Response to Comments on the Draft NPDES Permit for the US Army Corps of Engineers Dworshak Reservoir Nutrient Supplementation Pilot Project – Permit Number ID0028444

US EPA Region 10
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Background

EPA issued a draft NPDES permit for the US Army Corps of Engineers (Corps) Dworshak Reservoir Nutrient Supplementation Pilot Project for public review and comment on March 23, 2011. The public comment period was originally scheduled to close on April 22, 2011, but it was extended until May 6, 2011. The public comment period was reopened on May 20, 2011, and closed on May 24, 2011. EPA staff attended a public meeting on the project held jointly by the Corps and the Idaho Department of Fish and Game (IDFG) in Orofino, Idaho on May 23, 2011. The public comment period was reopened so that EPA could accept additional written comments at and after the public meeting on May 23, 2011.

EPA received comments from several parties on the draft permit. A list of the parties that submitted comments on the draft permit is provided in Appendix A. This document provides EPA's response to those comments.

Response to Comments Received During the Public Comment Period

Comment #1

Several commenters stated that Dworshak Reservoir (Reservoir) has experienced blooms of blue-green algae, specifically microcystis sp., during the period of time when nutrients were added to the reservoir, in 2008 and 2009. Commenters stated that microcystis blooms are usually related to excessive nutrients from agricultural runoff, and that, in this instance, fertilizer which would normally be used for agriculture is being added directly to the reservoir. Commenters stated that blue-green algae blooms were very minor or nonexistent prior to the start of the nutrient supplementation project. Commenters stated that people who have swum in the reservoir during the occurrence of the microcystis blooms have complained of skin rashes and burning eyes. Commenters have pointed out that the toxins produced by microcystis and other blue-green algae (cyanobacteria) can cause gastroenteritis, liver and/or kidney toxicity, and neurotoxicity. Commenters provided photographs of the algae blooms in the reservoir.

Response #1

The relatively high density of microcystis sp. in Dworshak Reservoir is acknowledged in the Fact Sheet (Pages 10-11). As stated in the fact sheet (Page 11), EPA has no evidence to show that the project is the principle cause of the growth of microcystis sp.

After 2007, the Corps has added exclusively nitrogen fertilizer to Dworshak Reservoir, and the permit only allows the discharge of nitrogen fertilizer (see the permit at Page 5). The addition of nitrogen fertilizer to the reservoir, without addition of phosphorus, would tend to increase the mass ratio of total nitrogen to total phosphorus in the reservoir. As stated in the fact sheet (Page 11), increased nitrogen-to-phosphorus ratios should discourage the growth of blue-green algae (See also Schindler 1977, Stockner and Shortreed 1988, Smith 1983, and Graham et al. 2004).

Futhermore, blooms of blue-green algae, with densities of Anabaena sp. as high as 56,964,672 NCU/ml, far exceeding World Health Organization thresholds, were observed in Dworshak Reservoir near the Visitor Center and near Bruce's Eddy in August 2011, more than one year after nutrient supplementation ceased (IDEQ 2011, personal communication with Andy Dux, Idaho Department of Fish and Game, August 22, 2011, personal communication with Paul Pence, USACOE, August 24, 2011). This demonstrates that blue-green algae blooms can and do occur in Dworshak Reservoir even when nutrient supplementation is not occurring, and suggests that the nutrient supplementation is not the cause of such blooms.

EPA acknowledges the health risks associated with blue-green algae, including microcystis sp. To address these risks, the permit includes routine ambient monitoring requirements for blue-green algae, as well as additional monitoring and notification requirements that are triggered in the event that blue-green algae blooms are observed, or if toxigenic cyanobacteria or the toxins they produce are measured above certain thresholds in the receiving water (see the permit at Pages 8-9). The notification thresholds are based on World Health Organization guidelines as well as the draft *Blue-Green Algae Bloom Response Plan* prepared by the Coeur d'Alene Regional Office of the Idaho Department of Environmental Quality (IDEQ 2008).

Comment #2

Commenters state that the project should have been reviewed under the National Environmental Policy Act (NEPA). Specifically, commenters state that an environmental impact statement (EIS) should have been prepared, and that such a document would have explored and analyzed a series of alternatives to accomplish the project's goals. One commenter stated that the categorical exclusion prepared by the Corps of Engineers is inadequate to comply with NEPA in this case, given the potential impacts to drinking water, people participating in river and reservoir recreation, and listed fish species.

Response #2

Under the CWA, only EPA-issued permits to new sources require compliance with NEPA. CWA § 511(c)(1); *see also* 40 CFR 122.29(c). A "new source" means "any building, structure, facility or installation ... the construction of which commenced" after promulgation of applicable effluent limitation guidelines (ELGs). 40 CFR 122.2; CWA § 306. There are no ELGs applicable to nutrient supplementation projects; therefore, the issuance of this permit is not subject to NEPA's environmental review procedures.

In 2007, the Corps determined that the Dworshak Reservoir Nutrient Supplementation Pilot Project was categorically excluded from NEPA review. Consistent with the recommendations of the Permit Writers' Manual (EPA 2010a), EPA has documented the Corps' finding in the permit file. The question of whether the Corps should have prepared an EIS for the subject activity is beyond the scope of this permitting action and response to comments. As explained above, the Clean Water Act excludes EPA's issuance of an NPDES permit for this project from NEPA review.

Comment #3

One commenter stated that the project is adversely impacting the Dworshak National Fish Hatchery (DNFH). Specifically, the commenter stated that, in 2008, DNFH began seeing elevated mortalities due to infectious hematopoietic necrosis (IHN) and those increased to over 1 million fish lost in 2009. The commenter stated that mortality associated with a disease outbreak can be influenced by many factors, primarily those things that add stress to the fish. The commenter stated that there is evidence that the nutrient supplementation project is adding stress to the fish. Specifically the commenter stated that the hatchery noted excessive algae growth in the ponds immediately after the initiation of the project (2007). The commenter stated that this observation was uniformly held by all hatchery staff. The commenter stated that casual conversation with staff at Clearwater Hatchery supports this observation as they have also noted increased algae growth in their raceways. Second, the commenter stated that hatchery staff noted more frequent gill irritation in steelhead. Kathy Clemens, Idaho Fish Health Lab Supervisor (now retired), stated that "...the nutrient enhancement project has resulted in more algae in the water supply, which gets in the ponds. It gets in the gills of the fish and causes an irritation, which can make them more susceptible to pathogens." (Lewiston Tribune Article, "Disease takes toll", March 4, 2010). Third, the commenter stated that hatchery staff have experienced random fungal outbreaks in juvenile fall Chinook reared at the hatchery for the transportation and smolt migration research project. These outbreaks were never observed prior to the initiation of the nutrient enhancement program. The commenter stated that there is a very strong relationship (correlation coefficient of 0.95, P=0.01) between mean annual phytoplankton density in the reservoir, and juvenile steelhead mortality due to IHN.

Response #3

EPA does not agree with the commenter that there is any causal link between nutrient supplementation in Dworshak Reservoir and IHN mortality in juvenile steelhead at the Dworshak National Fish Hatchery (DNFH).

The IHN virus is spread through the urine, feces, sexual fluids, and external mucus of infected fish. Thus, the subject activity could not directly contribute to the spread of IHN.

