

Upper Klamath and Lost River Subbasins

Total Maximum Daily Load and Water Quality Management Plan

Response to Petitions for Reconsideration of the TMDL

April 3, 2017



State of Oregon
Department of
Environmental
Quality

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Introduction

This *Response to Petitions* document addresses comments presented by seven entities seeking reconsideration of the Upper Klamath and Lost River Subbasins TMDL and WQMP (December 2010). All comments presented in the seven petitions have been considered by the Oregon Department of Environmental Quality (DEQ) and the TMDL/WQMP will be revised to reflect revisions to the TMDL/WQMP identified in the following response to Petitions. DEQ appreciates the time and effort the petitioners have taken to critique the TMDL and WQMP.

Background

Pursuant to ORS 183.484, OAR 340-042-0070, and OAR 137-004-0080, seven entities (City of Klamath Falls, South Suburban Sanitary District, Columbia Forest Products, PacifiCorp, Klamath Water Users Association, Klamath Drainage District, and Klamath County) submitted Petitions for Reconsideration (“Petition”) to the Director of DEQ requesting that DEQ grant the Petitions and withdraw the Upper Klamath and Lost River Subbasins TMDL and WQMP issued on December 21, 2010.

The Director granted the Petition for Reconsideration on April 11, 2011, but did not withdraw the TMDL order pending completion of the Reconsideration process. Following the beginning of the reconsideration process, significant challenges to DEQ Water Quality Standards resulted in requests to delay the reconsideration until the standards issues were resolved by the federal court. Though not entirely resolved, there is sufficient clarity to complete the reconsideration and revision of the TMDLs. Since the reconsideration was granted work on implementation and further work on reconsideration has been slowed due to loss of staff in the TMDL Coordinator position for the Klamath Basin. In July of 2014 the position in the Klamath Basin was refilled. Since that time the Department has been working on re-establishing the work that had been conducted during the initial reconsideration process. DEQ met with five of the petitioners in September of 2015 to discuss the issues raised in their petitions and to inform the petitioners that the Department is proceeding with the petitions to reconsider the TMDL. The remaining petitioners have been unavailable for meetings.

The parties identified in the **Table 1** submitted petitions to DEQ for reconsideration of the Upper Klamath and Lost River Subbasins TMDL and WQMP. **Table 2** and **Table 3** identify abbreviations and describe terms used in this document.

Temperature

The temperature components of the Upper Klamath and Lost River Sub-Basin TMDL, including the WLAs for temperature, were withdrawn on reconsideration pursuant to an order issued on August 8, 2013. These TMDL components were based on the Natural Conditions Criteria (NCC) located in OAR 340-041-0028(8). This provision of the temperature rule was invalidated by the Oregon U.S. District Court. EPA thereafter withdrew its approval of the criteria. With the invalidation of the NCC and withdrawal of the temperature TMDL, the remaining applicable numeric and narrative temperature criteria are controlling. The surface waters covered by this TMDL will remain on the CWA 303(d) list of impaired water bodies for temperature.

Table 1. List of parties requesting reconsideration.

Petitioner	Reference	Document	Date Received	Format of Submittal
City of Klamath Falls	CKF	Petition	Feb. 18, 2011	Mail
City of Klamath Falls	CKF	Request to delay reconsideration	Sept. 23, 2011	Mail and email
City of Klamath Falls	CKF	Request to adopt a phased TMDL	Feb. 10, 2012	Mail and email
South Suburban Sanitary District	SSSD	Petition	Feb. 17, 2011	Mail and email
Columbia Forest Products	CFP	Petition	Feb. 22, 2011	Mail and email
Columbia Forest Products	CFP	Request to delay reconsideration	Sept. 23, 2011	Mail and email
PacifiCorp	PC	Petition	Feb. 22, 2011	Mail and email
PacifiCorp	PC	Additional information	July 19, 2011	Mail and email
PacifiCorp	PC	Additional information	Oct. 14, 2011	Mail and email
Klamath Water Users Association	KWUA	Petition	Feb. 23, 2011	Mail and email
Klamath Water Users Association	KWUA	Request to delay reconsideration	Sept. 27, 2011	Mail and email
Klamath Drainage District	KDD	Petition	Feb. 22, 2011	Mail and email
Klamath County	KC	Petition	Feb. 22, 2011	Mail and email
Klamath County	KC	Request to delay reconsideration	Sept. 27, 2011	Mail and email

Table 2. Abbreviations and terms used in this document

°C	Degrees Celsius
CKF	City of Klamath Falls
CFP	Columbia Forest Products
DEQ	Department of Environmental Quality
DMA	Designated Management Agency
DO	Dissolved Oxygen
EPA	United States Environmental Protection Agency
°F	Fahrenheit
HUA	Human Use Allowance
KC	Klamath County
KDD	Klamath Drainage District
KWUA	Klamath Water Users Association
LA	Load Allocation
LC	Loading Capacity
MOS	Margin of Safety
NPDES	National Pollutant Discharge Elimination System
NTP	Natural Thermal Potential
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
PC	PacifiCorp
RC	Reserve Capacity
SSSD	South Suburban Sanitary District
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey
WLA	Wasteload Allocation
WWTP	Waste Water Treatment Plant
WQ	Water Quality
WQMP	Water Quality Management Plan

Table 3. Description of Selected Terms

Criteria, Biologically Based Criteria	Typically used herein in the context of water quality standards. The 'criteria' are the numeric or narrative targets of the standard designed to protect beneficial uses. Biologically based criteria are derived from studies of the requirements of aquatic organisms, often fish.
Designated Management Agency	Organization responsible for Implementation Planning designed to attain TMDL load allocations and surrogates. OAR 340-042-0030(2): Federal, state or local government agency that has legal authority over a sector or source contributing pollutants, and is identified as such by the DEQ in a TMDL.
Load Allocation	Means the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading that may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting loading. Whenever possible, natural and nonpoint source loads should be distinguished. (OAR 340-041-0002(30))
Loading Capacity	Means the greatest amount of loading that a water body can receive without violating water quality standards. (OAR 340-041-0002(31))
Nonpoint Source	This is any source of water pollution other than a point source. And is generally a diffuse or unconfined source of pollution to waters of the state (OAR 340-041-0002(42)).
Natural Conditions	The conditions or circumstances affecting the physical, chemical, or biological integrity of a water of the state that are not influenced by past or present anthropogenic activities (OAR 340-041-0002(40)). The Natural Conditions Criteria was applied where the department determined that the natural conditions (OAR 340-041-0007(2)) or the natural thermal potential of all or a portion of a water body exceeded the biologically-based criteria (OAR 340-041-0002(8)). However, EPA disapproved rule section OAR 340-041-0007(2) and OAR 340-041-0028(8), therefore these sections are no longer effective as a water quality criterion for purposes of TMDLs under CWA section 303(d).
Point Source	Localized human-made source of pollution, conveyed to water body via human made conveyance (OAR 340-041-0002(46)).
Reserve Capacity	Loading capacity set aside for new or expanded sources of pollution (OAR 340-041-0002(49))
Subbasin	4 th field of the Hydrologic Unit Code classification of watersheds.
Surrogate Measures	The substitute methods or parameters used in a TMDL to represent pollutants (OAR 340-041-0030(14)).
TMDL	This is a written quantitative plan and analysis for attaining and maintaining water quality standards and includes the elements described in OAR 340-042-0040 (OAR 340-042-0030(15)).
Wasteload Allocation	Loading capacity allocated for point sources (OAR 340-041-0002(67))
WQMP	WQMP is the element of a TMDL describing strategies to achieve allocations identified in the TMDL to attain water quality standards (OAR340-042-0030(17)).

