is not a precondition for the requirements of protecting downstream waters to apply. In addition, DEQ has not demonstrated that the proposed new toxic criteria for the protection of livestock will be protective of the uses of the Columbia River upon the canal's discharge.

DEQ proposes to rely on narrative criteria where previously there were numeric criteria. Report at 23. Specifically, despite the fact that DEQ has never to our knowledge applied its general narrative on toxics, it proposes to add another narrative criterion that "[t]oxic substances may not be introduced to the canal in amounts, concentrations or combinations that are likely to harm the designated beneficial uses of the canal." Proposed OAR 340-041-0315(2)(b). At a minimum DEQ is aware of two toxic contaminants that are dumped into the canals at admittedly toxic levels pursuant to a DEQ-issued NPDES permit. Yet the UAA does not explain how DEQ intends to interpret and apply its new narrative criterion in setting the effluent limits for Acrolein

and copper sulfate in future such NPDES permits, or how it intends to do so for the expected new NPDES permit for which this exercise is designed. It does not explain how this narrative will afford protection of the downstream Columbia River. It does not discuss or explain how toxic inputs into the canals will be restricted to protect the Columbia River from common toxic chemicals – current and past – that run off from agricultural operations. Protection of the Columbia River Estuary, and depositional areas along the Columbia, depend upon restrictions throughout the Columbia River Basin yet DEQ proposes to allow an increase of toxic levels. Moreover, the plain language of the new narrative criterion applies to restricting toxics on the basis for their effects on "designated beneficial uses of the canal" and fails to address the requirement to protect downstream uses. In this way it is simply inconsistent with federal requirements because as applied in a regulatory context it does not allow for consideration of downstream effects.

Nowhere in the UAA does DEQ provide any water quality data. Instead, the UAA cites EPA as saying that "the definition of 'existing use' *can consider* the available data and information on both the actual use and water quality." Report at 16 (emphasis added). This seems to be a poor paraphrase of the federal requirement that a state's antidegradation policy ensure that "[e]xisting instream water uses *and* the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 C.F.R. § 131.12(a)(emphasis added). The regulation does not say "or," it says "and." DEQ has discussed, with limitations, the issue of uses but has failed utterly to discuss the issue of water quality. Consistency with the antidegradation policy is required by Section 303(d)(4) of the Clean Water Act when a water quality standard is being revised. Moreover, DEQ should establish a baseline of current water quality rather than removing uses and taking the position that the discharge from the canal cannot be regulated because even some of it contains exempt agricultural return flows. The logical extension of this argument is that with the exception of the handful of new toxic criteria established to protect livestock, there are no limits on the toxic effluent that can be discharged to the canals or from the canals to the Columbia River. That is with the exception of a narrative criterion similar to one already on the books that has never been applied in a regulatory context. Finally, it is not clear how DEQ can establish the highest attainable uses without any form of water quality data.

And, last, there is a lack of clarity in the proposed rule changes. Proposed OAR 340-041-0315(2) states that the criteria in Table 310B supersede the standards in OAR 340-041-0011 through 340-041-0036. Conveniently the bacteria criteria, which still apply, are outside this group of standards but it would be better if they were called out specifically as still applying under OAR 340-041-0010 or put into the new Table 310B. It is unclear why DEQ is nullifying the Total Dissolved Solids and Biocriteria criteria. DEQ similarly has not explained why as a source of toxics to the Columbia River downstream, the otherwise applicable toxic criteria should be superseded. Likewise, as Oregon still does not have nutrient criteria and relies upon a variety of other criteria to meet that need, the removal of the dissolved oxygen, Chlorophyll a, and pH criteria result in no limits on nutrient pollution in the canals. The proposed narrative criterion on toxics does not afford the same level of protection to wildlife as the superseded narrative criterion which provides that "[t]oxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses." OAR 340-041-0033. DEQ has not explained why wildlife using the canals should obtain less stringent protection than they have heretofore.

Northwest Environmental Advocates appreciates your consideration of our comments. We would like to note, finally, that we have no record of having been invited to a round table discussion earlier this year to discuss this UAA with DEQ and would appreciate your removing that reference from the final Report.

Sincerely,

Nina Bell
Executive Director

Report

Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon

State of Oregon Department of Environmental Quality

This report prepared by:

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Executive Summary

The Oregon Department of Environmental Quality is revising water quality standards for the West Division Main Canal, a constructed irrigation canal near Hermiston, Oregon. Over the years, as DEQ developed water quality standards across the state, beneficial use designations were over-generalized in some instances. DEQ is revising water quality standards that apply to the West Division Main Canal to reflect the ways the canal is actually used. The impetus for this action is a request by the city of Hermiston to discharge highly-treated municipal wastewater to the canal during the irrigation season, where it would mix with canal water and then be reused for irrigation. The city indicated that the state's designated beneficial uses for the canal are incorrect, and that revising the standards to designate a more appropriate list of uses would make discharge to the canal a viable option for re-use of the city's wastewater. After evaluating the canal, DEQ agreed that it was never intended or suitable for some of the broadly designated uses, such as drinking water and fishing.

Under the city's current National Pollutant Discharge Elimination System permit, it may discharge effluent to the Umatilla River year round, or apply the treated effluent directly to crops (land application) during the irrigation season. The city's proposed discharge to the canal, which includes upgrading the treatment technology, would also require an NPDES permit, which would provide for discharge to the river and the canal depending on the season. During parts of the spring, summer and fall, the Umatilla River does not meet the water quality standard for temperature and various other water quality indicators. Decreased pollution is a high priority for Umatilla Basin watershed restoration efforts. Discharging the city's wastewater to the canal rather than the river during the irrigation season would support progress towards this priority.

Federal regulations require that, at a minimum, existing beneficial uses of waterbodies be protected. As such, when removing or revising designated uses, DEQ must ensure that existing uses continue to be protected in addition to assuring that water quality standards include criteria sufficient to support the revised uses. The federal regulations also require a *use attainability analysis* when any of the uses specified in Section 101(a)(2) of the Clean Water Act are removed or revised in a manner leading to less stringent criteria. The uses identified in this CWA section are described as those that provide "for protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." DEQ proposes to remove and revise certain Section 101(a)(2) uses for the West Division Main Canal and therefore this document serves as a use attainability analysis. Existing uses (those attained on or after Nov. 28, 1975) are not being removed. This action corrects uses that DEQ designated for the canal as part of its broad designations for all waters of the Umatilla subbasin. In addition, as described in further detail in this document, most of the waterbody is man-made and was never a natural stream.

The current designated beneficial uses for the West Division Main Canal are:

- Public domestic water supply
- Private domestic water supply
- Industrial water supply irrigation
- Livestock watering
- Fish and aquatic life (Redband trout)
- Wildlife and hunting
- Fishing
- Boating
- Water contact recreation
- Aesthetic quality and
- Hydropower

DEQ proposes to remove the following designated uses from the West Division Main Canal: public domestic water supply, private domestic water supply, fish and aquatic life, fishing, and boating. In addition, DEQ proposes to replace the general fish and aquatic life use designation and the Redband trout subcategory with a subcategory of "modified aquatic habitat" use for the overflow channels segment of the canal, which connects the constructed channel to the Columbia River.

Based on DEQ's evaluation of the attainable uses for the West Division Main Canal and its subsequent proposed revisions to the designated uses, DEQ has identified irrigation, livestock watering, and water contact recreation as the highest attainable beneficial uses. In addition to the proposed revisions to the designated uses, DEQ proposes to adopt numeric criteria recommended by the US Environmental Protection Agency to protect the revised uses of the canal. To augment the numeric criteria and to address situations that may arise regarding pollutants for which numeric criteria do not exist, DEQ is also proposing narrative criteria for the canal.

1 Introduction

DEQ proposes to revise water quality standards for the West Division Main Canal located near Hermiston, Oregon. This action corrects the prior beneficial use designations for the canal and establishes criteria that protect the revised uses. To this end, this document describes the canal, its operation and setting, and the timing and volume of canal inputs and return flow. The document also describes DEQ's analysis of the current designated beneficial uses, the extent to which those uses are existing or attainable, and DEQ's proposed revisions to beneficial uses based on that analysis. Existing uses must be protected and are defined as "... those uses actually attained in the waterbody on or after Nov. 28, 1975, whether or not they are included in the water quality standards" [Title 40 Code of Federal Regulations 131.3(e)]. Finally, the document identifies the water quality criteria that DEQ proposes to protect the revised uses of the canal, and the supporting information for those criteria.

The West Division Main Canal is a relatively large constructed irrigation canal near Hermiston, Oregon. Built in 1916, it carries water westward from the Umatilla and Columbia Rivers to area farms, with its terminus west of the city of Boardman. Because Oregon designated beneficial uses broadly for water quality standards (i.e. all waters of the Umatilla Subbasin), uses such as public and private domestic drinking water supply and fishing were designated for the canal as well as agricultural uses. In fact, the existing uses of the canal are more limited, with the primary uses being irrigation and to a lesser extent, livestock watering. DEQ considers the current standards to be inappropriate for the nature and purpose of the canal.

For the purpose of changing the designated uses and associated water quality criteria, the information in this document serves as the use attainability analysis required by federal regulation. Under state and federal law, Oregon water quality standards are adopted as administrative rules by Oregon's Environmental Quality Commission and require approval by the EPA to become effective under the CWA. This document provides the basis for the proposed rules revisions changing the uses and associated criteria for the West Division Main Canal. It is the core part of a rule-making package to establish revised standards for the canal.

The city of Hermiston wastewater treatment plant, which has a National Pollutant Discharge Elimination System permit allowing it to discharge to the Umatilla River, has requested to discharge highly treated effluent to the West Division Main Canal where it can be re-used for irrigation. The city prefers this alternative to that of discharging to the Umatilla River during the irrigation season, when it is challenging for the treatment plant to meet effluent limits for temperature due to low flow in the River. The Umatilla River is designated for various aquatic life uses, including salmonid rearing, which is temperature-sensitive. Potential impacts to these uses associated with the city's effluent will be eliminated if the city is able to remove its discharge from the river. Another alternative considered by the city, that it currently utilized on an intermittent basis, has been direct land application of its effluent. Although this approach has been implemented in the past, the city prefers canal discharge instead, citing practical reasons. The city's planned discharge to the West Division Main Canal would be facilitated by DEQ's designating accurate beneficial uses and appropriate water quality criteria for the canal. **Appendix 8.1** contains further information regarding the city of Hermiston's wastewater planning. Please note that the selection of city wastewater outfall location(s) and treatment scenarios, and the permitting process, are separate from this standards revision. Treatment plant information and alternatives are only discussed to provide context.

DEQ proposes to remove public domestic water supply, private domestic water supply, fish and aquatic life, fishing and boating as designated uses of the West Division Main Canal. DEQ proposes to replace the general "fish and aquatic life" use designation and Redband trout use subcategory for the overflow channels segment of the canal with an aquatic life subcategory of "modified aquatic habitat." The modified aquatic habitat subcategory more accurately represents the existing and attainable aquatic life use for the overflow channels segment of the canal. None of the uses proposed for removal are existing uses, meaning that these activities have not occurred or been supported within the canal since at least Nov. 28, 1975. The designated beneficial uses DEQ proposes to retain include the following existing uses of the canal: irrigation, livestock watering, wildlife and hunting (as an aggregate category, but hunting does not occur),

and aesthetic quality. Limited water contact by humans occurs as well and DEQ does not propose to revise the current water contact recreation use designation at this time. In addition, the feasibly attainable designated uses of industrial water supply and hydropower will be retained, although their likelihood of occurrence is remote.

2 Background

2.1 Canal Description

The West Division Main Canal is located near the cities of Hermiston and Boardman near Oregon's northern border (**Figure 1**). The head of the canal diverts water at Three-Mile Falls Dam (**Figure 2**) on the Umatilla River. From there, the constructed, concrete-lined part of the canal extends 27 miles, predominantly westward to approximately four miles southwest of Boardman, Oregon (**Figure 3**). Canal overflow then exits the main concrete structure and flows northward via two overflow channels that reconnect at a point roughly one mile southwest of the I-84 Boardman Rest Area. This single overflow channel then continues to the Rest Area and then north to the Columbia River (**Figure 4**). The entire canal is approximately 29 miles in length. Unlike the main concrete structure, which traverses hill slopes, parts of the overflow channels follow historic swales. While most of the overflow channels segment is un-lined, the uppermost west-trending reach was partly lined with concrete after the original canal construction. For purposes herein, *West Division Main Canal*, or *canal,* refers to the canal from its head at Three-Mile Falls Dam to its confluence with the Columbia River. The terms *constructed channel* and *overflow channels* will be used to differentiate the constructed concrete-lined structure as originally built from the channels that connect it to the Columbia River.

The West Division Main Canal was built by the US Bureau of Reclamation and is operated under contract by the West Extension Irrigation District. The district participates in the Columbia River exchange of the Umatilla Basin Project, with the USBR as project partner and facility owner. The canal itself is owned by the USBR.

Figure 1. Location of West Division Main Canal (the black lines within the Oregon border are basin boundaries – West Division Main Canal (red line) is in the Umatilla/Mid-Columbia/Lake Wallula Basin)

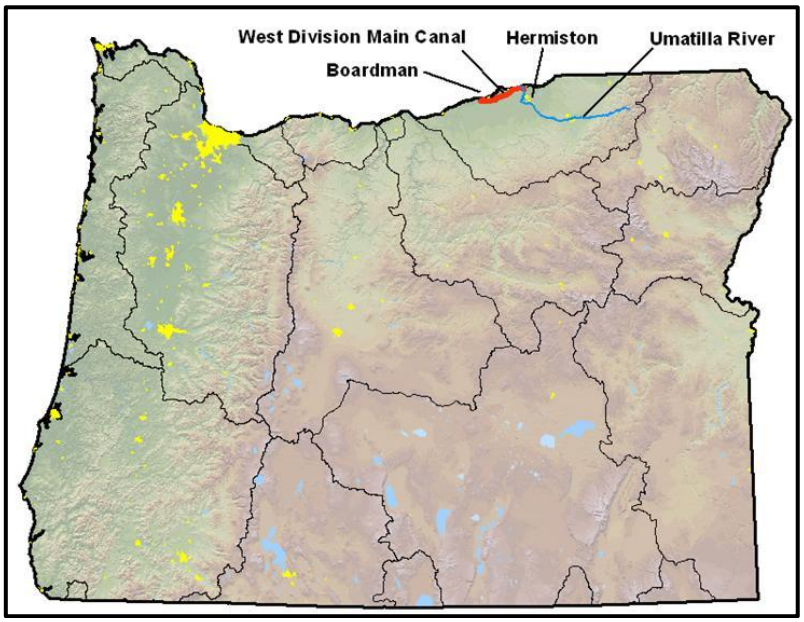
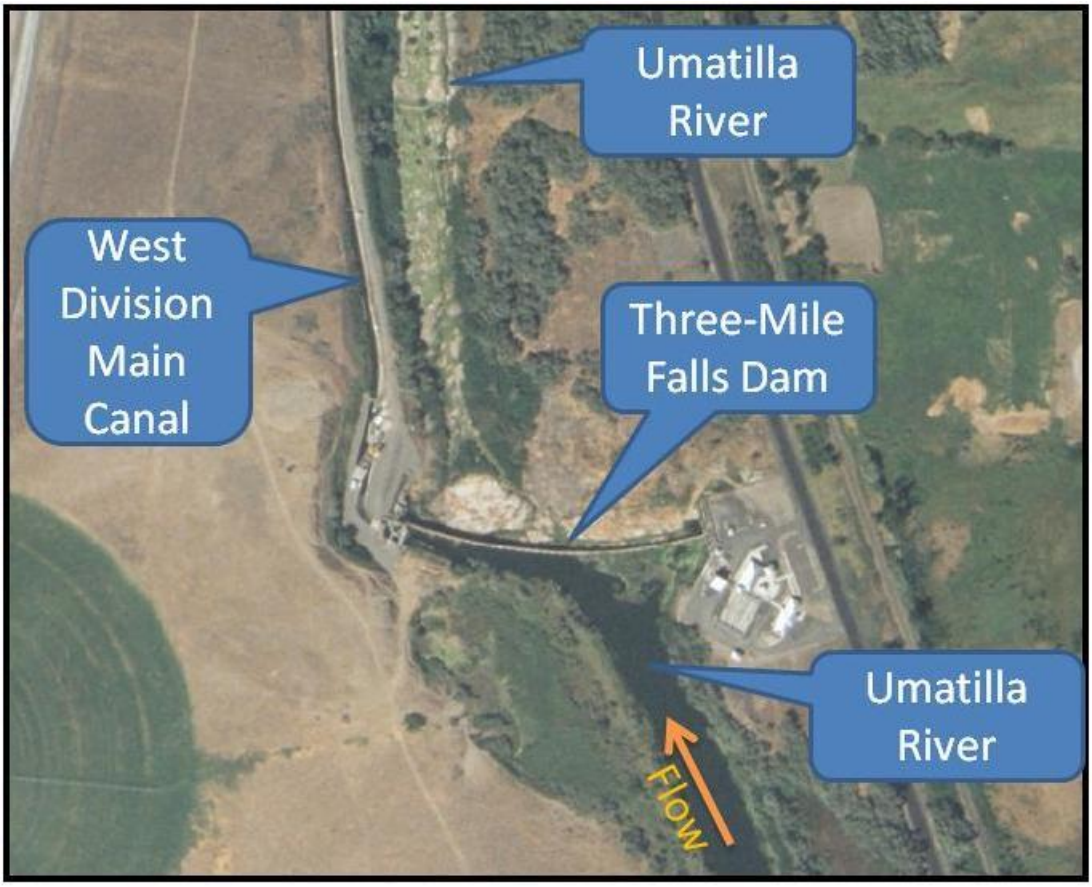


Figure 2. Aerial photograph of Three-Mile Falls Dam and West Division Main Canal point of diversion from the Umatilla River
(National Agriculture Imagery Program 2005)



(refer to **Figure 3** for location reference)

Figure 3. Aerial photograph of West Division Main Canal area, canal shown in red (National Agriculture Imagery Program 2005)