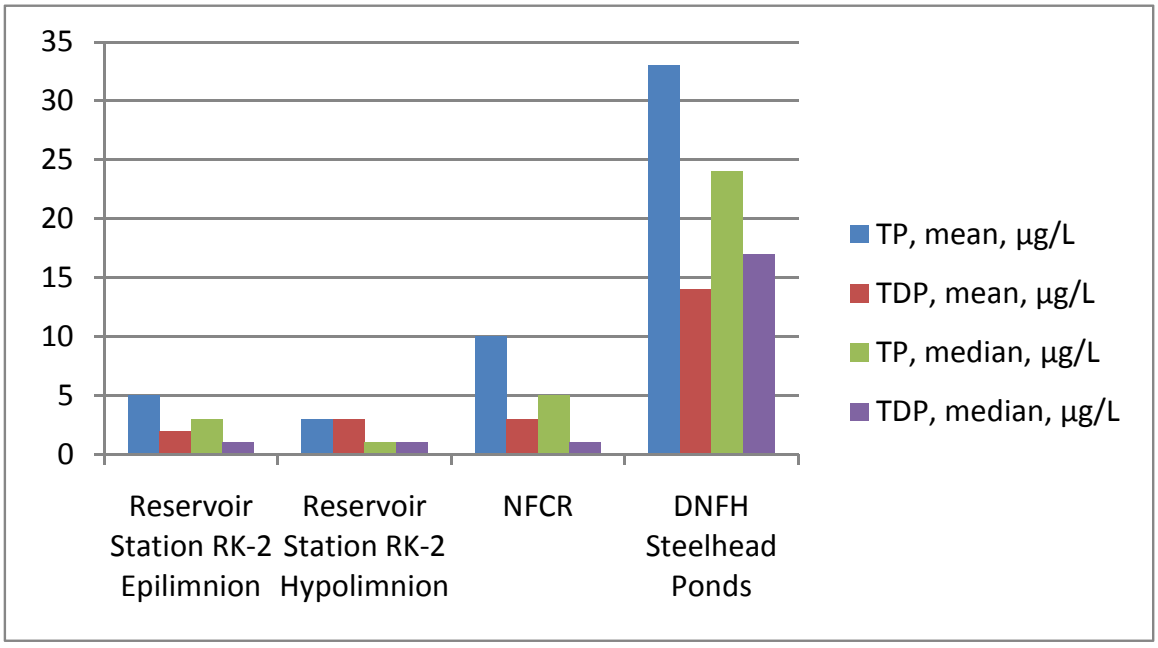
Furthermore, EPA disagrees with the commenter that the project is contributing to stress upon hatchery fish. As explained in the response to comment #4, below, the nutrient supplementation project has not increased phosphorus or nitrogen concentrations in Dworshak Reservoir or the North Fork Clearwater River (NFCR). Phosphorus, nitrogen, and chlorophyll a concentrations in the NFCR are less than EPA-recommended water quality criteria (EPA 2000). As such, nutrient supplementation is not contributing to excessive algae growth in the reservoir, the NFCR, or in fish hatcheries that obtain water from these sources.

Data provided by IDFG show that, in 2010, concentrations of total phosphorus (TP) and total dissolved phosphorus (TDP) in the DNFH steelhead ponds were much higher than in the North Fork Clearwater River or in Dworshak Reservoir, as measured at station RK-2. The data are summarized in Table 1, and Figure 1, below. This suggests that any elevated nutrient concentrations and resulting excess algae growth within DNFH is likely due to internal sources of nutrients at DNFH (e.g., fish food and waste), as opposed to the nutrient supplementation project. There is no evidence to show that the nutrient supplementation program is the cause of fungal outbreaks in hatchery fish.

Table 1: TP and TDP Concentrations at Dworshak Reservoir Station RK-2, NFCR, and DNFH Steelhead Ponds

Parameter, statistic, and units	Reservoir Station RK-2 Epilimnion	Reservoir Station RK-2 Hypolimnion	NFCR	DNFH Steelhead Ponds
TP, mean, µg/L	5	3	10	33
TDP, mean, µg/L	2	3	3	14
TP, median, µg/L	3	1	5	24
TDP, median, µg/L	1	1	1	17

Figure 1: TP and TDP Concentrations at Dworshak Reservoir Station RK-2, NFCR, and DNFH Steelhead Ponds



Comment #4

One commenter stated that this project fails to protect the designated beneficial uses of Dworshak Reservoir as described in sections 200, 250, 251, 252, and 253 of part 58.01.02 of the

Idaho Administrative Code; more specifically lack of compliance with sections 200.02, 200.05, 200.06, 200.09, 250.02, 251.01, 252.01.b, and 253.02.

Response #4

The permit ensures compliance with the referenced sections of the Idaho Water Quality Standards (WQS), as explained below.

Section 200.02

Section 200.02 of the Idaho WQS (IDAPA 58.01.02.200.02) states, in relevant part, "surface waters of the state shall be free from toxic substances in concentrations that impair designated beneficial uses." The permittee discharges nitrogen fertilizer. The nitrogen in the fertilizer is present as urea, ammonia, and nitrates. Nitrates and ammonia can be directly toxic to humans and to aquatic life at high concentrations. However, as explained in the Fact Sheet (Page B-7 – B-8), due to the extent to which the fertilizer will be diluted by the receiving water, the discharge will not result in violations of Idaho's water quality criteria for ammonia, nor will it result in violations of EPA's recommended water quality criterion for nitrate in drinking water, which is 10 mg/L (EPA 1986).

With respect to the potential toxic effects of blue-green algae, as explained in the fact sheet (Page 11) and in the response to comment #1, above, EPA has no evidence to show that the project is the principle cause of the blue-green algae blooms that have been observed in Dworshak Reservoir, and, other factors being equal, increasing the nitrogen concentration of a waterbody will discourage the growth of blue-green algae.

Section 200.05

Section 200.05 of the Idaho WQS states, in relevant part, "surface waters of the state shall be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses." The permittee does not discharge floating, suspended or submerged matter. The permittee is only authorized to discharge liquid fertilizer. Concerns about algae growth caused by the discharge of fertilizer are addressed in the response to comment #1 and the discussion of compliance with Section 200.06 of the Idaho WQS, below.

Section 200.06

Section 200.06 of the Idaho WQS states, "surface waters of the state shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses." The State of Idaho has not established numeric water quality criteria for nutrients (e.g. nitrogen and phosphorus) or response variables (e.g. chlorophyll a and Secchi depth) in its water quality standards.

Federal regulations allow EPA to interpret States' narrative water criteria using EPA's criteria, published under Section 304(a) of the Clean Water Act, for the purpose of developing NPDES permit limits (40 CFR 122.44(d)(1)(vi)(B)). The 304(a) criterion for total nitrogen in lakes and reservoirs in aggregate ecoregion II (which includes Dworshak Reservoir) is 100 µg/L (EPA 2000). The fertilizer will promote algae growth, however, as explained in the fact sheet (Pages 9, 10 and B-7), the fertilizer will only increase the nitrogen concentration in the epilimnion of

the reservoir (i.e., that portion of the reservoir which is above the thermocline and has sufficient light penetration to support plant growth) by 9 µg/L. Using the maximum observed nitrate + nitrite concentration of 40 µg/L as an estimate of the background total nitrogen concentration, this results in a total nitrogen concentration of 49 µg/L. This is less than EPA's 304(a) criterion for total nitrogen (100 µg/L).

Furthermore, both nitrogen and phosphorus are necessary for the growth of algae and other aquatic plants, and the permit allows only the addition of nitrogen. Therefore, the project can only increase algae and plant growth to the point where growth becomes limited by phosphorus instead of nitrogen. In 2010, the median total phosphorus concentration in Dworshak Reservoir was 3 µg/L and the average was 6 µg/L (Scofield et al. 2011). EPA's 304(a) recommended criterion for total phosphorus for lakes and reservoirs in aggregate ecoregion II is 8.8 µg/L (EPA 2000). Total phosphorus concentrations in the reservoir have not increased as a result of this project. On the contrary, phosphorus concentrations have experienced a statistically significant decrease since the fertilization project began, however, this may be due in part to lower analytical reporting limits for total phosphorus in recent years (Scofield et al. 2011). Furthermore, there has never been an increase in total phosphorus concentrations at fertilized reservoir stations relative to unfertilized stations (see the response to comment #8, below). The fact that the reservoir meets EPA's recommended criterion for total phosphorus and the fact that the discharge will not cause or contribute to elevated phosphorus concentrations because the permit does not allow the discharge of phosphorus and the fact that the project has not resulted in elevated phosphorus concentrations to date serves as additional evidence that the project will not violate Idaho's narrative water quality criterion for excess nutrients.

