STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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Governor Brad Little
Director John H. Tippets

May 24, 2019

Mr. Brett Dumas, Director, Environmental Affairs
Idaho Power Company
P.O. Box 70
Boise, ID 83702

Subject: Temperature waiver for the Snake River below Hells Canyon Dam

Dear Mr. Dumas:

In accordance with Idaho Water Quality Standards (IDAPA 58.01.02.070.07), the Idaho Department Of Environmental Quality is issuing the Idaho Power Company a waiver that allows an increase of 0.3°C above the applicable 13°C salmonid spawning temperature criterion for the Snake River below Hells Canyon Dam from October 23 through November 26.

DEQ has determined that raising the temperature by 0.3°C above the 13°C salmonid spawning criterion during this time period is insignificant, will fully protect the salmonid spawning use in this reach, is based on sound scientific rationale, is consistent with federal regulations (40 CFR 131.11), and is consistent with the Snake River-Hells Canyon Total Maximum Daily Load. This temperature waiver is limited to the Idaho Power Company's Hells Canyon Complex hydroelectric project and the associated 401 certification, which is being issued concurrently with this waiver. The waiver has no application to any other source, and is not a change to the salmonid spawning temperature criteria that would otherwise apply in the Snake River.

The attached response to the Idaho Power Company's request for a temperature waiver, response letter to EPA on implementation of Idaho's natural background provisions, and EPA's Technical Justification for approval of Idaho's Natural Background Provisions provide additional technical support for granting this waiver.

Sincerely,

John H. Tippets
Director

c: Mary Anne Nelson, IDEQ
Mark Cecchini-Beaver, Idaho Attorney General's Office, IDEQ
Marilyn Fonseca, ODEQ
Eric Nigg, ODEQ

Response to IPC Request Pursuant to IDAPA 58.01.02.070.07.

This document sets out the Department of Environmental Quality's (DEQ) proposed decision in response to Idaho Power Company's (IPC) request dated November 18, 2015 for DEQ to take action pursuant to IDAPA 58.01.02.070.07 for purposes of IPC's application for certification of the relicensing of IPC's Hells Canyon Complex hydroelectric project under Section 401 of the Clean Water Act (CWA). Specifically, IPC has requested DEQ to "waive or raise the salmonid spawning temperature standard by 0.3°C above the 13°C temperature standard for that portion of the Snake River below Hells Canyon Dam." IPC also requested DEQ determine that the 0.3°C increase is consistent with the State of Oregon's 0.3°C Human Use Allowance, thereby setting a common standard for purposes of the 401 certification decisions that must be made by DEQ and Oregon DEQ.

Background

1. Applicable Temperature Criteria

Since 2003, the Idaho Water Quality Standards (WQS) have included site specific water temperature criteria for the Snake River from Hells Canyon Dam to the confluence with the Salmon River. The criteria adopted in 2003 require a maximum weekly maximum temperature of 13°C to protect fall chinook spawning and incubation from October 23 through April 15.

In 2012, DEQ submitted to the Environmental Protection Agency (EPA) new site specific criteria for temperature for this stretch of the Snake River intended to replace the criteria adopted in 2003. In order to be effective for Clean Water Act (CWA) purposes, however, WQS must be approved by EPA. CWA Section 303(c)(3); 40 CFR 131.21. EPA has yet to make a decision with respect to the criteria submitted in 2012. Therefore, the previous criteria—maximum weekly maximum temperature of 13°C from October 23 through April 15-- continues to be the applicable criteria and the standard effective for CWA purposes. (IDAPA 58.01.02.286 explains that until EPA approves of the criteria submitted to EPA in 2012, the previous criterion is effective for CWA purposes and continue to apply.)

2. IPC's Application for a 401 Certification

Under section 401 of the CWA, a federal license or permit to conduct an activity that may result in a discharge into navigable waters can not be issued unless the state in which the discharge occurs certifies that the discharge will comply with certain sections of the CWA and state water quality standards, or unless the state waives its right to so certify. IPC has applied for a new federal license from the Federal Energy Regulatory Commission for the continued operation of

the Hells Canyon Complex (HCC) hydroelectric project. On June 14, 2018, IPC submitted an application to DEQ for certification of the new license pursuant to section 401 of the CWA. Because Idaho shares the Snake River in the Hells Canyon reach with Oregon, IPC has also submitted an identical application to Oregon DEQ.

In order to provide certification, the Idaho and Oregon DEQs must determine that there is reasonable assurance that the operation of the HCC project will comply with applicable WQS, including the salmonid spawning temperature criteria that apply below the Hells Canyon Dam to protect fall chinook. IPC has included in its application for certification measures to reduce temperatures in the Snake River in order to achieve compliance with the applicable temperature WQS.