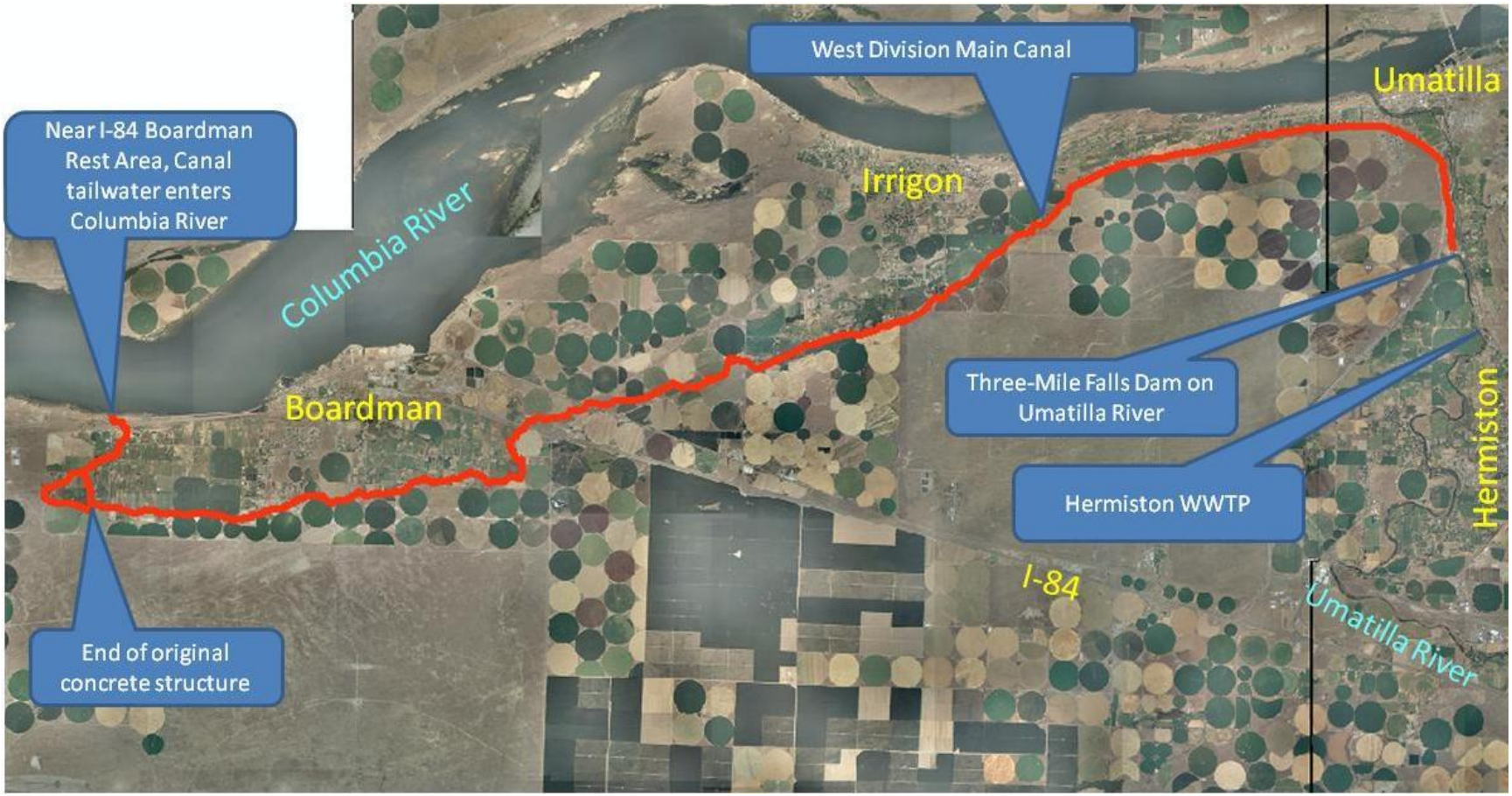
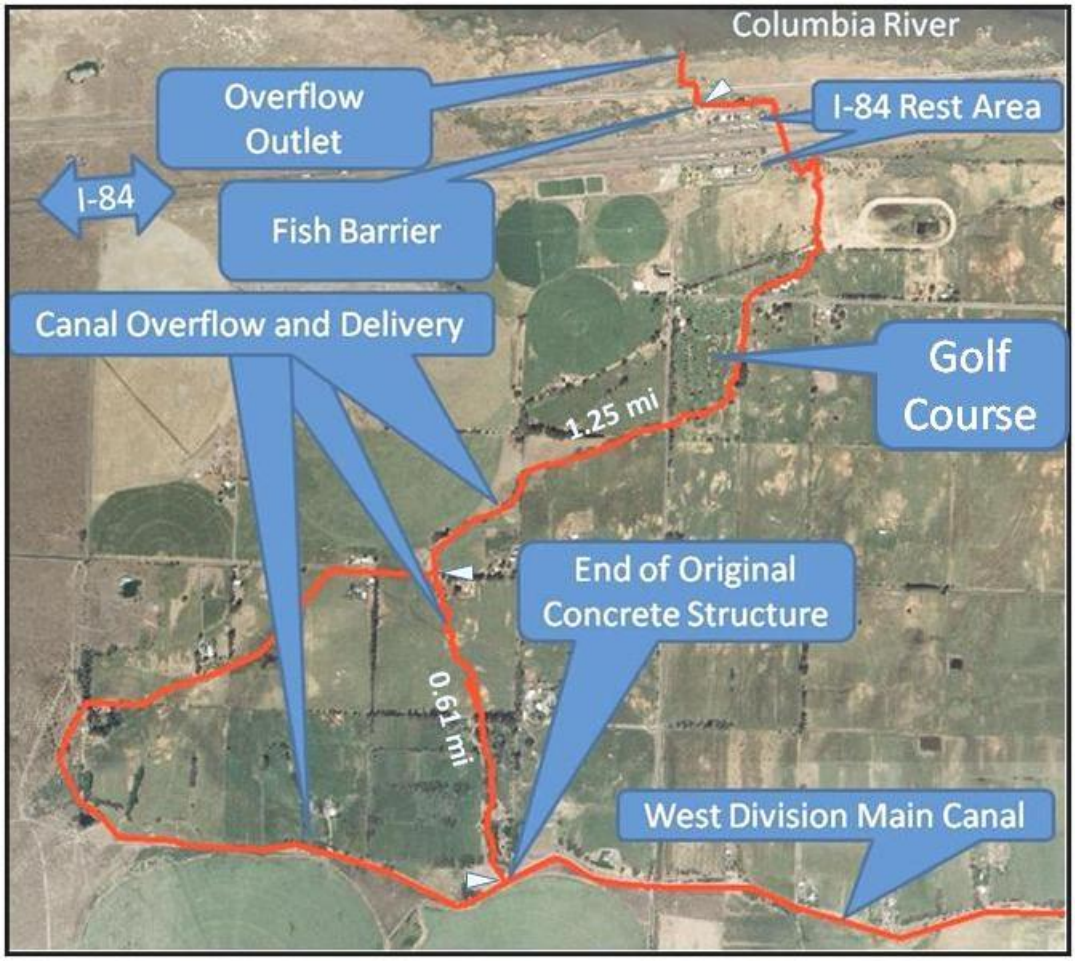


Figure 4. Aerial photograph of west end of West Division Main Canal, enlargement of the western most area of **Figure 3** (National Agriculture Imagery Program 2005)



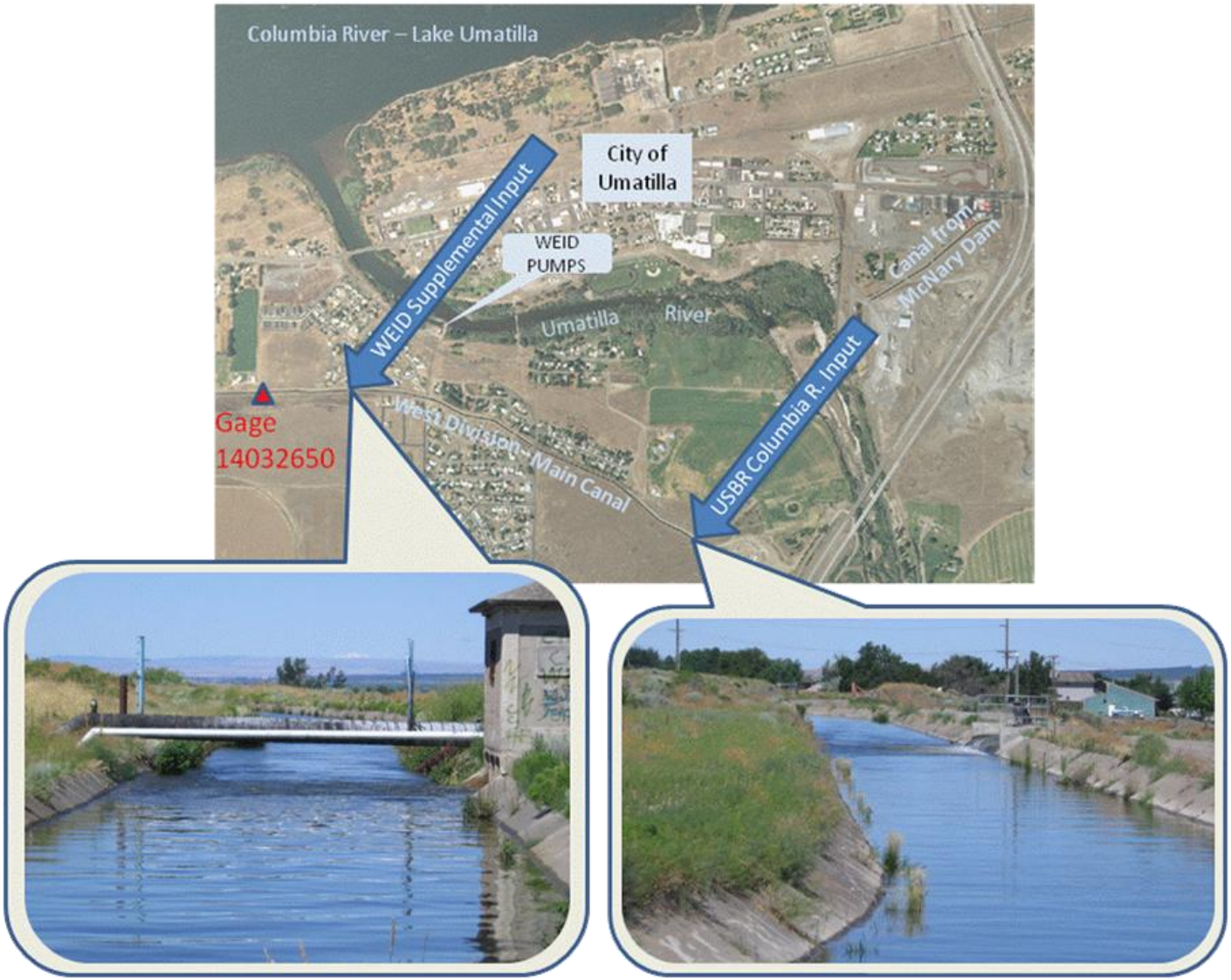
Source and timing of canal water. The West Division Main Canal draws water from both the Umatilla and Columbia Rivers. This follows from state and federal provisions for management of Umatilla River water (Oregon water rules, 1980 Northwest Power Act and 1988 Umatilla Basin Act) and decisions of natural resource managers who implement these provisions. The current fish-flow goal for the lower Umatilla River, established in 2006, is to maintain at least 250 cubic feet per second instream most of the year, and at least 75 CFS instream during July 1- Aug. 15, if climatically available and not otherwise appropriated – typically available in-river flow does drop below 75 CFS in August. Umatilla River target flows are measured at the river mile 2.1 US Geological Survey gage below Three-Mile Falls Dam. In order to maximize instream flow towards meeting these targets, the Umatilla River diversion into the West Division Main Canal is replaced by Columbia River water when the Umatilla River falls below target flows. The USBR provides 'exchange' flow (Umatilla Basin Project) to the canal from the Columbia River rather than from the Umatilla River during this time. The exchange has been operational since the 1980s. Beginning in 2006, Basin aquatic resource managers substantially increased their emphasis on not de-watering the Umatilla River in July-August below Three-Mile Falls Dam, as indicated in **Table 1**.

Table 1. Time-series minimum August flows in Umatilla River below Three-Mile Falls Dam (gage data from Oregon Water Resources Department –US Geological Survey gage at river mile 2.1)

Year	August Minimum Flow (CFS)
2010	81
2009	63
2008	106
2007	46
2006	68
2005	1.2
2004	13
2003	1.5
2002	1.3
2001	8.2
2000	44
1999	1.0
1998	1.1
1997	2.2

The Columbia River exchange input to West Division Main Canal (**Figure 5**) is located approximately two miles down-canal from the Umatilla River point of diversion. In addition, the district may pump supplemental water from the Columbia River pool via a pumping station at the Umatilla River's mouth. The location of supplemental input to the canal is also shown in **Figure 5**. The designated irrigation season is March 1 through Oct. 31, but the canal usually runs March 15 through Oct. 31. Based on these factors, the West Division Main Canal typically derives water from the Three-Mile Falls Dam pool on the Umatilla River from mid-March through mid-June or July and then from the Columbia River at or near the city of Umatilla from then until Oct. 31. Normally, no water is routed to the canal between Nov. 1 and Feb. 28.

Figure 5. Location of inputs to the canal, from Columbia River (National Agriculture Imagery Program 2005 and Oregon Water Resources Department on-line photos)



Volume of canal input water. Canal input flow typically ranges from 30 to 175 CFS (**Figure 6**) during the growing season, as measured in the canal below the Columbia River inputs (gage #14032650, **Figure 5**). This lower gage assesses the entire flow entering the canal, as it is located below all three river source inputs, and diversion is minimal above this gage. Lower flows occur near the beginning and end of the irrigation season.

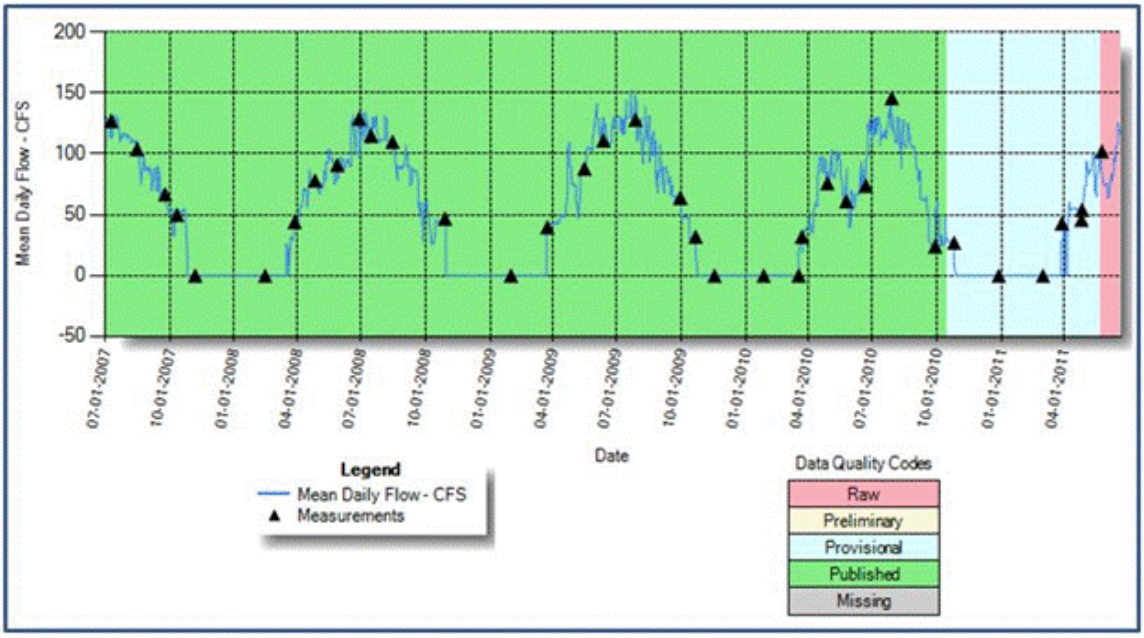
After the Umatilla River diversion is closed, sluggish standing water remains in the uppermost canal section due to seepage through the headgate below the Three-Mile Falls Dam fish bypass facility. This slack water extends down-canal roughly one mile to a ramp-flume. This flume backs up Umatilla River water and then drops to where the Columbia River water circulates up-canal from its point of introduction, during the remainder of the irrigation season.

Much of the canal-proper is dry in the off-season. The district typically conducts essential annual maintenance on the West Division Main Canal during this dry period. During the off-season, water may pond temporarily behind the check dams and in certain areas groundwater enters the canal. Groundwater input occurs primarily in areas 15 miles from the Umatilla River head gate and near Boardman.

Volume of overflow. The overflow exiting the end of the constructed channel ranges from zero to 30 CFS during the irrigation season. Some of this is consumed through ten water rights downstream from the end of the constructed channel. These water rights rely on diversion directly from the overflow channels.

Year round, the West Division Main Canal's return flow entering the Columbia River is typically 0.5 to 6 CFS, with the district targeting 3 to 6 CFS during the irrigation season. The overflow channel system, developed in 1916, appears to follow a natural topographic low, and thus, may have historically served as a drainage-way for the region's infrequent runoff. During the non-irrigation season, this portion of the canal has some sections that contain small amounts of water, which is from ground water inflow of seasonally applied irrigation water and thus is not a natural condition. This water continues to seep into the overflow channel during the non-irrigation season due to a lag-effect caused by the slow rate of groundwater transport.

Figure 6. Recent years discharge for West Division Main Canal just downstream from the points of Columbia River input (data from Oregon Water Resources Department website, gage #14032650)



Canal structure. The canal's point of diversion, Three-Mile Falls Dam on the Umatilla River, is two miles south of Umatilla, Oregon, and has a structural height of 24 feet, a hydraulic height of 23 feet, and a crest length of 915 feet. The canal is a trapezoidal channel that is approximately 28 feet wide and 7 feet deep. It has a diversion capacity of 375 CFS (USBR website), though as mentioned earlier, the flows in the canal are typically 150 CFS or less. There are check dams in various places in the canal to prevent flows from traveling upstream. There are gates or valves on each delivery from the canal. The original concrete structure is a single un-branching artery. All diversions are located below the Columbia River water input except one, which is between the Umatilla and Columbia inputs (**Figure 5)**, just above the upper Columbia River input. The city of Hermiston is collaborating with the district to re-locate this diversion to a point below the Columbia River water introduction.

The constructed channel is continuously lined with concrete for 27 miles, from the Umatilla River head gate to an overflow structure southwest of Boardman, located at the terminus of the original concrete structure (**Figure 3** and **Figure 9**). At the head of the canal where it diverts from the Umatilla River, there is a modern rotating drum fish screen and bypass facility built in 1988 (**Figure 7**).

Figure 7. Fish screen at Three-Mile Falls Dam (Oregon Water Resources Department website)

Prior to the current fish screen at the canal's head, a louver screen was in place dating back to the 1960s (USBR 1985):

> "The louver screen is mounted at the intake of the (West Extension Irrigation District canal) at the left abutment of the dam. It was constructed by the Bureau of Commercial Fisheries in 1961 under contract with the Bureau of Reclamation and the (West Extension Irrigation District). It is approximately 30 feet long and consists of a series of fixed metal slats spaced about 1 to 2 inches apart. It prevents most steelhead smolts from entering the canal and directs them to the entrance of the bypass pipe."

At the lower end of the constructed channel, canal water flows through two overflow channels, and then these flows reconnect. These overflow channels consist of roadside, field and golf course ditches and

drains. The resulting single channel then flows past the Boardman I-84 Rest Area, and under a railroad track to the Columbia River.

Personal communication with the district and Oregon Department of Fish and Wildlife staff indicate that in 2002, a fish barrier (**Figure 8**) was installed near the end of the final overflow channel (**Figure 4**), 0.1 mile from its entrance to the Columbia River. Prior to this, fish were prevented from entering the drainage system by a large concrete irrigation box that blocked passage down-canal from the existing barrier. This irrigation box was part of the original irrigation system built in 1916. However, with the inundation of land via the John Day Dam (completed in 1971), irrigation ceased on these lower grounds. By the late 1990s, the box had degraded and the canal over-flow had eroded a channel around it. A few stray fish were noted above the Interstate-84 rest area (below the golf course shown in **Figure 4**). District staff believe that fish did not move upstream above this point, based on the presence of additional barriers and lack of reported observations above those barriers. The 2002 fish barrier was installed as a measure to prevent fish from entering the canal system. This existing structure is described by the district manager: "This is 1.5 miles downstream of our main canal. We had the Oregon Department of Fish and Wildlife design the structure. The area is limited by the two culverts - one under I-5 and one under the railroad tracks. There is a 4-foot elevation difference between the two culverts. So, our gate is set at a minimum three-foot height. The ramp (on the downstream side of the gate) falls an additional foot. Water sheets over the ramp typically, so fish are not able to swim upstream. We have never noticed fish coming up since we put this in. Landowners upstream from this area confirm."