In addition, IDEQ has interpreted its narrative criterion for excess nutrients by establishing thresholds for chlorophyll a and Secchi depth. These thresholds have been reflected in the permit, in part I.C.6. This section of the permit states that "the permittee shall notify EPA and IDEQ within 24 hours of determining that the following limits will be violated and cease nutrient additions until obtaining approval from the EPA and IDEQ to resume: a) If the annual median for chlorophyll a exceeds 3.0 µg/L b) If the annual median for Sechhi depth is less than 3.0 m." These water quality thresholds have not been exceeded during the project's history (Scofield et al. 2011). Furthermore, there has never been a decrease in Secchi depth nor an increase in chlorophyll a concentrations at the reservoir's fertilized monitoring stations relative to the unfertilized stations (see the response to comment #8, below).

In summary, the permit allows only the addition of nitrogen, and the project, as authorized in the permit, will not cause violations of EPA's 304(a) recommended criterion for total nitrogen. The permit does not allow the addition of phosphorus, thus it cannot cause or contribute to violations of EPA's 304(a) recommended criterion for total phosphorus, and, in fact, total phosphorus concentrations in the reservoir have decreased since the project began. Further, the permit requires the Corps to cease nutrient additions if the annual median chlorophyll a concentration exceeds 3.0 µg/L or if the annual median Secchi depth is less than 3.0 m, and these thresholds have not been exceeded during the project's history. Therefore, the permit will ensure compliance with Idaho's narrative water quality criterion for nutrients (IDAPA 58.01.02.200.06).

Section 200.09

Section 200.09 of the Idaho WQS states, in relevant part, "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, there shall be no lowering of water quality from natural background conditions." The Idaho WQS define the term "natural background conditions" as "the physical, chemical, biological, or radiological conditions existing in a water body without human sources of pollution within the watershed. Natural disturbances including, but not limited to, wildfire, geologic disturbance, diseased vegetation, or flow extremes that affect the physical, chemical, and biological integrity of the water are part of natural background conditions. Natural background conditions should be described and evaluated taking into account this inherent variability with time and place."

Section 200.09 of the Idaho WQS is irrelevant to this permit. Section 200.09 of the WQS only addresses situations in which the natural background conditions (i.e. the conditions existing in a water body without human sources of pollution) exceed applicable water quality criteria (i.e. the quality of the waterbody is naturally poorer than the applicable water quality criteria). This provision has the effect of exempting the water body from generally-applicable water quality criteria if those criteria cannot be attained due to natural background conditions, and it then requires that water quality not be lowered relative to the natural background conditions. Otherwise, the criteria set forth in Sections 210, 250, 251, 252 and 253 of the WQS are applicable. There is no evidence that the natural background conditions in Dworshak Reservoir exceed any applicable water quality criteria set forth in Sections 210, 250, 251, 252, or 253 of the Idaho WQS. Therefore, the water quality criteria set forth in Sections 210, 250, 251, 252 and 253 of the WQS are applicable to Dworshak Reservoir; these criteria are not usurped by Section 200.09.

Section 250.02

This section of the Idaho WQS establishes numeric water quality criteria for dissolved oxygen, temperature, ammonia, and turbidity.

Temperature

EPA does not expect that the permitted discharge will have any effect on the temperature of the Dworshak Reservoir. There is no reason to expect that the fertilizer added to the reservoir will be significantly warmer than the receiving water. Even if the fertilizer was warmer than the receiving water, the volume of fertilizer added is extremely small relative to the volume of the reservoir. Specifically, the maximum permitted application rate equates to one teaspoon of fertilizer per 39,000 gallons of reservoir water (EPA 2011) and the permit requires that the fertilizer be applied "in a manner such that the fertilizer is rapidly mixed with the receiving water" (see the permit at Page 12). Therefore, the discharge does not have the reasonable potential to cause or contribute to excursions above water quality standards for temperature and no effluent limits or other controls for temperature are necessary (40 CFR 122.44(d)(1)(i –iii)).

Ammonia

As explained in the Fact Sheet (Page B-7) the discharge will not cause violations of Idaho's water quality criteria for ammonia (IDAPA58.01.02.250.02(d)).

Turbidity

The *Dworshak Reservoir Nutrient Enhancement Project: 2009 Progress Report and Data Summary* (2009 Progress Report) does not provide water quality data for turbidity, but it does provide water quality data for Secchi depth. Both turbidity and Secchi depth are measures of the clarity of water. Water with lower Secchi depth would tend to have higher turbidity, and vice versa. As explained in Section 4.5 of the 2009 progress report, median Secchi depths in 2007, 2008, and 2009 (when fertilization was underway) were greater than or equal to the median Secchi depth in 2006, which was a non-treatment year. Furthermore, mean Secchi depth has never been lower at fertilized reservoir monitoring stations relative to unfertilized stations (see the response to comment #8, below). Therefore, the project does not appear to be adversely impacting water clarity, and EPA therefore believes, based on available data, that the project will not cause or contribute to excursions above Idaho's water quality criteria for turbidity. Therefore, no additional or more stringent effluent limits or other permit conditions are necessary to ensure compliance with water quality standards for turbidity (40 CFR 122.44(d)(1)(i –iii)). The final permit includes receiving water monitoring requirements for turbidity in the North Fork Clearwater River (NFCR).

Section 251.01

Section 251.01 of the Idaho WQS establishes numeric water quality criteria for E. coli. The discharge will not contain E. coli and therefore has no reasonable potential to cause or contribute to excursions above water quality criteria for E. coli. Therefore no effluent limits for E. coli are necessary (40 CFR 122.44(d)(1)(i – iii)).

Section 252.01.b

Section 252.01.b of the Idaho WQS establishes water quality criteria for turbidity for designated small public water supplies. The Ahsahka Water and Sewer District is one of the designated small public water supplies, thus, the turbidity criteria apply to the NFCR, below the Dworshak Dam (see table in IDAPA 58.01.02.252.01.b).

The fertilizer that the Corps discharges to the Dworshak Reservoir cannot directly increase the turbidity of the NFCR. However, if the fertilizer caused increased algae growth in the NFCR, this could indirectly increase turbidity. As explained in the fact sheet and in this response to comments, the discharge will not cause violations of Idaho's water quality criteria for nutrients, in terms of nitrate + nitrite, total phosphorus, Secchi depth, or chlorophyll a concentration within Dworshak Reservoir. The median total phosphorus concentration in the NFCR in 2010 was 5 µg/L, and the median total dissolved phosphorus concentration was 1 µg/L (Scofield et al. 2011). The median nitrate + nitrite concentration in the NFCR in 2010 was 36 µg/L. These concentrations were similar to those observed in 2007, 2008, and 2009 (Scofield et al. 2011). EPA's 304(a) recommended criterion for total phosphorus for rivers and streams in aggregate ecoregion II is 10 µg/L, and the recommended criterion for total nitrogen is 120 µg/L (EPA 2000). The median chlorophyll a concentration in the NCFR in 2010 was 0.25 µg/L. The highest median chlorophyll a concentration in the NFCR since the project began was 0.45 µg/L, which was observed in 2008 (Scofield et al. 2011). EPA's 304(a) recommended criterion for rivers and streams in aggregate ecoregion II is 1.08 µg/L (EPA 2000). Because nutrient concentrations in the NFCR are less than EPA's recommended criteria for total nitrogen and total phosphorus, and chlorophyll a is also less than EPA's 304(a) recommended criterion, EPA

does not expect that the NFCR will experience increased turbidity due to algae growth, as a result of this project. Therefore, based on available information, the discharge does not have the reasonable potential to cause or contribute to excursions above water quality standards for turbidity in the NFCR, and no additional or more-stringent effluent limits are necessary in order to ensure compliance with turbidity standards in the NFCR (40 CFR 122.44(d)(1)(i – iii)).

