

RESPONSE TO COMMENTS ON MODIFICATION

City of Twin Falls Wastewater Treatment Plant NPDES Permit #ID-002127-0 June 20, 2010

On March 29, 2010, the U.S. Environmental Protection Agency (EPA) issued a public notice for the draft modification of the City of Twin Falls Wastewater Treatment Plant National Pollutant Discharge Elimination System (NPDES) Permit No. ID-002127-0 (the Twin Falls permit) to not include water quality trading provisions for phosphorus discharges from the sewage treatment plant. This Response to Comments provides a summary of significant comments and provides EPA's responses. Upon reconsideration, EPA determined that because the wasteload allocations in The Upper Snake Rock TMDL Modification (July, 2005) (2005 TMDL Modification) were based on assumed attenuation, the trading ratios of 1:1 in the 2009 Permit were not valid. The trading provisions in the 2009 permit could not assure that the state water quality standards would be met as required by CWA section 301(b)(1)(C).

The primary comments on removal of the trading provisions are from the City of Twin Falls. The City believes EPA did not correctly interpret the 2005 TMDL Modification in its decision to withdraw the water quality trading provisions included in the Twin Falls permit.

Commenters: Fritz Wonderlich, Wonderlich & Wakefield, Twin Falls City Attorney,
Justin Hayes, Program Director, Idaho Conservation League.

I. City of Twin Falls Comments

- 1. Comment:** The City of Twin Falls (the City) commented: "The Fact Sheet, provided with the Notification of Draft Permit Modification, states that "trading ratios are not consistent with the attenuation assumptions of the TMDL." This statement is in error. The Fact Sheet also refers to an alleged inconsistency between Idaho's 2003 trading guidance, which provides for a 1:1 trading ration for all segments, and the 2005 Upper Snake Rock TMDL Modification, which contains a percent of reduction in phosphorus by attenuation that does not support a trading ratio of 1:1 for this reach of the Snake River. This is also an error. The 2005 Upper Snake Rock TMDL Modification contains no loss/attenuation percentages, nor any other data inconsistent with 1:1 phosphorus trading. The stated basis for the proposed modification is EPA's misunderstanding of the discussion of "8.0 Loss and Attenuation" contained in the 2005 Upper Snake Rock TMDL Modification.

	"=====TP Loss/Attenuation=====		
Compliance Point	Sub Total	% Loss/Attenuation	Total
Milner Dam	-	-	0.075-mg/L
Pillar Falls	0.077-mg/L	2.8%	0.075-mg/L
Crystal Springs	0.111-mg/L	32.4%	0.075-mg/L
Box Canyon	0.084-mg/L	18.3%	0.075-mg/L
Gridley Bridge	0.090-mg/L	17.0%	0.075-mg/L
Shoestring Bridge	0.083-mg/L	9.8%	0.075-mg/L
King Hill	0.077-mg/L	2.0%	0.075-mg/L"

Section 8.0 contains a table labeled “TP (total phosphorus) Loss/Attenuation” which in reality is a table comparing the derived concentrations of TP at each compliance point. The percentage given in the Section 8.0 table do not measure loss/attenuation, but rather the percentage reduction from the derived TP concentrations required to meet the target TP concentration for the river, and each segment of the river, of 0.075-mg/L.

Response: EPA disagrees with the City’s interpretation that the TMDL does not include assumptions about attenuation in development of its wasteload allocations. Attenuation is a process by which a pollutant (e.g. phosphorus) is lost from a water column due to biological and physical processes such as algal uptake and particulate settling. Section 8 Loss and Attenuation, of 2005 TMDL Modification, page 32 describes this process.¹ The table in Section 8.0 is titled “*TP Loss/Attenuation*” with a column labeled “*%Loss/Attenuation*”. Both the titles are correct, because the TMDL calculations rest on the assumption that a fraction of the phosphorus entering each segment of the Middle Snake River from the upstream segment, as well as tributaries, groundwater and point sources within the segment, is lost from the water column prior to entering the next downstream segment. The column labeled “*% TP Loss/Attenuation*” lists the amount of total phosphorus (TP) assumed to be lost (attenuated) from the water column in each of the six segments of the Snake River.

