

Summary of Public Comment and Agency Response

Title of Rulemaking: Amending Oregon's Water Quality Standards: Revising Human Health Criteria for Arsenic (OAR 340-041-0033 and Table 20)

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Date: March 7, 2010

Comment period DEQ first invited public comment from Aug. 25, 2010 to Sept. 30, 2010. DEQ held two public hearings, one on Sept. 21, 2010, 5 p.m., at the DEQ headquarters office, 811 SW 6th Ave. in Portland; and the second on Sept. 23, 7 p.m., at St. Anthony's Hospital in Pendleton. One person attended the Portland hearing, no one testified. Five people attended the Pendleton hearing; one person testified. Seventeen people submitted written comment.

Due to the substantive nature of the comment received on the arsenic criteria, DEQ re-opened the public comment period from Feb. 1 to Feb. 23, 2011.

Organization of comments and responses Summaries of the individual comments received during both the initial and re-opened comment period and DEQ's responses are provided below. Comments are summarized by topic. The persons who provided each comment are referenced by number. A list of commenters and their reference numbers is provided at the end of the document.

Comments and responses are organized in the following categories:

1. Water quality, metals or toxics generally
2. Arsenic generally
3. The proposed arsenic criteria
4. The fish consumption rate
5. Elevated natural background levels
6. Other comment on how the criteria were calculated
7. Implementation and measurement
8. The arsenic reduction policy
9. The issue paper

Some commenters noted that we did not respond to all of their comments in our revised documents. DEQ acknowledges did not respond to all comment at that time. DEQ reopened the public comment period specifically to invite additional public comment on revised proposed arsenic criteria, which were calculated using different BCFs and, in the case of the water + fish ingestion criteria, a different risk level than the initial proposed criteria. DEQ waited until the comment period closed on February 23, 2011 to develop this summary and response to all comments received. DEQ notes in the response where an earlier comment is superseded by subsequent revisions.

1. Comment on Water Quality, Metals or Toxics Generally	
Comment 1.1	<p>Oppose changing criteria for water to be less stringent and allow higher levels of pollution in our water. These pollutants accumulate over time. DEQ's responsibility is the health and safety of the public, not to benefit industry or ease guidelines for dischargers. DEQ should require pristine water quality. (3) (4) (8)</p> <p>Response DEQ has evaluated the relevant health effects information and data showing arsenic occurs naturally in Oregon waters. Where naturally occurring levels are higher than the criteria, there is no way to reduce those levels and they do not present new or human caused risk. DEQ is trying to balance the policy objectives of protecting human health and not requiring public or private expenditures that will not result in meaningful environmental benefit. DEQ concludes that the proposed criteria revisions will continue to appropriately protect human health and will allow state and industry resources to be targeted toward achievable and truly needed and beneficial environmental results.</p>
Comment 1.2	<p>NWPPA views the successful adoption of the proposed arsenic standards as a key component to our support of the overall toxics rulemaking package.</p> <p>Response DEQ acknowledges the importance of the arsenic standard revision to the Northwest Pulp and Paper Association.</p>
Comment 1.3	<p>NWPPA is committed to working with DEQ and others on viable implementation measures for the additional water quality criteria under consideration. Our support of the rulemaking on the 114 toxics pollutants depends on the specifics of the proposal and the viability, feasibility and cost effectiveness of NPDES permit implementation measures and we continue to have grave concerns about that.(25)</p> <p>Response DEQ acknowledges that implementation issues are critical to NWPPA and that they have remaining concerns. This comment pertains to the human health toxics criteria rulemaking, not to the proposed arsenic rule, and as such, is not responded to here.</p>
Comment 1.4	<p>Due to EPA approval of iron and manganese footnote K in June, 2010, DEQ should revise Table 20 and 33B to prevent confusion. (16)</p> <p>Response A table of "Effective Human Health Criteria" (June 2010), is available on DEQ's website. This table shows the effective human health criteria, including footnote K and the other revisions EPA approved in June, 2010.</p>
Comment 1.5	<p>Brief comment about building a playground over a spill site. (21)</p> <p>Response The comment does not provide sufficient information for DEQ to understand</p>

	how it is relevant to the proposed rule.
2. Comments Relating to Arsenic Generally	
Comment 2.1	Additional effort is needed over the long term to reduce arsenic in Oregon's waters. (7)
	Response This comment addresses DEQ's overall efforts to reduce arsenic and does not directly address the proposed rule revisions. As a general matter, reducing toxics in Oregon's water and air is also a priority for DEQ where those levels are not from naturally occurring sources.
Comment 2.2	Samples from commercial trash dumpsters have found arsenic and other chemicals. Trash companies should be required to clean their equipment in a way that does not allow toxic water to be discharged. Liquid drains from commercial dumpsters and they are often near storm drains. (1)
	Response DEQ appreciates the commenters concern for a cleaner environment and notes that the comment addresses a topic that is outside the proposed rule revisions. This comment was forwarded to staff developing DEQ's toxics reduction strategy.
Comment 2.3	Commenters from a small water district near Prospect, Oregon support the increase in allowable arsenic levels. Their water is from a well and met the drinking water standards for arsenic when it was installed. The standards were changed and they cannot meet the new standards. It would cost far too much to treat all the water and they do not have the option to change their source of water. (5) (6) (13)
	Response This comment pertains to the drinking water maximum contaminant level (MCL) for arsenic set by EPA under the Safe Drinking Water Act. DEQ is proposing to revise Oregon's surface water criteria for arsenic under the Clean Water Act. The proposed criteria do not apply to drinking water providers or to groundwater wells.
3. Comment Relating to the Proposed Arsenic Criteria	
Comment 3.1	Support the proposed arsenic criteria. (7) (16) (19) (20)
Comment 3.2	The existing arsenic criteria (0.0022) are unreasonably low and should be revised. (15) (28)
Comment 3.3	Thanks to the workgroup for its hard work reconciling the protection of human health and the naturally high levels of arsenic in some Oregon waters into the proposed criteria. (14)
Comment 3.4	The proposed criteria recognize and account for both the higher fish consumption rates of Oregonians who consume relatively large amounts of fish and the high natural background concentrations of arsenic in Oregon waterbodies. (16) (20)
Comment 3.5	Support for the intent of the changes; for the goal to establish scientifically-based criteria to protect human health while accounting for the presence of

	naturally-occurring arsenic in state waters. (7) (15) (17)
Comment 3.6	Support the approach to adopt arsenic criteria that preclude DEQ having to develop TMDLs where arsenic levels are natural. (12)
Comment 3.7	Appreciate DEQ's careful and thorough (and reasoned) review of the relevant technical data and public health considerations. (16) (20)
Comment 3.8	General support for the proposed rule package for arsenic. DEQ made important adjustments to re-tailor the criteria using locally appropriate values based on comments (i.e. proposed modifications to the cancer risk factor and the bioconcentration factor). Locally derived criteria are appropriate because of the naturally high background levels of arsenic from natural, geologic sources that are much higher than national criteria. (25)
Comment 3.9	Support DEQ's proposed changes to the water quality standards for arsenic, noting: <ul style="list-style-type: none"> • The rule implements the October 2008 EQC charge to find innovative solutions to the complex problems posed by toxins in Oregon waters; to develop standards that are environmentally meaningful and cost-effective to implement. • The changes are appropriate given the natural sources and background levels. (7) (11) (16)
Comment 3.10	The commenter appreciates the substantial amount of time and creative thinking DEQ and the workgroup members develop to the development of the proposed rule. The fact that there was consensus support from a very diverse group of stakeholders is testimony to the Department's perseverance and the willingness of workgroup members to work together to achieve a result that is in everyone's interest. (16)
Comment 3.11	NWPPA supports setting criteria applicable to inorganic arsenic, the form more toxic to humans. (11)
Response to 3.1-3.11	DEQ acknowledges and appreciates the supporting comment above. DEQ also concludes that the proposed revisions are responsive to the EQC directive and are appropriate given the natural levels of arsenic in Oregon waters. DEQ very much appreciates the work and assistance of the rulemaking workgroup. It is a better proposal for having had their involvement.
Comment 3.12	City of Ontario is very concerned about the proposed amendment to the water quality standards for arsenic. (26)
	Response DEQ acknowledges Ontario's concern, which is detailed in additional comments below.
Comment 3.13	The proposed arsenic criteria are too low. The fish rate consumed is not well founded. Fish from fresh water do not likely have a bioconcentration factor of 14. (28)
	Response DEQ's responses to comments on fish consumption rate and bioconcentration factor may be found in Sections 4 and 6 below.
Comment	The proposed arsenic criteria will negatively impact selected cities and