The final permit requires the permittee to monitor for turbidity in the NFCR (see Table 3). The data obtained from this monitoring will allow EPA to determine if the discharge is causing or contributing to violations of turbidity criteria for small public water supplies.

Section 253.02

Section 253.02 of the Idaho WQS concerns surface water quality criteria for aesthetics use designations, and states that "Water quality criteria for aesthetics will generally be satisfied by the general water quality criteria set forth in Section 200. Should specificity be desirable or necessary to protect a specific use, appropriate criteria will be adopted in Sections 253 or 275 through 298."

No water quality criteria have been established for recreation uses in Section 253 of the WQS. Sections 275 through 298 of the WQS include site-specific (as opposed to statewide) water quality criteria; no site-specific water quality criteria have been established for Dworshak Reservoir or the NFCR. Thus, compliance with the general water quality criteria set forth in Section 200 of the WQS will also satisfy water quality criteria for aesthetics. As explained above, the permit will not cause violations of the general water quality set forth in Section 200 of the WQS, therefore, the permit ensures compliance with Section 253.02 of the WQS.

Comment #5

One commenter stated that an Endangered Species Act (ESA) biological opinion should be issued prior to issuing a decision on the permit.

Response #5

As stated in the Fact Sheet (Page 17), in 2006, the Corps completed informal consultation on this project, under Section 7 of the ESA. At that time, the US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) concurred with the Corps' finding that the project was not likely to adversely affect any listed threatened or endangered species or critical habitat.

Under the CWA, EPA is required to comply with ESA when issuing a NPDES permit. *See* 40 CFR 122.49(c). As part of this permitting action, EPA initiated informal consultation with USFWS and NOAA Fisheries on May 25, 2011. The biological assessment (BA) is part of the administrative record for this permit and is available from EPA upon request. On June 7, 2011, USFWS concurred with EPA's determination in the BA that the permit and the nutrient supplementation which it authorizes is not likely to adversely affect any listed threatened or endangered species or critical habitat under its jurisdiction. On June 2, 2011, NOAA Fisheries concurred with EPA's determination that the permit and the nutrient supplementation which it authorizes is not likely to adversely affect any listed threatened or endangered species or critical habitat under its jurisdiction.

A biological opinion is only needed if EPA is required to enter into formal consultation with the Services. Since the Services have concurred with EPA's finding in the BA, formal consultation with the Services is not required. Therefore, a biological opinion is not needed for this permitting action. *See* 50 CFR 402.14(b)(1).

Comment #6

Several commenters asked EPA to deny the Corps' application for an NPDES permit for this project, or to disallow the project.

Response #6

NPDES regulations at 40 CFR 122.4 specify several circumstances under which the issuance of an NPDES permit is prohibited. As explained below, 40 CFR 122.4 does not prohibit the issuance of an NPDES permit in this case. Thus, EPA has no basis to deny the Corps' application for an NPDES permit.

40 CFR 122.4(a) states that no permit may be issued "when the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA." As explained in the fact sheet and in this response to comments, the conditions of the permit do, in fact, provide for compliance with the applicable requirements of the CWA and regulations promulgated under the CWA. Therefore, 40 CFR 122.4(a) does not prohibit the issuance of an NPDES permit in this case.

40 CFR 122.4(b) states that no permit may be issued "when the applicant is required to obtain a State or other appropriate certification under section 401 of CWA and Sec. 124.53 and that certification has not been obtained or waived." EPA has obtained a CWA Section 401 certification from the State of Idaho for this NPDES permit. Therefore, 40 CFR 122.4(b) does not prohibit the issuance of an NPDES permit in this case.

40 CFR 122.4(d) states that no permit may be issued "when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." As explained in the fact sheet and in this response to comments, the conditions in the permit will ensure compliance with the applicable water quality requirements of the State of Idaho. With respect to waters of the State of Washington, downstream from the activity, as discussed in the response to comment #4, the project has not adversely affected water quality in the NFCR in terms of nitrogen, phosphorus, or chlorophyll a concentrations. Water quality parameters other than nutrients (nitrogen and phosphorus) and their effects (e.g. chlorophyll a) would not be affected by this activity. The flow from the NFCR is combined with the main stem Clearwater River and the Snake River before the discharged fertilizer or any resulting increased algae growth could reach waters of the State of Washington, 42 miles downstream from the Dworshak Dam. Therefore, EPA does not expect that the discharge will affect water quality in waters of the State of Washington. Therefore, 40 CFR 122.4(d) does not prohibit the issuance of an NPDES permit in this case.

40 CFR 122.4(e) states that no permit may be issued "when, in the judgment of the Secretary, anchorage and navigation in or on any of the waters of the United States would be substantially impaired by the discharge." According to 40 CFR 122.2, "'Secretary' means the Secretary of the

Army, acting through the Chief of Engineers." The Chief of Engineers is the commander of the US Army Corps of Engineers, which is the permit applicant in this case. The Chief of Engineers has not made a finding that anchorage and navigation in or on the Dworshak Reservoir or the NFCR would be substantially impaired by this discharge. Therefore, 40 CFR 122.4(e) does not prohibit the issuance of an NPDES permit in this case.

40 CFR 122.4(g) states that no permit may be issued "for any discharge inconsistent with a plan or plan amendment approved under section 208(b) of CWA." Each State is required by Sections 208(b) and 303(e) of the Act and 40 CFR 130.5 to establish and maintain a continuing planning process (CPP). The CPP must include the process for incorporating elements of any applicable areawide waste treatment plans under section 208 of the CWA (40 CFR 130.5).

According to the continuing planning process page on Idaho DEQ's website:

> *DEQ implements basinwide and statewide planning with its integrated report and related data-gathering processes. This report helps DEQ set priorities and is the basis for writing (total maximum daily loads or TMDLs), which are subbasin-specific. TMDLs establish maximum loads for nonpoint and point sources of pollution. Point sources are required to obtain NPDES permits from EPA. DEQ reviews these and other federal permits and certifies that they comply with TMDLs and do not violate water quality standards. Idaho's water basins each have a "basin advisory group" whose role is to advise DEQ on water quality objectives in that basin. Each basin also has several "watershed advisory groups" that are involved in the TMDL and implementation plan processes.*

No TMDL has been established for Dworshak Reservoir. Dworshak Reservoir was not assessed in the State of Idaho's most recent (2008) 303(d)/305(b) integrated report. Idaho DEQ has reviewed the NPDES permit and has certified that the NPDES permit ensures compliance with water quality standards. Therefore, the permit is not inconsistent with a plan or plan amendment approved under section 208(b) of CWA, and 40 CFR 122.4(g) does not prohibit the issuance an NPDES permit in this case.

40 CFR 122.4(i) prohibits the issuance of permits to new sources and new dischargers under certain circumstances. The proposed project is a "new discharger" as that term is defined in 40 CFR 122.2. However, as explained in the fact sheet (Pages 13-14), 40 CFR 122.4(i) does not prohibit the issuance of an NPDES permit in this case.

Other sections of 40 CFR 122.4 are inapplicable to this permit. 40 CFR 122.4(c) applies only to NPDES permits issued by States, thus it is inapplicable to this EPA-issued permit. 40 CFR 122.4(f) states that no permit may be issued "for the discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste." The permit does not authorize the discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste. 40 CFR 122.4(h) applies only to permits for discharges to the territorial sea, the waters of the contiguous zone, and the oceans, and thus it is inapplicable to this permit, which does not authorize a discharge to such waters.