Figure 8. Fish Barrier near end of canal overflow channel (2011 photo, DEQ)

(Boardman Interstate-84 Rest Area is visible in background)

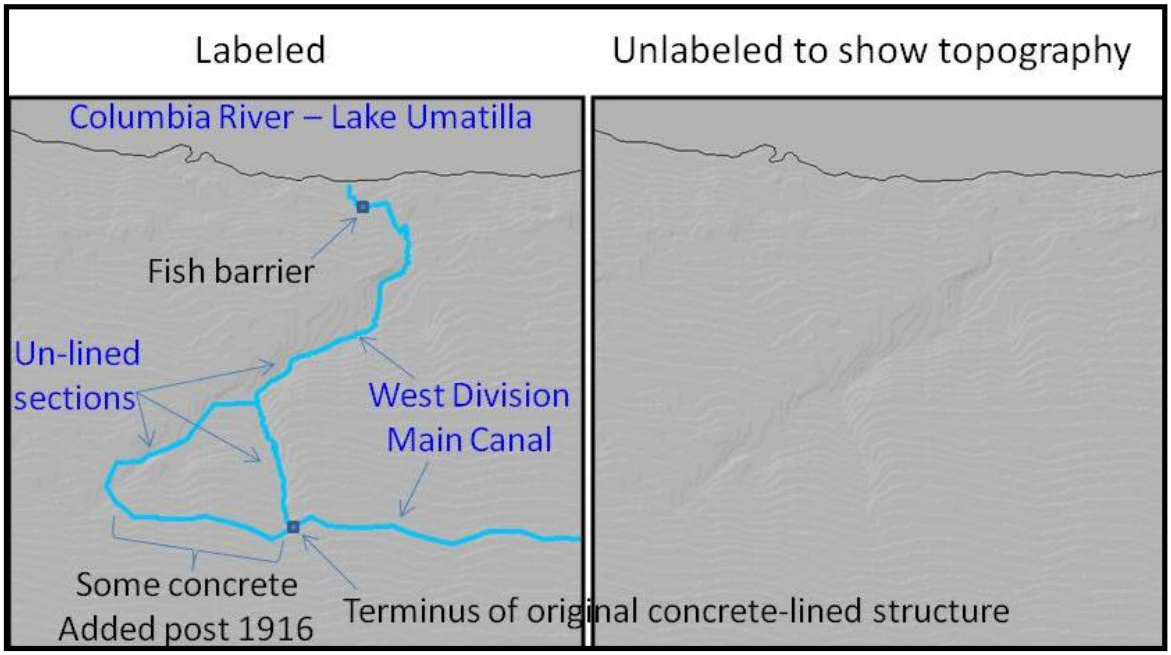
Properties and history of overflow channels. The overflows are earthen channels, except where irrigators added concrete-lining along the east-west segment exiting the constructed channel after the 1916 USBR canal construction. The channels were constructed/developed by the USBR to release overflow. According to the district, this added concrete lining occurs along the east-west part of the uppermost east-west

overflow branch. The length of the overflow channel system, from the constructed channel to the Columbia River, is approximately two miles (1.5-mile direct line to Columbia River). **Figure 9** illustrates the overflow structure at the downstream end of the constructed canal (original concrete structure).

Figure 9. 2011 photos (DEQ) of the downstream end of original concrete canal structure. (A) View toward west, (B) close-up of west-exit gate in 'A', (C) view toward southwest of north-flowing outlet, (D) view toward north, of lower part of the northern outlet.

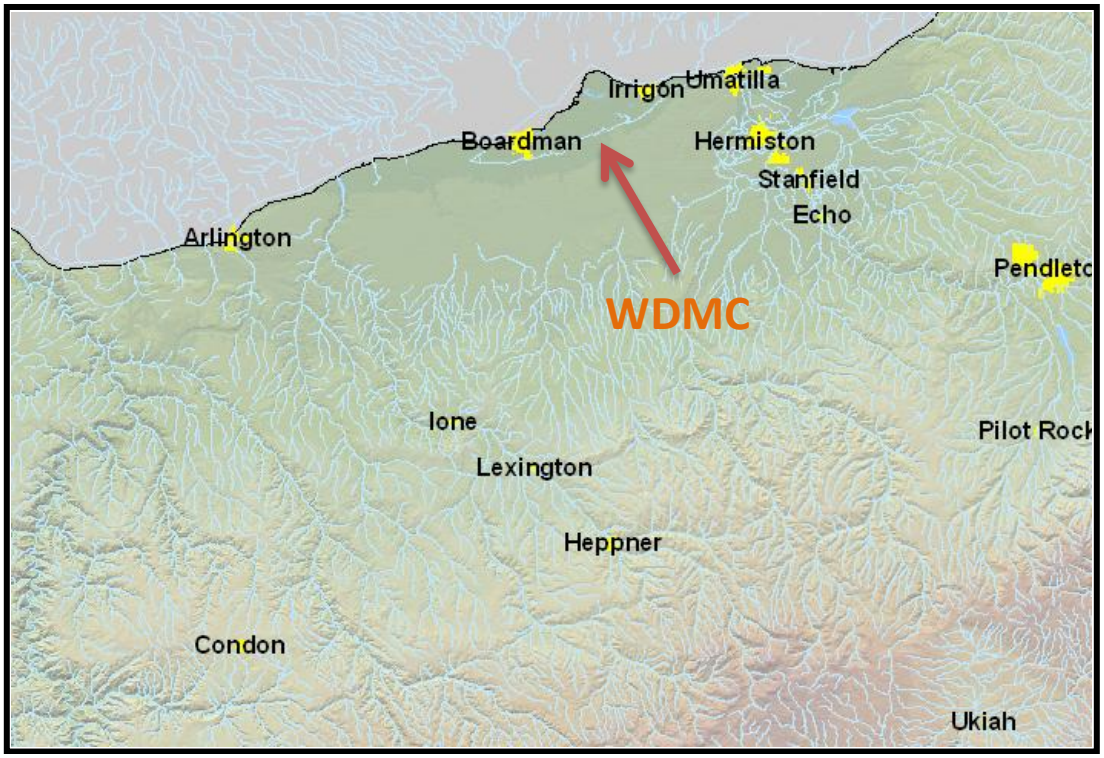
The overflow channels descending from the constructed channel were developed to generally follow the natural topography. DEQ believes that the natural topographic low sections may have drained infrequent runoff, but were typically dry. This conclusion is based on conversations with the district concerning canal history, and on the area geomorphology and hydrology. The oral history, though minimal with regard to hydrology, suggests that these were dry drainages most of the time. The valley form can be approximately assessed through digital elevation (US Geological Survey digital elevation model) based on USGS 7.5 minute quadrangle topographic maps (**Figure 10**). **Figure 10** depicts an apparently natural y-shaped drainage extending northward from the west-trending canal, containing the modern overflow.

Figure 10. Topographic illustration of West Division Main Canal (US Geological Survey Digital Elevation Model, a digitized 7.5-minute topographic map portrayed with inclined illumination to highlight topography).



The lack of channel definition near the modern Columbia pool shoreline is not consistent with an active channel. In addition, the drainage area is much smaller than neighboring drainages that generally exhibit no flow, except during storms or where agricultural drains enter. Nor were these likely flowing more frequently in historic times. The water table now, due to irrigation, is almost certainly higher than pre-irrigation times. This is because the rainfall in the area is slight in the area and mountain recharge areas are distant. From 1971-1975, the annual average precipitation was 8.6 and 10.4 inches at Boardman and Hermiston (National Oceanic and Atmospheric Administration). Due to the aridity, low topographic relief and young geology, the area has not undergone stream network development. This is strikingly apparent in a view of the area hydrography (**Figure 11**), in which the West Division Main Canal area is relatively void of streams. In summary, the overflow channels have been agricultural drains for nearly 100 years and otherwise would have no water except infrequently due to storms or snowmelt.

Figure 11. Map of area stream network, 1:100,000 National Hydrography Dataset



2.2 Canal History

The Umatilla Basin Project. The West Division Main Canal was authorized by the Secretary of the Interior on Dec. 4, 1905, under provisions of the original Reclamation Act, section 4, (32 Stat. 388). The authorized project purpose was irrigation.

The USBR built the Three-Mile Falls Diversion Dam in 1914. The West Division Main Canal was excavated, lined and completed in 1915-1916, via congressional authorization to the USBR. The canal has been operated by the district since April 27, 1926. The constructed channel is entirely human-made – it was not a natural waterbody and did not follow the course of a natural waterbody.

Congress, by the Act of Sept. 6, 1966 (80 Stat. 707, Public Law 89-561) authorized the Secretary of the Interior to conduct a feasibility investigation to expand the area irrigation base and to address anadromous fishery needs. A proposed plan that included additional storage facilities was developed, however it was not authorized. Subsequently, through a cooperative local, state, tribal (Confederated Tribes of the Umatilla Indian Reservation), and federal effort the Columbia River water exchange plan was developed to help resolve fishery and irrigation water needs in the Umatilla River basin. The Umatilla Basin Project (Umatilla Basin Act of 1988) provides for an exchange of water for area irrigation from the Columbia River instead of the Umatilla River. The Umatilla Basin Project has been heralded as the most successful stream flow restoration, salmon recovery and irrigation project in the Columbia River basin.

Authorized by Congress under the 1988 Umatilla Basin Act, the project re-engineered the water supplies for three of the four lower Umatilla Basin Irrigation Districts—Stanfield, Hermiston and West Extension Irrigation Districts. When the project was completed in the mid-1990s, those three districts began taking their water from the Columbia River, rather than the Umatilla River, at ecologically-strategic times of year.

Special regulations under Oregon's water laws enabled an "exchange" of water supplies. This exchange is the basis for the alternating river sources for West Division Main Canal water.

The information source for this section and further documentation can be found at http://www.usbr.gov/projects//ImageServer?imgName=Doc_1305644113536.pdf, http://www.usbr.gov/projects/Project.jsp?proj_Name=Umatilla+Basin+Project, http://oregonwatercoalition.org/blog/?p=86.

Additional history is provided in **Section 2.1**, regarding fish barriers and flow management.

2.3 Canal Uses and Management

The canal is used to transport water from the Umatilla and Columbia Rivers to area farms for crop irrigation, including commercial food crops for human consumption and animal-feed, and also provides for some livestock watering. Edible crops grown with the irrigation water include grain, fruit, and vegetables. Irrigated animal-feed plants include hay-pasture-alfalfa. The irrigation district manager describes the canal use as, "There is no hunting or boating. Farmers have livestock watering rights from the canal. Swimming or other human use of the canal is prohibited and is very hazardous. Gates are at most public access points of the canal to prevent unwanted vehicle access. Walking and horseback riding are allowed along the canal road. Industrial water supply does not occur. The water is used solely for irrigation and stock watering." Much of the irrigation occurs via center-pivot crop circles.

Management to exclude aquatic life. The West Division Main Canal is managed to exclude aquatic life in order to protect fish, which would likely not survive if they entered the canal, due to the absence of habitat, adequate flow and appropriate water quality conditions. As described earlier, fish barriers have been in place at the Umatilla River point of diversion and at the downstream end of the canal since the 1960s and earlier. Water from the Columbia River is pumped uphill to the canal and enters the canal at two points. The pumps and their screens preclude fish passage. In addition, the canal is maintained by routine application of aquatic pesticides, consistent with the district's individual NPDES permit for pesticide application. Both acrolein and copper sulfate are used in the West Division Main Canal to minimize nuisance aquatic weeds. These pesticides lead to toxic conditions for fish, one important reason that the district actively manages the canal to exclude fish from the system. The district has used acrolein and copper sulfate in the canal since 1958. DEQ notes that the district's NPDES permit requires that pesticide applications occur consistent with the label instructions and includes controls and monitoring to ensure that pesticide residuals do not reach the Columbia River. Finally, there are extended periods each year when large portions of the canal contain no flowing water.

Proximity to human population. As can be seen in **Figure 3** the canal passes through a rural agricultural landscape with some farmsteads and other rural residences. At only one point does the canal flow through a residential area – along the southwestern border of city of Umatilla (**Figure 12**). Here, vehicular access is controlled and warning signs are present, though physical restrictions do not entirely prevent entry (**Figure 13**). The lower overflow channel flows through the Boardman golf course. Beyond this, the canal landscape is entirely rural.

The canal is owned by the Bureau of Reclamation and managed by the West Extension Irrigation District. Swimming and boating are prohibited. No drinking water rights exist for the canal. Access to the canal is restricted at strategic locations via locked gates. There is limited access for walking and horseback riding.

Canal maintenance. Workers periodically enter the canal for repairs and cleaning. This generally takes place in the off-season, but may occur to a limited extent during irrigation. Aquatic weeds are managed via herbicide application as mentioned previously. In addition, at the end of the season headwater sedimentation is removed from the upper part of the canal at and below the Umatilla diversion headgate. This occurs partly via a flushing with Umatilla River water. The Umatilla headgate is opened and water is flushed from there to a concrete "cleanout" outlet at the city of Umatilla, where the flushed water enters the Columbia pool backwater in the Umatilla River channel near its mouth.

Figure 12. West Division Main Canal adjacent to the city of Umatilla (National Agriculture Imagery Program 2005)

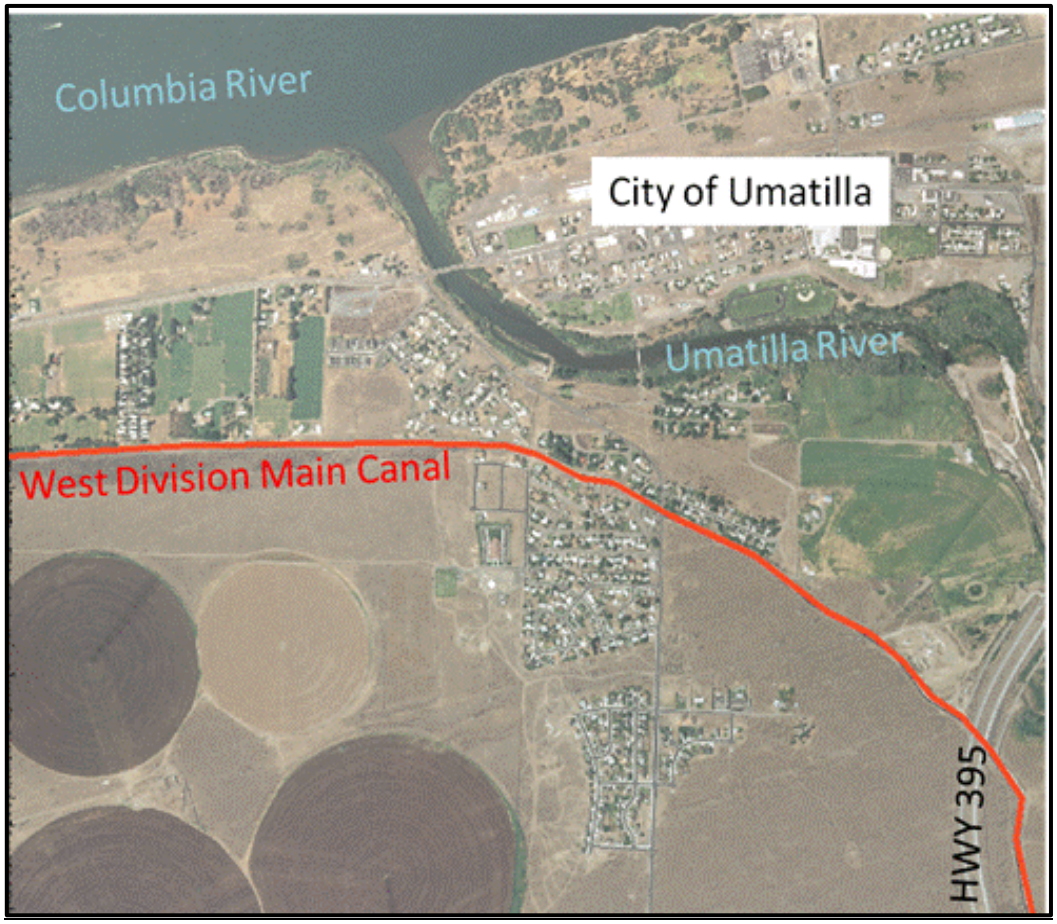


Figure 13. Canal signage and access controls, canal bridge crossing at Umatilla, Oregon (DEQ 2011)

Constructed channel and overflow channels. The main channel of the canal has different properties than the overflow channels, as mentioned previously. The overflow channels are generally not lined with concrete, except for parts of the west-trending section just downstream of the main constructed channel. Unlike the lined parts of the canal, the un-lined parts have earthen substrate and banks and are bounded by soil and vegetation – farm fields, farmhouse yards, golf course lawn and some trees - willow, locust, russian olive, alder and cottonwood. At a lower elevation and with more permeable channel material compared to the constructed channel, the overflow reaches interact more with groundwater, i.e., ground water flows into the overflow channel. The overflow channels are not as removed from the surroundings in the way that the constructed channel is with its concrete, berms and roadway. Accordingly, the overflow channels are somewhat more likely to be used by people, birds and other wildlife. This is part of the reason that DEQ is proposing to retain the designated beneficial uses of water contact recreation and wildlife and hunting. In addition, as stated in **Chapter 3**, a modified form of aquatic life use is proposed for the overflow channels.

Although the overflow channels have less hard structure than the constructed channel, suitable conditions for aquatic life and other non-agricultural uses are limited in both, and entirely absent in the constructed channel. The purpose of the overflow channels, and the only reason for the presence of water in them, is to function as an agricultural drain. The overflow channels do not have the natural channel form that results from the cyclicity of winter-spring floods and summer-fall declines in flow. They are predominately field and road ditches and are maintained as such – straightened, cleaned and graded, with little pool form, sinuosity or channel complexity. As with the constructed channel, water is withdrawn from these ditches to serve water rights. Fish are prevented from accessing the overflow channels by the downstream fish barrier between the interstate and the railroad that borders the Columbia pool. Further, domestic water rights are not available for any part of the canal, nor is it feasible that they would be in the future. There is generally insufficient water for boating and it is prohibited.

2.4 Policy Background

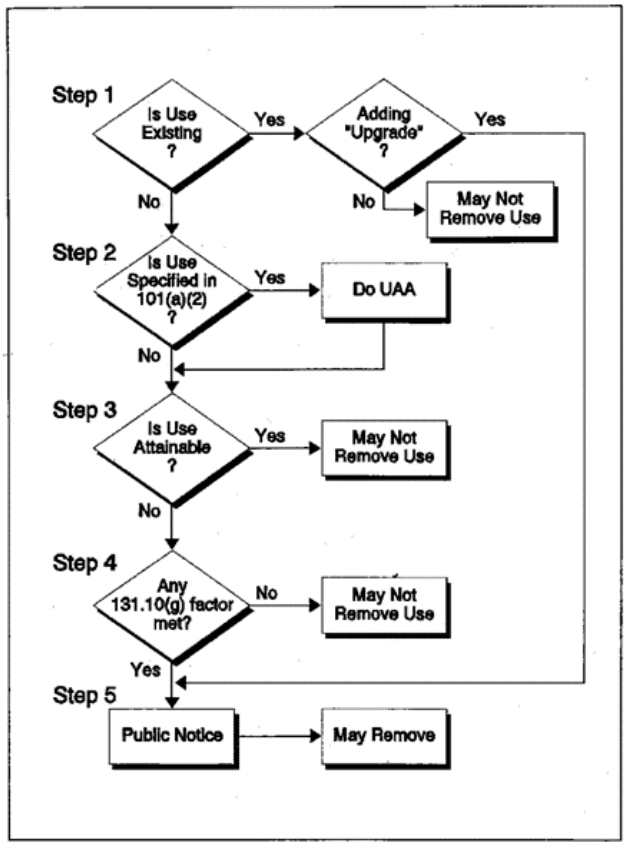
Section 2.4.1 identifies policies and rules that are directly related to the proposed standards revision. **Section 2.4.2** provides background related to canal maintenance and permitting and the city's proposed discharge to the canal, which is separate from DEQ's proposed water quality standard revisions. The **Section 2.4.2** background regarding the canal's NDPES permit and city's planned effluent treatment is included here as supplemental information.

2.4.1 Standards Revision

2.4.1.1 Use Change Guidance

State and federal rules and guidelines identify considerations and requirements for changing designated beneficial uses in state water quality standards. These include Title 40 Code of Federal Regulations 131.3 and 131.10 (the latter is included as **Appendix 8.2**), the Federal Register for EPA's water quality standards regulation (November 8, 1983; Vol. 48, No. 217, p051400-51413), the 2007 DEQ *Use Attainability Analysis and Site-Specific Criteria Internal Management Directive*, and the EPA 1994 (with some 2007 updates) *Water Quality Standards Handbook* (second edition). The 1994 EPA handbook contains the following flow chart for changing designated uses (**Figure 14**) outlining the process DEQ is using in the proposed canal use revision.