In the following sections, responses are organized by each Petitioner. The changes identified in the following responses have been made to the TMDL/WQMP document. Additional grammatical, editorial, and formatting errors are not addressed here but corrections have been made in the document.

Petitioner Issues and Responses

City of Klamath Falls (CKF)

CKF-1: Allocations should focus on restrictions on pollution to the UKL system before imposing onerous requirements on downstream sources.

DEQ Response: The state is required to develop TMDLs for water quality limited waterbodies when technology-based effluent limits and existing water quality controls are not expected to be sufficient for the waterbody to meet water quality standards (Clean Water Act Section 303(d) and 40 CFR 130.7). When DEQ develops a TMDL, the allocations must be sufficiently protective that EPA can find there is a reasonable assurance that the standards will be attained. Developing and implementing a TMDL is not optional under the requirements of the Clean Water Act. The failure to develop or implement a TMDL would not provide the relief sought by the petitioners. In the absence of a TMDL, DEQ (or EPA if DEQ failed to act) generally would be required to issue permits that prohibit discharge of the relevant pollutants because the receiving waters are water quality limited.

DEQ believes that it is necessary to implement the Klamath River TMDLs and continue implementation of the Upper Klamath Lake Drainage TMDLs simultaneously. Although attainment of Upper Klamath Lake TMDLs may take decades, we believe that TMDL implementation downstream of Upper Klamath Lake should not be delayed. The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls. Water quality trading as described in the WQMP may provide an opportunity in the interim for the City's successful TMDL implementation strategy.

CKF-2: The City opposes introducing an allocation strategy in the TMDL that will never result in actual improvements to water quality.

DEQ Response: Allocations that have been developed under this TMDL are necessary for water quality improvement. Though some sources are responsible for more pollutant load than others, all of the allocations will need to be met to provide full support of beneficial uses. The Department is required to develop wasteload allocations for all facilities with NPDES permits, and these allocations must be implemented through the permits as soon as possible. DEQ appreciates the burden carried by the City. We recognize that the TMDL requirements are in addition to the relatively larger costs associated with the required facility upgrades. DEQ will work closely with the City to minimize the impacts to the City through the permitting process and will allow a compliance schedule if possible.

CKF-3: Forcing the City to spend millions of dollars on treatment technologies to meet limits that will result in inconsequential improvements to water quality is unreasonable, arbitrary and capricious, not supported by substantial evidence, an abuse of discretion, and contrary to law.

DEQ Response: The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042). Load allocations are consistent with Oregon's TMDL rule: 340-042-0040(h) and do not require pollutant reductions beyond natural conditions. In addition, anthropogenic sources are only responsible for their own discharges or actions causing or contributing the pollutant described in the

TMDL. By definition, the TMDLs are the sum of the allocations [40 CFR 130.2(i)] comprised of Load Allocations from non-point sources and Wasteload Allocations from point sources, a reserve capacity and a margin of safety. The TMDL shows that the allocations to point sources result in an improvement from the baseline condition and will meet water quality standards. Scenarios with loading greater than the allocations (i.e. current loading) resulted in pH criterion exceedance. The Department believes that the TMDL allocations are challenging but achievable and that they are necessary to support beneficial uses of the Klamath River. Achieving any measure of reduction may take several years. During implementation sources including the City of Klamath Falls WWTP can explore achieving allocations through a variety of measures including facility improvements, operational changes or pollutant trading.

CKF-4: DEQ should eliminate the City’s year-round wasteload allocations. The City’s WLA allocation scenarios that utilize DEQ’s model demonstrate there is no need for winter allocations.

DEQ Response: DEQ has worked collaboratively with the City to develop seasonal waste load allocations that achieve water quality standards. The new analysis meets a similar level of technical rigor as the original analysis. The City of Klamath Falls provided DEQ with an alternative TMDL scenario with the WWTPs discharging at a higher concentration from October 16 to May 14 (Wells, April 2012). DEQ reviewed the alternative WLA scenario and determined that the guidelines were followed and that the scenario achieved the DO and pH criteria for the summer period. DEQ further reduced the City of Klamath Falls’ suggested phosphorus concentrations during the non-summer period to protect against predicted pH excursions in JC Boyle Reservoir for the “with dams” scenario during particular times of the year. The results of the revised DEQ scenario will result in meeting water quality standards and alternative WLAs will be in the draft revised TMDL. Allocations based on the revised scenario will still result in effluent limitations for the Waste Water Treatment Plants, though they will vary between seasons. See table below for a summary of the seasonal allocations.

New Table (2-10) in the TMDL.

Source	Time Period	Flow Rate Average 2000 (MGD)	Total Phosphorus Average (mg/L)	Total Phosphorus Allocation (lb/day)	Total Nitrogen Average (mg/L)	Total Nitrogen Allocation (lb/day)	BOD ₅ Average (mg/L)	BOD ₅ Allocation (lb/day)
Klamath Falls WWTP	5/15 – 10/15	2.9	0.35	8.6	23	556	18	439
	10/16 – 5/14	3.5	1.9	54	23	671	19	549
South Suburban WWTP	5/15- 10/15	1.7	0.35	4.9	23	318	18	251
	10/16 – 5/14	2.3	1.9	36	23	448	19	367

Previous Table (2-10) in the TMDL.

Source	Flow Rate Average 2000 (cfs)	Flow Rate Average 2000 (MGD)	Total Phosphorus Average (mg/L)	Total Phosphorus Allocation (lb/day)	Total Nitrogen Average (mg/L)	Total Nitrogen Allocation (lb/day)	BOD ₅ Average (mg/L)	BOD ₅ Allocation (lb/day)
Klamath Falls WWTP	5.0	3.25	0.35	9.6	23	618	18	488
South Suburban WWTP	3.2	2.05	0.35	6.0	23	390	18	308

CKF-5: It is illogical, inconsistent, contradictory, and arbitrary for DEQ to establish WLAs based on the model without dams and then to flip flop and impose year-round WLAs based on current conditions with dams.

DEQ Response: The allocation approach was developed to protect water quality under current conditions and improved conditions. The magnitude of the allocation was developed under a scenario of improved water quality conditions. Because of the predicted system improvement in that scenario the season of impairment is shorter than the current season of impairment. Therefore, we used the current season of impairment to decide the duration of allocations, so impacts to the current system are minimized. This implicitly acknowledges that improvement from Upper Klamath Lake may take decades to realize. An allocation period based on predictions of improved conditions could result in times of year when a source would continue to cause or contribute to a water quality exceedance until all other sources have been controlled.

CKF-6: DEQ is legally required to eliminate the City's temperature WLA.

DEQ Response: In response to the judicial decision invalidating the natural conditions criteria, DEQ has withdrawn the Klamath and Lost River temperature TMDL and the associated wasteload allocations. Thermal effluent limits in future permits issued for the City's wastewater treatment plants will be based directly on the remaining applicable temperature criteria and anti-degradation policies.

CKF-7: DEQ is legally required to remedy significant deficiencies in its water quality management plan. The WQMP is inadequate because it has no schedule for achieving appropriate incremental and measurable water quality targets, no timeline for attainment of water quality standards and cost analysis to implement load allocations.