Comment #7

Several commenters stated that the project has not resulted in an increase in kokanee size or population. Commenters also stated that it was not clear what metric the Corps and Idaho Fish and Game were using to determine whether the project was successful, i.e., whether the goal was larger kokanee, greater numbers of kokanee, or both. Another commenter stated that since the nutrients have been added there has been great improvement in the size and quality of the fish.

Response #7

The question of whether this project is successful in its goal of improving the overall health and size structure of the kokanee population in the reservoir is irrelevant to the issuance of an NPDES permit. An NPDES permit may be issued as long as the permit complies with all applicable requirements of the Clean Water Act and its implementing regulations (see 40 CFR 122.4 and the response to comment #6, above). As explained in the fact sheet and in this response to comments, the permit complies with all applicable requirements of the Clean Water Act and its implementing regulations.

However, in 2010, there was an increase in the biomass (i.e. total mass or weight) of the Kokanee present in Dworshak reservoir in 2010 relative to prior years, including both treatment and non-treatment years (personal communication with Andy Dux, IDFG, May 27, 2011).

Comment #8

One commenter stated that the project should be stopped until experiments can be conducted in a closed system in order to determine whether the project is beneficial or detrimental.

Response #8

It is not necessary to require the Corps to conduct experiments in a closed system to determine whether the project is beneficial or detrimental, because the available monitoring data collected over the life of the project to date demonstrates that project is beneficial.

The monitoring stations that have been used since 2007 include two stations that are in arms of the reservoir that are unaffected by fertilization (stations LNF-3 and EC-6). These stations can be viewed as controls (TG Eco-Logic 2008). The 2007, 2008, 2009 and 2010 progress reports and data summaries provide the mean Secchi depth and nutrient and chlorophyll a concentrations at all stations. Using data provided in the progress reports and data summaries, EPA has compared water quality in at these stations relative to the other reservoir stations by calculating the means of the mean values for the unfertilized stations as well as the fertilized stations. The data are summarized in Table 2, below; shaded rows indicate higher nutrient concentrations in the fertilized stations.

Water quality has generally been better (i.e. lower nutrient and chlorophyll a concentrations and greater Secchi depth) at the fertilized stations than at the unfertilized stations. In general, the increases in nutrient concentrations were for nitrate + nitrite (NO_2 + NO_3), which is expected, because this is the nutrient being added to the reservoir. The increased nitrate + nitrite concentrations do not necessarily indicate lower water quality, because they indicate higher nitrogen-to-phosphorus ratios, which will in turn tend to discourage the growth of blue-green algae. The only increase in phosphorus was for total dissolved phosphorus in 2007, which was

the only year in which phosphorus was added to the reservoir. EPA recommends that nutrient water quality criteria and monitoring for phosphorus should be based upon total phosphorus concentrations as opposed to dissolved phosphorus (EPA 2010b), and in no case have mean total phosphorus concentrations been increased at the fertilized stations relative to the unfertilized stations. In no case was there a decrease in water clarity (i.e. mean Secchi depth) or an increase in chlorophyll a concentrations at the fertilized stations relative to the unfertilized stations.

Table 2: Comparison of Water Quality Data for Fertilized and Unfertilized Monitoring Stations			
Parameter and Units	**Mean of Mean Values for Unfertilized (Control) Stations**	**Mean of Mean Values for Fertilized Stations**	**% Difference**
2010. Source: Schofield et. al 2011.			
Secchi depth (m)	2.75	3.37	22%
TP, epilimnion (mg/L)	0.01	0.052	-48%
TDP, epilimnion (mg/L)	0.0035	0.026	-26%
$NO_2 + NO_3$, epilimnion (mg/L)	0.0055	0.011	107%
Chlorophyll a, epilimnion (µg/L)	2.42	1.99	-18%
TP, hypolimnion, mg/L	0.0065	0.0042	-35%
TDP, hypolimnion, mg/L	0.004	0.0036	-10%
$NO_2 + NO_3$, hypolimnion (mg/L)	0.035	0.026	-26%
2009. Source: Schofield et. al 2010.			
Secchi depth (m)	3	3.52	17%
TP, epilimnion (mg/L)	0.0085	0.0074	-13%
TDP, epilimnion (mg/L)	0.005	0.0034	-32%
$NO_2 + NO_3$, epilimnion (mg/L)	0.015	0.0122	-19%
Chlorophyll a, epilimnion (µg/L)	2.25	2.05	-9%
TP, hypolimnion, mg/L	0.0095	0.0076	-20%
TDP, hypolimnion, mg/L	0.005	0.004	-20%
$NO_2 + NO_3$, hypolimnion (mg/L)	0.024	0.0254	6%
2008. Source: TG Eco-Logic 2009.			
Secchi depth (m)	3.4	3.74	10%
TP, epilimnion (mg/L)	0.012	0.0118	-2%
TDP, epilimnion (mg/L)	0.0035	0.0034	-3%
$NO_2 + NO_3$, epilimnion (mg/L)	0.016	0.0186	16%
Chlorophyll a, epilimnion (µg/L)	2.195	2.014	-8%
TP, hypolimnion, mg/L	0.0145	0.0122	-16%
TDP, hypolimnion, mg/L	0.005	0.0036	-28%
$NO_2 + NO_3$, hypolimnion (mg/L)	0.0425	0.0418	-2%
2007. Source: TG Eco-Logic 2008.			
Secchi depth (m)	3.35	3.9	16%
TP, epilimnion (mg/L)	0.011	0.0098	-11%
TDP, epilimnion (mg/L)	0.0035	0.004	14%
$NO_2 + NO_3$, epilimnion (mg/L)	0.009	0.0078	-13%
Chlorophyll a, epilimnion (µg/L)	2.96	2.43	-18%
TP, hypolimnion, mg/L	0.0115	0.010	-13%
TDP, hypolimnion, mg/L	0.005	0.0038	-24%
$NO_2 + NO_3$, hypolimnion (mg/L)	0.031	0.0388	25%

With one exception, nutrient concentrations at the fertilized stations were never more than 25% greater than those at the unfertilized station. In the one instance where the nutrient concentration was more than 25% greater at the fertilized station (i.e. epilimnion NO2 + NO3 in 2010), the concentration at the unfertilized stations was very low, and the concentration at the fertilized stations was less than the 25th percentile reference condition for NO2 + NO3 for lakes in nutrient ecoregion II (EPA 2000a). In no case did the Secchi depth or chlorophyll a concentration indicate poorer water quality in the fertilized stations.

Because water quality was has generally been better at the fertilized stations than the unfertilized stations, it is not necessary to conduct experiments in a closed system to determine whether the project is beneficial or detrimental.

The final permit requires the Corps to provide comparisons of the physical, chemical, and biological data for the unfertilized stations (LNF-3 and EC-6) relative to the other reservoir stations, in the annual progress reports and data summaries (see part I.D.6.b).

The final permit also authorizes the permittee to conduct enclosure experiments, but does not require such experiments. Any nitrogen added to enclosures must be reported as part of the total amount of nitrogen added to the reservoir. The total amount of nitrogen added to the reservoir, including nitrogen added to experimental enclosures, must not exceed the effluent limits in Part I.B of the permit.

Comment #9

One commenter stated that they believed that changing the dam drawdown time to later in the season would help significantly to improve the health of the reservoir, providing more sportsman time there and bringing in more money to Clearwater County.

Response #9

The operation of the Dworshak Dam, including the drawdown of Dworshak Reservoir, is beyond the scope of this NPDES permit. This NPDES permit authorizes the Corps to discharge fertilizer into the reservoir.

Comment #10

One commenter stated that a separate NPDES permit should be required for the discharge of nutrient-enhanced water from Dworshak Reservoir into the Clearwater River.

