

Western Hood Subbasin

Total Maximum Daily Load (TMDL) & Water Quality Management Plan (WQMP)

Response to Public Comments

Prepared by:
Oregon Department of Environmental Quality
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Introduction

This Response to Public Comments addresses comments received regarding the Draft Western Hood Subbasin Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) dated July 2001. Grammatical, editorial, and formatting errors are not addressed here but corrections have been made in the document. The Oregon Department of Environmental Quality (ODEQ) appreciates the time and effort that all the commentors put into reviewing the document. All comments have been considered by ODEQ and, where appropriate, have been addressed in the final document that has been submitted to the Environmental Protection Agency (EPA) along with a copy of this response. EPA will then either approve or disapprove the TMDL.

Background

The public comment period on the proposed Western Hood Subbasin TMDL and WQMP opened on August 6, 2001. Written comments were received during the public comment period that extended through October 5, 2001. All comments received by ODEQ were submitted in written (paper and electronic) form. A formal public hearing was held on September 24, 2001 at the Hood River County Extension Meeting Room. Five members of the general public were present at the hearing, although no oral comments were received.

The TMDL and WQMP were available for downloading from ODEQ's website throughout the comment period. Hard copies of the document were also available for viewing at the Hood River County library, the Mt. Hood National Forest, the Hood River County Cooperative Extension office, and at ODEQ's offices in Bend, The Dalles, and Portland. Copies of the document were also provided to those individuals who requested copies.

List of Comments provided on the Western Hood Subbasin TMDL

The following individuals provided comments on the TMDL during the Public Comment Period.

Code	Comments Received From	Date Received	Media
PC	PacifiCorp	10-5-01	FAX & email
MFID	Middle Fork Irrigation District	9-17-01	Hand
EPA	US Environmental Protection Agency	10-4-01	Mail & email

General

In the following section, ODEQ has provided their response to the comments received. Each of the comments is included in its entirety, organized by commentor. We have included the full text of comments to guard against confusion over intent of the comment or the response. Responses immediately follow each comment and are in *italic* font to avoid confusion. The changes indicated in the following responses to comments have been made to the TMDL submitted to EPA. ODEQ also made changes to the TMDL based on internal review of the document.

Summary of Comments

PacifiCorp Comments

PC-1: PacifiCorp should not be treated in the TMDL and WQMP as a designated management agency (DMA). PacifiCorp feels that it is inappropriate to treat PacifiCorp as a DMA under the TMDL or WQMP, for the following reasons:

- a. First, under OAR 340-041-0026(3)(a), DMAs are governmental entities that have the legal authority to control nonpoint pollutant sources that are not subject to direct regulation by DEQ. In addition, DEQ's draft TMDL rule defines a DMA as a "governmental agency." See *Draft OAR 340-042-0005* (Sept. 12, 2001). PacifiCorp is not a governmental agency, does not control any other nonpoint sources within the area covered by the draft TMDL, and is regulated by DEQ through its section 401 certification for Powerdale. Thus, DEQ is the DMA for PacifiCorp with respect to Powerdale; PacifiCorp is not itself a DMA.
- b. Second, and perhaps of more substantive importance, treating PacifiCorp as a DMA could inadvertently lead to inconsistencies with the section 401 certification, which is the legal mechanism for DEQ to regulate Powerdale.¹ The section 401 certification contains specific processes and criteria for modifying Powerdale's TMP in light of the TMDL, and those processes and criteria should be used in lieu of the DMA process contemplated in the draft TMDL and WQMP.

Response: ODEQ agrees that it is inappropriate to treat PacifiCorp as a DMA. PacifiCorp will be regulated by ODEQ through its section 401 certification for Powerdale and the associated TMP. Section 5.13.9 describing PacifiCorp's role as a DMA has been removed from the document and the information incorporated into the new Loading Capacity discussion for the Powerdale Hydroelectric Project (new Section 4.6.2.2).

PC-2: Load allocations to Powerdale under the TMDL should be consistent with the section 401 certification. It is important that the proposed load allocations to Powerdale recognize the limits that the section 401 certification places on TMP modifications, including modifications to address TMDL load allocations. Although it is not clear what, if any, TMP modifications would be needed to address the proposed load allocations, the certification provides, among other things, that TMP modifications are limited to the period July 1 through October 15 and must be "feasible" to implement. (This latter limitation is derived from the TMP rule itself, which requires that TMP provisions be "feasible." See OAR 340-041-0026(3)(a)(D)(ii).)