EPA disagrees that the percentages listed in the “*%Loss/Attenuation.*” column can be reasonably interpreted as “*percentage reduction from the derived TP concentrations required to meet the target TP concentration for the river.*” Nowhere in the 2005 TMDL Modification is TP “loss and attenuation” identified as a requirement or target for further phosphorus reductions. Furthermore, the City’s interpretation would only be supportable in the TMDL regulatory framework if the identified percent reductions were assigned to specific sources. There is no such assignment. Rather, EPA relies on the Idaho Department of Environmental Quality’s (IDEQ’s) plain language describing the percentage values as “*loss*” and “*attenuation*” from the water column and incorporates the estimated losses into the TMDL calculations in a transparent manner. In contrast, under the City’s reading, IDEQ has highlighted a series of necessary loading reductions, erroneously labeled them “loss/attenuation”, and failed to assign these reductions to specific sources as required by TMDL regulations. EPA does not believe this interpretation is reasonable.

Contrary to the City’s assertion, the State of Idaho Department of Environmental Quality Pollutant Trading Guidance, November 2003 draft, (2003 draft Trading Guidance), and the 2005 TMDL Modification are not compatible. In allowing trading in the Twin Falls permit (Condition I.B.1 on page 7 and Appendix A on page 37), EPA relied on the 2003 draft Trading Guidance which requires environmental equivalency: “*Environmental equivalency is based on the relationship between the impact a given unit of a pollutant has at its point of discharge to the impact at the water body’s point of concern.*” (Page 4, § II.C.1.) While the 2003 draft Trading Guidance page assumed equivalency (1:1 trading ratio) for the Middle Snake River (Appendix C, pages 4, 5, and 6), IDEQ also recognized the effect of attenuation on trading ratios. The guidance states the following: “*If, however, the pollutant is taken up through plants, settles out, is diverted by agricultural uses or is diminished in some other way,*

¹ : “The assumption is made that total losses to volatilization, soil adsorption, sedimentation, groundwater storage, and denitrification equal the difference between the total inputs and the output. Relative to TP in an aquatic system, volatilization and denitrification do not apply. Phosphorus is present in several forms in an aquatic system, and not all forms are readily available for uptake by phytoplankton. On the other hand, sediment deposits may be organic-rich, thus being affected by volatilization and denitrification. Therefore, TP attenuation may be a combination of substrate sedimentation as well as plant uptake. (2005 TMDL Modification, page 32)

a buyer may have to purchase more credits than it actually needs at its discharge point to account for the actual reduction in the water body.” (Page 5, § II.C.1.)

Subsequent to the drafting of the IDEQ’s 2003 draft Trading Guidance, IDEQ incorporated assumptions about loss/attenuation into the 2005 TMDL Modification. The Upper Snake Rock Watershed Management Plan (or Upper Snake/Rock Creek Watershed Management Plan, the Upper snake Rock Subbasin Assessment & The Upper Snake Rock Total Maximum Daily Load., December 20, 1999, did not contain any assumption about attenuation . Furthermore, the 2003 draft Trading Guidance was not revised to address the assumptions and calculations regarding attenuation in the 2005 TMDL Modification. Therefore, trading ratios established in the IDEQ 2003 draft Trading Guidance did not consider attenuation. IDEQ has since stated its intent to revise and finalize the Trading Guidance and has also stated that there are some “*definite deficiencies*” in the 2003 draft Trading Guidance that have yet to be resolved (e-mail Balthasar Buhidar to John Drabek, February 10, 2010). EPA concurs with IDEQ’s conclusion that the 2003 draft Trading Guidance is deficient. The final trading guidance must include equivalency ratios based on attenuation before EPA will include trading in NPDES permits for the Middle Snake River.

