



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

ATTACHMENT 1

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Dick Kempthorne, Governor
C. Stephen Allred, Director

February 5, 2004

Randall F. Smith
Director, Office of Water
USEPA Region 10
1200 Sixth Avenue
Seattle, WA 98101

RE: Response to your letter of January 23, 2004 requesting clarifications on implementation of the natural background provisions in Idaho's water quality rules.

Dear Mr. Smith:

By this letter the Idaho Department of Environmental Quality (DEQ) would like to clarify implementation of the natural background provisions in Idaho's water quality rules. We want to formally relay our present interpretation of our natural background provisions, particularly with regard to questions of clarification asked for in your letter of January 23, 2004. Please be aware that whatever the particulars we intend to: a) protect designated and existing beneficial uses; b) do the best we can to truthfully represent natural background conditions; and c) make use of sound science in identifying or estimating what that condition is.

With regard to point 1 in your letter, the DEQ "Concepts" document will be transmitted to our regional water quality managers as a guide to staff on applying the natural background provisions. This document will also be made available as a guide to any that seek further information on how DEQ plans to determine natural background conditions.

Responding to your itemized concerns about the provisions specific to allowing *de minimus* temperature increases above natural conditions in 58.01.02.401.03.v, we would like to clarify the following:

- 1) As stated in our rules, the 0.3°C limit on human caused increase in temperature only applies when the estimated natural background temperature is above the applicable numeric criteria.
- 2) It is our intent that the 0.3°C increase limit for temperature be applied cumulatively, i.e., this is the maximum allowable increase from all sources combined when natural background temperatures exceed applicable numeric criteria.

The Idaho mixing zone policy (WQS §060) has a direct bearing on these cumulative concerns. When implementing this mixing zone policy, Idaho DEQ will ensure that a single point source will be limited to no more than a 0.3°C increase above natural condition or numeric criteria for no more than 25% of river flow. We note that the allowable heat load that would result in a 0.3°C increase at the edge of a mixing zone using ¼ of the river volume results in a 0.3°C / 4 increase (0.075°C) for the entire volume. It would take four sources, each at the maximum allowable load, to reach a

0.3°C increase. Because temperature is a non-conservative property of water, the four sources would have to be in relatively close proximity to cause a problem. This is a rare, if not unheard of, situation in Idaho.

- 3) Your concern for potential adverse effects in the immediate vicinity of a discharge plume is a general concern we share, but is not specific to natural background or temperature. Our mixing zone policy, at 58.01.02.060.01.b, speaks to avoiding interference with existing beneficial uses. In addition, our rules include general prohibition on acutely toxic conditions in the zone of initial dilution, preserving the integrity of the water body as a whole, and prohibition of adverse effects. This gives us the flexibility to address "near field" discharge plume effects, including temperature. Our analysis of thermal plumes will include consideration of the limitations expressed in EPA's Regional Temperature Guidance of April 2003.

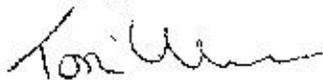
Regarding point 3 in your letter, we agree that proper public involvement is a must. Use of natural background provisions will always occur in the context of some other action such as a TMDL, §401 certification, or listing decision, just like application of any other water quality standard. When we notice those actions for public comment and make supporting documents available for public review, any information relating to natural background condition determinations will be included.

We also agree that a means of centrally tracking and reporting natural background determinations for each water body is important. We will explore options to make this information readily accessible to the public, possibly by incorporation into our assessment database/integrated report, along with tracking of TMDLs.

To the extent we become aware that natural conditions are unsafe to human health, we will work with public health agencies in Idaho with reporting responsibilities to publicize health risks. We will also strive to factor natural conditions in to appropriate use designation for aquatic life.

Finally, we agree to continue working with EPA on the technical tools and the science needed to develop 303(d) lists, NPDES permits and TMDLs based on natural condition determinations.