3. Snake River-Hells Canyon TMDL

Idaho shares the Snake River in the Hell's Canyon reach with Oregon. Thus, both Idaho and Oregon WQS apply. In 2004, the Idaho and Oregon DEQs developed the Snake River-Hells Canyon Total Maximum Daily Load (SR-HC TMDL). Based on Idaho and Oregon WQS, the SR-HC TMDL sets the salmonid spawning temperature target for below Hell's Canyon dam as a maximum weekly maximum temperature of 13°C if and when the site potential (temperature at river mile 345 upstream of the HCC project) is less than a maximum weekly maximum temperature of 13°C. If and when the site potential is greater than a maximum weekly maximum of 13°C, the target is no more than a 0.14°C increase from anthropogenic sources. SR-HC TMDL at page 89. In the TMDL, the DEQs determined that IPC's Hells Canyon Complex was solely responsible for the Snake River exceeding the salmonid spawning criteria, and thus provided an allocation to IPC described as a change in water temperature such that the temperature of water released from Hells Canyon Dam is less than or equal to the water temperature at RM 345 or the maximum weekly maximum temperature of 13°C. SR-HC TMDL at page 469.

The allocation provided IPC in the SR-HC TMDL is critical to determining IPC's compliance with temperature WQS, and therefore, critical to the 401 certification for the relicensing of the HCC project. IPC's application provides measures to meet the allocation set forth in the SR-HC TMDL.

4. IDAPA 58.01.02.070.07.

IPC's request is based on IDAPA 58.01.02.070.07. This provision reads as follows:

> In the application of temperature criteria, the Director may, at his discretion, waive or raise the temperature criteria as they pertain to a specific water body. Any such determination shall be made consistent with 40 CFR 131.11 and shall be based on a finding that the designated

aquatic life use is not an existing use in such water body or would be fully supported at a higher temperature criteria. For any determination, the Director shall, prior to making a determination, provide for public notice and comment on the proposed determination. For any such proposed determination, the Director shall prepare and make available to the public a technical support document addressing the proposed modification.

Proposed Decision

Based upon the material submitted by IPC with its request, and other relevant information detailed herein, DEQ has tentatively determined to grant IPC's request. This means that, for purposes of applying the salmonid spawning temperature criteria set forth in IDAPA 58.01.02.286 to IPC's HCC project and determining IPC's responsibility for reducing temperatures as proposed in IPC's application for a 401 certification, DEQ will allow a 0.3°C increase over the maximum weekly maximum temperature of 13°C for the initial portion of the fall spawning period from October 23 through November 26.

Technical Support for the Decision

1. Standard under IDAPA 58.01.02.070.07

In order to raise the applicable temperature criteria under section 070.07 of the WQS, DEQ must find (1) that the decision is consistent with 40 CFR 131.11, which means raising the criteria will protect the designated use and is based on sound scientific rationale, and (2) that the designated aquatic life use is not an existing use or that the aquatic life use would be fully supported at a higher temperature criteria. IPC is not claiming aquatic life is not an existing use, but rather that salmonid spawning would be fully supported at the requested higher temperature—0.3° over 13°C.

DEQ believes that raising the temperature standard by 0.3°C for purposes of applying the salmonid spawning temperature criteria to IPC's HCC project and determining IPC's responsibility for reducing temperatures as proposed in IPC's application for a 401 certification, will fully protect salmonid spawning and is based on sound scientific rationale. The basis for this decision is set out below.

2. DEQ's Criteria for Below the Hells Canyon Dam Adopted in 2012 Demonstrates That Salmonid Spawning is Fully Protected at Temperatures Higher Than 13°C

In 2012, DEQ adopted and submitted to EPA for approval new site specific temperature criteria for fall chinook spawning and incubation in the Snake River from the Hells Canyon Dam to the

confluence with the Salmon River that is a weekly maximum temperature of 14.5°C from October 29 to November 6, and 13°C from November 7 through April 15. Laboratory and field studies support the rule and establish that water temperatures higher than 13°C, up to 14.5°C, are fully protective of fall Chinook spawning below Hells Canyon Dam. NOAA Fisheries also commented during the rulemaking that the 14.5°C was an appropriate spawning criteria. (August 25, 2011 Comments of the National Marine Fisheries Service in Support of Site Specific Water Temperature Criteria For the Snake River Downstream from hells Canyon Dam, at page 7. This document can be found at DEQ's rulemaking website cited below).

The information that supports the 14.5°C spawning criteria—and which shows that 14.5°C fully supports Chinook spawning—also supports a much lower temperature of 13.3°C and shows temperatures of 13.3°C will fully support spawning below Hells Canyon Dam. The 14.5°C criteria is supported by a sound scientific rationale—laboratory, field tests and other scientific studies and analysis. (See DEQ rulemaking record at http://www.deq.idaho.gov/laws-rules-etc/deq-rulemakings/docket-no-58-0102-1102-final-rule/). The same information provides the scientific basis for allowing a 13.3°C temperature in connection with IPC's 401 certification.