Response: ODEQ agrees that the load allocations to Powerdale should be consistent with the section 401 certification. ODEQ does not believe that any modifications to the TMP will be required which are not within the limits specified in Exhibit C of the section 401 certification.

PC-3: DEQ should defer consideration of the spawning temperature criterion until the next update of the TMDL. The Hood River is included on the subsection 303(d) list of water quality limited streams for exceedances of the rearing, but not the spawning, temperature criterion. Although this does not preclude DEQ from adopting a TMDL and corresponding wasteload and load allocations to address the spawning criterion, DEQ is also not required to do so. Given the absence of sufficient information to simulate water quality conditions during the periods when the spawning criterion is applicable (see, e.g., page 68 of the

¹ For example, Table 22 of the WQMP would require DMAs to submit annual reports to DEQ by September 30 of each year. The TFMP set forth in Exhibit B to Powerdale's section 401 certification, however, requires PacifiCorp to submit annual temperature and flow monitoring reports to DEQ by December 31. Moreover, because the data to be included in the annual reports under the certification include monitoring results for the period July 1 through October 15, it would make little sense to submit this information to DEQ by September 30 of each year.

draft), it would be more appropriate to defer consideration of the spawning criterion until the next update of TMDL.

Note that PacifiCorp is currently collecting additional flow and temperature data to assess whether the spawning criterion would be exceeded in the portion of the Hood River affected by Powerdale. With the additional field data, it should be possible to model the interrelationship among bypass flow, meteorological conditions, and water temperature change in the bypass reach. There has not been sufficient time, however, to analyze this data or to model whether the criterion would be exceeded at the increased minimum bypass reach flow of 250 cfs.

Response: ODEQ recognizes that the Hood River is not included on the current 303(d) list (1998 list) for exceeding the spawning temperature criterion. However, based on temperature data collected by both ODEQ and by other stakeholders in the watershed, we know that the spawning temperature criterion is exceeded under current conditions at a number of locations in the watershed (Figure 10, page 27 of the TMDL). Because listings relative to the spawning criterion will likely be included in the next 303(d) list and because this TMDL does address temperature and exceedances of the temperature standard in the Hood River watershed it seems appropriate that we address all aspects of the temperature standard at this point.

ODEQ appreciates the fact that PacifiCorp has collected additional flow and temperature data to model the effects of their diversion on bypass reach instream temperatures during the spawning period. It is anticipated that this data will be analyzed prior to the 2002 spawning season and that any flow modifications necessary to ensure that the spawning criterion are met at the bottom of the bypass reach will be included in revisions to the TMP.

PC-4: The alternative load allocations specified in Table 25 of the WQMP should be included in the TMDL. If DEQ chooses to address the spawning criterion, the alternative load allocations to Powerdale specified in Table 25 of the draft WQMP should also be included in the TMDL. Section 4.6.1.1.2 and Tables 14 and 18 of the draft TMDL would establish a load allocation for Powerdale of 77.2 million kcal/day when the river just above the powerhouse exceeds the spawning criterion. Table 25 of the draft WQMP, however, describes higher, alternative load allocations that would apply if PacifiCorp could avoid causing a measurable increase in temperature at higher bypass reach flows. Although section 4.6.1.1.2 of the draft TMDL refers to these alternative load allocations, the failure to specify the alternative allocations in the TMDL itself could create an ambiguity as to their legal status. To avoid this ambiguity, PacifiCorp asks that the alternative load allocations be expressly included in the TMDL. (By contrast, the draft TMDL does include the alternative load allocations for Laurance Lake Reservoir.)

Response: ODEQ concurs with PacifiCorp's comments. Section 5.13.9 and Table 25 have been incorporated into the discussion of the Loading Capacity for PacifiCorp (new Section 4.6.2.2). The flow-based allocations have been incorporated into Tables 14 and new Table 17 (old Table 18).

PC-5: PacifiCorp assumes that DEQ does not believe that any additional measures, beyond the minimum stream flow of 250 cfs, are needed for Powerdale to comply with the proposed load allocation of 190 million kcal/day when the rearing criterion applies. Based on the modeling discussed in the draft TMDL, DEQ proposes to assign Powerdale a load allocation of 190 million kcal/day when the rearing criterion applies. PacifiCorp assumes that DEQ believes that no increase in the minimum flow of 250 cfs is needed to meet this load allocation throughout the period when the rearing criterion applies.

Response: ODEQ does believe that no increase in the minimum flow of 250 cfs is needed to meet the load allocation of 190 million kcal/day throughout the period when the rearing criterion applies. This belief is predicated on the assumption that riparian vegetation along the bypass reach of the Hood River will be allowed to mature to system potential conditions as described in the temperature modeling scenarios presented in this TMDL.