2. **Comment:** The City of Twin Falls commented: “the derived TP for Pillar Falls shown in Section 10.1 of the 2005 TMDL is 0.077 mg/L. The amount of TP reduction required to meet the 0.075-mg/L target for TP is 2.8%. The derived TP for Crystal Springs shown in Section 10.2 is 0.111-mg/L. The amount of TP reduction required to meet the 0.075-mg/L target for TP is 32.4%. And so on”. “(see line item “Sub Total Concentration” for TP, Tables 1-A through 6-A, Section 10.0, 2005 Upper Snake Rock TMDL Modification) *to the target TP concentration for the river of 0.075-mg/L.*”

“See table of calculations below:

10.1 SEGMENT 1 – MIDDLE SNAKE RIVER - Milner Dam to Pillar Falls Load Calculation

Derived from Table 1-A.

TP Sub Total Load (using Sources) = 1967.61 lbs/day
TP using Load Capacity of 0.075mg/L 4,737cfs X 0.0749055 X 5.39 = 1,912.52 lbs/day
Difference between Sources and Load Capacity 1,967.61 – 1912.52 = 55.09 lbs/day
Percent difference from target $(1 - (1,912.52/1,967.61)) \times 100 = \underline{\mathbf{2.8\%}}$

10.2 SEGMENT 2 – MIDDLE SNAKE RIVER - Pillar Falls to Crystal Springs Load Calculation

Derived from table 2-A.

TP Sub Total Load (using Sources) = 3,287.13 lbs/day
TP using Load Capacity of 0.075mg/L 5,498cfs X 0.0749843 X 5.39 = 2,222.10 lbs/day
Difference between Sources and Load Capacity 3287.13 – 2,222.10 = 1,065.13 lbs/day
Percent difference from target $(1 - (2,222.10/3,287.13)) \times 100 = \underline{\mathbf{32.4\%}}$

10.3 SEGMENT 3 – MIDDLE SNAKE RIVER – Crystal Springs to Box Canyon Load Calculation

Derived from table 3-A.

TP Sub Total Load (using Sources) = 3,567.65 lbs/day
TP using Load Capacity of 0.075mg/L-7,212cfs X 0.0749825 X 5.39 = 2,914.77 lbs/day
Difference between Sources and Load Capacity 3,567.65 – 2,914.77 = 652.88 lbs/day
Percent difference from target $(1 - (2,914.77/3,567.65)) \times 100 = \underline{\mathbf{18.3\%}}$

10.4 SEGMENT 4 – MIDDLE SNAKE RIVER – Box Canyon to Gridley Bridge Load Calculation

Derived from table 4-A.

TP Sub Total Load (using Sources) = 4,439.65 lbs/day
TP using Load Capacity of 0.075mg/L-9,113cfs X 0.0750199 X 5.39 = 3,684.91 lbs/day

Difference between Sources and Load Capacity $4,439.25 - 3,84.91 = 754.74$ lbs/day
Percent difference from target $(1 - (3,84.91/4,439.65)) \times 100 = \underline{17.0\%}$

10.5 SEGMENT 5 – MIDDLE SNAKE RIVER – Gridley Bridge to Shoestring Bridge Load
Calculation Derived from table 5-A.

TP Sub Total Load (using Sources) = 4,963.83 lbs/day
TP using Load Capacity of 0.075mg/L-11,108cfs $\times 0.0747823 \times 5.39 = 4,477.37$ lbs/day
Difference between Sources and Load Capacity $4,963.83 - 4,436.25 = 760.36$ lbs/day
Percent difference from target $(1 - (4477.37/4963.83)) \times 100 = \underline{9.8\%}$

10.6 SEGMENT 6 – MIDDLE SNAKE RIVER – Shoestring Bridge to King Hill Bridge Load
Calculation Derived from table 6-A.

TP Sub Total Load (using Sources) = 4,687.92 lbs/day
TP using Load Capacity of 0.075mg/L 11,398cfs $\times 0.0747806 \times 5.39 = 4,594.16$ lbs/day
Difference between Sources and Load Capacity $4,687.92 - 4,601.83 = 86.08$ lbs/day
Percent difference from target $(1 - (4594.16/4687.92)) \times 100 = \underline{2.0\%}$

The 'Percent difference from target' in the calculations above shows the *identical* percentages as contained in the TP table in Section 8.0 in the column labeled '% Loss/Attenuation.'