Sincerely,



Tomi Hardesty
Water Quality Programs Administrator

TH:DE:bjm

c: Christine Psyk, EPA
Paula van Haagen, EPA
Leigh Woodruff, EPA IOO
Doug Conde, Idaho Attorney General, IDEQ
Michael McIntyre, IDEQ
Don Essig, IDEQ



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**TECHNICAL JUSTIFICATION
for the
Environmental Protection Agency's Approval of
Idaho's
Natural Background Conditions**

ATTACHMENT 2

Background

In March 2002 the state of Idaho adopted the revised water quality standards regulations which included revisions to sections 58.01.02.003.65, 58.01.02.200.09, and 58.01.02.401.03 a.v., of Idaho's Water Quality Standards and Wastewater Treatment Requirements. These provisions specifically address the application of natural background condition as a water quality standard. By letter dated August 5, 2002, Idaho submitted these revisions to EPA for review and approval/disapproval as required by the Clean Water Act (CWA) and the federal water quality standards regulations.

In EPA's review of Idaho's submission of the above revisions, questions arose regarding Idaho's implementation of its natural condition provisions. In response to those questions, on September 19, 2002, the Idaho Department of Environmental Quality (IDEQ) sent an analysis to EPA entitled "Concepts and Recommendations for Using Natural Conditions Provisions of the Idaho Water Quality Standards," prepared by Chris Mebane and Don Essig, September 2002 ("Concepts document"). This analysis was the state's effort to provide information identifying methods by which they intend to implement the natural background provisions. The document covers most of the major issues and describes some reasonable practical approaches to determine natural background conditions. On May 8, 2003, IDEQ sent EPA a revised natural conditions implementation guidance document entitled "Concepts and Recommendation for Using the Natural Conditions Provisions of the Idaho Water Quality Standards" prepared by Mebane and Essig, April 2003. By letter dated January 23, 2004, EPA requested additional clarification on three specific issues regarding implementation of the State's natural background provisions and IDEQ provided the requested clarifications to EPA by letter on February 5, 2004. (The letter from Toni Hardesty, IDEQ Water Quality Programs Administrator to Randall Smith, EPA Region 10, Director, Office of Water)

The Clean Water Act, Federal Water Quality Standards Regulations and EPA Policy and Guidance regarding Criteria Based on Natural Background Conditions

The applicable CWA regulatory requirement concerning water quality criteria based on natural condition is that criteria be sufficient to protect the designated uses (40 C.F.R. §§ 131.3(b); 131.5(a)(2); 131.6(c), and 131.11). The federal water quality standards regulation at 40 CFR 131.11 states that when adopting numeric criteria which "must protect the use" the State has some flexibility in establishing these criteria. States can establish numerical criteria that can be based on EPA's 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods. Further, States can establish narrative criteria where numerical criteria cannot be established or to supplement numerical criteria.

EPA maintains that criteria which are based on natural conditions i.e., conditions absent human impacts, inherently protect the uses that have "naturally" existed in the waterbody. Therefore criteria developed to reflect naturally occurring levels of a pollutant, protect the existing beneficial uses. A fundamental basis in support of this assertion is the requirement that State and/or Tribal water quality regulations must define "natural condition" to entirely exclude all past or present anthropogenic activities.

standards requiring remedial action by EPA. EPA retains the full range of options available under section 303(c) for ensuring water quality standards are environmentally protective. EPA can, for example, work with the state of Idaho to ensure that Idaho revises its standards as needed to ensure listed species' protection, initiate rulemaking under section 303(c)(4)(B) of the CWA to promulgate federal standards to supercode the State/Tribal standards or, in appropriate circumstances, changing EPA's approval to a disapproval.

8 EPA has provided guidance regarding how states may establish water quality criteria based on naturally occurring conditions. A 1997 EPA policy memorandum on natural background from Tudor Davies, Director of the Office of Science and Technology, provided some guidance for States and Tribes wishing to establish site specific aquatic life criteria for pollutants at levels equal to natural background concentrations. *See Establishing Site Specific Aquatic Life Criteria Equal to Natural Background*, November 5, 1997, (1997 EPA policy memorandum).¹ In the 1997 EPA policy memorandum the Agency stated in part it recognized there may be naturally occurring concentrations of naturally occurring pollutants in surface water bodies which exceed the specified numeric criteria established to protect the designated and/or existing uses.