<p>3.14</p>	<p>businesses. They will impede business from locating in Malheur County. How is a business to discharge water three times cleaner than the environment provides? (28)</p> <p>Response DEQ understands that affected parties in the Snake and Malheur River basins feel they will be impacted by the criteria due to elevated natural arsenic levels in that part of the state. Additional comment and DEQ responses may be found in Section 5 below.</p>
<p>Comment 3.15</p>	<p>Reducing the inorganic arsenic criterion to 2.3 µg/l versus the federal standard of 10 µg/l is excessive and unnecessary. (9)</p> <p>Response DEQ's proposed criteria are less stringent than the current federal criteria under the Clean Water Act, which are 0.018 and 0.0022 µg/l. The drinking water maximum contaminant level (MCL) under the Safe Drinking Water Act is 10 µg/l.</p>
<p>Comment 3.16</p>	<p>DEQ should consider a criterion of 10µg/l, as Idaho and other states have done. This concentration would protect the use of the rivers as drinking water. It is also appropriate because inorganic arsenic is not readily bio-accumulative in fish tissue. (15) (16) (26)</p> <p>Response DEQ considered adopting the MCL value (10 µg/l); see the discussion in Chapter 2 Section 6 of the Arsenic Issue Paper (DEQ 2011). DEQ evaluated and discussed this options with the stakeholder group and concluded that using EPA's human health criteria equation with variable values appropriate for Oregon would result in the most scientifically defensible statewide criteria. Also, because many waters in the state have background levels ranging from 1 to 3 µg/l or less, a criterion of 10 µg/l could allow significant pollution loading from human sources in those water bodies. The arsenic MCL established under the Safe Drinking Water Act takes into consideration treatment cost and feasibility in addition to health risk, which is not part of the development of criteria under the Clean Water Act.</p> <p>While inorganic arsenic does not bioaccumulate as readily as organic arsenic, some inorganic arsenic does end up in fish tissue. See the discussions of the bioconcentration and the inorganic proportion factor in the Issue Paper Chapter 2, Section 5.</p>
<p>Comment 3.17</p>	<p>NWEA objects to the meaningless and objectionable observation that Oregon's proposed criteria are more stringent than the federal MCL for arsenic in drinking water. It is not in the least relevant that the water quality criteria are far below the MCL established under the Safe Drinking Water Act. EPA may use factors such as technology and costs, economic impact in setting MCLs. MCLs do not protect public health. The Commission should urge EPA to revise its MCLs. (12)</p> <p>Response DEQ is not proposing to adopt the MCL as the water quality criterion for arsenic. DEQ understands why the public finds it perplexing that water that</p>

	can be used for drinking under one federal law may not be discharged into a river under another federal law.
Comment 3.18	Option 2 in the issue paper would use an approach that combines the MCL for drinking water and the EPA criteria calculation method for exposure through fish tissue. NWEA urges the Commission not to consider this approach. Setting a CWA criterion based on a SDWA MCL is legally impermissible. The fact that other states have done this and EPA has approved those criteria is irrelevant. (12)
	Response DEQ's proposed criterion is not based on option 2.
Comment 3.19	This proposal has been prepared in an extremely rushed and sloppy manner. It is not ready to be finalized and thus will need to be sent out for public comment again. Items of concern involve, at a minimum: <ol style="list-style-type: none"> 1) figures in the reduction policy that were not corrected when DEQ changed the criteria, 2) the calculation of the 2.1 µg/l criterion for freshwater organisms, and 3) the now untrue statement in the arsenic reduction policy that the criterion for the consumption of organisms only is based on the same risk level as Oregon's other human health toxics criteria. (12)
	Response DEQ reopened public comment to invite comment on updated proposed numeric arsenic criteria and the basis for those updates. The arsenic reduction policy was not revised during the interim so cross-references in the arsenic reduction policy language were overlooked. DEQ does not agree that this oversight results in a need to re-propose the rule for additional public comment. Comments and DEQ responses on the arsenic reduction policy may be found in Section 8 below.
4. Comment on the Fish Consumption Rate	
Comment 4.1	CTUIR commends DEQ for implementing the new fish consumption rate of 175 grams/day. Making Oregon's water cleaner and fish safer for all fish consumers will continue to take time, collaboration and persistent effort. By using the new consumption rate DEQ is taking a major step forward to meet this goal. (7)
	Response DEQ acknowledges CTUIR's support for the use of a 175 grams/day fish consumption rate for the arsenic criteria.
Comment 4.2	CTUIR recognizes technical infeasibility of treating all discharge water to achieve lower levels of arsenic and agrees that arsenic poses a unique problem due to its prevalence in Oregon waters as a naturally occurring earth metal. DEQ has proposed a satisfactory solution that should be used exclusively for arsenic – the use of a risk level less protective than commonly applied in Oregon. This solution should be limited to this one rulemaking. (7)
	Response DEQ appreciates the understanding and support of the Tribe for the solution

	to the complexities of arsenic.
Comment 4.3	The proposed criteria protect human health, particularly because they are based on a fish consumption rate that is higher than most consumers of fish in Oregon. The lower risk level of 1×10^{-6} is generally appropriate if the consumption rate is based on the general population. (20)
	Response DEQ acknowledges the commenter's support for DEQ's use on an alternate risk level given the specific circumstances presented by arsenic. The arsenic issue paper describes the factors that DEQ considered in concluding that a higher risk level is appropriate in this circumstance, including the level of protection provided by the increased fish consumption rate.
Comment 4.4	NWPPA supports the proposed criteria for arsenic that reflect the higher fish consumption rate of 175 grams per day and that DEQ has adjusted based on locally appropriate variables. (11)
	Response DEQ acknowledges this supportive comment.
Comment 4.5	On page 10, the draft report is unclear about what EPA would require of Oregon. EPA refers to the EQC's 2008 determination to use 175 grams/day, but EPA did not foreclose Oregon's ability to use a lower fish consumption rate in appropriate circumstances. (16)
	Response EPA did not specify the fish consumption rate that Oregon must use. EPA did conclude that the rate of 17.5 grams/day, the basis of the 2004 criteria, was too low and they recognized that at rate of 175 would protect Oregon fish consumers.
Comment 4.6	NWPPA is submitting information about problems in overestimation of risk associated with arsenic and, in particular, using default generic risk assessment procedures. The paper submitted is: <i>Probabilistic Analysis of Human Health Risks Associated with Background Concentrations of Inorganic Arsenic: Use of a Margin of Exposure Approach</i> , Boyce et al, 2008, Human and Ecological Risk Assessment, 14:1159-1201. (11)
	Response DEQ appreciates receiving additional scientific literature. However, DEQ is not re-evaluating the toxicity information used to develop the criteria. We rely on the cancer slope factor EPA has published in its IRIS database. EPA is currently reviewing that data. DEQ only reviewed variables that may vary geographically or for which the state has some policy discretion in order to make the criteria appropriate for Oregon waters and populations.
Comment 4.7	The proposed arsenic criteria are too low. The fish rate consumed is not well founded. Fish from fresh water do not likely have a bioconcentration factor of 14. (28)
	Response DEQ has evaluated available and relevant data in developing arsenic criteria