Response: The tables as presented in the comment are not accurate representations of Tables 1-A, 2-A and 3-A in the 2005 TMDL. It is clear from the introductory paragraphs to the calculation tables (quoted below) that the term "attenuation" in these tables is correct. That is, they represent attenuation assumptions in the 2005 TMDL Modification, as described in the response to comment #1. These calculations were made by the commenter based on their interpretation of the entries of the tables in the 2005 TMDL Modification.

Specifically:

On page 37 of the 2005 TMDL Modification, the introductory sentence to Table 1-A states:

"Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.077-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 1."

For Table 2-A the 2005 TMDL on page 43 states:

"Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.111-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 2."

For Table 3-A the 2005 TMDL on page 49 states:

"Export loss/attenuation is estimated at indicated levels based on instream water-quality levels at the compliance points. The equivalent TP concentration shows an increase in TP to 0.092-mg/L TP with a reduction to 0.075-mg/L TP due to export loss/attenuation within Segment 3."

To the extent that the city may have questions about the method by which IDEQ estimated the loss/attenuation values, these questions are properly raised when the TMDL is open to public

review. However, they are not open to review in the context of NPDES permit issuance. See also Comment 1.

- 3. Comment:** The City of Twin Falls commented: “It isn’t at all clear why Section 10.0 of Upper Snake Rock TMDL Modification used a TP target very slightly more or less than the 0.075-mg/L target, but it is absolutely clear that these are target TP numbers and not sampled data from each segment. See Upper Snake Rock –Five Year Review, March 2009, Table 3.3b Summary of Water Quality Data collected since 2000 on the Snake River, page 32. The sampled data looks nothing like the numbers contained in the tables above for the six segments, but are nearly identical to the target 0.075-mg/L TP for the river.”

Response: This comment does not appear relevant to EPA’s modification of the NPDES permit. Rather it is a comment or question regarding the basis for some of the instream target values in the 2005 TMDL Modification. As such, issues regarding the basis for development of the TMDL are not an appropriate issue to rise in the context of an NPDES permit challenge. Nonetheless, EPA offers the following clarification.

EPA believes that TP values in Section 10 pages 38, 43 and 50, of the 2005 TMDL Modification are consistent with IDEQ’s definition and calculations for loss/attenuation (see Comments 1 and 2). EPA agrees that the target TP values are calculated values and not sample results for the current river. The use of calculations is necessary and appropriate, because TMDLs establish a future, calculated pollutant budget for the river.

- 4. Comment:** The City of Twin Falls commented: “The last sentence of Section 8.0 confirms that the 2005 Upper Snake Rock TMDL Modification does nothing to change the TP export and attenuation data contained in the 2000 Upper Snake Rock TMDL, approved by the EPA. ‘For the present, the *TP and TSS export and attenuation models are the same as used in the Upper Snake Rock TMDL.*’ ”

Response: EPA agrees that this sentence is confusing, but nonetheless the discussions in the responses to comments above identify clear and specific language in the 2005 TMDL Modification that make it clear that attenuation was taken into account in establishing wasteload allocations in the 2005 TMDL Modification.

Loss and attenuation is identified in the 2005 TMDL Modification.

Page 32, Section 8.0 Loss and Attenuation

“Within this system there is “loss” (downstream transport) and “attenuation” (localized placement) of sediment and total phosphorus.”