Several points discussed in the policy memo are generally applicable to any and all approaches to natural background. These include the following:

- 1) Including a definition of natural background in the water quality standards regulations,
- 2) A provision in the water quality standards regulations providing authority for setting criteria for pollutants equal to natural background levels,
- 3) A scientifically defensible approach to calculating the natural background levels which are protective of the existing beneficial uses.

State and Tribal water quality standards should contain or provide specific authority for establishing criteria equal to natural background. Additionally, States and Tribes should also identify procedures for determining natural background. EPA also recommends that the State or Tribal procedure for determining natural background needs to be specific enough to establish natural background concentration accurately, reproducibly and are scientifically defensible. States and Tribes should also provide for public notice and comment on the provision, the procedure and the application of the procedure.

EPA also addressed water quality criteria based on natural background conditions in EPA's Advance Notice of Proposed Rule Making (ANPRM) for the Water Quality Standards program. *See* 63 FR 36742, 36761 (July 7, 1998), Section III.B.4.d.iii.² The ANPRM discusses considerations regarding site-specific criteria for aquatic life protection that are based on natural conditions, and explains EPA's 1997 memorandum. Although those documents pertained specifically to using a site-specific criteria provision as a means of establishing natural background criteria, they set forth several policy considerations that are relevant to establishing water quality criteria based on natural background.

Additionally, EPA Region 10 developed guidance for developing temperature water quality standards for the Pacific Northwest States and Tribes (*EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards*, April 2003), "EPA Region 10's Temperature Guidance." This document provides recommendations for establishing temperature criteria, including a discussion of the use of natural background conditions as a basis for establishing temperature criteria. Specifically, the guidance provides recommendations on how a narrative natural background approach for temperature could be used for CWA purposes such as impaired waters listings and establishment of TMDLs under section 303(d) of the CWA and issuance of effluent limitations in NPDES permits under section 402 of the CWA. (pp. 36-41). It also provides an overview of methods to use when estimating natural background temperatures. The general approaches and methodology in this guidance are relevant to the development of natural condition provisions for other parameters as well.

¹ Available at <http://www.epa.gov/waterscience/library/wqcriteria/naturalback.pdf>.

² Available at <http://www.epa.gov/fedrgstr/EPA-WATER/1998/July/Day-07/w17513.htm>.

Provisions On Which EPA is Taking No Action

Although an additional provision addressing natural background condition can be found at 58.01.02.053.03, Beneficial Use Support Status - Natural Conditions, EPA does not consider this provision subject to review under 303(c) as it pertains to Idaho's process for determining whether a waterbody fully supports designated and existing beneficial uses i.e., Idaho's 303(d) program for listing water quality impaired waters. Therefore, EPA is not acting on this provision.

Tribal Consultation

On November 20, 2003, EPA sent a letter to the Chairs of the four Tribes in Idaho informing them of EPA's review and pending action on the Idaho Water Quality Standards Revised Natural Background Provisions and offering to formally consult with the Tribes on this action. A copy of Idaho's proposed natural conditions provisions and a copy of IDEQ's April 2003 document "*Concepts and Recommendations for Using the "Natural Conditions" Provisions of the Idaho Water Quality Standards*" were enclosed with each letter. No Tribe responded to this offer, thus concluding Tribal Consultation on this action.

ESA Consultation

EPA initiated consultation with the U.S. Fish and Wildlife Service and NOAA - Fisheries (referred to herein as the Services) on January 21, 2004, under section 7(a)(2) of the Endangered Species Act via conference call. A draft Biological Evaluation (BE) was sent to the Services for their review on January 27, 2004. No comments were received. On February 10, 2004, a final BE, a request for concurrence of EPA's determination that the Natural Conditions Criteria were "not likely to adversely affect" listed species, and formal consultation on EPA's "likely to adversely affect" determination for the Point Source Temperature Requirements was sent to the Services. A comment letter regarding this was received from US Fish and Wildlife Service on March 18, 2004. A reply was sent from John Palmer on March 30, 2004. No response was received following this letter; however, several verbal communications occurred between John Palmer and the Services staff.