Middle Fork Irrigation District Comments

MFID-1: Compliments on creating such an excellent document, your efforts are appreciated. What follows are some comments relative to the TMDL. Middle Fork Irrigation District (MFID) has operated, in some form, providing irrigation water for Upper Hood River Valley agriculture for more than 100 years. The Hood River Valley is the second largest fruit-growing district in the state and agriculture is the primary economic enterprise in Hood River County. Our water sources include the Eliot and Coe Branches of the Middle Fork of the Hood River. These glacial streams originate on the northern slopes of Mt. Hood. Eliot Branch experienced two glacial outburst/debris torrent events in the last two years and will continue to contribute to high turbidity in the Hood system for years to come as a results of these natural events. Coe Branch is also susceptible to such events.

Response: ODEQ appreciates the compliment on the TMDL.

MFID-2: The 10°C temperature standard is exceeded throughout this basin. The standard is exceeded in places where no anthropogenic influences are realized. An example is what we call Fish Trap Spring, the natural spring that feeds the Forest Service's fish trap at the base of Clear Branch dam. We have included the datas for this spring; please note the 10°C has been exceeded during spawning season since data has been collected. At some point the standard may need to be revised. This could probably be done without adverse affects on Bull trout and must be based on accurate data. Attached for your review is a recent study that showed juvenile bull trout growth rate highest between 12 and 16°C. Perhaps a different approach, such as the "Multiple Lines of Evidence" approach, or another alternative could be considered as opposed to the one-size fits all 10°C standard.

Response: The State of Oregon's temperature standard states that "no measurable surface water temperature increase resulting from anthropogenic activities is allowed...in waters determined by ODEQ to support or to be necessary to maintain the viability of native Oregon bull trout, when surface water temperatures exceed 50°F (10.0°C)". If the 50°F criterion is exceeded, than the load allocations and management activities will be based upon reducing or eliminating anthropogenic influences. If relatively pristine areas, such as Compass Creek or Clear Branch above the reservoir, still exceed the 50°F criterion with no anthropogenic activities, then there is compliance with the temperature standard. In the case of Fish Trap Spring, further analysis would need to be done to determine if there are no anthropogenic influences or if in fact the spring is influenced by the temperature of the water in the reservoir since the spring is located on the downstream side of the reservoir.

The EPA Region 10 office is presently drafting a Regional Guidance for the Adopting of State Water Quality Standards. This guidance describes how States and authorized Tribes in the Pacific Northwest may adopt water quality standards for temperature that will support sustainable populations of native salmonids and meet the requirements of the Clean Water Act (CWA) and Endangered Species Act (ESA). It is possible that the numeric criteria for waters supporting bull trout populations may change at some point in the future once ODEQ responds to this regional guidance.

MFID-3: The main stem of the Hood River, the East Fork of the Hood River and Neal Creek were analyzed and simulated by DEQ. We feel it would be appropriate for Middle Fork of the Hood River to be analyzed and simulated before this TMDL is sent to the U.S.E.P.A. Especially, since Clear Branch below Laurance Lake is identified as a problem and a costly selective withdrawal system for Laurance Lake has been referenced as a potential remedy. But, even then how can the model account for possible natural warm water influences such as Fish Trap Spring? Remedying the water temperature during the Critical Period below Laurance Lake year round will be virtually impossible for MFID to deal with given the current bypass flow requirements. It is obviously impossible to do something about the temperature of the annual, naturally occurring spill. It is hard to imagine there is a problem with temperature below the lake during the winter. Temperature data from January 1, 2001 to February 11, 2001 below Laurance Lake show 2.8 to 2.4°C (see attached graph).

Response: ODEQ agrees that modeling of the Middle Fork Hood River will be a useful tool for helping to make future decisions on management of the dam. During ODEQ's data collection efforts for this TMDL, the necessary model data was only collected during the first week of August. Given the fluctuations in

river temperatures above and below the dam (new Figures 35-37), the most critical time periods appear to be in the spring/early summer and in the fall. These are the times of year when the temperatures below the dam appear to be significantly higher than temperatures in the river above the dam. And the fall is the period of greatest concern because this is the period when bull trout are spawning. ODEQ believes that the modeling which needs to be done to address alternative withdrawal scenarios for Laurance Lake is beyond the scope of this TMDL. ODEQ is glad that MFID is committed to working with us to find a viable, science-based solution to this problem (see comment **MFID-6**). Such a solution will likely include year-round data collection and modeling of the temperature dynamics in Clear Branch above and below Laurance Lake. This effort will help to answer some of the questions raised in this comment. For example – is Fish Trap Spring really naturally warm water or is the temperature of the spring related to the temperature in the reservoir since the spring is directly downstream of the reservoir? And we agree that the temperatures below the lake appear to be quite cold in the winter, but how do these temperatures appear to those in Clear Branch above the reservoir? The concern raised by other stakeholders was that the water below the dam was warmer than it would have been naturally if the dam were not there and that this warming could be affecting bull trout incubation and emergence. Again, additional data collection and modeling will help answer these questions.