DEQ RESPONSE: The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042). The Department believes that the TMDL allocations are significant but achievable and have committed to working with the City and other parties to implement these pollutant reductions in the most cost effective and efficient means permissible. It is anticipated that attainment of water quality standards may take many years. DEQ expects each source-specific implementation plan to include a timeline for implementing management strategies and a schedule for completing measurable milestones (OAR 340-042-080 (3)(a)(B)). Section 5.3.13 of the WQMP relies on OAR 340-042-0040 (I) Water quality management plan (WQMP). This element of the TMDL rule provides the framework of management strategies to attain and maintain water quality standards. The framework is designed to work in conjunction with detailed plans and analyses provided in sector-specific or source-specific implementation plans. The WQMP will address the following: *(N) General discussion of costs and funding for implementing management strategies. Sector-specific or source-specific implementation plans may provide more detailed analyses of costs and funding for specific management strategies.*

CKF-8: DEQ needs to either delay, phase-in, or set interim targets in the TMDL based on the following reasons:

- 1) **Delayed or phased-in TMDLs with interim targets is warranted to address and remedy all of the significant legal, scientific, and technical concerns raised in the City’s petition.**
- 2) **Delayed or phased-in TMDLs with interim targets is warranted to address the following uncertainties that will continue to limit stakeholder buy-in and impeded implementation of this TMDL:**
 - **Uncertainty about anticipated phosphorus load reductions under the UKL TMDL and revisions to the UKL TMDL,**
 - **Uncertainty about the TMDL model validity,**
 - **Uncertainty about whether the four Klamath dams will be removed and the water quality effects of such pending removals, and**
 - **Uncertainty about infrastructure that will be needed to address pending arsenic criteria.**

DEQ Response: DEQ has no authority under the CWA to phase in a TMDL, except via compliance schedules in NPDES permits and implementation schedules for WQMP components. A delay of the TMDL would mean that DEQ would need to impose stricter limits in NPDES permit renewals.

The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. The schedule for TMDL implementation and other NPDES requirements will be specified in the new NPDES permit, which may include a compliance schedule that accounts for the difficulty in implementing these pollutant controls. The compliance schedule for the NPDES permit is the appropriate mechanism for phasing the “moving parts.” In advance of the TMDLs, DEQ has been working with the City to move forward with long awaited upgrades to their wastewater treatment plant through substantial loan funding from our State Revolving Loan Fund Program. This work will precede and be in addition to the TMDL-related pollutant controls that we believe will result in comparatively less financial impact. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls.

CKF-9: There is no scientific or technical evidence that the presumed and unprecedented reductions of loads from the highly variable and nutrient-rich UKL will ever occur. Therefore, there is no rational basis to support DEQ’s assumptions about the loads it expects to reduce from the UKL now, in five years, or decades into the future.

DEQ Response: DEQ believes its estimates of the level of potential improvement for Upper Klamath Lake are rational and supported by substantial evidence, including the peer reviewed analysis used to support the development of the EPA approved Upper Klamath Lake TMDL. For reasons outlined in the Upper Klamath and Lost Rivers TMDL, DEQ chose a subset of those conditions to use as a baseline for that TMDL. This subset of conditions represents better water quality than the average predicted conditions and hence is not expected to occur every year. Due to large quantities of nutrients (principally phosphorus) stored in the sediment of Upper Klamath Lake, there will be a time lag between the reduction in loading to Upper Klamath Lake and improved water quality conditions at the outlet. However, there is evidence that phosphorous levels have decreased in some tributaries to Upper Klamath Lake (Walker et al., 2012). We acknowledge that it may take decades to achieve full attainment of Upper Klamath Lake TMDL.

Moreover, uncertainties about the potential improvement in water quality in Upper Klamath Lake would not justify a failure to adopt and implement the Klamath Lake and Lost River TMDL. Reductions in nutrient loading from all sources is important. In addition, the failure to issue the TMDL or issuance of the TMDL without accounting for the reduction estimated for Upper Klamath Lake would not benefit the City

but rather would result in the need for the City to make additional immediate reductions in its discharge loads. The TMDL process allows for a more practicable planning and implementation of such reduction strategies.

CKF-10: DEQ assigned allocations in the TMDL based on model output that relied on erroneous assumptions and therefore the validity of the modeling exercise and the modeling output is highly uncertain. Argument is supported by new information: U.S. Geological Survey, *Modeling Klamath River Hydrodynamics, Water Temperature and Water Quality from Link River to Keno Dam, OR, 2006 - 2009*, attached as Exhibit 6.

DEQ Response: The Upper Klamath Lake boundary condition used in the TMDL model is based on the best data and science available at the time the model was developed, and is informed by policy decisions related to the implementation of the Clean Water Act. We believe the assumptions were well considered and appropriate to the task. DEQ has reviewed the work recently completed by the USGS and believe that, although it presents an alternate outcome, it does not significantly depart from DEQ's conclusions. The City's petition noted some inconsistencies in how the pH boundary condition was derived for the TMDL scenario. DEQ technical staff cooperatively reviewed these issues and DEQ provided the City's consultant with information to demonstrate that the apparent inconsistencies in model documentation did not reflect errors in the model.

The USGS in cooperation with Bureau of Reclamation and Watercourse Engineering released a water quality model for part of the Keno impoundment in July 2011 (Sullivan, A.B., Rounds, S.A., Deas, M.L., Asbill, J.R., Wellman, R.E., Stewart, M.A., Johnston, M.W., and Sogutlugil, I.E., 2011, Modeling hydrodynamics, water temperature, and water quality in the Klamath River upstream of Keno Dam, Oregon, 2006-09: U.S. Geological Survey Scientific Investigations Report 2011-5105, 70 p.). The USGS modeling effort was intended to: "... examine the effects of several reduced-loading scenarios consistent with total maximum daily load (TMDL) targets". The USGS analysis did not recalculate TMDL allocations that meet State and Federal criteria for development of TMDLs. The USGS SOD representation allowed for a better DO calibration during the fall. Although this is an important process difference between the models, we cannot predict how the different representation would impact allocations because both representations predict that organic matter and dying algae cause the DO crash. DEQ presents more detailed observations on the USGS report in the attached technical memorandum.

In general, the USGS model of Keno impoundment is insufficient to assess the efficacy of the City's TMDL allocations for the following reasons:

- geographic scope was limited to segments of the Keno impoundment, and
- recalculation or evaluation of TMDL allocations was not a stated goal of the modeling exercise.

Consequently, we believe that the USGS model does not provide substantial evidence that it would be inappropriate to use the TMDL analysis (December 2010), and the current TMDL represents the best available information to assign allocations in accordance with Oregon's TMDL rule OAR 340-042.

CKF-11: It is unreasonable, bad public policy, and an abuse of discretion for the Department to require the City to construct any facilities to respond to the WLAs before it has the certainty as to what controls, if any, will be required for arsenic.

DEQ Response: The current set of TMDLs does not include analysis or allocations of arsenic. Once the TMDL is approved by EPA, DEQ will incorporate the new Waste Load Allocations established in the TMDL into the facility NPDES permit. During the renewal of the permit, the need for effluent discharge limits for toxic pollutants such as arsenic will also be reviewed. The City is currently undertaking activities to control arsenic discharges, and DEQ will be reviewing what, if any, other control measures are needed as part of the permit renewal process.

CKF-12: DEQ should not close the reconsideration period until after the USGS has completed its near-term research on Upper Klamath Lake and the Klamath River.

DEQ Response: DEQ has reviewed the information provided in the USGS report “Revision and proposed modification for a total maximum daily load model for Upper Klamath Lake, Oregon” and has determined that the information does not provide sufficient evidence to alter the outcome of the reconsideration process in regards to the City’s petition. DEQ will continue to work closely with the various stakeholder groups to review the TMDL as water quality conditions adjust to the actions through TMDL implementation planning.