3. An Increase of 0.3°C is Insignificant and Will Fully Support Salmonid Spawning

As noted above, the SR-HC TMDL allows for a 0.14°C increase from anthropogenic sources. This was based upon the Oregon WQS that, at the time, defined "no measurable increase in temperature" as 0.14°C. Oregon has since modified its WQS to include a "Human Use Allowance" that allows a cumulative increase from anthropogenic sources of 0.3°C above the applicable temperature criteria. OAR 340-041-0028(12)(b). The Oregon Human Use Allowance is based upon the determination that a cumulative increase of 0.3°C in temperature is insignificant and is still protective of designated uses.

The Oregon provision allows, after a TMDL or other cumulative effects analysis, a cumulative increase from point and nonpoint sources of 0.3°C above the applicable criteria. OAR 340-41-0028(12)(b)(B). When EPA approved this criteria, EPA explained that the increase is insignificant in the context of the scientific understanding of the data concerning water temperature and salmonids, and that the addition of 0.3°C will still protect designated uses, including salmon and steelhead spawning use. (March 2, 2004 Support Document for EPA's Action Reviewing New or Revised Water Quality Standards for the State of Oregon at pages 63-64). EPA's approval of these criteria was challenged and upheld by the US District Court in Northwest Envtl. Advocates v. US EPA, 855 F. Supp.2d 1199, 1218 n.8 (D.OR 2012).

The Idaho WQS also include a provision that allows an increase in temperature from anthropogenic sources of 0.3°C. Like Oregon's Human Use Allowance, the allowed increase is based upon the belief that a 0.3°C increase in temperature is insignificant and roughly reflects

the accuracy of field temperature measurement and thus the ability to reliably detect change. IDAPA 58.01.02.401.01.c allows a 0.3°C increase from point sources when the natural background conditions in the receiving water exceed the applicable aquatic life criteria. DEQ has interpreted this provision to be restricted to a cumulative increase from all point sources. (February 5, 2004 letter from DEQ to EPA attached as Attachment 1). EPA approved this standard for the same reasons it approved Oregon's human use allowance, i.e., the increase is insignificant given the scientific studies on thermal effects on aquatic species and the error bands associated with typical temperature monitors and the increase will support aquatic life uses. (Technical Justification for EPA's Approval of Idaho's Natural Background conditions, dated July 15, 2004 attached as Attachment 2).

The justification for the Idaho and Oregon standards that allow a 0.3°C increase over applicable temperature criteria applies with respect to the IPC HCC project and shows that allowing the increase will still fully support fall chinook spawning. Moreover, as demonstrated by the EPA support documents discussed above, allowing such an increase is supported by sound science.

4. Granting IPC's Request is Consistent With the SR-HC TMDL

The SR-HC TMDL sets out the determination of Oregon and Idaho on the temperatures needed to support fall chinook spawning below the Hells Canyon Dam. The TMDL includes an allowance for a small anthropogenic increase over the applicable temperature criteria. Allowing the 0.3°C increase as requested by IPC is consistent with the SR-HC TMDL.

5. Granting IPC's Request Will Ensure a Consistent Temperature Target for the 401 Certifications.

IPC has proposed in its application for certification the use of 13.3°C and Oregon DEQ has determined that this complies with its WQS. IPC's request for DEQ to allow a 0.3°C increase would set a consistent temperature target for IPC and the two State certifications. The application of this 0.3°C increase is appropriate for purposes of IPC's 401 certification and determining the reductions necessary as outlined in the 401 certification, because IPC has been assigned the entire responsibility for the Snake River downstream of the dam failing to meet spawning criteria. Therefore, it is appropriate to allow the entire cumulative increase of 0.3°C to IPC.

Conclusion

DEQ proposes to grant IPC's request and, for purposes of applying the salmonid spawning temperature criteria to IPC's HCC project and determining IPC's responsibility for reducing

temperatures as proposed in IPC's application for a 401 certification, allow a 0.3°C increase over 13°C for the a portion of the fall spawning period, from October 23 through November 26. It should be noted that this increase is specific to the HCC project and IPC's 401 certification, and has no application to any other source and is not a change in the criteria that otherwise applies to this stretch of the Snake River.

ATTACHMENT 1

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706-1255 • (208) 373-0502

Dirk 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,

Toni Hardesty
Water Quality Programs Admistrator

TH:DE:bmm

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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SOWQP
Response to EPA's letter of January 23, 200

July 15, 2004

ATTACHMENT 2

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

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.

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.

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).

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

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,

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.

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

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 ±1.0°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 provisions 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.

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 (c), 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.

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

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 supercede the State/Tribal standards or, in appropriate circumstances, changing EPA's approval to a disapproval.