U.S. ENVIRONMENTAL PROTECTION AGENCY

Response to Comments on the Draft NPDES Permit for the City of Caldwell

Permit No. ID0021504

September 2016

Overview

The United States Environmental Protection Agency (EPA) Region 10 issued a draft National Pollutant Discharge Elimination System (NPDES) permit for the City of Caldwell (Caldwell) on July 23, 2015. The public comment period was scheduled to close on September 21, 2015, but was extended to October 21, 2015. The EPA received comments from the City of Caldwell (Caldwell), City of Boise (Boise), Idaho Conservation League (ICL), and Idaho Rivers United (IRU).

Response to Comments Received During the Public Comment Period

Comment #1 (ICL)

ICL stated that there should be no seasonal variation in limits for copper or nickel. ICL stated that the seasonal variations in effluent limits for these pollutants appear to be based on the seasonal variations in low flow scenarios in the receiving waters. ICL stated that since reducing the amount of these pollutants in the WWTP discharge is not a function of altered WWTP operations or upgrades – but rather influent reductions – there should be no seasonal variation in facility discharges of these pollutants. And, there should be no seasonal variations in metals inflow.

Response #1

As stated by ICL in its comments, seasonal differences in water quality-based effluent limits in the draft permits for copper and nickel are due to the fact that the EPA has calculated seasonal values for the critical low flows in the receiving waters.

The EPA does not have the information necessary to determine if there are seasonal variations in the influent concentrations or loads of metals, however, such variations are possible. For example, influent loading of these parameters could vary because of inflow and infiltration during wet weather, or because of seasonal changes in loading from industrial users of the treatment plant.

The means of achieving compliance with a water quality-based effluent limit (i.e., influent reductions, improved treatment, or some combination of these) is irrelevant to the calculation of such limits. Water quality-based effluent limits are calculated based on the water quality criteria and the dilution afforded by the mixing zones authorized by the State of Idaho (which varies seasonally in response to changes in stream flow). They are not based on the feasibility of treatment or other means of achieving compliance.

Effluent limits for each season were calculated based on seasonal critical conditions for discharge and receiving water flow, and, where applicable, hardness. The effluent limits will therefore ensure compliance with water quality standards for these pollutants at all times.

For Caldwell, the EPA determined that effluent limits for nickel are not necessary, and has determined that effluent limits for copper are necessary only from April – June. See the responses to comments 16 and 17.

Comment #2 (ICL and IRU)

ICL has expressed support for the Lower Boise River TMDL: 2015 Total Phosphorus Addendum's conclusion to develop waste load allocations consistent with effluent concentrations of 0.1 mg/l in the May 1 – September 30 period and 0.35 mg/L in the October 1 – April 30 time period.

ICL stated their understanding that the maximum amount of TP that can be discharged by the WWTPs would be the appropriate seasonal concentration target (i.e., either 0.1 mg/l in the May 1 – September 30 period and 0.35 mg/L in the October 1 – April 30 time period) applied to the facility's design flow. For Caldwell, this would result in a maximum discharges as follows, expressed as monthly averages: 7.1 lb/day TP during May 1 – September 30 and 24.8 lb/day during the October 1 – April 30 period.

ICL stated that the TMDL developed concentration based waste load allocations. Thus, the TP effluent limits in the permits need to be based on a combination of effluent concentration and discharge volume. It is not appropriate to only articulate the limits in terms of lb/day loading. Rather, the limits need to be expressed such that the discharges do not exceed a concentration of either 0.1 mg/l in the May 1 – September 30 period or 0.35 mg/L in the October 1 – April 30 time period and also does not exceed a total load discharge equivalent to those concentrations at the facilities' design flows.

ICL stated that, to be consistent with the TMDL, the concentration limits cannot be exceeded. This is the case even if the total loading is less than the values listed above.

ICL stated that, when the WWTPs discharge at flows less than their design flows, the difference between the design and actual effluent flows results in a diminished capacity for the Boise River to assimilate and/or dilute phosphorus. In order to keep this reduced dilution capacity from impairing TMDL compliance, the final effluent limits for the WWTPs must contain a concentration based limit.

During periods of lesser discharge flow from the facilities (i.e. less than the design flows) total loading has to be kept in check by requirements to not exceed the concentration of either 0.1 mg/l in the May 1 – September 30 period or 0.35 mg/L in the October 1 – April 30 time period.

See the NPDES permit for the City of Boise's West WWTP ID0023981 for an example of permit limits that are expressed as both a concentration and a load.

IRU stated that the Snake River and Boise TMDLs were developed based on concentrations of TP (0.01 mg/L and 0.35 mg/L seasonally) not on average monthly and average weekly limits of pounds per day. These plants are not operating at their design capacities and shouldn't be allowed to discharge the load for the design capacity. EPA should amend the permit to express total phosphorus limits in concentrations and load. To be consistent with the TMDL, the concentration limits cannot be exceeded. This is the case even if the total loading is less than the wasteload allocations. Also, EPA requires that effluent be monitored and reported in concentrations. Citizens must be able to check compliance with the permit monthly reports made to EPA.

Response #2

Federal regulations state that NPDES permits shall include effluent limitations that "are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." The reference to 40 CFR 130.7 refers to the EPA's approval of TMDLs developed by States.

Federal regulations also state that, in general, "all pollutants limited in permits shall have limitations, standards or prohibitions expressed in terms of mass," although "pollutants limited in terms of mass additionally *may* be limited in terms of other units of measurement…" (40 CFR 122.45(f), emphasis added). Thus, in general, mass limits are mandatory, and limits in terms of other units of measurement are discretionary.

In the case of total phosphorus (TP) for the subject permit, effluent limits in terms of mass are sufficient to ensure consistency with the wasteload allocations (WLAs) for this facility in the EPA-approved *Lower Boise River TMDL: 2015 Total Phosphorus Addendum* (LBR TMDL TP Addendum) (IDEQ 2015).

The LBR TMDL TP Addendum does not establish concentration-based WLAs. The TP WLAs for the City of Caldwell are as follows:

- May 1 – September 30 (Table 27, Page 93): 7.1 lb/day
- October 1 – April 30 (Table 34, Page 109): 24.8 lb/day

The caption for Table 27 (which lists the May – September WLAs) reads, "Point source wasteload allocations for the lower Boise River, May 1–September 30. Wasteload allocations at TP concentrations of 0.1 mg/L are presented per day as monthly averages. DEQ intends that wasteload allocations are to be expressed as average monthly limits." The column heading for the October 1 – April 30 WLAs in Table 34 reads "Oct–Apr Average TP Allocation (lb/day as a monthly average) at TP Conc. = 0.35 mg/L."

Although the caption in Table 27 and the column heading in Table 34 state concentration values, the allocations themselves are listed in the tables exclusively as mass loading rates, in units of pounds per day. This is clear from the parenthetical in the column headings for the WLAs in Tables 27 and 34, which reads, "lb/day as a monthly average."

The EPA's interpretation of the LBR TMDL TP Addendum is that the concentrations are provided to explain how the mass wasteload allocations were calculated, i.e., the allocations were calculated "at" certain concentrations, and at the design flows of the point sources. Multiplying the concentrations by the design flows and the density of water yields the mass wasteload allocations in units of pounds per day.

These concentrations were also used, in combination with the design flows, to represent the point source discharges in the AQUATOX model (see the LBR TMDL TP Addendum at Section 5.4.3 and Appendix D). Because the design flows were used in the modeling, the entire loading allocated to the point sources by the mass WLAs was simulated in the modeling supporting the TMDL, and the establishment of a mass limit equal to the WLA is therefore consistent with the assumptions and requirements of these WLAs.

ICL stated that "when the WWTPs discharge at flows less than their design flows, the difference between the design and actual effluent flows results in a diminished capacity for the Boise River to assimilate and/or dilute phosphorus." While the effluent flow rates of the subject POTWs influence the flows (and therefore the loading capacity) in the Boise River and its tributaries, the TMDL used appropriate conservative assumptions to determine the assimilative capacity, including using the 90th percentile low flow in the Boise River. Using a low flow rate for the river takes into account the variation in all of the factors that influence river flows, including variations in effluent flows from the subject POTWs. Thus, the Boise River's loading capacity for total phosphorus, as calculated and allocated in the TMDL, is not dependent upon a certain level of discharge flow from the POTWs.