South Suburban Sanitary District (SSSD)**SSSD-1: SSSD customers will suffer severe economic harm as a result of this (TMDL) order.**

DEQ Response: The Klamath River TMDLs were developed in accordance with Oregon’s TMDL rule (OAR 340-042). Allocations are consistent with Oregon’s TMDL rule: 340-042-0040(g) & (h) and do not require pollutant reductions beyond natural conditions. In addition, anthropogenic sources are only responsible for their own discharges or actions causing or contributing the pollutant described in the TMDL. By definition, the TMDLs are the sum of the allocations [40 CFR 130.2(i)] comprised of Load Allocations from non-point sources and Waste Load Allocations from point sources, a reserve capacity and a margin of safety. The TMDL shows that the allocations to point sources result in a 0.6 pH increase to the baseline condition which uses the available assimilative capacity of the system and will meet the Klamath Basin pH criteria of 9.0 (OAR 340-041-0185(1)(a) (see Figure 2-37, Upper Klamath and Lost River Subbasin TMDL 2016). Scenarios with loading greater than the allocations (i.e. current loading) resulted in pH criterion exceedance. The Department believes that the TMDL allocations are challenging but achievable and that they are necessary to support beneficial uses of the Klamath River. DEQ expects that achieving any measure of reduction will take several years. During implementation sources including the South Suburban Sanitary District can explore achieving allocations through a variety of measures including facility improvements, operational changes or pollutant trading.

SSSD-2: Evidence submitted to DEQ clearly demonstrate errors have been made in the development of the Upper Klamath and Lost River Subbasins TMDL. Additional review of the TMDL model and further assessment is requested to address key areas of deficiency including technical concerns presented by USGS as well as more thorough analysis of the impact of nonpoint sources.

DEQ Response: The Upper Klamath and Lost River Subbasins TMDL is based on the best data and science available at the time the model was developed, and is informed by policy decisions related to the implementation of the Clean Water Act. We believe the assumptions were well considered and appropriate to the task. DEQ has reviewed the work recently completed by the USGS and believe that, although it presents an alternate outcome, it does not significantly depart from DEQ’s conclusions.

The USGS in cooperation with Bureau of Reclamation and Watercourse Engineering released a water quality model for part of the Keno impoundment in July 2011 (Sullivan, A.B., Rounds, S.A., Deas, M.L., Asbill, J.R., Wellman, R.E., Stewart, M.A., Johnston, M.W., and Sogutlugil, I.E., 2011, Modeling hydrodynamics, water temperature, and water quality in the Klamath River upstream of Keno Dam, Oregon, 2006-09: U.S. Geological Survey Scientific Investigations Report 2011-5105, 70 p.). The USGS modeling effort was intended to: “... examine the effects of several reduced-loading scenarios consistent with total maximum daily load (TMDL) targets”. The USGS analysis did not recalculate TMDL allocations that meet State and Federal criteria for development of TMDLs. The USGS SOD representation allowed for a better DO calibration during the fall. Although this is an important process difference between the models, we cannot predict how the different representation would impact allocations because both

representations predict that organic matter and dying algae cause the DO crash. DEQ presents more detailed observations on the USGS report in the attached technical memorandum. In general, the USGS model of Keno impoundment is insufficient to assess the efficacy of the City's TMDL allocations for the following reasons:

- does not include a calibrated pH model,
- geographic scope was limited to segments of the Keno impoundment, and
- recalculation or evaluation of TMDL allocations was not a stated goal of the modeling exercise.

Consequently, we believe that the USGS model does not provide substantial evidence that it is inappropriate to use the TMDL analysis (December 2010), which represents the best available information to assign allocations in accordance with Oregon's TMDL rule OAR 340-042.

Klamath County (KC)

KC-1: DEQ is required to follow directives from the Environmental Protection Agency (EPA) and federal regulations. The Klamath TMDL should consider socioeconomic impacts of implementation in accordance with National Environmental Policy Act (NEPA) guidelines.

DEQ Response: The TMDL development process complies with Oregon's TMDL rule (OAR 340-042) and does not require analysis of socioeconomic impacts. The TMDL is a Department Order that does not trigger a NEPA analysis since it is not a federal action. The economics of implementation can be considered as part of developing individual TMDL implementation plans and wastewater permits (OAR 340-042).

KC-2: Irrigation Districts should not be listed as DMAs, as their role is to deliver water and they do not have the legal authority to regulate water going in and out of their systems.

DEQ Response: The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042). Load allocations are attributed to existing or potential sources. The TMDL complies with OAR 340-042 and policy decisions related to implementation of the Clean Water Act. The Irrigation Districts actions or activities could cause or contribute the pollutants the TMDL was developed. Therefore, water management districts were identified as designated sources responsible for submitting source specific implementation plans.

KC-3: Klamath TMDL is based on data from and assumptions regarding the Upper Klamath Lake (UKL), Williamson and Sprague River TMDLs. Base data for each TMDL, however, must be appropriate to the stream covered by the specific TMDL. Such base data must consider stream-specific background levels. The Klamath TMDL is not based on stream-specific background levels for the water bodies it covers.

DEQ Response: The Upper Klamath Lake Drainage TMDL is based on the best available data and science and is informed by policy decisions related to the implementation of the Clean Water Act. Together the TMDLs incorporated quantitative information from waterbodies throughout the basin to form a comprehensive analysis for water quality in Oregon and California. The TMDL may be revised in response to new or additional data collected through time.

KC-4: DEQ failed to follow its own rule by establishing and imposing pollutant load allocations even though "contributions" from the UKL system obliterate any impacts from nonpoint source discharges on the river. In support of this ground for reconsideration, Klamath County joins in

and incorporates by reference paragraphs 12-17 in the Petition for Reconsideration filed by the City of Klamath.

DEQ Response: The state is required to develop TMDLs for water quality limited waterbodies when technology-based effluent limits and existing water quality controls are not expected to be sufficient for the waterbody to meet water quality standards (Clean Water Act Section 303(d) and 40 CFR 130.7). When DEQ develops a TMDL, the allocations must be sufficiently protective that EPA can find there is a reasonable assurance that the standards will be attained. Developing and implementing a TMDL is not optional under the requirements of the Clean Water Act. The failure to develop or implement a TMDL would not provide the relief sought by the petitioners. In the absence of a TMDL, DEQ (or EPA if DEQ failed to act) generally would be required to issue permits that prohibit discharge of the relevant pollutants because the receiving waters are water quality limited.

DEQ believes that is necessary to implement the Klamath River TMDLs and continue implementation of the Upper Klamath Lake Drainage TMDLs simultaneously. Although attainment of Upper Klamath Lake TMDLs may take decades, we believe that TMDL implementation downstream of Upper Klamath Lake should not be delayed. The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls. Water quality trading as described in the WQMP may provide an opportunity in the interim for the City's successful TMDL implementation strategy.

The water quality analysis used to develop the Klamath River TMDL demonstrates the pollutant loads from point and nonpoint sources discharging into the Klamath River contribute to the water quality impairment, despite the significant pollutant loads from Upper Klamath Lake. DEQ believes that it is necessary to simultaneously implement the Klamath River TMDLs and continue implementation of the Upper Klamath Lake Drainage TMDLs. Although attainment of Upper Klamath Lake TMDLs may take decades, we believe that TMDL implementation downstream of Upper Klamath Lake should not be delayed. The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls.

KC-5: Klamath TMDL does not properly designate points of observation (measurement points). Points of observation should be established with public input on the locations. The TMDL should require that Klamath County be involved when designating these points to help ensure that they best represent the stream system and provide an accurate depiction of the conditions.

DEQ Response: We believe the TMDL is based on the best available data and appropriately sets allocations. We look forward to continuing our collaborative work with the County in pursuing compliance with the TMDL through the County's TMDL implementation plan that includes monitoring and evaluation of the County's implementation progress.