Figure 14. Flow of logic in use change process (EPA 1994)



2.4.1.2 Changing Designated Uses – Requirements and Approach

States may remove designated beneficial uses that are not existing uses. States may not remove existing uses, as defined in 40 CFR 131.3, unless a use requiring more stringent criteria is added [40 CFR 131.10(h)(1)]. Existing uses are defined as "... those uses actually attained in the waterbody on or after Nov. 28, 1975, whether or not they are included in the water quality standards." [40 CFR 131.3(e)]

EPA has further stated that the definition of "existing use" can consider the available data and information on both the actual use and water quality. With regard to the canal, the relevant historic water quality data (1970s) is not available. EPA has indicated (EPA 2008) that in such circumstances, a state may choose "to determine an existing use based on the strength of evidence that a use has actually been achieved or the strength of evidence that water quality supporting a use has been achieved." DEQ's analysis focuses on whether the use has actually occurred or may occur in the future in the absence of historic water quality data (during and after 1975). Beneficial uses focused on the protection of fish are an example. As described in **Section 3**, the canal screens are designed to protect fish by excluding them from the biologically harsh conditions of the canal (water withdrawal, stranding, lack of habitat, etc.) – to protect endangered fish populations.

In addition, EPA (2008) states "Where the water quality achieved was sufficient to support a use on or after Nov. 28, 1975, but the use (i.e., some degree of use related to aquatic life, wildlife, and human activity) has not occurred, the federal regulations provide states and tribes the discretion to determine whether or not this is an existing use. In this case, however, it would be reasonable to presume the use is attainable and that a state or tribe would need to explain the factors unrelated to water quality (e.g., human caused conditions that cannot be remedied, hydrologic modifications) that are limiting the attainment of the use before it can be removed..." This explanation is provided in **Section 3**.

Federal regulations (40 CFR 131.3(g)) state that a "Use attainability analysis is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g)." 40 CFR 131.10(j) specifies that a state must conduct a use attainability analysis as described in 40 CFR 131.3(g) whenever:

- The state designates or has designated uses that do not include the uses specified in section 101(a)(2) of the Clean Water Act, or
- The state wishes to remove a designated use that is specified in section 101(a)(2) of the Act or to adopt subcategories of uses specified in section 101(a)(2) of the Act which require less stringent criteria. The uses in 101(a)(2) of the Act are "protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water."

EPA regulations state that at a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act (point source controls) and cost-effective and reasonable best management practices for nonpoint source control (40 CFR 131.10(d)). At this point in time, there are no point source discharges to the canal other than the herbicide application to the canal, for which the irrigation district holds an NPDES permit. The imposition of effluent limits required under section 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control would not support fish and aquatic life use in the canal, where the physical configuration and canal operations are the limiting factors. This is true of boating and domestic water supply as well. Should the city of Hermiston relocate its treatment plant discharge to the canal, DEQ will include the applicable requirements in the NPDES permit.

In brief, existing uses are prohibited from being removed, and removal of the statutorily (CWA 101(a)(2)) identified uses requires a structured scientific analysis referred to as a use attainability analysis. These requirements relate to the West Division Main Canal standards revision as follows:

1. DEQ is not removing existing uses from the use designation.
2. DEQ is not removing attainable uses from the use designation. DEQ's conclusions in this regard are based on the artificial physical nature of the waterbody, which is constructed and modified, its known use and the purpose for its construction and operation.
3. DEQ is correcting a past, unintentional over-designation of uses for the canal.
4. DEQ proposes to remove the currently designated uses related to aquatic life, which are identified in section 101(a)(2) of the Act, as these uses are inconsistent with the intended use, purpose and management of the canal, and are not existing or feasibly attainable uses. DEQ proposes to replace these uses with a modified aquatic habitat use for the overflow channels segment. Other uses will be removed as well, as discussed in **Section 3**.
5. DEQ is proposing revised uses for the canal that will require less stringent criteria.

This report constitutes a use attainability analysis. It includes sufficient information as to whether uses are existing or attainable, given that the canal's operations, controls, purpose and artificial nature are straightforward and dictate the type of uses that are existing and attainable. DEQ's use attainability analysis internal management directive (DEQ 2007) states "DEQ anticipates that there will be situations in which the use attainability analysis will not require all of the technical information described in this chapter [for a more exhaustive use attainability analysis]. This may be the case if: the designated use is not an existing use, the designated use is not necessary as a goal for the waterbody, the proposed changes to a designated use are corrections to the water quality standards..." All of these conditions are true for the West Division Main Canal. This use attainability analysis, as stated in **item 2** above, is focused on the artificial nature of the canal and its known and intended use and operations. Discussions with EPA further indicate that the needed level and type of information for a use change should be commensurate with the type and degree of use change. For example, a use designation correction, as is being applied to the canal, is a different context from non-attainment based on unachievable water quality. As another example, more information should be required where there is potential for highly sensitive uses, such as where waterbodies are natural, perennial and contain species (or designated critical habitat for species) listed under the Endangered Species Act – none of which are true for the West Division Main Canal.

2.4.2 Related Policy

2.4.2.1 Canal Return Flow NPDES Exemption

In Oregon, the NPDES program administered by DEQ covers discharges to surface waters of the state, which includes irrigation canals. Discharges consisting of irrigation return flow and agricultural stormwater are exempt from NPDES permitting requirements [Clean Water Act Section 402(1), 502(14)]. As such, irrigation return flow and agricultural stormwater flows into the West Division Main Canal and return flows from the canal to the Columbia River are exempt from NPDES permitting requirements. In addition, according to the Oregon Attorney General's Office, the NPDES-permitted discharge of treatment plant effluent by the city of Hermiston does not remove this exemption. "Simply put, the existence of permitted discharges to receiving water does not change the nature of the exempt discharges or the nature of the receiving water itself" (Oregon Department of Justice 2010).

2.4.2.2 Class A Recycled Waters

In Oregon, land application of recycled water, i.e., wastewater re-used for crops, may be applied to human-food crops that are eaten uncooked if it is first treated to "Class A" levels. Oregon Administrative rules (**OAR 340-055-0012**) define various classes of recycled water in terms of treatment levels and allowable uses. Class A waters may be used for irrigation for any agricultural or horticultural use. There are examples of Class A (or an equivalent treatment level) recycled water irrigation for food crops elsewhere in the US. Class A waters must be oxidized, filtered, disinfected, and must meet specified stringent numeric limits for total coliform bacteria and turbidity. Given the similarity between direct land application for growing crops and discharge to an irrigation system, the city of Hermiston is planning to treat their municipal wastewater to Class A standards. This exceeds the level of treatment generally needed to meet water quality standards for bacteria.

2.5 Authorities

The following entities have authority over various aspects of the canal, water quality standards and the Hermiston wastewater treatment plant.

- West Extension Irrigation District: manages canal under a contract with the USBR
- City of Hermiston: the city is responsible for the wastewater treatment plant and its discharge, and NPDES permit compliance
- USBR: the canal has a federal easement pursuant to the 1890 Reclamation Act. In addition, the irrigation project is owned by the USBR. Wastewater discharge to the canal requires a permit through the USBR in addition to the NPDES permit that DEQ administers for wastewater discharges to “waters of the state.” Preparation of the USBR permit is underway, and a draft National Environmental Policy Act environmental assessment has been completed.
- DEQ: adopts and implements Oregon water quality standards; issues and enforces NPDES permits
- EPA: approves water quality standards and oversees DEQ’s NPDES permits

3 Revision of Designated Uses for Canal

This section identifies the proposed changes to the West Division Main Canal designated beneficial uses and the rationale associated with the changes.

3.1 Geographic Scope of Standards Revision

DEQ proposes to revise the water quality standards that apply to the West Division Main Canal. The canal consists of two segments. The majority of the canal (27 miles) is the original constructed concrete structure (constructed channel). The second segment consists of overflow channels that extend from the downstream terminus of the constructed channel to its outflow into the Columbia River. Most of the proposed revised uses and the proposed criteria for irrigation and livestock watering uses will apply to both segments of the canal. However, for the overflow channels segment, DEQ also proposes a *modified aquatic habitat* use (defined in **Chapter 5**) and associated criteria. **Figure 3** illustrates the full waterbody.

3.2 Historically Designated Beneficial Uses

Historically, DEQ designated uses by basin or subbasin. DEQ designated all, or nearly all, uses for every basin with only a few exceptions, such as commercial navigation and transportation where it was clearly not suitable. These designations did not represent DEQ's or the commission's conclusion that every reach of every waterbody within each basin was suitable and should be protected for every use, including constructed canals. DEQ expects that the intent at that time was to assign uses broadly since the uses either existed or warranted protection in at least some if not most of the waters within the basin. The current designated uses for the Umatilla and Willow Creek Subbasins are listed in **Table 310A** (below) and adopted by reference in **OAR 340-041-0310**. While much of the canal lies between the Umatilla and Willow Subbasins (in the Mid Columbia - Lake Wallula drainage), DEQ interprets the Umatilla Subbasin column of **Table 310A** to include the canal as well.

Table 310A

Designated Beneficial Uses
Umatilla Basin
(340-41-0310)

Beneficial Uses	Umatilla Subbasin	Willow Creek Subbasin
Public Domestic Water Supply[1]	X	X
Private Domestic Water Supply[1]	X	X
Industrial Water Supply	X	X
Irrigation	X	X
Livestock Watering	X	X
Fish & Aquatic Life[2]	X	X
Wildlife & Hunting	X	X
Fishing	X	X
Boating	X	X (at mouth)
Water Contact Recreation	X	X
Aesthetic Quality	X	X
Hydro Power	X	X
Commercial Navigation & Transportation		

[1] With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.

[2] See also Figures 310A and 310B for fish use designations for this basin.

Table produced November, 2003

3.3 Existing Uses

DEQ evaluated the existing uses of the West Division Main Canal and concludes that the existing uses for the constructed channel are limited to:

- Irrigation
- Livestock watering
- Wildlife and hunting (as an aggregate category for limited waterfowl use, but hunting does not occur)
- Infrequent water contact
- Aesthetic quality

Each of these existing uses has been previously designated as a beneficial use of the canal for water quality standards and is being retained with this action. Irrigation, livestock watering and infrequent water contact have occurred in the canal on and after Nov. 28, 1975. Aesthetic qualities are present as well. The primary intended use and purpose of the canal is for irrigation. Canal water is also used for livestock watering. DEQ

identified these existing uses based on the knowledge and professional judgment of the district, USBR, Oregon Department of Fish and Wildlife and DEQ staff with input from the public. The existing uses are consistent with the features and operations of the canal, the fact that it is a constructed canal (and was never a natural stream or waterbody), and the intent and purpose for its construction and operation.

The existing uses of the overflow channels are the same as those listed above for the constructed channel except that it is reasonable to conclude that limited aquatic life may be present at times in the overflow channels. This is discussed further below. Water contact (human) occurs infrequently, primarily for the purpose of canal maintenance activities. Swimming is prohibited and public access to the canal is limited, as described in **Section 2.3**. It is possible that some incidental water contact by children or other people could occur, particularly where the canal passes through a city of Umatilla residential area (**Section 2.3**), where canal water is applied for lawn watering (cities of Umatilla, Irrigon and Boardman) or in the overflow reaches. Water contact recreation will continue to be designated as a use.

Wildlife is considered an existing use primarily due to temporary presence of waterfowl. Hunting does not occur along the canal. However, for the sake of simplicity and potential future use, wildlife and hunting will continue to be designated as a use.

In the context of designating beneficial uses, states must determine what level and quality of aquatic life comprises the 'existing' use. With regard to the constructed channel, DEQ acknowledges that there are likely transient or temporary, tolerant organisms that use the water. However, this incidental, marginal aquatic life does not equate to the aquatic life use stated in section 101(a) of the CWA: the “protection and propagation of fish, shellfish and wildlife.” Any aquatic organisms found within the constructed channel would be considered part of a marginal population, at best, and would not be capable of sustaining a stable population due to the hazards and habitat deficiencies of the canal. The objective of the Clean Water Act, stated in Section 101(a), is “to restore and maintain the chemical, physical and biological integrity of the Nation’s waters.” The chemical, physical and biological integrity of the canal does not constitute habitat for a stable, balanced or indigenous biological community. DEQ’s perspective with regard to the WEID canal does not necessarily translate to similar future actions to remove aquatic life designations from all concrete channels or highly modified systems. For instance, urban streams that have been channelized may be restorable, or may be conduits to areas of better habitat – this is not true of the canal, due to its barriers and design function of transferring water to fields, a purpose that is inherently hazardous to fish.

The overflow channels are also operated as part of the irrigation system (withdrawals, cleaning, ditching, fish barriers) and have the same existing and attainable uses as the constructed channel (refer to **Section 3.4**), except that DEQ proposes to adopt a *modified aquatic habitat* designation for the overflow channels. While the overflow channels do not support cold-water aquatic life, there may be potential for limited aquatic life use, given that much of this segment is earthen rather than concrete-lined and that some habitat features, such as vegetated banks, are present. DEQ does not have biological data for the canal. The existing aquatic life in the overflow channels is expected to be very limited and characteristic of a modified, warm water body that flows seasonally in response to irrigation upstream, contains primarily tolerant species that do not resemble the natural aquatic community of a reference stream, and contains no cold water fish. Therefore, DEQ concludes that any existing aquatic life use is best characterized by a subcategory of *modified aquatic habitat* (defined in **Chapter 5**).

DEQ's interpretation of aquatic life use, for the purpose of establishing water quality standards, is a self-sustaining or reproducing (“propagating”) population(s) of aquatic organisms that represent native aquatic communities and, therefore, the biological integrity of the waterbody. This is consistent with the CWA and federal regulations and policy. In addition to the CWA citations above, the following references support this interpretation:

- EPA's 1994 Water Quality Handbook (Chapter 4), states that **small marginal populations** may not constitute an existing use. Chapter 4 also provides "A use attainability analysis or other scientific assessment should be used to determine whether the aquatic life population is in fact an **artifact** or is a **stable population** requiring water quality protection.
- 40 CFR 130.7(b)(2) and (c)(2) refer to CWA objectives of "water quality criteria for protection and **propagation** of a **balanced**, **indigenous** population of shellfish, fish and wildlife..."

This interpretation is supported in the DEQ policy and documents:

- OAR 340-041-0028 (2) Policy. It is the policy of the Commission to protect aquatic ecosystems from adverse warming and cooling cause by anthropogenic activities. The Commission intends to minimize the risk to cold-water aquatic ecosystems from anthropogenic warming, to encourage the restoration and protection of critical aquatic habitat, and to control extremes in temperature fluctuations due to anthropogenic activities.

- From OAR 340-041-0002 Definitions:

  (19) “Ecological Integrity” means the summation of chemical, physical and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of the natural habitat of the region.

  (50) “Resident biological community” means aquatic life expected to exist in a particular habitat when water quality standards for a specific ecoregion, basin or waterbody are met. This must be established by accepted biomonitoring techniques.

- OAR 340-041-0011 Biocriteria. Waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

- OAR 340-041-0016 Dissolved Oxygen. Table 21 describes uses as biological communities, made up of multiple species, characteristic of a cold, cool or warm water environment.

- From DEQ’s temperature standard internal management directive (April 2008, p.5):

  > "In the case of temperature, the most sensitive beneficial use is Oregon’s native cold-water aquatic communities. Cold water fish, such as salmon and trout, indicate the presence of these communities. Several temperature criteria have been established to protect various life stages and fish species, depending on their thermal requirements.
  >
  > Because temperature is variable through time and space in the natural environment, DEQ and the environmental quality commission recognize that thermal conditions may not be optimal for cold water fish at all times or in all places. The policy objective in these circumstances is to minimize risk to cold-water aquatic ecosystems from anthropogenic warming. The standard is designed to minimize alteration of the natural thermal regime due to anthropogenic activity [OAR 340-041-0028(2)]."

3.4 Historically Designated Beneficial Uses that are not Existing Uses

The constructed channel designated beneficial uses, prior to this revision, that are not existing uses are:

- Public domestic water supply
- Private domestic water supply
- Industrial water supply
- Fish and aquatic life and the sub-category Redband or Lahontan Cutthroat Trout
- Fishing
- Boating
- Hydropower

In Oregon, *fish and aquatic life use* refers to the native cool and cold-water organisms representative of natural habitats and that are reproducing or sustainable. This is not the existing aquatic life use in either segment of the canal. For the overflow channels, a limited or modified aquatic life use may occur, as the overflow channels are not as completely devoid of habitat as the constructed channel. Therefore, DEQ proposes to designate a *modified aquatic habitat* use for the overflow channels as stated in **Section 3.1.**

The canal has never been used for either public or private domestic water supply or industrial water supply. The basis for this statement is DEQ's review of the water right certificates for the district, and personal communications with the irrigation district manager and the Oregon Water Resources Department area water master, confirm that domestic water supply (either public or private) is not an existing use of the canal. Water rights certificates (the legal documentation of allowable use of water appropriated from streams under Oregon water law) is not an existing use of the canal. All of the district's certificates have limited the use of the canal water since priority dates ranging from 1893-1973, and all are exclusively for irrigation and livestock use, except for one. The exception is a certificate (79932) with1893 priority date, which allowed domestic use in addition to irrigation and stock water. Certificate 79932 applies to 46.25 acres of land owned by the Army Corps of Engineers, with no water delivery infrastructure. This acreage is within the land condemned by the Army Corps of Engineers for the purpose of reservoir (John Day Dam - Lake Umatilla) development and associated management, and in fact may be inundated. Regardless, the district considers the certificate cancelled and the Oregon Water Resources Department considers it inactive. The district and the canal have never provided service via this certificate, nor does the district believe they legally or feasibly could. In summary, drinking water is not allowed, by law, and this has been the case continuously since 1973 and earlier and the canal has not been used for industrial water supply.

Future use of the canal for non-agricultural purposes is highly improbable as well (2011 personal communication with water master). Further, it is common knowledge that irrigation canals are not used for domestic water supply and would not be safe for drinking. The water rights certificates are available on-line in Oregon's Water Resources Information System (Water Resources Department). The certificates for the West Extension Irrigation District are as follows:

Certificate Number	Use	Priority Date
79924	Irrigation, Livestock	1893
79925	Irrigation, Livestock	1906
79926	Irrigation	1909
79927	Irrigation	1962
79928	Irrigation	1968
79929	Supplemental Irrigation	1968
79930	Irrigation	1969
79931	Supplemental Irrigation	1973
79932	Irrigation, Domestic Use, Stock Water	1893
79933	Irrigation, Stock Water	1906
79934	Irrigation	1909

Fish and aquatic life, the cool and cold water aquatic organisms native to and sustainable within Oregon waters, is not an existing use in the canal. Fish screens and management measures to exclude aquatic life have been in place since well before 1975 and will be continued, as described in **Section 2.2**. **Appendix 8.3** is a letter from the Oregon Department of Fish and Wildlife, Umatilla district fish biologist, documenting that the canal does not have Redband or Lahontan cutthroat trout and that the trout use designation is incorrect. While the letter addresses periods of 1988-2002 and later, the irrigation district manager has stated that earlier screens and fish barriers have been in place since the 1960s and earlier. Additional information on the canal structure and management as well as the fish screens is provided in **Chapter 2**.

Fish screens notwithstanding, the artificial nature of the constructed channel, its purpose and the adverse habitat it would provide – preclude aquatic life as an existing use. The canal is not a suitable environment for aquatic life, and the absence of suitable habitat for fish would likely lead to mortality. Being a constructed, concrete-lined canal built for the purpose of conveying irrigation water, the canal lacks the necessary habitat elements of substrate, pools, refuge, shade, vegetation and stream flow that would be appropriate for fish and other aquatic life. These habitat elements are not an attainable condition for the constructed channel, given that it is concrete-lined.

Further, the canal contains flowing water for only portions of the year, with large portions of the canal dry or void of flowing water from November through February. The flow in the canal is present solely for irrigation purposes and is diverted from the river under irrigation water rights. During the irrigation season when the canal is flowing, large amounts of water are removed from the canal for use in center pivot sprinkler irrigation systems, presenting a severe hazard to any aquatic life in the canal. During the non-irrigation season, water is not diverted into the canal and the canal is dewatered and contains only isolated sections of standing water. Finally, pesticides have been applied to the canal on a regular basis since acrolein was first applied in1958 (four to six treatments per year) to prevent the growth of aquatic plants and algae. This activity is also harmful to aquatic organisms (**Section 2.3**). Consequently, the canal conditions are inhospitable and often lethal for fish and other aquatic life.

For reasons stated in the previous paragraph, and because fish access to the canal has been limited since well before 1975, fishing is not an existing use. The canal is not stocked and fishing is prohibited. In addition, public access is blocked for most of the canal's length.