Page 33, Last Sentence

“The Middle Snake River has phosphorus export losses that range from 4.2 – 36.5% (Buhidar 1999A [Technical Support Document, Section VII] based on instream column monitoring data at the various compliance points. This range supports the research of Smith and Alexander (2000).”

“In addition, data from the Idaho Power Company’s trash racks appears to indicate that biomass (as aquatic plant growths) are being cleaned out of the river system. The amount of biomass being collected appears to follow a pattern similar to the loss/attenuation percentage being applied to TP.”

5. **Comment:** The City of Twin Falls commented: “Section 9.0 of the 2005 Upper Snake Rock TMDL Modification is entitled ‘Total Phosphorus Pollutant Trading.’ The first sentence of this modification refers back to the Guidance for total phosphorus trading. “Total phosphorus pollutant trading is presently described under a trading guidance that was developed by EPA and DEQ.” The Guidance, in Appendix C, very specifically set forth a 1:1 trading program for phosphorus in this reach of the Snake River. In addition, the last paragraph of Section 9.0 of the 2005 Upper Snake Rock TMDL Modification gives an example of phosphorus trading that uses the approved 1:1 trading ratio:

As an example, if facility X has an NPDES permit allowing for the discharge of 100 lb/day of phosphorus and is able, through technology, to reduce its discharge to 75 lb/day, it has 25 credits to sell. If facility Y has an NPDES permit allowing for the discharge of 100 lb/day phosphorus, but is currently discharging 125 lb/day, it is exceeding its permit limit by 25 lb/day phosphorus. *Facility Y may either find a way to reduce an additional 25 lb/day of phosphorus in order to meet its permit limit or it may purchase 25 lb/day of phosphorus credits from facility X. At this point, the same amount of phosphorus is discharged into the river, 200 lb/day, but through a different distribution between facilities X and Y. Each point source must reflect the actual discharge amount of phosphorus in their Discharge Monitoring Reports and also show the purchase of credits in a Trade Summary report in accordance with DEQ’s trading guidance.”*

Response: EPA did not develop nor approve IDEQ’s 2003 Draft Trading Guidance. The scope of EPA’s TMDL approval does not include implementation plans, including plans related to potential trading activities. Based on inconsistencies between the 2003 draft Trading Guidance and the 2005 TMDL Modification calculations, EPA believes that IDEQ erred in referring to the trading guidance in the TMDL. This error did not affect the required elements of the TMDL that were subject to EPA approval.

Nevertheless, Section 9.0, page 35 of the 2005 TMDL Modification also correctly states that *“Pollutant trading is a tool that **can** be used to help a point source meet its NPDES phosphorus limits.” “Trading is voluntary, takes place through private contracts, and is regulated through **compliance with NPDES permit requirements.**” (Emphasis added).*

EPA issues NPDES permits in the State of Idaho and has discretion on whether to include trading provisions in NPDES permits. In light of the inconsistencies outlined in the fact sheet for the permit modification and in these responses, EPA has chosen not to include the water quality trading provisions in the Twin Falls permit. In this case, EPA has determined that it cannot authorize trading until trading ratios are developed that account for the attenuation which was included in the wasteload allocations in the 2005 TMDL Modification. See also Response to Comments 1, 2 and 3.

6. **Comment:** The City of Twin Falls commented: “EPA has already approved the 1:1 ratio in the 2000 Upper Snake Rock TMDL and in the 2003 Guidance for Pollutant Trading, and there is nothing in the 2005 Upper Snake Rock TMDL that modifies the 1:1 trading ratio for

phosphorus. EPA also recognizes this 1:1 phosphorus trading ratio, as demonstrated by the issuance of the aquaculture general permit which contains this 1:1 ratio for phosphorus trading.”