KC-6: Klamath TMDL does not contain evidence to establish that its goals are attainable, as shown by the appropriate science with approved peer review. There should be documented evidence to support modeling to determine what is attainable.

DEQ Response: Please refer to DEQ's response to CKF-1. The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042). The Department believes that the TMDL allocations are challenging but achievable. We acknowledge that achieving any measure of reduction will take several years.

KC-7: (Joinder in Allegations Set Forth in Other Petitions for Reconsideration) In addition to the foregoing, Klamath County also joins in paragraphs 9-10, 16-18, and 25-28 of Columbia Plywood's

Petition for Reconsideration, and paragraph 19 of the City of Klamath Fall's Petition for Reconsideration.

Note: The joinder is generally consistent with the following paragraph from Columbia Forest Products Petition for Reconsideration (February 18, 2011): Paragraphs 16, 17, 18, 27, and 28:

Paragraph 16: Upper Klamath Lake TMDL calls for substantial reduction in nutrient loading to limit algal blooms. The nutrient load and associated impact from algal blooms eclipses any impact by the downstream point sources governed by the Klamath TMDL.

Paragraph 17: Recent research shows that phosphorus may not be the driving factor for poor water quality in Upper Klamath Lake. Since implementation of the Upper Klamath Lake TMDL, phosphorous concentrations in Upper Klamath Lake have not decreased. This means that assumptions in the Upper Klamath Lake TMDL are likely inaccurate and that water quality standards may be not attainable in Upper Klamath Lake. Because of this, a major part of the foundation for the Klamath TMDL is erroneous.

Paragraph 18: The Klamath TMDL is fundamentally flawed because: (a) it is based on an assumption of incoming water quality that will take decades to achieve, if it can be achieved at all; and (b) it assigns WLAs to point sources whose impact on water quality cannot even be measured until upstream pollutant loading is properly controlled.

Paragraph 27: The Klamath TMDL model does not account for the large SOD from the decay of algae that dies off and settles to the bottom of the river every summer, despite the fact that SOD from dead algae is the single largest oxygen sink in the system. It is impossible to properly calibrate the model while ignoring the massive oxygen sink created by the dead algae. DEQ cannot support its allocation when it does not have a properly calibrated model.

Paragraph 28: DEQ has arbitrarily ignored the modeling techniques developed by the USGS and should address the serious flaws described above.

DEQ Response: Please refer to DEQ's response to **CKF-1**. The Upper Klamath Lake boundary used in the TMDL model is based on the best available data and science and is informed by policy decisions related to the implementation of the Clean Water Act. DEQ is reasonably assured that the data and mathematical models used were both designed appropriately and reviewed thoroughly. The Klamath River analytical model went through multiple rounds of peer review. Staff with modeling expertise from DEQ, North Coast Regional Water Quality Control Board (NCRWQCB) and EPA worked as a team with Tetra Tech reviewing and advising on model development and application. In 2005, the calibrated model was also reviewed by Merlynn Bender of U.S. Bureau of Reclamation (USBR), Dr. Scott Wells of Portland State University, and Brown and Caldwell under contract with the City of Klamath Falls. The NCRWQCB also had the TMDL for the California reaches of the river go through an external scientific peer review in 2009 (NCRWQCB 2010). Lastly, USBR contracted the USGS to review the Keno impoundment portion of the model (Rounds and Sullivan 2009 and Rounds and Sullivan 2010). DEQ, along with EPA and NCRWQCB, considered all peer review comments and made changes to the model and documentation when appropriate. Based on these reviews DEQ considers the model used in the Klamath River TMDL and WQMP. Pending the availability of adequate resources, DEQ will review the water quality model used to develop the Upper Klamath Lake TMDL and work cooperatively with USGS, USBR, and other stakeholders for revising the TMDL for Upper Klamath Lake.

Columbia Forest Products (CFP)

Columbia Forest Products stated in their petition (February 22, 2011) that the EQC Log Handling Guidance clearly supports in-water log handling activities and does not prohibit them. The company

believes DEQ's statements in the Klamath TMDL related to Columbia's log handling are contrary to EQC guidance and should be revised to comply with the policy.

DEQ notes that the EQC set very high expectations for water quality protection and suggested that a water quality permit be developed for the in-water log handling and storage that would allow DEQ substantial oversight of the practice. The Klamath River TMDL was revised to reflect this guidance. DEQ believes there are significant operational alternatives that would allow the continued storage of logs while reducing the pollutant load from this practice and achieve the Columbia Forest Products load allocation in the TMDL. The TMDL was revised to include log handling as an element of the NPDES permit for the facility.

CFP receives no additional load for the in-water storage and handling of logs and may meet the WLA by reducing the impact of the log storage and handling and then offsetting the remaining load from log handling and storage with reductions in the load from the "discharge events," mitigating the sediment load created by previous discharges to the river, trading, or other appropriate means.

Key Reconsideration Issues

CFP-1: The Klamath TMDL is based on the assumption that certain water quality goals will be attained by implementing the TMDL for Upper Klamath Lake, which was adopted in 2002. Specifically, the Upper Klamath Lake TMDL calls for substantial reduction in nutrient loading to limit algal blooms. The nutrient load and associated impact from algal blooms eclipses any impact by the downstream point sources governed by the Klamath TMDL. Recent research shows that phosphorus may not be the driving factor for poor water quality in Upper Klamath Lake. Assumptions in the Upper Klamath Lake TMDL are likely inaccurate and that water quality standards may be not attainable in Upper Klamath Lake. Because of this, a major part of the foundation for the Klamath TMDL is erroneous.

DEQ Response: Though the Upper Klamath Lake TMDL is over a decade old, there are currently no analyses that have suggested the estimates of pollutant loading and conclusions about how the lake operates were inappropriate. DEQ believes that the UKL TMDL models and the Upper Klamath Lake TMDL are appropriate tools for improving water quality in the Upper Klamath Lake and appropriate to be used as a boundary condition for mathematical modeling of the Klamath River. DEQ is unaware of recent research showing that phosphorus is not an important "driving factor for poor water quality in Upper Klamath Lake," and would welcome a reference for this statement.

CFP-2: The Klamath TMDL is fundamentally flawed because: (a) it is based on an assumption of incoming water quality that will take decades to achieve, if it can be achieved if at all; and (b) it assigns WLAs to point sources whose impact on water quality cannot even be measured until upstream pollutant loading is properly controlled.

DEQ Response: The Upper Klamath Lake boundary used in the TMDL model is based on the best available data and science and is informed by policy decisions related to the implementation of the Clean Water Act. Developing wasteload allocations is not dependent on the ability to discern instream conditions. The analysis of available data indicates that the point sources contribute to water quality impairment in the Klamath River. Consequently, the point sources are assigned allocations to limit impacts to those allowed by water quality standards.

DEQ employed a very rational approach to estimating the level of improvement Upper Klamath Lake can achieve through reasonably implementable measures and technologies. DEQ is reasonably sure that the Upper Klamath Lake TMDL and the current TMDL can both achieve their expected allocations and that water quality throughout the system will be significantly improved. The peer reviewed analysis used to support the development of the EPA approved Upper Klamath Lake TMDL predicts a range of conditions.

For reasons outlined in the Upper Klamath and Lost Rivers TMDL, we chose a subset of those conditions to use as a baseline for that TMDL. This subset of conditions represents better water quality than the average predicted conditions and hence is not expected to occur every year. Due to large quantities of nutrients (principally phosphorus) stored in the sediment of Upper Klamath Lake, there will be a time lag between the reduction in loading to Upper Klamath Lake and improved water quality conditions at the outlet. We acknowledge that it may take decades to achieve full attainment of Upper Klamath Lake TMDL.