The City of Boise's NPDES West Boise Wastewater Treatment Facility permit (#ID0023981) referenced by ICL was issued prior to the State of Idaho's development and the EPA's approval of the LBR TMDL TP Addendum. Thus, the TP effluent limits in that permit were not based on the LBR TMDL TP Addendum. Rather, the TP effluent limits in the City of Boise permit were based directly upon the State of Idaho's

narrative criterion for nutrients (IDAPA 58.01.02.200.06), consistent with 40 CFR 122.44(d)(1)(vi) (see the Fact Sheet for the West Boise Wastewater Treatment Facility at Pages C-21 – C-26). As such, it is not appropriate to compare the TP effluent limits in the West Boise Wastewater Treatment Facility permit to the TP limits in the Caldwell permit.

The fact that the TP effluent limits are expressed in terms of mass does not prevent citizens from checking compliance with the permit monthly per reports made to EPA. The mass TP limits are enforceable and the actual mass of TP discharged must be reported each month. Effluent data reported to the EPA is publicly available through the Discharge Monitoring Report (DMR) Pollutant Loading Tool[1], Envirofacts[2], and Enforcement and Compliance History Online (ECHO)[3].

Comment #3 (IRU)

IRU does not support the proposed schedule of compliance for total phosphorus. EPA is also showing poor judgement in allowing Caldwell 9 years and 11 months to comply with the Total Phosphorus limits. That's longer than a full permit cycle. Caldwell has had more than a decade to figure out how to decrease phosphorous discharge, something that has been accomplished in less than 10 years by hundreds of WWTPs across the nation including some in the Treasure Valley. These permit limitations are no surprise to anyone, and there's no reason to give them 7 years to complete final design.

Response #3

The EPA has reviewed the schedule of compliance for new water quality-based effluent limits for phosphorus authorized by the Idaho Department of Environmental quality in its Clean Water Act Section 401 certification and has determined, consistent with 40 CFR 122.47(a)(1), that the schedule requires compliance as soon as possible.

Consistent with 40 CFR 122.47(a)(3), the compliance schedule includes interim requirements and the dates for their achievement. The interim requirements are substantial, including obtaining funding, planning, design, construction and process optimization. The EPA believes each of these interim steps are necessary to ultimately achieve the final water quality-based effluent limits for TP. The EPA also believes that the time intervals between these interim requirements, and, in turn, the total amount of time allowed to achieve compliance, are reasonable.

Comment #4 (Caldwell)

Caldwell requested that the average weekly effluent limits for total phosphorus limits be removed from their permit.

Response #4

Federal regulations require that, for POTWs that discharge continuously, "all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as…average weekly and average monthly discharge limitations" (40 CFR 122.45(d)).

[1] http://cfpub.epa.gov/dmr/
[2] http://www.epa.gov/enviro/pcs-icis-overview
[3] https://echo.epa.gov/

Thus, in order to remove the average weekly effluent limits for total phosphorus from the permits, the EPA would need to make a finding that it is "impracticable" to state the effluent limits as average weekly and average monthly discharge limitations.

The LBR TMDL TP Addendum establishes TP WLAs that are monthly averages. The draft permit also proposes average weekly limits that are derived from the average monthly WLAs. As explained in Appendix F to the fact sheet, because attainment of the proposed average monthly effluent limits for TP will require upgrades to the POTW, the historic effluent variability for TP may not be representative of future effluent variability. In the fact sheet, instead of using the historic effluent variability for TP to calculate average weekly limits, the EPA made an assumption regarding the future, post-upgrade effluent TP variability (as quantified by the coefficient of variation or CV).

However, the EPA has determined that it is impracticable to state the TP effluent limits as average weekly limitations at this time, since, if the actual effluent variability is significantly different than the EPA's assumptions, then the average weekly limits will not be appropriate.

Because the future, post-upgrade effluent variability is unknown, it is impracticable for the EPA to properly calculate average weekly effluent limits for TP at this time. Thus, the EPA has deleted the proposed average weekly TP limits from the final permit. Since the WLAs are expressed as monthly averages, average monthly limits are adequate to ensure that the effluent limits are consistent with the assumptions and requirements of the TMDL's WLAs.

Comment #5 (Caldwell)

Caldwell requested that the EPA not include *Selenastrum capricornutum* in the screening for the most sensitive species in the whole effluent toxicity (WET) testing requirements.

Caldwell stated that *Selanastrum capricomutum* (green algae) is sensitive to numerous parameters that may not be related to plant effluent. In addition, the City has not conducted WET with green algae. Thus the ability of the plant to meet a WET limit with green algae is unknown. EPA guidance allows utilizing best scientific judgement with local and state agencies in the selection of specific species. Since no prior testing has been conducted with green algae, inclusion of green algae as a test species would not be utilizing best scientific judgement and would instead bind the City to an unknown condition.

Response #5

The TSD states that, "to provide sufficient information for making permitting decisions, EPA recommends a minimum number of three species, representing three different phyla (e.g., a fish, an invertebrate, and a plant) be used to test an effluent for toxicity" (Section 1.3.4, Page 16).

The only plant for which there is a chronic whole effluent toxicity test approved by the EPA for nationwide use is EPA Method 1003.0, which is a growth test for the green alga *Selenastrum capricornutum* (40 CFR 136.3, Table IA). Thus, in order to ensure consistency with the TSD's recommendation to test a minimum of three species representing three different phyla, the EPA has required *Selenastrum capricornutum* to be included in the screening for the most sensitive species.

Comment #6 (Boise, Nampa)

The City of Boise and City of Nampa stated that all of the analytes listed in Appendix A can have a method detection limit (MDL) but the ten (10) analytes listed below cannot have a minimum level (ML)

as defined in the NPDES permits due to the required EPA method (e.g., titration) or reporting format (e.g., 7 day average) of the parameter.

- Biochemical Oxygen Demand
- Soluble Biochemical Oxygen
- Total Suspended Solids
- Dissolved Oxygen
- Temperature (max 7 day avg)
- Oil and Grease (HEM)
- Salinity
- Settleable Solids
- Total Dissolved Solids
- Total Hardness

ML values for 10 pollutants listed above should be listed as MDL or sensitivity of the instrument/detector for the parameter (e.g.+/- 0.2 C for temperature).

Response #6

The draft permit includes a definition of the term "minimum level" that is consistent with the definition in the glossary of the *U.S. EPA NPDES Permit Writers' Manual* (EPA 2010). However, in 2014, the EPA promulgated a revised definition of the term "minimum level" in the sufficiently sensitive methods final rule (79 FR 49001). The revised definition reads:

> *The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor.*

The EPA also explained in the sufficiently sensitive methods rule that the terms "quantitation limit," "reporting limit," and "level of quantitation" are synonymous with "minimum level" (79 FR 49001).

Since the revised definition allows for the minimum level to be obtained in several ways, including multiplying the MDL (as published in a method or determined by a lab) by a factor, then minimum levels can be determined for any analyte for which an MDL can be determined. Thus, minimum levels can, in fact, be determined for all of the analytes in Appendix A.

As explained in the response to comment #9, below, Appendix A specifies the required level of sensitivity for monitoring, which is independent and distinct from the statistics that are to be reported. The EPA has deleted the parenthetical "(max. 7-day avg.)" from the entry for temperature in Appendix A.

For dissolved oxygen and temperature, the EPA has edited appendix A to require a "calibrated accuracy," instead of a minimum level, consistent with the USGS *National Field Manual for the Collection of Water-Quality Data*, (USGS 2015). The *National Field Manual for the Collection of Water-Quality Data* states that thermistors should have a "calibrated accuracy within 0.1 °C to 0.2 °C" and amperometric

and optical dissolved oxygen probes should have a "calibrated accuracy within ±0.1 mg/L DO" (USGS 2015). In the final permit, the EPA has specified that temperature measurements must have a calibrated accuracy within 0.2 °C and that dissolved oxygen probes must have a calibrated accuracy within 0.1 mg/L.

Comment #7 (Boise, Nampa)

The City of Boise and City of Nampa stated that the requirement to run a calibration point at the ML is consistent with the new and updated 600 series organic methods in the Proposed 2015 MUR to 40 CFR 136. However, these methods are not yet approved and it is extremely difficult finding a commercial laboratory capable of running the MUR method.

Response #7

As explained in the response to comment #6, above, under the revised definition of "minimum level" in the sufficiently sensitive methods final rule (79 FR 49001), which has been incorporated into the final permit, the ML need not be based on the lowest calibration standard. The final permit does not require running a calibration point at the ML.

Comment #8 (Boise, Nampa)

The minimum level requirements of "Attachment/Appendix A Minimum Levels" restrict the options of NPDES approved methods listed at 40 CFR Part 136: Table IB. The following methods could utilize calibration curves meeting the definition of a ML however the values listed are more appropriate for a MDL due to the low concentration specified. In addition, the ML requirement prevents the use of the most commonly used methods which are titrations or test kits that are analyzed on factory calibrated spectrophotometers.