	<p>that protect human health and reflect naturally-occurring arsenic concentrations that exist in the majority of state waters. DEQ's evaluation of this data and information is contained in the issue paper supporting this rulemaking. The commenter did not provide data or references to support the claim that a bioconcentration rate of 14 is too high for freshwater fish. .</p>
<p>Comment 4.8</p>	<p>When we set standards for a certain ethnic group, we set ourselves up for continued changes based on a few, not the majority of Oregonians. The proposed standards could cripple point sources and nonpoint sources such as cities and farming communities. Should 90% of the population be jeopardized in order to protect the choices of 10% of the population? (22) (23) (24)</p>
	<p>Response With regard to the commenter's concern regarding the economic effect of the proposed rule, DEQ points out that the proposed revisions to the arsenic criteria are significantly less stringent than the existing criteria. Therefore, the arsenic criteria changes are not expected to have an economic impact to cities or farming communities. Please see DEQ's Statement of Need and Fiscal and Economic Impact, which was published when the rule was proposed for public comment and is available on DEQ's website.</p> <p>DEQ recognizes that the above comment also pertains to the larger human health toxics rulemaking and asks the commenters to refer to the response to comments for the human health criteria rulemaking as well.</p> <p>In establishing water quality criteria to protect public health, DEQ seeks to also protect sport (recreational) fishers; subsistence fishers; women of childbearing age; and children. This ensures that individuals who have an average or "typical" exposure are protected in addition to those populations that are more highly exposed or susceptible. With this objective in mind, between 2006 and 2008, DEQ conducted an extensive outreach and information gathering project in collaboration with EPA and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). It held seven public workshops to solicit broad public input and consulted with two advisory groups; one focused on evaluating public health data and information and the other focused on evaluating economic impacts and implementation strategies.</p> <p>From these workgroup discussions and analysis of fish consumption studies, DEQ concluded that a fish consumption rate of 175 grams per day (g/day), or about 23 8-oz fish meals per month, is a reasonable and protective rate to use as the basis for Oregon's human health criteria.</p> <p>The EPA, the CTUIR, and DEQ issued a joint recommendation to the Environmental Quality Commission on Oct. 23, 2008 to revise Oregon's toxics criteria for human health based on a fish consumption rate of 175 g/day. The commission agreed with this recommendation and directed DEQ to proceed with a rulemaking process to revise the criteria.</p>

	<p>175 g/day represents the 95th percentile value from a comprehensive study of Columbia River Tribes (the Columbia River Inter-Tribal Fish Commission study) and is within the range of the 90th percentile values from other Northwest studies and one national study. The 175 g/day rate is consistent with public health experts' recommendations to:</p> <ul style="list-style-type: none"> • use 90th or 95th percentile values to represent the proportion of the population the criteria should be designed to protect, • use a fish consumption rate that represents fish consumers, rather than a per capita rate derived from the overall population including both consumers and non-consumers of fish, and • include salmon and other marine species in the rate.
<p>Comment 4.9</p>	<p>Most of the fish eaten by the tribes live in the ocean and the toxins come from the ocean, where Oregon toxic standards do not affect this equation. (22) (23) (24)</p>
	<p>Response</p> <p>The toxicity of pollutants that cause effects other than cancer is related to a person's total dose from all sources. DEQ evaluated a number of different studies and approaches to account for exposure from sources other than freshwater fish. Some approaches included salmon in the consumption rate, and others did not include salmon and accounted for people's exposure to pollutants in salmon through other means (i.e. relative source contribution). DEQ's Human Health Focus Group concluded that the relative source contribution method to account for exposure from marine fish, including salmon, has significant uncertainty and is less scientifically based at this time than including salmon and marine species in the consumption rate.</p> <p>DEQ and the Human Health Focus Group recommended that salmon be included in the fish consumption rate for several reasons, including:</p> <ul style="list-style-type: none"> • salmon are a large portion of the locally caught fish diet, • the cultural significance of salmon, particularly for the tribes, • salmon spend a portion of their lifecycle in Oregon fresh and coastal waters, • uncertainty about how much toxics accumulation occurs in salmon in fresh vs. estuarine vs. marine waters, and • the potential for pollutants to be carried to estuaries and important near coastal salmon habitats by rivers and streams. <p>Please see the Human Health Focus Group Report available on DEQ's website.</p> <p>EPA guidance¹ supports States' and Tribes' decision to include anadromous and/or marine fish in the fish consumption rate when appropriate for protecting the population of concern. Consequently, other states and Tribes that use fish consumption rates that are higher than EPA's 17.5 g/day value (including Maine, New York, the Warm Springs Tribe, and the Confederated</p>

¹ EPA. October 2000. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. EPA 822-B-00-004

	Tribes of the Umatilla Indian Reservation) have also included marine species to provide protection for a high percent of the population and to reflect consumption of species eaten by the general population.
Comment 4.10	<p>Marine fish consumption would best be dealt with by a fish consumption advisory. Salmon and marine fish get most of their arsenic from the ocean, which will not be affected by Oregon's rules or land management practices. (28)</p> <p>Response DEQ's responsibility to develop water quality standards that protect human health are independent from the program administered by the Oregon Department of Human Services, which issues advisories when fish are found to have contaminants at high levels. The Clean Water Act requires states to set water quality standards that, if met, assure protection of human health. As a result, they serve as a basis for other regulatory controls that serve a preventative role to ensure water bodies and fish do not become contaminated to such an extent that a fish advisory becomes necessary. If waters exceed the water quality standards or a fish advisory is issued, DEQ programs work to identify and reduce the sources of the pollutant of concern. Please see also the response to comment 4.9 above.</p>
Comment 4.11	<p>What is the percentage of fish eaten by all Oregonians in a month to a year? Why is Oregon using Washington data? (22) (23) (24)</p> <p>Response DEQ does not understand the first question. In general, however, DEQ recommended and the Commission agreed that Oregon's water quality criteria should protect the ability of people to eat fish on a regular basis for cultural, health or economic reasons rather than be based on a general population per capita rate.</p> <p>EPA guidance directs states to use local or regional fish consumption data when available. DEQ enlisted a group of public health experts known as the Human Health Focus Group to assist DEQ in identifying studies relevant to Oregon. Their findings are summarized in the Human Health Focus Group Report, and it identifies five relevant studies that Oregon used to inform its decision to use 175 grams/day as a fish consumption rate. Because only one study had been conducted in Oregon we looked at other studies conducted in the Pacific Northwest region as well as one national study.</p>
5. Comment on Elevated Natural Background Levels of Arsenic	
Comment 5.1	Due to the geology of eastern Oregon, including geothermal activity, historic volcanic activity and gold deposits, natural occurring arsenic levels above the DEQ proposed standards are common. Several commenters submitted or referred to data showing this. (15) (22) (23) (24) (26) (28)
Comment 5.2	Based on Bureau of Reclamation data, Snake River arsenic levels range from 5 to 10 µg/l. Based on EPA data, levels in the Malheur River basin range from 3 to 10 µg/l. Ground water levels are much higher due to geologic

	conditions and there are publications showing this. (28)
Response to Comments 5.1 and 5.2	DEQ acknowledges and appreciates the data that was collected and submitted to help us better understand arsenic levels Eastern and Southern Oregon. We understand that Oregon has natural geologic sources of arsenic, which is a primary reason we are proposing to revise the arsenic criteria and recently revised the iron and manganese criteria as well.
Comment 5.3	The proposed arsenic criteria do not solve the problem or achieve the stated goal for the Klamath Basin or other areas of the state where naturally-occurring levels of arsenic exceed the proposed criteria. (15)
	<p>Response DEQ's first priority is to establish statewide criteria that protect human health and at the same time account for natural conditions in the majority of Oregon waters. DEQ believes that the proposed standard achieves this balance from a statewide perspective. Dischargers are unlikely to be able to achieve calculated limits based on the current, very stringent criteria. They have asked DEQ to review and revise the criteria as quickly as possible.</p> <p>DEQ also understands, however, that there are some waters where the proposed criteria do not achieve the stated objectives. In these cases, DEQ is willing to consider the options and the data and work with local communicators to develop an appropriate resolution. This could include revisions to water quality standards applicable to specific waterbodies and/or using a permit implementation tool for cities or industries that cannot meet limits based on the revised criteria until the issue is resolved.</p>
Comment 5.4	Requiring a permittee to eliminate constituents in its discharge that are naturally in a water body could alter the natural integrity of the receiving water body. Such actions would be inapposite to the fundamental purpose of the CWA, to " restore and maintain the chemical, physical and biological integrity of the Nation's waters. The object of the Act is not to remove natural constituents from the Nation's waters. (15)
	<p>Response DEQ acknowledges the commenter's concern about permit limits that could be established based on the proposed criteria. DEQ notes that the proposed criteria are less stringent than existing criteria and were developed in consideration of concern about natural levels as well as the Clean Water Act requirement to ensure that water quality criteria protect human health.</p>
Comment 5.5	How is DEQ's rule at OAR 340-041-007(2), the natural conditions narrative, being considered in this rulemaking? (26)
	<p>Response The proposed rulemaking revises only the arsenic standard. The natural conditions narrative remains in place and may not be appropriate to invoke for human health criteria in most cases. Please see the discussion of options considered in Chapter 2 Section 6 of the Arsenic Issue Paper.</p>
Comment 5.6	DEQ's report states that DEQ may pursue site specific criteria where a water