MFID-4: The 0.25-degree no measurable difference standard still seems impossible to comply with. Onset Corp. backs their HOBO temperature monitors to $\pm 0.7^{\circ}\text{C}$, the HOBOs are tested to make sure they are within $\pm 0.5^{\circ}$ of an NIST traceable thermometer or they are not used. The monthly audits required to acquire grade “A” data are looking for HOBO temperatures to be within 1.5° degrees of a traceable thermometer. Can anyone accurately and reliably measure to 0.25 degree?

Response: ODEQ acknowledges that 0.25°F would be hard to measure which is in fact one of the reasons why a temperature increase of 0.25°F or less is defined as “no measurable increase”. The “no measurable increase” language is designed to reduce the thermal impact of anthropogenic sources. It is our intention to work with MFID to develop an operational plan for Laurance Lake Reservoir which will address the concerns raised about the thermal impacts of the Reservoir on Clear Branch.

MFID-5: Every temperature graph in the TMDL document shows the significant cooling effect the fairly pristine Middle Fork has on the rest of the Hood system. It is hard to imagine any significant temperature reduction gains to the Hood System by cooling the Middle Fork another degree or two. But, we welcome the opportunity to contribute to quantifying potential benefit.

Response: ODEQ concurs that the Middle Fork Hood River does appear to significantly cool the rest of the Hood River system, both under current and system potential conditions. Our concerns with the temperature dynamics in Clear Branch and Laurance Lake are more specifically targeted at trying to improve aquatic conditions in Clear Branch and the Middle Fork Hood River. Although, by striving to reduce anthropogenic influences in the Middle Fork Hood River watershed, both the Middle Fork and Hood River systems will benefit.

MFID-6: MFID is committed to being part of the solution. We look forward to working with you on the water quality management plan and collecting the data that is required for appropriate decision making. We must assure these decisions and plans are based on accurate data and science and not on speculation or politics.

Response: ODEQ appreciates this comment. We are looking forward to working with MFID and the other natural resource agencies in the subbasin to develop a science-based solution.

Environmental Protection Agency Comments

EPA-1: In order to better understand the scope and scale of this TMDL, it is recommended that a map of all of the sampling locations and the NPDES permitted facilities be provided, including the location of the Powerdale Hydroelectric Project, Laurance Lake Reservoir, Tucker Bridge, and other locations mentioned in the TMDL.

Response: To better describe the locations mentioned in the TMDL, a new map and revisions to several existing maps are provided as described below.

- *A map has been added (new Figure 5) showing Powerdale Dam, Laurance Lake Reservoir and the gauging stations identified in Table 1.*
- *In addition, Powerdale Dam and Laurance Lake Reservoir are now identified on other locational maps provided in the TMDL (such as new Figures 8, 9, 10, 19, and 29).*
- *Location of the sampling locations described in Section 4.4 are identified on new Figure 10.*
- *Location of the NPDES permitted facilities are displayed in a revised Figure 41 (new Figure 34).*

EPA-2: For clarity, it may be helpful to summarize all the technical information as it relates to the Western Hood Subbasin TMDL in Chapter 4 and create an appendix for the technical analysis information.

Response: A brief summary of the analytical methodology was retained in Section 4.5.2. The bulk of the analytical section describing the HeatSource Model and the governing equations was moved to a new Chapter 6 entitled "Analytical Framework".

EPA-3: Page 6, last paragraph of Section 2.3.2: This paragraph appears to refer to point sources, so it is suggested that in the first sentence the term "source" should read "point source," and "load allocation" should be changed to "wasteload allocation".

In a TMDL, each point source must be given a wasteload allocation, or a zero allocation will be assigned to that point source. A better discussion of how future and non-assigned wasteload allocations are assigned should be provided. It is possible to group more than one small point source and give a single allocation to a group of small point sources with the understanding that as more data is collected a wasteload allocation for each small point source will be set at some later time. Differences between an assignment of a wasteload allocation of zero and not assigning a wasteload allocation to an existing and future facility should be discussed here and in Section 4.7.