- Chemical Oxygen Demand
- Total Alkalinity
- Chlorine, Total Residual

ML values in Table A for these parameters should be listed as MDLs.

Response #8

As explained in the response to comment #6, above, under the revised definition of "minimum level" in the sufficiently sensitive methods final rule (79 FR 49001), which has been incorporated into the final permit, the ML need not be based on a calibration curve.

The EPA believes the minimum levels specified in Appendix A for chemical oxygen demand, total alkalinity, and total residual chlorine, are achievable. For example, currently approved methods have method detection limits for chlorine as low as 10 µg/L (e.g., Standard Method 4500 Cl-G). Thus, the EPA believes a minimum level of 50 µg/L is attainable for chlorine.

Comment #9 (Boise, Nampa)

The City of Boise and City of Nampa stated that the minimum level requirement for a statistical average is inappropriate for "Temperature (max 7 day avg)" in the "Attachment/Appendix A: Minimum Levels." ML and MDL are related to instrument sensitivity for T (+/- 0.2 C) and is not applicable or appropriate for a 7 day average temperature. ML needs to be removed from Appendix A for maximum 7 day average temperature.

Response #9

The EPA agrees that the parenthetical "(max. 7-day avg.)" should be deleted from the listing for temperature in Appendix A. Appendix A specifies the required level of sensitivity for monitoring, which is independent and distinct from the statistics that are to be reported. The statistics that are to be reported for temperature are specified elsewhere in the permit. As explained in the response to comment #6, above, in the final permit, the EPA has specified that temperature measurements must have a calibrated accuracy within 0.2 °C.

Comment #10 (Boise, Nampa)

The City of Boise and City of Nampa stated that the minimum levels in Appendix A to the draft permits need to be adjusted, for several reasons.

EPA's proposed draft Methods Update Rule (MUR)[4] seeks to increase the MLs (and MDLs) for many of the parameters listed in Appendix A to reflect "real world" water quality and analytical conditions (e.g. matrices ranging from clean receiving waters to "dirty" receiving water) instead of ultra clean and unrealistic matrices (e.g. MLs for a pollutant in distilled water) used for development of the MLs contained in the draft permits.

The minimum level requirements of "Attachment/Appendix A Minimum levels" appear to be based on published MDLs in EPA methods. The ML values are determined by multiplying the published MDL by 3.18. These EPA methods used MDL calculation methodology are inconsistent with the "2015 Proposed Methods Update Rule (MUR)" (80 FR 8956).

The published MDLs for EPA methods need to be revised using EPA methods to be compliant with the draft MUR. Compliance with the new methods in MUR will increase MDLs for many methods. Since the basis for the values assigned in "Attachment/Appendix A Minimum Levels" are not consistent with 2015 MUR requirements, they create a significant liability for permittees and are inappropriate for use in NPDES permits.

The Proposed 2015 MUR also proposes significant changes in the organic EPA 600 series methods which require matrix specific MDLs. Commercial labs will need to determine MDLs in various wastewater matrices, which will increase MDLs and MLs.

If the GC/MS EPA methods 624 and EPA 625 for purgeables and base neutrals and acids, respectively, were used for the organics listed in Appendix A, confirmation of the analytes is not needed, however the ML values would need to be increased for this method to be available for a permittee to use.

The proposed new or updated organic EPA 600 series methods contained in the draft 2015 MUR allow blank subtraction in samples, which will have an impact on the ML and should be reflected in Appendix A.

Many of the issues in the Proposed 2015 MUR to 40 CFR 136 have been addressed by the National Environmental Laboratory Accreditation Conference (NELAC) Institute and directly impact organic

[4] EPA Methods Update Rule-2015, webpage includes February 9, 2015 Federal Register Notice, Fact Sheet, and background materials; http://www2.epa.gov/cwa-methods/methods-update-rule-2015

methods, which are proposed to increase and should be the ML requirement contained in NPDES permits.

The MLs listed in the Proposed 2015 MUR to 40 CFR 136 for EPA methods 624 & 625 are 2-15 times higher than the levels listed in Appendix A.

Response #10

The MLs in the draft permits were not calculated by multiplying published MDLs by 3.18. Rather, they were based on MLs required by the Washington State Department of Ecology in its NPDES permits, which were in turn based on a survey of laboratories conducted in 2008. Thus, the EPA believes that the MLs proposed in Appendix A are achievable. If the permittees cannot achieve the MLs in the final permit, the permittee may request different MLs.

However, for many pollutants, the MLs proposed in EPA Methods 608.3, 624.1 and 625.1 in the draft MUR are lower than the most-stringent water quality criterion in effect in Idaho, or the EPA-recommended Clean Water Act Section 304(a) water quality criteria. For other pollutants, the State of Idaho has not established a water quality criterion for the pollutant and the EPA has not established a 304(a) criterion. Methods with an ML at or below the applicable water quality criterion are considered "sufficiently sensitive" (79 FR 49013).

The EPA has therefore revised the MLs in Appendix A to the permits to be equal to the MLs published in the draft MUR, for the pollutants listed in Table 1, below. If the ML proposed in the draft permit was higher than that published in the draft MUR, but less than the most stringent Idaho water quality criterion, then the ML proposed in the draft permit was retained.

Table 1: Pollutants for which the Methods Update Rule (MUR) Minimum Level (ML) is less than Applicable Water Quality Criteria							
Pollutant	**CAS #**	**Draft Permits ML (µg/L)**	**Draft MUR ML (µg/L)**	**Most Stringent ID WQC (µg/L)**	**Most Stringent CWA WQC (µg/L)**	**Most Stringent WQC (µg/L)**	**Ratio of WQC to draft MUR ML**
1,1,1-Trichloroethane	71-55-6	2	11.4	11000	—	11000	**965**
1,1-Dichloroethane	75-34-3	2	0.047	—	—	N/A	**N/A**
1,2-Trans-Dichloroethylene (Ethylene dichloride)	156-60-5	2	4.8	120	—	120	**25.0**
2,4-Dichlorophenol	120-83-2	1	8.1	9.6	93	9.6	**1.19**
2,4-Dimethylphenol	105-67-9	1	8.1	110	—	110	**13.6**
2,6-dinitrotoluene	606-20-2	0.4	5.7	—	—	N/A	**N/A**
2-Chloronaphthalene	91-58-7	0.6	5.7	330	—	330	**57.9**
2-Chlorophenol	95-57-8	2	9.9	30	—	30	**3.03**
2-Nitrophenol	88-75-5	1	10.8	—	—	N/A	**N/A**
4-Bromophenyl phenyl ether	101-55-3	0.4	5.7	—	—	N/A	**N/A**
4-Chlorophenyl phenyl ether	7005-72-3	0.5	12.6	—	—	N/A	**N/A**
4-nitrophenol	100-02-7	1	7.2	—	—	N/A	**N/A**
Acenaphthene	83-32-9	0.4	5.7	26	—	26	**4.56**
Acenaphthylene	208-96-8	0.6	10.5	—	—	N/A	**N/A**
alpha-Endosulfan (Endosulfan I)	959-98-8	0.05	0.033	0.056	0.93	0.056	**1.70**
Anthracene	120-12-7	0.6	5.7	110	9600	110	**19.3**
Benzo(ghi)Perylene	191-24-2	1	12.3	—	—	N/A	**N/A**
beta-Endosulfan (Endosulfan II)	33213-65-9	0.05	0.024	0.056	0.93	0.056	**2.33**
Bis(2-chloroethoxy)methane	111-91-1	21.2	15.9	—	—	N/A	**N/A**
Chlorobenzene	108-90-7	2	18	89	680	89	**4.94**
Chloroform	67-66-3	2	4.8	61	5.7	5.7	**1.19**
Diethyl phthalate	84-66-2	7.6	5.7	200	23000	200	**35.1**
Dimethyl phthalate	131-11-3	6.4	4.8	600	313000	600	**125**
Di-n-butyl phthalate	84-74-2	1	7.5	8.2	2700	8.2	**1.09**
Di-n-octyl phthalate	117-84-0	0.6	7.5	—	—	N/A	**N/A**
Endosulfan sulfate	1031-07-8	0.05	0.021	9.9	0.93	0.93	**44.3**
Endrin aldehyde	7421-93-4	0.05	0.033	0.38	0.76	0.38	**11.5**
Ethylbenzene	100-41-4	2	21.6	32	3100	32	**1.48**
Fluorene	86-73-7	0.6	5.7	21	1300	21	**3.68**
Isophorone	78-59-1	1	6.6	330	8.4	8.4	**1.27**
Methyl bromide (Bromomethane)	74-83-9	10	8.4	130	48	48	**5.71**
Naphthalene	91-20-3	0.6	4.8	—	—	N/A	**N/A**
Nitrobenzene	98-95-3	1	5.7	12	17	12	**2.11**
Parachlorometa cresol (4-chloro-3-methylphenol)	59-50-7	2	9	350	—	350	**38.9**
Phenanthrene	85-01-8	0.6	16.2	—	—	N/A	**N/A**
Phenol	108-95-2	4	4.5	3800	21000	3800	**844**
Pyrene	129-00-0	0.6	5.7	8.1	960	8.1	**1.42**
Toluene	108-88-3	2	18	47	6800	47	**2.61**

Comment #11 (Boise and Nampa)

Mercury is a bioaccumulative pollutant that is a global pollutant[5] and impacts many waters of the United States, including Idaho, the Boise River and Brownlee Reservoir[6]. Idaho fish consumption advisories[7] for mercury have been issued for the Boise River (catfish at Parma, Idaho), Brownlee Reservoir (Carp, Catfish, Crappie, and Perch), and statewide (large and smallmouth bass), making mercury an important permitting issue for all point sources discharging mercury to the Boise River.