Response #10

Dams are not point sources that require NPDES permits because they do not alter or add pollutants to the water that passes through the dam. *See* National Wildlife Federation v. Gorsuch, 693 F2d 156 (DC Cir. 1982); National Wildlife Federation v. Consumers Power Co., 862 F2d 580 (6th Cir. 1988). Instead, NPDES permits are required for point sources that add pollutants to waters of the U.S. Here, the Corps is adding fertilizer to the Dworshak Reservoir. EPA is therefore issuing the Corps a permit for this activity and the permit contains conditions and limitations applicable to the activity.

Comment #11

One commenter stated that this NPDES permit allows nutrient enhancement of the Dworshak Reservoir. However, as the treated water is flushed out of the reservoir, it will contaminate the remainder of the Clearwater River below the dam. The commenter stated that it has been the goal of the Clearwater Basin Watershed Advisory Group (that is shepherded by the Idaho Department of Environmental Quality) to prevent and reduce the introduction of nutrients from tributaries into the Clearwater River. It would be illogical and contrary to the Clean Water Act and the goals of the Clearwater Basin Watershed Advisory Group to perform Dworshak Reservoir nutrient enhancement. Public and private land owners and the Watershed Advisory

Groups in the Clearwater Basin have expended funds and a great deal of effort to keep nutrients out of the Clearwater River. Yet, nutrient enhancement can set back what has been accomplished.

Response #11

As explained in the fact sheet (Page 12) and in the response to comment #4, based on available data, the discharge will not cause or contribute to violations of water quality standards in the NFCR. Water quality in the NFCR, in terms of total phosphorus, total dissolved phosphorus, and nitrate + nitrite, and chlorophyll a concentrations, has not changed as a result of this project (Scofield et al. 2011). *See also* Response to Comment #10.

Comment #12

Several commenters expressed concern over the costs of the nutrient supplementation project, stating that the project was too expensive or not cost-effective.

Response #12

The cost or cost-effectiveness of a project that is authorized by an NPDES permit is not a factor in whether an NPDES permit may be issued (see 40 CFR 122.4) or what water quality-based effluent limits must be established in an NPDES permit (40 CFR 122.44(d), Clean Water Act § 301(b)(1)(C)).

Comment #13

One commenter stated that Dworshak, like all reservoirs, undergoes a life cycle as nutrients from flooded vegetative matter are used and depleted. The reservoir does not replace those nutrients naturally, as a river would. The health and numbers of game fish, such as kokanee and small mouth bass depend on nutrients in the water. Without replacement, the reservoir will become sterile over time. Healthy fish populations require nutrients, which will not be sufficiently present without intervention.

Response #13

As stated in the fact sheet the biological productivity of Dworshak Reservoir has gone through an aging process, where productivity has decreased due to the loss of decomposing salmon carcasses that used to spawn in the NFCR (Page 6) and because of poorly developed littoral zones, causing rapid flushing of nutrients out of the system (Page B-2). As stated in the fact sheet (Page 5) providing a balanced nutrient loading and increased zooplankton, in order to provide an abundant forage base for kokanee, rainbow trout, and smallmouth bass fry, is one of the goals of the nutrient supplementation project.

Comment #14

One commenter stated that fishing on the reservoir is an increasing recreation activity, and is hoped to grow to at least partially replace the economic loss to the community caused by reservoir draw-downs to support salmon and steelhead migrations. In other words, the community will see an increasing positive economic effect from nutrient additions. Clearwater County has an unemployment rate over twice the national average, and is the second highest

unemployment county in the State of Idaho. Healthy reservoir fish populations will have a direct impact on this dismal economic picture.

Response #14

Comment noted.

Comment #15

One commenter stated that he and his family are regular summer users of the reservoir. The commenter stated that they swim, ski, fish, and otherwise play at Dworshak on at least a weekly basis all summer long. The commenter stated that he had not seen any indication of blue green algae, nor has anyone in my family suffered illnesses or conditions which may be remotely linked to blue green algae. The commenter stated that he hadn't even heard of blue green algae until this permitting process arose.

Response #15

Blue-green algae have been observed in Dworshak Reservoir (IDEQ 2011, Scofield et. al 2011). However, blue-green algae were present before the nutrient supplementation project began (see the fact sheet at Page 10). As stated in the fact sheet (Page 11) and in the response to comment #1, by adding nitrogen to the reservoir, the permittee should be promoting the growth of non blue-green taxa.

Comment #16

One commenter stated that if administered in the appropriate time window, nutrient seeding programs have an inverse relationship to blue green algae formation (per the US Army Corps of Engineers) in that the nutrients promote the early growth of beneficial algae which retard the later growth of blue green algae.

Response #16

EPA agrees. The addition of nitrogen to the reservoir would tend to increase the nitrogen-to-phosphorus ratio, which would in turn reduce the competitive advantage of blue-green algae, which thrive in low-nitrogen environments due to their ability to fix nitrogen from the air or to use ambient nitrogen from the water column at very low concentrations. See also the fact sheet at Page 11 and the response to comment #1.

Comment #17

One commenter stated that serious consideration be given to temporarily suspending this program for a period of not less than three (3) years before allowing it to convert to a project other than a "pilot project."

Response #17

EPA interprets this comment as a request to either delay the issuance of an NPDES permit for three years or to delay the effective date of the permit for three years. As explained in the response to comment #6, above, EPA has no basis not to immediately issue an NPDES permit for this activity. When appropriate, EPA may specify a delayed effective date for an NPDES permit (40 CFR 124.15(b)(3)), however, EPA has no basis to do so in this case.

Comment #18

The Corps stated that clarification is needed as to the annual surface water monitoring report that is due by December 31st, according to item #5 on Page 2 of the draft permit. The Corps stated that its current understanding is that this reporting requirement has to do with the amount of material applied into the reservoir as opposed to the annual progress report which is required in a separate section of the permit.

Response #18

As stated on Page 2 of the draft permit, the annual surface water monitoring report is required by Part I.C of the permit, specifically part I.C.5. The intent of the surface water monitoring report requirement proposed in the draft permit was to summarize the results of the receiving water the receiving water monitoring that is required by Part I.C. of the permit. The surface water monitoring report would not concern the amount of material applied into the reservoir, rather, it would concern the reservoir's response to the application.

Because the annual surface water monitoring report will provide the same data as provided in the Dworshak Reservoir Nutrient Enhancement Project Progress Report and Data Summary required in Part II.C of the draft permit, EPA has deleted the requirement for separate annual reporting of surface water monitoring data from the final permit. Surface water monitoring data must be reported in the annual progress report and data summary, which is required by Part I.D of the final permit.

Reporting of the amount of fertilizer applied into the reservoir is separately required by Part I.B of the final permit (Table 1).

Comment #19

The Corps and IDFG stated that the permit should authorize the discharge of fertilizer into Dworshak reservoir until October 31st instead of September 30th. The Corps stated that applications in October are needed to ensure adequate nutrients are absorbed by overwintering plankton.

Response #19

EPA has no basis to extend the authorized discharge of fertilizer into October. If the authorized April 1st – September 30th discharge season proves inadequate, the permittee may request a modification of the permit under 40 CFR 122.62.

Comment #20

The Corps and IDFG stated that part I.B.7 on Page 4 of the draft permit should clarify how the dilution ratio should be calculated when a thermocline is not present. The Corps stated that the top 10 m of the reservoir or the entire reservoir volume could be used to determine this ratio.

Response #20

The dilution ratio is based on the volume of the epilimnion. As stated on Page 9 of the fact sheet, "the epilimnion is the section of the water that is above the thermocline and is usually well mixed. In the case of Dworshak Reservoir it is also the section of the reservoir that has sufficient light penetration for photosynthesis to occur; typically between 9 and 12 meters from

the surface in Dworshak." The section of the reservoir that has sufficient light penetration for photosynthesis to occur is called the photic zone or the euphotic zone.