Boating in the canal is prohibited and has not been allowed since the canal was constructed (personal communication with the district). Access along much of the canal is blocked, there are no boat ramps or "put-ins" and the fish barriers effectively prevent accidental entry (**Section 2.3**). Hydraulic fluctuations, hazards and check dams combine to make boating inappropriate and unsafe. Much of the canal is too small for boating or has too little or no flow for large portions of each year. The canal passes underground beneath Interstate I-84 via a siphon. The canal was not designed or intended to be used for boating. Boating is not an existing use.

Overflow channels. As described in **Section 2.3**, the overflow channels have some different properties than the constructed channel, and access is less restricted. However, even the earthen overflow channels lack the substrate, channel form and vegetative attributes of a natural stream, given that the system consists largely of field and road ditches that are maintained as such. These channels are managed to exclude fish (recall that the fish barrier is close to the mouth of the final overflow channel) and natural channel features such as pools, sinuosity are generally lacking and ditch maintenance practices would be damaging to any invertebrate population. While the definition of 'existing use' is based on usage during and after 1975, DEQ believes that the historic nature of the system adds context to the determination of uses. Water is present in these channels almost entirely because irrigation water is diverted into the constructed channel from the Umatilla and Columbia Rivers. It is unlikely that the overflow channels historically flowed except as rare storm run-off (**Section 2.1** – ***Properties and History of Overflow Channels***). With regard to fish, the overflow channels have been separated from the Columbia and Umatilla Rivers by fish barriers at the upper and lower ends of the canal since well before 1975. Also, though not to the same degree as the constructed channel, the overflow channels, which are highly modified, as described above, lack suitable aquatic habitat. And finally, as with the constructed channel, the water transfer to fields would present hazards to fish if they were present. Fish are not stocked in any part of the canal.

In addition, the other uses proposed for removal are also not existing uses of the overflow system. The foregoing discussion of water certificates and standards of usage for domestic water supply, apply to the overflow as well. Boating is not known to occur, and low water levels, road/culverts and fences render the channels unsuitable for boating. The overflow is not physically accessible by boat from the Columbia River, short of portaging over an elevated railway, the fish barrier and the interstate freeway.

DEQ has determined, for the overflow channels, that fishing (and fish presence), private domestic water supply, public domestic water supply, and boating; are not existing uses. Because the overflow channels may have limited habitat value, DEQ will adopt a *modified aquatic habitat* use designation for the overflow channels as stated in **Section 3.1**.

3.5 Attainable Uses

The canal's attainable uses are the existing uses (**Section 3.3**) and those that have potential to exist and be supported by the purpose, structure and management of the canal and feasibly attainable water quality. DEQ has determined that the attainable uses of the canal include:

- Irrigation (existing use)
- Livestock watering (existing use)
- Wildlife and hunting (existing use)
- Water contact recreation (limited existing use, infrequent and discouraged for safety purposes)
- Aesthetic quality (existing use)
- Industrial water supply
- Hydropower

In addition, DEQ concludes that a *modified aquatic habitat* use may be attainable in the overflow channels. This aquatic life subcategory is newly defined in Oregon's water quality standards with this rulemaking. It is intended to represent the limited aquatic life use supported by the existing conditions in the overflow channels, which were highly modified from their natural condition before 1975, and therefore constitutes the existing use. DEQ may apply this use subcategory to other waters of the state in future rulemakings. DEQ reviewed similar use categories used by other states to develop the following definition tailored for Oregon:

> "Modified aquatic habitat" means waters in which cool or cold-water aquatic communities are absent, limited or substantially degraded due to modifications of the physical habitat, hydrology or water quality. The physical, hydrologic or chemical modifications preclude or limit the attainment of cool or cold water habitat or the species composition that would be expected based on a natural reference stream, and cannot feasibly or reasonably be reversed or abated.

The existing uses are by definition attainable at the level at which they currently exist or have existed since November 1975, according to the available information. Industrial water supply and hydropower uses do not require high water quality in comparison to the existing uses or the natural streams, such as the Umatilla and Columbia Rivers, from which the canal derives its water. DEQ believes that industrial supply and hydropower may be attainable from a water quality perspective, though it recognizes that there may be other physical and legal constraints. DEQ is not proposing any revisions to these two uses.

Of the current designated beneficial uses, some are neither existing nor attainable. These are the following:

- Public domestic water supply
- Private domestic water supply
- Fish and aquatic life/ Redband trout
- Fishing
- Boating

As discussed in **Section 2.4.1.1**, at a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act (point source controls) and cost-effective and reasonable best management practices for nonpoint source control (40 CFR 131.10(d)). These uses are not attainable in the canal due to the physical configuration (hazards and lack of habitat), purpose (the canal's serving the needs of agriculture is at odds with other uses), operations (aquatic life is excluded for its own safety) and lack of water rights for water supply currently and in the foreseeable future. The basis for this 'non-attainability' determination is the same as the basis for the 'non-existing' determination described in **Section 3.4**. For each of these five currently designated uses that are not attainable, the limiting factors precluding their status as *existing* uses will continue to be manifest into the future; as long as the canal continues to function as an agricultural canal, its sole and legally obligated purpose.

Point source controls would not support attainability, since water quality is not a limiting factor. There are no *reasonable best management practices* that would overcome the canal's limiting factors for these uses. DEQ notes that, in the extremely unlikely event that the canal were no longer used for applying water to the land, it would presumably have no water in it – because of the lack of water rights to do otherwise and the area demand for water. The drinking water rights limitations and boating physical limitations have no potential to change in either part of the canal. As long as the canal remains an irrigation canal, these channels are of necessity for irrigation supply and drainage. It seems very unlikely that the district would move the fish barrier further up-canal, as this would lead to fish stranding and pump and withdrawal hazards, including risks to threatened steelhead and other fish. As described in more detail in this section, these five uses are not attainable for this constructed waterbody, with the exception that *modified aquatic habitat* is determined to be an attainable use in the overflow channels segment of the canal.

When designated uses are removed, and particularly when the use removal leads to a change in the applicable water quality criteria, the highest attainable uses must be identified. This may be specific to a particular pollutant or water quality indicator. The highest attainable uses for the constructed channel are irrigation, livestock watering and water contact recreation (however infrequent and unlikely). The highest attainable uses for the overflow channels are the same, with the addition of the modified aquatic habitat use. To the extent that there may be wildlife use of the canal, DEQ expects that it is very limited due to the lack of natural habitat near the canal and the lack of fish or forage vegetation in the canal. Some pollutants will require more stringent criteria for one use, some for another. **Section 4** provides further discussion of the proposed water quality criteria for these uses.

3.6 Proposed Revision of Beneficial Uses

This section describes the designated uses to be removed and one new use subcategory. DEQ will retain all designated uses that the agency concludes are existing or attainable as described previously. The uses DEQ proposes to remove are not existing uses and are not feasibly attainable. Within the context of a *use attainability analysis*, Federal regulations (40 CFR 131.10(g)) require that one of six feasibility conditions be met in order to remove a non-existing designated use. These are referred to here as *131.10(g) factors*, or simply *factors*. DEQ relied on the following 131.10(g) factors for this use revision:

> (4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modifications in a way that would result in the attainment of the use; and
>
> (5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.

The full text of 40 CFR 131.10(g) is included in this document as **Appendix 8.2**. The analysis and conclusions of DEQ in this document are also supported by the federal register notice of November 8, 1983 regarding EPA's final water quality standards regulation. EPA states:

> There are instances where non-water quality related factors preclude the attainment of uses regardless of improvements in water quality. This is particularly true for fish and wildlife protection uses where the lack of a proper substrate may preclude certain forms of aquatic life from using the stream for propagation, or the lack of cover, depth, flow, pools, ruffles or impacts from channelization, dams, diversions may preclude particular forms of aquatic life from using the stream altogether." (Federal Register Vol. 48, No. 217, November 8, 1983, p. 51401)

DEQ proposes to remove public domestic water supply, private domestic water supply, fish and aquatic life (including the Redband trout subcategory), fishing and boating as designated beneficial uses for the West Division Main Canal. The remaining designated beneficial uses will be retained. DEQ proposes to designate a subcategory of fish and aquatic life use, "*modified aquatic habitat"* for the overflow channels. This use subcategory is defined in **Chapter 5**. This use re-designation represents the suite of existing and feasibly attainable uses that are in keeping with the physical nature and legal purpose of this canal. Because DEQ is proposing that the designated uses will be those that are attainable, the revised list of designated beneficial uses is the same as the attainable use list in **Section 3.5** (bulleted), and the proposed rule change (**Section 5**, **Table 310A**) reflects this as well.

3.6.1 Public and Private Domestic Water Supply

As described in **Sections 3.4** and **3.5**, public and private domestic water supply are not appropriate or feasible uses of the canal. DEQ proposes to remove these as designated uses of the canal. Federal regulations at 40 CFR 131.10 do not explicitly require a use attainability analysis to remove this use designation because domestic water supply is not a statutory goal under the CWA 101(a)(2). The preamble to the final federal water quality standards rule (Nov. 8, 1983, 48 FR 51401) also clarifies that states are required to conduct and submit a UAA to EPA if the state is removing or modifying a use included in section 101(a)(2) of the act. However, DEQ discusses in **Sections 3.4** and **3.5** the agency's conclusion that domestic water supply, both public and private, are not existing or attainable uses for the West Division Main Canal.

3.6.2 Fish and Aquatic Life

DEQ proposes to remove fish and aquatic life as a designated use of the West Division Main Canal. Fish and aquatic life is not an existing use and is not attainable in the constructed channel as discussed in **Sections 3.3, 3.4** and **3.5**. The general fish and aquatic life use designation for overflow channels will be replaced with a subcategory of fish and aquatic life called *modified aquatic habitat*, which is defined in the proposed rule.

Section 101(a)(2) of the CWA states that a goal of the Act is water quality that provides for the "protection and propagation of fish" as a designated use where attainable. Therefore, the state must conduct a use attainability analysis as described in 40 CFR 131.3(g) to evaluate the attainability of this use before it may be removed. This document serves as the use attainability analysis, as described in **Section 2.4.1**.

40 CFR 131.10 (g) Basis for removal. This federal regulation allows a state to remove a designated use that is not an existing use, or establish sub-categories of a use, if the state can demonstrate that attaining the designated use is not feasible for one of six reasons listed. Several of the use removal factors are relevant to the canal and DEQ's consideration of whether fish and aquatic life is an attainable use. Factor 4 is the primary factor relied upon for this action: "Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use..." The canal is itself a hydrologic modification, the source of its water is a hydrologic diversion, and fish passage barriers have been constructed to prevent fish from entering the canal. The canal was constructed and is owned by the USBR for the purpose of delivering water to irrigators and all the legal water rights to use water from the canal are for irrigation and livestock watering. Because this is a manmade canal, the canal condition is the original condition of the waterbody, as is its operation for the purpose of conveying water and using that

water for irrigation. Thus, it is not feasible to restore it to a condition that supports fish and aquatic life use. Factor 4 indicates that the presence of hydrologic diversions and other modifications are an acceptable basis for use non-attainment. For further explanation of the lack of attainability of fish and aquatic life in the canal, refer to **Sections 3.4** and **3.5.**

In addition, factor 5: "Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses," also provides a rationale for non-attainment of fish and aquatic life. By its very nature, the canal does not provide suitable habitat conditions for Redband trout or other cool or cold water fish. As discussed in **Section 3.4**, the constructed channel segment, which is the largest portion of the canal (27 miles), does not provide suitable habitat for aquatic life. The overflow channels segment (approximately two miles) may contain some limited aquatic life consistent with the existing modified conditions of these channels.

Any consideration of being able to "restore" or "operate" the canal to provide habitat and protect fish and aquatic life would be at odds with its use for irrigation. The concept of "restoring" is not applicable to this waterbody since it was never a natural watercourse. "Restoring" would mean removing the canal, which is an unrealistic and un-beneficial consideration. "Operating the modification in such a way to result in attainment of the use" is also unrealistic. In order to efficiently deliver water for irrigation purposes, measures and structures are in place to ensure that water is delivered efficiently. This efficiency is achieved through the concrete lined canal to ensure that water is not lost through infiltration; clearing aquatic weeds to ensure that flow is not impeded, and flows are only diverted to the canal during the irrigation season. Alternatives to these practices would have other environmental impacts, such as using more water, which could adversely affect flows in the Umatilla River. The best way to protect fish is to continue to maintain the barriers that prevent them from entering the canal and keep them in the Umatilla and Columbia Rivers, which provide much better habitat, and to continue to direct restoration efforts to these rivers.

3.6.3 Fishing

DEQ is proposing to remove fishing as a designated use for the canal. Fishing is not an existing (**Section 3.4**) or attainable use (**Section 3.5**).

Section 101(a)(2) of the CWA lists "recreation in and on the water" and fish protection as a goal of the Act. As fishing is intimately related to these uses, DEQ is addressing fishing through this use attainability analysis.

40 CFR 131.10 (g) Basis for removal. The rationale for removing fishing as a designated use is the same as the rationale described in **Section 3.6.2** above for removing fish and aquatic life. Because the canal is screened and game fish are not present in the canal, there is no fishing. In addition, the canal is owned by the USBR and managed by the West Extension Irrigation District, who restrict public access and prohibit recreation, including fishing, in the canal.

3.6.4 Boating

DEQ proposes to remove boating as designated use for the canal. Boating is not an existing or attainable use (**Section 3.4** and **Section 3.5**).

Section 101(a)(2) of the CWA lists "recreation in and on the water" as a goal of the Act and therefore, according to the federal regulations, the state must do a use attainability analysis to remove this use.

40 CFR 131.10 (g) Basis for removal. The factor that supports the removal of this use is factor 4, "dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to...operate such modification in a way that would result in the attainment of the use..." as explained in **Section 3.6.2**. Boating is not an attainable use for the same reasons that it is not an existing

use, as described in **Sections 3.4** and **3.5**. In addition, the canal is owned by the USBR and managed by the West Extension Irrigation District, who restrict public access and prohibit recreation, including boating, in the canal.

3.7 Influence on Downstream Waters

The general rule for standards and their influence on downstream waters is in 40 CFR 131.10(b): "In designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters."

The West Division Main Canal overflow enters the Columbia River throughout much of the time the canal operates, which is generally limited to March 1 through Oct. 31. The canal overflow entering the Columbia River is typically 0.5-6 CFS, but can range from zero to 30 CFS, as stated previously, and even in the off-season there is 0.5+ CFS discharge to the Columbia River due to groundwater input. The Columbia River at The Dalles Dam flows at 120,000 CFS during low flow years. This resulting relative flow proportion (Columbia River compared to Canal) ranges from 4,000:1 to 40,000:1 (based on 30 and 3 CFS, respectively) during a low flow year for the Columbia River.

The influence of canal water on the Columbia River is minimal and most likely not measurable, based on the canal's relatively slight volume of flow entering the Columbia River. In addition, the water diverted to the canal is from the Columbia and Umatilla Rivers. Umatilla River water would reach the Columbia, were it not diverted through the canal. The only point source discharge to the canal at present is the permitted pesticide application done by the irrigation district. Federal regulations require any future proposed discharge to obtain an NPDES permit, and DEQ must ensure that the permit contains sufficient limits to meet all applicable water quality standards, which includes those water quality standards applicable to the canal and the Columbia River.

DEQ has considered the effects of the proposed canal standards on downstream waters. In addition, DEQ will consider both the canal standards and the Columbia River standards in any implementation action, such as an NPDES permit or TMDL. Based on these facts, DEQ concludes that the proposed revisions to the standards applicable to the canal will not affect the ability of the Columbia River to meet water quality standards and as such, are sufficient to provide for the attainment and maintenance of the downstream waters.

DEQ has also considered the effect of the standards for the constructed channel segment of the canal on the overflow channel segment. While the pH and dissolved oxygen criteria for the overflow channels are more stringent than those of the constructed channel, it is reasonable to conclude that this will not impair the ability of the downstream overflow channels to attain their standards during the time that water is flowing through the canal. The water originates from the Umatilla and Columbia Rivers, it has the opportunity to aerate as it flows through the open canal, and vegetative growth that could potentially deplete dissolved oxygen is controlled by the irrigation district. Any NPDES permitting process for a discharge to the canal will consider the standards of the downstream overflow channels.

4 Proposed Criteria Revisions

DEQ is proposing revised water quality criteria to protect the revised designated uses of the West Division Main Canal. This Section describes the proposed changes to the criteria and the basis for the changes. Refer to **Chapter 5** for the proposed rule language and associated tables, which include the designated uses and water quality criteria.

4.1 Proposed Criteria

Criteria that no longer apply. Because domestic water supply, fish and aquatic life, and fishing are being removed as designated uses for the canal, the prior water quality criteria associated with these uses will no longer apply to the constructed channel segment of the canal, including:

- Toxics criteria for aquatic life and human health contained in OAR 340-041-0033;
- Dissolved oxygen (OAR 340-041-0016);
- Temperature (OAR 340-041-0028);
- pH (OAR 340-041-0021);
- Total dissolved solids (OAR 340-041-0032);
- Turbidity (OAR 340-041-0036);
- And others: biocriteria (OAR 340-041-0011), nuisance phytoplankton (OAR 340-041-0019), and total dissolved gas (OAR 340-041-0031).

The existing toxics criteria are based on aquatic life and human health in relation to water and fish ingestion. The existing dissolved oxygen, temperature, pH, total dissolved solids, turbidity, biocriteria, nuisance phytoplankton and total dissolved gas criteria are designed to protect aquatic life. Some of these criteria will be replaced by numeric or narrative criteria established to protect the new uses, as described below.

The criteria listed above and the uses they are based on will no longer apply to the overflow channels segment of the canal either, except that DEQ proposes to retain the pH and warm-water dissolved oxygen criteria for the overflow channels to protect the new "*modified aquatic habitat"* use.

Proposed and retained numeric criteria. Because DEQ is removing fish and aquatic life, including Redband trout, and drinking water uses, which are typically the most sensitive uses, irrigation, livestock watering and water contact recreation now become the most sensitive uses for the canal as described in **Section 3.5**. In addition, the *modified aquatic habitat* use is considered a sensitive use for the overflow channels for some parameters. Therefore, the proposed criteria are established to protect these uses. The existing bacteria criteria (OAR 340-041-0009) established to protect water contact recreation will continue to apply throughout the canal. DEQ is proposing numeric criteria for the entire canal to protect irrigation and livestock watering as shown in **Table 2**. The proposed criteria in **Table 2** include total dissolved solids as well as metals. **Table 2** applies to both the constructed channel and the overflow channels segments of the canal. Numeric pH criteria are proposed for the constructed channel [refer to **Chapter 5**, 340-041-0315 (2)(e)] to address irrigation. DEQ proposes to apply the current warm-water dissolved oxygen criteria and to retain the current pH numeric criterion for the overflow channels [refer to **Chapter 5**, 340-041-0315 (2)(d), 340-041-0315 (2)(f)] to protect *modified aquatic habitat*.

Table 2. Proposed Criteria for Agricultural Water Uses (a)

Parameter	Irrigation (mg/l unless noted)	Livestock Watering (mg/l)
Total Dissolved Solids	450 (b)	
Arsenic (inorganic)	0.1	0.2
Beryllium	0.1	
Cadmium	0.01	0.05
Chromium	0.1	1
Copper	0.2	0.5
Lead	5	0.1
Mercury		0.01
Nickel	0.2	
Selenium	0.02	0.05
Zinc	2	25

Table Notes and References:
(a) Values from EPA 1973, Water Quality Criteria 1972 (the "Blue Book") unless otherwise noted.
(b) Not an EPA criteria recommendation, but general information on effects at various ranges of TDS is provided (EPA 1973, EPA 1986).

Proposed and retained narrative criteria. Oregon's water quality standards include some criteria that are context dependent, such as the statewide narrative criteria in 340-041-0007. These general narratives will continue to apply to ensure the designated uses for the canal (and the downstream uses, where relevant) are protected. Only the water quality standards rules OAR 340-041-0011 through -0036 are superseded and replaced by this rulemaking. In addition, canal site-specific narrative criteria are proposed for toxics and sediment as part of this standards revision. **Chapter 5** contains the proposed narrative criteria (**OAR 340-041-0315**).