Response: The referenced paragraph has been replaced with a new paragraph (from the EPA approved Tillamook TMDL) which more accurately describes the allocation for a future point source, removing the reference to a zero allocation.

EPA-4: Chapter 3 - Description of the Western Hood Subbasin: A detailed map or maps should be provided showing features discussed in this section (see general comment); specifically the Powerdale Hydroelectric Project and Laurance Lake Reservoir. Features identified in Table 1 should also be shown.

Response: See response to EPA-1.

EPA-5: Page 20, Section 4.2: A table should be added to section 4.2 which summarizes the waters and periods of the year in which spawning and rearing water quality criteria apply. An example would be an expanded version of Table 10 in section 4.5.3.2.3.1, except that all listed streams, reaches and significant landmarks should be included. A discussion should also be provided describing the specific periods and times of the year when the TMDL applies, or it will be assumed that the TMDL will apply year round.

Response: A series of seven periodicity tables were developed for the Hood River Watershed in conjunction with local fish biologists from the Oregon Department of Fish & Wildlife, the Confederated Tribes of the Warm Springs Reservation of Oregon, Mt. Hood National Forest, and PacifiCorp. These tables are included in the document developed by ODEQ to address State Conservation Measure 4 (ODEQ, 2000) as indicated under Section 4.2.2 (new page 22). These Tables were used to develop

Figure 8 (new Figure 9) showing application of the spawning criteria. ODEQ believes that new Figure 9 more clearly and concisely defines the spawning times of year than would the inclusion of seven additional tables. A separate table was developed for: Hood River below Powerdale Dam, Hood River above Powerdale Dam, West Fork Hood River, Middle Fork Hood River, East Fork Hood River, Neal Creek and Whiskey Creek, and the non-anadromous tributaries. We do refer the reader to the State Conservation Measure 4 document if they would like to see the periodicity tables.

A discussion of the specific times of year when the TMDL applies for point sources is provided in the discussion of critical periods and spawning and rearing periods provided in new Section 4.5.4.4 and is referenced again in new Section 4.6.2 in the discussion of Loading Capacity. A discussion describing why the TMDL will apply year round for nonpoint sources has been added to Section 4.6.1.

EPA-6: Page 22, Section 4.2.2: Figure 7 on page 23 indicates the presence of Bull Trout in a substantial portion of the Middle Fork of the Hood River and also the mainstem. In the text on page 22, mention is made of the 55° F spawning criteria but no mention is made of the Bull Trout criteria of 50° F. For consistency with Oregon Water Quality Standards, the Bull Trout criteria should also be addressed.

Response: Language has been added to the indicated paragraph mentioning the bull trout criterion. The title of Figure 8 (now Figure 9) has also been modified to include reference to application of the bull trout criteria.

EPA-7: Page 24, Figure 8: In Figure 8, it is unclear what is meant by the section of the Middle Fork that is colored green with red dots since that is not included in the legend of the map.

Response: This portion of the legend was inadvertently deleted from the original Figure 8; it has been included in the final figure (now Figure 9).

EPA-8: Page 43, Table 7: In Table 7, mean vegetation height is given in meters, whereas in Figures 22 to 27 and Table 8, vegetation height is given in feet. Making these units consistent would make the document more readable.

Response: The units in Table 7 have been converted to feet.

EPA-9: Page 43, Figure 21: The components of the near stream vegetation, as depicted in this graph, add up to 153.8 percent. Please provide a footnote explaining the derivation of the data provided.

Response: There was an error in Figure 21. It has been corrected and the components now had up to 100% (new Figure 20).

EPA-10: Page 55, Section 4.5.3.1.4: Indicate in this discussion that only stream segments where point sources exist and where data were available were modeled.

Response: Language has been added to the indicated paragraph to clarify which stream segments were modeled. Most stream segments where point sources exist were not modeled because of insufficient data.

EPA-11: Page 56, Figure 30: Identification of the point sources and major features along the modeled stream segment in this figure would be helpful.

Response: Major features along the modeled stream segments (Powerdale Dam, EFID diversions, EFID ditch, Highway 35 and major tributaries) are now identified on the figure (new Figure 29). Most point sources were not identified because they were not modeled.

EPA-12: Page 60, Section 4.5.3.2.3.1: The discussion of Critical Period in the text and in Tables 10 and 11 only present information for Bull Trout. Was this selected because it is the only species of concern, the most sensitive species, or for another reason? Please explain.