Municipal wastewater treatment facilities are generally a minor source of mercury, however they do have a role to play in the control of mercury and the protection of human health[8,9]. The proposed Mercury Minimization Plan and Watershed based Fish Tissue testing requirements proposed in the draft permits appear to be appropriate and are actions municipalities already are or are willing to implement to protect human health and the environment.

Response #11

Thank you for your comment.

Comment #12 (Boise and Nampa)

Boise and Nampa stated that the aquatic life criterion is satisfied and provides no basis for reasonable potential, mercury numeric limits, or monitoring requirements.

The Caldwell Fact Sheet and draft permit evaluate and propose the need for mercury limitations and monitoring requirements using two Idaho water quality standards for mercury, the 12 ng/l aquatic organism criterion[10] and the 0.3 mg/kg methylmercury fish tissue based human health criterion[11] approved by EPA in 2008.

The 12 ng/l aquatic life mercury criterion was incorrectly applied to determine the reasonable potential to exceed, numeric mercury limits, and monitoring requirements.

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[5] United Nations Environment Programme Global Mercury Assessment 2013, available at: http://www.unep.org/PDF/PressReleases/GlobalMercuryAssessment2013.pdf

[6] Idaho Fish Consumption Advisory Program, Boise River listing for Catfish (no more the 3-11 meals per month depending on age and pregnancy, statewide large and small mouth bass advisory of no more than 2-8 meals per month with no other fish consumption; http://healthandwelfare.idaho.gov/Health/EnvironmentalHealth/FishAdvisories/tabid/180/Default.aspx

[7] Idaho Fish Consumption Advisories, Idaho Fish Consumption Advisory Program, http://healthandwelfare.idaho.gov/Health/Environmenta!Health/FishAdvisories/tabid/180/default.aspx

[8] Mercury Pollutant Minimization Program Guidance, USEPA Region 5, November 2004.

[9] USEPA, 2010, Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion, 221 p, http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1007BKQ.TXT

[10] IDAPA 58.01.02- Water Quality Standards and Wastewater Treatment Requirements, 2004; Section 58.01.02.210.01.a.8, Mercury aquatic life criterion, CCC, B2, footnote g "g. If the CCC for total mercury is exceeded more than once in a three (3) year period in ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (one (1.0) mg/kg). If the FDA action level is exceeded, the Director must notify the EPA regional administrator, initiate a review and as appropriate, revision of its mercury criterion in these water quality standards, and take other appropriate action such as the issuance of fish consumption advisory for the affected area."

[11] Idaho's Water Quality Standards, lDAPA 58.01.02, IAC 2011, http://adminrules.idaho.gov/rules/current/58/0102.pdf

The Caldwell monitoring requirements are based on the 12 ng/I aquatic life criterion. If the 12 ng/I criterion is exceeded in the receiving stream more than once every three years, the criterion requires fish tissue testing of the edible portion of consumed species to determine whether the concentration exceeds the 1.0 mg/kg FDA action level. If the 1 mg/kg action level is exceeded, actions to control mercury discharges and notify the public are required.[12]

The reasonable potential analysis appears to use only the water column concentration portion of the 12 ng/I criterion without evaluating the edible fish tissue portion of the criterion using local fish tissue data to determine compliance or non-compliance with the standard, if there is reasonable potential to exceed the state water quality standard, in the determination of numeric limit or other controls, and in determination of associated monitoring requirements.

Historical and recent fish tissue data have been collected and reported by USGS, the Idaho Fish Consumption Advisory Program[13], and the City of Boise Methylmercury Fish Tissue Sampling Program for the Lower Boise River, Snake River and Brownlee Reservoir. The data show fish tissue mercury values range from 0.06 to 0.33 mg/kg methylmercury for samples collected in the Boise and Snake Rivers and Brownlee Reservoir[14]. These levels are well below the 1.0 mg/kg FDA action level and demonstrate compliance with the aquatic life mercury criterion.

Analysis of the applicable 2004 mercury aquatic life criterion continuous concentration of 12 ng/I and footnote g, when correctly evaluated, shows that the 12 ng/I criterion is satisfied at all locations within the Lower Boise Watershed, the Snake River below the confluence with the Boise, and Brownlee Reservoir. No reasonable potential exists to exceed the mercury aquatic life water quality criterion, therefore, no numeric limitations, additional actions or public notification are necessary to satisfy the mercury aquatic life criterion.

The basis and development mercury monitoring requirements in the draft Caldwell permit are incorrect and there is no basis provided for numeric limitations, additional actions or additional monitoring. The Fact Sheets need to be corrected to reflect that the applicable aquatic life criterion for mercury is satisfied.

Response #12

The commenters are correct that the EPA applied both the aquatic life chronic criterion or criterion continuous concentration (CCC) of 12 ng/L (0.012 µg/L) and the 0.3 mg/kg human health criterion for methylmercury in fish tissue. This is because both of these criteria are in effect for Clean Water Act purposes in Idaho.

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[12] 1DAPA 58.01.02-Water Quality Standards and Wastewater Treatment Requirements, 2004; Section 58.01.02.210.01.a.8, Mercury aquatic life criterion, CCC, 82, footnote g "g. If the CCC for total mercury is exceeded more than once in a three (3) year period in ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (one (1.0) mg/kg). If the FDA action level is exceeded, the Director must notify the EPA regional administrator, initiate a review and as appropriate, revision of its mercury criterion in these water quality standards, and take other appropriate action such as the issuance of fish consumption advisory for the affected area."

[13] Idaho Fish Consumption Advisories, Idaho Fish Consumption Advisory Program, http://healthandwelfare.idaho.gov/Health/EnvironmentalHealth/FishAdvisories/tabid/180/default.aspx

[14] 2013 Boise River Watershed Based Methylmercury Fish Tissue Sampling Report, Boise City Public Works, 22p. and 2014 Boise River Watershed Based Methylmercury Fish Tissue Sampling Report, Boise City Public Works, 11p.

As explained in the fact sheet at Page D-6, on December 12, 2008, the EPA disapproved the State of Idaho's removal of its aquatic life water quality criteria for mercury in the water column[15]. The aquatic life water column criteria for total recoverable mercury that the EPA approved in 1997 remain in effect for Clean Water Act purposes (40 CFR 131.21). These criteria are an acute criterion or criterion maximum concentration (CMC) of 2.1 µg/L and a chronic criterion or criterion continuous concentration (CCC) of 0.012 µg/L (12 ng/L). Because these criteria remain in effect for Clean Water Act purposes, the EPA must implement these criteria in NPDES permits (40 CFR 131.21(d)). The EPA found that the City of Caldwell's discharge does not have the reasonable potential to cause or contribute to excursions above these criteria, thus, no numeric mercury effluent limits based upon the aquatic life water column criteria were proposed in the draft Caldwell permit.

The commenters point out that, in a footnote to the table of water quality criteria, the Idaho Water Quality Standards had stated the following:

> *If the CCC for total mercury is exceeded more than once in a three (3) year period in ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (one (1.0) mg/kg). If the FDA action level is exceeded, the Director must notify the EPA regional administrator, initiate a review and as appropriate, revision of its mercury criterion in these water quality standards, and take other appropriate action such as the issuance of fish consumption advisory for the affected area.*

This now-repealed provision of the Idaho WQS concerns sampling for fish tissue to be performed in response to exceedances of the water column mercury CCC, and could result in revisions to the water column mercury criteria. It does not modify the numeric criteria (i.e., the CMC of 2.1 µg/L and CCC of 12 ng/L), which were used as the basis for numeric effluent limits for mercury in the draft Meridian and Nampa permits.