As of July 15, 2004, EPA had not received any commitment from either of the Services as to a date which EPA could expect them to complete their review and act on our request. Section 7(a)(2) requires that federal agencies, in consultation with the Services, insure that their actions are not likely to jeopardize the existence of federally listed species or result in the adverse modification of designated critical habitat of such species. Upon initiation of consultation, section 7(d) of the ESA prohibits irreversible or irretrievable commitments of resources that have the effect of foreclosing the formulation or implementation of reasonable and prudent alternatives which would not violate section 7(a)(2) of the ESA. Based on our evaluation of this action, EPA has determined to proceed with this action without concluding ESA consultation as provided by Section 7(d) of the ESA. More details are contained in an accompanying memorandum from Michael F. Gearheard.

EPA's approval decision does not foreclose either the formulation by the Services, or the implementation by EPA, of any alternatives that might be determined in the consultation to be needed to comply with section 7(a)(2). By approving the standards "subject to the results of consultation under section 7(a)(2) of the Endangered Species Act," EPA has explicitly stated that it retains its discretion to take appropriate action if the consultation identifies deficiencies in the

As discussed in EPA Region 10's Temperature Guidance EPA recommends that when estimating natural conditions for temperature on a case-by-case basis in the context of a TMDL, 303(d) listing, NPDES permit, or a 401 certification, the best available scientific information and techniques should be utilized. EPA Region 10's Temperature Guidance states, in part, the following which is relevant to Idaho's approach to natural background for temperature as well as other parameters and pollutants:

When estimating natural background conditions, States and Tribes should use the best available scientific information and techniques. . . . For TMDLs, this usually includes temperature models.

There are a number of different ways of estimating natural background temperature conditions for the purposes of. . . . Interpreting a narrative natural background provision. These include (1) demonstrating that current temperatures reflect natural background conditions, (2) using a non-degraded reference stream for comparison, (3) using historical temperature data, (4) using statistical or computer simulation models. . . . Each approach has its strengths and weaknesses and therefore may or may not be most appropriate for a given situation. Moreover, all of these approaches have uncertainty, which should be quantitatively described where possible.

In some circumstances, naturally occurring concentrations of pollutants (natural conditions) in a surface water body may differ from water quality criteria adopted in a State or Tribe's water quality standards. To address these circumstances where the natural levels of a pollutant in a water body exceed the criterion, EPA Region 10 States and Tribes have adopted natural condition provisions in their WQS which allow the water quality criteria to reflect the natural condition of a waterbody as an alternative to the generally applicable numeric criteria.

EPA believes that both a site-specific criteria approach or the use of a narrative criteria approach to express natural background are acceptable means of incorporating provisions to address natural background conditions into State or Tribal water quality standards. Both approaches are consistent with the federal water quality standards regulations. Further, the use of a narrative criteria to express natural background conditions is a reasonable approach which provides flexibility when addressing case specific situations. Narrative criteria are appropriate in situations where criteria must be interpreted on a case by case basis because no single value could be determined to be applied on a statewide basis. Narrative criteria are interpreted and implemented most commonly on a waterbody specific basis. This typically occurs at the time of the application in a regulatory context (e.g., development of TMDL allocations or NPDES permit).

Further, Idaho has stated in the February 5, 2004, letter, that when the natural condition criteria (200.09 and 003.65) and the point source temperature requirement (401.03.a.v) are viewed together, the 0.3°C allowance is intended to apply cumulatively for all sources. Thus, in a TMDL, which is the forum for evaluation of point and non-point sources combined, TMDL allocations will be set to ensure the allowable temperature increase above the natural conditions for all sources cumulatively at the point of maximum impact is no more than 0.3°C (0.5°F). Implementing this provision in this manner ensures that when point and non-point sources are considered together, the allowable increase above the natural conditions is “not measurable” and insignificant.