Response: We had intended that the discussion of Critical Period in the indicated section and Tables 10 and 11 refer to all salmonids, not just bull trout. Language has been added to the discussion of Critical Period and to new Table 12 (Tables 10 and 11 were combined) to clarify this confusion. The discussions of Critical Period for the NPDES sources, the Powerdale Hydroelectric Project and Laurance Lake Reservoir have been combined into a new Section 4.5.4.4.

EPA-13: Page 64, Section 4.5.3.2.5: Indicate in this discussion that only stream segments where point sources exist and data were available, were modeled.

Response: Language has been added to the indicated paragraph to clarify which stream segments were modeled. Most stream segments where point sources exist were not modeled because of insufficient data.

EPA-14: Page 74, Figure 41: Labeling the specific locations of the NPDES Permitted Facilities listed in Table 13 would be helpful.

Response: The locations are labeled on this figure as suggested (new Figure 34).

EPA-15: Page 75, Section 4.6: A loading capacity addresses the amount of pollutant a waterbody can assimilate and still meet water quality standards, while the wasteload allocation addresses the effluent concentration or loading of a pollutant. The system potential temperature is a more accurate representation of what has been defined in the text as being the loading capacity. Suggested language to describe the loading capacity would be:

“The loading capacity is the amount of solar radiation that reaches the stream when the stream is at system potential condition in terms of riparian vegetation and channel morphology.”

Response: The suggested language was added to better clarify the introductory discussion of the Loading Capacity.

EPA-16: Pages 77-79, Powerdale Hydroelectric Project and Laurance Lake Reservoir: Although dams do not require NPDES permits, they are defined as point sources. As a result, allocations for Powerdale Hydroelectric Project and Laurance Lake Reservoir should be designated as wasteload allocations in sections 4.6.1.1, 4.6.1.2 and Table 18. For consistency with this designation, we recommend that sections 4.5.3.2.5.1 and 4.6.1.1 pertaining to the Powerdale Project, and 4.6.1.2 pertaining to the Laurance Lake Reservoir, be moved to the point source sections.

Response: EPA regulations and guidance in this context are unclear whether hydroelectric projects and dams should be characterized as point or non-point sources. Moreover, hydroelectric projects and “dams” are not generic. They may affect water quality through a variety of project features and operating regimes, some of which fit the common understanding of point sources and some which do not. ODEQ believes that, for the limited purpose of this TMDL, the specific mechanisms by which the Powerdale Hydroelectric Project and Laurance Lake Reservoir affect temperature should determine whether a load allocation or waste load allocation is used. ODEQ has chosen to continue treating the Powerdale Hydroelectric Project and the Laurance Lake Reservoir as nonpoint sources and has assigned them a load allocation. This approach is consistent with that used in the 401 certification issued for the Powerdale project. It otherwise is not intended to necessarily apply in contexts other than this TMDL. Nonetheless, because of the similarity in methods for developing the load allocations for the two dams and the waste load allocations for the point sources, we have included the point sources and the dams in the same sections of the Source Assessment (new Section 4.5.4: Point Sources and Dams) and the Loading Capacity (new Section 4.6.2: Point Sources and Dams). This replaces the inclusion of the Powerdale Hydroelectric Project and the Laurance Lake Reservoir under the Nonpoint Source Source Assessment (old Section 4.5.3) and Nonpoint Source Loading Capacity (old Section 4.6.1).

EPA-17: Page 79, Table 15: Table 15 is referenced in Section 4.6.1.2 for Laurance Lake Reservoir, but the Table is identified as the Load Allocation for PHP. Please explain or correct.

Response: Table 15 was incorrectly identified as the Load Allocation for PHP. Table 15 has been corrected to refer to the Load Allocation for Laurance Lake Reservoir .

EPA-18: Page 80, Table 16: According to Table 13, page 73, there are 20 NPDES permitted sites in the watershed. If these facilities are to discharge any heat to the receiving water, wasteload allocations need to be developed for all 20 point sources and the Powerdale Hydroelectric Project and Laurence Lake Reservoir. It appears that no wasteload allocations were assigned to Quality Veneer & Lumber, Mt. Hood Railroad, Luhr-Jensen Oakgrove, and Diamond Fruit. If sufficient data is currently not available to develop a numeric allocation, a narrative application of “no measurable increase in surface water temperature” should be assigned. You may also consider adding a similar narrative allocation for “future sources”.

This table would be much more understandable if corresponding maximum effluent temperature values were also included.