The commenters assert that the fact that fish tissue concentrations are below the Food and Drug Administration (FDA) action level of 1.0 mg/kg in the receiving waters demonstrates compliance with the 12 ng/L numeric aquatic life CCC. The commenters then conclude, based on fish tissue concentrations below the FDA action level, that there is no reasonable potential to exceed the 12 ng/L CCC. The EPA disagrees with these assertions for the following reasons.

First, the fact that fish tissue concentrations of methylmercury have not exceeded the FDA action level of 1.0 mg/kg does not necessarily mean that the 12 ng/L CCC, with its associated averaging period and allowable excursion frequency, is attained. The 12 ng/L CCC was based on achieving the 1.0 mg/kg FDA action level, using a bioconcentration factor of 81,700 (EPA 1985). However, bioaccumulation of mercury is highly variable and is influenced by a number of factors, including the age or size of the organism; food web structure; water quality parameters such as pH, DOC, sulfate, alkalinity, and dissolved oxygen; mercury loadings history; proximity to wetlands; watershed land use characteristics; and waterbody productivity, morphology, and hydrology (EPA 2010). Furthermore, bioaccumulation of mercury in fish occurs gradually over the lifetime of the fish, whereas the 12 ng/L CCC has an averaging period of only 4 days, with an excursion frequency of once every three years (EPA 1985). Infrequent, short-term excursions above the 12 ng/L CCC would have a small effect on concentrations of

[15] http://www.deq.idaho.gov/media/451688-epa_letter_mercury_criterion_disapproval.pdf

methylmercury in fish tissue, as long as the average concentration of mercury was low. However, such excursions would nonetheless violate the 12 ng/L CCC (unless they occurred less frequently than once every three years).

Second, even if an exceedance of the 12 ng/L CCC has not occurred in the receiving waters, this would not necessarily mean that a particular discharge would not need to have effluent limits based on the 12 ng/L CCC. Limits must be established not only if a discharge *causes* excursions above water quality standards, but also if a discharge has the *reasonable potential to cause or contributes* to excursions above water quality standards (40 CFR 122.44(d)(1)(i, iii)). In determining whether the subject discharges had the reasonable potential to cause or contribute to excursions above the 12 ng/L CCC, the EPA used the procedures in Section 3.3 of the TSD. Consistent with 40 CFR 122.44(d)(1)(ii), these procedures account for existing controls on point and nonpoint sources of pollution and the variability of the pollutant in the effluent. In this case, since a mixing zone was authorized by the State of Idaho for mercury, the EPA also considered the dilution of the effluent in the receiving water.

Comment #13 (Boise and Nampa)

The Idaho Methylmercury Human Health water quality criterion for fish tissue (0.3 mg/kg) is 3.3 times more stringent than the aquatic life 12 ng/I criterion when correctly evaluated[16]. The Human Health criterion therefore is more stringent and the appropriate criterion for evaluation of reasonable potential, limits or other actions, and monitoring requirements. Idaho and EPA have developed guidance for implementation of the human health criterion. The Fact Sheet needs to use the Human Health mercury criterion for the evaluation of reasonable potential, associated controls, and monitoring requirements for mercury.

The Idaho Mercury Human Health criterion was adopted with implementation guidance[17] that addresses how it would be applied to municipal wastewater treatment facilities, including additional actions and recommended monitoring frequencies based on the level of fish tissue mercury within the watershed. EPA[18] developed methylmercury human health implementation guidance that is essentially identical to the Idaho guidance.

The Fact Sheet needs to be significantly modified and use the lower and appropriate 0.3 mg/kg EPA approved Idaho Methylmercury Human Health criterion and associated Idaho Methylmercury Criteria Implementation Guidance[19] for the evaluation of the reasonable potential to exceed standards, the appropriate limitations or controls, and the associated monitoring requirements.

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[16] IDAPA 58.01.02 -Water Quality Standards and Wastewater Treatment Requirements, 2004; Section 58.01.02.210.01.a.8, Mercury aquatic life criterion, CCC, B2, footnote g "g. If the CCC for total mercury is exceeded more than once in a three (3) year period in ambient water, the edible portion of aquatic species of concern must be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level (one (1.0) mg/kg). If the FDA action level is exceeded, the Director must notify the EPA regional administrator, initiate a review and as appropriate, revision of its mercury criterion in these water quality standards, and take other appropriate action such as the issuance of fish consumption advisory for the affected area."

[17] Implementation Guidance for the Idaho Mercury Water Quality Criteria, April 2005, IDEQ, 212 pages, https://www.deq.idaho.gov/media/639808-idaho_mercury_wq_guidance.pdf

[18] Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion, EPA 2010, 221 p, http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1007BKQ.TXT

[19] Implementation Guidance for the Idaho Mercury Water Quality Criteria, April 2005, IDEQ, 212 pages,

Using the Idaho Methylmercury criterion, Idaho and EPA Methylmercury Implementation Guidance, effluent data, and recent fish tissue data (2000-present) from all sources, reasonable potential does appear to be triggered (e.g. quantifiable mercury in the effluent and >24 mg/kg fish tissue below facilities), additional actions do appear to be required (e.g. Mercury Minimization Plans), and watershed based fish tissue and effluent monitoring does appear to be justified.

The Fact Sheet for the draft NPDES permit needs to be corrected to provide the basis for additional mercury controls and monitoring limits.

Response #13

The commenters' statement that the Idaho methylmercury human health water quality criterion for fish tissue (0.3 mg/kg) is 3.3 times more stringent than the aquatic life 12 ng/I CCC appears to be based on the fact that the 12 ng/L CCC was based on the FDA action level of 1.0 mg/kg, which is 3.3 times the human health criterion. However, since the 12 ng/L CCC is a water column criterion as opposed to a fish tissue criterion, this statement would be true in terms of water column concentrations of mercury only if the bioaccumulation factor was equal to the bioconcentration factor of 81,700 that was used to develop the 12 ng/L aquatic life criterion from the 1.0 mg/kg FDA action level. Bioaccumulation of mercury is highly variable and is influenced by a number of factors, including the age or size of the organism; food web structure; water quality parameters such as pH, DOC, sulfate, alkalinity, and dissolved oxygen; mercury loadings history; proximity to wetlands; watershed land use characteristics; and waterbody productivity, morphology, and hydrology (EPA 2010). Furthermore, bioaccumulation of mercury in fish occurs gradually over the lifetime of the fish, whereas the 12 ng/L CCC has an averaging period of only 4 days (EPA 1985), with an allowed excursion frequency of once every three years. Infrequent, short-term excursions above the 12 ng/L CCC would have a small effect on concentrations of methylmercury in fish tissue, as long as the average concentration of mercury was low. However, such excursions would nonetheless violate the 12 ng/L CCC (unless they occurred less frequently than once every three years).

As discussed in the fact sheet, the EPA has, in fact, implemented the Idaho methylmercury human health criterion in the subject permits in a manner consistent with the IDEQ and EPA guidance referenced by the commenters. See the fact sheet at Pages 20-21.

Comment #14 (IRU)

National Pollution Discharge Elimination System permits are issued for a period of five years for many good reasons, first and foremost being the opportunity provided every five years to improve permit conditions to better protect the rivers of the United States. In the seventeen years since the City of Caldwell Wastewater Treatment plant was last permitted, significant events have occurred that, if they had been considered every five years as required, would have decreased pollution of the Boise River starting in 2004. These events include the approval of Total Maximum Daily Loads for the Boise and the Snake rivers, the collection of relevant water quality data by US Geological Survey and others, many EPA-approved reports on the status of Idaho's water quality, and advancements in wastewater treatment technology. During those ten years, unlimited amounts of phosphorus have been discharged to the Boise River impairing the Boise and Snake rivers.

https://www.deq.idaho.gov/media/639808-idaho_mercury_wq_guidance.pdf

Idaho Rivers United does not support administrative extensions of NPDES permits and asks EPA to ensure the timely renewal of this permit five years from issuance.

Response #14

The EPA has issued the permit as expeditiously as possible. Administrative extensions of this permit was provided in accordance with federal regulations (40 CFR 122.6).

Comment #15 (IRU)

Idaho Rivers United supports the permit's year round limits on discharge of Total Phosphorus to the Boise River. As was made clear in the Fact Sheet, nuisance levels of periphyton can occur in the Boise River during what EPA previously called the non-growing season (October – April) and Total Phosphorus in the Boise River continuously exceeds the 70 µg/L load allocation in the Snake River Hells Canyon TMDL. The Caldwell WWTP releases phosphorus-laden effluent continuously, pollution that has had significant negative impacts on the health of the Boise and Snake rivers for decades, and these limits are long-overdue.

Response #15

Thank you for your comment.