	<p>body has natural background levels above the statewide criteria. What is DEQ's plan and schedule to develop site specific arsenic criteria for the Snake River. The statewide standards should not apply to the Snake River when known concentrations of natural background arsenic exceed the proposed standard. (26)</p>
	<p>Response DEQ's current priority is to establish appropriate statewide criteria. The proposed criteria are less stringent than the existing criteria that apply to the Snake River. In evaluating revisions to water quality standards applicable to specific waterbodies, DEQ would further evaluate the levels of arsenic that occur naturally and whether the designated uses (i.e. domestic water supply) for the Snake River should be revised.</p>
<p>Comment 5.7</p>	<p>DEQ should include an explicit natural conditions provision in the criteria or adopt basin specific adjustments to the arsenic water quality criteria. This would be consistent with OAR 340-041-0007(2), the state's natural condition provision, and OAR 340-041-0033(1), which states that toxic substances may not be introduced above natural background levels in waters of the state. The City proposes rule language text. (15)</p>
	<p>Response While DEQ is not proposing revisions to its narrative criteria, it appreciates the city's effort to provide alternative rule language. Please see DEQ's response to other comments in Section 5 related to site specific conditions. DEQ will work with the City to develop an appropriate solution for the Link/Klamath River and the City of Klamath Falls.</p>
<p>Comment 5.8</p>	<p>It may be appropriate to re-evaluate the drinking water supply use designation for some waters. There are no public water suppliers in Oregon below the Link River. (15)</p>
	<p>Response DEQ agrees that removing domestic water supply as a beneficial use is one option to consider for the Link River and other waterbodies that cannot attain the water + fish consumption criterion.</p>
<p>Comment 5.9</p>	<p>There is no reason why DEQ cannot recognize basin specific adjustments to the arsenic criteria for the Klamath basin. If resources are a barrier, DEQ can exercise its receipts authority to allow outside parties to assist financially through a transparent process. The City of Klamath Falls is willing and able to provide the necessary data. (15)</p>
	<p>Response Please see the response to comment 5.3 above. DEQ can consider basin specific adjustments to the arsenic criteria. In the meantime, however, DEQ believes it is important to complete the statewide rulemaking.</p>
<p>Comment 5.10</p>	<p>DEQ should include a flexible risk factor approach that would provide the flexibility needed to set criteria consistent with naturally-elevated background levels of arsenic. This approach would include the option to develop permit limits based on adjustments to the risk factor, within a range. This approach</p>

	would save DEQ and permittees the resources required to develop site specific criteria. (15)
	<p>Response</p> <p>The proposed 'water and fish ingestion' criterion is based on a risk factor of 1×10^{-4}. The suggested approach could be considered where public domestic water supply (drinking water) is not a designated use and only the 'fish consumption' criterion applies. Removing the domestic water supply use would require subsequent rulemaking. DEQ believes it would be more appropriate to consider this suggestion in the context of such a subsequent rulemaking.</p>
Comment 5.11	<p>Ontario receives its drinking water from the Snake River, which has a natural background level (about 5µg/l) that is well below the safe drinking water standard but higher than DEQ's recommended outfall limit for the wastewater treatment plant. Arsenic is reduced at the water treatment plant, by customers and through land application of effluent during the growing season (May 1 to Oct 30) of each year. On an annual basis there is a net reduction of arsenic in the Snake River by the City of Ontario. This rule does not recognize this. (26)</p>
	<p>Response</p> <p>The proposed rule revises Oregon's statewide ambient water quality standard for arsenic. It does not set an outfall limit for any specific discharger or revise requirements related to the development and calculation of effluent limits. Please see the responses to comments 5.3 above and in section 7 below.</p>
Comment 5.12	<p>If there were no removal of arsenic through either the water or wastewater treatment processes, Ontario would discharge about 1 ounce per day, which would cause no measurable change in the background of the Snake River, which flows at about 10,000 cfs. (26)</p>
	<p>Response</p> <p>The proposed rule only revises Oregon's statewide ambient water quality standard for arsenic. In implementing the criteria, DEQ will analyze data for individual sources, establish appropriate permits limits and work with sources that need site specific solutions.</p>
Comment 5.13	<p>Are there options available that can deal with the natural geology of the region? Is it necessary to create a water quality standard for arsenic lower than natural background levels that will then require regulatory variance for compliance? Variances will be duration-specific, and are intended to be short term and temporary. If DEQ does grant a variance to the community, does this mean it will have to be reviewed and reissued during every permit cycle? (28)</p>
	<p>Response</p> <p>Please see the response to comment 5.3 and other comments in this section. DEQ is proposing revisions to the variance rule as part of the human health criteria rulemaking.</p>

6. Comment on How the Proposed Criteria were Calculated	
Comment 6.1	Commend DEQ for proposing a science-based approach to revising the arsenic water quality criteria for the protection of human health. I have published several articles that support DEQ's approach. (27)
	Response DEQ appreciates the comment. It is very important to us to develop water quality criteria that are scientifically credible and defensible.
Comment 6.2	NWPPA supports the proposed criteria for arsenic that reflect the higher fish consumption rate of 175 grams per day and that DEQ has adjusted based on locally appropriate variables. (11)
	Response DEQ acknowledges this supportive comment.
Comment 6.3	DEQ failed to conduct an adequate technical analysis of its proposal. (12)
	Response The comment pertains to the initial criteria proposal. DEQ acknowledges that additional technical analysis has improved the scientific basis of the proposed criteria. DEQ did additional technical analysis, requested additional information from EPA and revised the proposed criteria based on that work. The 'Arsenic Issue Paper' has been updated to reflect the additional information and method used to develop the proposed criteria.
Comment 6.4	The proposed arsenic criteria are too low. Fish from fresh water do not likely have a bioconcentration factor of 14. (28)
	Response The commenter did not provide data or information supporting the claim that DEQ used inappropriate values. DEQ based the bioconcentration factor on an analysis of available studies that it identified with the assistance of EPA.
Comment 6.5	EPA's "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000) outlined methods for estimating bioaccumulation factor (BAF) values to be used in deriving water quality criteria and encouraged states and tribes to use the revised methodology to develop or revise criteria to reflect local conditions. Oregon should follow the methodology in EPA's "Site-Specific Technical Support Document" and calculate site-specific BAFs to use in modifying national toxics criteria. DEQ has not referenced the 2000 Methodology or EPA guidance on arsenic bioaccumulation or explained why this national guidance is not relevant to the current arsenic criteria revision. (12)
	Response While the 'Human Health Methodology' (EPA 2000) suggests that site specific BAFs would be preferable, EPA recognizes that this data is generally not available and that the BAFs are too variable to use this approach for establishing statewide criteria. Please see addition discussion in the arsenic issue paper Chapter 2 Section 5.