Response: Waste load allocations were not assigned to Quality Veneer & Lumber, Mt. Hood Railroad, Luhr-Jensen Oakgrove and Diamond Fruit Stormwater because these are not considered to be thermal discharges. Language has been added to this section (new Section 4.6.2.1) to clarify this distinction. A narrative application of “no measurable increase in surface water temperature” has also been added to this Section for “future sources”.

ODEQ agrees that, from a management standpoint, it would be helpful to have the maximum effluent temperature values provided. However, we do not know these values at this time. Section 5.13.1 describes the procedure that will be used to reissue the permits for these point sources which will include collecting the data necessary to determine the maximum effluent temperatures.

EPA-19: Page 81, Table 17: Table 17 should be titled as Temperature “Load” Allocation Summary. Also, each DMA responsible for each of the sources and allocations should be specifically identified.

Response: The title of Table 17 (new Table 16) has been changed as suggested. ODEQ disagrees that the DMAs should be listed in this table. The identification of DMAs and their jurisdiction is outlined in Section 5.5 in the Water Quality Management Plan.

EPA-20: Page 82, Table 18: For clarity, we suggest that wasteload allocations be expressed in both maximum effluent temperature and kcals/day, and that a column for temperature be added to Table 18. While loading expressed in kcals/day can be incorporated into NPDES permits, temperature may be a more useful parameter for point sources to understand and monitor the amount of loading they can put into the river.

We recommend the following sentence be included to explain the term, kcals/day: Kcals/day, as presented in this table, represents the amount of energy that can be added to the river and still obtain water quality standards. To help clarify this it may be useful to include the term for specific heat, $C_p = 1 \text{ BTU}/(\text{lb } ^\circ\text{F})$ in wasteload allocation equations. Since specific heat multiplied by temperature equals energy (kcals), including this term will clarify how kcals were derived from temperature.

Response: ODEQ agrees that, from a management standpoint, it would be helpful to have the maximum effluent temperature values provided. However, we do not know these values at this time. Section 5.13.1 describes the procedure that will be used to reissue the permits for these point sources which will include collecting the data necessary to determine the maximum effluent temperatures.

The suggested sentence was added to the third paragraph of Section 4.6 Loading Capacity. ODEQ believed that this clarifying sentence should be added at the beginning of the discussion of loading capacity. ODEQ did not feel that the suggested clarifying equation would be useful to add. The relationship between heat and temperature is described more fully in the Section on Analytical Methodology (new Section 6.1).

EPA-21: Chapter 5 - Water Quality Management Plan: Inclusion of an implementation plan as part of a TMDL is valuable and progressive. After all, the purpose of Section 303(d) of the Clean Water Act is

restoration of waterbodies not meeting water quality standards. Listing and analysis are preliminary steps. The implementation plan is the key to getting measures on the ground where needed in order to meet specific targets and goals laid out in the TMDL. We are pleased that development of WQMPs is an integral part of Oregon's TMDL process.

We recognize that while the Water Quality Management Plan is being submitted by DEQ as part of the TMDL, the Plan was developed by groups and agencies who have responsibility for the various components of the Plan (designated management agencies). Therefore EPA's comments on this Plan are directed toward the applicable designated management agencies.

The Western Hood Subbasin TMDL is a scientifically sound analysis of excellent data, establishing a connection between landscape condition and water quality, and translating loads into understandable and achievable surrogate targets such as site potential effective shade, and other potentially significant factors such as flow, groundwater inflow, and stream morphology aspects including stream bank erosion. As such, the TMDL is the primary mechanism to use in order to ultimately meet water quality standards. It is an excellent tool for improving overall watershed health. It is the tool that should provide the basis for this Water Quality Management Plan. We are delighted to see that some of the DMAs took this to heart as they developed action plans.

This Water Quality Management Plan is well thought out and includes appropriate DMAs. The framework for moving into the implementation phase is set by this document. The success for carrying it out depends on follow-through, coordination, and resources dedicated to review, tracking, monitoring, and analysis for decision-making. It is not yet clear how all of the detailed implementation plans from the DMAs will be reviewed and coordinated for this specific subbasin. A crucial step in setting the direction of implementation is the choice of benchmarks and milestones to measure progress and effectiveness. How will these be decided upon in the initial round of implementation plan review after this TMDL is approved? We will miss a key opportunity to make significant progress if we wait five years to choose appropriate benchmarks.