Idaho has also clarified in its February 5, 2004, letter, that point source limits established in accordance with 401.03.a.v. must also meet the state mixing zone requirement that the mixing zone be “located so it does not cause unreasonable interference with or danger to existing beneficial uses” (IDAPA 58.01.02.060.01.b.). With respect to thermal plumes, EPA and Idaho, in the issuance of NPDES permits, will follow the thermal plume protection recommendations in EPA Region 10's Temperature Guidance to ensure thermal plumes or temperature mixing zones do not “danger” aquatic life and salmonid uses.

EPA has determined that this provision is consistent with 40 C.F.R. §§131.5 (a)(2), 131.6 (e), 131.11 and 131.13. Therefore, based on the above, EPA approves 58.01.02.401.03.a.v. as protective of the designated uses because it would result in insignificant temperature increases in the waterbody above the natural condition temperature criteria.

Public Participation and EPA Oversight

Both the ANPRM, and the 1997 EPA policy memorandum suggest that States or Tribes provide an opportunity for public notice and comment on natural background determinations. Those documents contemplated the use of natural background determinations in site-specific criteria, which would involve a state revision of its applicable standards and be subject to EPA review and approval. Although implementation may occur in contexts that would not involve adoption of revised criteria, such as identification of natural condition through a listing of impaired water bodies or development of TMDLs under CWA § 303(d), or in issuance of NPDES permits under CWA § 402. Through these regulatory programs, the state of Idaho and EPA provide the public with the opportunity to review the State's natural condition determination and provide comment.

EPA oversight under the CWA is required via the Agency's authority to approve or disapprove each of Idaho's TMDLs and 303(d) listings of impaired waters. If a natural condition determination is inconsistent with Idaho's narrative natural condition criterion, EPA would have the authority to disapprove the TMDL or 303(d) listing decision based on its inconsistency with Idaho's water quality standards. In addition, natural background determinations in TMDLs and 303(d) lists would be subject to public notice and comment through the requirements that apply generally to those two types of actions (40 C.F.R. §§ 130.7(c)(1)(ii) and 130.7(d)(2)).

Under the CWA, EPA issues the NPDES permits for the state of Idaho, and EPA must assure that the NPDES permits meet all applicable water quality standards, including appropriate application of the natural conditions criterion. The public is provided an opportunity to comment on all NPDES permits issued by EPA in the state of Idaho. This ensures that public review will be a part of any natural background determination incorporated in an NPDES permit issued in Idaho.

EPA Review

EPA has reviewed Idaho's water quality standards revisions which address natural background condition as a water quality standard and all related documents which Idaho has provided to EPA, which include the following:

- "Concepts and Recommendation for Using the "Natural Conditions" Provisions of the Idaho Water Quality Standards" prepared by Mebane and Essig, April 2003.
- February 5, 2004, letter from Toni Hardesty, IDEQ to Randall Smith, EPA, Re: Response to your letter of January 23, 2004, requesting clarifications on implementation of the natural background provisions in Idaho's water quality rules.

The following new or revised provisions in the Idaho Water Quality Standards and Wastewater Treatment Requirements are those which relate to natural background conditions and are water quality standards under Section 303(c) of the CWA. The new or revised language on which EPA is taking action is underlined. (Certain additional language is provided for the purposes of context).

003. DEFINITIONS

003.65. Natural Background Conditions. No measurable change in the physical, chemical, biological, or radiological conditions existing in a water body without human sources of pollution within the watershed.

200. GENERAL SURFACE WATER QUALITY CRITERIA.

The following general water quality criteria apply to all surface waters of the State, in addition to the water quality criteria set forth for specifically designated waters.

200.09. Natural Background Conditions. When natural background conditions exceed any applicable water quality criteria set forth in Sections 210, 250, 251, 252, or 253, the applicable water quality criteria shall not apply; instead, pollutant levels shall not exceed the natural background conditions, except that temperature levels may be increased above natural background conditions when allowed under Section 401.