Comment #16 (Caldwell)

The Reasonable Potential Analysis conducted by EPA that determined that permit limits are required for copper did so because of 9 samples collected by the previous contract operator in 2003, 2008, and 2009. From 1999 to 2014 there have been 95 effluent samples collected and analyzed for total recoverable copper. If these 8 samples are removed from the Reasonable Potential Analysis, then the City would not have a reasonable potential to exceed the instream acute and chronic criteria and there would be no permit limits. The City took over operations of the plant in September of 2012 and implemented several procedures and policies that have demonstrably improved the operations of the plant. All of the effluent copper samples collected by the City have been less than 5 ug/L which is well below the concentration (16 ug/L) that would find a reasonable potential to exceed instream acute and chronic criteria for the April to June period and the concentration (24 ug/L) that would find a reasonable potential to exceed instream acute and chronic criteria for the July to March period.

In addition, the City has invested in state of the art sampling equipment that eliminates the possibility of sample contamination from the air. All of the effluent copper samples collected (total of 14) after the installation of this equipment have been below 3.6 ug/L.

Based on the changes in plant operations and effluent metals sampling protocol, the City requests that EPA redo the Reasonable Potential Analysis for copper first eliminating the data from February 2, 2003 (20 ug/L); February 5, 2003 (20 ug/L); February 6, 2003 (20 ug/L); February 12, 2008 (16 ug/L); February 13, 2008 (19 ug/L); August 4, 2009 (31 ug/L); August 5, 2009 (21 ug/L); and August 6, 2009 (38 ug/L). That would leave 86 samples for the analysis and be more representative of the actual effluent copper from the plant. In summary, the City has confidence in the samples collected after September 2012, but is unable to have confidence in the samples taken before then.

Response #16

The EPA does not agree that it would be appropriate to remove certain high copper concentration results from the copper data set used in the reasonable potential analysis.

However, the EPA agrees with the City's statement that recent copper results (i.e., after January 1, 2010) have shown lower concentrations of copper in the effluent. Specifically, since January 1, 2010, all of the effluent copper concentrations have either been less than the quantification limit of 5 µg/L, or have been quantified at concentrations of 3.6 µg/L or less. This contrasts with results as high as 38 µg/L prior to 2010.

This suggests that effluent copper concentrations have declined since 2010. Another possibility is that some of the copper results observed prior to 2010 may have been biased, e.g., due to sample contamination resulting from a lack of clean sampling techniques, or the use of relatively insensitive analytical methods.

To address the concern about earlier copper results showing higher results than more recent results, the EPA repeated the reasonable potential analysis for copper using the 95th percentile probability basis and the 95% confidence level, instead of the 99th percentile probability basis and the 99% confidence level, as used in the draft permit. In Section 3.3.2, the *Technical Support Document for Water Quality-based Toxics Control* (TSD) (EPA 1991) states that, "although (the 99th percentile) does represent a measure of the upper bound of an effluent distribution, other percentiles could be selected by a regulatory agency." The EPA believes it is appropriate to use a lower (i.e., less conservative) effluent percentile value in the reasonable potential analysis for copper, because there is conservatism inherent in using the available effluent data collected prior to 2010, which shows much higher concentrations than more recent data, in the reasonable potential analysis. The TSD provides a table of reasonable potential multipliers for both the 95th and 99th percentiles (Tables 3-1 and 3-2). The EPA believes, in this case, it is appropriate to use the 95th percentile effluent concentration as the maximum projected effluent concentration for copper, instead of the 99th percentile.

Using this less conservative assumption in the reasonable potential analysis results in a maximum projected effluent concentration for copper of 30.3 µg/L, which is more than 8 times the highest concentration of copper quantified in the effluent since 2010. This, in turn, results in a finding that the City of Caldwell has the reasonable potential to cause or contribute to excursions above water quality criteria for copper only from April – June. Therefore, the final permit includes water quality-based effluent limits for copper only for April – June.

See Appendix A for the revised reasonable potential calculation for copper.

Comment #17 (Caldwell)

The Reasonable Potential Analysis conducted by EPA that determined that permit limits are required for nickel did so because of 2 samples collected by the previous contract operator in 2011. From 1999 to 2014 there have been 93 effluent samples collected and analyzed for total recoverable nickel. If these 2 samples are removed from the Reasonable Potential Analysis, then the City would not have a reasonable potential to exceed the instream acute and chronic criteria and there would be no permit limits. The City took over operations of the plant in September of 2012 and implemented several procedures and policies that have demonstrably improved the operations of the plant. All of the effluent nickel samples collected by the City have been less than 24 ug/L which is well below the concentration (61 ug/L) that would find a reasonable potential to exceed instream acute and chronic criteria for the April to June period and the concentration (97 ug/L) that would find a reasonable potential to exceed instream acute and chronic criteria for the July to March period.

In addition, the City has invested in state of the art sampling equipment that eliminates the possibility of sample contamination from the air. All of the effluent nickel samples collected after the installation of this equipment (total of 14) have been below 1.1 ug/L.

Based on the changes in plant operations and effluent metals sampling protocol, the City requests that EPA redo the Reasonable Potential Analysis for nickel first eliminating the data from October 5, 2011 (94 ug/L) and October 6, 2011 (98 ug/L). That would leave 91 samples for the analysis and be more representative of the actual effluent nickel from the plant. In summary, the City has confidence in the samples collected after September 2012, but is unable to have confidence in the samples taken before then.

Response #17

The EPA does not agree that it would be appropriate to remove certain high nickel concentration results from the nickel data set used in the reasonable potential analysis.

However, the EPA agrees with the City's statement that recent nickel results (i.e., after January 1, 2012) have shown lower concentrations of nickel in the effluent. Specifically, since January 1, 2012, all of the effluent nickel concentrations have been 24 µg/L or less. This contrasts with results as high as 98 µg/L prior to 2012.

This suggests that effluent nickel concentrations have declined since 2012. Another possibility is that some of the nickel results observed prior to 2012 may have been biased, e.g., due to sample contamination resulting from a lack of clean sampling techniques, or the use of relatively insensitive analytical methods.

To address the concern about earlier nickel results showing higher results than more recent results, the EPA repeated the reasonable potential analysis for nickel using the 95th percentile probability basis and the 95% confidence level, instead of the 99th percentile probability basis and the 99% confidence level, as used in the draft permit. In Section 3.3.2, the TSD states that, "although (the 99th percentile) does represent a measure of the upper bound of an effluent distribution, other percentiles could be selected by a regulatory agency." The EPA believes it is appropriate to use a lower (i.e., less conservative) effluent percentile value in the reasonable potential analysis for nickel, because there is conservatism inherent in using the available effluent data collected prior to 2012, which shows much higher concentrations than more recent data, in the reasonable potential analysis. The TSD provides a table of reasonable potential multipliers for both the 95th and 99th percentiles (Tables 3-1 and 3-2). The EPA believes, in this case, it is appropriate to use the 95th percentile effluent concentration as the maximum projected effluent concentration for nickel, instead of the 99th percentile.

Using this less conservative assumption in the reasonable potential analysis results in a maximum projected effluent concentration for nickel of 72.5 µg/L, which is about 3 times the highest concentration of nickel measured in the effluent since 2012. This, in turn, results in a finding that the City of Caldwell does not have the reasonable potential to cause or contribute to excursions above water quality standards for nickel. Therefore, the final permit does not include water quality-based effluent limits for nickel. Since the permit no longer includes any effluent limits for nickel, the monitoring frequency for nickel has been changed to be consistent with other metals without effluent limits (i.e., twice yearly monitoring in the influent and effluent).

See Appendix A for the revised reasonable potential calculation for nickel.

Comment #18 (Caldwell)

The Reasonable Potential Analysis conducted by EPA that determined that permit limits are required for whole effluent toxicity (WET) did so because of 3 samples collected by the previous contract operator in 2006, 2009 and 2011. From 2001 to 2015 there have been 22 effluent samples collected and analyzed for WET. If these 3 samples are removed from the Reasonable Potential Analysis, then the City would not have a reasonable potential to exceed the instream acute and chronic criteria and there would be no permit limits. The City took over operations of the plant in September 2012 and implemented several procedures and policies that have demonstrably improved the operations of the plant. All of the effluent WET samples collected by the City (total of 7) have been 1 chronic toxic unit (TU_c) with one 2 TU_c which are all below the concentration (2.7 TU_c) that would find a reasonable potential to exceed instream acute and chronic criteria for the July to March period. The City would still have a reasonable potential to exceed instream acute and chronic criteria for the April to June period due to the effluent WET results of 2 TU_c. Based on the changes in plant operations, the City requests that EPA redo the Reasonable Potential Analysis for WET first eliminating the data from October 31, 2006 (9 TU_c), February 28, 2009 (16 TU_c) and October 31, 2011 (16 TU_c). That would leave 19 samples for the analysis and be more representative of the actual effluent WET from the plant. This would eliminate permit limits for the July to March period and retain limits for the April to June period. In summary, the City has confidence in the samples collected after September 2012, but is unable to have confidence in the samples taken before then.