<p>Comment 6.6</p>	<p>EPA has recommended a BCF of 44 for arsenic; DEQ chose to use a BCF of 1. DEQ's choice and rationale are not supported by the latest science on arsenic BCFs and are therefore inconsistent with the 2000 methodology. It is arbitrary for DEQ to apply a BCF of 1 just because that has been used by other states. (12)</p> <p>Response This comment pertains to DEQ's initial proposed criteria. DEQ did additional analysis and revised the proposed criteria using a BCF of 14 for freshwater and a BCF of 26 for saltwater. Please see the 'Arsenic Issue Paper' Chapter 2, Section 5 for additional information.</p>
<p>Comment 6.7</p>	<p>There appears to be an inverse relationship between the BCF and the ambient concentration of arsenic (cite Williams et al., 2006). Therefore, it is essential to have site-specific data on ambient arsenic levels to derive an appropriate and scientifically sound BCF. (12)</p> <p>Response DEQ appreciates the submittal of the Williams et al (2006) paper. Because there appears to be an inverse relationship between bioconcentration and water concentration, DEQ based the BCF value we used to derive the proposed criteria on studies conducted at background concentrations of less than 50µg/l and excluded studies conducted at higher concentrations (i.e. 100 to 1000µg/l or more), which would be more appropriate for evaluating contaminated sites. DEQ has added to the data and discussion in the 'Arsenic Issue Paper' Chapter 2, Section 5 on bioconcentration.</p> <p>While uncertainties remain in understanding arsenic bioaccumulation, the transformation of arsenic between forms, and physiological responses to inorganic arsenic, DEQ is updating the statewide criteria based on the data available to us at this time. DEQ concludes that the proposed criteria and the BCFs we used to derive them are more scientifically appropriate for Oregon and represent more recent science than the national criteria. DEQ may pursue site specific arsenic criteria for certain waters if information is available that indicates the statewide criterion is not appropriate.</p>
<p>Comment 6.8</p>	<p>Commenter participated in an assessment of arsenic bioaccumulation in freshwater fish and co-authored an article on this topic published in the journal Human Ecological Risk Assessment (Williams et al, 2006). The research suggests that ambient arsenic concentrations in surface water have little influence on total arsenic concentrations in fish. Commenter supports DEQ's proposal to reduce the BCF (from the 44 used in EPA's criteria). Note that ongoing research will provide additional insight to arsenic bioaccumulation and DEQ may want to revisit this issue in the future. (27)</p> <p>Response DEQ appreciates the authors comment and support. DEQ agrees that when the available data and understanding of organism responses to inorganic arsenic improve, DEQ may want to revisit this issue in the future.</p>
<p>Comment 6.9</p>	<p>For areas of the state where waters have significantly higher levels of arsenic, it would be appropriate to pursue further data collection to identify site-</p>

	<p>specific BCFs. (12)</p> <p>Response DEQ acknowledges that developing site specific BCFs could be an approach to developing site specific criteria in future rulemakings. Please see also the response to comment 5.3 above.</p>
Comment 6.10	<p>EPA's national BCF includes freshwater and saltwater organisms. In contrast, Oregon eliminated all saltwater organisms in deriving its criteria. EPA guidance notes that the concentration of arsenic in marine bivalve mollusks is substantially higher than their freshwater counterparts. DEQ has provided no evidence that its criteria will provide public health protection from the consumption of saltwater species. (12)</p> <p>Response This comment pertains to DEQ's initial proposed criteria. DEQ has subsequently revised its proposal to include a separate criterion for saltwater. The saltwater criterion is based on a BCF that incorporates the marine mollusk data together with the finfish data.</p>
Comment 6.11	<p>DEQ should not have relied on EPA Region 6 Interim Guidance or the draft Great Lakes Initiative BCF. They are outdated. (12)</p> <p>Response This comment pertains to DEQ's initial proposed criteria. DEQ has subsequently revised its proposed criteria such that it no longer relies on the BCF value from these documents.</p>
Comment 6.12	<p>Pleased that DEQ revised the BCF in its revised proposed arsenic rule. It is an improvement. (12)</p> <p>Response Comment acknowledged.</p>
Comment 6.13	<p>DEQ does not explain how the proposed BCFs were derived. DEQ must better explain its scientific basis. (12)</p> <p>Response DEQ has added information to the Arsenic Issue Paper to better explain the scientific basis for the BCFs used to derive the proposed criteria.</p>
Comment 6.14	<p>If DEQ is going to use a BCF based on the fact that people eat a mixture of finfish and shellfish from marine waters for deriving criteria for marine waters, they should use the same ratio of fresh- to salt-water organisms in both calculations. (12)</p> <p>Response DEQ assumes that by "both calculations" the commenter means the calculations to derive both the freshwater and saltwater fish consumption only criteria. DEQ has improved the explanation of the proposed BCFs in the Arsenic Issue Paper Chapter 2, Section 5.</p> <p>DEQ based the BCF for saltwater on the fact that people eat a mixture of finfish (vertebrates), such as salmon, halibut, tuna, etc., and mollusks</p>

	<p>(invertebrates), such as oysters, from marine waters. The available bioconcentration data for mollusks (1 study) is much higher than the BCF data for finfish. In the absence of BCF data for marine finfish, DEQ relied on the finfish data as the best indicator of bioconcentration in marine finfish, which also represent an important exposure pathway.</p> <p>DEQ has no information indicating that people eat mollusks from freshwaters in Oregon. Further, given the species of mollusks found in freshwaters, DEQ concludes that people are unlikely to consume freshwater mollusks.</p> <p>Therefore, the BCF for the freshwater criteria are based exclusively on finfish (vertebrate) species.</p>
<p>Comment 6.15</p>	<p>DEQ does not explain the proportions of consumption used as the basis for the BCF. DEQ says mollusks comprise a small portion of the 175 gram/day consumption rate but does not cite the data to support this. (12)</p> <p>Response</p> <p>In the CRITFIC study of fish consumption by Columbia River Tribes, the only study of consumption used that was conducted in Oregon, none of the reported consumption was shellfish. In studies of native Americans in the Puget Sound area, shellfish consumption was much greater.</p> <p>Schoof and Yager (2007; reference provided in the arsenic issue paper) provided a summary of seafood consumption in the U.S. population (data from the USEPA, 2002 and relying on the 1994096 and 1998 USDA surveys of food intake) showing that estuarine mollusks (oyster, clam and scallop) comprised about 3 percent and all estuarine and marine mollusks together (oyster, clam, scallop, mussels, squid and octopus) represent about 13 percent of total fish and shellfish consumption.</p>
<p>Comment 6.16</p>	<p>DEQ's report states that EPA uses a cancer risk level of 10^{-6} when it develops recommended human health criteria for carcinogens. This is inaccurate with respect to arsenic where EPA has used a cancer risk level of 10^{-4} in establishing Safe Drinking Water Act arsenic standards for potable water. (See EPA document 815-R-00-013, "Proposed Arsenic in Drinking Water Rule Regulatory Impact Analysis." (26)</p> <p>Response</p> <p>DEQ' statement refers to EPA's recommended human health criteria under the federal Clean Water Act; those are the criteria being evaluated in this rulemaking. EPA EPA used the 10^{-6} risk level to establish recommended Clean Water Act (section 304a) criteria for carcinogens. When EPA establishes MCLs under the Safe Drinking Water Act, they may publish drinking water standards at a different risk rate, based on the consideration other factors, such as the feasibility of treatment.</p>
<p>Comment 6.17</p>	<p>It appears that DEQ selected different risk factors for the water + fish and fish consumption only criteria in order to result in the same criterion for both categories. It may be more appropriate and consistent to select the same risk factor of 10^{-4} for both categories. This would be consistent with the SDWA criterion and avoid a criterion that is below natural levels in the Snake River.</p>

	(26) Response DEQ did base the two criteria on different risk levels and acknowledges the suggestion to set both criteria based on a 10 ⁻⁴ risk level. A fish consumption only criterion based on 10 ⁻⁴ would be 19 µg/l. As a general matter, DEQ establishes its water quality criteria based upon a 10 ⁻⁶ risk level. DEQ is choosing to use an alternate risk level of 10 ⁻⁴ for the fish consumption only criterion and a 10 ⁻⁵ risk level for the water + fish ingestion criterion due to the unique fact set presented by high naturally-occurring levels of arsenic. DEQ's policy objective is to protect public health. For much of the state, natural levels are well below the criteria level. The stakeholder group had already concluded that the MCL of 10 µg/l was too high for a statewide criterion.
Comment 6.18	Regarding the inorganic proportion factor applied to the BCF, the commenter evaluated available data as of 2006 and concluded that 10% is a health protective factor for freshwater fish. A similar evaluation yielded 2% as an appropriate proportion for marine fish and crustaceans, and 3% for mollusks. The commenter recommends reducing the inorganic factor for saltwater to 2%. The commenter published an article on this topic in the journal Human Ecological Risk Assessment and submitted the citation and abstract for that article. (27)
	Response DEQ appreciates receiving this information and the support for using a 10% inorganic factor for the freshwater criteria. DEQ reviewed the commenter's publication and additional data on speciation and transformation of arsenic in the marine environment and used it in further analysis, which has been added to the issue paper. There is uncertainty in the bioconcentration of arsenic in marine fish, so DEQ also calculated what a criterion would be using a higher BCF (i.e. 350) and a lower inorganic proportion (1%). DEQ concludes that given the 2 calculation scenarios and data on natural ocean levels, the proposed criterion of 1.0 µg/l is scientifically supported.
Comment 6.19	EPA has done a draft toxicological review and may change the toxicity slope factor it uses to calculate the human health criteria for inorganic arsenic. NWEA supports moving ahead to revise Oregon's criteria but urges the Commission to direct DEQ to swiftly revise the criteria again if the IRIS cancer slope factor is revised. In addition, NWEA asks the Commission to direct DEQ to include reference to the national level discussions in the DEQ issue paper about this rulemaking. (12)
Response	Should EPA revise the cancer slope factor for arsenic, DEQ would need to evaluate the updated toxicity information and determine whether the arsenic criteria should be revised. However, DEQ recommends that the Commission allow the agency to prioritize this need with other water quality standards rulemaking needs and available resources. DEQ will include reference to EPA's review of the IRIS information in the Issue Paper.
7. Comment on Implementation and Measurement	
Comment 7.1	The City of Ontario supports efforts to improve water quality where there is a