401. POINT SOURCE WASTEWATER TREATMENT REQUIREMENTS.

03. Treatment Requirements. Unless more stringent limitations are necessary to meet the applicable requirements of Sections 200 through 300 or unless specific exemptions are made pursuant to Subsection 080.02 or 401.05, wastewaters discharged into surface waters of the state must have the following characteristics:

- a. Temperature - the wastewater must not affect the receiving water outside the mixing zone so that:
 - v. If temperature criteria for the designated aquatic life use are

natural conditions, a point source must not raise the river temperature by more than 0.3°C. EPA believes that an 0.3°C (0.5°F) or less temperature increase is insignificant for several of the following reasons. First, the scientific studies on thermal effects and requirements of aquatic species are more typically measured in increments greater than 0.3°C. Second, the uncertainty around the science is such that one cannot say with any certainty that a temperature difference of 0.3°C (0.5 °F) would result in a different level of protection to aquatic species. Third, a 0.3°C allowance is insignificant relative to the science of estimating natural conditions because the error associated with the natural conditions estimate is likely to be $\pm 1.0^{\circ}\text{C}$ or more. Thus, a 0.3°C allowance is insignificant relative to both the science of estimating natural conditions and our precision in assessing temperature effects on aquatic species. Lastly, monitoring measurement error for recording instruments typically used in field studies is about 0.2°C (0.4°F) to 0.3°C (0.5°F). In other words, this level of a temperature increase is considered within the error band associated with typical temperature monitors and can be considered insignificant.

In Idaho's February 5, 2004, clarification letter, the State indicated that an individual point source, in a waterbody that exceeds the numeric criteria due in part to natural conditions, may only increase the temperature of 25 percent of the river by 0.3°C (0.5°F) above the estimated natural condition (or applicable numeric criteria if the natural condition has not been determined). This conservative approach will assure that any rise in temperature above the natural condition is insignificant resulting in actual temperature increases less than 0.075°C above the applicable criterion. Because this approach does not consider the loss of heat from that will occur downstream of the discharge point due to natural energy equilibrium processes and depends on the ratio of effluent flow to instream flow (with the 0.075°C increase only occurring when this ratio approaches infinity) the actual increase in temperature will be much less than 0.075°C (0.135°F). Consequently, any increase from a single source would be well below the 0.3°C (0.5°F), which EPA has concluded is insignificant. It is important to note that although EPA considers a 0.3°C temperature increase to be unmeasurable and insignificant in the waterbody, much smaller temperature increases (e.g., values less than 0.075°C) can be modeled and used for calculating NPDES effluent limits.

Additionally, Idaho clarified in its February 5, 2004, letter how this provision would be applied to a single point source to ensure this provision does not result in cumulative increases above 0.3°C. For purposes of calculating an NPDES effluent limit in accordance with this provision, it is assumed that the upstream temperature is exactly at the estimated natural condition (or numeric criterion) even if the current river temperature is higher. Assuming this, it is then possible to calculate, using a mass-balance equation and the river and point source discharge flow rates, the allowable effluent discharge temperature. As described above, this approach assures that the river temperature is increased by no more than 0.075°C (0.135°F). The result of this approach is that the NPDES limit is established in such a way that the point source meets the water quality standard even if the river itself exceeds the water quality standard due to other sources. Eventually, as non-point sources are reduced and other NPDES sources are limited in a similar way, the river itself will attain the water quality standard (i.e., no measurable change from natural conditions).

Theoretically, under provision 401.03.a.v, if five or more point sources were all discharging into a river at the same location it is possible for the cumulative temperature increase to be more than 0.3°C (0.5°F). Although theoretically possible, EPA is not aware of such a situation and believes that NPDES discharges are spaced far enough apart in Idaho that this cumulative impact scenario is not of concern and is discountable.

exceeded in the receiving waters upstream of the discharge due to natural background conditions, then Subsections 401.03.a.iii. and 401.03.a.iv. do not apply and instead wastewater must not raise the receiving water temperatures by more than three tenths (0.3) degrees C.