4.2 Basis for Proposed Criteria

Sensitive designated uses. CWA regulations broadly guide the identification of pollutants for criteria development: "*States must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.*" [40 CFR 131.11 (a)(1)]

For the West Division Main Canal, DEQ proposes a combination of numeric and narrative criteria to protect the most sensitive designated uses of the canal, which include irrigation, livestock watering and water contact recreation for the entire canal, and *modified aquatic habitat* for the overflow channels segment of the canal. The proposed numeric criteria for metals and pH, from EPA (1973) constitute the available scientific recommendations for water quality criteria for irrigation and livestock watering. The proposed total dissolved solids criterion is based on EPA (1973) and other available literature (Oregon State University Agricultural Extension Service and USBR recommendations), as described below, to protect irrigation use. DEQ used available scientific information and concludes that each of these revised criteria is based in sound scientific rationale and will protect the uses of the canal with regard to the pollutants addressed. For any new concerns that may emerge associated with the pollutants that are not addressed by these numeric criteria, and for other pollutants, DEQ will rely on the proposed narrative toxics criterion of **Chapter 5**. The toxics narrative criterion explicitly includes the requirement to protect downstream uses as well. With regard to bacteria for water contact recreation, DEQ is retaining the existing use designation and is not revising these criteria. In addition, DEQ will retain the warm-water aquatic life dissolved oxygen criterion and the aquatic life pH criterion for the Umatilla basin in the overflow channels in order to protect the modified aquatic habitat in that segment.

In reviewing available recommendations for numeric criteria, DEQ's evaluation indicates that not all EPA (1973) recommendations for irrigation and livestock watering are relevant to the West Division Main Canal. EPA's nationally recommended criteria are necessarily broadly generalized. The actual endpoints of concern for an irrigation use in a given area depend on the local climate, soils, water chemistry, crops and agricultural practices. In addition, for some recommendations, the assumptions contained in the EPA recommendations are unclear or the margins of safety are unnecessarily large. DEQ is not obliged to propose numeric criteria for all pollutants with available recommendations, and considers it best in various circumstances to rely on narrative criteria. As indicated in the following section, DEQ is adopting some but not all of the EPA recommendations for agricultural use numeric criteria.

Criteria proposed for modification or removal. Based on the revised uses, numeric and narrative criteria are proposed for the West Division Main Canal. The proposed numeric criteria address a reduced number of pollutant parameters, compared to the current list of applicable criteria (compare **Table 2** in this report to Tables 20 and 40 of OAR 340-041-0033). DEQ has proposed canal numeric criteria for parameters of potential concern where sufficient information is available.

As indicated in the previous section, no canal criteria are proposed for biocriteria, nuisance phytoplankton, temperature, dissolved gas, dissolved solids or turbidity. For the constructed channel, no dissolved oxygen criteria are proposed. The existing criteria for these constituents are based on aquatic life, a use proposed for removal. The uses of the canal (including irrigation, livestock watering, water contact and wildlife) are not sensitive to these parameters at levels that would reasonably be expected to occur in the canal. The turbidity criteria will be replaced with a narrative criterion addressing sediment and particle size intended to protect the operation of irrigation systems. For the overflow channels, dissolved oxygen criteria and the current more stringent pH range are proposed (refer to end of **Section 4.2.2**).

When a state withdraws or changes criteria it must ensure that the revised criteria provide for protection of all designated uses of the waterbody of concern and downstream uses. The proposed numeric criteria are designed to address the canal's uses of irrigation, livestock watering and water contact recreation and will provide basis for protecting wildlife, and for the overflow channels, *modified aquatic habitat*. Other potentially attainable uses of the canal (industrial water supply, wildlife and hunting, aesthetic quality and hydropower) are addressed by the criteria proposed for the more sensitive agricultural and recreational uses and by the proposed narrative criteria.

Wildlife. DEQ is not proposing additional numeric criteria that are specific to wildlife protection. The canal is actively managed to prevent fish from entering the canal, so it is not a source of food for fish-eating wildlife. Vegetation is removed regularly and therefore, is also not a significant food source. It is reasonable to expect that any wildlife use of the canal is incidental and transitory and that concerns about any exposure through drinking water would be similar to livestock watering. The canal is accessible and any water in a semi-arid setting will attract some use. However, the canal has no riparian vegetation, except that some is present along parts of the overflow channels, the surroundings are not natural or optimal wildlife habitat and given the lack of fish and plants in the canal, DEQ expects that if the canal is a source of food or water for wildlife, it is a very minimal source.

EPA does not have recommended criteria for wildlife and it is beyond the state's priorities or resources to develop a suite of numeric criteria specific to the limited wildlife that may use the canal at this time. The proposed narrative criteria provide for regulation of pollutants if information is available indicating that water pollution is affecting a designated use of the canal, including wildlife. DEQ has no reason to expect that toxic pollutants will be present at levels that would have short-term acute wildlife impacts. DEQ will rely on the proposed narrative toxics criteria as well as the numeric criteria for livestock watering, irrigation and water contact, to protect the limited wildlife use and to protect modified aquatic habitat in the overflow channels.

Downstream waters. As discussed in **Section 3.7**, canal flow at its mouth is quite small in comparison to Columbia River flow. It is not probable that the proposed canal criteria would limit attainability of Columbia River uses. In addition, a low probability of the presence of pollutants at levels of concern is discussed in **Section 4.2.1**, a detailed discussion of numeric criteria on a pollutant-specific basis is included

in **Section 4.2.1**, wildlife is addressed in **Section 4.2.1**, and **Section 4.2.3** explains how the proposed criteria would address point sources.

If concerns are identified that cannot be addressed with the proposed numeric criteria, the proposed narrative criteria can be used as the basis for protecting canal and downstream uses. The numeric and narrative canal criteria provide for protection of canal uses and those of the Columbia River.

4.2.1 Numeric Criteria

Metals. The proposed metals criteria for irrigation and livestock watering uses, which are shown in **Table 2** and in the proposed rule (**Chapter 5**), are EPA recommended criteria (EPA 1973, EPA 1986). There is a lengthy discussion of agricultural water uses in the "Blue Book" (EPA 1973); these constitute the most recent recommendations from EPA. DEQ proposes to adopt EPA's blue book values for priority pollutants as criteria to protect irrigation and livestock watering uses, and does not propose to adopt criteria for irrigation and livestock watering for non-priority pollutants. See section 4.2.2 below for detailed discussion. These criteria apply from the uppermost irrigation withdrawal to the confluence with the Columbia River.

Salinity. Salinity is one of the primary water quality concerns for irrigation use of water in arid or semi-arid areas. The Hermiston-Boardman area is relatively arid, typically receiving less than ten inches of rain per year. In such regions, EPA concludes that irrigation water containing TDS of 500 mg/l will usually result in no detrimental effect, and that waters with 500 to 1000 mg/l TDS can have detrimental effects on sensitive crops. However, EPA qualifies this as only a suggested guideline: "In spite of the facts that (1) any TDS limits used in classifying the salinity hazard of waters are somewhat arbitrary; (2) the hazard is related not only to TDS but also to the individual ions involved; and (3) no exact hazard can be assessed unless the soil, crop, and acceptable yield reductions are known, Table V-11 suggests classifications for general purposes for arid and semiarid regions" (EPA 1973). The impacts of TDS on irrigation water use depend on several factors, including crop type, soil characteristics, local climate, the specific ions present and irrigation water management.

There is no TDS criterion applicable to other water bodies in the Umatilla Basin. TDS criteria in other Oregon basins vary widely. A TDS criterion of 750 mg/l applies to the Snake River, which is also an important source of irrigation water in the region. In the October 2011 public comment draft of this standards revision report, DEQ proposed a numeric criterion of 750 mg/l TDS, the mid-range for the suggested classification of 'water than can have detrimental effects on sensitive crops' as the criterion for the West Division Main Canal. This is consistent with other relevant scientific literature. *Managing Irrigation Water Quality for Crop Production in the Pacific Northwest* (PNW 2007), *Water Quality Indicatory Tools* (NRCS 2000) and *Agricultural Waste Management Field Handbook* (NRCS 1997) provide similar ranges of potential effects. DEQ further evaluated TDS upon receiving public comment from local faculty of Oregon State University and the USBR Field Office for the canal area. The commenters indicated that salt-sensitive crops do grow in fields served by the canal and that in this arid environment, soil and plant quality could potentially be harmed at concentrations approaching 750 mg/l TDS. DEQ has revised the proposed TDS criterion based on the literature cited above, input comment from agriculture experts, and additional scientific literature (Ayers and Westcot 1985). The revised proposed criterion is a total dissolved solids (TDS) concentration of 450 mg/l, which is included in **Table 310B**. This criterion applies from the uppermost irrigation withdrawal to the confluence with the Columbia River.

pH. DEQ proposes to adopt EPA's published informational values for pH (EPA 1973, EPA 1986) related to agricultural water uses, for the constructed channel segment of the canal. In addition, DEQ proposes to retain the current pH criterion applicable in the Umatilla basin for the overflow channels segment of the canal in order to protect the modified aquatic habitat use. The aquatic life pH criterion is more stringent than the pH criterion for agricultural water use.

Bacteria. The presence of bacteria or other pathogens is another potential concern for water used to irrigate food crops. EPA (1973) concludes that irrigation waters below a fecal coliform density of 1000/100 ml should result in no hazard to animals or man either from the use of the water or the consumption of raw

crops that have been irrigated with the water (p.351). EPA revised its bacteria criteria recommendations for recreational uses in 1986, but did not change the information for irrigation use. DEQ is proposing to retain the current designated use for water contact recreation and the associated criteria (**Sections 3.3** and **3.6**). The existing criteria, which are more stringent than the 1000/100 ml fecal coliform value, ensure that the irrigation and livestock watering uses are also protected.

4.2.2 Changes to public comment proposal.

DEQ initially proposed for public comment, all the numeric criteria recommended by EPA (1973, the "Blue Book") for toxic substances in livestock waters (primarily metals) (pp.309-317) and for trace elements in irrigation waters (p.339, Table V-13). In addition, DEQ proposed a narrative toxics criterion to enable DEQ to regulate other toxic pollutants that are determined to be harmful to the designated uses of the canal. Following public comment and further review, DEQ proposes numeric criteria for a smaller number of pollutants, as shown in **Table 310B**, for arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc. This reduced list consists of metals identified by EPA as priority pollutants (Appendix A to 40 CFR Part 423). DEQ has not conducted an affirmative evaluation to determine that these pollutants are likely to be present and, therefore, that these numeric criteria are necessary to protect the uses of the canal. DEQ does not have the resources to carry out in-depth scientific evaluation of the local applicability of EPA's Blue Book (1973) recommendations and has chosen to err on the side of including numeric criteria for the CWA priority pollutants. In addition, DEQ continues to propose a narrative toxics criterion.

DEQ has decided not to establish numeric criteria for aluminum, boron, cobalt, iron, lithium, manganese, molybdenum, vanadium, fluoride or nitrite, though draft numeric criteria were proposed for public comment. These pollutants will be regulated under the narrative criterion should a source of the pollutant become known that has the potential to harm the designated uses of the constructed channel, the overflow channels, or downstream waters. DEQ concludes that numeric criteria are not necessary for these pollutants in order to protect irrigation and livestock watering uses for the following reasons:

1. These metals and anions are not expected to be present in, or discharged to, the canal at levels that would impair irrigation or livestock use.
    a. Should the city of Hermiston discharge to the canal in the future, it does not have industrial dischargers (that would require NPDES pretreatment) to their sewage collection system.
    b. Hermiston wastewater treatment plant data for the existing system show that manganese and iron are below detection limits in the effluent samples and aluminum, fluoride and nitrite are well below Blue Book agricultural values. DEQ notes that the city is planning facility upgrades to further improve its treatment technology that would be in place prior to any canal discharge.
    c. The city's existing effluent concentrations are well below Blue Book values for aluminum, fluoride, nitrite, manganese and iron (and for priority pollutants arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc as well).
    d. Effluent data were not available for boron, cobalt, lithium, molybdenum, and vanadium. Because these metals are not priority pollutants, wastewater treatment plant are not required to test for them.
    e. The Washington Department of Ecology extensively monitored irrigation canals and drains in neighboring Yakima and Columbia River watersheds (WDOE 2002). The parameters included all 20 metals and anions previously proposed for West Division Main Canal numeric criteria. For these constituents, no sample concentrations exceeded Blue Book agricultural recommendations. These samples were collected in the same physiographic region as the canal, where similar types of agriculture occur.
2. These have not been identified as priority pollutants by EPA. Priority pollutants are defined in Appendix A to 40 CFR Part 423.

3. With the exception of iron, EPA has not developed 304(a) criteria for these pollutants. This indicates either that EPA has concluded that numeric criteria are not necessary to protect CWA Section 101a uses, or that EPA does not have enough information to establish numeric criteria. It also means there is no aquatic life or human health criteria for these pollutants in downstream waters.
4. The EPA recommendations for livestock and irrigation have not been updated in more than 40 years. Establishing numeric criteria based on dated and variable information is not warranted for non-priority pollutants. EPA has updated aquatic life and human health criteria over the years based on new science. This has led, for example, to the withdrawal of human health criteria for beryllium, cadmium, chromium, lead, mercury, silver, iron and manganese. Human health criteria for arsenic, nickel and selenium have been revised to be less stringent than previous criteria. In contrast, EPA's 1972 recommendations for irrigation and livestock have not been reviewed to integrate new scientific information. Regulating these pollutants through the narrative criterion will better enable DEQ to evaluate appropriate and site-specific information, where appropriate.
5. The EPA recommendations for irrigation and livestock are broadly based national recommendations. Actual impacts to agricultural uses vary significantly depending on the climate, soil characteristics, water chemistry, crop type, irrigation practices and agricultural practices (such as the use of soil amendments) in the area. Because DEQ is establishing site-specific criteria for the West Division Main canal, DEQ can better evaluate the concerns and potential impacts to the local agricultural uses through a narrative criterion.
6. The information used to develop the EPA recommendations was in some cases limited and uncertain with some recommendations including a large margin of safety and some based on common natural water levels rather than on studies that show effects to crops. See the additional information provided for the individual pollutants below.
7. The irrigation criteria are based on effects to soil and crop quality and productivity, crop marketability, or the costs of using soil amendments or other practices to manage the impact. This is a different use protection end point than DEQ typically considers when establishing criteria to protect human health or aquatic life. Because many of the impacts are economic rather than health-based, they are more subjective and relative. Whether or not irrigation use is protected is a conclusion that is dependent on the local agricultural economy and the view of the local agricultural community.
8. DEQ also considered the following additional information for individual pollutants in determining that the numeric Blue Book values are not needed or appropriate for the West Division Main Canal for protecting agricultural uses:
    a) Aluminum (irrigation and livestock)
        a. The 1972 EPA recommendation is 5.0 mg/l (5000 µg/l) for continuous use on all soil types and 20 mg/l for use on fine textured neutral to alkaline soils over 20 years. If aluminum is a concern, then through the narrative criterion DEQ can work with the local agricultural community to determine relevant factors such as soil type, crop rotation, etc. to determine where within this range impacts may occur on area farms.
        b. There is no reason to expect aluminum concentrations in the canal will reach this level, based on area data collected by WDOE (see 1.e. above) and city effluent data, and as such, a numeric criterion is not needed.
        c. High levels of aluminum is a cause of non-productivity in acid soils (i.e. pH<5.5). However, the basis for the concentration recommended is not the toxicity of aluminum, rather indirect effects, which are more or less likely to occur based on the acidity of the soil. "In most irrigated soils this amount of limestone would not have to be added, because the soils have sufficient buffer capacity to neutralize the aluminum salts." (EPA 1973, p. 340)
        d. The 1972 recommendation for livestock of 5 mg/l does not appear to be based on effects to stock. Rather, the information provided in the document concludes that "(Aluminum) occurrence in water should not cause problems for livestock, except under unusual conditions and with acid waters.
        e. EPA only recently recommended an aluminum criterion for aquatic life, which is pH and hardness dependent. Aluminum is a concern in waters with low pH values, which is not the case in the West Division Main Canal.

b) Boron (irrigation and livestock)
   a. The gold book states a value of 750 mg/l for long-term irrigation use, which appears to be an error. The Blue Book recommends 0.75 mg/l (750 µg/l) to protect sensitive crops during long-term irrigation and 1.0-2.0 mg/l (1000-2000 µg/l) for less sensitive crops. (EPA 1973)
   b. There is no reason to expect boron concentrations in the canal will reach this level based on data from area waters (see bullet 1.e. above). Therefore, a numeric criterion is not needed.
   c. Boron is an essential element for growth of plants
   d. Citations are from studies of citrus, one of the most sensitive crops, from 1954 to 1966. Citrus is not grown in the Hermiston area.
   e. Dairy cows given 16-20 g/day boric acid showed no ill effects. No studies show ill effects in stock from boron at levels significantly higher than the criterion.
   f. A boron criterion is not needed for stock watering protection. The 1972 recommendation was based on common background levels. EPA (1973) recommendation for livestock states, "Experimental evidence concerning the toxicity of this element is meager. Therefore, to offer a large margin of safety, an upper limit of 5.0 mg/l (5000 µg/l) of boron in livestock waters is recommended." "Apparently, most natural waters could be expected to contain concentrations well below the level of 5.0 mg/l." (EPA 1973, p. 310).

c) Cobalt (Irrigation)
   a. 1972 recommendation for irrigation use is a broad range, 0.05 to 5.0 mg/l (50 to 5000µg/l) for irrigation use.
   b. There is no reason to expect cobalt concentrations in the canal will reach this level, based on data from area waters (see bullet 1.e. above), and as such a numeric criterion is not needed.
   c. Studies showed varying toxicity, dependent on crop type and soil characteristics. In one study, addition of 100mg/kg cobalt to soils was not toxic to citrus (typically a sensitive crop).
   d. There is no Blue Book criterion for livestock watering.

d) Iron (Irrigation)
   a. The 1972 EPA recommendation for irrigation is 5.0 mg/l (5000 µg/l) for continuous use on all soil types and 20 mg/l (20,000µg/l) for use on fine textured neutral to alkaline soils over 20 years.
   b. There is no reason to expect iron concentrations in the canal will reach this level, based on area data collected by WDOE (see 1.e. above) and city effluent data, and as such, a numeric criterion is not needed.
   c. Iron is generally not toxic to plants obviating its relevance for the protection of the irrigation use.
   d. In alkaline soils, the problem is generally a deficiency.
   e. Soluble iron salts could contribute to soil acidification and precipitated iron would increase the fixation of essential elements, such as phosphorous and molybdenum.
   f. There is no Blue Book criterion for livestock watering.

e) Lithium (Irrigation)
   a. The 1972 EPA recommendation is 2.5 mg/l (2500 µg/l) for continuous use on all soil types, except citrus.
   b. There is no reason to expect lithium concentrations in the canal will reach this level, based on data from area waters (see bullet 1.e. above), and as such a numeric criterion is not needed.
   c. Most crops can tolerate up to 5 mg/l, but citrus was more sensitive. The Blue Book does not explain why 2.5 is the recommended criterion when research showed most crops can tolerate up to 5 mg/l.
   d. Lithium is one of the most mobile of cations in soils. It tends to be replaced by other cations in water and is removed by leaching. It is not precipitated by any known process.
   e. There is no Blue Book criterion for livestock watering.

f) Manganese (Irrigation)
   a. The 1972 EPA recommendation for irrigation is 0.20 mg/l (200 µg/l) for continuous use on all soil types and 10 mg/l (10,000µg/l) for use on fine textured neutral to alkaline soils over 20 years.
   b. There is no reason to expect manganese concentrations in the canal will reach this level, based on area data collected by WDOE (see 1.e. above) and city effluent data, and as such, a numeric criterion is not needed.
   c. Toxicities of this element associated with acidic soils. In alkaline or calcareous soils concentrations can be increased. Application of ground limestone successfully eliminates the problem (EPA 1973).
   d. Concentrations can also be increased crops that have higher tolerance levels (EPA 1973).
   e. There is no Blue Book criterion for livestock watering.