	measurable and positive impact on the environment and provides examples of water quality improvements they have made. (26)
	Response DEQ appreciates the City of Ontario's water quality improvements.
Comment 7.2	To further the goal of protecting human health, DEQ should control all sources of anthropogenic arsenic and require a higher level of drinking water treatment to limit public exposure to arsenic. (12)
	Response The proposed rule revises the instream water quality criteria, which are then implemented through a variety of Clean Water Act and state regulatory and non-regulatory programs. As a general matter, DEQ agrees that its efforts are best focused on anthropogenic sources of arsenic. DEQ does not regulate drinking water treatment.
Comment 7.3	DEQ should move forward cautiously and make sure any required community investment has a positive impact on water quality and is not just a paper exercise. (26)
	Response The proposed rule revises the statewide ambient water quality criteria for arsenic to be less stringent than existing criteria. The only additional implementation requirements are those associated with the arsenic reduction policy, which applies to waters with arsenic concentrations lower than the proposed criteria. DEQ acknowledges the commenter's desire to avoid administrative costs that do not benefit water quality. DEQ is separately considering this issue as part of the human health toxics rulemaking.
Comment 7.4	Criteria that result in a permittee having to treat wastewater to a level below that naturally present in the facility influent would be exceedingly costly and is an inappropriate use of public resources. (15)
	Response DEQ notes the proposed rule revises the statewide ambient water quality criteria for arsenic to be less stringent than existing criteria. DEQ agrees that additional work may be needed in some waterbodies to take into account the presence of higher levels of naturally occurring arsenic. Some options, such as revising water quality standards and granting variances to permittees, are available under DEQ's current rules and additional options, including intake credits and the background pollutant allowance have been proposed as part of the human health toxics rulemaking.
Comment 7.5	DEQ must explain how the proposed criteria will be translated into permit limits for facilities with naturally-elevated levels of arsenic. The rules do not provide the certainty needed for cities to make long term decisions. DEQ needs to ensure that municipalities can plan, schedule, finance and operate improvements to their treatment works in an orderly and practical manner. Municipal wastewater treatment providers rely on limited public funds to make long-term investments and require long-term certainty as to what criteria they will be expected to meet. (15)

	<p>Response The proposed rules revise the statewide ambient water quality criteria for arsenic to be less stringent than the existing criteria. They do not change how DEQ develops permit limits. DEQ acknowledges municipalities' preference for long term solutions, such as water quality standards revisions, to address situations where natural concentrations exceed the proposed criteria.</p>
Comment 7.6	The uncertainty causes concern for the city. (26)
	<p>Response See response to the comment above.</p>
Comment 7.7	ACWA supports the definitions in the proposed rule, including using harmonic mean flow of the receiving water to determine contributions of inorganic arsenic in reasonable potential calculations. (17)
	<p>Response The definition in the proposed rule language is part of the arsenic reduction policy; it does not pertain to developing permit limits. However, it is DEQ's practice, in accordance with EPA guidance, to use this flow metric for conducting reasonable potential analysis for human health criteria.</p>
Comment 7.8	Under the proposed rule, DEQ and permittees will face substantial and unnecessary resource burdens. Permittees may need to file requests for variances, intake credits or background pollution allowances simply because they discharge into rivers with naturally-elevated levels of arsenic. (15)
	<p>Response See response to comment 7.4 above.</p>
Comment 7.9	As a variant of the intake credit rule, DEQ should credit facilities that collect and filter naturally occurring arsenic if the arsenic would otherwise naturally reach surface waters. (15)
	<p>Response The intake credit rule is not part of this rule proposal. DEQ will reply to this comment as part of the human health toxics criteria rulemaking.</p>
Comment 7.10	The rule should provide a pathway for intake and discharge of naturally occurring arsenic that does not require an arsenic reduction plan or variance. Suggested rule language provided. (26)
	<p>Response This comment and suggested revisions appear to address the intent of the intake credit rule being proposed as part of the human health toxics criteria rulemaking and will be responded to as part of that rulemaking process.</p>
Comment 7.11	The city of Ontario seeks an exclusion from the proposed arsenic rulemaking for naturally occurring arsenic present in the effluent discharge. The City would like to avoid pursuing arsenic reduction plans, background pollutant allowances, intake credits or water quality variances to account for naturally occurring arsenic in the city's effluent discharge to the Snake River. (26)

	<p>Response Water quality standards apply to the water body and as such cannot exclude a specific discharger. DEQ must set criteria based on designated beneficial uses, in this case, drinking water and fish consumption. The city's request that DEQ consider the natural arsenic contained in the effluent differently is the objective of the implementation tools being proposed as part of the human health toxics rulemaking package. Please see also the response to comment 7.4 above.</p>
Comment 7.12	<p>The "background pollutant allowance" is one flexible permitting mechanism being considered by DEQ. The City supports this concept but the rule should recognize that a background pollutant could be groundwater if a facility's influent originates from wells. (15)</p>
	<p>Response The background pollutant allowance is not part of this proposed rule. DEQ will respond to this comment as part of the human health toxics rulemaking process.</p>
Comment 7.13	<p>The background pollutant allowance appears to be restricted such that it would not apply for the arsenic water + fish criterion, which is based on a 10⁻⁴ risk level. (26)</p>
	<p>Response The background pollutant allowance is not part of this proposed rule. DEQ will respond to this comment as part of the human health toxics rulemaking process.</p>
Comment 7.14	<p>The background pollutant allowance may be a useful alternative. I have been told it is available only for industries, not cities. Why is this that? (26)</p>
	<p>Response The background pollutant allowance is not part of this proposed rule. DEQ will respond to this comment as part of the human health toxics rulemaking process.</p>
Comment 7.15	<p>There appear to be options for DEQ to consider that are less cumbersome than the variance process. Ontario strongly encourages DEQ to consider a strategy to deal with background conditions on a region or watershed basis, rather than for each permittee individually. (26)</p>
	<p>Response Variances, and alternatives to variances, are not part of this proposed rule. DEQ will respond to this comment as part of the human health toxics rulemaking process.</p>
Comment 7.16	<p>The revised standards should include provisions that preclude DEQ having to list waterbodies and develop TMDLs due to the presence of naturally elevated levels of arsenic. This is a waste of public funds where the pollution is natural and cannot be controlled. (15) (17) (26)</p>
	<p>Response DEQ acknowledges the comment and agrees that, in general, the focus of</p>

	our water quality programs should be to control anthropogenic sources of arsenic. Please see responses to comments 7.3 and 7.4 and comments in section 5 of this document for additional information.
Comment 7.17	<p>If waters of the Klamath basin are listed as impaired, sources that discharge to listed waters are not allowed a mixing zone and must meet the criteria in the effluent, even though arsenic may naturally be in their intake water. The city and DEQ would face substantial and unnecessary resource burdens to request and grant variances in these situations. (15)</p> <p>Response DEQ acknowledges the commenter's concern regarding discharges to waters identified as "impaired" by naturally elevated levels of arsenic. The intake credit rule and background concentration allowance provisions that have been proposed for comment as part of the human health toxics rule package are intended to be used in such situations. DEQ will respond to this comment as part of that rulemaking. As discussed in the responses to comments in section 5 of this document, further revisions to water quality standards applicable to specific waterbodies may be appropriate in this case.</p>
Comment 7.18	<p>An arsenic level of 2.3 µg/l is difficult for labs to even assess reliably and an increase of 10% is difficult to reliably quantify at these low levels. Please reconsider the actual value of the time and expense this represents to business owners. (9)</p> <p>Response DEQ is unclear what 10% the commenter is referring to. Measurement or quantification levels are evaluated through a separate process at DEQ. If water quality criteria are below quantitation limits, the quantitation limit becomes the functional compliance measurement.</p>
Comment 7.19	<p>It would be better to study, test and establish best management practices for stormwater rather than pretreatment. The arsenic numbers in the pretreatment program annual reports are so low most labs have difficulty detecting the numbers. (18)</p> <p>Response The comment is beyond the scope of the proposed rule. The proposed rule revises the instream arsenic water quality criteria and does not establish pretreatment requirements.</p>
Comment 7.20	<p>WWPI believes that two modest clarifications of the criteria's applicability would help prevent unreasonable applications of the criteria to stormwater discharges.</p> <p>1. The rule should make clear that the arsenic and other human health criteria do not apply to waterbodies such as drainage ditches and stormwater detention ponds and swales that contain only stormwater runoff and wastewater. These waterbodies would not be a source of drinking water or fish/shellfish that might be consumed by humans. The commenter provides suggested language for the Table 20 preamble stating that the criteria are not to be exceeded in waters of the state "other than waterbodies that contain only stormwater and wastewater."</p>