Despite this expected time lag before improvements, it is important to reduce pollutant loads from all sources as soon as possible. Many of the sources defined in the TMDL will take many years to control, while others will be more directly managed in the near term. Incremental improvement in Klamath River is expected from these steps even before quality of water discharged from Upper Klamath Lake achieves expected quality.

CFP-3: DEQ has limited its assessment and modeling of SOD and has failed to address other studies and conclusions about SOD in the Klamath system. DEQ has arbitrarily ignored the modeling techniques developed by the USGS. In particular, the USGS has been developing a model of the Klamath basin that is a superior tool for assessing organic matter in the water, as well as SOD.

DEQ Response: The USGS in cooperation with Bureau of Reclamation and Watercourse Engineering released a water quality model for part of the Keno impoundment in July 2011 (Sullivan, A.B., Rounds, S.A., Deas, M.L., Asbill, J.R., Wellman, R.E., Stewart, M.A., Johnston, M.W., and Sogutlugil, I.E., 2011, Modeling hydrodynamics, water temperature, and water quality in the Klamath River upstream of Keno Dam, Oregon, 2006-09: U.S. Geological Survey Scientific Investigations Report 2011-5105, 70 p.) The USGS modeling effort was intended to: "... examine the effects of several reduced-loading scenarios consistent with total maximum daily load (TMDL) targets". The USGS analysis did not recalculate allocations that meet State and Federal criteria for development of TMDLs. The USGS SOD representation allowed for a better DO calibration during the fall. Although this is an important process difference between the models, we cannot predict how the different representation would impact allocations because both representations predict that organic matter and dying algae cause the DO crash. DEQ presents more detailed observations on the USGS report in the attached technical memorandum.

In general, the USGS model of Keno impoundment is insufficient to assess the efficacy of the City's TMDL allocations for the following reasons:

- It does not include a calibrated pH model,
- The geographic scope was limited to segments of the Keno impoundment and it is inappropriate to draw conclusions in isolation from the remainder of the Klamath River, and
- A recalculation or evaluation of TMDL allocations was not a stated goal of the modeling exercise.

Consequently, we believe that the TMDL analysis (December 2010) represents the best available information to assign allocations in accordance with Oregon's TMDL rule OAR 340-042.

CFP-4: The EQC Log Handling Guidance clearly supports in-water log handling activities and does not prohibit them. DEQ's statements in the Klamath TMDL related to Columbia's log handling are contrary to EQC guidance and should be revised to comply with the policy.

DEQ Response: The policy stated by the EQC includes an expectation that impacts to water quality must be controlled and minimized. The policy (EQC October 24, 1975) states in part:

General Policy:

The [EQC] and the [DEQ] acknowledge that transportation and storage of logs is one of the appropriate uses of public waters of the state so long as such operations are controlled to adequately protect environmental quality, natural resources, public health and safety and the economy of the state.

In the General Summary of Problems, the EQC policy states:

“There is ample and conclusive evidence that the bark, debris and leachate releases resulting from dumping, storage and millside handling of logs in public waters can have an adverse effect on water quality.”

And

“Bark and log debris are the major waste products resulting from logs in water. The materials range in size [from] microscopic particles to whole logs.”... “Bottom deposits of these substances may blanket the benthic aquatic life and fish spawning areas. During submerged decomposition stages the wood products rob overlying waters of dissolved oxygen and often give off toxic decay products.”

And

“Leachates from logs in water can be a significant source of biochemical oxygen demand and dark color. These generally have minimal impact in larger flowing streams but their effect may be compounded in quiet waters.”

We believe the EQC set very high expectations for water quality protection and suggested that a water quality permit be developed for the in-water log handling and storage that would allow DEQ substantial oversight of the practice. DEQ has re-evaluated the application of the EQC policy on log handling as well as more recent case law and EPA guidance. Based on this reconsideration DEQ has clarified that in-river log handling storage may continue but is subject to NPDES permitting and to the waste load allocation for industrial operations at the Columbia Forest Products facility.”

CFP-5: DEQ assigns a zero-load to Columbia's log handling activities but does not provide any analysis supporting that the logs have an impact on water quality. This is arbitrary, capricious and contrary to the rules governing development of TMDLs in Oregon. Without a detailed analysis of the potential impact from Columbia's log handling activities, DEQ cannot legally assign those activities a zero-load allocation.

DEQ Response: Our assessment in the TMDL relied on the observation that sediment oxygen demand is very high in the river reach adjacent to the Columbia facility, that the river bottom is and will remain saturated with oxygen demanding substances, and that any additional load of biochemical oxygen demand was excessive. This is consistent with the conclusion that even when fully restored to TMDL conditions, Upper Klamath Lake will produce significant amounts of algae and other organic materials that will settle to the bottom of the water body and limit dissolved oxygen. Given the significant impact sediment oxygen demand has on surface waters in this reach and the likely continuous natural supply, there is no additional loading capacity to allow man-induced organic accumulation. However, in our discussions with the company, we believe there may be alternative methods of log storage in combination with a short retention-time instream that can minimize the impacts to the river. The company has suggested there may be alternatives, such as debarking logs prior to introduction to the river that may sufficiently reduce BOD accumulation such that the operations fit within the facility's wasteload allocation for industrial discharge. These may include calculating the impact of log storage with bark/particle management and limiting overall discharges to the total wasteload allocated to the facility. In either case, these activities may be included and controlled under the NPDES permit issued to the facility.

CFP-6: According to J.M. Eilers and Richard Raymond, Sediment Oxygen Demand in Selected Sites of the Lost River and Klamath River (January 2005), included in Appendix E to the TMDL, "The sediments from Lake Ewauna all contained considerable amounts of wood fiber ranging in size from sawdust up through bark and wood chips several centimeters long. Even with the large pieces of wood fiber (cf. Figure A-5) removed from the Lake Ewauna cores, the carbon content was still high." DEQ erroneously relies on these statements to support its zero allocation to Columbia.

DEQ Response: Though the company finds fault with our relying in part on these observations, you have not provided a counter. The study cited was of sediment oxygen demand in Lake Ewauna. This quantitative estimate of oxygen demand was appropriately used in modeling oxygen dynamics in this reach of the Klamath River. Moreover, there is general agreement that log handling has resulted in accumulation of sedimentary organic particles over time, and this assumption is basic to the EQC policy statement excerpted above. We reasonably conclude that ongoing log handling without measures to minimize organic particles (bark and smaller) will add to the existing load of sediment oxygen demand.

PacifiCorp

PC-1: The Klamath TMDL's requirements for dissolved oxygen augmentation exceed the Department's authority because PacifiCorp contributes no nutrient load that reduces dissolved oxygen concentrations.

DEQ Response: We respectfully disagree. The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042) which grants DEQ the regulatory authority to develop and implement TMDLs. The reservoirs and conveyances associated with, owned by and operated by PacifiCorp, differ from other sources. The storage of water in reservoirs and the removal of water from the river can degrade or improve water quality depending on the parameter, the time of year and the location. The allocations to the dams reflect this difference and are expressed as a surrogate measure of a required dissolved oxygen augmentation. The dissolved oxygen augmentation is derived from the predicted DO deficit caused by the dams when all other source allocations are in place. Under conditions when a dam is not causing a DO deficit or when the dam's DO deficit is less than the remaining loading capacity, the dam is not required to augment DO.

Comments 2 through 4 from Pacificorp related to the temperature TMDL that set load allocations for Pacificorp facilities. This TMDL has been withdrawn by DEQ and is not in force. The comments are therefore moot.