g) Molybdenum (Irrigation)
   a. The 1972 EPA recommendation for irrigation is 0.010 mg/l (10 µg/l) for continuous use on all soil types and for short-term use on soils that react with this element 0.050mg/l (50µg/l).
   b. There is no reason to expect manganese concentrations in the canal will reach this level, based on data from area waters (see bullet 1.e. above), and as such a numeric criterion is not needed.
   c. No toxicity to plants in concentrations usually found in soils and waters.
   d. Problem can be toxicity to ruminants that eat forage grown in soils with high amounts of available molybdenum. Studies based on mg Mo per kg soil, not on concentration in irrigation water.
   e. Toxicity in soil was influenced by other elements present, such as copper.
   f. This should not be considered a problem unless molybdosis of livestock or soil molybdenum concentrations are a concern in the area.
   g. There is no Blue Book criterion for livestock watering.

h) Vanadium (irrigation and livestock)
   a. The 1972 EPA recommendation for irrigation is 0.10 mg/l (100 µg/l) for continuous use on all soil types and 1.0 mg/l (1000µg/l) for a 20-year period on neutral and alkaline fine textured soils.
   b. There is no reason to expect vanadium concentrations in the canal will reach this level, based on data from area waters (see bullet 1.e. above) and information provided in the blue book, which says that Vanadium is present in surface waters in the U.S. in the range of less than 0.05 mg/l up to 0.3 mg/l. Therefore, a numeric criterion is not needed.
   c. At low concentrations vanadium increases plant growth, in the range of 0.5 to 2.5 mg/l several crops showed toxicity.
   d. There is a lack of information on the reaction of this element with soils.

i) Fluoride (irrigation and livestock)
   a. The 1972 EPA recommendation for irrigation is 1.0 mg/l (1000 µg/l) for continuous use on all soil types and 15 mg/l (15,000µg/l) for a 20-year period on neutral and alkaline fine textured soils.
   b. The recommendation for livestock drinking waters is 2.0 mg/l (2000µg/l).
   c. There is no reason to expect fluoride concentrations in the canal will reach this level, based on area data collected by WDOE (see 1.e. above) and city effluent data, and as such a numeric criterion is not needed.
   d. Application of soluble fluoride salts to acid soils can produce toxicity to plants.
   e. There is a high capacity for neutral and alkaline soils to inactivate fluoride.

j) Nitrite (livestock)
   a. NO_2 (nitrite, as N) alone should be limited to 10 mg/l (10,000 ug/l) or less in drinking waters in order to provide a margin of safety to allow for unusual situations such as extremely high water intake or nitrite formation in slurries.
   b. Livestock poisoning by nitrates or nitrites is dependent upon intake from all sources. Nitrite comes from feed as well as water.
   c. Nitrite readily converts to nitrates in the presence of oxygen, which would be available in this open canal and the rivers that are its source water. Therefore, natural waters usually contain very low levels of nitrite.
   d. There is no reason to expect nitrite concentrations in the canal will reach this level, based on area data collected by WDOE (see 1.e. above) and city effluent data, and as such a numeric criterion is not needed. Nitrite readily converts to nitrates in the presence of oxygen, which would be available in this open canal and the rivers that are its source water.
   e. There is no Blue Book criterion for irrigation.

Modified aquatic habitat. Identifying two segments to the canal, the constructed channel and the overflow channels, and designating a modified aquatic habitat use for the overflow channels segment, constitutes another change to DEQ's draft proposal based on consideration of public comment. Most of the designated uses for the two segments are the same; however, DEQ is now proposing a use that recognizes the potential for limited aquatic life in the overflow channels, in contrast to the constructed channel, which has essentially no habitat. DEQ proposes a new subcategory of aquatic life use, termed *modified aquatic habitat*, to address the potential for limited aquatic life in the overflow channels. The criteria addressing *modified aquatic habitat* are the proposed narrative toxics and sediment criteria and numeric criteria for dissolved oxygen and pH, as well as the existing statewide narrative criteria. To protect the *modified aquatic habitat* use in the overflow channels, DEQ proposes to apply the existing Umatilla Basin pH criterion [340-041-0315(1)] and the statewide warm-water dissolved oxygen criterion [OAR 340-041-0016 (4)]. This is a conservative approach, given that these same criteria apply to some natural area streams. Although these criteria may be more stringent than needed to protect the *modified aquatic habitat* use that occurs in the overflow channels, DEQ anticipates that the criteria will be attainable and it is not the best use of DEQ resources to develop separate, less stringent criteria for the overflow channels at this time.

4.2.3 Narrative Criteria

Narrative criteria can be particularly important where concerns are identified but numeric criteria have not been established. They can provide a basis for addressing information gaps when new information becomes available.

The proposed narrative criterion for toxic substances augments the proposed numeric criteria for the canal. The narrative criterion will allow DEQ to regulate the discharge of additional toxic pollutants should we obtain information indicating that those pollutant may adversely impact a designated use of the canal or downstream uses. The proposed narrative criterion for sedimentation addresses irrigation, where excess fines or large particles can be mobilized into pumps and cause problems with the irrigation equipment or premature wear.

Addressing point sources with narrative criteria. Toxic pollutants are specifically addressed in 40 CFR 131.11(a)(2): "*States must review water quality data and information on discharges to identify specific water bodies where toxic pollutants may be adversely affecting water quality or the attainment of the designated water use or where the levels of toxic pollutants are at a level to warrant concern and must adopt criteria for such toxic pollutants applicable to the water body sufficient to protect the designated use. Where a State adopts narrative criteria for toxic pollutants to protect designated uses, the State must provide information identifying the method by which the State intends to regulate point source discharges of toxic pollutants on water quality limited segments based on such narrative criteria.*"

Through this standards revision, numeric criteria for most pollutants in Oregon's statewide toxics rule (OAR 340-041-0033) will no longer apply to the canal. These criteria are based on human health and fish

and aquatic life. With the removal of domestic water supply, fish and aquatic life, and fishing (consumption), these criteria are no longer applicable. For many of these pollutants, there are no numeric criteria recommendations available for irrigation, livestock watering, water contact or wildlife. However, if concerns are identified, they can be addressed through the narrative toxics criteria for the canal. For the *modified aquatic habitat* use, the existing conditions in the overflow channels support the existing use. The proposed narrative toxics criterion will allow DEQ to put in place limits through NPDES permits or other regulatory mechanisms to address potential sources of toxic pollutants.

NPDES permits must consider all applicable water quality standards, including narrative criteria [40 CFR 122.44(d)(1)(i)], and this has been interpreted to include downstream standards as well – in this case, standards applicable to the Columbia River. Any new NPDES permits for discharging to the canal would take into consideration Columbia River uses and criteria as well as those of the canal in considering whether water quality-based effluent limits are needed and at what level. The point source discharges that are present or proposed for the canal are individual NPDES permits: the irrigation district's permit for control of aquatic weeds and the proposed city of Hermiston wastewater treatment plant discharge.

The district's permit regulates pesticide residual, specifically in relation to acrolein and copper sulfate. The district is periodically evaluated for compliance with NPDES effluent limits for pesticide residue. The current limits are still in place and when the permit is renewed or replaced, herbicide residual limits would be assessed with consideration of the canal narrative criteria, potential impacts to the modified aquatic life use of the overflow channels segment and any influence of the discharge on attainment of Columbia River water quality standards. For pesticide application, DEQ notes that any degradates and residuals are pollutants, not the pesticide applied under the canal NPDES permit.

To apply the proposed narrative criteria to West Division Main Canal point sources, after considering the proposed numeric criteria in DEQ's reasonable potential analysis for NPDES effluent limits, DEQ would consider the full range of Blue Book agricultural recommendations as guidance and may seek additional information from available literature and toxicological or agronomic expertise. In determining potentially harmful levels of metals, salts and other substances downstream in the canal or in the Columbia River, DEQ may calculate or model far-field effects such as dilution or attenuation (e.g., evaporation, decomposition, thermal relaxation) in the canal prior to the point of agricultural withdrawal or the downstream segment. In addition, DEQ's permit development process may incorporate other numeric objectives: background levels, quantitation limits, acute aquatic life criteria or downstream criteria. Where there is a potential concern about a pollutant, DEQ will consult with the local agricultural community and local wildlife and aquatic biologists as appropriate to identify potential use impacts and to establish appropriate permit requirements for a proposed discharge. In addition, any draft proposed permit and the permit evaluation report must be made available for public comment.

DEQ will address the need for the Hermiston wastewater treatment plant to have the capability to comply with toxic pollutant standards for the Umatilla River since the plan under consideration includes discharge to the river during part of the year. The USBR draft permit for the city’s prospective discharge to the canal prescribes treatment to Class A recycled water standards – a higher than normal level of treatment for discharge to surface waters. Current wastewater treatment plant effluent data is available for a variety of pollutants. The planned upgrade is expected to result in overall higher quality water, but for dissolved metals in particular, the upgrade from rotating biologic contactor to membrane bioreactor technology may not provide substantial reductions. According to city, the wastewater treatment plant effluent concentrations for metals are expected to be less than detection limits or well under the Blue Book recommendations, for the metals tested (**Section 4.2.1**).

4.2.4 Other States

DEQ evaluated other states' approaches to establishing water quality criteria for agriculture-related uses in identifying the appropriate criteria for the revised designated uses. While DEQ did not directly use the other states' values, this information is provided here for reference. DEQ also reviewed definitions for modified and limited aquatic life and other similar categories from other states in order to develop the proposed definition of "modified aquatic habitat."

Idaho relies on general water quality criteria narratives but refers to Water Quality Criteria 1972 (Blue Book) section V where more specificity is necessary to protect the use (Idaho Administrative Code, IDAPA 58.01.02).

Washington does not use numeric criteria; rather, it relies on two narrative criteria for agricultural water uses (Washington Administrative Code 173-201A-200):

1. toxic, radioactive or deleterious materials must be below levels that have the potential to adversely affect uses; and
2. aesthetic values must not be impaired.

California's Central Valley basin plan (Central Valley Regional Water Quality Control Board, 2009) includes only electrical conductivity criteria for agricultural uses. The conductivity targets are specific to place and date. The discussion in the basin plan is more about the impacts of agriculture on water quality rather than on criteria to protect irrigated agricultural use of water.

Alaska uses EPA's Blue Book criteria (EPA 1973) for its irrigation-designated use and the Green Book criteria (FWPCA 1968) for its livestock watering designated use (Alaska Administrative Code 2011). Because the Blue Book is more recent, DEQ proposes to use the Blue Book criteria for both of these agricultural water uses.

Oregon's approach is not inconsistent with these other state practices, and in some respects represents a more prescriptive approach.

5 Text of Proposed Rule Change

Department of Environmental Quality

Water Pollution

Division 41
Water Quality Standards: Beneficial Uses, Policies and Criteria for Oregon

340-041-0002

39) "Modified aquatic habitat" means waters in which cool or cold-water aquatic communities are absent, limited or substantially degraded due to modifications of the physical habitat, hydrology or water quality. The physical, hydrologic or chemical modifications preclude or limit the attainment of cool or cold water habitat or the species composition that would be expected based on a natural reference stream, and cannot feasibly or reasonably be reversed or abated.

Basin-Specific Criteria (Umatilla)

340-041-0310
Beneficial Uses to Be Protected in the Umatilla Basin

(1) Water quality in the Umatilla Basin (see Figure 1) must be managed to protect the designated beneficial uses shown in Table 310A (~~November 2003~~April 2012).

(2) Designated fish uses to be protected in the Umatilla Basin are shown in Figures 310A and 310B (November 2003).

Stat. Auth.: ORS 468.020, 468B.030, 468B.035 & 468B.048
Stats. Implemented: ORS 468B.030, 468B.035 & 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03

340-041-0315

Water Quality Standards and Policies for this Basin

(1) pH (hydrogen ion concentration). pH values may not fall outside the following range: all Basin streams (other than main stem Columbia River and the West Division Main Canal): 6.5-9.0. When greater than 25 percent of ambient measurements taken between June and September

are greater than pH 8.7, and as resources are available according to priorities set by the Department, the Department will determine whether the values higher than 8.7 are anthropogenic or natural in origin.

(2) The following criteria apply to the West Division Main Canal and supersede the water quality standards in OAR 340-041-0011 through 340-041-0036:

(a) Canal waters may not exceed the numeric criteria shown in Table 310B. These criteria apply from the uppermost irrigation withdrawal to the confluence with the Columbia River;

(b) Toxic substances shall not be present in canal waters in amounts that are likely to singularly or in combination harm the designated beneficial uses of the canal or downstream waters. The presence of substances at naturally occurring levels shall not be considered harmful to the designated uses;

(c) Sediment load and particulate size shall not exceed levels that interfere with irrigation or the other designated beneficial uses of the canal;

(d) The dissolved oxygen criteria contained in OAR 340-041-0016 (4) apply to "overflow channels" segment of the canal (as described in Table 310A) to protect the "modified aquatic habitat" use.

(e) pH values in the "constructed channel" segment of the canal may not fall outside the range of 4.5 to 9.0 in order to protect agricultural uses.

(f) pH values in the "overflow channels" segment of the canal may not fall outside the range of 6.5 to 9.0 in order to protect the "modified aquatic habitat" use.

(~~2~~3) Minimum Design Criteria for Treatment and control of Sewage Wastes in this Basin:

(a) During periods of low stream flows (approximately April 1 to Oct. 31): Treatment resulting in monthly average effluent concentrations not to exceed 20 mg/l of BOD and 20 mg/l of SS or equivalent control;

(b) During the period of high stream flows (approximately November 1 to April 30): A minimum of secondary treatment or equivalent control and unless otherwise specifically authorized by the Department, operation of all waste treatment and control facilities at maximum practicable efficiency and effectiveness so as to minimize waste discharges to public waters.

Stat. Auth.: ORS 468.020, 468B.030, 468B.035 & 468B.048
Stats. Implemented: ORS 468B.030, 468B.035 & 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03; DEQ 2-2007, f. & cert. ef. 3-15-07

Table 310A

Designated Beneficial Uses

Umatilla Basin

(340-41-0310)

Beneficial Uses	Umatilla Subbasin	Willow Creek Subbasin	West Division Main Canal – constructed channel[3]	West Division Main Canal – overflow channels[3]
Public Domestic Water Supply[1]	X	X		
Private Domestic Water Supply[1]	X	X		
Industrial Water Supply	X	X	X	X
Irrigation	X	X	X	X
Livestock Watering	X	X	X	X
Fish & Aquatic Life[2]	X	X		
Modified Aquatic Habitat				X
Wildlife & Hunting	X	X	X	X
Fishing	X	X		
Boating	X	X (at mouth)		
Water Contact Recreation	X	X	X	X
Aesthetic Quality	X	X	X	X
Hydro Power	X	X	X	X
Commercial Navigation & Transportation				

[1]With adequate pretreatment (filtration & disinfection) and natural quality to meet drinking water standards.

[2]See also Figures 310A and 310B for fish use designations for this basin. Note: The fish & aquatic life use designations for the West Division Main Canal in this table supersede Figure 310A, which incorrectly identifies Redband trout use in the canal.

[3]The West Division Main Canal extends from the point of diversion from the Umatilla River to the confluence with the Columbia River. The canal consists of two segments. The constructed channel segment extends from the Umatilla River 27 miles down gradient to the flow control gate at the end of the concrete structure as it was originally built (concrete-lining was later added to parts of the overflow channels). The overflow channels segment extends from the lower end of the constructed channel to the outflow to the Columbia River.

Table ~~produced November, 2003~~ revised April 2012

Table 310B Water Quality Criteria West Division Main Canal, Umatilla Basin		
Parameter	**For Irrigation** (mg/l, metals as dissolved)	**For Livestock Watering** (mg/l, metals as dissolved)
Total dissolved solids	450	
Arsenic (inorganic)	0.1	0.2
Beryllium	0.1	
Cadmium	0.01	0.05
Chromium	0.1	1
Copper	0.2	0.5
Lead	5	0.1
Mercury		0.01
Nickel	0.2	
Selenium	0.02	0.05
Zinc	2	25

6 Public & Stakeholder Participation

During the development phase, DEQ reached out to the city of Hermiston, the agricultural community, the environmental community, federal regulators, Tribes, the Governor's Regional Solutions team for the area and various state agencies.

City of Hermiston. DEQ staff have attended a city council meeting and met with the Hermiston city manager and its consultants on numerous occasions.

Environmental Community. DEQ convened a roundtable discussion in June 2011 to discuss the West Division Main Canal effort and several other water quality standards revisions underway. No objections were raised with regard to the canal standards revision and DEQ invited ongoing involvement. Representatives of the Oregon Environmental Council, Sierra Club and Tualatin Riverkeepers were present. Invited parties included these organizations and the Columbia Riverkeeper, Northwest Environmental Defense Center, and Freshwater Trust.

US EPA. Discussions with EPA staff and managers, and resources provided by them, substantially informed the development of this standards revision text. DEQ has worked to ensure the analysis and conclusion contained within this document are consistent with EPA rules and guidance.

Irrigation Community. DEQ has corresponded with USBR offices and the irrigation district. The district was particularly helpful in describing the canal setting and operations. DEQ staff have discussed the proposed action with Oregon Department of Agriculture's watershed management team lead in Salem as well.

Tribes. The Confederated Tribes of the Umatilla Indian Reservation are a major stakeholder group. Their dedicated efforts have been key to salmon re-introduction, river flow restoration and habitat protection and recovery in the Umatilla Basin. DEQ staff have discussed the canal standards revision with CTUIR's Environmental Protection and Rights Preservation manager, who was provided a draft copy of this document for input.

State agencies. DEQ staff have discussed the project with, and recruited input from Oregon Departments of Water Resources, Fish and Wildlife and Agriculture. Each provided helpful input.

In preparation for the formal public comment period, planned for Oct. 1-Nov. 15, 2011, DEQ will notify the statewide lists of interested parties for water quality standards and TMDLs and encourage input from EPA, National Marine Fisheries Service, US Fish and Wildlife Service, Umatilla and Morrow county commissioners, Umatilla Basin Watershed Council, Umatilla Soil and Water Conservation District and all interested parties. This process will include media outreach and at least one public hearing in Hermiston.

Substantial related outreach has been carried out by the city of Hermiston, who has been evaluating various discharge scenarios and assessing the possibility of discharge to canal for several years. While the topic of the standards revision document is the focus here, the related topic of NPDES discharge to the canal has been instrumental in bringing public attention to both efforts. The city's outreach efforts have included a great deal of public education and media coverage and involvement of the irrigation community. **Table 3** summarizes these efforts.

Table 3. Summary of city of Hermiston outreach in assessing canal discharge alternatives

Hermiston Recycled Water Plant Project
Public Outreach Timeline

	Outreach Activity	Topic	Attendees	Date
2008	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	3/24/2008
	West Extension Irrigation District Meeting	Project Concept	WEID Manager and Water User	7/16/2008
	Discharge Stakeholder Meeting	On-site Review of Project with Stakeholders	DEQ, NMFS, USBR, ODF&W, LGW	7/23/2008
	Oregon Water Resources Congress Talk	Project Concept	Oregon Irrigation District Managers and Staff	10/23/2008
	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	12/8/2008
2009	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	3/9/2009
	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	5/11/2009
	Confederated Tribes of the Umatilla Indian Reservation Meeting	Project Concept	CTUIR Water Quality and Water Resources staff	5/28/2009
	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	12/11/2009
2010	West Extension Irrigation District Meeting	Project Informational Meeting	WEID Board and Manager	2/10/2010
	West Extension Irrigation District Meeting	Project Informational Meeting	Annual Water Users meeting	3/31/2010
	East Oregonian Article	EOJuly_1_10	General Public	7/1/2010
	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	7/10/2010
	East Oregonian Article	EOJuly_15_11	General Public	7/15/2010
	Hermiston Herald Article	HHJuly_17_10	General Public	7/17/2010
	Hermiston Herald Article	HHJuly_31_10	General Public	7/31/2010
	East Oregonian Article	EOSept_11_10	General Public	9/11/2010
	West Extension Irrigation District Meeting	Project Informational Meeting	WEID Board and Manager	9/16/2010
	Hermiston Herald Article	HHNovember_16_10	General Public	9/16/2010
2011	Hermiston Herald Article	HHJanuary_7_11	General Public	1/7/2011
	Hermiston Herald Article	HHJanuary_26-11	General Public	1/26/2011
	Hermiston Herald Article	HHJanuary_28_11	General Public	1/28/2011
	Hermiston Herald Article	HH_OPED_February_25_11	General Public	2/25/2011
	Hermiston City Council Meeting	Project Status Update	Council, Public Meeting, Print Media	4/11/2011
	Hermiston City Council Meeting	Recycled Water Risk Assessment and SB 737 Update	Council, Public Meeting, Print Media	6/13/2011
	East Oregonian Article	EOJune_18_11	General Public	6/18/2011
	Hermiston Herald Article	HH_June_18_11	General Public	6/18/2011
	Hermiston Herald Article	HH_OPED_June_22_11	General Public	6/22/2011

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http://oregonwatercoalition.org/blog/?p=86.