Therefore, the final permit has been edited to state that, if no thermocline is present, the top 9 meters of the reservoir may be used to determine the dilution ratio (see Part I.B.7.b). Using the lower end of the range of the photic zone as stated in the fact sheet is conservative because, other factors being equal, it will result in a smaller dilution ratio.

Comment #21

The Corps stated that clarification is needed on part I.B.8, on Page 5 of the draft permit. The Corps stated that the testing of fertilizer should be a one-time per season requirement. This provision does not make much sense as written. The (32-0-0) fertilizer being discharged is uniformly consistent material and never changes. Calculating composition every week is redundant. This reporting requirement appears to be for a treatment facility or plant in which output varies.

Response #21

Part I.B.8 of the draft permit states "the permittee must sample the fertilizer at least once prior to discharging for total nitrogen, nitrate+nitrite, and total ammonia concentrations...." EPA intended this to be a one time per season requirement as suggested by the Corps. The final permit has been edited to clarify this. In the final permit, this sentence reads, "The permittee must sample the fertilizer at least once *each season*, prior to discharging, for total nitrogen, nitrate+nitrite, and total ammonia concentrations" (see Part I.B.8 of the final permit, emphasis added).

Comment #22

The Corps and IDFG stated that zooplankton reporting units are stated as cells/ml, and that correct reporting units should be individuals/L.

Response #22

EPA agrees and has made this change to the final permit (see Table 3).

Comment #23

Regarding part I.C.9 on Page 7 of the draft permit, the Corps stated that direct counts for 35 and 50 meter net tows are not practical or accurate as the net will clog during the lengthy tow, degrading the sample. The Corps stated that this requirement should be changed to 0 - 1 0 meter tows. Tows below 10 m provide little useful information, as the epilimnion does not extend past that point. The Corps requested that the zooplankton sampling and identification effort be the same as historical data already collected.

Response #23

Part I.C.9 of the draft permit is based on the monitoring recommendations of *Dworshak Reservoir: Rationale for Nutrient Supplementation for Fisheries Enhancement* (Stockner and Brandt 2006). On Page 39, this document states that "estimates of both micro- and macrozooplankton biomass/species composition should be made by direct counts from 0 – 35 or 50 m vertical hauls with Wisconsin-type net (80 µm mesh diameter) with removable cup."

In general, a shallower depth has been used in practice, for zooplankton monitoring. According to the *2010 Progress Report and Data Summary*, "The zooplankton net was slowly lowered to 10 m, or to 3.5 m above bottom if the total water depth was less than 13.5 m," for sampling during 2010. The 2010 progress report further states that:

> *In 2005 and 2006, vertical tow depth was actually from the photic zone depth to the surface. In 2007, tow depth was from 30 m to the surface. Mean photic zone depths were estimated to be 11.4 m in 2005 and 11.7 m in 2006. In 2008, there were paired 30 m to 10 m tows and 10 m to surface tows. The most comparable years, with consistent tow depths, net mesh size, and sample timing, were 2005, 2006, 2008, 2009, and 2010 with a tow depth of either 10 m to surface or photic zone to surface. Data from 2007 were not as comparable to other years because of the greater tow depth.*

Except for 2007, the vertical tow depth of the zooplankton net has been either from 10 m to the surface or from the depth of the photic zone (11.4 – 11.7 m) to the surface. In 2008, both 10 m and 30 m tow depths were used, and IDFG found that zooplankton densities were much higher in the top 10 meters of the reservoir than in the lower 20 meters, and the 30 meter tows conducted in 2007 were found to result in net clogging (personal communication with Sean Wilson, IDFG, June 6, 2011). The use of a 0-10 m tow depth, as proposed by the Corps, will allow for more direct comparisons between years of zooplankton data, because the depth of the photic zone (which was the depth of the zooplankton tows in 2005 and 2006) is close to 10 m. EPA therefore agrees with this comment and has changed the zooplankton net tow depth from 0 – 35 or 50 m to 0 – 10 m (see Part I.C.8 of the final permit).

Comment #24

Regarding part I.C. 10 on Page 7 of the draft permit, the Corps stated that non-toxigenic blue-green algae are frequently observed, particularly in the spring. It wouldn't make sense to sample for toxin because the non-toxin forming varieties are abundant. This should be changed to toxigenic blue-greens, rather than just blue-greens in general. Only two potentially toxin producing species have been found in the reservoir.

Response #24

Part I.C.10 of the draft permit requires the permittee to analyze any surface water sample in which the total abundance of blue-green algae is greater than or equal to 20,000 cells/ml or in which blue-green algae are visually apparent for the cyanotoxins microcystin and anatoxin-a.

EPA agrees that, if the blue-green algae in a sample are known to be non-toxigenic species, then sampling for toxins is not necessary. The final permit has been edited to state that "For any sample in which the total abundance of toxigenic blue-green algae is greater than or equal to 20,000 cells/ml, or in which blue-green algae are visually apparent to the naked eye, the permittee must perform the following additional analyses...." (Part I.C.9).

Comment #25

The Corps stated that part I.B.11 of the draft permit is vague and requires clarification.

Response #25

EPA has added a definition of the term "blue-green algae bloom" to Part VI of the final permit. The definition reads as follows:

" 'Blue-green algae bloom' means, for the purposes of this NPDES permit, a rapid increase or accumulation in the population of blue-green algae in Dworshak Reservoir, which is visible to the naked eye. Blue-green algae blooms have a bright green or blue-green color characteristic of blue-green algae."

Comment #26

Regarding parts I.C.11.b.iii and iv on Page 7 of the draft permit, the Corps and IDFG stated that quantitatively sampling for microcystin or anatoxin-a on a regular basis when non-toxic blue-green algae may be present is impractical and expensive. A superior approach is to utilize screening cards to determine whether either toxin is present. If the cards show positive for toxins, then a quantitative sample should be taken and evaluated.

Response #26

EPA agrees that field testing for cyanotoxins can be used for screening purposes, to determine whether it is necessary to send a sample to a lab for quantitative analysis. The final permit has been edited to reflect this (see Part I.C.10).

Comment #27

Regarding part II.B.4.b.vii, on Page 10 of the draft permit, the Corps stated that no such notice is required for farmers and other applicators. No such notice is required for aquatic weed control programs. Why is a notice required for fertilizer application in this instance? If newspaper notices are required, then regional newspaper or periodical notification should be provided once per year.

Response #27

A similar requirement was included in the NPDES permit for another nutrient supplementation project in the Kootenai River near Bonners Ferry, Idaho (NPDES permit #ID0028291). In that case, the requirement was carried over from a short term activity exemption that was issued by Idaho DEQ for that project prior to EPA's issuance of the NPDES permit.

The Idaho Department of Fish and Game entered a consent order with Idaho DEQ regarding this project in April 2010. The consent order did not include any such notification requirements. To EPA's knowledge, the commenter is correct that no such notice is required for farmers or other applicators of fertilizer or for aquatic weed control programs.

EPA has therefore determined that there is no basis for this notification requirement and it has therefore been deleted from the permit.

Comment #28

Regarding part II.B.4.b.viii, on Page 10 of the draft permit, the Corps and IDFG stated that the requirement to post notice at all potential public access points in a 55-mile-long reservoir is very

impractical. The Corps stated that a better approach is to post notices on the bulletin boards at each boat ramp around the lake.

Response #28

EPA agrees that notification should be focused on the main access points. The final permit has been changed to require notices to be posted on the bulletin boards at each boat ramp (see Part II.B.4.b.vii).

Comment #29

Regarding part II.B.5.b on Page 10 of the draft permit, the Corps stated that this is not a practical requirement as multiple observations over a number of years are needed to determine whether objectives were met. This is a pilot program that utilizes adaptive management techniques.