Response #18

The EPA does not agree that it would be appropriate to remove certain high WET results from the WET data set used in the reasonable potential analysis.

However, the EPA agrees with the City's statement that recent WET results (i.e., after January 1, 2012) have shown lower toxicity in the effluent. Specifically, since January 1, 2012, all of the effluent WET results have been 2 TU_c or less. This contrasts with results as high as 16 TU_c prior to 2012. This suggests that effluent toxicity has declined since 2012.

To address the concern about earlier WET results showing higher results than more recent results, the EPA repeated the reasonable potential analysis for WET using the 95th percentile probability basis and the 95% confidence level, instead of the 99th percentile probability basis and the 99% confidence level, as used in the draft permit. In Section 3.3.2, the TSD states that, "although (the 99th percentile) does represent a measure of the upper bound of an effluent distribution, other percentiles could be selected by a regulatory agency." The EPA believes it is appropriate to use a lower (i.e., less conservative) effluent percentile value in the reasonable potential analysis for nickel, because there is conservatism inherent in using the available effluent data collected prior to 2012, which shows much higher toxicity than more recent data, in the reasonable potential analysis. The TSD provides a table of reasonable potential multipliers for both the 95th and 99th percentiles (Tables 3-1 and 3-2). The EPA believes, in this case, it is appropriate to use the 95th percentile effluent concentration as the maximum projected effluent concentration for WET, instead of the 99th percentile.

Using this less conservative assumption in the reasonable potential analysis results in a maximum projected effluent concentration for WET of 24.3 TU_c. However, even when using the 95th percentile

probability basis and the 95% confidence level, instead of the 99th percentile probability basis and the 99% confidence level, the reasonable potential analysis nonetheless shows that the City of Caldwell has the reasonable potential to cause or contribute to excursions above Idaho's narrative water quality criterion for toxicity, as interpreted using the recommendations of the TSD. Therefore, the EPA has retained the WET effluent limits that were proposed in the draft permit.

See Appendix A for the revised reasonable potential calculation for WET.

Comment #19 (Caldwell)

In paragraph I.5, change the second sentence to read, "The permittee must submit to EPA, within 180 days of the effective date of this permit, a copy of the permittee's initial investigation TRE work plan." The City will need to begin WET testing within 90 days after the effective date of this permit and this is insufficient time for completion of an investigation TRE work plan. The City will need to hire a consultant to assist with preparation of the work plan and City Council will need to approve the final work plan as it commits the City to a great deal of unknown expense and only City Council has authority to do this.

Response #19

The *EPA Regions 8, 9 and 10 Toxicity Training Tool* (Denton et al. 2007) states that, "EPA Regions 9 and 10 recommend that an initial TRE/TIE Work Plan be developed by the permittee within 60-90 days of the effective date of the permit." The EPA has edited part I.D.5 of the permit to allow 90 days to complete the initial investigation TRE workplan, instead of requiring submittal of the workplan "prior to initiation of the toxicity testing required by this permit."

Comment #20 (Caldwell)

In Table 4, delete dissolved chromium VI monitoring, as it is included in the previous item chromium, all oxidation states, dissolved.

Response #20

The Idaho Water Quality Standards have separate and distinct water quality criteria for chromium III and chromium VI (IDAPA 58.01.02.210.01). There is no EPA-approved analytical method for chromium III, specifically, however, there are approved analytical methods for total chromium (which would include all oxidation states of chromium) and for chromium VI. Testing for both total dissolved chromium and dissolved chromium VI is necessary to properly characterize the receiving water.

Comment #21 (ICL)

Given that fish tissue in the receiving water, and other downstream waterbodies, exceeds the mercury fish tissue limits, we believe that EPA is obligated to assign this facility mercury limits in its NPDES. Simply relying on BMPs via the MMP is not sufficient. Limits are needed because the receiving water is out of compliance for mercury standards and, absent limits, EPA has failed to take the necessary steps to limit further violations of this water quality standard.

Response #21

As shown in Table E-1 of the fact sheet, the City of Caldwell does not have the reasonable potential to cause or contribute to excursions above the numeric water column criteria for mercury, which are in effect for Clean Water Act purposes in Idaho.

As discussed on Pages 20-21 of the fact sheet, the City of Caldwell has the reasonable potential to cause or contribute to excursions above the State of Idaho's criterion for methylmercury in fish tissue. As also discussed on Pages 20-21 of the fact sheet, the EPA has followed the recommendations of EPA and State of Idaho guidance in requiring the City to develop and implement a mercury minimization plan (MMP) as well as monitoring for mercury in the influent, effluent, and receiving water and in fish tissue.

The EPA's *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion* recommends establishing numeric water quality-based effluent limits for mercury where a water column translation of the fish tissue criterion has been developed or where site-specific data to do so are readily available. In this case, neither a water column translation nor the data necessary to develop such a translation are available. In this case the *Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion* (EPA 2010) recommends requiring the permittee to develop and implement an MMP and monitoring using sufficiently sensitive analytical methods (Section 7.2.4).

Comment #22 (IRU)

Idaho Rivers United does not support I.E.2 that allows the permittee two years to start downstream surface water monitoring. There is no explanation why downstream monitoring shouldn't start within 90 days of permit issuance just like upstream monitoring. Most of the downstream monitoring is for the same parameters as the upstream monitoring, so there's no apparent reason why both upstream and downstream can't be ready to go in 90 days. IRU is especially interested in the Total Phosphorus, Total Nitrogen, Chlorophyll a, and Temperature.

From the Fact Sheet (emphasis added):

"At this time, the EPA does not have sufficient data to determine whether or not the City of Caldwell's discharge of heat to the Boise River has the reasonable potential to cause or contribute to excursions above water quality standards for temperature. The permit proposes **continuous monitoring** of the effluent and the receiving waters, for temperature." Under the permit as drafted, continuous monitoring is not required as there will be no downstream surface water temperature monitoring for two years. The impact of the discharge on water temperature in the Boise River won't be measured.

EPA should require downstream surface water monitoring to start within 90 days of permit issuance.

Response #22

The EPA has allowed the City of Caldwell two years to begin downstream receiving water monitoring because the City needs adequate time to prepare for this monitoring due to complex site conditions.

The permit requires downstream receiving monitoring to occur "below the facility's discharge, in the south channel of the Boise River, immediately upstream of Indian Creek." The "south channel" language refers to the fact that there is a small island in the river near the outfall. The EPA has required the monitoring to occur upstream from Indian Creek, so that the downstream monitoring captures the impact to the river from the discharge, as distinct from the impact from Indian Creek.

The discharge may not mix completely with the south channel of the river in the short distance between the outfall and Indian Creek. As such, to ensure representative sampling, the City needs to collect at least three grab samples from across the south channel, which will be composited prior to analysis. Compositing at least three grab samples from across the river channel will ensure that the effluent plume is captured by the downstream samples.

The City estimates that a system to accomplish this composite sampling will require 18 months for design, fabrication and delivery (personal communication with Glen Holdren, Keller Associates, July 25, 2014). Thus, the draft permit allows two years to begin downstream receiving water sampling.

The EPA has edited the downstream receiving water monitoring requirements to specify that downstream receiving water samples shall be a composite of at least three grab samples from across the south channel of the river.

Upstream sampling can begin much sooner, since grab samples can simply be collected from the Chicago Street bridge, upstream from the discharge.

The term “continuous” refers to the frequency of sampling (once it has begun). It does not necessarily mean that the requirement for monitoring takes effect immediately upon the effective date of the final permit.

Comment #23 (Caldwell)

Caldwell requested several changes and corrections to the Schedule of Submissions in the draft permit.