8 Appendices

8.1 City of Hermiston Waste Water Treatment Plant and Planning

The city's wastewater treatment plant operates under an individual-facility NPDES permit. The treatment plant has been permitted to discharge to the Umatilla River year round dating back to the inception of DEQ's NPDES program. In addition, the NPDES permit covers land application to LGW Ranch fields, across the river (west) of the treatment plant. Land application provides an alternative discharge path that has been used when needed. In 1998-2000, during Total Maximum Daily Load development for the Umatilla Basin, intensified monitoring revealed ammonia problems in the Umatilla River, below the treatment plant, at times when Hermiston treatment plant effluent entered the River. Stream temperatures in excess of standards were measured throughout much of the Umatilla Basin, accumulating downstream and exacerbated by low assimilative capacity due to irrigation withdrawals. Other parameters were addressed in the TMDL as well. The TMDL was established in 2001, with waste load allocations for the city of Hermiston for temperature, ammonia, E. coli and total suspended solids.

The NPDES permit re-issuance that followed TMDL establishment included effluent limits for these parameters, and it has been challenging to maintain compliance. In recent years, the city has determined that the optimal approach would be to discharge wastewater to the West Division Main Canal during the growing season and continue to discharge to the Umatilla River during November through early to mid-March. This would provide ecological benefits. It would entirely remove the effluent pollutants from the lower Umatilla River during the warm season when instream flow is lowest, and provide for in-canal attenuation and uptake of pollutants prior to returning to a natural waterbody, the Columbia River. Through the 27-mile course of the canal, thermal relaxation would occur, and treatment and removal for various other pollutants as well as substantial reduction in pollutant concentration due to mixing with the canal's river source-water prior to irrigation.

To date, the treatment plant remains permitted for its traditional discharge scenarios. The current NPDES permit was issued Sept. 24, 2007 and is slated to expire in Aug. 31, 2012. The city has evaluated various alternatives for sustainable, affordable and effective operations. There are few land application sites within an affordable pumping distance, and these have not proven suitable in land area and accessibility. Moreover, another reason single-owner farms are not feasible is that they typically do not irrigate much in April and October. The city would need to find another discharge alternative for the shoulder seasons if they were land applying recycled water to a single-owner farm. Subsurface discharge to ground water and to the river was evaluated, as was direct discharge to the Columbia River. Dilution with groundwater and aquifer recharge has been considered. The city has assessed and discarded these various considerations in favor of the canal alternative.

In order to meet water quality and technology based standards prior to discharge to the canal, the city plans to upgrade the treatment plant to include a membrane bioreactor, and to treat the wastewater to the level of the highest quality recycled water standards available (Class A). This is undertaken in part to address potential concerns of the irrigation community and their customers, and may lessen permitting concerns as well, for DEQ and USBR. USBR is requiring a permit of the city to authorize discharge of wastewater to the canal. The USBR permit generally defers water quality specifications to DEQ.

DEQ appraised the city that water in the canal constitutes waters of the state and that discharge to the canal would require a NPDES permit. The city, recognizing that the canal water quality standards are nearly as stringent as the Umatilla River, asked DEQ to re-evaluate its standards. This led to this proposed revision of the canal standards.

Currently the city's dry weather design flow at full capacity is approximately 4.5 CFS. Currently the outfall for direct discharge is located at the confluence of the North Hermiston Drain and the Umatilla River, at

Umatilla River mile 5. The West Division Main Canal, as discussed elsewhere in this text, diverts from the River downstream at river mile 3. The planned discharge to the canal would be conveyed under the river through an existing pipeline, and then be extended via a new pipeline downstream to the canal just below the fish bypass structure at the Three-Mile Falls Dam diversion.

In addition to TMDL concerns, other pollutant/indicators have been assessed in terms of attainability of water quality standards in the Umatilla River. This list (**Table 4**) provides a starting point for considering potential canal issues as well. The list was derived by combining past concerns (discharge to Umatilla River) and potential concerns associated with recent statewide standards revisions and rulemaking in relation to metals and other toxics.

Table 4. List of pollutants and water quality indicators of potential concern for Hermiston wastewater treatment plant discharge to the Umatilla River

Parameters of Potential Concern
Temperature
pH
Biological Oxygen Demand
Dissolved Oxygen
Turbidity
Total Suspended Solids
Ammonia
Nitrate
Chlorine
E. coli
Arsenic
Copper
Manganese
Nickel
Zinc
Beta-Sitosterol
Chloroform
Cyanide
Toluene

Ultimately, when the NPDES permit is issued for discharge to the West Division Main Canal, we expect that a dilution waiver will be required to address minimum dilution for biological oxygen demand [**OAR 340-041-0007 (16)(a)(A)(i)]**. This is because during part of the year, typically after mid-June to mid-July, canal water is pumped from the Columbia River rather than diverted from the Umatilla River, at points roughly 2 miles down-canal from the head of the canal at Three-Mile Falls Dam. During this time, when Umatilla River water is not supplying the canal, the planned wastewater outfall canal location would have little or no receiving water with sufficient flow for mixing.

8.2 Code of Federal Regulations 130.10, Title 40

Section 131.10 Designation of uses.

(a) Each State must specify appropriate water uses to be achieved and protected. The classification of the waters of the State must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States.

(b) In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters

(c) States may adopt sub-categories of a use and set the appropriate criteria to reflect varying needs of such sub-categories of uses, for instance, to differentiate between cold water and warm water fisheries.

(d) At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under sections 301(b) and 306 of the Act and cost-effective and reasonable best management practices for nonpoint source control.

(e) Prior to adding or removing any use, or establishing sub-categories of a use, the State shall provide notice and an opportunity for a public hearing under Sec. 131.20(b) of this regulation.

(f) States may adopt seasonal uses as an alternative to reclassifying a water body or segment thereof to uses requiring less stringent water quality criteria. If seasonal uses are adopted, water quality criteria should be adjusted to reflect the seasonal uses, however, such criteria shall not preclude the attainment and maintenance of a more protective use in another season.

(g) States may remove a designated use which is not an existing use, as defined in Sec. 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because:

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

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

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

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

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

(h) States may not remove designated uses if:

(1) They are existing uses, as defined in Sec. 131.3, unless a use requiring more stringent criteria is added; or

(2) Such uses will be attained by implementing effluent limits required under sections 301(b) and 306 of the Act and by implementing cost-effective and reasonable best management practices for nonpoint source control.

(i) Where existing water quality standards specify designated uses less than those which are presently being attained, the State shall revise its standards to reflect the uses actually being attained.

(j) A State must conduct a use attainability analysis as described in Sec. 131.3(g) whenever:

(1) The State designates or has designated uses that do not include the uses specified in section 101(a)(2) of the Act, or

(2) The State wishes to remove a designated use that is specified in section 101(a)(2) of the Act or to adopt subcategories of uses specified in section 101(a)(2) of the Act which require less stringent criteria.

(k) A State is not required to conduct a use attainability analysis under this regulation whenever designating uses which include those specified in section 101(a)(2) of the Act.

8.3 Fish Screen Correspondence, Oregon Department of Fish and Wildlife to DEQ

Oregon
Theodore R. Kulongoski, Governor

Department of Fish and Wildlife
John Day Watershed District Office
73471 Mytinger Lane
Pendleton, OR 97801
541-276-2344
FAX 541-276-4414

March 9, 2009

Jennifer Wigal
Water Quality Standards and Assessment Manager
Oregon Department of Environmental Quality
811 Sixth Avenue
Portland, Or
97204-1390

MAR 12 2009
Water Quality

RE: Fish Use Designation of the West Extension Irrigation Canal, Umatilla County

The status of fish use in the West Extension Irrigation canal has come under question as the City of Hermiston is in the design phase to upgrade its wastewater treatment facilities. One of the proposed options would discharge treated wastewater into the irrigation canal system. The current Oregon Department of Environmental Quality fish use designation map for the Umatilla Basin (figure 310A) identifies the West Extension Irrigation Canal as having Redband or Lahontan cutthroat trout use. After review ODFW has determined the West Extension Irrigation Canal system has been incorrectly designated as having Redband or Lahontan cutthroat trout use.

The Irrigation canal system was constructed by the Bureau of Reclamation in 1916. Water is diverted from the Umatilla River into the irrigation canal system at Three mile Falls Dam during the irrigation season (March 1 to October 31). Before 1988 there was the possibility of fish being diverted into the canal, however, in the fall of 1988 a fish screen and bypass facilities were constructed at the canal diversion point to prevent fish from entering the irrigation canal system. On the downstream end of the canal system excess water returned to the Columbia River and provided a potential route for fish to enter the lower end of the canal system. To prevent entry of fish at the lower end of the canal system in 2002 a fish barrier was constructed at the canal tailwater wasteway located approximately one mile West of Boardman. The construction of these two facilities means that fish can no long enter the West Extension Irrigation Canal systems and ODFW does not consider the canal system as having Redband or Lahontan cutthroat trout use.

Please feel free to contact me at 541-276-2344 if you have any questions.

Bill Duke
Umatilla District Fish Biologist

Cc: Debra Sturdevant, DEQ
Kevin Blakely, ODFW
Bev Bridgewater, West Extension Irrigation District

DEQ
State of Oregon
Department of
Environmental
Quality

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Relationship to Federal Requirements

Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon

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Answers to the following questions identify how the proposed rulemaking relates to federal requirements and the justification for differing from, or adding to, federal requirements. This statement is required by OAR 340-011-0029(1).

1. Is the proposed rulemaking different from, or in addition to, applicable federal requirements? If so, what are the differences or additions?

The proposed rule, if approved by EPA, would result in the change of a water quality standards established under the federal Clean Water Act. Under the CWA, states establish water quality standards and these standards then become federal requirements when and if approved by EPA. The proposed rule makes the water quality standards for the West Division Main Canal less stringent.

2. If the proposal differs from, or is in addition to, applicable federal requirements, explain the reasons for the difference or addition (including as appropriate, the public health, environmental, scientific, economic, technological, administrative or other reasons).

The draft proposed rule revisions are needed to correct and more accurately designate beneficial uses and their associated water quality criteria for the West Division Main Canal. The current beneficial uses were broadly designated for the area, including uses that are not existing or feasibly attainable in the canal. In addition, the corrected standards, which are less stringent, make possible the planned discharge of treated wastewater by the City of Hermiston to the canal.

3. If the proposal differs from, or is in addition to, applicable federal requirements, did DEQ consider alternatives to the difference or addition? If so, describe the alternatives and the reason(s) they were not pursued.

DEQ considered not revising the standards for the West Division Main Canal. Ultimately, DEQ concluded that the existing standards include erroneous beneficial use designations and inappropriately stringent criteria.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Chapter 340
Proposed Rulemaking
STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT

Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon

This form accompanies a Notice of Proposed Rulemaking

Title of Proposed Rulemaking	Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon (OAR 340-041-0310, 340-041-0315, Tables 310A and 310B)
Statutory Authority or other Legal Authority	ORS 468.020, 468B.030, 468B.035 & 468B.048
Statutes Implemented	ORS 468B.030, 468B.035 & 468B.048
Need for the Rule(s)	The draft proposed rule revisions are needed to correct and more accurately designate beneficial uses and their associated water quality criteria for the West Division Main Canal (WDMC). The current beneficial uses were broadly designated for the subbasin, including uses that are not existing or feasibly attainable in the canal. In addition, the corrected standards, which are less stringent, make possible the planned discharge of treated wastewater by the City of Hermiston to the canal.
Documents Relied Upon for Rulemaking	No documents, reports or studies, were relied upon to determine the fiscal and economic impact of this proposed rule. Documents relied upon for this rulemaking include: DEQ 2011, draft. *Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon* EPA 1972. *Water Quality Criteria 1972.*
Requests for Other Options	**Pursuant to ORS 183.335(2)(b)(G), DEQ requests public comment on whether other options should be considered for achieving the rule's substantive goals while reducing negative economic impact of the rule on business.**
Fiscal and Economic Impact, Statement of Cost Compliance	
Overview	The proposed rulemaking revises the designated beneficial uses for the West Division Main Canal and establishes site-specific water quality criteria for the canal that protect those uses. The canal is a man-made, concrete lined irrigation water conveyance that is screened at both ends to prevent fish from entering the canal. The current beneficial uses were designated broadly for the Umatilla subbasin, treating the canal as similar to a natural stream. The rulemaking removes uses that do not exist and are not feasibly attainable in the canal, including aquatic life, public and private domestic water supply and fishing. DEQ's proposed revisions will result in water quality standards based on the actual or possible uses of the canal: irrigation, livestock watering and water contact. DEQ also proposes to adopt site-specific water quality criteria to protect the revised beneficial uses of the canal, including irrigation and livestock watering The proposed water quality criteria for the canal will be less stringent than existing criteria. The new criteria will make discharge to the canal a feasible alternative for the City of Hermiston (indirect effect of rule). The City currently combines land application and discharge to the Umatilla River for warm season discharge. Canal discharge would eliminate the need for both during the warm season. DEQ does not expect that the revisions to the water quality standards will result in a degradation of water quality within the canal; rather, the proposed revisions are intended to protect existing uses and water quality. As a result, no businesses or land uses will be adversely influenced
Impacts on the General Public	Regarding direct effects of the proposed rule, there are no near-term fiscal or economic impacts to the public. There are no 303(d) listed waterbodies that could feasibly be influenced by the canal, no TMDLs for the canal and no wastewater permitted facilities that rely on the canal other than the prospective discharge of the Hermiston wastewater treatment plant (WWTP) to the canal.

	If the water quality standards for the canal are not changed and the City is required to conduct additional treatment before discharging to the canal or the Umatilla River, or find another alternative for their wastewater disposal, this could create additional expense for residents who are ratepayers of the WWTP. Regarding long-term impacts, the proposed rule could result in fewer regulatory requirements that may have arisen in the future to achieve the over-generalized standards historically in place. Potential unnecessary costs to the Irrigation District and agricultural community will be prevented.	
Impacts to Small Business (50 or fewer employees – ORS183.310(10))	DEQ expects no direct impacts to small business as a result of the proposed rule revision. Subsequent to DEQ's revisions to the water quality standards for the canal, planned upgrades to the wastewater treatment plant and decisions made by the City of Hermiston regarding its planned discharge to the WDMC may have additional effects. These changes in the City of Hermiston's wastewater treatment plant could affect the rates small businesses pay to the city that discharge to its collection system. Moving the treatment plan outfall and discontinuing the contract with LGW Ranch for land application could adversely affect this small business by eliminating this source of water for the ranch.	
Cost of Compliance on Small Business (50 or fewer employees – ORS183.310(10))	a) Estimated number of small businesses subject to the proposed rule	A number of small and large farms rely on the WDMC to supply their irrigation water. The revised water quality standards will protect water quality for irrigation and livestock watering uses, and will remove more stringent beneficial uses and criteria for drinking water and fisheries. It is possible that this proposed rule will reduce the level of effort and costs required of small business farms by an unknown amount, through targeting less stringent, though appropriate, water quality standards.
	b) Types of businesses and industries with small businesses subject to the proposed rule	None.
	c) Projected reporting, recordkeeping and other administrative activities required by small businesses for compliance with the proposed rule, including costs of professional services	None.
	d) The equipment, supplies, labor, and increased administration required by small businesses for compliance with the proposed rule	None.
	e) A description of the manner in which DEQ involved small businesses in the development of this rulemaking	The West Extension Irrigation District, which operates WDMC, has been continuously involved with the development of the proposed rule revisions, supporting document development, and in communications with the City of Hermiston.
Impacts on Large Business (all businesses that are not "small businesses" under ORS183.310(10))	A number of large farms rely on the WDMC and are located along the canal. All are involved in Oregon Department of Agriculture's water quality planning process for nonpoint source pollution reduction. This proposed rule could reduce the level of effort and costs to large business farms by an unknown amount, through targeting less stringent standards.	
Impacts on Local Government	An indirect effect of this rule is to increase the feasibility of the planned WWTP discharge to WDMC, thus reducing the overall project cost for the City of Hermiston. Explanatory note: Partly due to concerns of public perception of discharge of treated sewage to a canal used for irrigation of edible crops, the City plans a high level of treatment involving a membrane bioreactor (costing more than $22 million) for discharge to the canal. The City assessed several discharge alternatives and concluded that the canal is the most sustainable, reliable and affordable solution over the long-term. Other alternatives considered by the City were approximately $5 million	

	more to construct and would have considerably higher operating costs.
Impacts on State Agencies other than DEQ	The proposed rule is not likely to have a fiscal impact on ODA or other state agencies, as the canal has not been identified for water quality improvement efforts.
Impacts on DEQ	The process of preparing the standards revision document and carrying out the rule change process is consuming 0.4 FTE of NRS-4 staff time (aggregate input of basin coordinator, standards and permitting staff) over the course of one year (2011), and 0.1 FTE of NRS-4 staff time for an additional 6 months – through July of 2012. Indirect: Permit development for the canal discharge will require added effort compared to permit renewal for a configuration more similar to the existing system. DEQ estimates this added effort at 0.05 FTE for EE 3 plan review and 0.1 FTE for NRS 4 permit staff for one year.
Assumptions	None.
Housing Costs	DEQ has determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single-family dwelling on that parcel.
Administrative Rule Advisory Committee	A formal Advisory Committee was not assembled. DEQ, the City of Hermiston, the West Extension Irrigation District and the US Bureau of Reclamation all implemented outreach associated with either this rule change or its side-benefit of providing for WWTP discharge to the WDMC. DEQ convened representatives of the environmental community and described the proposed revision, and discussed the rule change with various agencies and the Confederated Tribes of the Umatilla Indian Reservation. For each, DEQ asked individuals for their level of interest and type of involvement they would wish to have. Generally, the proposed rule change was viewed as straightforward administrative correction not subject to pivotal decisions. No interest in forming an advisory group was expressed by any of the individuals contacted. Accordingly, DEQ has kept potentially interested parties apprised and sought public and professional input throughout, without forming a formal advisory group.

Prepared by	Debra Sturdevant Printed name	9/14/11 Date
Approved by DEQ Budget Office	Jim Roys, Financial Services Manager Printed name	9/14/11 Date

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Land Use Evaluation Statement

Rulemaking Proposal

RULE CAPTION

Water Quality Standards Revision, West Division Main Canal near Hermiston, Oregon

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1. **Explain the purpose of the proposed rules.**
   The draft proposed rule revisions are needed to correct and more accurately designate beneficial uses and their associated water quality criteria for the West Division Main Canal (WDMC). The current beneficial uses were broadly designated for the area, including uses that are not existing or feasibly attainable in the canal. In addition, the corrected standards, which are less stringent, make possible the planned discharge of treated wastewater by the City of Hermiston to the canal.

2. **Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?**

   Yes___ No_X_

   a. **If yes, identify existing program/rule/activity:**

   b. **If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?**

   Yes___X_ No____ (if no, explain):

   c. **If no, apply the following criteria to the proposed rules.**

      In the space below, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.

      Revisions to the water quality standards rules could affect land uses; however, these proposed changes are adequately covered by the existing statewide goals. In addition, the proposed rules amend existing rules in a manner that reduces needed compliance efforts of

existing programs. DEQ will coordinate with local governments to ensure compatibility as provided in Part IV of DEQ's State Agency Coordination agreement.

3. If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.

Not applicable.