PC-2: The Klamath TMDL's prohibition on temperature increases in excess of 0.1 °C in Spring and Jenny Creeks exceeds the Department's TMDL authority because PacifiCorp adds no thermal load to the creeks.

DEQ Response: In response to the judicial decision invalidating the natural conditions criteria, DEQ has withdrawn the Klamath and Lost River temperature TMDL and the associated wasteload allocations. Thermal effluent limits in future permits issued for the City's wastewater treatment plants will be based directly on the remaining applicable temperature criteria and anti-degradation policies.

PC-3: The Klamath TMDL's required temperature reductions in the Klamath River exceed the Department's TMDL authority because PacifiCorp adds no thermal load to the river.

DEQ Response: In response to the judicial decision invalidating the natural conditions criteria, DEQ has withdrawn the Klamath and Lost River temperature TMDL and the associated wasteload allocations. Thermal effluent limits in future permits issued for the City's wastewater treatment plants will be based directly on the remaining applicable temperature criteria and anti-degradation policies.

PC-4: The following arguments concerning the temperature offsets allocated to PacificCorp are related:

- a) The Klamath TMDL's required temperature reductions at the California border exceed the temperature effects attributable to the Klamath Hydroelectric Project. PacificCorp requests DEQ to remove the temperature offsets assigned to PacificCorp from the TMDL.
- b) The TMDL should still assign temperature load allocations to the Klamath Hydro Project (KHP), but the determination of the KHP's temperature effects--and thus the temperature reductions necessary to achieve the allocations--would be deferred to a future Section 401 certification or other regulatory decision that implements the allocations.
- c) PacificCorp requests DEQ to remove the temperature offsets assigned to PacificCorp from the TMDL. The TMDL should still assign temperature load allocations to the Klamath Hydro Project (KHP), but the determination of the KHP's temperature effects--and thus the temperature reductions necessary to achieve the allocations--would be deferred to a future Section 401 certification or other regulatory decision that implements the allocations.
- d) In order for temperature reserve capacity to be available to a source, PacificCorp believes that the TMDL must explicitly allocate the capacity to the reserve capacity.

DEQ Response: In response to the judicial decision invalidating the natural conditions criteria, DEQ has withdrawn the Klamath and Lost River temperature TMDL and the associated wasteload allocations. Thermal effluent limits in future permits issued for the City's wastewater treatment plants will be based directly on the remaining applicable temperature criteria and anti-degradation policies.

Klamath Water Users Association

KWUA-1: The model used to develop the Klamath River TMDL assumes that Upper Klamath Lake complies with water quality standards yet water in Upper Klamath Lake does not comply with water quality standards.

DEQ Response: The Klamath River TMDL represented the upstream boundary condition at Link River dam under natural conditions. The natural conditions baseline was used because this was the best approximation of achievable water quality conditions with anthropogenic sources removed. The natural conditions baseline used a boundary condition that are consistent with the EPA approved, upstream Upper Klamath Lake TMDL and uses best available tools for deriving water quality parameters under a restored condition. The EPA approved Upper Klamath Lake TMDL predicts a range of conditions. For reasons outlined in the final TMDL, we chose a subset of those conditions to use as a baseline for the Klamath River TMDL. This subset of conditions represents better water quality than the average predicted conditions and hence the subset is not expected to occur every year. Due to the phosphorus stored in the sediment of Upper Klamath Lake, there will likely be a time lag between the reduction in loading to Upper Klamath Lake and improved water quality conditions at the outlet. We acknowledge that it may take decades to achieve full attainment of Upper Klamath Lake TMDL.

KWUA-2: The Klamath TMDL assigns unachievable load allocations that lack factual support or legal basis.

DEQ Response: Please refer to response to **CKF-1**. The Department believes that the TMDL allocations are challenging but achievable. The Water Quality Management Plan conforms to the Department's

current policy. It is anticipated that attainment of water quality standards may take several years. DEQ expects each source-specific implementation plan to include a timeline for implementing management strategies and a schedule for completing measurable milestones (OAR 340-042-0080 (4)(a)(B)).

The state is required to develop TMDLs for those water quality limited waterbodies that are not expected to meet standards with technology-based effluent limits and existing water quality controls (Clean Water Act Section 303(d) and 40 CFR 130.7). When DEQ develops a TMDL, the allocations must be sufficiently protective that EPA can find there is a reasonable assurance that the standards will be attained. Developing and implementing a TMDL is not optional under the requirements of the Clean Water Act. The failure to develop or implement a TMDL would not provide the relief sought by the petitioners. In the absence of a TMDL, DEQ (or EPA if DEQ failed to act) generally would be required to issue permits that prohibit discharge of the relevant pollutants because the receiving waters are water quality limited.

DEQ believes it is necessary to implement the Klamath River TMDLs and continue implementation of the Upper Klamath Lake Drainage TMDLs simultaneously. Although attainment of Upper Klamath Lake TMDLs may take decades, we believe that TMDL implementation downstream of Upper Klamath Lake should not be delayed. The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls. Water quality trading as described in the WQMP may provide an opportunity in the interim for the City's successful TMDL implementation strategy.

KWUA-3: The Klamath TMDL unlawfully and inappropriately designates water infrastructure (such as dams, diversion structures, impoundments, and reservoirs), public agencies, and impaired water bodies as nonpoint sources.

DEQ Response: The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042). Load allocations are attributed to existing or potential sources. The TMDL complies with OAR 340-042 and policy decisions related to implementation of the Clean Water Act. The water management districts are designated sources responsible for submitting source specific implementation plans.

Impoundments are waters of the state and may be both a source of water quality impairment that receive impaired water quality from other sources and in turn discharge to other impaired waterbodies. The allocations to the dams, reservoirs and impoundments reflect this difference and are expressed as a surrogate measure of a required dissolved oxygen augmentation. Waters of the state" means all natural waterways, all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the boundaries of this state, all other navigable and nonnavigable bodies of water in this state and those portions of the ocean shore, as defined in ORS 390.605. (ORS 196.800(14) and OAR 141-085-0510 and 141-085-0515). The allocations to the dams reflect this difference and are expressed as a surrogate measure of a required dissolved oxygen augmentation.

KWUA-4: The Klamath TMDL cannot unilaterally convert the water management districts into water quality regulators. Inappropriately assigned actions are unlikely to be carried out effectively, if at all. Petitioners urge ODEQ to withdraw these inappropriate DMA designations in the Klamath TMDL.

DEQ Response: Load allocations are attributed to existing or potential sources. The TMDL complies with OAR 340-042 and policy decisions related to implementation of the Clean Water Act. The water management districts are designated sources responsible for submitting source specific implementation plans. Those water management districts that have been identified in the TMDL will be required to develop a TMDL implementation plan in coordination with DEQ. However, private land owners that operate and maintain water conveyance systems and conduct maintenance of ditches on private agricultural properties will continue to fulfill the requirements for TMDL implementation through

the Oregon Department of Agriculture's, Agriculture Water Quality Management Program. Additionally, DEQ will work with the Department of Agriculture to assist the Agriculture Water Management Program and the districts in meeting their water quality improvement goals.

KWUA-5: The load allocations related to operations of the Klamath Project focus on improving existing conditions outside the control of the Petitioners.

DEQ Response: Designated sources and management agencies are only responsible for their actual or potential individual contributions to pollutant loading. We are not expecting the designated sources and management agencies to reduce pollutant loads upstream of their respective jurisdictions unless these mitigation measures are part of the Klamath water quality improvement accounting and tracking program as described in Section 5.4.1 Water Quality Credit Trading Opportunities.

KWUA-6: Petitioners are unable to ascertain how to comply with the Klamath TMDLs labyrinth of DMAs, load allocations, and designated sources relating to the Klamath Project.