Response: ODEQ acknowledges the comments and recognizes that EPA does not formally approve the WQMP. The WQMP does however affect the implementation of the TMDL, and therefore gives reasonable assurance of implementation. Ultimately ODEQ and EPA must decide whether the WQMP is sufficient to fulfill Section 303(e) of the Clean Water Act – the State's continuous planning process to implement TMDLs. Current ODEQ policy is that the WQMP, with its development guided by ODEQ and land managers, represents the best available planning at this time and scale, within the designated document preparation time-frame. The plan calls for and provides framework for incorporation of additional planning. Programs and policies to implement the WQMP will be improved over time. ODEQ accepts that management planning is an ongoing process and that time available to prepare the WQMP is limited. ODEQ will continue to coordinate with the DMAs in the selection of appropriate benchmarks and milestones to be used in measuring progress and effectiveness of the TMDL.

EPA-22: Chapter 5 - Water Quality Management Plan: This TMDL is particularly strong in its analysis of site potential effective shade according to potential vegetation zones and historic conditions. These are valuable in providing context and guidance - a mental picture - for land management options. Another strength is inclusion of hydrology, ground water input, streambank erosion, channel morphology, and cool microclimates as margin of safety aspects which are likely to be locally significant. Sediment loading is also an important component of channel morphology alteration which significantly impacts temperature. Some sediment and erosion control measures have been identified in the initial list in Table 21. We recommend including more of them (erosion control under agricultural practices for example).

Response: Erosion control measures were added to a number of the Source Categories as suggested in Table 21 (new Table 20).

EPA-23: Chapter 5 - Water Quality Management Plan: Based on existing monitoring, research, and assessment data, we encourage DEQ and the DMAs to utilize their relevant authorities to initiate changes to management practices so they better align with TMDL allocations and associated surrogate measures. For example, in the December 2000 DEQ/ODF Temperature Sufficiency Analysis, DEQ and ODF jointly found that "there are water quality impairments due to forest management activities even with FPA rules and BMPs in place." Data from the DEQ/ODF CWA Section 319 shade study documents shade and

basal area clearly demonstrate that forest management under the Oregon Forest Practices Act reduces shade significantly below the levels necessary to achieve the Western Hood Subbasin load allocations. In addition, this study verifies that the TMDL allocations established for Western Hood Subbasin are achievable. Under the 1998 DEQ/ODF Forestry MOU, a joint finding of FPA related impairment leads to DEQ/Board of Forestry use of the State's basin rule change provisions (OAR 629-635-120) to create watershed specific rules, or use of other existing authority, to ensure that forest management activities do not impair water quality. Consequently, we would expect that the Forest Practices Rules and BMPs will be revised and improved to better align with allocations in TMDLs. Otherwise, the temperature impairments will persist, water quality standards will not be achieved, and recovery of salmon species may be compromised.

Response: ODEQ appreciates the comments and will make sure implementation of all provisions in our agreement with the Oregon Department of Forestry are implemented.

EPA-24: Chapter 5 - Water Quality Management Plan: EPA's evaluation of current agricultural and urban BMPs also suggests that changes may be required in order for load allocations established by these TMDLs to be met. We expect that DEQ and the DMAs will make the modifications necessary to attain the load allocations. Many of the recommended management practices in the Hood River Agricultural Water Quality Management Area Plan are good, for instance the "maintain adequate vegetation along streams" section in Table 3 of the 1010 plan. If the site potential vegetation components of the TMDL are adopted as targets, this will provide excellent guidance to a detailed implementation plan.

Response: ODEQ appreciates the comments. As identified in the WQMP, once the TMDL is approved by EPA, the agricultural and urban DMAs will need to modify their existing implementation plans (as is the case for the Oregon Department of Agriculture), or develop a new one (as is the case for the City of Hood River and Hood River County).

EPA-25: Chapter 5 - Water Quality Management Plan: Future tracking and monitoring efforts should be designed to indicate progress in meeting the allocations and to support the adaptive management process. It is our expectation that the next iteration of the WQMP will more specifically describe how the planned implementation activities will achieve the allocations established in this TMDL and contain benchmarks for attainment of TMDL surrogates. We also expect that tracking and monitoring will be designed to evaluate progress toward attainment of benchmarks with a provision for modification or redirection of implementation actions. If these expectations are not met and implementation practices are not modified so that they align with the TMDL allocations, we expect DEQ to make appropriate changes to the TMDL and WQMP during the 5-year review.

Response: ODEQ acknowledges and appreciates this comment. As mentioned in the response to comment EPA-21, ODEQ will continue to coordinate with the DMAs in the selection of appropriate benchmarks and milestones to be used in measuring progress and effectiveness of the TMDL.