- Change the numbering to be sequential. The numbering jumps from 4 to 6; there is no item 5. Change ''6" to "5", change "7" to 6", change "8" to "7", change ''9"to "8'' and change "10" to "9".
- Quality Assurance Plan: In line 4, change "(see I.C)" to "(see II.C.)" to make the correct reference.
- Operations and Maintenance (O&M) Plan. In line 4, change "(see II.C)" to "(see II.B.)" to make the correct reference. Also, the City requests, 180 days for the development and implementation of the O&M plan as there are several updates that are being completed or will be completed. If agreeable, in line 3, change "90" to "180".
- Compliance Schedule. In line 4, change "(see III.J)" to "(see I.C and III.K)" to make the correct references.
- Local Limits Evaluation. The City requests 2 years to complete the local limits evaluation; 1 year to gather data and a second year to do the evaluation. This will allow for a more representative period of data collection. If agreeable, in li ne 1, change "1" to "2".
- Emergency Response and Public Notification Plan. In line 5, change "(see II.F)" to "(see II.E)" to make the correct reference.
- Add the following item to the Schedule of Submissions:

  "10. Mercury Minimization Plan The permittee must provide EPA and IDEQ with written notification that the Mercury Minimization Plan has been developed and implemented within 180 days of the effective date of the final permit (see I.F)."

Response #23

The EPA has corrected the numbering in the schedule of submissions, so that the numbering is sequential.

The EPA has corrected the references within the schedule of submissions.

The EPA agrees that it is reasonable to allow 180 days, rather than 90 days, for the city to update its O&M Plan.

The EPA agrees that the mercury minimization plan should be listed in the schedule of submissions and has added it to the schedule of submissions in the final permit.

Regarding local limits, in general, the EPA agrees that completing the local limits evaluation within two years of the effective date of the final permit is acceptable. However, because copper has been monitored in the WWTP's influent, effluent and sludge under the 1999 permit (see Part I.D.1) and because the permit includes new effluent limits for copper, in the final permit, the EPA has required a local limits evaluation for copper, specifically, within 1 year of the effective date of the final permit. The final permit requires a local limits evaluation for the other pollutants of concern (arsenic, 5-day biochemical oxygen demand, cadmium, total chromium, chromium VI, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, total suspended solids, and zinc) within 2 years of the effective date of the final permit.

Comment #24 (Caldwell)

In the Table of Contents, Delete item II.F. Phosphorus Management Plan, as it has been deleted from the Permit.

Response #24

The EPA agrees that the phosphorus management plan should be deleted from the table of contents, because it does not appear in the permit.

Comment #25 (Caldwell)

Limitations and monitoring requirements for total suspended solids: In the mass loading line for Average Monthly Limit, change "2125" to "2127" to match the calculation in Appendix D Section A of the Fact Sheet. In the mass loading line for Average Weekly Limit, change "3183" to "3190" to match the calculation in Appendix D Section A of the Fact Sheet.

Response #25

The mass loading effluent limitations for TSS of 2,125 lb/day average monthly and 3,183 average weekly are correct and will not be changed.

The limits referenced by Caldwell in its comment are technology-based effluent limits, which are superseded by more-stringent water quality-based effluent limits necessary to ensure consistency with the *Lower Boise River TMDL*.

As explained on Page D-3 of the fact sheet, these effluent limits are identical to the wasteload allocations in the *Lower Boise River TMDL*. Effluent limits based on TMDL wasteload allocations are water quality-based effluent limits, and may be more stringent than technology-based effluent limits.

Comment #26 (Caldwell)

In Table 1, for molybdenum and chromium, change from "Total" to "Total Recoverable".

Response #26

For metals, the EPA has edited the final permit to use the term "total recoverable" consistently throughout the permit. This is consistent with 40 CFR 122.45(c), which states that, in general, "all permit effluent limitations, standards, or prohibitions for a metal shall be expressed in terms of 'total recoverable metal' as defined in 40 CFR part 136…."

Comment #27 (Caldwell)

In Part VI, "Definitions," item 29, add the following to the last sentence of the definition of 24-Hour Composite Samples: "or 40 CFR 136, whichever is appropriate to the test being conducted."

Response #27

The EPA has changed the definition of "24-hour composite" to be based on the definition of "composite sample" in EPA Form 3510-2C (EPA 1990). The definition now reads:

> *"24-hour composite" sample means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically. For GC/MS Volatile Organic Analysis (VOA), aliquots must be combined in the laboratory immediately before analysis. At least four (4) (rather than eight) aliquots or grab samples must be collected for VOA and for phthalates. Only one analysis is required.*

This definition does not refer to *Standard Methods*.

Comment #28 (IRU)

The Fact Sheet reviews existing and pending TMDLs of relevance to the Caldwell WWTP, but fails to include the 2015 Sediment and Bacteria Addendum TMDL that was submitted to EPA for approval on June 18, 2015. That TMDL has since been approved by EPA (on September 18, 2015). This TMDL applies to Indian Creek that enters the Boise River immediately downstream of the Caldwell WWTP discharge. Idaho Rivers United believes that the NPDES permit for the Caldwell WWTP should be consistent with this TMDL and that the proposed effluent limits for TSS should be as follows:

Parameter	Units	Average Monthly Limit	Average Weekly Limit
TSS	mg/L	30	45
		4-month rolling average: 17.5	
	lb/day	4503	6755
		4-month rolling average: 2629	

Response #28

The *Lower Boise River TMDL: 2015 Sediment and Bacteria Addendum* does not address any impairments in the main stem Boise River, to which the City of Caldwell discharges. Consequently, it does not establish wasteload allocations for the City of Caldwell.

The only TMDL that includes TSS wasteload allocations for the City of Caldwell is the original *Lower Boise River TMDL*, which addressed the sediment impairment in the main stem Boise River. As explained on Page D-3 of the fact sheet, the City of Caldwell's effluent limits for TSS are consistent with the TSS WLAs in that TMDL.

The effluent limits proposed by the commenter are identical to those in the City of Nampa's NPDES permit (ID0022063) and are consistent with that facility's wasteload allocation in the *Lower Boise River TMDL: 2015 Sediment and Bacteria Addendum*. It should be noted that the mass limits in the City of Nampa's permit are based on the City of Nampa WWTP's design flow of 18 mgd, whereas the City of

Caldwell's design flow is 8.5 mgd. Thus, the TSS mass loading limits in the City of Caldwell's permit are more stringent than those proposed by the commenter.

Comment #28 (IRU)

According to the 2015 Total Phosphorus TMDL Addendum, the Caldwell WWTP annual discharge of Total Phosphorus is 2.26 mg/L. That's less than half the proposed interim limit of 5.8 mg/L. The EPA is making a serious error in establishing an interim limit that is more than twice the current average discharge.

Response #28

This comment has been addressed by a change to the final Clean Water Act Section 401 certification of this permit. The final certification specifies an interim limit for total phosphorus of 3.0 mg/L, as an annual average.

The commenter appears to be referring to Table 6 of the Lower Boise River TMDL: 2015 Total Phosphorus Addendum. This table lists the City of Caldwell's mean TP concentration as 2.26 mg/L. Footnote b to this table specifies that this is the TP concentration that was measured between January 1 2012 and April 30, 2013.

At other times, the City's TP concentration has been considerably higher. The effluent concentration of TP was greater than the interim limit of 3.0 mg/L about 7% of the time from September 2013 through January 2016. Because 3.0 mg/L is within the range of TP discharges recently measured by the City, the EPA believes an annual average of 3.0 mg/L is a reasonable interim limit for TP, until treatment enhancements have been completed.

Comment #29 (IRU)

IRU supports the permit's increase in frequency for TSS and ammonia monitoring of the effluent.

Response #29

Thank you for your comment.

Comment #30 (IRU)

Idaho Rivers United supports the surface water monitoring requirements, especially the requirement that the monitoring must continue for as long as the permit remains in effect.

Response #30

Thank you for your comment.

References

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Appendix A: Revised Reasonable Potential Analysis for Copper, Nickel and Whole Effluent Toxicity (WET)

Effluent Percentile value	95%															
				State Water Quality Standard		Max concentration at edge of…										
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D?		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	
Parameter	Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*		*Pn*	*ug/L*	*CV*	*s*	*n*				COMMENTS
Copper Apr - June	0.505	0.505	2.0400	9.88	6.93	7.83	7.01	YES	0.969	38.0	1.355	1.02	95	0.798	2.29	2.67	
Copper July - Mar	0.505	0.505	2.0400	9.88	6.93	5.80	5.15	NO	0.969	38.0	1.355	1.02	95	0.798	3.53	4.27	
Nickel Apr - June	0.546	0.546	0.4100	287	31.9	17.51	15.07	NO	0.968	98.00	2.56	1.42	93	0.740	2.29	2.67	
Nickel July - Mar	0.546	0.546	0.4100	287	31.9	11.52	9.59	NO	0.968	98.00	2.56	1.42	93	0.740	3.53	4.27	
WET Apr - June	1.00	1.00		3.00	1.00	10.58	9.07	YES	0.902	16.00	1.74	1.18	29	1.52	2.29	2.67	
WET July - Mar	1.00	1.00		3.00	1.00	6.87	5.68	YES	0.902	16.00	1.74	1.18	29	1.52	3.53	4.27	