Response #29

This part of the permit states, "The permittee must amend the BMP Plan whenever it is found to be ineffective in achieving the general objectives of providing a balanced nutrient loading for Dworshak Reservoir, improving the carbon flow within the reservoir, improving water quality by decreasing blue-green algae and promoting desirable phytoplankton and zooplankton, and improving the overall health and size structure of the kokanee population in the reservoir."

EPA believes that this requirement is consistent with the use of adaptive management techniques. This requirement does not preclude the use of multiple observations over a number of years in order to determine whether objectives are met.

Comment #30

Regarding part III.A, on Page 11 of the draft permit, the Corps stated that this section needs clarification or removal as this does not appear to apply. There is not a true outfall in this situation, but receiving water can be sampled. Again, the permit assumes outfall effluent discharges vary, but homogeneous material is being applied. Additional sampling would be need only in the event of an accidental spill.

Response #30

This requirement is intended to reflect and clarify 40 CFR 122.41(j), which reads, "Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity." This requirement is a standard condition applicable to all NPDES permits and must be incorporated into all NPDES permits either expressly or by reference (40 CFR 122.41). The first sentence of Part III.A of the permit reflects this requirement. The second and third paragraphs were added to ensure that the effects of spills, bypasses, or other non-routine discharges are represented in the monitoring.

EPA agrees that, since homogeneous material is being applied, the second and third paragraphs of this requirement (i.e. those that do not directly reflect 40 CFR 122.41(j)) should be edited. The second and third paragraphs of Part III.A of the permit have been deleted and replaced with the following paragraph:

"The permittee must include the volume and mass of any spills or other non-routine discharges of fertilizer in the measurements and calculations required in Part I.B of this permit. The permittee must report all additional monitoring in accordance with paragraph III.D ('Additional Monitoring by Permittee')."

Comment #31

Regarding part III.C, on Page 12 of the draft permit, the Corps stated that this section was unclear without reading 40 CFR 136.5. The Corps stated that this simply is a means to allow the permittee to apply for non-standard or alternative testing and documentation.

Response #31

EPA agrees that the purpose of part III.C of the draft permit and 40 CFR 136.5, which it references, is to allow for alternate test procedures.

Comment #32

Regarding part III.I.b. of the draft permit, the Corps stated that this section needs to be deleted as it does not apply to this situation. None of these materials are being discharged or tested for. Acrolein is used in the production of plastics, polyurethane resins, polyurethane glycol and is sometimes used as a herbicide on aquatic plants. Acrylonitrile is used in plastic production. 2,4-dinitrophenol is used in manufacturing and scientific research. 2-methyl-4, 6 dinitrophenol is a dormant spray insecticide. Antimony is found in flame retardants, electronics, and is common in lead acid batteries.

Response #32

EPA agrees that part III.I of the draft permit is not applicable to this discharge. This part of the draft permit is a standard permit condition for manufacturing, commercial, mining and silvicultural dischargers (see 40 CFR 122.42(a)). Because the subject discharge is not a manufacturing, commercial, mining or silvicultural discharger, this provision is not applicable to this discharge. Part III.I of the draft permit has been deleted.

Comment #33

Regarding part IV.F, on Page 17 of the draft permit, the Corps stated that this section does not apply to proposed activities and needs to be deleted. The Corps stated that no intentional bypass is planned, only direct application of nutrients.

Response #33

As stated on page 17 of the fact sheet, "Sections III, IV, and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements."

Specifically, part IV.F of the draft permit reflects 40 CFR 122.41(m). According to 40 CFR 122.41, "the following conditions apply to all NPDES permits.... All conditions applicable to NPDES permits shall be incorporated into the permits either expressly or by reference." Thus,

EPA cannot delete part IV.F from the draft permit even though it is likely to be inapplicable to this specific discharge.

Comment #34

IDFG stated that cells/mL should be reported for phytoplankton whenever possible and that natural counting units (NCU/mL) should be used when a cell count is not possible.

Response #34

EPA agrees and has made this change to Table 3 of the final permit.

Comment #35

Several commenters stated that kokanee populations have been impacted by being entrained (i.e. flushed through the dam) during reservoir drawdowns.

Response #35

According to the Dworshak Kokanee Population and Entrainment Assessment 2006 Annual Report (IDFG 2008):

> *Discharge of water through Dworshak Dam during 2006 did not appear to have adversely impacted kokanee abundance, since age-2 kokanee abundance and density were at record highs. Furthermore, entrainment assessments during July and August revealed high discharge "Salmon Flows" were not likely impacting kokanee abundance severely. Very few fish were detected... during July and August entrainment assessments because most kokanee were distributed in the upper reservoir.*

As stated in the response to comment #7, the effect of this project upon kokanee populations in Dworshak Reservoir is irrelevant to the question of whether an NPDES permit may be issued or what conditions the permit must contain. As stated in the response to comment #9, the operation of the Dworshak Dam, including the drawdown of Dworshak Reservoir, is beyond the scope of this NPDES permit.

Comment #36

One commenter asked that EPA put a condition in the permit that requires the permit to be issued each year so that the fertilization cannot become a permanent, grandfathered-in plan.

Response #36

EPA may issue NPDES permits with fixed terms not to exceed 5 years (CWA Section 402(b)(1)(B)). There is no basis to issue a permit with a term shorter than 5 years in this case. Therefore, EPA has issued a 5-year permit.

Comment #37

One commenter stated that EPA should require the Corps to find an organic alternative to the inorganic urea ammonium nitrate fertilizer being applied.

Response #37

EPA has no basis to include a permit condition requiring the Corps to find an organic alternative to urea ammonium nitrate fertilizer. As explained in the fact sheet and in this response to comments, the discharge of the urea ammonium nitrate fertilizer at the rates authorized in the draft permit will not violate any water quality standards.

Comment #38

Several commenters requested that EPA hold a public hearing on the draft permit.

Response #38

The Clean Water Act regulations at 40CFR §124.12(a)(1) addressing public hearings state, "The Director shall hold a public hearing whenever he or she finds, on the basis of requests, a significant degree of public interest in a draft permit." EPA has not found a significant degree of public interest in the draft permit and therefore has not held a public hearing.

Comment #39

Several commenters requested that EPA extend the public comment period beyond May 24, 2011.

Response #39

EPA has not extended the public comment period beyond May 24, 2011. EPA is required to allow at least 30 days for public comment on a draft permit (40 CFR 124.10(b)). EPA issued the draft permit for public review and comment on March 23, 2011. The public comment period was originally scheduled to close on April 22, 2011, but it was extended until May 6, 2011. The public comment period was later reopened. The notice of the reopened comment period was available on EPA Region 10's website on May 17, 2011 and was published in the Lewiston Morning Tribune on May 20, 2011. The public comment period then closed on May 24, 2011. EPA staff attended a public meeting on the project held jointly by the Corps and the Idaho Department of Fish and Game (IDFG) in Orofino, Idaho on May 23, 2011. The public comment period was reopened so that EPA could accept additional written comments at and after the public meeting on May 23, 2011.

The total time during which the permit was open for public review and comment was 48 days, not counting the time between the closing of the public comment period on May 6, 2011 and the notice of its reopening in the Lewiston Morning Tribune on May 20, 2011. This is 18 days more than EPA is required to allow for public review and comment. EPA believes that the 48-day public comment period has provided adequate time for public review and comment on the draft permit.

Comment #40

Regarding item V. J, on Page 21 of the draft permit, the Corps stated that this section needs to be deleted as the Corps is a federal entity and not bound by state laws.

Response #40

EPA has not deleted this provision from the permit. This provision states that the permit shall not be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act, which is an accurate statement of law. Conversely, this provision does not create any liability for the Corps under State law, which does not already exist.

To the extent that state law may be applicable or to the Corps, or that the Corps may be impairing or in any manner affecting any right or jurisdiction of the States with respect to waters of the State of Idaho, it is appropriate to include this condition in the permit.

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