EPA Determination

Idaho's regulations at IDAPA 58.01.02.003.65 and 200.09 define natural conditions as conditions which exclude human sources of pollution and provide a narrative criteria to determine the natural condition which is derived in a scientifically defensible manner. Additionally, Idaho's regulation at IDAPA 58.01.02.401.a.v. allows a modification to the natural background condition narrative provision applicable specifically to temperature treatment requirements for point source discharges. EPA is conditionally approving all three provisions related to natural background conditions based on our determination that these provisions are consistent with the federal water quality standards regulations, are protective of the beneficial uses in Idaho and as a basis for deriving criteria are based on sound science. The approval is being made subject to the results of consultation under Section 7(a)(2) of the Endangered Species Act (ESA). The basis for this approval is discussed in detail below.

Natural Background Definition - IDAPA 58.01.02.003.65

Idaho regulation at IDAPA 58.01.02.003.65 defines natural conditions as conditions which exclude human sources of pollution. The definition is clear that natural background is a condition absent of human impacts. Further the inclusion of the phrase "no measurable change . . ." does not affect the stringency of the definition in assuring that human impacts will not be included in a determination of natural conditions. This phrase is meant to assure that a change can be reliably and physically measured. EPA notes that the term "measurable change" is discussed in Idaho's implementation document, "Concepts and Recommendation for Using the "Natural Conditions" Provisions of the Idaho Water Quality Standards" (April 2003). IDEQ states in their implementation guidance that "*as a working definition, measurable changes are considered to be changes that are significantly large to be capable of being measured using routinely available technology and a reasonable number of samples.*" Given this discussion EPA has concluded that the inclusion of the term "no measurable change" in the definition of natural background condition does not include human impacts or disturbances.

Idaho's definition in their water quality standards regulation defines "natural background condition" to exclude "human sources of pollution" and this definition sufficiently excludes human effects from the "natural condition" determination that supersedes the numeric criterion. Therefore, EPA has determined that Idaho's definition at IDAPA 58.01.02.003.65, is consistent with the applicable federal water quality standards regulation and EPA policy and guidance, which in part recommend that such a definition should be included in the regulations and the definition should include language sufficient to ensure that natural conditions are conditions that exist in a water body absent anthropogenic impacts and disturbance.

Natural Background Narrative Criteria - IDAPA 58.01.02.200.09

The provision at IDAPA 58.01.02.200.09 is a narrative criteria provision. This provision provides for alternative criteria to apply based on the natural conditions, not through site-specific criteria, but rather through a narrative criterion that allows criteria based on the natural condition,

EPA requested Idaho identify its implementation procedures for supporting its natural background provision pursuant to 40 C.F.R. § 131.13 in order to facilitate EPA's review of the natural conditions provision. Idaho provided this to EPA in a document entitled "Concepts and Recommendation for Using the Natural Conditions Provisions of the Idaho Water Quality Standards" (April 2003). This implementation document describes the general approaches to be used to determine natural background conditions levels for temperature and other naturally occurring pollutants/parameters.

IDEQ's implementation document (April 2003) along with IDEQ's February 5, 2004, letter provides a good discussion of the rationale for natural background, natural variability, measurable change, statistical considerations, and practical approaches for how to determine the natural condition in a water body and clarifications on implementation. Furthermore, Idaho's implementation guidance sets forth the types of approaches and general methodologies that the State will apply in determining natural conditions (See pp. 19-31. See also Idaho DEQ letter of February 5, 2004). Additionally, Idaho's described methodologies for temperatures are consistent with those discussed in EPA Region 10's Temperature Guidance; including comparison to reference streams, use of mathematical models, and historical data.

EPA believes that the concepts and general approaches put forth by Idaho in the State's implementation guidance for natural background conditions are based on sound scientific methods and supports the basis for EPA approving this provision. EPA views the approaches identified by Idaho as the best available scientific methods and thus finds the regulatory provision consistent with the CWA. Therefore, EPA has determined that Idaho's narrative provision for establishing natural background conditions are consistent with 40 CFR 131.11(b)(iii).

Point Source Temperature Requirements - IDAPA 58.01.02.401.03.a.v.