DEQ Response: We discussed the Water Quality Management Plan and the responsibilities of each designated source and management agency during our meeting with the KWUA on June 22 2011 and on September 9, 2015. DEQ's staff are available to meet again with KWUA to answer their remaining questions regarding our expectations for TMDL implementation and the adaptive management process as described in the Water quality Management Plan (December 2010).

KWUA-7: The Klamath TMDL fails to incorporate a phased approach to assigning load allocations and TMDL implementation.

DEQ Response: Please refer to response to **CKF-8**. DEQ has no authority under the CWA to phase in a TMDL, except via compliance schedules in NPDES permits and implementation schedules for WQMP components. A delay of the TMDL would mean that DEQ would need to impose stricter limits in NPDES permit renewals.

The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. The schedule for TMDL implementation and other NPDES requirements will be specified in the new NPDES permit, which may include a compliance schedule that accounts for the difficulty in implementing these pollutant controls. The compliance schedule for the NPDES permit is the appropriate mechanism for phasing the "moving parts." In advance of the TMDLs, DEQ has been working with the City to move forward with long awaited upgrades to their wastewater treatment plant through substantial loan funding from our State Revolving Loan Fund Program. This work will precede and be in addition to the TMDL-related pollutant controls that we believe will result in comparatively less financial impact. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls.

KWUA-8: The Upper Klamath and Lost River Subbasins Response to Public Comment document failed to meaningfully respond to comments on the draft TMDL.

DEQ Response: We anticipated that our meeting with KWUA on June 22, 2011 and February 13, 2012 provided the opportunity to discuss our responses to public comments. If additional discussions are warranted, DEQ's staff will be available to meet again with KWUA to provide further clarification. Additionally, DEQ anticipates a 60-day public comment period for portions of the TMDL that are revised as a result of this reconsideration. We look forward to your comments on the revised TMDL.

KWUA-9: DEQ should not close the reconsideration period until after the USGS has completed its near-term research on Upper Klamath Lake and the Klamath River.

DEQ Response: DEQ has reviewed the information in the USGS report for review of the TMDL model for Upper Klamath Lake and has determined that the information provided in the report although useful does not warrant changes to the TMDL.

Klamath Drainage District

KDD-1: The condition of water in Upper Klamath Lake is beyond the control off KDD, yet the TMDL establishes load allocations that ignores this fact and that are unachievable.

DEQ Response: Please refer to the response to CKF-1 and KWUA-2. The Department believes that the TMDL allocations are challenging but achievable. The Water Quality Management Plan conforms to the Department's current policy. It is anticipated that attainment of water quality standards may take several years. DEQ expects each source-specific implementation plan to include a timeline for implementing management strategies and a schedule for completing measurable milestones (OAR 340-042-0080(4)(a)(B)).

The state is required to develop TMDLs for water quality limited waterbodies when technology-based effluent limits and existing water quality controls are not expected to be sufficient for the waterbody to meet water quality standards (Clean Water Act Section 303(d) and 40 CFR 130.7). When DEQ develops a TMDL, the allocations must be sufficiently protective that EPA can find there is a reasonable assurance that the standards will be attained. Developing and implementing a TMDL is not optional under the requirements of the Clean Water Act. The failure to develop or implement a TMDL would not provide the relief sought by the petitioners. In the absence of a TMDL, DEQ (or EPA if DEQ failed to act) generally would be required to issue permits that prohibit discharge of the relevant pollutants because the receiving waters are water quality limited.

DEQ believes that it is necessary to implement the Klamath River TMDLs and continue implementation of the Upper Klamath Lake Drainage TMDLs simultaneously. Although attainment of Upper Klamath Lake TMDLs may take decades, we believe that TMDL implementation downstream of Upper Klamath Lake should not be delayed. The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls. Water quality trading as described in the WQMP may provide an opportunity in the interim for the City's successful TMDL implementation strategy.

KDD-2: Load allocations should not be assigned to "impoundments" and impaired water bodies.

DEQ Response: Please refer to DEQ's response to **KWUA-3**. The Klamath River TMDLs were developed in accordance with Oregon's TMDL rule (OAR 340-042). Load allocations are attributed to existing or potential sources. The TMDL complies with OAR 340-042 and policy decisions related to implementation of the Clean Water Act. The water management districts are designated sources responsible for submitting source specific implementation plans.

Impoundments are waters of the state and may be both a source of water quality impairment that receive impaired water quality from other sources and in turn discharge to other impaired waterbodies. The allocations to the dams, reservoirs and impoundments reflect this difference and are expressed as a surrogate measure of a required dissolved oxygen augmentation. Waters of the state" means all natural waterways, all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the boundaries of this state, all other navigable and nonnavigable bodies of water in this state and those portions of the ocean shore, as defined in ORS 390.605. (ORS 196.800(14) and OAR 141-085-0510 and 141-085-0515). The allocations to the dams

reflect this difference and are expressed as a surrogate measure of a required dissolved oxygen augmentation.

KDD-3: Load allocations should not be assigned to districts such as KDD. Identification as a “source” of pollutants should not automatically follow status as a Designated Management Agency without clear and substantial evidence that quantifies and distinguishes nonpoint sources from natural background sources.

DEQ Response: Load allocations are attributed to existing or potential sources. The TMDL complies with OAR 340-042 and policy decisions related to implementation of the Clean Water Act. The water management districts are designated sources responsible for submitting source specific implementation plans. Those water management districts that have been identified in the TMDL will be required to develop a TMDL implementation plan in coordination with DEQ. However, private land owners that operate and maintain water conveyance systems and conduct maintenance of ditches on private agricultural properties will continue to fulfill the requirements for TMDL implementation through the Oregon Department of Agriculture’s, Agriculture Water Quality Management Program. Additionally, DEQ will work with the Department of Agriculture to assist the Agriculture Water Management Program and the districts in meeting their water quality improvement goals.

KDD-4: The TMDL fails to establish specific load allocations for identified sources in a manner that is not arbitrary and capricious.

DEQ response: Please refer to DEQ’s response to **CKF-1**. The state is required to develop TMDLs for water quality limited waterbodies when technology-based effluent limits and existing water quality controls are not expected to be sufficient for the waterbody to meet water quality standards (Clean Water Act Section 303(d) and 40 CFR 130.7). When DEQ develops a TMDL, the allocations must be sufficiently protective that EPA can find there is a reasonable assurance that the standards will be attained. Developing and implementing a TMDL is not optional under the requirements of the Clean Water Act. The failure to develop or implement a TMDL would not provide the relief sought by the petitioners. In the absence of a TMDL, DEQ (or EPA if DEQ failed to act) generally would be required to issue permits that prohibit discharge of the relevant pollutants because the receiving waters are water quality limited.

DEQ believes that it is necessary to implement the Klamath River TMDLs and continue implementation of the Upper Klamath Lake Drainage TMDLs simultaneously. Although attainment of Upper Klamath Lake TMDLs may take decades, we believe that TMDL implementation downstream of Upper Klamath Lake should not be delayed. The Federal Clean Water Act requires implementation of wasteload allocations as soon as possible. We acknowledge that effluent improvements by dischargers may occur in advance of nonpoint source controls. Water quality trading as described in the WQMP may provide an opportunity in the interim for the City’s successful TMDL implementation strategy.

KDD-5: A phased approach to implementation is appropriate for the TMDL.

DEQ Response: DEQ has no authority under the CWA to phase in a TMDL, except via compliance schedules in NPDES permits and implementation schedules for WQMP components. A delay of the TMDL would mean that DEQ would need to impose stricter limits in NPDES permit renewals.