	<p>2. The human health criteria should expressly be defined as long-term averages. Suggest addition language to Table 20 stating that “the human health criteria for carcinogens are annual average concentrations.” (20)</p> <p>Response The suggested revisions would pertain to all the human health criteria and are outside the scope of this rulemaking. This proposed rulemaking is focused on revisions to the arsenic criteria.</p>
<p>8. Comment on the Arsenic Reduction Policy</p>	
<p>Comment 8.1</p>	<p>NWPPA expresses appreciation for DEQ efforts to move this rule forward with appropriate implementation measures for point sources, including a focus on whether actual potential exists to increase inorganic arsenic in drinking water. If the facility is adding inorganic arsenic and impacting a drinking water supply then the permittee shall develop an arsenic reduction plan. (11) (25)</p> <p>Response DEQ acknowledges this supportive comment.</p>
<p>Comment 8.2</p>	<p>The monitoring and pollutant minimization plans associated with the rule will have positive effects. (11)</p> <p>Response DEQ appreciates the comment.</p>
<p>Comment 8.3</p>	<p>WWPI supports DEQ’s proposed arsenic reduction policy with the understanding that it is not intended to impose extraordinary arsenic reduction requirements on facilities that meet the arsenic human health criteria. Rather, the policy requires an evaluation of whether there are additional <i>feasible</i> measures that could be undertaken to reduce arsenic discharges that have the potential to significantly increase inorganic arsenic concentrations in public drinking water. (16) (20)</p> <p>Response The commenter’s description of the intent of this policy is consistent with the intent as described in the Arsenic Issue Paper.</p>
<p>Comment 8.4</p>	<p>ACWA supports DEQ’s plan to implement an arsenic reduction program for municipalities through the SB737 requirements as outlined in DEQ’s draft report “Water Quality Standards Review and Recommendations: Arsenic” (February 1, 2011). (17)</p> <p>Response DEQ acknowledges this supportive comment.</p>
<p>Comment 8.5</p>	<p>The proposed rule amendment does not include a specific reference that differentiates between Publicly Owned Treatment Works (POTWs) and industrial dischargers. The rules should specify that POTWs will be regulated under the provisions of SB737 as follows: OAR 340-041-0033 (4) (d) (F). For publicly owned treatment works, the arsenic pollution prevention plan developed under ORS 468B.140</p>

	<p>(SB737- 2007 Legislature) and approved by the Department shall be the arsenic reduction plan. Publicly owned treatment works in compliance with the approved arsenic portion of the pollution prevention plan shall be deemed to be in compliance with the applicable water quality standard for arsenic. (17)</p> <p>Response DEQ revised the rule to clarify that the requirement to develop an arsenic reduction plan under 340-041-0033 (4) (e) applies to industrial dischargers. DEQ did not add the proposed language above for three reasons. First, we believe the rule language, with the change noted here, is clear that the requirements in (4) (d) and (e) to submit data and develop an arsenic reduction plan apply to industrial dischargers. Second, the issue paper explains that DEQ's intent is that the arsenic reduction policy will be implemented through the requirements under the Senate Bill 737. Even though the SB737 plans are not exactly analogous, they meet the intent to require feasible steps to reduce arsenic where it exceeds a level of concern and DEQ did not want to duplicate existing requirements with the same intention as the reduction policy. Third, DEQ does not agree that we can say in rule that a POTW that has developed and is implementing an arsenic reduction plan "shall be deemed to be in compliance with the applicable water quality standard for arsenic." Development of the plan does not replace water quality-based effluent limits where those are determined to be needed. The reduction policy applies to discharges to waters that are lower than the standard and preventing polluting up to the criteria, it does not exempt any source from requirements associated with the numeric criteria</p>
<p>Comment 8.6</p>	<p>The arsenic reduction policy language should be updated to be consistent with the revised proposed arsenic criteria. Specific edits suggested, include: The 1% change that defines a potential to significantly increase arsenic concentrations in the drinking water supply source is based on the previously proposed criteria. It should be changed from 0.023 to 0.021 µg/l. Other suggested revisions included. (16) (17) (20) (25)</p> <p>Response DEQ has made the suggested changes.</p>
<p>Comment 8.7</p>	<p>In the proposed rule language and in the Issue Paper, comparisons between the proposed criteria and the MCL are not correct because the MCL is based on total recoverable arsenic while the proposed criteria are for inorganic arsenic. 737 testing did not analyze for arsenic III, but for total recoverable arsenic, because the initiation level is based on the MCL. Most municipalities do not test for inorganic arsenic and have no data on inorganic arsenic levels in their effluent. (17)</p> <p>Response The MCL is for total recoverable arsenic, but it is 10µg/l. The criteria are for inorganic arsenic, but they are 2.1µg/l. The portion of inorganic to total arsenic in a water body or effluent varies, but for purposes of the arsenic reduction policy, DEQ concludes that the SB737 requirements serve the purpose. However, per the state's regulations, any required monitoring will need to address inorganic arsenic once the DEQ's water quality criteria</p>

	revisions become effective and incorporated into permit issuance or renewal.
Comment 8.8	ACWA believes that the proposal for implementing the policy to control non-point sources of arsenic to the State's waters should be presented to the EQC for adoption at the same time the final rule is proposed, not at some unspecified later date. Quotes section (4) (f) of the proposed rule. (17)
	Response DEQ will not be able to submit such a proposal to the EQC at the time the arsenic rule is proposed, which is planned for April 2011.
Comment 8.9	Support focusing DEQ resources on anthropogenic sources of arsenic, both point and nonpoint. This policy balances the acceptability of using a higher risk level for the criteria. (12)
	Response DEQ acknowledges this comment.
Comment 8.10	Because the fish consumption only criterion is now also based on a risk level greater than 10^{-6} , the arsenic reduction policy falls short of filling the gap allowed by the adoption of high-risk numeric criteria and its narrow focus is nonsensical. (12)
	Response DEQ disagrees; sources of drinking water remain the appropriate focus for the arsenic reduction policy. The final proposed water + fish ingestion criterion continues to be based on a risk level of 10^{-4} . The fish consumption only criterion is now based on a risk level of 1.1×10^{-5} which continues to represent an appropriate level of protection for the general population, considering that naturally-occurring concentrations are high throughout the state. In addition, DEQ does not believe that an expansion of the arsenic reduction policy is needed to further augment the antidegradation policy, which may be used to limit or prevent new or increased sources of arsenic in waterbodies that have concentrations of arsenic lower than the criteria
Comment 8.11	The language of the arsenic reduction policy was based on the premise that consumption of fish carried zero risk of harm to human health from arsenic. That premise is now false and should be discarded. It violates the integrity of the committee process for DEQ to continue to rely on language that was negotiated on a false premise. (12)
	Response DEQ disagrees with the commenter's assertion that the proposed arsenic reduction policy was based on a premise that consumption of fish carries zero risk. Rather, DEQ's initial proposed criteria for the consumption of fish was based on a cancer risk level of 1×10^{-6} . The original proposed criterion of 2.3 (water + fish criterion) was based on a risk level of 10^{-4} and the revised proposed criterion of 2.1 is based on the same risk level. DEQ continues to believe that minimizing potential risk associated with exposure from drinking water is a higher priority and should continue to be the focus for the arsenic reduction policy to reduce risk to drinking water sources.