Response: EPA has approved, under the CWA, *The Upper Snake Rock Watershed Management Plan (or Upper Snake/Rock Creek Watershed Management Plan), The Upper Snake Rock Subbasin Assessment & The Upper Snake Rock Total Maximum Daily Load, December 20, 1999* (1999 “Mid-Snake” (Upper Snake Rock) TMDL) and the 2005 TMDL Modification to the 1999 “Mid-Snake” (Upper Snake Rock) TMDL. As noted in the previous comment, TMDL implementation, including proposed trading efforts, are not within the scope of TMDL approvals. Under the CWA, EPA is not required to approve or disapprove State Pollutant Trading Guidance and has not acted to approve Idaho’s draft 2003 Pollutant Trading Guidance.

II. Idaho Conservation League Comments:

7. **Comment:** The Idaho Conservation League (ICL) commented, “We concur with EPA’s conclusion that pollutant trading, as outlined in the stricken permit sections, was not technically defensible and posed a risk to water quality in the mid-Snake River region. EPA’s decision making on this matter, as presented in the Fact Sheet for this NPDES permit, is consistent with the information presented in our prior comments and our appeal and supporting documents. As such, we support EPA’s decision to remove such pollutant trading from the Twin Falls wastewater treatment plan[t] NPDES permit.”

Response: EPA recognizes the comment supporting the permit modification. No action is required.

8. **Comment:** ICL also said: “Several other matters warrant mention at this time.

TSS Limits

ICL finds that the interim limits for TSS (both average monthly and average weekly) are far too high and will result in continued contributions to the ongoing violations of water quality for this parameter in the mid-Snake region. As such, EPA should reduce (i.e. make more stringent) the interim TSS limits to ensure achievement of TMDL goals for this area.

Further, the final TSS limits need to be reduced to reflect the TMDL assigned WLAs for this facility. The WLA for this facility is 146.4 tons/year. However, the application of the proposed average monthly limit results in 178.85 tons/year discharge. $[(980 \text{ lbs/day} \times 365 \text{ days/year}) / 2000 \text{ lbs/ton}] = 178.85 \text{ tons/year}$. Thus the discharge limit is not consistent with the assigned WLA.

Total Phosphorus Limits

This facility’s WLA for total phosphorus is expressed as a maximum pounds per day discharge. To the best of our knowledge this is meant to be strictly interpreted as a limit on the number of pounds of total phosphorus that this facility can discharge on any given day. Thus, the NPDES permit needs to include a “Maximum daily limit” for total phosphorus. This limit should not exceed 710 lbs/day.

The average monthly limit of 710 lbs/day pays homage to the facility's WLA but, since it is a monthly average, it does nothing to ensure that the daily limit of 710 lbs/day is adhered to. This is so because averaging allows for daily discharges that greatly exceed the monthly average of 710 lbs/day, as long as they are compensated for by lower discharges on other days. It is these days that exceed 710 lbs/day that violate the TMDL's wasteload allocation. The average weekly limit of 990 lbs/day does even less to ensure that this facility does not violate its 710 lbs/day WLA as assigned in the relevant TMDL.

These monthly and weekly average limits fail to ensure compliance with the TMDL WLAs and will result in unlawful discharges of TP to the river and cause this segment of river to exceed the target TP concentrations.”

Response: The Clean Water Act regulation at 40CFR §122.62 states: "When a permit is modified, only the conditions subject to modification are reopened." The only conditions modified and reopened to public comment during the public comment period, March 29—April 29, 2010, were to not include water quality trading provisions in the Twin Falls permit. Pursuant to 40 C.F.R. § 124.19(d), EPA withdrew Section I.B.1 and Appendix A from NPDES Permit No. ID-002127-0 effective March 2, 2010. Therefore, we find that these additional comments concerning the TSS and total phosphorus limits are outside the scope of the modification. Comments on these permit provisions should have been raised during the comment period of May 15 – July 15, 2009 when the draft permit was open to public review. The commenter did not raise these issues during that comment period, and it is too late to raise them now.

Furthermore, the effluent limitations for Total Phosphorus are in effect and can no longer be challenged. These limits have been in effect since December 23, 2009, in accordance with EPA's November 20, 2009 letter, "Notification of Stayed Permit, City of Twin Falls".