Idaho's provision at IDAPA 58.01.02.401.03.a.v. allows a modification to the natural background condition narrative provision applicable specifically to temperature treatment requirements for point source discharges. This provision allows point sources to cumulatively raise the receiving water temperature by 0.3°C when the upstream temperature criteria are exceeded due to natural background conditions.

This provision is consistent with the recommendations in EPA Region 10's Temperature Guidance to include a provision in water quality standards that allows the water temperatures in a waterbody to be insignificantly higher than the otherwise applicable criteria. The purpose of such a provision is to allow an insignificant level of heat into the river from human activities when the natural conditions criteria is the applicable criteria or where waters are currently exceeding the biologically-based numeric criteria. Absent such a provision, no heat would be allowed from human activities when the natural condition criteria is the applicable criteria, and for NPDES permits in temperature impaired waters, it could be interpreted that effluent limits would have to be natural condition or numeric criteria end-of-pipe. EPA has concluded that both of these results are unnecessarily restrictive to protect aquatic life, which is why EPA recommended such a provision in its Temperature Guidance. Furthermore, EPA believes for reasons described below that this provision does not undermine the protection of uses provided by Idaho's natural conditions criteria or other numeric criteria.

As described in 401.03.a.v., if the numeric criteria for temperature are exceeded due to

derived in a scientifically defensible manner, which protect the use, to supersede the otherwise applicable numeric criterion.

Narrative criteria are permitted by the federal water quality standards regulations at 40 C.F.R. §§ 131.3(b) and 131.11(b)(2). These regulations in part state that criteria are expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use, 40 C.F.R. § 131.3(b). Further, States may establish, under 40 C.F.R. § 131.11(b)(2), narrative criteria "to supplement numerical criteria." EPA believes it is appropriate to use narrative criteria in this manner in order to provide flexibility where naturally occurring water quality is protective of the designated use.

Idaho's aquatic life beneficial uses were supported by the water in its natural condition, prior to any human effects on water quality.³ Where a numeric criterion is more stringent than the natural condition (and thus is more stringent than necessary to protect the use) applying a narrative criteria based on natural condition is an appropriate level of protection for the use. In all Idaho surface waters where there is an absence of human impacts, naturally occurring pollutants occur at levels that are protective of the existing beneficial uses in that water body. Therefore, application of a narrative criteria based on the naturally occurring levels of a particular pollutant would provide an appropriate level of protection for the beneficial use.

In order to assert that a State's natural condition criteria fully supports the uses, EPA evaluates whether the criteria truly reflect conditions absent human impacts, and whether the criteria do not allow concentrations of naturally occurring parameters that are also present from past human activities to be considered as part of the natural condition and whether the derivation of the criteria is based on sound scientific rationale/scientifically defensible methods.

Finally, in determining the naturally occurring levels, the numeric interpretation of the narrative criterion which reflects a natural condition, must be based on scientifically defensible methods. The federal water quality standards regulation at 40 CFR 131.11 (b)(iii) states that *in establishing criteria States should establish numerical values based on 304(a) Guidance or 304(a) Guidance modified to reflect site specific conditions or other scientifically defensible methods*. This is supported by the State's implementation guidance. EPA is assured that the narrative provision represents a scientifically defensible approach to identifying criteria that represent the natural condition.

EPA has determined that Idaho's narrative criterion provides for the "natural condition" to supersede a numeric criterion that would otherwise apply and this criterion will be derived based on a scientifically defensible approach. Therefore, EPA has determined that Idaho's narrative criterion for natural conditions at IDAPA 58.01.02.200.09, are protective of the beneficial uses of the State of Idaho and are consistent with the federal water quality standards regulations at 40 CFR 131.3(b) and 131.11(b)(2).

Implementation Procedures

As discussed in the ANPRM and, in the 1997 EPA policy memorandum, as well as EPA Region 10's Temperature Guidance for temperature, EPA recommends that when estimating natural conditions under state water quality standards, the best available scientific information and techniques should be utilized.

³ If for some reason a use is designated that did not exist naturally and that is not supported by the natural condition, then the use could be removed if the requirements of 40 C.F.R. § 131.10(g) are satisfied.