<p>Comment 8.12</p>	<p>The arsenic reduction policy should not be expanded beyond facilities with the potential to impact public drinking water supplies. (16) (20)</p> <p>Response DEQ has not made any revisions to expand the arsenic reduction policy.</p>
<p>Comment 8.13</p>	<p>The revised arsenic criterion based on 1.1×10^{-5} is protective of human health given that the criterion is also based on a fish consumption rate of 175.grams/day. (16)</p> <p>Response DEQ agrees with this statement given the presence of naturally occurring arsenic in Oregon waters.</p>
<p>Comment 8.14</p>	<p>The arsenic reduction policy should be considered a water quality standard. It is a key part of Oregon's choice to use a higher risk level. The intent of the policy is to alter the numeric criteria when those criteria include human contributions. DEQ should pursue this with EPA and make revisions as necessary to achieve this outcome. (12)</p> <p>Response DEQ agrees that the arsenic reduction policy is an important component of our standards rules for drinking water areas due to the fact that the standard is based on a risk level of 10^{-4}. DEQ disagrees that the intent of the arsenic reduction policy is to alter the numeric criteria. The policy applies to specific sources and circumstances and requires that feasible reduction steps be taken.</p> <p>If the arsenic reduction policy is adopted by the EQC, it will be effective and applicable as a state rule approval whether or not EPA acts upon the provision under its Clean Water Act section 303(d) authority. Please see the arsenic issue paper for additional information on the arsenic reduction policy.</p>
<p>Comment 8.15</p>	<p>The arsenic reduction policy should be clarified to ensure that permittees understand when and where it applies.</p> <ul style="list-style-type: none"> • “Applicable numeric...criteria” refers to the statewide criteria, not any subsequent basin level criteria. • The policy does not apply to facilities that do not discharge into designated drinking water protection areas • Correct the proposed criteria reference (15) <p>Response DEQ has made the suggested changes.</p>
<p>Comment 8.16</p>	<p>The policy should be revised to conform to DEQ's revised proposed numeric arsenic criteria. Suggested revisions included. (20)</p> <p>Response DEQ agrees with the commenter and has made the suggested corrections to make the reduction policy consistent with the revised proposed numeric criteria.</p>

9. Comment on the Arsenic Issue Paper	
Comment 9.1	DHS staff provided suggestions for the Issue Paper: First, the listings for human health v. aquatic life criteria on p. 11 should be shown separately. Second, a correction to the cancer slope units on page 18. (14)
	<p>Response</p> <p>The cancer slope factor unit correction has been made. DEQ evaluates listings based on the most stringent criteria—so if it's listed, it's listed based on the HH criteria. Listings are not further evaluated to see whether it also exceeds other criteria for the same pollutant.</p>
Comment 9.2	<p>DEQ should review and revise the issue paper to ensure it conforms to the final rule proposal. Chapter 3 of the draft report should be revised to reflect the revised numeric criteria proposals and the revisions in the policy itself.</p> <ul style="list-style-type: none"> • P. 15 – proposed criterion is now 2.1µg/l and the proposed criteria for organisms only consumption is no longer based on the same risk level as Oregon's other human health toxics criteria. <p>P. 17 - Whether a discharge has the potential to significantly increase inorganic arsenic in a public drinking water supply source water is based on a 10 percent increase, not a 2 percent increase. (16)</p>
	<p>Response</p> <p>DEQ has reviewed and updated the issue paper.</p>

List of Commenters and Reference Numbers				
Ref #	Name	Organization	Address	Comment date
1	Shelia Herrera	None stated	1338 Woodland Drive, Bloomfield, New Mexico 87413	Aug. 25, 2010 & Feb. 2, 2011
2	Keith Nelson	Iron Overload Support Forums Online	keith@ironoverloadsupport.com	Sept. 7, 2010
3	Cary Weigand	None stated	Troyweigand@aol.com	Sept. 11, 2010
4	Christina Shetterly	None stated	2844 Yvonne Road, Medford, OR 97504	Sept. 13, 2010
5	Shirley VanLeuven	Evergreen Meadows Water Improvement District	Prospect, Oregon sdayvl@hughes.net	Sept. 15, 2010
6	Paul Neussl	Evergreen Meadows Water Improvement District	paulneussl@live.com	Sept. 22, 2010
7	William H. Burke, Chairman, Tribal Water Commission	Confederated Tribes of the Umatilla Indian Reservation	46411 Timine Way, Pendleton, OR 97801	Sept. 21, 2010
8	Susan Hansen	None stated	Ashland, OR she@opendoor.com	Sept. 26, 2010
9	Cheryl Moore	None stated	cmoore@mendoco.com	Sept. 27, 2010

10	Ray Suek & Geri Johnson	None stated	25570 Valley View Lane, Sheridan, Oregon 97378 gerijohnson@live.com	Sept. 28, 2010
11	Llewellyn Matthews, Executive Director	Northwest Pulp & Paper	7900 S.E. 28 th Street, Suite 304, Mercer Island, WA 98040	Sept. 30, 2010
12	Nina Bell	Northwest Environmental Advocates	PO Box 12187 Portland, OR 97212	Sept. 30, 2010, Feb. 16 & 23, 2011
13	Cari Hinesly	Evergreen Meadows Water Improvement District	Prospect, OR hineslyc@huges.net	Sept. 29, 2010
14	Barbara Stifel, Ken Kauffman, David Farrer	Oregon Health Authority	800 NE Oregon St., Portland, OR 97232-2162 Barbara.l.stifel@state.or.us	Sept. 27, 2010 & Feb. 23, 2011
15	Mark Willrett, P.E., Director of Public Works	City of Klamath Falls	PO Box 237, Klamath Falls, OR 97601 gmjohnson@ci.klamath-falls.or.us	Sept. 29, 2010 & Feb 22, 2011
16	Michael Campbell, Stoel Rives, LLP	Oregon Water Quality Standards Group (industrial facilities that hold NPDES permits)	900 SW Fifth Ave, Suite 2600, Portland, OR 97204	Sept. 30, 2010 & Feb. 23, 2011
17	Janet Gillaspie, Executive Director	Oregon Association of Clean Water Agencies	537 SE Ash St., Suite 12, Portland, OR 97214	Sept. 30, 2010 & Feb. 23, 2011
18	Randy Watson, Pretreatment Coord.	City of Wilsonville	watson@ci.wilsonville.or.us	Feb. 2, 2011
19	Sandry and Randy Turner	None stated	the2andies@gmail.com	Feb 8, 2011
20	Ted LaDoux, Executive Director	Western Wood Preservers Institute	7017 N.E. Hwy 99, Suite 108 Vancouver, WQ 98665 ted@wwpinstitute.org	Feb. 18, 2011
21	Glen D. White	None stated	Gkdaw_usa@msn.com	Feb 18, 2011
22	Darrell Standage, Board member	Malheur County SWCD	2925 SW 6 th Ave, Suite 2 Ontario, OR 97914 Linda.Rowe@or.nacdnet.net	Feb. 22, 2011
23	Martin Andre, Board member	Malheur County SWCD	2925 SW 6 th Ave, Suite 2 Ontario, OR 97914 Linda.Rowe@or.nacdnet.net	Feb. 22, 2011
24	Tim Newton, Board member	Malheur County SWCD	2925 SW 6 th Ave, Suite 2 Ontario, OR 97914 Linda.Rowe@or.nacdnet.net	Feb. 22, 2011
25	Kathryn VanNatta, Governmental Affairs Manager	Northwest Pulp & Paper	7900 S.E. 28 th Street, Suite 304, Mercer Island, WA 98040 kathrynvannatta@frontier.com	Sept. 30, 2010 & Feb 23, 2011
26	Charles Mickelson, Public Works Director	City of Ontario	444 SW 4 th Street Ontario, OR 97914 Chuck.Mickelson@ontarioregion.org	Feb 23, 2011
27	Rosalind Schoof, PhD., Principal	ENVIRON	605 First Ave., Suite 300 Seattle, WA 98104 rschoof@Environcorp.com	Feb. 23, 2011

28	Clint Shock	Private citizen	1059 SW 2 nd Ave. Ontario, Oregon	Feb 7, 2011 public hearing testimony
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